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AMBULATORY DISCHARGE AFTER COLORECTAL RESECTION: HOW EARLY A DISCHARGE AFTER SURGERY IS FEASIBLE AND SAFE?

GS1

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Purpose/Background: The feasibility and safety of ambulatory (23-hour stay) surgery and same-day discharge (<12-hour stay) in patients undergoing colorectal resection has recently been demonstrated by our group. We evaluate outcomes for patients discharged early from the post-anesthesia care unit (PACU) at 6-8 hours post-surgery.

Methods/Interventions: Between October 2020 and September 2022, suitable patients undergoing colorectal resection (excluding complex procedures such as ileoanal pouch, enterocutaneous fistula repair, reoperative pelvic surgery, multiple resections and/or ostomy creation) with predetermined criteria were offered discharge from the PACU at 6-8 hours post-surgery or within 24 hours after surgery. All patients undergoing similar procedures over the two-year period were identified from a prospective institutional database, and characteristics and outcomes were compared for those discharged the same calendar day at 6-8 hours or less after surgery (early discharge or EaD), <24 hours after surgery (ambulatory or AMB), and >24 hours after surgery (inpatient or INP). Data were analyzed using Kruskall-Wallis and ANOVA tests.

Results/Outcome(s): Of 168 patients undergoing colorectal resection, 52 (31%) were discharged <24 hours: 11 within 6-8 hours (EaD, 7%) and 41 within 8-24 hours (AMB, 24%). AMB included 7 patients (4%) who were discharged the same day at <12 hours (total same-day discharges: 18 patients (11%)). EaD, AMB, INP had similar age, gender, race, and BMI. INP had higher ASA class 3/4 (EaD 27%, AMB 27%, INP 47%, p=0.04). The most common operations were laparoscopic sigmoidectomy (EaD 36%, AMB 49%, INP 38%) and laparoscopic right hemicolectomy (EaD 46%, AMB 17%, INP 20%). 100% of EaD underwent laparoscopic surgery, compared to 95% of AMB and 88% of INP. Operative time was significantly shorter for EaD (median 87 minutes [IQR 67-106] vs. AMB 114 [90-135] vs. INP 122 [98-150], p=0.006) and estimated blood loss lower (mean 6 mL vs. AMB 53 vs. INP 96, p=0.002). Median length of stay was expectedly lower for EaD at 6.5 hours [3.6-6.9] vs. AMB 21.9 [18.3-22.8] and INP 66.5 [44.3-105] (p<0.0001), while readmission rates were similar (EaD 9%, AMB 7%, INP 7%, p=0.9). There were no deaths while anastomotic leak, postoperative ileus and surgical site infection rates were similar. Four INP patients (3%) required reoperation. INP also had a higher rate of transfusion (14%) while no EaD or AMB patients required transfusion (p=0.02). A sub-analysis of EaD vs. patients discharged at 12 hours (same-day surgery) revealed that preoperative characteristics and outcomes were similar.

Conclusions/Discussion: With preoperative counselling, standardized perioperative care protocols and postoperative follow-up, selected patients can be safely discharged home from PACU as early as 6-8 hours after colorectal resection without adversely influencing readmission or outcomes.

Table 1. Patient Characteristics and Outcomes

	<6-8 hours EaD (n=11)	8-24 hours AMB (n=41)	>24 hours INP (n=116)	P
Age, years (median, IQR)	55.2 [49.6–69.1]	55.3 [46.5–67.3]	63.8 [47.4–73.6]	0.38
Female	4 (36.4%)	21 (51.2%)	66 (57%)	0.39
Race (white vs not)	8 (72.7%)	28 (68.3%)	76 (65.5%)	0.86
Body mass index (median, IQR)	22.8 [20.2–28]	25.8 [21.9–29.6]	25.5 [22.6–28.9]	0.56
ASA class 3-4*	3 (27.3%)	11 (26.8%)	55 (47.4%)	0.04
Hypertension	1 (9.1%)	15 (36.6%)	41 (35.3%)	0.2
Diabetes	0 (0%)	4 (9.8%)	16 (13.8%)	0.36
Cardiac comorbidity	0 (0%)	2 (4.9%)	12 (10.3%)	0.33
Chronic obstructive pulmonary disease	0 (0%)	1 (2.4%)	3 (2.6%)	0.87
Chronic kidney disease	0 (0%)	1 (2.4%)	1 (0.9%)	0.68
Steroids	0 (0%)	0 (0%)	1 (0.9%)	0.8
Smoking (current or history)	2 (18.2%)	7 (17.1%)	19 (16.4%)	0.99
Prior abdominal surgery	0 (0%)	7 (17.1%)	26 (22.4%)	0.18
Indication				
Cancer	4 (36.4%)	15 (36.6%)	40 (34.5%)	0.97
Inflammatory bowel disease	2 (18.2%)	4 (9.8%)	19 (16.4%)	0.57
Diverticulitis	0 (0%)	13 (13.7%)	32 (27.6%)	0.10
Other	5 (45.5%)	9 (22.0%)	25 (21.6%)	0.20
Site of surgery				
Laparoscopic ileocolic resection	1 (9.1%)	5 (12.2%)	15 (12.9%)	0.93
Laparoscopic low anterior resection	0 (0%)	4 (9.8%)	6 (5.2%)	0.4
Laparoscopic left colectomy	0 (0%)	2 (4.9%)	9 (7.8%)	0.54
Laparoscopic right colectomy	5 (45.5%)	7 (17.1%)	23 (19.8%)	0.11
Laparoscopic sigmoid colectomy	4 (36.4%)	20 (48.8%)	44 (37.9%)	0.46
Laparoscopic subtotal colectomy	0 (0%)	1 (2.4%)	2 (1.7%)	0.86
Laparoscopic transverse colectomy	1 (9.1%)	0 (0%)	3 (2.6%)	0.21
Open ileocolic resection	0 (0%)	0 (0%)	4 (3.4%)	0.4
Open low anterior resection	0 (0%)	0 (0%)	1 (0.9%)	0.8
Open right colectomy	0 (0%)	1 (2.4%)	5 (4.3%)	0.69
Open sigmoid colectomy	0 (0%)	1 (2.4%)	2 (1.7%)	0.86
Open transverse colectomy	0 (0%)	0 (0%)	2 (1.7%)	0.64
Length of stay, hours (median, IQR) ***	6.45 [3.6–6.9]	22.2 [21.3–22.9]	66.5 [44.3–105]	<0.0001
Operating time, min (median, IQR) **	87 [67–106]	114 [90–135]	122 [98–150]	0.006
Estimated blood loss, mL (mean, IQR) **	6.4 [5–5]	53 [5–45]	96 [5–150]	0.001
Readmission	1 (9.1%)	3 (7.3%)[1]	8 (6.9%)	0.86
Reoperation	0 (0%)	0 (0%)	4 (3.4%)	0.4
Death	0 (0%)	0 (0%)	0 (0%)	NA
Leak	0 (0%)	0 (0%)	6 (5.2%)	0.25
Ileus	1 (9.1%)	0 (0%)	7 (6.0%)	0.24
Obstruction	0 (0%)	1 (2.4%)	2 (1.7%)	0.86
SSI	0 (0%)	0 (0%)	3 (2.6%)	0.51
Abscess	0 (0%)	1 (2.4%)	2 (1.7%)	0.86
Transfusion*	0 (0%)	0 (0%)	16 (13.8%)	0.02

[1] One patient was readmitted for hemodynamically stable hematochezia

IMPLEMENTATION OF ELECTRONIC SELF-SCHEDULING OF COLONOSCOPY.

GS2

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Purpose/Background: Colorectal cancer (CRC) is the second leading cause of cancer-related deaths in the United States and worldwide. Colonoscopy remains the gold-standard screening test. To address staffing shortages, the increasing backlog of colonoscopies related to COVID-19, and recently updated guidelines decreasing the age of CRC screening, we have implemented an electronic colonoscopy self-scheduling system to address these needs. The primary endpoint was the utilization of the new system. Secondary outcomes were cost-effectiveness and patient satisfaction.

Methods/Interventions: In this single institutional retrospective observational study, we analyzed the data of all patients referred to our institution for screening colonoscopy. Group A included those patients who underwent the process of scheduling and completing their colonoscopy

in the 6-months prior to implementation of the electronic system (January 2021 – June 2021). Group B were individuals who underwent the process in the 6-months after implementation (October 2021 – March 2022). Data from both groups were compared, the cost savings of the new system was evaluated, and the patients in group B were surveyed about their experience with this new system.

Results/Outcome(s): Out of the 9,395 patients included in this study, 4,365 patients were in group A. Seventy percent (n=3,079) of those were scheduled for colonoscopy, all by staff. Of those scheduled, 1,715 (56%) underwent colonoscopy within six months. In group B, there were 5,030 patients, seventy-six percent (n=3,844) of whom were scheduled for colonoscopy. 2,326 (60.5%) were scheduled by staff and 1,518 (39.5%) electronically. Colonoscopy was completed in 1242 (53%) of staff-scheduled patients and 768 (51%) of electronically scheduled patients (p=0.225). There was a significant decrease in the proportion of patients scheduled by staff before and after implementation of the new system (100% vs. 60.5%, p<0.001). In group B, the "no-show" rate was significantly lower in electronically scheduled patients compared to staff scheduled patients (142 [9.4%] vs. 449 [19.3%], p<0.001). Electronic self-scheduling of colonoscopies demonstrated cost saving with an average of $15.42 saved per procedure for a total savings of $23,408 in the six-month post-implementation period. The survey of patients in group B demonstrated that 64.7% preferred electronic self-scheduling, and 76.4% plan to do so in the future. Positive comments centered on efficacy and convenience. Negative comments centered on colon preparation instructions. Of those patients who performed electronic scheduling, 27% were performed outside of business hours (9am-5pm).

Conclusions/Discussion: Implementing an electronic self-scheduling colonoscopy system is an innovative approach that is convenient, cost-effective, efficient, and has high patient satisfaction. The transition from staff scheduling to this new system should be considered for patients requiring routine screening or surveillance colonoscopies.

Table 1: Comparison of colonoscopies scheduled and completed before and after implementation of an electronic self-scheduling system

	Group A (6 months pre-implementation) (Referrals N=4365)	Group B (6 months post-implementation) (Referrals N=5030)	p-value
Patients able to schedule electronically, n (%)	4,048 (92.7)	4,338 (86.2)	<.001
Scheduled for Colonoscopy, n	3,079	3844	
▪ Staff scheduled, n (%)	3,079 (100)	2,326 (60.5)	<.001
▪ Electronically scheduled, n (%)	0	1,518 (39.5)	NA
Completed Colonoscopy			
▪ Staff scheduled, n (%)	1,715 (56)	1,242 (53)	.028
▪ Electronically scheduled, n (%)	0	768 (51)	NA
No Shows			
▪ Staff scheduled, n (%)	489 (15.9)	449 (19.3)	.001
▪ Electronically scheduled, n (%)	0	142 (9.4)	NA

COMPLICATIONS FOLLOWING RECENT AND DISTANT NEOADJUVANT RADIATION IN RECTAL CANCER.

GS3

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Purpose/Background: Neoadjuvant chemoradiotherapy (nCRT) is standard of care in locally advanced rectal cancer. Radiation therapy is known to induce fibrotic change in tissues which can make surgery more challenging. With adoption of total neoadjuvant therapy (TNT) protocols, time between completion of radiation and surgical resection are increasing which may lead to increased operative difficulty and complications.

Methods/Interventions: Single institution retrospective review of rectal cancer database for patients with nCRT from 2015-2022. Patients were dichotomized into two cohorts: surgery <90 days from end of radiation, and ≥90 days from radiation to surgery. Institutional data was compared to the national NSQIP rectal cancer data from 2015-2020. Primary outcome was technical operative outcomes, secondary outcomes included: oncologic outcomes, and overall 30-day complications.

Results/Outcome(s): We identified 119 institutional patients, 96 ended radiation <90 days before surgery, 23 ended radiation ≥90 days after surgery. Baseline demographics, tumor stage, and operative characteristics did not differ among groups. 30-day complication rates, postoperative outcomes, technical complications, and overall 30-day complications did not differ among groups. There was no difference in margin positivity rates or number of lymph nodes harvested. There was greater percentage of a complete mesorectal envelope in the <90 day group (92% vs 65%, p=0.008), and more nearly complete envelope in the ≥90 day group (23% vs 4%, p=0.036). When evaluating national data, 3059 patients were included in analysis, 2029 ended radiation <90 days before surgery and 1030 national patients ended radiation ≥90 days after surgery. There was an equal percent of patients with clinical stage 2 disease between groups (49% vs 50%, p=0.56); more patients had stage 3a disease in the ≥90-day group (3.6% vs 9.5%) and 3b in the <90-day group (37% vs 31%) p<0.001. Operative time, conversion to open, and lymph node harvest did not differ between groups. Patients without radiation 90 days before surgery had higher radial margin positivity (9.2% vs 4.6%, p<0.001), greater rate of organ space infection (8.6% vs 6.4%, p=0.026) and pneumonia (2.2% vs 0.9%, p=0.01).

Conclusions/Discussion: In our institution there were no differences in rate of technical or short-term complications in patients with ≥90 days between nCRT and surgery. Lymph node harvest and margin positivity did not differ, but more patients had non-complete mesorectal envelopes in the ≥90-day group. In the national dataset there were

similar findings in technical outcomes, however there was increased rate of radial margin positivity in ≥90 day group. Despite increased pelvic tissue fibrosis following distant radiation, we did not find an increase in adverse technical outcomes. Prospective studies, evaluating type of neoadjuvant treatment received, and impact in surgery is warranted as therapies change in rectal cancer management.

Institution Data	Total (n= 119)	<90 days rads to surgery (n=96)	≥90 days rads to surgery (n=23)	p-value
Operative time (mins), median (IQR)	224 (217, 306)	242 (218, 301)	259 (217, 345)	0.47
Estimated blood loss (CCs), median (IQR)	50 (50, 150)	50 (50, 150)	100 (50, 200)	0.17
Unplanned conversation to open, n (%)	5 (4)	4 (4)	1 (4)	1.0
Technical complication	7 (6)	6 (6)	1 (4)	1.0
Leak rate, n (%)	4 (3)	3 (3)	1 (4)	0.58

	Total (n= 119)	<90 days rads to surgery (n=96)	≥90 days rads to surgery (n=23)	p-value
Radial Margin distance (cm), median (IQR)*	0.6 (0.2, 1.2)	0.6 (0.2, 1.4)	0.45 (0.1, 0.9)	0.16
Number positive radial margin	11 (12)	7 (9)	4 (22)	0.21
Complete tumor response/missing data	23/3	19/2	4/1	
Distal Margin distance (cm), median (IQR)*	3.1 (1.5, 4.5)	3.2 (1.5, 4.5)	3 (1.5, 4.5)	0.66
Number positive distal margin	1 (1.1)	1 (1.4)	--	1.0
Complete tumor response/missing data	23/7	19/6	4/1	
Intact mesorectal envelope				
no data	54	48	6	
Complete	55 (85)	44 (92)	11 (65)	0.008
Nearly complete	6 (9)	2 (4)	4 (23)	0.036
Incomplete	4 (6)	2 (4)	2 (12)	0.278
# of nodes collected, mean (sd)	17 (5.1)	17 (5.0)	15 (5.4)	0.18

*Radial margin: (3 missing, 23 complete response), distal margin: (7 missing, 23 complete response)

IMPLEMENTATION OF A MULTIMODAL ENHANCED RECOVERY PROTOCOL IN AMBULATORY ANORECTAL SURGERY: A RANDOMIZED TRIAL.

GS4

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Purpose/Background: Few studies report outcomes for enhanced recovery pathways (ERP) in ambulatory anorectal surgery. We hypothesize that an ambulatory anorectal ERP with multimodal preoperative and postoperative analgesia can reduce postoperative opioid use. Here we report the results of a randomized clinical trial comparing postoperative opioid use in ambulatory anorectal surgical patients receiving a multimodal ERP vs. standard of care.

Methods/Interventions: A single center randomized trial of patients undergoing elective anal fistula or hemorrhoid surgery was conducted from September 2018 to May 2022. Patients were stratified by surgery type and randomized 1:1 to multimodal ERP (Arm E) or No ERP (Arm NE). Patient demographics, pain score, nausea, and urinary function using the International Prostate Symptom Score (I-PSS) were recorded pre- and postoperatively. All patients voided 30 minutes before surgery, underwent monitored anesthesia care, minimization of IV fluids, and received a standardized perianal and bilateral pudendal nerve block. Patients in Arm E received preoperative oral gabapentin 600mg, oral acetaminophen 1000mg and intraoperative ketorolac IV 30mg. Postoperatively, patients in Arm E received oral gabapentin 300mg q8hr, oral acetaminophen 1,000mg q8hr, oral ketorolac 10mg q8hr, and PRN oral oxycodone 5mg q6hr. Patients in Arm NE received oxycodone 5mg q6hr PRN and could supplement with acetaminophen and ibuprofen as needed. Patients kept a daily log of pain, nausea, and medications. The primary endpoint was oral morphine milligram equivalents (MME) use during the first postoperative week. Secondary endpoints included maximum pain and nausea visual analogue scores, adverse events and emergency room or hospital admissions during the first 30 days postoperatively. Fisher's Exact Test and Mann-Whitney U-test were used to compare outcomes.

Results/Outcome(s): Of the 111 enrolled patients, 22 were lost to follow-up. The remaining 89 patients had a median age of 38 (range, 20-67) years and included 41 (46%) females. There were no significant differences between the E and NE arms in terms of preoperative and surgical characteristics (Table). The study primary endpoint, oral MME use during the first week, was significantly higher among patients in the NE arm (79mg; range: 0-600) than patients in the E arm (8mg; range: 0-390) ($p=0.002$). On subgroup analysis, both fistula and hemorrhoid surgery patients assigned to the NE arm took significantly higher oral MME in the first week than patients in the E arm. There was no significant difference in secondary endpoints.

Conclusions/Discussion: The results of our trial show that standardized multimodal analgesia decreases postoperative opioid use with no impact on postoperative pain scores in ambulatory anorectal surgery patients. We support implementing an ERP including multimodal analgesia for patients undergoing elective anal fistula and hemorrhoid surgery.

	Cohort (n=89)	Arm E (n=45)	Arm NE (n=44)	P-value
Baseline Characteristics				
Age	38 (20-67)	38 (20-67)	39 (23-59)	0.67
Gender (Female)	41 (46)	25 (56)	16 (36)	0.09
BMI	25 (17-46)	24 (17-34)	26 (20-46)	0.25
Preoperative I-PSS	0 (0-16)	0 (0-13)	0 (0-16)	0.52
Intraoperative fentanyl dose (mcg)	100 (0-250)	100 (0-150)	100 (0-250)	0.86
PACU MME	0 (0-20)	0 (0-13)	0 (0-20)	0.63
Primary Study Endpoint				
Oral MME use	38 (0-600)	8 (0-390)	79 (0-600)	0.002
Fistula surgery	8 (0-213)	8 (0-169)	30 (0-213)	0.03
Hemorrhoid surgery	83 (0-600)	60 (0-390)	148 (0-600)	0.03
Secondary Study Endpoints				
Pain on arrival to PACU	0 (0-10)	0 (0-9)	0 (0-10)	0.51
Pain on discharge from PACU	0 (0-8)	0 (0-8)	1 (0-8)	0.16
Maximum daily pain score postoperative day 0-7	8 (0-10)	7 (0-10)	8 (0-10)	0.31
Fistula surgery	4 (0-10)	5 (0-10)	4 (0-10)	0.63
Hemorrhoid surgery	9 (1-10)	9 (1-10)	9 (7-10)	0.66
Median daily pain score postoperative day 0-7	5 (0-10)	4 (0-10)	6 (0-10)	0.07
Fistula surgery	2 (0-10)	1 (0-8)	4 (0-10)	0.17
Hemorrhoid surgery	7 (0-10)	6 (0-10)	8 (3-10)	0.29
Maximum daily nausea score postoperative day 0-7	0 (0-2)	0 (0-2)	0 (0-2)	0.38
I-PSS	5 (0-34)	5 (0-34)	5 (0-29)	0.88
Days to first bowel movement	1 (0-7)	1 (0-5)	1 (0-7)	0.32
30-day adverse event	6 (7)	4 (9)	2 (5)	0.68
30-day ER or inpatient care	1 (1)	1 (2)	0	1.00

Values expressed as median (range) or n (%)
BMI body mass index; I-PSS international prostate symptom score; PACU post anesthesia care unit; MME morphine milligram equivalents; ER emergency room

MORE PROBLEMS, MORE MONEY: IDENTIFYING HIGH-COST RESCUE AFTER COLORECTAL SURGERY.

GS5

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Purpose/Background: Successful rescue after elective surgery is associated with increased healthcare costs, but costs after rescue events vary widely. Treating all rescue events with a cost-agnostic perspective may overlook targeted opportunities for preventing or reducing the costliest rescue events. The purpose of this study was to assess variability in the costs of rescue after elective colectomy and identify high-cost predictors.

Methods/Interventions: We identified adult patients from the National Inpatient Sample 2016-2019 who underwent elective colectomy or proctectomy within 48 hours of admission using ICD-10-PCS codes. Rescued patients were defined as those who underwent additional major procedures after index colorectal resection. Patients were stratified into three groups: 1) uneventful recovery (no additional procedures after index surgery); 2) Low-cost rescue (rescued patients whose total charges <75th percentile of all rescued patients), 3) High-cost rescue (≥ the 75th percentile). Patients who died prior to discharge were excluded. All data were weighted to be representative of the entire U.S. population. Multivariable Poisson regression was use to identify preoperative clinical predictors of high-cost versus low-cost rescue.

Results/Outcome(s): Of 451,765 admissions for elective colorectal resection, 429,945 (95.2%) recovered uneventfully, while 21,280 (4.8%) underwent rescue procedures. Median total costs of inpatient care were: $16,228 (IQR: $12,204-22,427) in the uneventful recovery group, $33,618 ($23,878-45,565) in the low-cost rescue group, and $93,012 ($75,5120-128,129) in the high-cost rescue group (p<0.001). High-cost rescue was driven primarily by length of stay (median 25 days vs. 11 days for low-cost rescue, p<0.001) and additional subsequent procedures performed (median 3 vs. 1, p<0.001). High-cost rescue included more returns to the operating room (76.2% vs. 54.9%, p<0.001) and ICU-level critical care procedures (56.9% vs. 33.0%, p<0.001) compared with low-cost rescue. Preoperative characteristics independently associated with higher cost of rescue included heart disease (congestive heart failure, IRR [95% CI]: 1.53 [1.31-1.78]; atrial fibrillation, 1.36 [1.18-1.57]) and surgical indication (e.g. colorectal cancer vs. diverticular disease 1.33 [1.10-1.60]).

Conclusions/Discussion: Rescue after colorectal surgery is associated with a doubling of inpatient costs; the costliest patient quartile incurs total costs five times higher than those with uneventful recovery. Although rescue events are an important quality measure, high-cost rescue (returns to the operating room, ICU-level care) may be a more relevant measure of value. Therefore, high-cost rescue offers a target for healthcare value improvement.

FDXR IS A PREDICTIVE BIOMARKER OF RADIATION RESISTANCE IN RECTAL CANCER.

RF1

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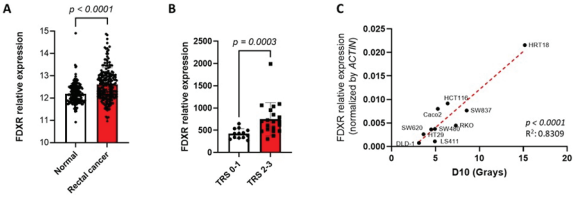
Purpose/Background: Neoadjuvant chemoradiation therapy (nCRT) is recommended for locally advanced rectal cancer. Response to radiation is highly variable and correlates with oncologic outcomes. There are currently limited biomarkers or molecular targets to predict or improve radiation response, which could help develop personalized treatment and ideally targeted therapies. We identified the gene FDXR coding the adrenodoxin reductase, a protein involved in electron transport of mitochondrial P450 system, as a potential biomarker of radioresistance.

Methods/Interventions: FDXR gene expression was evaluated in a publicly available database (GSE87211) comparing levels in healthy and rectal cancer patients. mRNA was obtained from pretreatment rectal cancer biopsies from patients who then underwent long course nCRT and surgery. FDXR gene expression was measured from these samples and analyzed against the treatment response according to AJCC pathology tumor regression scores (TRS). FDXR gene expression was measured in a panel of colorectal cancer cell lines by RT-qPCR and correlated with radiobiological indexes IC50 (dose in Gray to kill 50% of cells), D10 (dose in Gray to obtain 10% cell survival), and SF2 (surviving cell fraction after 2 Gy of irradiation), obtained using a clonogenic survival assay.

Results/Outcome(s): FDXR gene was significantly overexpressed in rectal tumors compared to healthy tissues in Gaedcke cohort of 243 patients (GSE87211; p<0.0001) [Figure 1A]. In our rectal cancer patient cohort, FDXR gene expression was consistently elevated in TRS 2-3 (poor responders) compared to TRS 0-1 (good responders) (p=0.0003) [Figure 1B]. Receiver operating characteristic analysis revealed that FDXR expression level had an AUC of 0.8577 (p=0.0006), indicating a strong predictive power for identifying responders from poor responders. FDXR expression was found to vary across 9 colorectal cancer cell lines. Importantly, FDXR expression positively correlated to multiple radiosensitivity indexes IC50 (p<0.0001), SF2 (p=0.0001) and D10 (p<0.0001) [Figure 1C].

Conclusions/Discussion: FDXR gene expression is a predictive biomarker for rectal cancer radiation sensitivity. Further work is needed to validate this in larger populations, and to determine the biological mechanisms through which it works and assess its potential as a druggable target.



ANGIOGENIN-1 REGULATES INTESTINAL CARCINOGENESIS INDUCED BY TARGETED DELETION OF APC IN LGR5+ STEM CELLS.

RF2

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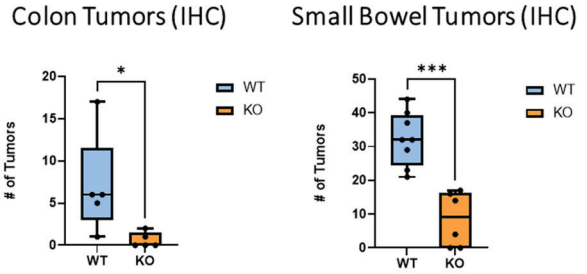
Purpose/Background: Angiogenin-1 (Ang1) is a 14-kDa ribonuclease that was the first tumor-derived angiogenesis protein. The role of Ang1 on the development of Apc-mediated colorectal cancer has not been well studied.

Methods/Interventions: Experiments utilized Apc conditional knock-out mice ((Apc$^{fl/fl}$;Lgr5 $^{eGFP\text{-}CreER/+}$), an inducible intestinal cancer mouse model using tamoxifen-dependent Cre recombinase to block the expression of Apc in Lgr5^{+}-expressing intestinal stem cells. Apc$^{fl/fl}$; Lgr5$^{eGFP\text{-}CreER/+}$ mice were crossed with Ang1 knock-out mice, a whole-body homozygous knockout strain, to create Apc$^{fl/fl}$; Lgr5 $^{eGFP\text{-}CreER/+}$ mice that do not express Ang1. Apc$^{fl/fl}$; Lgr5 $^{eGFP\text{-}CreER/+}$ mice on both a wild-type (WT, n=8) and Ang1-KO (n=9) background were then injected with tamoxifen (75mg/kg, I.P.) to activate Cre recombinase. Three weeks after injection of tamoxifen, a mouse colonoscopy was performed using a Karl Storz Coloview minienDoscopic system. Small bowel (SB) and colon tissue was evaluated macroscopically and by immunohistochemistry.

Results/Outcome(s): On macroscopic evaluation, WT mice developed significantly more tumors in the distal SB (367 tumors in 8 mice) compared to Ang1-KO mice (10 tumors in 9 mice), mean=45.88 (WT) vs 1.25 (Ang1-KO), P<0.05. Similarly, in the colon WT mice developed significantly more tumors (25 tumors in 8 mice) compared to Ang1-KO mice (14 tumors in 9 mice), mean=3.13 (WT) vs 1.56 (Ang1-KO), p<0.05. This difference in Apc-mediated tumor number was confirmed histologically in both SB [mean=32.25 (WT) vs 8.50 (KO), p<0.05] and colon [mean= 7.00 (WT) vs 0.6 (KO), p<0.05]. WT mice also developed significantly larger tumors in the distal SB [microscopic tumors <0.5mm: mean 15.5 (WT) vs 7 (KO), p<0.05; 0.5-1mm tumors: 8.4 tumors (WT) vs 1.5 (Ang1-KO), p<0.05; tumors >1mm: mean 8.2 tumors (WT) vs 0 (KO), p<0.05] and colon [large (3+ crypts): 3 tumors (WT) vs. 0 (Ang1-KO), p<0.05).

Conclusions/Discussion: In a mouse model of intestinal carcinogenesis induced by targeted deletion of Apc in Lgr5^{+} stem cells, Ang1-KO mice developed significantly fewer and smaller tumors compared to WT mice in both the small intestine and the colon. Ang1 appears to regulate both Apc-mediated tumor initiation and progression and may play an important role in intestinal carcinogenesis.



BENZOFURAN-ISATIN CONJUGATE (5D) PRESENTS ANTICANCER ACTIVITIES IN VITRO ASSOCIATED WITH CYCLIN, APOPTOTIC PROTEINS, P53, EMT ALTERATIONS, AND ENHANCES CHEMOSENSITIVITY IN HUMAN COLORECTAL CANCER CELL LINES.

RF3

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Purpose/Background: Colorectal cancer (CRC) is one of the most common malignant tumors in the global health problem due to its high prevalence and mortality rate. New anticancer agents are needed to treat advanced stage CRC and prevent cancer metastasis, the primary cause of morbidity and mortality. A novel synthesized benzofuran-isatin conjugate (3-methyl-N'-(2-oxoindolin-3-ylidene) benzofuran-2-carbohydrazide) named as 5d has recently shown potent anticancer effect in vitro on human colon adenocarcinoma HT29 and metastatic CRC (mCRC) SW620 cell lines. However, the mechanism underlying the anticancer activities remain unknown.

Methods/Interventions: Cytotoxicity was evaluated using MTT assay. The real-time cell proliferation, migration and invasion were measured by xCelligence RTDP instrument. Flow cytometry was used for cell cycle analysis and apoptotic status determination. Western blotting technology was employed to assess cyclins, tumor suppressor p53, apoptosis and epithelial-mesenchymal transition (EMT) marker protein expression levels.

Results/Outcome(s): The anticancer activities of the compound 5d were revealed by the inhibition of HT29 and SW620 cell proliferation, migration, invasion, and colony formation in a dose-dependent manner, compared with the untreated control cells. Both cell line exposure to the compound 5d resulted in a cell cycle arrest at the subG1 phase, indicator of apoptotic status, and a downregulation of cyclin A1, B1 and D1 expression was monitored in the compound 5d-treated cells. Furthermore, compound

5d-induced apoptosis was associated with the downregulation of the anti-apoptotic Bcl-xl marker, upregulation of pro-apoptotic Bax, p53 and cytochrome c markers, and increased mitochondrial outer membrane permeability, suggesting the involvement of mitochondria-dependent apoptosis pathway. The compound 5d also inhibited the colony formation ability of HT29 and SW620 cells and reversed EMT markers E-cadherin and N-cadherin expression. In addition, the combination studies of the compound 5d with the main conventional chemotherapeutic drugs 5-fluorouracil, irinotecan, and oxaliplatin showed a more potent cytotoxic effect in both CRC cells compared to a single treatment. Of note, the compound 5d exhibited stronger anticancer effects on mCRC SW620 cells than on colon adenocarcinoma HT29 cells.

Conclusions/Discussion: Our findings described the interesting in vitro anticancer properties of the compound 5d, shown to have possible antitumor, antimetastatic, and pro-apoptotic activities, with the enhancement of the cytotoxic efficiency of conventional chemotherapeutic drugs. In vivo studies are requested to confirm the promising anticancer potential of the compound 5d for CRC therapy.

LYRM1 PREDICTS NON-RESPONDERS TO RADIATION IN RECTAL CANCER PATIENTS.

RF4

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Columbus, OH

Purpose/Background: Neoadjuvant chemoradiation therapy (nCRT) is recommended for locally advanced rectal cancer. Patients with poor response have worse outcomes and potentially do not benefit from current treatment paradigms. Accurately identifying poor responders before treatment could avoid ineffective nCRT and favor proceeding directly to surgery or other treatment options. We sought to find such markers and identified the gene LYRM1 as a predictive biomarker for radiation non-responders in rectal cancer.

Methods/Interventions: We previously conducted mRNA microarrays for pretreatment rectal cancer biopsies from patients who underwent long course nCRT and then surgery. LYRM1 gene expression was identified as a potential target from that analysis. We then validated LYRM1 gene expression by RT-qPCR from these samples and analyzed them against the treatment response according to AJCC pathology regression scores. LYRM1 gene expression was measured in different colorectal cancer cell lines and quantified through RT-qPCR and correlated with radiobiological indexes IC50 (dose in Gray to kill 50% of cells), D10 (dose in Gray to obtain 10% cell survival), and SF2 (surviving cell fraction after 2 Gy of irradiation), obtained using a clonogenic survival assay.

Results/Outcome(s): Using an initial cohort of 33 patients on microarray analysis, LYRM1 gene expression was consistently elevated in patients with no response to nCRT (AJCC 3) compared to patients with a complete or partial response (AJCC 0-1-2); ($p=0.0064$). Receiver operating characteristic (ROC) analysis revealed that LYRM1 expression level had an AUC of 0.8132 ($p=0.0121$), indicating a strong predictive power for identifying non-responders. LYMR1 expression in individual patients was validated in a cohort of 21 patients, demonstrating significant overexpression in patients with a AJCC 3 response compared to all others (AJCC 0-1-2); ($p<0.0001$); [Figure 1A]. The validation cohort ROC revealed LYRM1 expression had an AUC of 1.000 ($p=0.0067$), confirming LYRM1 as a strong predictor of non-responders. LYRM1 expression varied across 9 colorectal cancer cell lines and levels directly correlated with radiosensitivity indexes D10 ($p=0.0004$), SF2 ($p=0.0011$) and IC50 ($p<0.0001$) [Figure 1B].

Conclusions/Discussion: LYRM1 expression is a predictive biomarker for rectal cancer patients who are non-responders to neoadjuvant radiation. Further work is needed to validate this in larger populations, to determine the biological mechanisms through which it works, and to assess its potential as a druggable target.

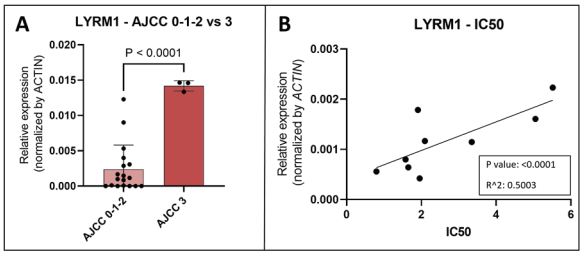

Figure 1: LYRM1 relative gene expression in (A) rectal cancer patients according to AJCC response score, and (B) in colorectal cancer cell lines with associated radiation sensitivity measured by IC50.

INFLAMMATORY ENHANCEMENT OF COLONIC ORGANOIDS TO STUDY THE ANTI-INFLAMMATORY EFFECT OF MESENCHYMAL STEM CELLS.

S1

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Purpose/Background: Mesenchymal stem cells (MSCs) have shown clinical efficacy in patients with Crohn's disease. However, little is understood about the underlying mechanism of action. This study aimed to investigate the underlying mechanism of MSCs' effect on preventing and treating inflamed colonic tissue using a patient-derived organoid model.

Methods/Interventions: 3D intestinal organoids were cultured from healthy donor colonic tissue up to passage 4, To mimic an inflammatory microenvironment, 20ng/ml of cytokines (TNF-α, IFN-γ, and IL-1β) were added to the organoid culture media for 24 hours; one organoid culture

was organoid alone, the second had cGMP manufactured bone marrow-derived MSCs ($2*10^5/cm^2$) already present (injury prevention), and the third culture had MSCs added after 24 hours for an additional 72 hours at a concentration of ($2*10^5/cm^2$) for the treatment of inflammation. NGS analysis and proteomics assay were performed for studying the post-translational modification effect of MSCs. Immunohistochemistry and immunofluorescent staining were performed for epithelial and inflammatory markers. The lysate and media of the co-cultured organoid with MSCs were analyzed for pro-inflammatory, cytokine, and chemokine panels with a V-plex human Elisa kit, and significant differences were confirmed by western blot.

Results/Outcome(s): In the cohort of organoid + MSC after inflammation, there was significantly higher viability, proliferation, and epithelial cell markers, and has less inflammation compared to organoids alone and organoids + pre-MSC. In the cohort of organoid + MSC after inflammation, the organoid morphology showed a fetal-like shape indicating tissue repair as compared to budding morphology seen in the organoid alone and organoid _pre-MSC. The epithelial marker (Epcam and E-cad) were significantly higher in the organoid +MSC cohort as well, comparatively. The results of cytokines showed that adding MSCs after organoid injury significantly increased the chemokine involved in protecting the inflammatory response, and significantly higher VEGF showed injury repair activation. Increased Claudin-1and decreased Claudin-2 gene and protein levels confirmed the injury repair on tissue effect of MSCs after injury.

Conclusions/Discussion: This organoid injury model shows that the MSCs therapy is not preventative, but has a promising effects in reducing inflammation and injury in colonic tissue

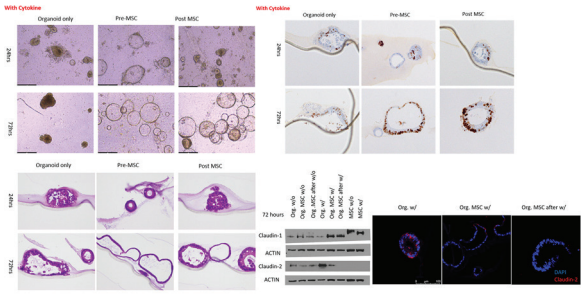

Figure 1- Bright field and H&E images show the morphology changes after MSCs co-culture compared to mono-culture. Ki-67 expression in co-culture is increased compared to organoid only. After hpMSC transplantation, the expression of tight junction protein claudin-1 at the gene and protein levels increased, while the expression of claudin-2 decreased after transplantation, indicating that cell transplantation can promote the recovery of the intestinal barrier.

COMBINING ANTAGONISM OF IL-23 ALONG WITH IMMUNOTHERAPY RESULTS IN LONG-TERM REMISSION IN PRECLINICAL MODELS OF COLON CANCER.

S2

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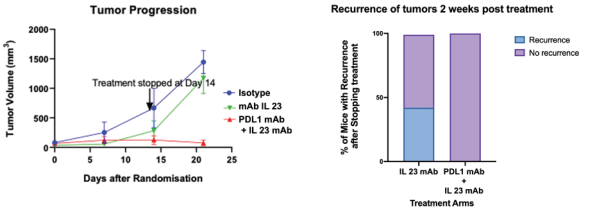
Purpose/Background: Patients with colorectal cancer who recieve Immunotherapy suffer from low response rates and high remission despite promising early results. IL-23 in the tumor microenvironment is known to modulate tumor immune response. We sought to find out if combining IL-23 inhibition with PDL1 antagonism would lead to long term remission in murine models of colorectal cancer.

Methods/Interventions: For remission model, a murine colorectal cancer cell line (MC-38) was implanted subcutaneously into C57/B6 mice and divided into following groups (i) isotype control (ii) immunotherapy (anti PD-L1) and (iii) anti-IL-23 antibody in combination of anti PDL1. After treatment for two weeks, only the mice that had complete tumor response were selected and followed for recurrence with periodic tumor measurements. At endpoint, tumors were subjected to single cell flowcytometry.

Results/Outcome(s): At the end of two weeks of treatment, a greater proportion of mice that were treated with combination of anti-Il-23 and anti-PDL1 antibody showed tumor regression compared to anti-PDL1 alone (70% vs 50%). Mice with only IL-23 inhibition had no difference in tumor growth compared to isotype control. When only the mice that had complete tumor regression were followed after end of planned treatment of two weeks, mice that recieved combination of anti-PDL1 and anti -IL23 had no tumor recurrence at 15 days of follow up versus 40% recurrence rate in mice who were treated with anti-PDL1 alone. No gross toxicities were identified on combination treatment. Flowcytometry analysis of immune infiltrate to study the change in immune tumor microenvironment showed greater proportion of immune cell infiltration on combination treatment.

Conclusions/Discussion: Combining IL-23 inhibition concurrently with immune check point inhibitor leads to long term remission in preclinical models of colorectal cancer and may hold promise in treatment of patients with advanced colorectal cancer.



MC-38 colon cancer cells were injected subcutaneously into the backs of WT C57/B6 mice and treated with isotype control (n=5), anti PDL1 antibody (n=8) and a combination of IL-23 and anti-PDL1 antibodies (n-8). Mice that had complete tumor regression after two weeks of treatment were selected and observed for tumor recurrence for two weeks more. Significantly greater proportion of mice treated with anti-PD1 alone had tumor recurrence compared to no recurrence in mice that had received the combination treatment.

EVALUATING COMBINATORIAL INHIBITION OF COMPLEMENT AND BCL2 FOR EARLY-ONSET COLORECTAL CANCER IN PRECLINICAL MODELS.

S3

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Purpose/Background: Our group previously demonstrated that the tumor immune microenvironment is distinct between early-onset and late-onset colorectal cancer (CRC) which facilitates tumor progression. Several genes, including complement factor D (CFD), complement component 7 (C7), and Bcl2 were found to have increased expression in early-onset CRC. In gain-of-function experiments, CFD was associated with higher tumor volumes and impacted three genes in mice that were also found to be differentially expressed in early-onset CRC (EGR1, PSMB9, and CXCL9). There is currently a CFD inhibitor (Danicopan) and Bcl2 inhibitor (Venetoclax) approved by the FDA for other indications. We hypothesized that using both a CFD and Bcl2 inhibitor, in combination, would slow growth of tumors and may possibly be used in the treatment paradigm for early-onset CRC.

Methods/Interventions: Ten female athymic nude mice were injected subcutaneously with tumor cells of the HCT-116 colon cancer cell line (derived from an early-onset patient) in the bilateral flanks to allow for growth of two primary tumors per mouse. After allowing for 6-days of tumor growth, the mice were randomized into two groups: five mice were injected daily for 7-days with intraperitoneal combination Danicopan (500μg) and Venetoclax (250μg), while the other five mice were injected with vehicle controls. Tumor volumes were recorded every other day. Experiments were ended on study day 14 and the rates of tumor volume change were compared over time.

Results/Outcome(s): Tumor volumes were calculated using length and width measurements obtained by a blinded member of the research team. By study end-point, the mean percent growth in tumor volumes compared to baseline in the control versus experimental groups were 451% and 233% respectively (p=0.07), as depicted in Figure 1. The combination of these drugs also resulted in toxicity with a decrease in body weight. Treatment with either drug alone did not result in significant tumor decrease in separate prior experiments.

Conclusions/Discussion: CFD and Bcl2 have previously been shown to be significantly upregulated in early-onset CRC. Our results demonstrate that treatment with a CFD and Bcl2 inhibitor, when used in combination, were able to slow the growth of tumors in a mouse model injected with a human early-onset derived colon cancer cell line. Our study limitations include effects of drug toxicity which might have contributed to early death of two mice in the experimental group prior to study end-point. There was, however, a clear effect with the combination treatment which resulted in slower growth of the tumors. Future studies will include optimizing safe medication dosages and evaluating the combinations in patient-derived and orthotopic models of early-onset colon cancer.

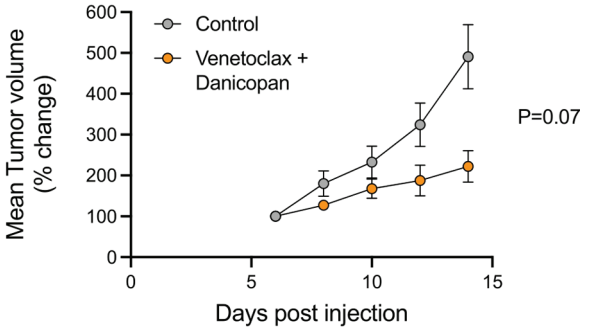

Figure 1. Percent volume change of HCT-116-derived tumors depicted over time after allowing 6-days for tumor growth. By study end-point on day 14, the control group had an increase in tumor volume of 451% and the treatment group had an increase in tumor volume of 233%, p=0.07.

RARE CODING VARIANTS IN TCHH ARE ASSOCIATED WITH PILONIDAL DISEASE.

S4

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Purpose/Background: Surgeons have long appreciated the clinical connection between hair and the development of pilonidal disease, but the underlying biology remains unknown. Trichohyalin is a structural protein of the hair follicle and is encoded by the gene TCHH. One known clinical manifestation of deleterious mutations in this gene is Uncombable Hair Syndrome (UHS), a rare disorder of unruly and wiry, although not fragile, hair. It is possible that TCHH plays a role in other hair-related disorders. We hypothesize that rare coding variants in TCHH are associated with pilonidal disease.

Methods/Interventions: We queried whole exomic sequencing data from participants in the Penn Medicine BioBank (PMBB, N = 43,731) for rare coding variants (mean allele frequency <0.1%) within TCHH associated with predicted loss of function (pLOF); specifically stop-gain, stop-loss, frame-shift, or disruption of a canonical splice site. We identified patients with pilonidal disease through association of a diagnostic code for pilonidal disease (ICD9 685, ICD-10 L05) or procedural code for pilonidal surgery (CPT 11770, 11771, 11772). We then examined for an association of pLOF mutations in TCHH with pilonidal disease using Firth's penalized logistic regression controlling for age, sex, and the first ten principal components of ancestry.

Results/Outcome(s): In the PMBB, neither pilonidal cysts nor pLOF TCHH varaints were common. Pilonidal cysts were found in 192 (0.4%) patients, and rare TCHH pLOF variants were found in 267 (0.6%) patients.

However, among rare variant carriers, pilonidal cyst was more common than among patients without rare variants, 2.6% p < 0.0003. Younger age (p <0.001) and female sex (p =0.04) were also associated pilonidal disease. Rare variants included two frameshift variants and three stop-gain variants in TCHH exons 2 and 3. One of the variants has been clinically associated with UHS. Logistic regression revealed that rare variant carriers had an elevated risk of pilonidal disease (OR = 4.81 [95% CI 2.06-11.2]).

Conclusions/Discussion: This small pilot study reveals that carriers of rare, predicted loss-of-function coding variants in the hair structural protein trichohyalin are more likely to develop pilonidal cysts. These early findings help reveal the biological underpinnings behind the long-appreciated connection between hair and the development of pilonidal disease.

THE IMPACT OF SARCOPENIA ON SURGICAL OUTCOMES IN COLORECTAL CANCER - THE INTERIM ANALYSIS OF TRANSLATIONAL STUDY EVALUATING CLINICAL OUTCOMES AND TRANSCRIPTOMIC REGULATORY ELEMENTS OF SARCOPENIA.

S5

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Purpose/Background: Sarcopenia, the loss of muscle mass, has been recognised to negatively influence surgical outcomes and reduce oncological survival. However, the regulatory process of sarcopenia is still poorly understood. We sought to study the impact of sarcopenia on surgical outcomes in patients undergoing colorectal cancer curative surgery and to explore the regulatory elements of sarcopenia pathogenesis.

Methods/Interventions: A prospective cohort study was conducted for colorectal cancer patients undergoing elective curative surgery in Sengkang General Hospital since September 2020. Patients were assessed for sarcopenia based on the Asia Workgroup for Sarcopenia 2019 diagnostic criteria. Details of their surgery and post-operative recovery were collected. Whole blood samples were collected immediately pre-operatively. Rectus abdominis muscles were harvested during their surgery. Satellite cells cell lines were isolated and established. To determine the mechanisms behind sarcopenia pathogenesis, transcriptomic sequencing was performed with the muscle tissue.

Results/Outcome(s): Between September 2020 to April 2022, 130 patients were recruited. The incidence of sarcopenia was 35.4% (46/130) with majority (71%, n=33) being male. Sarcopenic patients experiences a marginally longer mean time to gastrointestinal recovery (3.1 vs 2.9 days, p=0.253) and marginally longer mean length of hospitalization group (9.5 vs 9.2 days, p=0.284). The incidence of post-operative complications, defined as Clavien-Dindo ≥3, was slightly higher in the sarcopenic group (6.5% vs 2.4%, p=0.25). Satellite cells were successfully harvested and cell lines established in all patients. Through transcriptomic analysis of the muscle tissue and cells, pathways involved in immune and development processes such as TNF signalling and inflammatory responses were found to be upregulated in sarcopenic samples.

Conclusions/Discussion: Sarcopenia may result in increased surgical morbidity and lengthens hospitalization. Transcriptomics analysis have highlighted certain pathways implicated in the pathogenesis of sarcopenia. More multi-omics analysis would need to be conducted to fully map the process of sarcopenia to identify targetable regions.

DEVELOPMENT OF A NOVEL SYNGENEIC MODEL OF COLORECTAL LIVER METASTASES.

S6

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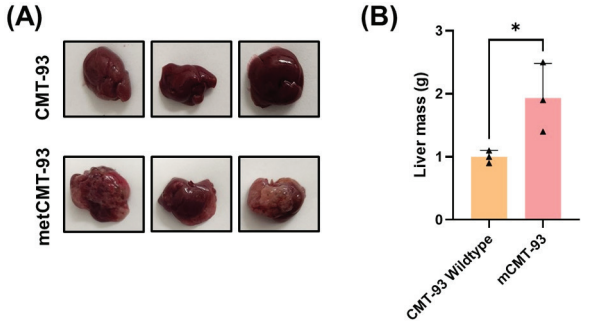
Miami, FL

Purpose/Background: With the success of immune checkpoint inhibition in the management of solid organ tumors, immunocompetent pre-clinical models that recapitulate the characteristics of spontaneous colorectal liver metastases (CRLM) are urgently needed to explore therapeutic combinations that invigorate the immune response and maximize the potential benefit of immunotherapy. In the present study, we develop a distinct murine cell line using in vivo selection of CMT-93 cells that reliably and reproducibly results in widespread liver metastases in a timely manner in immunocompetent C57BL/6 mice.

Methods/Interventions: CMT-93 cells were purchased from ATCC (passage <3). Splenic injections were performed using CMT-93 cells in varying concentrations ($1x10^3$ to $1x10^6$ cells) in C57BL/6 mice (6-10 weeks) and allowed to expand for 4 weeks before sacrifice. Metastatic lesions were harvested from the liver and single-cell suspensions were generated. Purification of epithelial tumor cells ($1x10^7$ total cells) was performed using MACS separation kit (Miltenyi Biotec) to exclude heterogenous lymphocyte, fibroblast, and endothelial cell populations from the purified sample. Re-challenge of the established metastatic tumor cell line (metCMT-93) was performed by splenic injection into C57BL/6 mice ($1x10^6$ cells, N=3 mice) and compared to parent CMT-93 cells (N=3) to determine differential uptake. Liver weights and presence of gross metastases were assessed at sacrifice. Transcriptomic variations between parent and daughter cell lines were further explored using qPCR.

Results/Outcome(s): Injection of CMT-93 cells into the liver (n=12) of C57BL/6 mice produced only a single, solitary liver metastasis in one mouse after 4 weeks, consistent with prior reports which show engraftment of these cells in C57BL/6 mice is highly inefficient. Isolation of this solitary tumor was performed and free of non-epithelial cell contamination. Re-challenge using splenic injection of metCMT-93 cells induced widespread, bilobar liver metastases in all mice at 3 weeks, whereas CMT-93 cell re-challenge induced no detectable tumor (Fig. 1A). Liver weight was significantly increased in C57BL/6 mice injected with metCMT-93 cells compared to parent CMT-93 cells (1.9 g vs 1.0 g, p=0.045, Fig. 1B). qPCR characterization of this novel cell line demonstrated upregulation in diverse genes involved in epithelial-to-mesenchymal transition.

Conclusions/Discussion: Through in vivo selection, we have developed a syngeneic tumor cell line that can reliably produce CRLM in immunocompetent mice in 3 weeks, enabling the timely evaluation of novel immunotherapeutic approaches in a pre-clinical model. Further downstream characterization of the genomic, transcriptomic, and immunologic characteristics of this model are ongoing in our laboratory.



DIFFERENTIATION OF ADIPOSE-DERIVED STEM CELLS INTO SMOOTH MUSCLE CELLS IN AN INTERNAL ANAL SPHINCTER-TARGETING FECAL INCONTINENCE ANIMAL MODEL.

S7

M. Kim[1], B. Oh[1], J. Lee[2], D. Yoon[2], Y. Kim[2], W. Chun[2], J. Kim[3], I. Son[1]
[1]Anyang, Korea (the Republic of); [2]Seoul, Korea (the Republic of); [3]Hwaseong, Korea (the Republic of)

Purpose/Background: Fecal incontinence models targeting smooth muscle cells of the internal anal sphincter have not been reported. Differentiation of implanted human adipose-derived stem cells into corresponding smooth muscle cells in an internal anal sphincter-targeting incontinence model has not been demonstrated. To develop an internal anal sphincter-targeting incontinence model and determine the differentiation of human adipose-derived stem cells into smooth muscle cells in the established model.

Methods/Interventions: Ten Sprague-Dawley rats randomly assigned to cryoinjury and control groups were used to develop an animal model by inducing cryoinjury at the inner muscular layer via posterior intersphincteric dissection. After in vitro confirmation of cell differentiation, 30 rats were randomly assigned to normal, sham cryoinjury, and stem cell-treated groups. Dil-stained stem cells were implanted at the injury site via microscopic needling. Multiple markers were analyzed before implantation and one and two weeks after implantation using hematoxylin and eosin, immunofluorescence, Masson's trichrome staining, and polymerase chain reaction.

Results/Outcome(s): We observed stem cell differentiation for smooth muscle cells in the internal anal sphincter-targeting fecal incontinence model. Impaired smooth muscle layers accompanying intact layers were identified in the cryoinjury group. Smooth muscle markers were significantly decreased in the cryoinjury group versus the normal group. In the stem cell-treated group, higher marker levels were observed two weeks after implantation than at one week after implantation. Stem cell tracking revealed that Dil-stained cells were located at the site of augmented smooth muscle bundles, with a diminished population of labelled cells after implantation.

Conclusions/Discussion: We established an internal anal sphincter-specific fecal incontinence model. This study demonstrated that implanted human adipose-derived stem cells restored impaired smooth muscle cells at the injury site, showing stem cell fate corresponding to the established model.

RCT TO COMPARE STAPLED HEMORROIDOPEXY (PPH) PLUS LIGATION ANOPEXY (LA) WITH STAPLED HEMORROIDEPEXY (PPH) IN TREATMENT OF GRADE III AND IV HEMORRHOIDAL DISEASE.

S8

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Purpose/Background: Background: The potential benefits of procedure for Procedure for Prolapse and Hemorroids (PPH) include shorter operative time, less postoperative pain, less urinary retention, and more rapid return to normal activities. Despite these postoperative advantages, long-term results are insufficient, particularly regarding residual skin tags and recurrent prolapse so in the current study we add ligation anopexy (LA) to PPH technique to assess its value in improving short and long term results in the treatment of grade III-IV hemorrhoids

Methods/Interventions: Methods: Between January 2018 and January 2020 we recruited 124 patients with grade III-IV hemorrhoids. All patients did not previously undergo surgical treatment also fibrotic external irreducible

hemorrhoids, thrombosed hemorrhoids, inability to give informed consent, age < 18 years, pregnant women, history of inflammatory bowel disease; history of colon, rectal or anal cancer were excluded. Patients were blindly randomized into two surgical techniques Procedure for Prolapse and Hemorroids (PPH) group 62 patients and Procedure for Prolapse and Hemorroids (PPH) plus Ligation anopexy (LA) 62 patients. Effectiveness of hemorrhoidal symptoms control were recorded (hemorrhoids symptoms score), operating time, need for analgesia, postoperative pain, time to return to work, postoperative complications, patient satisfaction and recurrence of symptoms. From the time of recruitment, for a period of at least two years follow up the patients evaluated for recurrence of symptoms.

Results/Outcome(s): Results: Postoperative pain at rest and during defecation, need for analgesia was less after PPH compared to PPH + LA but not statistically significant. Mean operative time was shorter for PPH compared to PPH + LA (35 min; range, 25-45 vs 50 min; range, 40 - 65 min; p < 0.001). Postoperative complications rate, use of laxatives, patient satisfaction, hemorrhoids symptoms score, return to work, and quality of life at 1 month after surgery were similar between groups. After a mean follow-up of 36 months (24-47), After PPH, 10 patients (16.12 %) complained of recurrent external swelling and/or prolapse compared to 3 patients (4.84 %) after PPH + LA (P = 0.0368) requiring redo surgery in five of them, after 12, 16, 19, 20 and 24 months. No redo-surgery was required after PPH + LA. Long term patient satisfaction after PPH + LA was better than after PPH.

Conclusions/Discussion: Conclusions: PPH alone has shorter operative time compared to PPH + LA. Both techniques were similar at 1 month after surgery as regard complications rate, use of laxatives, patient satisfaction, hemorrhoids symptoms score, return to work, and quality of life. Long term results were significantly better as regard recurrence of external swelling and/or prolapse and Long term patient satisfaction in PPH + LA group in the treatment of grade III-IV hemorrhoids

IMPACT OF INTERNAL ANAL SPHINCTER DIVISION ON THE CONTINENCE DISTURBANCE IN FEMALE PATIENT.

S9

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Purpose/Background: A percentage of patients showing postoperative incontinence disturbance following internal of anal sphincter(IAS) division remain unclear. So, the aim was to assess the incidence of fecal incontinence(FI) in patients previously submitted to IAS division to treat anal fissure and intersphincteric anal fistula and correlate the severity of symptoms with the percentage of divided muscle, anatomical measurements and anal pressures in both disorders.

Methods/Interventions: This prospective cohort study included female patients distributed in two groups according with the surgical technique used:G1=fistulotomy; and GII=sphincterotomy. After complete healing(about 2months), patients were assessed by symptoms of FI and CCF score; 3D-US measurements: angle, length and the percentage of IAS divided; the length of the anterior external anal sphincter(EAS); posterior EAS plus PR(EAS-PR); and gap length(the distance from the proximal edge of the anterior EAS to the proximal edge of the posterior PR, which correspond to the weakest area of anterior anal canal; and anal sphincters pressure before and after surgery by anal manometry. The anatomic measurements were correlated with FI score.

Results/Outcome(s): A total of 63 women were included, 30(48%) underwent fistulotomy(GI) due to internal anal fistula and 33(52%) sphincterotomy due to chronic anal fissure with high anal resting pressure(RP) (GII). The mean age and parity were similar in both groups. The percentage and the length of divided IAS were significant higher in GI. However the prevalence of FI(40% vs 51%) and severity of symptoms by mean FI score were similar. The angle of the IAS divided was similar. In GI, the percentage of divided muscle was similar in patients with score=0 compared with score≥1 (45% vs. 48%/ p<0.48). However, in GII, the percentage of divided muscle was significant higher in patients with score≥1 compared those with score=0(25% vs. 19%/ p<0.02). The length of EAS and EAS-PR was similar in both groups. However, the gap length was significantly longer in GII. The anal RP was significantly higher in GII in the pre-operative. However, the RP in the post-operative was similar in both groups. Nonetheless, the RP decreased significantly comparing before and after surgery in both groups.

Conclusions/Discussion: In this population of female patient submitted to a division of the IAS, the symptoms of FI was minor, present in about half of the patients. Despite of a higher percentage of divided muscle in patients submitted to fistulotomy, the prevalence of symptoms

and score of FI were similar in both groups. On the other hands, the anatomic measurements showed longer gap in patients after sphincterotomy. This difference in the anatomic disposition of anal canal may potentially take on functional significance once the IAS has been divided, since there weren't correlated between the extent of IAS division with FI symptoms and severity in patients underwent fistulotomy.

Variables	Fistulotomy (GI) 30 (48%) Mean ± (range)	Sphincterotomy (GII) 33 (52%) Mean ± (range)	p
Age	45 ± 2.6 (21 – 75)	42 ± 2.0 (21 - 67)	0.346
FI score	1.6 ± 0.4 (0 - 8)	2.0 ± 0.4 (0 – 7)	0.394
Length of the IAS divided* (cm)	1.3 ±0.0 (0.4 - 2.2)	0.7 ±0.0 (0.4 - 1.3)	**0.001**
Percentage of IAS divided*(%)	47 ±1.9 (27 – 67)	22 ±1.4 (9 – 37)	**0.001**
Angle of IAS divided	123 ± 4.1 (36 – 162)	119 ± 5.8 (56 - 173)	0.583
EAS length (cm)	1.9 ±0.0 (1.6 - 2.8)	1.9 ±0.0 (1.6 - 2.6)	0.931
EAS-PR length (cm)	3.5 ±0.1 (2.3 - 4.6)	3.6 ±0.0 (2.9 - 4.9)	0.568
Gap length (cm)*	1.9 ±0.1 (0.7 - 1.9)	2.2 ± 0.1 (1.3 - 3.6)	**0.024**
Resting pressure (mmHg)* (Pre-operative)	76 ±5.6 (45 – 125)	99 ± 3.5 (80 – 139)	**0.008**
Resting pressure (mmHg) (Post-operative)	58 ± 4.0 (45 – 125)	67 ± 5.2 (80 – 139)	0.261

Data of patients submitted to IAS division by fistulotomy and sphincterotomy. *(p<0.05). EAS=external anal sphincter/ IAS=internal anal sphincter/ PR=puborectal

LASER HAEMORRHOIDOPLASTY FOR ADVANCED HAEMORRHOIDAL DISEASE – SHORT-TERM SEQUELAE.

S10

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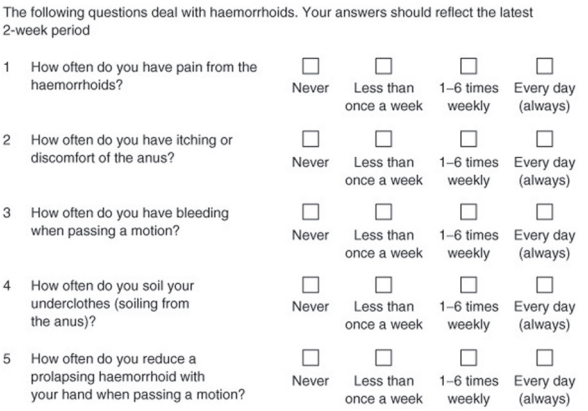
Purpose/Background: With an estimated prevalence of 10% quoted by the National Institute for Health and Care Excellence, UK, haemorrhoids continue to be a benign anorectal condition that can significantly impact the quality of life of affected patients. Well-established treatments for advanced haemorrhoidal disease such as haemorrhoidectomy, stapled haemorrhoidopexy and transanal haemorrhoidal dearterialisation are not without complications like increased post-operative pain, symptomatic recurrence, anal stenosis and sphincter dysfunction. Laser haemorrhoidoplasty (LHD) is a relatively new non-excisional surgical technique that has been acclaimed in European studies to provide better treatment outcomes.

Methods/Interventions: A retrospective study of all patients who received LHD for symptomatic Grade 3 and Grade 4 haemorrhoids from November 2017 to March 2022 in the colorectal unit of a district general hospital was conducted with a view to assess short-term functional outcome. Patients were asked to report on the severity of pain on the Visual Analogue Scale and frequency of symptoms based on the Haemorrhoidal Severity Score (HSS developed by Nyström[see image attached]) 2 months before and after LHD. Participant consent and feedback was obtained either by a written questionnaire or a phone interview.

Results/Outcome(s): A total of 57 (n=57) patients were interviewed. The commonest symptom reported was bleeding (n=54), followed by prolapse needing reduction (n=45), then pain (n=43), itching and discomfort (n=28), and soiling (n=24). There was a significant improvement in severity of pain (p<0.0001) post-operatively. Patients also reported an improvement of their pre-existing symptoms including pain (p<0.00001), itching and discomfort (p=0.0001), bleeding (P<0.00001), soiling (p=0.00007) and prolapse (P<0.00001) based on HSS.

Conclusions/Discussion: Evidence from this study suggests that LHD provides significant short-term improvement in severity of symptoms for patients with symptomatic third- and fourth-degree haemorrhoids. Whilst the results of this study are encouraging, prospective larger multicentre studies assessing long-term outcome will be desirable for proper evaluation of LHD with respect to its efficacy and cost-effectiveness.



The following questions deal with haemorrhoids. Your answers should reflect the latest 2-week period

1	How often do you have pain from the haemorrhoids?	☐ Never	☐ Less than once a week	☐ 1–6 times weekly	☐ Every day (always)
2	How often do you have itching or discomfort of the anus?	☐ Never	☐ Less than once a week	☐ 1–6 times weekly	☐ Every day (always)
3	How often do you have bleeding when passing a motion?	☐ Never	☐ Less than once a week	☐ 1–6 times weekly	☐ Every day (always)
4	How often do you soil your underclothes (soiling from the anus)?	☐ Never	☐ Less than once a week	☐ 1–6 times weekly	☐ Every day (always)
5	How often do you reduce a prolapsing haemorrhoid with your hand when passing a motion?	☐ Never	☐ Less than once a week	☐ 1–6 times weekly	☐ Every day (always)

AN AUTOLOGOUS WHOLE BLOOD CLOT TREATMENT IN PATIENTS WITH ANAL FISTULA.

S11

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Purpose/Background: Ano-rectal fistula (AF) is a chronic inflammatory process that rarely heals spontaneously. Surgery remains the standard treatment for AF. However, there is no consensus about which surgical intervention is preferable to achieve complete healing. In many cases repeated surgical interventions are needed, which increases the likelihood of sphincteric injury which may lead to fecal incontinence. RD2 Ver.02 is an autologous blood clot, created from the patient's own peripheral blood forming a fibrin clot that was found to both possess, attract and signal growth factors to the wound area, thus promoting wound healing by accelerating the transition from the stagnant inflammatory phase to the proliferative

phase, and subsequently resulting in cellular proliferation, wound bed granulation tissue formation and wound closure in chronic wounds

Methods/Interventions: 42 patients with Magnetic Resonance (MRI) confirmed trans sphincteric AF underwent a surgical procedure including fistula debridement, cleaning, and suturing of the internal opening. A water leak test was performed to ensure sealing, followed by injection of RD2 Ver.02 into the AF tract. RD2 Ver.02, is a technology mixing of 15mL of blood, drawn from the patient with kaolin and calcium gluconate, applies to the fistula tract and allows the blood to coagulate inside, minimizing the fistulous tract and thus promoting wound healing. Fistula healing was defined as the absence of any anal symptom, with no discharge from the fistula and a closed external opening confirmed clinically and with MRI 3- and 12-months post-application

Results/Outcome(s): At the time of this report, 38 subjects completed the 3 months follow-up and were eligible for analysis. 34 have reached the 6-month follow up and 13 have reached the 1-year mark. At 3 months, 15 patients reached complete healing (45.5% of the per-protocol (PP) population), 8 showed constant progression toward healing and 10 patients failed to heal or showed no improvement. Two (2) patients were withdrawn, and 3 were loss to follow up. Thirty-four (34) patients have reached the 6 months follow-up time point with 18 patients achieving complete healing (58% of the PP), 2 patients in an ongoing healing process, 11 failed, 1 patient LTFU, and 1 recurrence. Thirteen (13) patients have reached the 1-year follow-up visit. Eight (8) have reached complete healing (66.7% of the PP), 4 failed and 1 was a LTFU.

Conclusions/Discussion: RD2 Ver.02 was found to be safe and effective in anal fistula patients with 45.5%, 58%, and 66.7% healing rates in the PP population at 3, 6, and 1 year respectively. Further randomized studies are ongoing in order to compare RD2 application to traditional surgical methods. In anal fistula treatment, there's an unmet need for new technologies promoting healing and preventing recurrence. The RD2 Ver.02 treatment is a promising technology, bringing a safe and effective, non-surgical, minimal invasive solution to the treatment of anal fistula.

AUTOLOGOUS ADIPOSE-DERIVED STEM CELLS: AN EMERGING TREATMENT OPTION FOR COMPLEX ANAL FISTULAS.

S12

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Purpose/Background: Anal fistulas continue to be troubled by frequent recurrence and complex treatment regimens, especially in patients suffering from Crohn's Disease (CD). Mesenchymal stem cells (MSC's) have been used for regenerative and immunomodulatory properties with trials reporting good healing rates in treatment of anal fistulas. The objective of this study was to evaluate the results of the use of abdominal stem cells (ASC's) at a single institution.

Methods/Interventions: A retrospective review of a prospectively maintained IRB-approved database identified patients with and without Crohn's Disease undergoing ASC treatment for anal fistula at a single academic institution. These patients had frequently failed more standardized treatments. Patients undergoing planned staged closure were excluded. Perianal Disease Activity Index (PDAI) scores were obtained before and after the procedure. Subcutaneous fat was harvested under general anesthesia and processed based on the operating surgeon's preference. The fistula was debrided, the internal orifice was either closed with suture, with a fibrin plug, or left open; the external orifice was opened to allow for drainage and the ASC was injected around the internal orifice.

Results/Outcome(s): A total of 81 procedures were identified with 52 unique patients. Forty-one patients (80.4%) experienced improvement in their symptoms. The average pre-intervention Perianal Disease Activity Index (PDAI) was 8.4 and average post-intervention PDAI was 2.4 at 3 month follow up ($p<0.0001$). Twenty-nine (64.4%) experienced clinical closure of all fistula tracts. Recurrence rate was 31.8%. Eight patients (15.4%) experienced complications including 7 post-operative abscesses requiring drainage and 1 bleeding episode which was ligated at bedside. Between patients with and without CD there was no difference in closure rate, symptom improvement or complications; nor were there any difference in patients with or without fecal diversion. Patients whose internal orifice was closed with suture had significantly more clinical improvement and fewer complications than patients treated with a fibrin plug or left open.

Conclusions/Discussion: We found autologous ASC treatment comparable to other current treatments for complex anal fistulas. ASC treatment can be done multiple times and doesn't preclude the use of other procedures in the future, unlike the ligation of intersphincteric fistula tract procedure and advancement flaps which can create scar tissue making repeat procedures more difficult. This has emerged as a promising method to safely address complex fistulas.

RISK FACTORS FOR THE RECURRENCE AND COMPLICATIONS OF PERIANAL ABSCESSES.

S13

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Purpose/Background: Perianal abscess is a very common disease among adults. The abscess is considered an acute presentation, with chronic fistula formation in up to 40% of cases. The treatment of choice is an early and efficient drainage. The data regarding the risk factors for abscess recurrence and its complications is limited and recent publications are mainly focused on patients with inflammatory bowel disease. The aim of our study was to look into the risk factors for abscess recurrence and fistula formation with regard to patients' and surgical characteristics.

Methods/Interventions: Patients at the age of 18 years or older, who presented to the emergency department and were diagnosed with perianal abscess according to ICD 9 between 2011-2020 were included. Recurrence of a perianal abscess was defined as a recurrence at the primary site after 4 or more weeks from the surgical intervention. Shorter period was defined as inadequate drainage. The primary outcomes were recurrent or persistent abscess which may require repeat surgery. Secondary outcomes were risk factors for abscess recurrence including patients' comorbidities, symptom duration, laboratory findings, imaging, antibiotic treatment and the surgical intervention with ephasis on the surgeons' level of expertise.

Results/Outcome(s): A total of 1000 patients were included in the study period with 749 men, and an average age of 43.6±15.1 years and 41.7±17.3 years for women. Recurrence was documented in 392 cases with 291 men and 101 women with no statisctically significant difference. Crohn's was reported in 64 cases, 44 of whom with recurrent episodes ($p<0.0001$). 393 patients were smokers, 107 of them had recurrence ($p< 0.0363$). Diabetes, colorectal malignancy, immunosuppression, pregnancy and pelvic radiation were not found to impact recurrence. 8% of patients had a short symptom duration of less than 24 hours while 38.3% reported symptoms for more than 3 days. Shorter symptom duration was found to be a predisposing factor for recurrence with a $p<0.0001$. Patients with primary presentation waited 2.53 hours less than those with a recurrent event ($p=0.0005$), with no impact on recurrence. The medial time for recurrent episode was 20.1± 35.29 months. 22.6% were diagnosed with abscess formation at the same site. 815 abscesses were located perianally, 114 were perirectal. A perianal location of an abscess has a relative risk of 0.8 for protection against recurrence. Fistula was diagnosed in 10.2% of all cases, while 9.2% of those in a recurrent event. The surgical level of expertise did not have a significant impact on recurrence rates.

Conclusions/Discussion: While many factors were analysed Crohn's disease and smoking were the only significant risk factors for recurrence of perianal abscess. Disease complexity and underlying pathology is more important than surgical expertise in the management of acute setting of the perianal abscess.

THE EFFECTS OF MICRONIZED PURIFIED FLAVONOID FRACTION IN POST-HEMORRHOIDECTOMY PERIOD.

S14

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Purpose/Background: The most frequent early postoperative complication of hemorrhoidectomy (HE) is thrombosis and edema of mucocutaneous "bridges". The micronized purified flavonoid fraction (MPFF) is effective and evidence based treatment for thrombosis and edema in acute hemorrhoids. We investigated the efficacy of MPFF in preventing complications following elective HE for chronic hemorrhoids.

Methods/Interventions: Design: prospective monocentral randomized controlled trial. Patients with grade III-IV hemorrhoids, who underwent HE, were randomly allocated either to standard postoperative conservative treatment with MPFF (1st group) or without MPFF (2nd group). Open HE of 2-3 piles was done under spinal or local anesthesia. Standard postoperative therapy consisted of peroral non-steroid anti-inflammatory drugs and local anesthetics for the first 7 days and further if needed, topical steroids for 7 days, psyllium for 21 days, warm sitz baths for 14 days, niphedipine gel for 21 days. Additionally, in 1st group MPFF were prescribed for 60 days. **Main outcome measures:** The patients were followed for minimum 60 days after surgery. Thrombosis or edema of mucocutaneous "bridges"after HE on 1^{st} -7^{th}, 14^{th}, 21^{st} and 30^{th} postop day; pain intensity (VAS) on 1^{st} -7^{th}, 14^{th}, 21^{st} and 30^{th} postop day; quality of life (SF-12 questionnaire) and patient-assessed treatment effect (CPGAS) on 1^{st}, 3^{rd}, 7^{th}, 21^{st} and 30^{th} postop day; presence of perianal skin tags on 60^{th} postop day.

Results/Outcome(s): Initially, 70 patients were included. Twenty were lost for follow-up or discontinued treatment early. The data from 50 patients were analyzed (25 in each group). VAS and SF-12 demonstrated no differences between groups in each follow-up point. Compared to 2nd group, the patients in 1st group had significantly higher CPGAS level on 1^{st}, 3^{rd}, 7^{th}, 21^{st} and 30^{th} postop days, significantly lower rate of thrombosis or edema of mucocutaneous "bridges" on 1^{st} -7^{th}, and 14^{th} days, but not on 21^{st} and 30^{th} days (the rate of mucocutaneous "bridges" edema in 1^{st} and 2^{nd} groups on 1st day were 52% and 96%, $p<0.05$; on 7^{th} day – 36% and 76%, $p<0.05$; on 14th day – 12% and 48%, $p<0.05$; on 30^{th} day – 0% and 12%, $p=0.235$, respectively; the rate of mucocutaneous "bridges" thrombosis in 1^{st} and 2^{nd} groups on 1st day were

20% and 56%, p<0.05; on 7th day – 20% and 52%, p<0.05; on 14th day – 4% and 28%, p<0.05, respectively). Patients in 1st group had significantly lower rate of perianal skin tags on 60th postop day. No MPFF-related adverse effects were registered.

Conclusions/Discussion: MPFF in post-HE period is an effective adjunct to standard medical treatment that helps to reduce the rate of thrombosis and edema of mucocutaneous "bridges" in early postop period, to improve patient assessed treatment effect and to prevent postoperative perianal skin tags formation. MPFF in post-HE period isn't associated with additional pain relief in comparison with non-MPFF standard treament.

FRAGILITY OF STATISTICALLY SIGNIFICANT OUTCOMES IN COLONIC DIVERTICULAR DISEASE RANDOMIZED TRIALS.

S15

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Purpose/Background: The Fragility Index (FI) can assess the robustness of statistically significant p-values derived from RCTs. It is a representation the minimum number of study participants who would need to be converted from a non-responder to a responder, in order to increase the p-value above 0.05. This concept was recently applied to RCTs published in the field of colorectal surgery. However, RCTs evaluating both benign and malignant diseases were included and the time frame during which RCTs were evaluated was relatively short. As such, we have designed a study aimed at assessing the FI of RCTs assessing the efficacy of interventions for patients with colonic diverticular disease since 2010.

Methods/Interventions: MEDLINE, Embase, and CENTRAL were searched from 2010 to June 2022. RCTs with parallel design comparing two interventions for patients with colonic diverticular disease reporting a statistically significant dichotomous primary outcome were included. Walsh et al.'s described method of calculating FI was utilized for all statistically significant dichotomous outcomes. Univariable linear regression was performed to determine the association between FI and sample size, number of outcome events, journal impact factor, funding, p-value, and loss to follow-up.

Results/Outcome(s): Following review of 914 relevant citations, 15 RCTs published between 2010 and 2022 met inclusion criteria. Nine of the RCTs evaluated surgical interventions (60.0%) and six evaluated medical interventions (40.0%). Eight RCTs evaluated patients with complicated diverticular disease (53.3%), six evaluated patients with uncomplicated disease (40.0%), and one evaluated patients with diverticular bleeding (6.7%). Three RCTs were industry funded (23.1%). The mean number of patients randomized per RCT was 92 (SD 35.3). The mean number of patients lost to follow-up per RCT was 9 (SD 11.4). The mean number of combined events between arms for the primary outcome per trail was 37 (SD 30.8) and the mean p-value across all included RCTs was 0.017 (SD 0.02). The median FI was 0 (range: 0-2), meaning that upon creation of a 2x2 table and computation of a two-sided Fisher exact test, the majority of included RCTs did not demonstrate significant findings. There were no significant associations between FI and sample size, number of outcome events, journal impact factor, funding, p-value, or loss to follow-up.

Conclusions/Discussion: Recent RCTs evaluating both medical and surgical interventions for colonic diverticular disease with significantly different dichotomous primary outcomes are not robust. The majority of these RCTs no longer demonstrate significant findings upon removal of the statistical adjustments from the original publication. Future RCTs evaluating patients with colonic diverticular disease require larger sample size and consideration of FI when determining sample size.

CAN NON-OPERATIVE MANAGEMENT OF ACUTE COMPLICATED DIVERTICULITIS BE SUCCESSFULLY TREATED WITH A FUTURE HOSPITAL-AT-HOME PROGRAM? A RETROSPECTIVE COHORT STUDY.

S16

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Purpose/Background: Hospital at Home (HaH) programs generated high interest during the COVID-19 pandemic. A HaH program offering virtual monitoring and timely access to out-patient diagnostic and interventional procedures was developed at our institution for patients with cardiopulmonary pathologies. As of yet, no HaH program has included patients with acute complicated diverticulitis (ACD). Since the majority of ACD admissions are successfully managed nonoperatively, we sought to retrospectively evaluate the proportion of eligible ACD admissions that required care that could be offered by a future HaH program.

Methods/Interventions: This IRB-approved retrospective cohort study included adult patients admitted for ACD (Hinchey stage Ib-IV) at our institution from 01/2018-03/2022 who would meet criteria for our future HaH program ("HaH eligible ACD admissions") on presentation to the emergency room including: hemodynamic stability, tolerating oral intake, and adequate analgesia. Admissions with peritonitis or needing urgent surgery at presentation were excluded. The primary outcome was the proportion of HaH eligible ACD admissions that only required care available within a future HaH program. Secondary

outcomes were total hospital bed-days including: **idle-bed days** defined as days spent in hospital with no diagnostic/interventional procedures, **HaH-bed days** as days where out-patient procedures available within HaH occured, and **inpatient bed-days** as days where patients had to physically be in hospital (surgery, total parenteral nutrition).

Results/Outcome(s): Of 242 admissions for ACD during the study period, 59 (24.4%) had ACD with peritonitis, hemodynamic instability and/or urgent surgery on presentation and were excluded. Thus, the study cohort included 183 (75.6%) HaH eligible ACD admissions: 53.6% male, mean age 59.7±14.7years, mean body mass index 28.2±4.9kg/m^2, and mean Charlson Comorbidity Index 2.2±2.2. In this cohort, imaging showed 49.2% had abscesses (82%pericolic, 18%distant) and 47.0% extraluminal gas (79.3%pericolic, 20.7%distant). Percutaneous drainage was needed in 12.6%. Overall, 177 (96.7%) admissions only required care available with HaH, while 2 (1.1%) required TPN and 6 (3.3%) had same-admission surgery. Median total hospital bed-days was 4 [IQR3-7]. Median idle, HaH and in-patient bed-days were 4 [IQR3-5], 0 [IQR0-1.5] and 0 [IQR0-0]. Of 1,066 total hospital bed-days for HaH eligible ACD admissions: 827, 185 and 54 were idle, HaH and in-patient bed-days, respectively. A HaH program for non-operative management of ACD could have saved 1,012 hospital bed-days during the study period.

Conclusions/Discussion: Most admissions for non-operative management of ACD can be treated in novel HaH programs. In light of our findings, we intend to perform a prospective feasibility trial of HaH for non-operative management of ACD.

TABLE 1. CHARACTERISTICS OF ADMISSIONS FOR ACUTE COMPLICATED DIVERTICULITIS (N=183)

Variable	Mean ± SD; Median [Q1-Q3]; N (%)
Hinchey (%)	
0	2 (1.1%)
IA	90 (49.2%)
IB	74 (40.4%)
II	17 (9.3%)
Abscess on CT	90 (49.2%)
< 5cm	68 (75.6%)
≥ 5 cm	22 (24.4%)
Pericolic	74 (82%)
Pelvic/Distant	16 (18%)
Extraluminal gas	86 (47.0%)
Pericolic	68 (79.3%)
Distant	18 (20.7%)
Operative management	6 (3.3%)
Percutaneous drainage	23 (12.6%)
Duration antibiotics, days	20.7 ± 17.6 16 [13 - 20]
Duration IV	9.0 ± 15.3 4 [2 - 7]
Duration PO	13.4 ± 12.5 11 [10 - 14]

TABLE 1. CHARACTERISTICS OF ADMISSIONS FOR ACUTE COMPLICATED DIVERTICULITIS (N=183)

TRANSPLANT AND IMMUNOSUPPRESSED PATIENTS UNDERGOING DIVERTICULAR RESECTIONS: HIGH RISK FOR PERI-OPERATIVE MORBIDITY AND MORTALITY?

S17

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Purpose/Background: Transplant (TXP) and immunosuppressed (IS) patients are a unique subgroup of patients who have been reported to have a high morbidity and mortality rate after resection for diverticular disease. The aim of this study was to compare outcomes among this patient group with a propensity-score matched cohort of similar patients. We hypothesized that TXP and IS patients have similar morbidity and mortality rates compared to matched controls.

Methods/Interventions: Our prospectively maintained database was queried for TXP and IS patients undergoing operative intervention for diverticular disease from 2010-2017. The propensity matched cohort included patients without underlying immunosuppression and patients were matched based on age, gender, ASA class, and elective or emergent surgery. Charts were retrospectively reviewed for data accuracy. Propensity matching and risk adjusted calculations were performed using R.

Results/Outcome(s): Fifty-three TXP/IS patients were identified during the study period. Of these, 31 (58.5%) had undergone TXP and 22 (41.5%) were IS patients. 53 propensity matched controls were obtained. Within the overall dataset, age was 63.4 years (median, IQR 53-78), with 48 (45.3%) females. Seventy-three (68.9%) were ASA category 3 and 33 (31.1%) were ASA category 4. There were no significant differences between the TXP/IS and matched groups in terms of baseline characteristics, operative indications, open approach including conversions (69.8% overall), minimally invasive (30.2% overall) and emergent surgery (55.7% overall). There was a longer operative time in the TXP/IS group (209 vs 147.5 minutes, p=0.03). In addition, the TXP/IS group had a higher stoma rate (86% vs 53%, p<0.001), and a lower rate of primary anastomosis (11% vs. 39%, p<0.001) (Table 1). There was no significant difference in rate of grade 3 or greater Clavien-Dindo complications (28.3% vs. 37.7%, p=NS), mortality (13.2% vs 13.2%, p=NS), or preoperative Hinchey classification. The TXP/IS group had a significantly longer length of stay (11 vs 8 days, (p=0.01).

Conclusions/Discussion: This propensity matched analysis has not identified a higher rate of morbidity or mortality in TXP/IS patients undergoing diverticular resection compared with propensity matched controls. TXP/IS patients were observed to have a significantly higher stoma rate. The use of stoma in TXP/IS patients should be considered when clinically indicated.

Table 1.

	TKP/IS (n=53)	Propensity matched controls (n=53)	p-value
Disease Type			
Uncomplicated	19 (35.8%)	17 (32.1%)	
Hinchey 1	13(24.5%)	6 (11.3%)	
Hinchey 2	6 (11.3%)	6 (11.3%)	
Hinchey 3	8 (15.1%)	11 (20.8%)	0.10
Hinchey 4	4 (7.5%)	4 (7.5%)	
Fistula	1 (1.9%)	7 (13.2%)	
Stricture	1 (1.9%)	2 (3.8%)	
Bleeding	1 (1.9%)	0	
Stoma			
Hartmanns	25 (47.2%)	19 (35.9%)	
DLI	21 (39.6%)	9 (1.7%)	*0.001
Primary Anastomosis	6 (11.3%)	21 (39.6%)	
Other*	1 (1.9%)	4 (7.5%)	
Clavien-Dindo Complications			
No complication	20 (40%)	18 (34%)	
Grade 1	6 (12%)	8 (15.1%)	
Grade 2	9 (18%)	7 (13.2%)	0.76
Grade 3	1 (2%)	4 (7.5%)	
Grade 4	8 (15.1%)	8 (15.1%)	
Grade 5	7 (13.2%)	7 (13.2%)	

*Other: Total abdominal colectomy & end ileostomy, laparoscopic lavage, DLI, intra-op cardiac arrest

IMPACT OF SOCIOECONOMIC FACTORS IN TIME TO TREATMENT OF PATIENTS WITH SQUAMOUS CELL ANAL CANCER.

S18

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Purpose/Background: Disparities in socioeconomic conditions have implications in the access to health care and may affect the treatment decision-making as well as survival. Squamous cell anal cancer (SCCA) accounts for 2.7% of gastrointestinal cancers and the incidence is rising. Multimodal chemoradiotherapy is the mainstay of treatment, and surgery is indicated for those who have persistent or recurrent disease. In this study we investigated the impact of socioeconomic factors on time to treatment and outcomes of SCCA.

Methods/Interventions: We identified patients treated for stage I-IV SCCA 2004-2016 using the National Cancer Database. Socioeconomic factors, including insurance, median household income, and percentage of no high school degree (HSD) in the zip code of residence, were included. The associations between these factors and time from diagnosis to treatment, diagnosis to radiation, and diagnosis to systemic therapy were analyzed. Further, we divided patients into two groups: those who received treatment within 60 days vs after 60 days and compared the survival of the patients using Kaplan-Meier survival analysis.

Results/Outcome(s): A total of 30,106 patients who underwent treatment for SCCA were identified. Median age was 59 (range, 20-90) years and 30.9 % were male. The patient population was comprised of 80 % Non-Hispanic White, 10% Black, and 4% Hispanic. 43% patients had private insurance, 10% had Medicaid, 38% had Medicare, 2% had other government insurance, and 5% had no insurance. The median days from diagnosis to start of treatment was 33 days, radiation was 35 days, and systemic therapy was 37 days. Patients in lower income quartiles had longer wait to start overall treatment ($p<0.001$), radiation ($p<0.001$), and systemic therapy ($p<0.001$) compared to higher income quartiles. Patients from zip codes with higher percentage of no HSD had longer wait to overall treatment ($p=0.000$), radiation ($p=0.000$), and systemic therapy ($p=0.000$). Patients with 'other government insurance' followed by Medicaid insurance had longer wait to treatment ($p=0.000$), radiation ($p=0.000$), and systemic therapy ($p=0.000$) compared to other primary payer status. Patients who started treatment more than 60 days after the diagnosis were likely from the communities with low median income ($p<0.001$) and low education level ($p<0.001$), and enrolled in Medicaid ($p<0.001$). There was no difference in 30-day mortality ($p=0.832$) and 90-day mortality ($p= 0.231$) between the groups. However, Kaplan-Meier survival analysis showed that the group receiving treatment after 60 days had poorer survival compared to those received within 60 days (32.6 vs. 36.7 months; $p<0.001$).

Conclusions/Discussion: Patients from communities with lower median income and level of education, and enrolled in Medicare managed care had longer wait to treatment, which was associated with poorer overall survival. These results warrant further analysis and measures to address this disparity.

PREDICTIVE FACTORS FOR FAILURE OF SAME-DAY DISCHARGE FOLLOWING MINIMALLY INVASIVE COLECTOMY AND STOMA REVERSAL.

S19

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Purpose/Background: Same-day discharge (SDD) following minimally invasive (MIS) colectomy may further improve efficiency of enhanced recovery pathways. We have previously demonstrated the feasibility of SDD in select patients but there is still a failure rate. Identification of patients at risk of SDD failure may further improve perioperative planning. We sought to describe our experience with SDD for MIS colectomy and identify predictors for SDD failure.

Methods/Interventions: Adult patients undergoing elective MIS colectomy or ostomy reversal at a tertiary colorectal centre from 02/2020–09/2022 were considered for SDD with remote post-discharge follow-up if they had few comorbidities, lived near the hospital, had adequate home support, and owned a mobile device. Patients were discharged on postoperative day (POD) 0 if the following criteria were met: adequate analgesia with oral medication, tolerated liquids without nausea, independent ambulation, urination, and no complications. Successful SDD was

defined as discharge on POD0 without unplanned visits in the first 72hrs. Data was collected in a prospective manner comparing the SDD patients to those who failed SDD.

Results/Outcome(s): Of the 361 patients undergoing MIS colectomy, a total of 172 patients were consented and managed with SDD (mean age 58.1yr(SD15.5), 50% male, body mass index 26.7kg/m^2(SD5.7), mean Charlson Comorbidity Index 2.9(SD2.0), 55% malignancy). The most common procedures were right colectomy(33%), stoma closure(28%), left colectomy(24%), and low anterior resection(15%). The mean operative time was 132 min(SD65) and time spent in recovery 343 min(SD329). The overall SDD failure rate was 23%(39/172), with 15% not discharged on POD0 and 8% requiring an unplanned visit within 72hours. The reasons for SDD failure are shown in Table 1. Median LOS was 1d[IQR1-3] for patients that failed SDD. Total 30-day complications occurred in 24%(41/172), with 20%(34/172) requiring emergency room visit and 11%(19/172) readmission. The only significant predictive factors for SDD failure was prolonged time in the recovery room (median 335min[IQR200-600] vs. 260min[IQR190-335], p<0.001) and increased in-hospital postoperative opioid requirements(median 29 morphine mg equivalents [IQR8-45]vs. 15[IQR 8-31].

Conclusions/Discussion: SDD is feasible in select patients undergoing MIS colectomy and stoma closure with only a 23% rate of failure, and few overall complications and readmission. Patients who failed SDD stayed longer in the recovery room and used more opioids. These data may be used to further enhance the perioperative management and reduce resource utilization for patients undergoing MIS colectomy and stoma closure.

Table 1 – Reasons for SDD failure

Reasons for failure to discharge on POD0	**n=26**
Patient/family refusal	6
Inadequate pain control	4
Persistent nausea	1
Intraoperative/early postoperative complications	15
Anastomotic bleeding	4
Cardiac monitoring/complications	3
Conversion to open surgery	2
Genitourinary complications	2
Rectus sheath hematoma	1
Unplanned stoma	1
Prolonged operating time	1
Spinal anesthesia complications	1
Unplanned visits within first 72 hours	**n=14**
Anastomotic bleeding	4
Urinary retention	3
Gastrointestinal dysfunction	3
Wound dehiscence	1
Inadequate pain control	1
Anastomotic leak	1
Fever without etiology	1

Table 1 - Reasons for SDD failure

LOOP ILEOSTOMY CLOSURE AS A 23-HOUR STAY PROCEDURE: A RANDOMIZED CONTROLLED TRIAL.

S20

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Purpose/Background: Loop ileostomy closure is a common procedure in colorectal surgery. Often seen as a simple and safe operation associated with low complication rates, it still leads to lengthy hospitalization. Postoperative ileus is the most frequent complication implying that reduced rates could lead to shorter length of stay and even ambulatory surgery. Up until this clinical trial, the standard of care at our tertiary care center has been to discharge patients after an ileostomy closure once they had return of bowel function, representing 645 days of hospitalization each year, with a median length of stay of 5 days. The purpose of this study was to assess the safety and feasibility of ileostomy closure performed in a 23-hour hospitalization setting using a standardized enhanced recovery pathway.

Methods/Interventions: This randomized controlled trial included healthy adults (ASA I-II) undergoing elective ileostomy closure. All patients were enrolled in a standardized enhanced recovery pathway specifically designed for ileostomy closure, including daily irrigation of the efferent limb with an enteral nutritional formula for 7 days prior to surgery. Once surgery was completed, patients were randomized to either conventional hospitalization (CH) or a 23-hour stay (23HS). Primary outcome was total length of stay (initial hospitalization and additional days associated with readmission) and secondary outcomes were 30-day rates of readmission, postoperative ileus, surgical site infection and general postoperative morbidity and mortality.

Results/Outcome(s): Due to COVID-19, access to surgical beds was greatly limited, leading to a shift toward ambulatory surgery for ileostomy closure, and so the study was terminated early. A total of 47 patients were ultimately randomized; 23 in the CH arm and 24 in the 23HS arm. Patients in the 23HS arm had a shorter median length of stay (1 day vs. 2 days, p=0.015) and no significant difference in readmission rates (4% vs. 13%, p=0.348), postoperative ileus (none in both arms), surgical site infection (0 vs. 4%, p=0.489), postoperative morbidity rates (17% vs. 22%, p=0.724) and mortality rate (none in both arms).

Conclusions/Discussion: In conclusion, this study suggests that doing loop ileostomy closures as 23-hour stay procedures in a standardized enhanced recovery pathway is feasible and safe. These results also propose that ileus rate following ileostomy closure could potentially be reduced by a preoperative intestinal stimulation with an enteral nutritional formula through the efferent limb.

EXERCISE FREQUENCY AND PHYSICIAN BURNOUT AMONG COLORECTAL SURGEONS IN THE UNITED STATES: SHOULD WE BE WORRIED?

S21

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Purpose/Background: Burnout and low quality of life are common among surgeons in the United States. Self-care habits and exercise can increase quality of life but have not been evaluated among colorectal surgeons. The primary aim was to evaluate physical activity among colorectal surgeons in the US and discern a correlation between exercise and burnout. The secondary aim was to identify the most common symptoms related to burnout.

Methods/Interventions: A twelve-question, voluntary, anonymous survey approved by the American Society of Colon and Rectal Surgeons (ASCRS) Executive Council was sent to all members between June 1st and July 30th, 2022. Questions were derived from the Mayo Clinic Physician Well-Being Index and questions related to physical activity were added. Exercise was defined as 30 min or more of any dedicated physical activity. Burnout questions were asked pertaining to the last 6 months. Responses were analyzed via the Qualtrics XM survey platform. Exclusion criteria included medical students, surgical residents, international ASCRS members and incomplete responses.

Results/Outcome(s): A total of 288 responses were recorded, 80 of which were excluded. The surgeons had a median of 16.2 [range 0–50] years in practice. Of these, 29 (13.9%) exercise every day, 90 (43.3%) 4-6 days a week, 61 (29.3%) 1-3 days a week, 7 (3.4%) 1-2 a month, and 21 (10.1%) stated it depended on their schedule. One hundred fifty respondents (72.1%) exercise after work and 98 (47.1%) exercise before work. Ten respondents (4.8%) exercise at work. The most common type of exercise was strength training (111/208, 53.4%), followed by running (90/208, 43.3%) and walking (75/208, 36.1%). Exercise mitigated stress in 186 (89.4%) members. In the last 6 months, 161 (77.4%) members sometimes or often felt burnout from work, 140 (67.3%) worried that their work is hardening them emotionally, 109 (52.7%) have felt down, depressed, or hopeless, 117 (56.3%) felt that things are piling up so high they cannot overcome them, and 144 (69.2%) have been anxious, depressed, or irritable. Respondents who rarely or never exercise were more likely to report feeling down, depressed, or hopeless ($p = 0.058$) and had significantly greater rates of work overload ($p = 0.003$). Among the members who experience significant work overload, 118 (56.7%, $p < 0.001$) also feel burnout from work, 90 (43.3%, $p < 0.001$) feel down, depressed, and hopeless, and 107 (51.4%, $p < 0.001$) feel that work is hardening them emotionally.

Conclusions/Discussion: Burnout and depressive symptoms are present among colorectal surgeons in the United States. The most commonly reported concern is work overload causing burnout symptoms. Physical activity mitigates stress among exercising colorectal surgeons, but there should be other systemic measures to improve surgeons' well-being. Further analysis and initiatives at local, regional, and national levels should be performed and implemented.

DEXAMETHASONE-SUPPLEMENTED TAP BLOCKS MAY REDUCE OPIOID REQUIREMENTS AFTER COLORECTAL SURGERY: PRELIMINARY ANALYSIS FROM A RANDOMIZED CONTROLLED TRIAL.

S22

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Purpose/Background: The transversus abdominis plane (TAP) block is a peripheral nerve block that reduces postoperative opioid requirements. The use of dexamethasone in conjunction with peripheral nerve blocks has been proven to be an effective adjunct, however, its use in the context of TAP blocks is undetermined. In this multicenter randomized trial, we assessed pain control and nausea in the first 48 hours post-operatively after minimally invasive colorectal surgery in patients who received laparoscopically placed TAP blocks with and without perineural dexamethasone.

Methods/Interventions: This study is powered to include 60 patients from two academic hospitals that perform colorectal surgery in Saskatoon and Vancouver. Twenty-four patients undergoing laparoscopic colorectal surgery were included in this analysis. Patients were allocated into 2 groups. Group 1 (TAP) received bilateral TAP blocks using 0.25% bupivacaine with epinephrine and Group 2 (TAP-D) received bilateral TAP blocks in combination with dexamethasone. Opioid use in the post-anesthetic care unit, at 24 hours, 48 hours was recorded from patient charts.

Results/Outcome(s): There were 14 patients in the TAP group and 10 patients in the TAP-D group. Adjusting for 9 confounders, TAP blocks with dexamethasone did not significantly change opioid requirements in PACU, at 24H or 48H post-op. There was a trend towards lower opioid use in the TAP-D group at 24H (-9.3mg; $p=0.36$), at 24-48H (-4.36mg; $p=0.72$), and in 48H total (-16.0mg; $p=0.46$). There was no difference in the number of patients reporting nausea (-0.2; $p=0.36$) or length of stay (-1.1; $p=0.33$).

Conclusions/Discussion: The preliminary analysis did not show significant improvement in opioid use in the first 48 hours post laparoscopic colorectal surgery with TAP-D blocks. A trend towards lower opioid use was evident in all our measured outcomes.

ESCP BEST PAPERLAPAROSCOPIC RESECTION RECTOPEXY VERSUS DELORME'S PROCEDURE IN FULL THICKNESS RECTAL PROLAPSE - A RANDOMINZED INTERNATION MULTICENTRE TRIAL (DELORES-TRIAL-GROUP)".

S23

F. Herrle

DEVELOPMENT OF A CONSENSUS-DERIVED SYNOPTIC OPERATIVE REPORT FOR RECTAL PROLAPSE FROM THE ASCRS PELVIC FLOOR CONSORTIUM.

S24

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Purpose/Background: There is a paucity of evidence that directs best practice surgical care for rectal prolapse (RP). Standardization of procedure details is a necessary step for data collection since narrative operative reports may frequently omit important surgical details, The Pelvic Floor Consortium (PFC) aims to develop a synoptic operative report for RP that includes descriptors which achieved consensus by expert international pelvic floor surgeons.

Methods/Interventions: Data descriptors for prolapse surgery were generated through literature review and expert opinion. Members of the PFC were recruited to participate in a 3 round Delphi process using a 9 point Likert scale. Descriptors that achieved 70% agreement or higher were kept from the first round, descriptors scoring 40-70% agreement were recirculated in subsequent rounds. A final list of operative descriptors was determined at a consensus meeting using interactive voting, with a final consensus meeting more than 70% agreement.

Results/Outcome(s): 176 surgeons, 91% colorectal and 9% urogynecologists or urologists practicing in North America (56%), Latin America(4%), Western Europe(29%), Asia(4%), and Africa(1%) participated in 3 rounds of Delphi voting. After two additional rounds and a final consensus meeting, 16 of 30 initial descriptors met 70% consensus. Descriptors included: Surgery type, posterior dissection, ventral dissection, mesh used, type of mesh used, mesh location, sutures used, suture type, pouch of Douglas and peritonea lclosure, length of rectum imbricated, length of bowel resected, levatoroplasty, simultaneous vaginal procedure, simultaneous gynecologic procedure, simultaneous enterocele repair, and simultaneous urinary incontinence procedure. A synoptic operative report containing these intraoperative descriptors is seen in Table 1. During an interactive meeting to review descriptors, 100% of attendees agreed to participate in completing a synoptic operative report as part of their workflow.

Conclusions/Discussion: This Delphi survey establishes consensus descriptors for intraoperative variables that have been used to produce a minimum of required fields in a synoptic operative report. PFC surgeons unanimously agreed to complete an operative template with minimum criteria to standardize operative reports for rectal prolapse surgery. This will allow communication between institutions by enhancing data collection, quality of measurement, and multicentric collaborations. The template can be expanded to include additional information depending on individual or local need and/or clinical scenarios.

Core Descriptor	Options
Surgery Type	· Rectopexy · Ventral mesh rectopexy · Resection Rectopexy · Altemeir · Delorme
Posterior Dissection performed	· Yes · No · N/A
Ventral Dissection performed	· Yes · No · N/A
Mesh used	· Yes · No
Mesh type	· Biologic · Lightweight polypropylene · Polypropylene · Polyester · N/a
Mesh Location	· Anterior rectum · Posterior rectum · Circumferential · N/A
Suture used	· Permanent · Absorbable · Tacks · N/A
Pouch of douglas removed and peritoneum reclosed	· Yes · No · N/A
Length of Rectal Imbrication	· Integer 1-20 cm · N/A
Length of bowel resected	· Integer 1-50cm · N/A
Levatoroplasty	· Yes · No · N/A
Simultaneous Procedure	· Colpopexy · Anterior/posterior repair · Enterocele repair · Urinary incontinence procedure · Hysterectomy

Table 1: Synoptic operative report fields

TREATMENT OF LOW ANTERIOR RESECTION SYNDROME SYMPTOMS WITH SACRAL NEUROMODULATION: PRELIMINARY RESULTS OF A RANDOMIZED, MULTICENTRIC, CROSSOVER TRIAL.

S25

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Purpose/Background: Patients undergoing rectal resection are at risk of developing low anterior resection syndrome (LARS), which impairs their quality of life. Sacral neuromodulation (SNM) has been suggested to be

effective to palliate LARS symptoms. The objective of this clinical trial was to assess the impact of SNM on LARS symptoms, measured by validated scores and bowel diaries.

Methods/Interventions: The SANLARS (Sacral Neuromodulation for LARS) was a prospective, randomized, multicentric, controlled, double-blinded crossover clinical trial held in 3 Spanish hospitals (NCT02517853). Patients who developed major LARS 12 months after transit reconstruction following rectal resection, who failed conservative treatment, were considered for inclusion. Included patients underwent a test phase by stimulation for three weeks with a tetrapolar electrode inserted in the S3 or S4 sacral foramina, connected to an external temporal generator. If there was at least a 50% reduction in baseline LARS score, they received a permanent subcutaneous implanted pulse generator (IPG). These patients entered a cross-over randomized phase in which the IPG was left active or inactive for four weeks (Group ON-OFF or Group OFF-ON). After a 2-week wash-out period, the IPG was activated or disconnected according to the group. After the cross-over phase, all IPG were left activated, and patients were followed up at 6 and 12 months. The aim was the relief of symptoms, measured with a reduction of LARS after advanced testing and at 12 months compared to baseline. At each visit, assessments were made using the LARS score, the St Mark's Continence score, and bowel diaries.

Results/Outcome(s): A total of 46 patients (32 men) were included. After advanced testing, 35 patients (78%) had a LARS score reduction of over 50% respect to baseline and received IPG. During the crossover phase, all implanted patients showed a reduction in scores and improved diary symptoms, with better performance if the IPG was active (ON sequence). At 6- and 12-month follow-up, the reduction from baseline was maintained: the mean reduction in LARS score was -6.2 (-8.97; -3.43; p<0.001) and -6.97 (-9.74; -4.2; p<0.001), and St Mark's continence score -7.57 (-9.19; -5.95, p<0.001) and -8.29 (-9.91; -6.66; p<0.001), at 6- and 12-month follow-up, respectively. Total reduction in LARS score after testing was of 59.1% and 18.4% at 12 months. Urgency, bowel emptiness sensation and clustering episodes decreased 6 and 12 months with active IPG. No patients were lost, and three adverse events occurred, which were not related to the study.

Conclusions/Discussion: SNM provides symptoms amelioration in LARS patients. These results support the recommendation of this therapy for this syndrome.

COST ANALYSIS OF THE ENHANCED RECOVERY AFTER SURGERY PROGRAM IN ELECTIVE COLORECTAL SURGERY: A PHILIPPINE TERTIARY HOSPITAL EXPERIENCE.

S26

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Purpose/Background: The Philippine General Hospital (PGH) performs hundreds of surgeries on both benign and malignant colorectal conditions yearly. An Enhanced Recovery After Surgery program (ERAS) program was implemented by the Division of Colorectal Surgery in 2019 with the goal of improving patient outcomes. However, there has been no attempt to investigate its impact on hospital costs. This study aimed to determine the effect of an ERAS program on healthcare costs of elective colorectal surgery cases in PGH in 2021.

Methods/Interventions: A retrospective observational study was conducted on adult patients undergoing elective colorectal surgery, who were enrolled to ERAS, in PGH in 2021. The medical and billing records were retrieved using the hospital's digital records system. Cases were classified based on the type of surgery (stoma closure, colonic or rectal resection, reversal of Hartmann's, or cytoreductive surgery with hyperthermic intraperitoneal chemotherapy (CRS-HIPEC)) and approach (open, laparoscopic, or robotic). The list of itemized resources utilized by each case was reviewed and categorized according to the following: diagnostics, facility, medications, surgery, and hospital supplies costs. The ERAS compliance rate of each case was retrieved from the online ERAS Interactive Audit System (EIAS) and linear regression was used for data analysis.

Results/Outcome(s): A total of 114 elective colorectal surgeries were done under ERAS and complete records were retrieved for 90 of these. Surgery cost was noted to have the highest mean cost among hospital expenses across all surgery types. An inverse correlation was noted between ERAS compliance rates and total costs for all open surgeries and was statistically significant in closure of ostomies ($p=0.0213$) and open colonic resections ($p=0.0134$). Minimally-invasive surgery (MIS), however, failed to show cost reduction despite increasing compliance rates. Linear regression between compliance rates and mean total hospital costs showed that an increase in compliance rate results in decreased costs in a majority of cases (Figure 1).

Conclusions/Discussion: Systematic reviews showed that standardization of care through ERAS was associated with cost savings compared to traditional perioperative management. This study showed that with increasing adherence to ERAS, healthcare costs may be reduced. The significantly higher cost observed in colorectal MIS cases was due to more expensive equipment and instrument cost. Such higher cost may have offset the potential cost-reduction expected with ERAS. The results of the

study showed that good compliance to ERAS may reduce the cost of hospitalization. However, further studies are needed to investigate its impact on MIS cases.

		n	Mean Diagnostic Cost (USD)	Mean Facility Cost (USD)	Mean Medication Cost (USD)	Mean Surgery Cost (USD)	Mean Hospital Supplies Cost (USD)	Mean Total Hospital Cost (USD)	Mean ERAS Compliance Rate	Cost Reduction per 1% Increase in ERAS Compliance Rate (USD)	p-value (CI:95%)	R^2-value
Open												
	Closure of Ostomy	28	114.91	60.88	258.18	401.79	92.21	**927.97**	72.62%	24.06	**0.0213**	0.1876
	Colonic Resection	23	335.08	82.06	399.87	950.73	140.49	**1908.23**	67.30%	38.73	**0.0134**	0.2577
	Rectal Resection	11	218.13	82.10	356.11	979.70	165.67	**1801.71**	63.81%	27.21	0.1215	0.2451
	Reversal of Hartmann's	6	117.61	71.03	304.12	644.68	152.09	**1289.52**	67.18%	10.89	0.2194	0.3460
	CRS-HIPEC	5	407.10	105.53	775.03	1478.35	324.75	**3090.76**	53.33%	22.53	0.6482	0.0783
Laparoscopic												
	Colonic Resection	5	253.52	64.94	389.87	1320.90	155.05	**2184.29**	77.63%	-14.69 *(Cost Increase)*	0.5522	0.1293
	Rectal Resection	8	187.54	100.20	454.07	1871.37	127.08	**2740.26**	67.59%	49.93	0.4406	0.1020
Robotic												
	Rectal Resection	4	307.64	81.18	713.62	3508.86	175.95	**4787.24**	64.40%	-138.69 *(Cost Increase)*	0.2876	0.5076

*Costs were converted based on 2021 exchange rate (USD1=PHP49.2756)

Figure 1. Linear regression analysis of ERAS compliance rates and hospital costs of elective colorectal surgeries under the Enhanced Recovery after Surgery (ERAS) program in Philippine General Hospital (PGH) in 2021.

THE ROLE OF SOCIAL VULNERABILITY IN OUTCOMES FOLLOWING COLORECTAL SURGERY UNDER ENHANCED RECOVERY PROGRAMS.

S27

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Purpose/Background: Increasing County level social vulnerability (as measured by the CDC social vulnerability index, SVI) has been associated with worse surgical outcomes. However, less is known about the relationship of SVI at the more granular census tract level and surgical outcomes among patients undergoing colorectal surgery under enhanced recovery programs (ERPs). Given the known association of ERPs with reductions in surgical disparities, we hypothesized that increasing SVI is associated with worse surgical outcomes among those undergoing surgery prior to ERP implementation, and that following ERP implementation, differences in outcomes by SVI status would be reduced.

Methods/Interventions: Using a single institutional ACS-NSQIP database, we identified patients who underwent colorectal surgery between 2006-2021. ERPs were implemented at the authors' institution in 2015. Pre- and post-operative characteristics included patient-level demographic and clinical factors, procedure-level factors, and area-level sociodemographic factors (SVI). The primary outcomes were length of stay (LOS) and complications. Patients were compared by SVI tertile at the census tract level (highest vs. lowest only) and ERP status. Multivariable logistic regression was used to identify associations of SVI and ERP with postoperative LOS and complications.

Results/Outcome(s): Of the eligible 1,266 patients undergoing colorectal surgery during this period, 886 (70%) were under ERP. Overall, 768 (61%) patients were in the lowest SVI tertile, with the remaining 498 (39%) in the highest tertile. Mean LOS was 5.5 days (SD 4.9) with 15% of patients experiencing at least 1 complication. There was no difference in SVI distribution between pre and post-ERP groups. Univariate analysis revealed significant differences in LOS by SVI status in the pre-ERP group (mean difference of +1.5 days for high vs. low SVI patients, p=0.02) that were not seen in the ERP group (mean difference of +0.9 days for high vs. low SVI patients, p=0.11). Conversely, no differences in complication rates by SVI status were observed in either the pre-ERP or ERP group. On multivariable modeling, after adjusting for clinical and demographic factors, SVI was not associated with increased LOS in either the pre-ERP (high SVI IRR 1.04, p=0.6) or the ERP groups (high SVI IRR 1.0, p=0.9). Additionally, no relationship between SVI status and complication rates were seen in the pre-ERP (OR 1.04, p=0.91), or ERP group (OR 0.98, p=0.94).

Conclusions/Discussion: High social vulnerability at the census tract level was not associated with increased LOS or complication rates among both pre-ERP and ERP colorectal surgical patients. However, disparities in care and outcomes remain and further work is needed to better understand the underlying mechanisms driving these disparities at an individual patient level.

COLONOSCOPY ACCESS AND QUALITY MEASUREMENT IN RURAL WISCONSIN.

S28

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Madison, WI

Purpose/Background: Despite the critical role of colonoscopy in reducing the burden of colorectal cancer, people living in rural areas have reduced access in their communities due to provider shortages. The Surgical Collaborative of Wisconsin's (SCW) Rural Task Force, which is comprised of surgeons practicing in rural settings, identified colonoscopy as a high priority area of focus because it is a high-volume procedure and currently there is a lack of access to quality measures, which are necessary for assessing performance and driving improvement. Colonoscopy is known to be a cornerstone of many rural surgical practices, representing the second most performed procedure among rural general surgeons. Improving access to high quality colonoscopy may reduce the burden of colorectal cancer in rural areas that currently face higher incidence and lower screening rates. Our objective was to assess the infrastructure and capacity for colonoscopy quality measurement and improvement in rural hospitals across Wisconsin.

Methods/Interventions: In 2019-2020, SCW, the Rural Wisconsin Health Cooperative (RWHC) and the Wisconsin Collaborative for Healthcare Quality (WCHQ) collaborated to create and distribute a survey of RWHC hospitals (n=26) to understand colonoscopy provider availability, procedural volume and capacity, and informatics and quality measurement infrastructure. A web-based survey was sent to RWHC hospital administrative contacts and reminder emails were sent over the course of four weeks, resulting in a 60% response rate. Survey items were summarized with descriptive statistics.

Results/Outcome(s): The majority of colonoscopy providers in RWHC hospitals were general surgeons (66%) followed by family/internal medicine (20%) and gastroenterologists (14%). The average hospital volume/month was 80 colonoscopies (SD=53) and hospitals reported operating at 80% capacity for these procedures. Most selected 'seldom,' 'never,' or 'unknown' regarding the frequency of measuring evidence-based quality measures, including adenoma detection rate (58%), cecal intubation (69%), withdrawal time (53%) and prep quality (58%). About a third of hospitals (36%) utilized procedure reporting software. Most hospitals (72%) did not have access to onsite pathology.

Conclusions/Discussion: Approximately two thirds of rural colonoscopy providers are general surgeons, a finding unique to rural hospitals. Further, hospitals report operating at 80% capacity, suggesting there may be opportunities to increase access to colorectal cancer screening for patients living in these areas. The lack of access to colonoscopy quality measures suggests the opportunity to develop a flexible measurement approach that takes into consideration availability of reporting software and electronic medical record differences. Improving access to quality measures along with access to education and training opportunities that do not require travel has the potential to improve access to colonoscopy for patients in rural Wisconsin.

SHORT STAY RECTOPEXY: RESULTS OF EARLY (<24 HOURS) HOSPITAL DISCHARGE FOLLOWING MINIMALLY INVASIVE RECTOPEXY FOR RECTAL PROLAPSE.

S29

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Purpose/Background: Rectal prolapse most often affects elderly female patients with multiple comorbidities. Although minimally invasive rectopexy has a low overall complication rate, by convention these patients are generally admitted for close monitoring postoperatively. Recent studies have shown that early or same day discharge in patients undergoing minimally invasive colorectal surgery may be safe and feasible. There are varying practice patterns among our division for post operative observation, with some routinely discharging patients the same day of surgery. This study aimed to evaluate the short-term outcomes of early (<24 hours) discharge in patients who underwent minimally invasive rectal prolapse repair.

Methods/Interventions: This was a single-center retrospective study involving consecutive patients undergoing minimally invasive (laparoscopic and robotic) rectal prolapse repair, including suture rectopexy and ventral mesh rectopexy, between January 2018 and April 2022. Patients were stratified into the following groups: early discharge following <24 hours observation (group A), including those discharged on the same day of surgery, and those with postoperative admission of ≥24 hours (group B). The primary outcome was 30-day postoperative readmission rate. The secondary outcomes were 30-day postoperative morbidity, including urinary retention, surgical site infection, emergency department (ED) visits, re-admission, and unplanned return to the operating room.

Results/Outcome(s): Seventy-six patients were identified to have undergone minimally invasive rectopexy for rectal prolapse, with 29 patients in group A and 47 in group B. The two groups had similar baseline characteristics, including patient comorbidities (38% of Group A and 32% of Group B in ASA Class III/IV), total operative time and estimated blood loss. Both Group A and B underwent laparoscopic rectopexy more frequently and at similar rates (74% vs 79%, respectively, p=0.99) than robotic approach. Group A had a significantly younger average age compared to group B (59 years vs 68 years, p=0.03).

Fourteen patients (48%) in group A were discharged on the same date of surgery. These surgeries were performed as first-case procedures so patients could be observed in the recovery room prior to discharge. The average length of stay in group B was 2.3 days (SD ±0.8). As shown in Table 1, there were no differences in 30-day readmission rates, 30-day morbidity, urinary retention, 30-day ED visits, and unplanned reoperation between the two groups.

Conclusions/Discussion: Patients undergoing minimally invasive surgery for rectal prolapse can be safely discharged within 24 hours without differences in postoperative complications, ED visits, or readmissions rates when compared to patients who were admitted for greater than 24 hours. These results suggest the feasibility and safety of utilizing a brief observation period in properly selected patients.

Table 1. Post operative outcomes within 30 days of index surgery

Outcome Variables	All Patients (n = 76)	Inpatient Rectopexy Patients (n = 47)	Short Stay Rectopexy Patients (n = 29)	p value
Urinary Retention	5 (6.6%)	4 (8.5%)	1 (3.5%)	0.64
VTE	0			
Intraabdominal Abscess	0			
Surgical Site Infection	0			
Return to Operating Room	2 (2.6%)	0 (0%)	2 (6.9%)	0.14
Hospital Readmission	3 (4.0%)	1 (2.1%)	2 (6.9%)	0.55
ED Visit	6 (7.9%)	4 (8.5%)	2 (6.9%)	0.99
Post op Morbidity	12 (16%)	8 (17%)	4 (14%)	0.99
Post op Mortality	0			

THINK TWICE: REDUCING UNNECESSARY LABORATORY TESTING AFTER COLORECTAL SURGERY.

S30

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Purpose/Background: There is limited literature on the reduction of unnecessary laboratory testing after surgery. While reducing waste increases the value of surgical care, eliminating routine testing can be challenging. Here, we assess the impact of a quality improvement (QI) intervention on reducing post-operative laboratory testing on a colorectal surgery (CRS) service.

Methods/Interventions: This project was performed on a CRS service at an academic medical center with a robust ERAS program that included 5 daily labs until discharge. Baseline data was collected from patients who underwent surgery between November 2019 - January 2020. After stakeholder discussion, the intervention was set at 3 postoperative day one labs (BMP, CBC and Mg) with subsequent labs only if clinically indicated. Trainees received educational material and monthly email reminders. A pilot was conducted from November 2021 - January 2022 with 5 surgeons who followed the intervention guidelines in patients undergoing only elective surgery and was then extended to include all CRS (elective/non-elective) over 12 months. Laboratory tests were measured as lab tests per patient day. Appropriate non-parametric statistical tests were used to evaluate differences in lab tests/day, length of stay (LOS) and 30-day readmission rates at baseline, 3, and 12 months.

Results/Outcome(s): The baseline cohort included 70 patients and the 3-month pilot included 65 patients. About 40% of pilot patients did not require any additional blood work beyond intervention guidelines, with a reduction to a median of 2 lab tests/day compared to a baseline median of 5 lab tests/day ($p<0.0001$). When the intervention was extended for 12 months and also included nonelective CRS, there was a sustained median 2 labs/day ($p<0.0001$). Overall, there was a 60% reduction in median lab tests over the 12 months. The median length of stay stayed constant over time from a baseline 5 days to 4 days after 3 months ($p=0.308$) and 12 months ($p=0.927$). Additionally, there was no change from a baseline 30-day readmission rate of 15.7% after 3 months (9.2%, $p=0.257$) and 12 months (11.8%, $p=0.374$).

Conclusions/Discussion: We significantly reduced laboratory testing on a colorectal surgery service for elective and non-elective surgeries over a short- and long-term period, without an increase in LOS or 30-day readmission rates. Interventions to reduce unnecessary postoperative laboratory testing of surgical patients are vital to high-value healthcare. Efforts are ongoing to further reduce unnecessary testing across other surgical divisions.

LATERAL PELVIC LYMPH NODE POSITIVITY (LPLNP) SCORE: PREDICTIVE CLINICO-RADIOLOGICAL MODEL OF LATERAL PELVIC LYMPH NODES INVOLVEMENT IN RECTAL CANCER PATIENTS.

S31

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Purpose/Background: Japanese guidelines recommend prophylactic lateral pelvic lymph node dissection (LPLND) for all advanced low rectal cancer. Recently, LPLN short axis >6-8 mm on MRI was proposed to plan selective LPLND. But tumor invasiveness or MRI LPLN size only can't accurately predict LPLN metastases (LPLN+). Thus, a more precise clinico-radiologal tool is needed to evaluate the risk of LPLN+ and plan highly "selective" LPLND.

Methods/Interventions: This was a retrospective-prospective single center study of patients with curative resection and LPLND for stage II–III low rectal adenocarcinoma. In retrospective patients, MRI T-stage, extramural vascular invasion (mrEMVI), mesorectal fascia involvement, mucinous tumour, suspicious LPLNs (mrLPLN+) having short-axis ≥6 mm and/or irregular borders, heterogeneous signal, or round shape were evaluated. Some patients underwent long-course chemoradiotherapy.

Open, laparoscopic or robotic anterior, low anterior, intersphincteric, or abdominoperineal resections were performed. Selective bilateral LPLND was done if suspicious LPLNs were found on pretreatment MRI. Some patients had prophylactic bilateral LPLND (no suspicious LPLN). Clinical and MRI factors associated with LPLN+ were identified, and a logistic regression and ROC-analyses used to build up LPLNP score. It was further tested on a prospective cohort.

Results/Outcome(s): 1091 patients underwent curative rectal resection in 2009-2019. Among them, 120 had LPLND: 91 selective and 29 prophylactic. The incidence of LPLN+ was 29.2% (35 patients). LPLN+ were found in 4 out of 25 patients (16%) with no visible LPLNs on MRI and in 1 out of 7 patients with LPLNs <6 mm. Compared to pathology, MRI had high sensitivity (88.6%), but low specificity (12.9%) in determining LPLN+. After stepwise reduction, the following parameters were included in the model: tumor distance from the anal verge, mrEMVI status, LPLN short-axis diameter on pretreatment MRI, mr-T stage, and histological differentiation on pretreatment biopsy. Finally, to make LPLNP score, each factor was assigned a numeric value (Figure 1). In ROC-analysis, a cut-off score of 0.23 with highest sensitivity and specificity (82.9% and 69.4%) was selected. When tested on 66 prospectively selected low rectal cancer patients, 40 had LPLND score >0.23 and thus underwent selective LPLND. Among them, LPLN+ were confirmed in 55%. LPLND score negative predictive value was 96%, sensitivity – 96%, specificity – 58%.

Conclusions/Discussion: This is the largest reported cohort of western rectal cancer patients with LPLND. MRI alone has low specificity in determining LPLN+: metastases were found not only in enlarged LPLNs, but in LPLN <6 mm or no visible LPLNs. When LPLND is done based on only clinical or MRI factors, the incidence of LPLN+ was 29%. When a complex clinico-radiological tool was applied, the incidence of LPLN+ increased up to 55%.

Clinico-radiologic LPLNP score

		Variable	Numeric value
k1	cm from anal verge	0-6.0 6.1-12.0 >12.1	1 2 3
k2	mrEMVI	positive negative	1 0
k3	LPLN short-axis on MRI (mm)	no visible 0.1-6.0 6.1-10.0 10.1-20.0 >20.0	0 1 2 3 4
k4	mrT-stage	mrT1 mrT2 mrT3 mrT4	1 2 3 4
k5	tumor differentiation at pretreatment biopsy	G1 G2 G3 mucinous signet cell	0 1 2 3 4

Logistic regression equation

$$D = \frac{1}{1 + e^{-z}}$$

D = probability of event of interest
z = standard regression equation
e = Euler's number (2.71828)

Standard regression equation (z)

$$z = a1 \times k1 + a2 \times k2 + a3 \times k3 + a4 \times k4 + a5 \times k5 + a0$$

a1, a2, a3, a4, a5 = logistic regression coefficients
a0 = intercept
k1, k2, k3, k4, k5 = numeric values (from table above)

Online calculator can be found at https://siterscs.com/LPLNDscore

Example 1
- 4 cm from the anal verge (k1 = 1)
- mrEMVI positive (k2 = 1)
- no visible LPLN on pretreatment MRI (k3 = 0)
- mrT4 (k4 = 4)
- G2 tumor at bipsy (k5 = 1)

D = 0.26 (>0.23 cut-off)
LPLND is indicated even in the absence of visible LPLN

Example 2
- 12 cm from the anal verge (k1 = 3)
- mrEMVI negative (k2 = 0)
- Short-axis of LPLN 12 mm on pretreatment MRI (k3 = 3)
- mrT4 (k4 = 4)
- G3 tumor at bipsy (k5 = 2)

D = 0.046 (<0.23 cut-off)
LPLND is not indicated even the short-axis LPLN is greater than 8 mm

KILLINGBACK AWARD WINNERIMMUNE PROFILE OF RECTAL TUMOURS IN THE SETTING OF NEO-ADJUVANT IMMUNE CHECKPOINT BLOCKADE (PD-L1) AS PART OF THE AVEREC PHASE II CLINICAL TRIAL.

S30A

K. Wilson

"WATCH-AND-WAIT" OR "LOST TO FOLLOW-UP": REAL-WORLD ADHERENCE TO SURVEILLANCE FOR NON-OPERATIVE MANAGEMENT OF RECTAL CANCER.

S32

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Purpose/Background: Due to shortcomings in existing restaging techniques and subsequent local regrowth in up to 30% of patients undergoing active non-operative management of rectal cancer, current guidelines recommend intensive surveillance as part of any "watch-and-wait" paradigm. These regimens impose significant burden on patients despite the relative paucity of data regarding optimal frequency of examinations. The aim of this study is to evaluate patient compliance with recommended active surveillance and identify differences in oncologic outcomes associated with poor compliance.

Methods/Interventions: All patients with adenocarcinoma of the rectum received total neoadjuvant therapy with short-course radiation followed by consolidation chemotherapy (SC-TNT). Patients who opted for NOM after complete clinical response (cCR) were identified in an institutional, prospectively-maintained rectal cancer registry. Minimum recommended surveillance was defined as intraluminal exam every 4 months, pelvic MRI every 6 months, and annual CT chest/abdomen/pelvis. Compliance was quantified as the percentage of recommended examinations completed out of 6 total (3 imaging + 3 intraluminal) by each patient annually or until local recurrence was identified. Patients were grouped into compliance tertiles for analysis.

Results/Outcome(s): Out of 255 patients who received SC-TNT from June 2016 to October 2021, 107 were found to have a cCR and met criteria for inclusion. 65 of these 107 patients were eligible for a second year of surveillance based on cCR date. Compliance results can be found in Table 1. 54 patients (50.5%) were fully compliant with the minimum number of recommended surveillance exams during the first year of NOM, and 22 patients (34%) during the second year. Average compliance with imaging and intraluminal exams was 86% and 82%, respectively, in year 1. In year 2, average compliance was 74% and 65%, respectively. Local recurrence was identified in 31 patients (29%), all but 1 of whom proceeded to surgery for definitive resection. Only one patient developed distant metastases (as well as local recurrence) during NOM and ultimately expired from complications.

Conclusions/Discussion: Half of our patients were fully compliant with the minimum number of recommended surveillance exams during the first year of NOM, and only 1/3 of patients during the second year. Real-world compliance may not reflect compliance in published clinical trials. While we regularly provide patient education and encouragement, compliance is ultimately patient-driven and requires commitment to rigorous surveillance. Conclusions regarding oncologic outcomes are significantly limited by patients with poor compliance or who were lost to follow-up.

	YEAR 1			YEAR 2		
% compliance	# of patients (% of cohort)	# w/ local recurrence	# w/ development of distant metastasis	# of patients (% of cohort)	# w/ local recurrence	# w/ development of distant metastasis
Lost to follow-up (0%)	1 (1%)	0*	0*	6 (9%)	0*	0*
1-34%	7 (6.5%)	0	0	7 (11%)	0	0
35-67%	14 (13%)	0	0	18 (28%)	0	0
68-99%	31 (29%)	4	1	12 (18%)	1	0
Fully compliant (100%)	54 (50.5%)	24	0	22 (34%)	2	0

Table 1. Number of patients by average percent compliance with imaging and intraluminal exams (* = limited by lack of follow-up)

COLORECTAL CANCER DIAGNOSIS BY A PORTABLE BREATH ANALYZER.

M1

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Purpose/Background: Colorectal cancer screening may save life but screening tests available so far have unsatisfactory reliability and very low patients' compliance. A pattern of volatile organic compounds (VOCs) in exhaled breath has been found to be a potential noninvasive diagnostic tool for detection of colorectal cancer. This study aims to evaluate the reliability of an innovative, portable gas chromatography (GC) device, to enable rapid, on-site colorectal cancer diagnosis.

Methods/Interventions: Between July 2021 and May 2022, patients submitted to curative surgery for histologically proven adenocarcinoma of the colon or rectum (I-II and III clinical stage) and healthy controls (HC) with negative colonoscopy entered the study. Exclusion criteria Included history of other cancers, endoscopic removal of colonic polyps or a history of familial adenomatous polyposis or Lynch syndrome, IBD, liver disease and metastatic CRC. The exhaled breath was collected into Tedlar bags through a Nafion filter and mouthpiece with a one-way valve and analyzed within 24 hours by an automated portable gas chromatography (GC) device, containing a miniaturized thermal desorption tube, thermal injector, separation column, and photo-ionization detector, as well as other accessories such as pumps, valves, and a helium cartridge. The chromatograms were analyzed by

chemometrics, machine learning, principal component analysis and linear discriminating analysis.

Results/Outcome(s): 36 CRC patients (median age 67, IQR 61.7-77.2, 9 females, Stage I: 7, 19.4%; Stage II: 15, 41.7%, Stage III: 14, 38.9%) and 32 HC (median age 65, IQR 60-74, 15F) well matched for smoking habit and comorbidities, entered the study. After a training set (18 CRC and 18 HC), and a testing set (18 CRC and 14 HC), the detection of three VOCs was able to discriminate CRC patients from HC with an overall specificity of 87.5%, sensitivity of 94.4% and accuracy of 91.2%.

Conclusions/Discussion: This preliminary data indicates that the innovative portable gas chromatography (GC) device can discriminate colorectal cancer patients from people CRC free, with high reliability, suggesting its potential use for rapid and on-site CRC mass screening.

CHARACTERISTICS AND OUTCOMES OF STAGE IV COLON CANCER PATIENTS WITH MSI-INSTABILITY TREATED WITH IMMUNOTHERAPY.

M2

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Purpose/Background: Immunotherapies have shown promise in the treatment of patients with metastatic colorectal cancer and mismatch repair (MMR) deficiency/microsatellite instability (MSI). While there is compelling data to support its use, adoption has been variable. We sought to evaluate the utilization of immunotherapy and associated disparities of patients with MMR-deficient/MSI-unstable stage IV colon cancer treated with immunotherapy.

Methods/Interventions: We conducted a retrospective review of the National Cancer Database for patients with stage IV colon adenocarcinoma and MSI instability from 2009 to 2017. MSI-high patients were divided into two cohorts based on whether they had received immunotherapy. Multivariable cox proportional hazards modeling was used to examine the adjusted association between use of immunotherapy and overall survival while controlling for use of systemic chemotherapy and any surgical procedures.

Results/Outcome(s): Among 1,558 stage IV colon cancers included, 672 (43.1%) were MSI-high. A total of 332 (21.3%) of patients received immunotherapy. Among MSI-high patients, use of immunotherapy increased from none to 39.8% in 2017. On univariate analysis, patients receiving immunotherapy were younger (median age 61.5 versus 66 years; $p<0.001$) and more likely to have MSI-high profiles (51.5% versus 40.9%, $p<0.001$). Although the majority of patients in both groups had government-based insurance, a significantly higher number in the immunotherapy group had private insurance (45.3% versus 35.4%; $p=0.004$). Gender, race, ethnicity, education, income, facility type and distance, geographic setting, and Charles-Deyo comorbidity scores were not significantly different between the two groups. On multivariable analysis, younger age (OR 0.98, 95% CI 0.96-0.99, $p=0.001$) and MSI-high status (OR 1.05, 95% CI 1.02-1.07, $p<0.001$) maintained statistical significance in predicting patients receiving immunotherapy. Amongst MSI-high patients, overall survival was greater for patients who received immunotherapy (5-year survival 35% versus 20%, $p<0.001$). Furthermore, after adjustment for age, sex, race, facility type, any use of chemotherapy, and any surgery, use of immunotherapy was associated with lower risk of overall mortality (HR 0.659, 95% CI 0.51-0.84, $p<0.001$).

Conclusions/Discussion: In a nationwide analysis, MSI-high patients were more likely to receive immunotherapy. Notably, overall survival was significantly higher in the immunotherapy group. The most striking finding from our dataset is that less than half of patients with stage IV colon cancer and MSI instability received immunotherapy, suggesting underutilization of this treatment. Future research should address the timing of administration of immunotherapy, long term outcomes of patients, subclasses of patients deriving the most benefit from treatment, and barriers to use of immunotherapy.

CT-DIAGNOSED EMVI STATUS HAS HIGH PROGNOSTIC ACCURACY IN COLON CANCER PATIENTS: COMPARISON OF PATHOLOGIC EMVI.

M3

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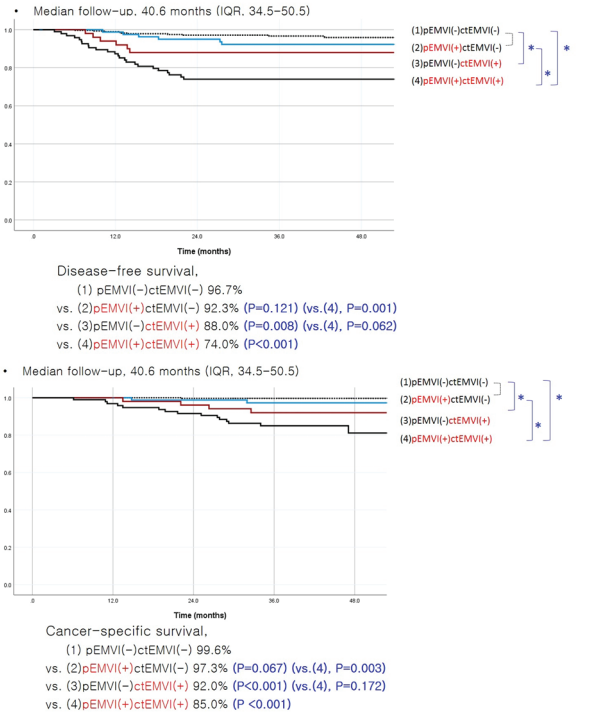
Purpose/Background: Extramural venous invasion (EMVI) is a well-known poor prognostic factor, but only a subset of patients developed cancer recurrence. Considering major role of EMVI, we perceived two different types of EMVI: CT-diagnosed EMVI (ctEMVI, based on vascular enlargement with tumor density in CT scan) and pathologic EMVI (pEMVI, based on existing tumor cells in vein). We hypothesized that ctEMVI shows a tumor-host interaction during cancer dissemination and represents late-stage EMVI, while pEMVI represents early-stage EMVI. However, little is concerns about this difference. We aimed to assess whether ctEMVI and pEMVI have different prognostic implications and compare these to other known prognostic factors in colon cancer patient.

Methods/Interventions: A total of 509 patients who underwent curative resection for stage I-III colon cancer between September 2015 and 2017 were retrospectively reviewed. Evaluating pEMVI, several sections, including the deepest part of tumor, were stained with hematoxylin and eosin and elastin stain.

Results/Outcome(s): The accuracy of stratification for detecting EMVI by CT compared with histological examination was 73.8%. Cox regression analysis showed ctEMVI (hazard ratio, 2.656; 95% confidence interval [CI], 1.271-5.548, P<0.001) and lymph node metastasis (hazard ratio, 2.727; 95% CI, 1.318-5.641, P<0.001) to be significantly associated with poor disease-free survival (DFS) and ctEMVI (hazard ratio, 2.656; 95% CI, 1.271-5.548, P<0.001) and pathologic T3, T4 (hazard ratio, 13.452; 95% CI, 1.716-105.467, P=0.022) with poor overall survival (OS). When stratifying all patients by pathologic and CT-diagnosed EMVI, patients with both-negative [ctEMVI(-)pEMVI(-)] had comparable DFS and OS with only pEMVI [ctEMVI(-)pEMVI(+)], but, significantly better DFS and OS than those with only ctEMVI [ctEMVI(+)pEMVI(-)] and both-positive. Ten of 291 patients in both-negative group had cancer recurrence, but after radical resection for metastasis, eight were disease-free state at the last follow-up. On the other hand, among the 24 who had recurrence in both-positive group, only four were disease-free state at the last follow-up.

Conclusions/Discussion: CT-diagnosed EMVI has greater prognostic accuracy than pEMVI. In addition, patients in both-negative group had controllable recurrence, while patients with pathologic or CT-diagnosed EMVI mostly had unresectable recurrence. Further study should be performed to confirm this finding.



TUMOR DEPOSIT SHOULD BE CONSIDERED SIGNIFICANTLY AS POOR PROGNOSTIC FACTOR IN STAGE III COLON CANCER: MULTICENTER DATABASE STUDY.

M4

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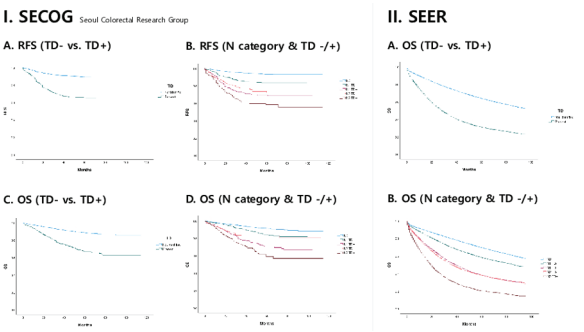
Purpose/Background: In the current AJCC staging system of colon cancer patients, tumor deposits (TDs) are implemented into the N category as N1c. However, if there are LN metastasis, the presence of TDs is ignored and only the number of LN metastasis is important to categorize nodal stages, such as N1a/b or N2a/b. We aimed to investigate the oncologic impact of TDs in colon cancer and suggest the optimal changes of AJCC staging system without ignoring the prognostic values of TDs.

Methods/Interventions: Prospectively collected primary colon cancer patients on the Seoul Colorectal group (SECOG) database, who underwent curative radical resections between January 2010 and December 2020 at 3 tertiary hospital were analyzed retrospectively. Clinical characteristics and risk factors of TD-positive were analyzed. Recurrence-free survival and overall survival were compared between TD-negative and TD-positive patients in each pN category. We also analyzed the oncologic impact using the SEER database.

Results/Outcome(s): Among the 4,806 patients (mean age=63.76, M:F=56.3:43.7), 903 (18.8%) had tumor deposits and mean TD count was 1.46 ±2.43. Out of 903 TD-positive patients, 556 (61.5%) patients were concomitantly LNM positive and 188 (20.8%) patients were staged as pN1c. TD-positive were significantly related with left colon cancer, poorly differentiated histology, pT3 or pT4 category, four or more of positive lymph nodes, vascular invasion, and perineural invasion in multivariable analysis (p<0.05). The median follow-up period was 37.52 months. (range, 1-114 months), and recurrence developed in (11.63%) patients. TD-positive patients had been recurred significantly more (8.3% vs. 29.0%, p<0.001). The RFS and OS of TD-positive patients was significantly worse than TD-negative patients (5-year RFS; 72.7% vs. 89.4%, p<0.001, 5-year OS; 66.3% vs. 87.3%, p<0.001). In stage III, the RFS and OS in the patients with N1 and TD+ were significantly worse than those with N1 and TD- (5-year RFS; 73.8% vs. 85.3%, p<0.001, 5-year OS; 69.5% vs. 83.1%, p<0.001). The RFS and OS in the patients with N2 and TD+ were also significantly worse than those with N2 and TD- (5-year RFS; 66.5% vs. 73.9%, p<0.001, 5-year OS; 56.4% vs. 79.0%, p<0.001). However, the RFS and OS of N1 TD-positive patients compared with N2 TD-negative patients were statistically not different (p=0.972 and p=0.061) (Fig1A)

The survival outcomes using the SEER database showed comparable results (p=0.105) (Fig1B).

Conclusions/Discussion: TDs were associated with risk factors presenting poor prognosis and significantly affected the survival outcomes. Presence of TDs in stage III colon cancer patients presented significantly worse survival outcomes in pN categories. The impact of TDs on prognosis should not be reduced, and it could be suggested that the oncologic prognostic significance of N1 and TD-positive are similar to those of N2.



RISK OF PROCTECTOMY AFTER ILEORECTAL ANASTOMOSIS IN FAMILIAL ADENOMATOUS POLYPOSIS IN THE MODERN ERA.

M5

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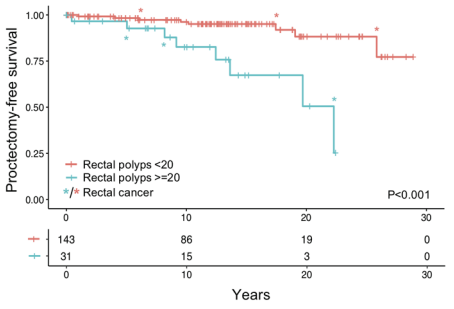
Purpose/Background: Prophylactic surgery for familial adenomatous polyposis (FAP) has evolved over several decades. Restorative proctocolectomy with ileal pouch anal anastomosis (IPAA), developed in the 1980s, provided an alternative to total abdominal colectomy with ileorectal anastomosis (TAC/IRA). We have previously shown that the rate of proctectomy and rectal cancer after TAC/IRA in the "pre-pouch" era was 32% and 13%, respectively. We hypothesize that patients with FAP and relative rectal sparing specifically selected for IRA in the modern era (1993-2020) would have lower rates of secondary proctectomy and rectal cancer.

Methods/Interventions: Patients with FAP who underwent TAC/IRA from 1993-2020 were identified in an IRB-approved Inherited Colorectal Cancer Registry. Data on demographics, APC pathogenic variants and extra-colonic manifestations were abstracted. Number of rectal polyps present at the time of TAC/IRA was recorded. The primary outcome was rate of proctectomy and secondary outcome was rectal cancer incidence.

Results/Outcome(s): 197 patients underwent TAC/IRA between 1993 and 2020. At the time of TAC/IRA, median age was 24 (range 10-67) and median number of rectal polyps was 5 (IQR 0-14, rectal polyp number was not recorded in 23 patients). Chemoprevention (most commonly sulindac) was utilized in 65 patients (33%) before and/or after IRA. Median follow-up was 13 years (IQR 6-17). Sixteen patients (8%) had secondary proctectomy. Indication for proctectomy was rectal cancer (N=6, 3%) (N=2 Stage I; N=4 Stage III), polyps with high grade dysplasia (N=4), increasing polyp burden (N=3), defecatory dysfunction (N=2) and anastomotic leak (N=1). Median time to proctectomy was 10 years (IQR 6-18) and median time to rectal cancer was 14 years (IQR 7-22). Overall, 31 of 174 patients (18%) had 20 or more rectal polyps at the time of TAC/IRA. In this group, 8 patients (26%) underwent proctectomy and 3 patients had rectal cancer (10%). Among those with less than 20 polyps, 8 patients (6%) underwent proctectomy and 3 patients had rectal cancer (2%). Proctectomy-free survival was significantly different for patients who had more or less than 20 polyps at the time of TAC/IRA (Figure 1). In univariable analysis, the number of rectal polyps at the time of TAC/IRA was associated with the likelihood of proctectomy (OR 1.1, P<0.001). Rectal polyp number was not associated with incident rectal cancer.

Conclusions/Discussion: In the modern era, patients with FAP selected for TAC/IRA have low rates of secondary proctectomy and rectal cancer compared to historical controls. Although more than 20 rectal polyps at the time of TAC/IRA was associated with a higher proctectomy rate, the majority of patients in this group did not go on to proctectomy, and rectal polyp burden was not a predictor of developing rectal cancer. With appropriate selection criteria and surveillance, IRA remains an important treatment option for patients with FAP.

Figure 1: Proctectomy-free survival based on rectal polyp number at the time of TAC/IRA



DIGITAL INTERVENTION USING MOBILE DEVICE ON LIFESTYLE AFTER SURGERY IN PATIENTS WITH COLORECTAL CANCER: SHORT-TERM OUTCOMES OF A RANDOMIZED CONTROLLED TRIAL.

M6

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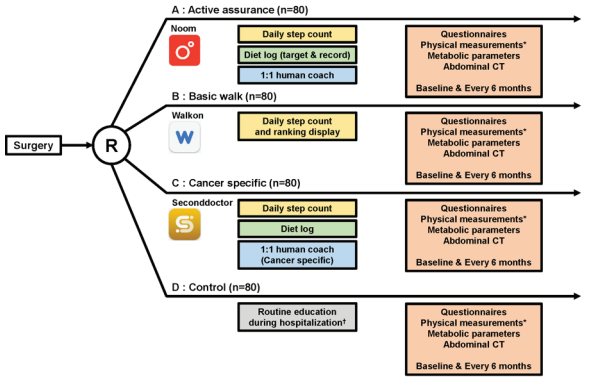
Purpose/Background: Colorectal cancer is one of the most common cancers worldwide. Surgical modalities and adjuvant treatments have advanced over the past century, but relatively less attention has been given to improving the quality of life (QOL). Recent studies report significant association with cancer recurrence and patient lifestyle after surgery, hence emphasizing the necessity to aid patients' daily life after surgery. The proposed study will evaluate the effects of digital intervention using mobile applications on lifestyle after surgery for colorectal cancer.

Methods/Interventions: A randomized controlled trial (RCT) was performed. A total of 320 patients diagnosed with colorectal cancer between age 20 to 70 years old were to be enrolled. Patients were randomized to 4 groups (3 groups each assigned to different mobile applications, and the control group). Surveys valuating health-related QOL, physical measurements, metabolic parameters (fasting glucose, HbA1c, triglyceride, HDL cholesterol), and fat/muscle mass measured in abdominal computed tomography (CT) were checked before surgery and every 6 months after surgery. Statistical analyses were computed to compare outcomes between groups.

Results/Outcome(s): A total of 320 patients were enrolled in the study during November 2020 to November 2021. Intervention groups A, B, and C consisted of 76, 80, and 78 patients respectively and the control group comprised of 79 patients. There were no significant differences in basic characteristics between each group. Baseline metabolic parameters and fat/muscle measured from abdominal CT were comparable between each group except serum triglyceride in which group C was significantly higher (P =0.035). At 6 months follow up, 278 patients had complete data. At 6 months after surgery, the two groups did not present significant difference in metabolic parameters and fat/muscle measurements. The intervention group presented a better improvement in health-related QOL survey scores, most significantly in the FACT-C survey (P =0.017).

Conclusions/Discussion: Short-term results show no significant influence in metabolic parameters and fat/muscle mass from using mobile applications. The intervention group presents a trend of better QOL status at 6 months after surgery. The study will further evaluate changes of metabolic parameters, fat/muscle measurements, and health-related QOL scores during 18 months and will assess the effects of digital intervention on colorectal patients after surgery.



Schematic flowchart of clinical trial describing functions of each application and patient assessment during study progress.

PELVIC EXENTERATION FOR ANAL SQUAMOUS CELL CARCINOMA: ONCOLOGICAL, MORBIDITY AND QUALITY OF LIFE OUTCOMES.

M7

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Purpose/Background: Salvage surgery is the only potentially curative treatment option for patients with anal squamous cell carcinoma (aSCC) that persists or recurs after definitive chemoradiotherapy. Where adjacent pelvic viscera, soft tissues and bone are involved, pelvic exenteration (PE) with wide excision of the perineal skin and pelvic floor musculature may be required to ensure R0 resection. Recent data indicates PE for aSCC is associated with higher morbidity rates compared to PE for other tumour types.

Methods/Interventions: Consecutive patients who underwent PE for aSCC at a single centre between 1994 and 2021 were included. Clinical and quality of life (using SF-36® collected at baseline, 6, 12, 18 and 24 months postoperative) data were extracted from a prospectively maintained database.

Results/Outcome(s): Of 958 patients who underwent PE, 66 patients (6.9%) had aSCC. 32 patients (48.5%) were male and the median age was 57 years (range 31-79). 10 patients (15%) had primary aSCC (chemoradiotherapy contraindicated), 49 (74%) had recurrent aSCC (previous chemoradiotherapy) and 7 (11%) had re-recurrent aSCC (previous chemoradiotherapy and salvage abdominoperineal resection). In recurrent aSCC, median time from chemoradiotherapy to PE was 11 months (range 3-161 month). Operative information, morbidity and mortality data are presented in table 1. Of 62 patients who underwent PE with curative intent, 50 (81%) had R0 resection. For patients with primary, recurrent and re-recurrent tumours the R0 margin rate was 100%, 80% and 57%, respectively (p=0.071). For patients undergoing PE with

curative intent, 5-year overall survival was 41% and the median overall survival was 26 months. R0 resection was associated with a higher 5-year overall survival (50% vs. 8%, p<0.001). 5-year overall survival for patients with primary, recurrent and re-recurrent tumours was 58%, 41% and 18% (p=0.315). Local recurrence data was available for 49 patients and 1-, 3- and 5-year local recurrence-free survival rates were 65%, 39% and 37%, respectively. The 2-year local recurrence-free survival was higher in patients with R0 resection compared to those with involved margins (57% vs. 11%, p<0.001). Of the 34 patients that reported quality of life data, the mental health component scores, role-physical, bodily pain, vitality, social functioning and mental health presented slightly improved trajectories between baseline and 24 months postoperatively (all p values < 0.05). No statistically significant changes were observed in the physical component score, physical functioning, general health and role-emotional trajectories over time.

Conclusions/Discussion: Although PE for aSCC is associated with significant morbidity, mostly due to perineal wound and myocutaneous flap-related complications, long-term survival and quality of life outcomes compare favourably to published outcomes of PE for other tumour types including locally recurrent rectal cancer.

Table 1. Operative information, morbidity and mortality following pelvic exenteration for anal SCC (N=66)

Characteristic	N (%)
Neurovascular resection	
Lateral compartment excision	31 (41)
Sciatic nerve excision	8 (12)
Common/External iliac vessel excision	1 (1.5)
Urinary resection	
Partial cystectomy	2 (3)
Total cystectomy	41 (62)
Ileal conduit	34 (51.5)
Colonic conduit	6 (9)
Bone Resection	
Sacrectomy	44 (67)
S1	2 (3)
S2	0 (0)
S3	22 (33)
S4	13 (20)
S5	6 (9)
Anterior sacral cortex excision	1 (1.5)
Pubis	18 (27)
Ischium	17 (26)
VRAM flap reconstruction	38 (56)
*Blood loss, median (range), mL**	1800 (0-8000)
Length of operation, median (range), minutes	580 (234-1068)
Length of ICU admission, median (range), day	4 (0-71)
Length of stay, median (range), day	24 (10-196)
Return to theatre	16 (24)
Perineal/sacral wound or flap necrosis or dehiscence	7 (11)
Perineal/pelvic collection	2 (3)
Perineal necrotising fasciitis	1 (1.5)
Enteroperineal fistula	1 (1.5)
Small bowel obstruction	1 (1.5)
Concern for ileal conduit ischaemia (conduitoscopy)	1 (1.5)
Urine leak	1 (1.5)
Lower limb compartment syndrome	1 (1.5)
Long saphenous vein ligation for thrombus	1 (1.5)
Complications	
Any	54 (82)
CD Grade I/II	43 (65)
CD Grade III/IV	22 (33)
In hospital mortality	1 (1.5)

* Data missing for 12 patients; *CD – Clavien-Dindo*

ROBOTIC LATERAL LYMPH NODE DISSECTION FOR RECTAL CANCER RECURRENCE.

V1

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Purpose/Background: This is a case of a 51-year-old female who previously underwent a low anterior resection. Following an anastomotic recurrence, she underwent chemoradiotherapy and an abdominoperineal resection. On follow-up, a Positron Emission Tomography (PET) scan revealed the presence of two hypermetabolic left external iliac lymph nodes. Following additional cycles of FOLFOX, a repeat PET scan revealed a near-complete response with a residual lymph node with mild uptake.

Methods/Interventions: Following a multidisciplinary team meeting, the patient was scheduled for a robotic left lateral lymph node dissection using the Da Vinci SI.

Results/Outcome(s): There were no perioperative complications. The length of hospital stay was 2 days with no immediate postoperative complications. The patient developed mild difficulty at adducting her left lower extremity following hospital discharge, but symptoms spontaneously resolved within the month following the procedure. Final pathology revealed no evidence of malignancy indicative of complete response following chemotherapy.

Conclusions/Discussion: The patient is alive and has been recurrence-free thus far for more than two years.

(NOT ONLY) ROBOTIC SPLENIC FLEXURE MOBILIZATION, ANATOMICAL LEARNING POINTS.

V2

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Park Ridge, IL

Purpose/Background: The anatomy of the splenic flexure is complex and not always well understood by surgeons.

Methods/Interventions: This video describes the anatomical nuances of the splenic flexure. It also demonstrates the different approaches to how to mobilize it with the robotic assistance.

Results/Outcome(s): The anatomic nuances as well as the infra-mesocolic, lateral and superior approaches were demonstrated.

Conclusions/Discussion: The robotic surgical platform allows the mobilization of the splenic flexure in a safe and controlled way.

MINIMALLY INVASIVE ROBOTIC SURGERY IN PELVIC LYMPH NODE DISSECTION VIA THE PELVIC FLOOR FIRST APPROACH.

V3

M. Yokota, A. Morikawa, H. Matsuoka, K. Yamaguchi, J. Muto, K. Hashida, Y. Nagahisa, Y. Inamura, M. Okabe, H. Kitagawa, K. Kawamoto
Kurashiki, Japan

Purpose/Background: In advanced rectal cancer, pelvic lymph node metastases that do not completely respond to total neoadjuvant treatment (TNT) can be treated by pelvic lymph node dissection. These metastases are more likely to occur in the deep pelvic floor region around the inferior vesical vessels. Thus, pelvic lymph node dissection is difficult, with a risk of incomplete removal of the metastatic lymph nodes. This video aims to show a successful case of minimally invasive robotic surgery during pelvic lymph node dissection via the pelvic floor first approach.

Methods/Interventions: A 63-year-old man was diagnosed with advanced lower rectal cancer and left pelvic lymph node metastasis. The left pelvic metastatic lymph node was located in the deep pelvic floor near the inferior vesical vessels. TNT failed to achieve a clinically complete response; thus, we performed intersphincteric resection (ISR) and left pelvic lymph node dissection. In the first step of the pelvic floor first approach, the lymph nodes at the pelvic floor along the levator ani muscle were dissected toward the pelvic wall. This dissection started at the S4 nerve as a landmark and ended at the internal obturator muscle. Then, the pelvic region was separated along the ureterohypogastric and vesicohypogastric fascia in an antegrade approach. Finally, all pelvic lymph nodes were completely removed.

Results/Outcome(s): The use of robotic multi-joint forceps made the retrograde approach from the pelvic floor side possible. The initial approach from the pelvic floor allowed us to clearly define the bottom line of the pelvic lymph nodes that would be removed first, thereby preventing the incomplete removal of the pelvic lymph nodes. Additionally, all fluid leaking intraoperatively was drained to the pelvic floor, keeping the surgical field dry during the operation. The total bleeding amount, including during the total mesorectal excision, was only 59 mL, suggesting the benefit of the minimally invasive approach. The patient had no complications and maintained normal urinary function.

Conclusions/Discussion: Minimally invasive robotic surgery during pelvic lymph node dissection by the pelvic floor first approach is feasible, yielding favorable outcomes. The pelvic floor first approach is very helpful for dissecting lymph nodes situated in the deep pelvis.

FINNEY STRICTUREPLASTY.

V4

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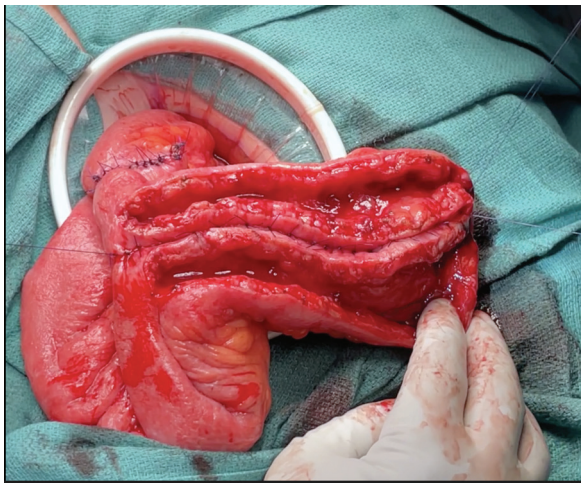
Cleveland, OH

Purpose/Background: VIDEO SUMMARY This video demonstrates the technical pearls in Finney Strictureplasty construction. Highlighted critical steps include how to choose the loop of ileum, folding the loop side-to-side, fashioning the enterotomy, placing stays, construction of the back wall outer and inner layers, construction of the front wall, assuring non-obstructed inflow/outlow, and leak testing.

Methods/Interventions: Patient Preparation: If combined with colectomy, consider antibiotic & mechanical bowel prep Patient Position: Supine Critical Steps: Run entire small bowel, document all strictures, length of bowel in situ at start/end of case; consider use of Foley balloon or calibration spheres to run bowel intra-luminally Contraindications: fistula, abscess, neoplasia, distal obstruction Longitudinal enterotomy made with cautery over the stricture onto normal bowel Alternative: Finney may be constructed using a gastrointestinal stapler with thick tissue reloads Strictureplasty construction with 3-0 suture Ensure inflow and outflow are not obstructed/kinked Consider leak test May be combined with Heineke-Mikulicz strictureplasty or small bowel resection(s) Selective proximal diversion

Results/Outcome(s): Technical Pearls/Tips: Moderately long strictures, generally ≥7 cm and ≤15 cm The selected loop of bowel measured and positioned in a side-to-side manner Long seromuscular longitudinal anti-mesenteric enterotomy with electrocautery; lumen then entered sharply, enterotomy taken full thickness with aid of a clamp, and extended on both sides onto normal bowel; a "pop" is typically observed as the stricture is fully released Stay sutures placed at base and apex Selective frozen section biopsies in long-standing or suspicious strictures Backwall, outer layer: seromuscular bites, running or interrupted 3-0 suture, SH-1 Backwall, inner layer: full-thickness bites, using a full-length running 3-0 suture Front wall, single layer: full-thickness bites using a full-length running 3-0 suture Consider leak testing with dilute betadine prior to closing the running suture line Front wall outer layer used selectively as bowel is typically non-compliant enough for 2nd layer Confirm patency of the inflow and outflow Selective proximal diversion (surgeon discretion) based on risk factors for leak (such as malnutrition, steroids, others)

Conclusions/Discussion: Potential Areas for Injury/Complication: suture line bleeding, obstruction from backwalling, leak



LAPAROSCOPIC LOW ANTERIOR RESECTION WITH TaTME AND LEFT LATERAL LYMPH NODE DISSECTION FOR LOW RECTAL CANCER AFTER NEOADJUVANT TREATMENT.

V5

L. Lau, A. Shellito, Y. Guo, P. Sylla
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Purpose/Background: 50 year old male with BMI 18.3, no significant past medical history who presented changes in bowel movements and hematochezia. Colonoscopy demonstrated a moderately differentiated rectal adenocarcinoma located anterolaterally, 6 cm from the anal verge. CEA was 2.3 and staging CT and pelvic MRI demonstrated cT3N3M0 with a 2.3 x 1.7 cm left pelvic sidewall node, clear mesorectal fascia and no sphincter involvement. Based on tumor board recommendations, he underwent total neoadjuvant therapy (TNT). Post-treatment MRI demonstrated near complete tumor response (pT1/2N+) with downsizing but persistently enlarged left lateral pelvic lymph node (1.8x1.3 cm).

Methods/Interventions: The patient was discharged on postoperative day 4 after an uneventful course. Final pathology demonstrated ypT0N0M1 with residual high-grade dysplasia, negative margins, complete TME grade, 0/24 positive mesorectal lymph nodes but 1/12 positive left lateral lymph nodes.

Results/Outcome(s): The patient was discharged on postoperative day 4 after an uneventful course. Final pathology demonstrated ypT0N0M1 with residual high-grade dysplasia, negative margins, complete TME grade, 0/24 positive mesorectal lymph nodes but 1/12 positive left lateral lymph nodes.

Conclusions/Discussion: 50 year old male with cT3N3M0 low rectal cancer with an enlarged left pelvic side wall node treated with TNT with near complete response, who underwent laparoscopic LAR with taTME and laparoscopic left lateral pelvic lymph node dissection with diverting loop ileostomy. Final pathology confirmed ypT0N0M1 with 1/12 positive left lateral pelvic lymph node. TME with curative intent should include lateral pelvic lymph node dissection when rectal cancer presents with persistently enlarged lateral pelvic lymph nodes post neoadjuvant treatment.

SINGLE PORT RIGHT COLECTOMY USING THE DA VINCI SP SYSTEM.

V6

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San Francisco, CA

Purpose/Background: While minimally-invasive surgery for colectomy has historically involved the use of multiple ports, novel single-port (SP) laparoscopic approaches generally offer non-inferior outcomes compared to multi-port approaches. SP techniques in colorectal surgery were first introduced in 2008, but widespread implementation of these techniques has been slowed by technical challenges. The Da Vinci SP System overcomes many of the technical challenges that have hindered SP adoption, such as by reducing collision of the robotic arms when operating within a limited space.

Methods/Interventions: This video abstract gives a technical description of the novel robotic SP approach for right colectomy using the Intuitive Da Vinci SP Platform. Five patients underwent right colectomies. Patients were positioned right-side up (~15 degrees) and in slight Trendelenburg (~10 degrees), and a 12 mm assistant port was placed in the left mid-abdomen under direct visualization for energy and stapling devices. We recommend the use of a Pfannenstiel incision for SP access, with the length of the incision based on the expected size of the extraction specimen. We also recommend the use of a Bubble port (Intuitive) to facilitate use of the SP instruments with optimal working distance. In our procedures, the fenestrated bipolar instrument was placed in arm 1, cardiere forceps in arm 2, and monopolar scissors in arm 3. First, the ileocolic vessels were identified and divided. Then, we performed a medial-to-lateral mobilization of the ascending colon. During the mobilization, we alternated between using the fenestrated bipolar with the cardiere (for blunt dissection) or with the scissors (for sharp dissection). The small bowel and the transverse colon mesenteries were divided with a Ligasure and the bowels were both divided using an endoGIA stapler with a 60 mm load. We then performed an iso-peristaltic side-to-side anastomosis using the same stapler, closing the enterotomy with running 2-0 PDS V-Lock sutures in two layers: an inner layer of full-thickness running sutures, and an outer layer of running Lembert sutures. Finally, the specimen was extracted through the Pfannenstiel incision and the incision was closed.

Results/Outcome(s): All five SP right colectomies were completed without converting to open or laparoscopic

procedures. Of the five patients, one developed postoperative portal vein thrombosis and one other had excessive postoperative pain.

Conclusions/Discussion: This video describes the safe and efficient conduct of single-port right colectomy procedures using the Intuitive Da Vinci SP platform.

OUTCOMES FOLLOWING PELVIC EXENTERATION WITH EN BLOC SACRETOMY FOR RECURRENT RECTAL CANCER.

M8

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Purpose/Background: Locally recurrent rectal cancer (LRRC) remains a complex clinical challenge with a morbid disease pattern and a poor prognosis if left untreated. Pre-sacral recurrence with direct sacral invasion historically has been a contraindication to surgery due to increased rates of morbidity and mortality. Chemoradiation can provide symptomatic relief but carries a poor 5-year survival. Studies have demonstrated that pelvic exenteration with en bloc sacrectomy (PES) can achieve R0 resection with added survival benefit. As survival rates have improved, more interest has been shown in the quality of life (QOL) following sacrectomy. The aim of this study was to provide a large single-centre cohort to compare oncological and QOL outcomes following PES for LRRC.

Methods/Interventions: A retrospective review of prospectively collected data for patients undergoing Pelvic Exenteration (PE) for LRRC at Royal Prince Alfred hospital, Sydney, between July 1994 and November 2021 was performed. Demographic, operative and histological data was collected and analysed. Quality of life data was measured with SF-36 and Fact-C questionnaires at 6 monthly intervals

Results/Outcome(s): 305 patients underwent PE for LRRC (120 PE, 185 PES) of those undergoing PES 65 had high sacral transection above S2/3 junction and 119 below. Patients undergoing PES were more likely to need urological reconstruction (33.3% vs 64.3% p<0.001), VRAM flap repair (3.4% vs 19.5% p<0.001) and major nerve resection (23.5% vs 42.2% p<0.001) as part of their procedure. Similarly the PES cohort had longer operative time (8.7h vs 10.5h p<0.001) greater blood loss (2L vs 3.8L P=0.001) and transfusion requirements (61.5% vs 89.6% p<0.001). PES patients experienced more major post-operative complications (44.2% vs 63.2% p=0.001). R0 rates were high in both groups (72.5% vs 80% p=0.128), interestingly despite the higher R0 in PES, this cohort experienced poorer Median and 5 year overall survival (73mths vs 47mths p=0.059 and 51.9% vs 39.6% respectively). Multivariate analysis found R0 the greatest predictor of survival (p=0.007) QOL data did not demonstrate significant difference between PE and PES patients across physical component (p=0.346), mental component (p=0.787) and FACT-C (p=0.679) scores at 24 month follow up

Conclusions/Discussion: Patients undergoing PE and PES for LRRC experience similar rates of R0 resection and QOL outcomes. As R0 remains the most important predictor of survival the requirement of sacral resection should not be seen as a barrier to surgery. In subspecialist multidisciplinary units excellent R0 rates are achievable without a significantly increased burden on QOL

CURRENT RECTAL CANCER SURVIVORSHIP CARE: UNMET PATIENT NEEDS AND FRAGMENTED SPECIALIST AND FAMILY PHYSICIAN CARE.

M9

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Purpose/Background: With advances in rectal cancer management and improved prognosis, there is a growing number of rectal cancer survivors with unique needs. We hypothesize that the current rectal cancer survivorship care is limited in terms of communication among healthcare professionals, access to family physicians (FP), and targeted, dedicated care.

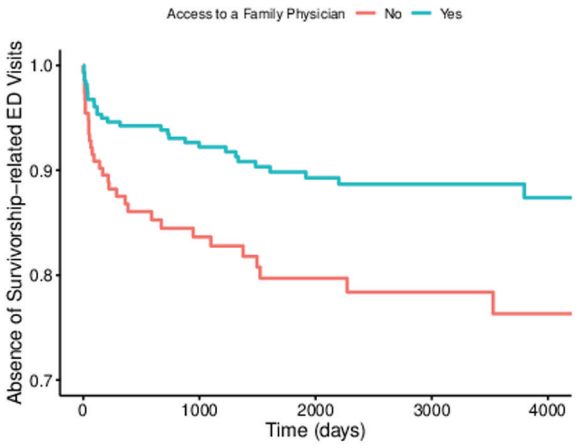
Methods/Interventions: Part 1: A retrospective cohort study was performed on rectal cancer survivors who underwent proctectomy and completed all adjuvant treatment from 2005-2021 in a tertiary-care practice in Canada. The main outcome was survivorship-related ED visits, defined as those related to bowel, sexual, and urinary dysfunction, chemotherapy-related complications, and stoma/wound-related complications not requiring an admission. Part 2: A qualitative study was performed with 5 colorectal surgeons, 2 medical oncologists, 1 radiation oncologist, and 4 FPs with rectal cancer patients in their practice. Semi-structured interviews were conducted to explore rectal cancer survivors' needs and their existing survivorship care. Grounded theory was used for thematic analysis.

Results/Outcome(s): Part 1: From 2006 to 2021, 441 rectal cancer survivors completed treatment. Median age was 72 (IQR 63-82) years, 189 (42.9%) were female, and median Charlson Comorbidity Index was 5 (IQR 4-6). There were 156 (35.4%) patients who did not have a FP. In total, there were 673 ED visits for all individuals, of which 60 visits were related to survivorship-related unmet needs. The most common reason for ED visit was bowel dysfunction (n=36, median 187, IQR 44-1023 days from end of treatment), followed by chemotherapy-related neuropathy (n=14, median 361, IQR 93-1334 days) and ostomy/wound-related complications (n=9, median 19,

IQR 11-71 days). On Cox proportional hazards analysis, lack of access to a FP was associated with a higher probability of having survivorship-related ED visits (p=0.003, Figure 1). Part 2: Interviews of specialists and FPs revealed 5 overarching themes: (1) Several unmet needs specific to rectal cancer survivors exist; (2) Specialists experience lack of resources and support in providing ancillary care to rectal cancer survivors; (3) FPs feel limited in providing survivorship-related care due to lack of formal training; (4) There is no formal process to transition care from specialists to FPs during the survivorship phase; (5) A survivorship care document and dedicated nursing support have the potential to improve communication among specialists, FPs, and patients.

Conclusions/Discussion: Existing rectal cancer survivorship care is fragmented. Lack of access to FPs or their limited involvement in survivorship care likely contributes to unmet needs. Rectal cancer survivors could benefit from improved, individualized follow-up, coordinated among specialists and FPs.

Figure 1: Survivorship–related ED Visits over time



ENDOSCOPIC PREDICTORS OF RESIDUAL TUMOR AFTER TOTAL NEOADJUVANT THERAPY: A POST HOC ANALYSIS FROM THE ORGAN PRESERVATION IN RECTAL ADENOCARCINOMA (OPRA) TRIAL.

M10

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Purpose/Background: Selecting appropriate candidates with locally advanced rectal cancer (LARC) for non-operative management (NOM) relies on endoscopic, radiologic and clinical restaging several weeks after completion of neoadjuvant therapy. While some patients may have an obvious tumor at endoscopic restaging, others have subtle mucosal abnormalities that may indicate persistent disease. Using prospectively collected and standardized tumor assessment forms (TAFs), we analyzed individual endoscopic characteristics to determine which features best predicted residual tumor.

Methods/Interventions: We performed a post hoc analysis of the OPRA trial, which randomized patients with stage II/III rectal adenocarcinoma to receive induction or consolidation total neoadjuvant therapy (TNT). Surgeons completed a restaging TAF by selecting from a list of endoscopic characteristics corresponding to complete (cCr), near complete (nCr) and incomplete (iCr) clinical response. In the absence of other concerning features, patients with a cCr or nCR proceeded with NOM. Outcomes were measured two years after initial restaging with patients divided into two categories. The tumor free (TF) group included patients with a sustained cCR or a pathologic complete response. The residual tumor (RT) group consisted of patients with an iCR and those who experienced local regrowth within two years of restaging. A backwards-selected multivariate logistic regression model adjusting for nodal disease, TNT treatment arm and individual endoscopic features was built to identify independent predictors of RT.

Results/Outcome(s): 258 patients underwent restaging at a median of 7.7 weeks after TNT; 126 (48.8%) of them had RT. Patients with nodal disease at diagnosis (80% vs. 64%; p=0.004) and who received induction TNT (56% vs. 40%; p=0.013) were more likely to have RT. Endoscopic features associated with RT included several characteristics corresponding to a nCR, such as ulcer (21% vs. 4.5%; p<0.001), nodularity (25% vs. 11%; p=0.006) and irregular mucosa (26% vs. 8.3%; p<0.001). On multivariate regression analysis, visible tumor (OR 21.8; 95%CI 8.9-62.3) and ulcer (OR 6.62; 95%CI 2.54-19.7) remained the strongest predictors of RT. Other independent predictors included irregular mucosa (OR 3.46; 95%CI 1.51-8.25), nodularity (OR 2.62; 95%CI 1.19-5.89), nodal disease at diagnosis (OR 2.14; 95%CI 1.08-4.35) and induction TNT (OR 1.91, 95%CI 1.05-3.52).

Conclusions/Discussion: Using prospectively collected and standardized endoscopic data, this study demonstrated that LARC patients with ulcer, nodularity, irregular mucosa and visible tumor at restaging had higher odds of harboring residual disease. Understanding the negative prognostic implications of these characteristics will enable surgeons to better select candidates for NOM.

Multivariate Logistic Regression Analysis: Factors Associated with Residual Tumor

	OR	95% CI	P value
cN positive	2.14	1.08-4.35	***0.029***
Induction TNT	1.91	1.05-3.52	***0.034***
Ulcer	6.62	2.54-19.7	***<0.001***
Nodularity	2.62	1.19-5.89	***0.017***
Irregular mucosa	3.46	1.51-8.25	***0.003***
Visible tumor	21.8	8.9-62.3	***<0.001***

Table 1: Using covariates from a univariate model, a backwards-selected multivariable logistic regression analysis was performed. Data reported as Odds Ratio (OR) with 95% Confidence Intervals (95% CI). cN, clinical node status; TNT, total neoadjuvant therapy.

LOCAL RECURRENCE-FREE SURVIVAL AFTER TaTME: A CANADIAN INSTITUTIONAL EXPERIENCE.

M11

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Purpose/Background: Transanal total mesorectal excision (TaTME) is a novel surgical treatment for mid to low rectal cancers. Norwegian population data has raised concerns about local recurrence in patients treated with TaTME. Our objective was to analyse local and distant recurrence-free survival in patients treated by TaTME for rectal cancer at a high-volume academic tertiary center in Canada.

Methods/Interventions: This is a retrospective study utilizing a prospectively maintained institutional TaTME surgery database. All patients treated by TaTME for rectal adenocarcinoma were included. Patient demographics, treatment and outcomes data were analysed. Local recurrence, disease free and overall survival were analysed using Kaplan Meier analysis.

Results/Outcome(s): Between 2014 and 2022, 304 patients were treated by TaTME at St. Paul's Hospital. Of these, 280 patients met inclusion criteria. Median age was 62 (range 24-90) years and 68% of patients were male. The median BMI was 26 (range 17-48) kg/m^2 with 27% having a BMI $\geq$ 30 kg/m^2. The median tumour height was 6 cm from the anal verge. Most patients underwent neoadjuvant therapy prior to surgery (69%, 192/280). The majority (271/280) of patients had restorative resection with a conversion rate from laparoscopic to open of 6.8%. Optimal TME (negative distal/circumferential margin, complete or near-complete TME) was demonstrated on pathology in 94% (252/269). Median follow-up was 28 months (range 0-90) and 76% (212/280) achieved reestablishment of GI continuity to date. Crude local recurrence rate was 5.7%, (16/280) with a distant recurrence rate of 11.1% (31/280).

Conclusions/Discussion: Recent European data has challenged the presumed oncologic safety of TaTME. However, the learning curve for this procedure is challenging and poor outcomes are associated with low volume. This is the largest single-centre study to date and confirms an acceptable local recurrence rate consistent with the current standard.

LONGITUDINAL ANALYSIS OF LOCAL RECURRENCE AND SURVIVAL AFTER TRANSANAL ABDOMINAL TRANSANAL RADICAL PROCTOSIGMOIDECTOMY (TATA) FOR LOW RECTAL CANCER.

M12

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Purpose/Background: The TATA was developed for sphincter preservation in very low rectal cancers. Since inception, it served as a catalyst for disruptive transanal procedures and platforms. To date, benefits of the TATA for short-term outcomes, function, and quality of life have been well demonstrated. With the controversy over safety with high recurrence rates in other sphincter preserving techniques, further study of the TATA long-term oncologic outcomes is warranted. Our goal is to evaluate the long-term recurrence and survival outcomes after TATA for low rectal cancers. Our hypothesis is that long-term data will show the TATA consistently yields superior clinical and oncologic outcomes for the most difficult rectal cancer resections.

Methods/Interventions: A prospective cancer registry from a single tertiary referral center was reviewed for patients with a primary rectal adenocarcinoma who had a TATA between 10/1/98-10/1/2020 (minimum 2 years follow-up). Patients with low cancers (within 5cm of the anorectal ring [ARR]) who received neoadjuvant chemoradiation (NACRT) were included. Patient and cancer demographics and clinical and pathological outcomes were evaluated by univariate analysis. Kaplan-Meier analysis assessed the recurrence and survival data. The main outcome measure was 5-year local recurrence (LR). Secondary outcomes were disease-free survival (DFS), overall survival (OS), and overall morbidity and mortality.

Results/Outcome(s): 506 patients had a TATA during the study period; 227 met inclusion criteria and were evaluated. Patients were 70% male (n=160) and a mean 58.5 years old (SD 11.5). Mean tumor distance from the ARR was 1.2 cm (SD 1.1). 73.8% (n=135) patients had a good response to NACRT (Mandard Tumor Regression Grade [TRG] 1 or 2), while 26.2% (n=48) had a poor response (TRG 3, 4, or 5). Cases were primarily laparoscopic (74.4%) or robotic (13.2%). There were no intraoperative conversions. All distal and proximal margins were negative; 1 (0.4%) had a positive radial margin. The total mesorectal excision was complete in 98%. The mean length of stay was 5 (SD 2.8) days. The 30-day morbidity rate was 7.5% (n=17), with 1 no mortalities. After a median follow-up of 65.6 (IQR 42.1-103.8) months, 6 patients (2.6%) developed LR (median time to LR 32.9 months) and 42 (18.5%) patients developed distant metastasis (median time to Mets 22.5 months). The 5-year OS rate was 82.8%

and 5-year DFS was 79.3%. There were no development of carcinomatosis or multi focal pelvic recurrence.

Conclusions/Discussion: The TATA demonstrated excellent long-term locoregional control and survival in very low rectal cancers. As controversy surrounds other sphincter-preserving techniques, the TATA superior outcomes are durable over time. With this validation a standardized training course, to expand sphincter preservation surgery with good oncologic outcomes, merits consideration.

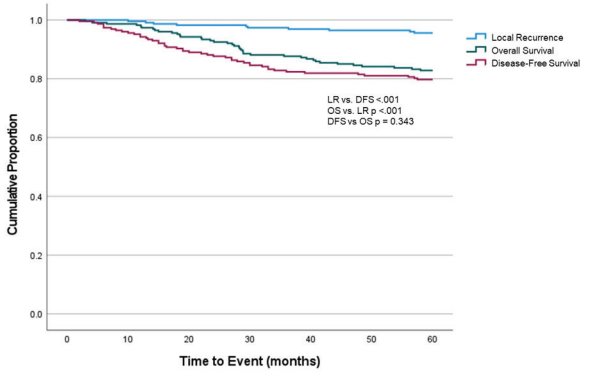

Figure 1: 5-year local recurrence (LR), disease-free survival (DFS), and overall survival (OS) for rectal cancer after TATA.

LONG-TERM COMPLICATIONS AFTER LAPAROSCOPIC AND ROBOTIC TOTAL MESORECTAL EXCISION WITH LATERAL PELVIC NODE DISSECTION IN LOCALLY ADVANCED RECTAL CANCER.

M13

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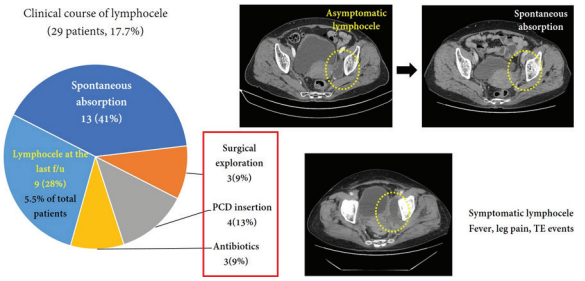
Purpose/Background: Serious postoperative complications that arise when performing lateral pelvic node dissection (LPND) have been the main cause hesitating to adopt this procedure. However, little is known about relative risk of long-term complications after LPND compared to total mesorectal excision (TME) in locally advanced rectal cancer. We investigated the incidence of long-term complications after preoperative CRT, followed by curative TME with LPND in locally advanced rectal cancer.

Methods/Interventions: Patients undergoing TME with or without LPND after preoperative CRT for rectal cancer between 2011 and 2019 were analyzed. All operations were performed by laparoscopic or robotic approach. Long-term complications were defined as an event that appears after ≥ 90 days after surgery.

Results/Outcome(s): 406 patients undergoing TME (TME group) and 165 patients undergoing TME with LPND (LPND group) were evaluated. Chronic complication rate was 14.3% in the TME group and most common complication was chronic anastomotic leakage, similar rate to the LPND group (12.3% vs. 11.5%). In addition, permanent stoma formation was also similar between the two groups (2.8% vs. 4.8%). 8.4% of patients still had chronic sinus in the TME group. Chronic complication rate was 36.6% in the LPND group: lymphocele was most common as 17.7% and 7.9% of patients had urinary complications due to urinary stricture and pelvic sidewall adhesion. The readmission rate for treating chronic complications was 20.7%. Among 29 patients with lymphocele, 13 patients (41%) experienced spontaneous absorption and 10 patients (34.5%) required surgical drainage, PCD insertion, or antibiotics use. Binominal logistic regression showed pathologic LPN metastases (odds ratio, 2.661; 95% confidence interval; 1.317-5.378; P=0.006) and a higher number of harvested LPN (odds ratio, 1.127; 95% confidence interval; 1.046-1.213; P=0.002) to be significantly associated with chronic complications after LPND. At the last follow-up [median follow-up of 43 months (range, 4.9-84.5 months)], 15.9% of patients still had unresolved chronic complications.

Conclusions/Discussion: Patients undergoing TME with LPND experienced higher chronic complications than those undergoing TME alone. Therefore, we should work to reduce the unique complications including lymphocele and urinary problems after TME with LPND.



ANAL ADENOCARCINOMA TREATED IN THE ERA OF TOTAL NEOADJUVANT THERAPY AND NON-OPERATIVE MANAGEMENT.

M14

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Purpose/Background: Anal adenocarcinoma is rare and represents a surgical and oncological treatment challenge. Whether the approach of neoadjuvant treatment in the form of Total Neoadjuvant Treatment (TNT) followed by "Watch & Wait" (W&W) can be effectively used is unclear. We analyzed the patterns of care and outcomes based on the treatment strategy.

Methods/Interventions: Patients treated with anal adenocarcinoma (2004-2019) at our institution were retrospectively reviewed from a prospectively maintained database. We analyzed data regarding patient and disease characteristics, and outcomes of each treatment approach.

Results/Outcome(s): We identified a study population of 176 patients with anal adenocarcinoma. Ninety-four patients were included in the final analysis. Most patients presented with Stage II disease (n = 37, 39%), followed by Stage III (n = 32, 34%) and Stage I (n = 17, 18%). Fourteen patients presented with Stage IV disease and were excluded. Fifty-six patients (60%) were treated with TNT; 32 (57%) of which continued in W&W after achieving a clinical complete response and 24 (43%) proceeded with surgery. Thirty-eight (40%) had surgery upfront. Patients who underwent TNT followed by surgery were younger (mean age 59, Vs. 70 (W&W), 68 (upfront surgery), p = 0.009), more often had history of IBD (28%, vs. 4% (W&W), 8% (upfront surgery) p = 0.014) and predominantly had stage III at diagnosis (55%, 41% (W&W), 16% (upfront surgery), p = 0.008). Patients who underwent upfront surgery commonly presented with Stage I (34%, vs. 18% overall, P = 0.002) or stage II disease (45%). The median length of follow-up was 88 months (IQR 39-159 months). Five patients (16%) experienced local regrowth after initial W&W approach and required local excision (n = 1) or APR (n = 4). Patients who received TNT followed by surgery more often underwent APR as most definitive surgery, compared to patients in the upfront surgery group (90% Vs. 68%, p = 0.039). Patients who received TNT followed by surgery were found to have pathologic complete response rate in 24% of cases (n = 7). Distant-metastasis-free survival at 3 years was 74% in the upfront surgery group; 75% in TNT followed by surgery group; and 58% in TNT followed by W&W. Locoregional recurrence rate of 29.6% was identified in the W&W group.

Conclusions/Discussion: The treatment of anal adenocarcinoma is evolving. Our results suggest that for locally advanced anal adenocarcinoma, TNT with attempt at W&W can be considered in highly selected patients, with acceptable local regrowth rates.

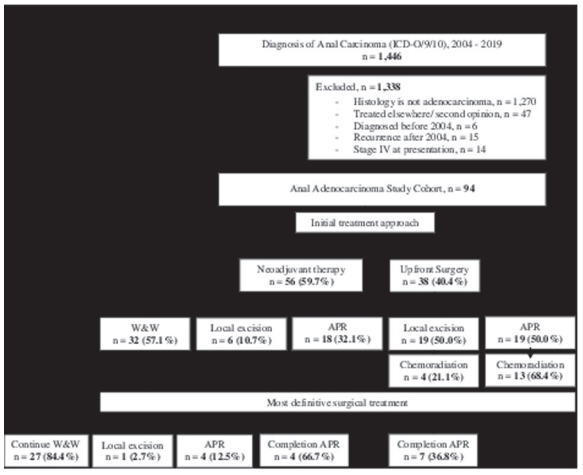

Figure 1. Treatment Allocation Flow Diagram.

SURGICALLY RELEVANT THRESHOLDS FOR THE SHORT INFLAMMATORY BOWEL DISEASE QUESTIONNAIRE (SIBDQ) IN CROHN'S DISEASE.

M15

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Purpose/Background: Despite interest in patient-reported outcome scores to track progression in Crohn's Disease, frameworks to incorporate them into the surgical decision-making process are lacking. The sIBDQ is a validated measure of IBD-specific quality of life (QoL). The primary aim of this study was to establish surgically-relevant sIBDQ threshold scores: 1) a 'resection red zone' suggesting poor QoL that would likely benefit from surgical intervention, and 2) a 'nonoperative green' zone suggesting continued medical management. Scores between 'resection red' and 'nonoperative green' zones were assigned to an 'indeterminate yellow' zone. The secondary aim was to determine whether lower QoL scores is associated with Crohn's-related bowel resection when controlling for phenotype variation. We hypothesized that lower sIBDQ score is associated with bowel resection in adjusted analysis.

Methods/Interventions: All adult Crohn's Disease patients completing an sIBDQ between 2020-2022 were stratified into Crohn's-related bowel resection within 90 days of sIBDQ completion versus medical management. Surgically-relevant score thresholds were established using standard anchor- and distribution-based methods. To identify 'resection red' zone candidates, we calculated the 25th percentile score among the bowel resection group, and the threshold with at least 85% specificity while maximizing sensitivity in receiver operating characteristic (ROC) analysis. Similar calculations yielded the 'nonoperative green' zone: the 75th percentile score among the medical management group, and the threshold with at least 85% sensitivity while maximizing specificity in ROC analysis. In adjusted analysis, logistic regression assessed the effect of sIBDQ score when controlling for disease phenotype on the outcome of subsequent bowel resection.

Results/Outcome(s): Over 2.5 years, 2003 patients were included with 102 (5.0%) undergoing Crohn's-related bowel resections. The sIBDQ 'nonoperative green zone' threshold ranged from 57 to 62 and the 'resection red zone' ranged from 39 to 40. There were 271 patients below the 'resection red' and 906 patients above the 'nonoperative green' zones. When comparing across red vs yellow vs green zones, there were differences in sIBDQ scores (mean (SD), 33 (5) vs 50 (5) vs 63 (3), p<0.001), bowel resection frequency (12% vs 6.8% vs 1.5%, p<0.001), and Harvey Bradshaw Index (HBI) Scores (mean (SD),10.0 (4.9) vs 5.1 (3.4) vs 1.8 (2.1), p<0.001). When controlling for age, sex, BMI, medications, disease pattern and location,

resection history, and HBI, lower sIBDQ scores remained associated with 90-day bowel resection (OR 0.95 (95% CI 0.92, 0.97; p<0.001)).

Conclusions/Discussion: This study generated clinically meaningful QoL thresholds based on existing surgical decision-making patterns, providing a framework for both clinicians and patients considering bowel resection for Crohn's disease.

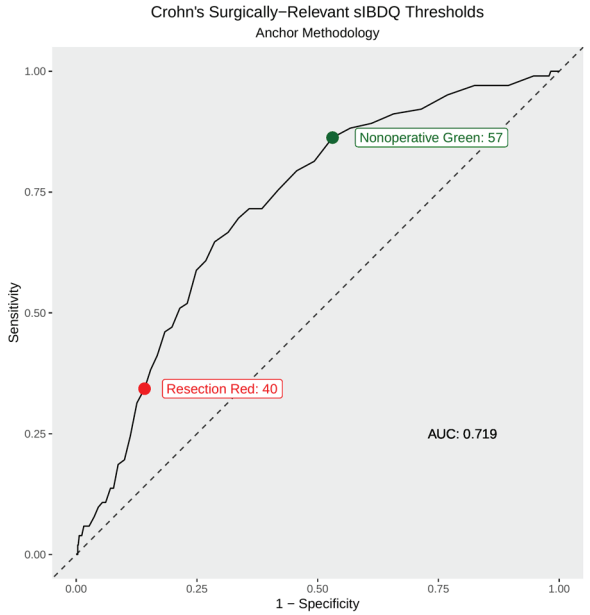

Figure 1: Surgically-relevant threshold scores for the short inflammatory bowel disease questionnaire. 'Resection red' and 'nonoperative green' thresholds identified through receiver operating characteristic curve analysis

LONG-TERM OUTCOME OF THE KONO-S ANASTOMOSIS. A MULTICENTER STUDY.

M16

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Purpose/Background: Postoperative recurrence remains a significant problem in Crohn's disease (CD) despite improvement in medical therapy. The mesentery has been identified as a major culprit in disease recurrence. The Kono-S anastomosis was designed to exclude the mesentery from the anastomotic lumen, to limit luminal distortion and to preserve innervation and vascularization with excellent results in terms of safety and prophylaxis of disease recurrence. The aim of this multicenter study is to review the postoperative and long term outcomes of the Kono-S anastomosis in a large series of consecutive unselected CD patients.

Methods/Interventions: Consecutive CD patients undergoing resection and Kono-S anastomosis at four academic medical centers were included in a prospective database and retrospectively reviewed. Patients were excluded if an anastomosis was not performed. Recurrence was defined as endoscopic (Rutgeerts >i2a), clinical, laboratory (postoperative CRP and Fecal Calprotectin), and surgical including endoscopic intervention on the anastomosis.

Results/Outcome(s): Between May 2010 and June 2022, 184 consecutive CD patients underwent restoration of intestinal continuity via a Kono-S anastomosis at four major academic institutions. Demographics and disease characteristics are listed in table 1. The mean duration of disease at the time of surgery was 145.8 months and 78 patients (42.4%) had previous surgery for CD. There were 32 patients (17.8%) actively smoking at the time of surgery and 99 (53.8%) were on biologic therapy. Anastomotic failure occurred in 3 cases (1.6%) with 2 patients requiring return to the operating room (1.1%). In addition 14 patients had a Surgical Site Infection (SSI) (7.7%). With a median follow-up of 25 months, clinical recurrence was reported in 49 patients (26.6%), endoscopic in 8 (11.3%), laboratory in 8 (13.3%) by elevated CRP and 4 (23.5%) by elevated Calprotectin, and finally surgical recurrence in 3 requiring endoscopic intervention on the anastomosis (2.5%) and in 9 requiring surgery involving the anastomosis (6.3%). In the bivariate analysis only the presence of postoperative SSI was associated with surgical recurrence involving the anastomosis

Conclusions/Discussion: This is the largest series of consecutive, unselected Kono-S anastomoses reported to date. Our cohort showed a very low anastomotic failure and SSI rates despite the complexity of the patient population. The overall very low recurrence rates noted in our series is in part due to the intrinsic advantages of the anastomotic configuration, but also to the low septic complications, a known risk factor for postoperative recurrence. In conclusion the Kono-S anastomosis in experienced hands is a safe and reliable anastomotic technique with low complications and recurrence rates.

	Overall (N=184)
Age, years - mean (SD)	40.7 (15.7)
Sex	
Female	83 (45.1%)
Male	101 (54.9%)
BMI	24.4 (5.8)
WBC	8.8 (3.1)
Hemoglobin	12.5 (2.0)
Albumin	3.8 (0.6)
HTN	16 (11.5%)
DM	2 (1.5%)
History of DVT/PE	3 (2.2%)
Currently on blood thinners	9 (6.7%)
Weight loss: >10% of body weight within past year	18 (18.5%)
Current smoker	32 (17.8%)
On biologics	99 (54.1%)
Immunomodulators	41 (28.1%)
Currently on TPN	23 (17.6%)
Age at diagnosis	25.9 (11.7)
Age at surgery	38.2 (14.9)
Duration of disease (months)	145.8 (141.2)
Perianal disease	39 (27.7%)
Previous abdominal surgery	78 (55.7%)
Diversion	
Current	8 (5.9%)
Never	122 (89.7%)
Previously	6 (4.4%)
Elective/Urgent/Emergent	
Elective	157 (85.8%)
Urgent	26 (14.2%)
Surgical approach	
Lap	127 (69.4%)
Open	53 (29.0%)
Robot	3 (1.6%)
Number of resections	
1	120 (88.2%)
2	14 (10.3%)
3	2 (1.5%)
Fecal diversion	8 (7.0%)
EBL (ml)	157.8 (156.8)
Duration of surgery (min)	227.1 (90.1)

DUODENAL CROHN'S DISEASE: LOCATION DICTATES OPERATION.

M17

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Purpose/Background: Surgical management of duodenal Crohn's disease (CD) is rarely described, and operative options include bypass, stricturoplasty, or resection. What factors dictate operation selection and whether differences exist in outcomes is unknown. We aimed to analyze what factors dictate operation choice and to assess differences in short and long-term outcomes after surgery for duodenal CD.

Methods/Interventions: A retrospective review was conducted of all patients who underwent operative intervention for symptomatic duodenal CD between January 2000 and March 2021 at one of three tertiary care inflammatory bowel disease referral centers. Operations were classified as either bypass (gastrojejunostomy or duodenojejunostomy), stricturoplasty, or duodenal resection. The site of most proximal duodenal involvement (proximal=pylorus and duodenal bulb, mid=2nd and 3rd portion, distal=4th portion), operative characteristics, 30-day postoperative outcomes, and the need for future endoscopic intervention or surgery for duodenal CD were collected. Univariate comparisons between the operation types were performed.

Results/Outcome(s): 40 patients (55% female) with a median age of 46 years (interquartile range [IQR], 31-59.5) had a bypass (n=26; 65%), stricturoplasty (n=8; 20%), or resection (n=6; 15%). Median age of diagnosis of CD was 23.5 years (IQR, 17-40.5), and over half of the patients had undergone prior surgery for CD (58%). Nearly half of patients (48%) were on a biologic agent before surgery, while patients were less often on immunomodulators (23%) or steroids (15%). Operation type varied by the most proximal extent of duodenal involvement. Patients with proximal duodenal CD underwent bypass operations more commonly than those with mid- or distal duodenal disease (p=0.03). All operations were performed open except for four bypasses. Patients who underwent duodenal stricturoplasty more often required concomitant operations for other sites of small bowel or colonic CD (63%) compared to those who underwent bypass (39%) or resection (33%). Infectious complications occurred after 30% of operations, but none were anastomotic complications from the area of duodenal CD. No patients required subsequent surgery for duodenal CD at a median follow-up of 2.8 years, but two patients required endoscopic dilation (n=1 after stricturoplasty, n=1 after resection). Patients who underwent stricturoplasty (75%) and resection (100%) remained on maintenance medication for CD more often than those who had a bypass performed (54%) (p=0.09).

Conclusions/Discussion: Patients who require surgery for duodenal CD appear to represent a subset of patients with a more severe CD phenotype, represented by a younger age of diagnosis and a high rate of prior resection for CD. Choice of operation varied by proximal extent of duodenal CD, but all choices resulted in durable long-term avoidance of further surgery for duodenal CD.

	Bypass (n=26)	Stricturoplasty (n=8)	Resection (n=6)	*p*-value
Most proximal extent of duodenal involvement, n (%)				0.03
Proximal	11 (42)	2 (25)	0 (0)	
Mid	15 (58)	5 (63)	4 (67)	
Distal	0 (0)	1 (13)	2 (33)	
30-day infectious complications	6 (23)*	5 (63)	1 (17)	0.09
Superficial SSI	2	2	1	
Urinary tract infection	3	0	0	
Blood stream infection	2	0	0	
Cholangitis	0	1	0	
Intra-abdominal abscess	1	2	0	
Long-term CD medications	14 (54)	6 (75)	6 (100)	0.09
Biologic alone	6	5	4	
Biologic + immunomodulator	5	0	0	
Immunomodulator alone	3	1	2	

*Some patients experienced more than one infectious complication

Crohn's Disease Location, 30-day Complications, and Long-term Medication Use by Operation Performed

VALIDATION OF BODY SURFACE COLONIC MAPPING AGAINST HIGH RESOLUTION COLONIC MANOMETRY: A NOVEL NON-INVASIVE TOOL FOR DETECTION OF COLONIC MOTILITY.

T1

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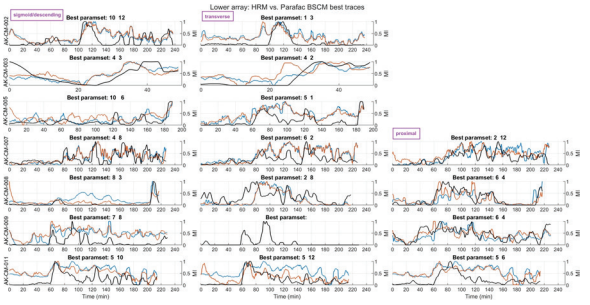
Purpose/Background: Abnormal cyclic motor pattern (CMP) activity is implicated in bowel dysfunction, such as fecal incontinence and postoperative ileus. High-resolution colonic manometry (HRCM) studies have characterized CMPs and enabled in-depth analysis of colonic motility in research settings. However, manometry is invasive, costly, and not widely accessible. A non-invasive method for detection of colonic motility from the body surface would be a critical advance, but such methods have never been validated. This study aimed to validate novel methods for HR body surface colonic mapping (BSCM) as an electrophysiological technique for detecting colonic CMPs, through spatiotemporal correlation with simultaneous HRCM.

Methods/Interventions: Patients were recruited from the Auckland District Health Board elective colonoscopy lists. Synchronous recordings of HRCM and BSCM were performed for 3-4 hours in asymptomatic participants with normal colons, with a meal given at the hour mark. A signal processing method for BSCM was developed to specifically detect CMPs non-invasively. Quantitative temporal analysis compared the synchronicity of motility patterns, detection of meal responses, frequency bands, and overall motility index correlations between invasive and non-invasive methods. Spatial heat maps were analyzed. Usability and patient preference were determined using a questionnaire.

Results/Outcome(s): A total of 11 participants were recruited of which seven had successful simultaneous recordings performed (five females; median age: 50 years [range: 38 to 63]). Median body mass index was 25.6 (range: 22.3 to 31.3). Meal responses were successfully detected across both the HRCM and BSCM techniques, and were found to be statistically comparable. The meal response duration between HRCM and BSCM was similar; a mean of 11.2 mins ($p = 0.62$) difference, and their timings (start and end times) were also statistically similar ($p > 0.7$). Correlation heat maps demonstrating the origins of CMP activity were in agreement. All participants preferred BSCM to HRCM.

Conclusions/Discussion: This study presents a novel non-invasive method for capturing colonic motility including colonic CMP activity and meal responses. Data was validated by correlation to HRCM and showed localization to the colon. BSCM is expected to contribute novel insights into the mechanisms of postoperative ileus as well as in functional disorders such as fecal incontinence and response to sacral neuromodulation. Future studies correlating BSCM findings with control and symptomatic participants at a larger scale will further evaluate CMPs as a potential biomarker of colonic function in colorectal diseases.



HRCM and BSCM motility index: HRCM MI (black line) and two best traces of BSCM MI (blue and orange) are shown using PARAFAC analysis. Each row represents a single participant and the columns are the segments of the colon where manometry data was available (distal, transverse and proximal colons).

USE OF MULTIPLE DISEASE-MODIFYING DRUGS WITHIN ONE YEAR ASSOCIATED WITH INCREASED COLECTOMY IN ULCERATIVE COLITIS.

T2

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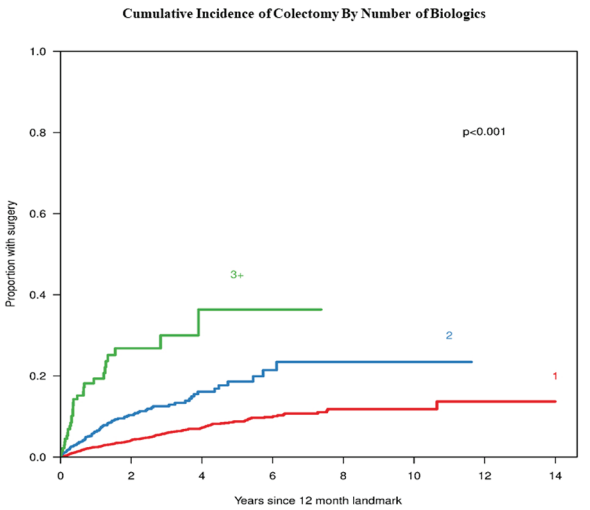
Purpose/Background: Disease modifying drugs (DMD) demonstrated promising results in inducing clinical remission of ulcerative colitis (UC). However, in aggressive

phenotypes, the rapid cycling through multiple agents may be a surrogate for refractory disease requiring colectomy. This study aims to assess the relationship between number of DMDs used within the first year of disease treatment and the subsequent need for colectomy.

Methods/Interventions: The Marketscan database (2005-2020) was queried for inpatient, outpatient, and pharmaceutical claims of DMD use in adults. DMDs included infliximab, adalimumab, certolizumab, vedolizumab, golimumab, ustekinumab, tofactinib, and ozanimod. First claim date for a DMD was the index date (ID). Patients with ICD-9 or ICD-10 codes for UC within 1 year prior to ID, continuous enrollment in an insurance plan from 1 year prior to ID, and follow-up of ≥30 days were included. Patients were categorized based on number of DMDs used (1, 2, 3+) within 1 year after ID. Landmark date (LD) was identified as the date 1 year after ID. The primary outcome was time to colectomy. Kaplan-Meier curves were used to estimate cumulative incidence of colectomy after the LD by number of DMDs prior to LD. Multivariable, time-varying Cox proportional hazard model estimated the hazard ratio (HR) of requiring surgery. Model included number of DMDs (time-varying covariate), age, index date, sex, comorbidity index, and pancolitis. To examine if HR of surgery changed over time based on speed of DMD cycling, a test of non-proportional hazards was performed. P-values for all data presented is <0.05 and considered significant.

Results/Outcome(s): There were 12193 patients identified with UC and DMD use. Their median age was 41 years-old and pancolitis was identified in 48.7% of patients. At the LD, DMD use of 1, 2, or 3+ had decreasing prevalence of 83.3%, 14.8%, 1.8%, respectively, with 5.4% of patients requiring colectomy beyond the LD. By 3 years after ID, 27% of patients required colectomy, with HR of 2.41 and 6.96 for 2 and 3+ DMDs within the first year compared to 1 DMD (Fig.1). Time-varying analysis of cumulative adjusted HR to colectomy from ID showed increasing use of 2, 3, or 4+ DMDs to be associated with increased risk of colectomy (HR 4.22, 11.7, and 22.9, respectively) compared to 1 DMD. While the number of DMDs in the first year was associated with colectomy, the time interval between DMD transition was not predictive of colectomy.

Conclusions/Discussion: In patients with UC with poorly controlled disease, using 3+ DMD within 1 year is associated with increased likelihood of requiring surgical intervention, highlighting the importance of early involvement of surgical teams in the disease-course of patients requiring any DMD. However, as more rapid transitioning of DMDs did not influence likelihood of colectomy, it is reasonable to consider trials of new agents in an effort to increase organ preservation



MULTIDISCIPLINARY ROBOTIC MANAGEMENT OF COMPLEX ENOMETRIOSIS AT A TERTIARY CENTER IN UK: AN INTERIM ANALYSIS.

T3

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Purpose/Background: Pelvic endometriosis can have a significant impact on the quality of life and often requires complex surgical procedures with associated morbidity. Robotic approach offers distinct advantages to performing precision surgery often leading to organ preservation. Pelvic endometriosis can involve all pelvic compartments hence requiring input from gynecologists, colorectal surgeons, radiologists, hepatobiliary surgeons, and urologists. Management of such complex patients in a multidisciplinary team can reduce the complication rate, improve outcomes, and allows the correct decisions to be made for each patient.

Methods/Interventions: Robotic endometriosis database at a tertiary center for endometriosis in the UK was analyzed. Cases with grade III-IV endometriosis requiring combined operation with a colorectal surgeon were identified between January 2021 and March 2022. All patients were managed through a complex gynecological multidisciplinary setting including gynecologists with advanced training in robotic endometriosis surgery, robotic specialist colorectal surgeons, urologists, radiologists, nurse specialists, and database administrator. Demographic and intra-operative data were collected. Pre and post-operative pain scores and quality of life were collected through the British Society for Gynaecological Endoscopy (BSGE) Pelvic Pain Questionnaire.

Results/Outcome(s): From a database of 230 robotic endometriosis cases, a total of 39 consecutive robotic grade III-IV endometriosis cases were included. Median age was 35 (IQR, 30-41) years. Median body mass index

was 24 (IQR, 20.3-25.8). Type of procedures carried out included: Shaving 34 (87.2%), Disc excision 3 (7.7%), and segmental resections 2 (5.1%). Only one (2.6%) patient required a stoma. There were no conversions or return to theatre postoperatively. Median length of postoperative stay was 2 (IQR, 2-4) days. There was no 90-day mortality, and no Clavien-Dindo grade III or IV complications. All cases were histologically confirmed as endometriosis. Median preoperative dyschezia score was 4 (IQR, 2-9), and improved to 1 (IQR, 0.5-5) postoperatively (at 6 months). Median preoperative score of dyschezia without period was 1 (IQR, 0-6), and improved to 0 (IQR, 0-1.5) postoperatively (at 6 months). Median preoperative score of quality of life was 55 (IQR, 37.5-70), and improved to 70 (IQR, 61-75) postoperatively (at 6 months).

Conclusions/Discussion: A multidisciplinary approach to the management of complex pelvic endometriosis can offer excellent surgical outcomes with clinical improvement of dyschezia and quality of life. A higher proportion of successful shaving in this series suggests that robotic approach can enhance the organ preservation rates in complex endometriosis. Further analysis is required to expand the benefit of the robotic multidisciplinary approach for the management of complex pelvic endometriosis.

COMBINED ROBOTIC VENTRAL MESH RECTOPEXY AND SACROCOLPOPEXY FOR TRICOMPARTMENTAL PELVIC ORGAN PROLAPSE.

T5

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Purpose/Background: Pelvic floor dysfunction (PFD) is a common and underdiagnosed pathology in females. Ventral mesh rectopexy (VMR) is an effective treatment for obstructed defecation syndrome and rectal prolapse. A robotic approach has grown in popularity due to the restricted space of the pelvis and enhanced visibility. Multispecialty management should be the approach for the treatment of PFD, as there is often multicompartmental prolapse (MCP). There is no available research to date on the robotic-assisted multidisciplinary pelvic floor reconstruction. The aim of this study was to assess the safety of combined robotic VMR and either uterine or vaginal fixation for treatment of multicompartmental pelvic organ prolapse.

Methods/Interventions: All patients undergoing robotic VMR in our institution from March 2018 to March 2021 were retrospectively reviewed. For the analysis, we included all patients with robotic approach and combined procedure. Patients who did not undergo a combined procedure with urogynecology were excluded. All patients were discussed at a dedicated bi-weekly pelvic floor multidisciplinary team meeting before planning surgery. Operative time, blood loss, intraoperative complications, postoperative POPQ score, length of stay, 30-day morbidity, and readmission were obtained.

Results/Outcome(s): From 2018 to 2021, there were 321 operations for patients with MCP. The mean age was 63.4 years, and BMI 27.2. The predominant primary PFD was rectal prolapse in 170 cases (60%), rectocele in 107 (38%), and abnormal pelvic descent in 96 (34%). Pelvic Organ Prolapse Quantification (POP-Q) scores were II in 146 patients (53%), III in 121 (44%) and IV in 9 (3%). 315 of the 323 cases included robotic VMR (98%). Sacrocolpopexy or sacrohysteropexy was performed in 281 patients (89%). Other procedures included 175 hysterectomies (54%), 104 oophorectomies (32%), 151 sling procedures (47%), 149 posterior repairs (46%), and 138 cystocele repairs (43%). The operative time for VMR was 211 minutes and combined pelvic floor reconstruction 266 minutes. The average length of stay was 1.6 days. Eight patients were re-admitted within 30 days, 1 with a severe headache and 7 patients with post-operative complications (2.5%). The complications included: ileus, urinary retention requiring catheterization, pelvic collection, and perirectal collection both requiring radiologic drainage. Four complications required re-operation: epidural abscess, small bowel obstruction, missed enterotomy requiring resection, and urinary retention requiring sling revision. There were no mortalities.

Conclusions/Discussion: A combined robotic approach for multicompartmental pelvic organ prolapse is a safe and viable procedure with a relatively low rate of morbidity and no mortality. This is the highest volume series of combined robotic pelvic floor reconstruction in the literature and demonstrates a low complication rate and short length of stay.

ACPGBI TRAVELING FELLOW THE ROLE OF VITAMIN D IN REDUCING COLORECTAL CANCER MORTALITY.

T6

P. Vaughan-Shaw

SHORT-TERM OUTCOMES OF PROSPECTIVE STUDY OF ONCOLOGIC OUTCOMES AFTER LAPAROSCOPIC MODIFIED COMPLETE MESOCOLIC EXCISION FOR NON-METASTATIC RIGHT COLON CANCER (PIONEER STUDY).

T7

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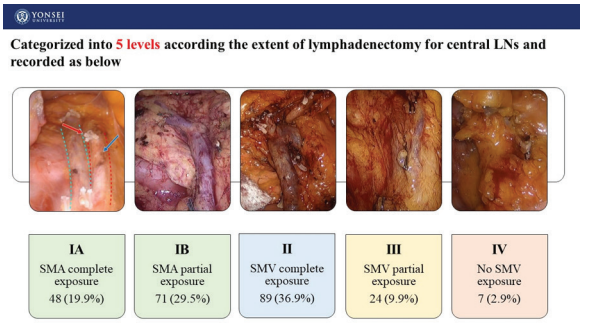
Purpose/Background: The introduction of complete mesocolic excision (CME) with central vascular ligation (CVL) for right-sided colon cancer has improved oncologic outcomes. Recently, we have introduced a modified CME (mCME) procedure that keeps the same principles as the originally described CME but with a more tailored approach. This trial aimed to evaluate the oncologic outcomes after laparoscopic mCME, and here we report the short-term outcomes from the trial.

Methods/Interventions: This multi-institutional, prospective, single-arm study was done at five tertiary referral centers in South Korea. Between Aug 11, 2019, and May 06, 2021, a total of 250 patients were enrolled who were histologically confirmed primary adenocarcinoma arising from the right side of the colon located between the appendix and the proximal half of the transverse colon without distant metastasis. The primary outcome of this study is 3-year disease-free survival, but the data for this endpoint are not yet mature. Therefore only the secondary outcomes, incidence of surgical complications, completeness of mCME, and distribution of metastatic lymph nodes, incidence of radial margin involvement and the quality of laparoscopic mCME assessed based on photographs of the surgical specimen and the operation field are reported in this manuscript. This study is registered with ClinicalTrials.gov, NCT03992599. Study recruitment is complete, and follow-up is ongoing.

Results/Outcome(s): The postoperative surgical complication rate was 14%, and the incidence of major complications in terms of Clavien-Dindo grade III–IV were 2.7%. Lymphadenectomy around the origin of the colic artery with complete exposure of the SMV or SMA were done in 86.8% cases and 74.4% of specimens had mesocolic plane surgery after reviewing operative field after lymph node dissection and resected surgical specimens based on photographs. The radial margin was evaluated in 207 patients and 8.2% showed less than 1mm. Patients with appendix, cecal and ascending colon cancers most frequently had metastases in the ileocolic and right colic lymph nodes on the main and intermediate stations, whereas there were no metastatic lymph nodes along the middle colic artery. In patients with hepatic flexure and proximal transverse colon cancers, the main and intermediate lymph nodes along the right and middle colic arteries were most commonly metastatic lymph nodes.

Conclusions/Discussion: Laparoscopic mCME for right-sided colon cancer showed favorable short-term postoperative outcomes and surgical quality done by experienced surgeons. Based on the metastatic lymph node distribution, more tailored lymphadenectomy is needed according to tumor location and disease extent. Whether mCME can benefit patients' survival needs to be confirmed by future disease-free survival results.



PREDICTORS OF EN-BLOC, R0 RESECTION AND POST-PROCEDURAL COMPLICATIONS FOLLOWING ADVANCED ENDOSCOPIC RESECTIONS FOR COLORECTAL NEOPLASMS: RESULTS OF 1213 PROCEDURES.

T8

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Purpose/Background: Advanced endoscopic resections are commonly used in the treatment of colorectal neoplasms that are not suitable for conventional polypectomy. The purpose of this study is to report predictors of en-bloc, R0 resection and post-procedural complications following advanced endoscopic resections for colorectal neoplasms.

Methods/Interventions: Patients who underwent advanced endoscopic resections for colonic neoplasms at a tertiary care center between November 2011 and August 2022 were identified using Institutional Review Board approved prospectively-maintained database. Advanced endoscopic resections included EMR, ESD, hybrid EMR/ESD, and combined endoscopic laparoscopic surgery (CELS). En-bloc resection is defined as resection of a lesion in one piece. R0 resection is defined as en-bloc resection of a polyp with negative margins. Data was presented as mean (standard deviation), median [interquartile range

(IQR)] or frequency (percent). Univariable and multivariable logistic regression models were used to identify the predictors of en-bloc, R0 resection, and post-procedural complications.

Results/Outcome(s): A total of 1213 resections from 1047 patients were performed. Median age was 66 years (IQR: 58-72) with 485 (46.3%) of patients being female. Median BMI was 28.6 kg/m^2 (IQR: 24.8-32.6). Total colonoscopy duration was 69 min (IQR: 47-104). Most lesions were in the right colon (n=898, 74%). Mean lesion size was 31.6 (16.4) mm. 911 (75.1%) lesions had previous interventions. Performed procedures included 681 (56.1%) ESDs, 311 (25.6%) Hybrid EMR/ESDs, 181 (14.9%) EMRs, and 40 (3%) CELS. En-bloc and R0 resection rates were 56.5% and 54.3%, respectively. Smaller lesions and lesions located in rectum had significantly higher en-bloc and R0 resection rates. Compared to other procedures, ESD achieved significantly higher en-bloc (74%) and R0 (71.4%) resection rates. Early (within 24 hours) bleeding and perforation rates were 1% and 5%, respectively. Delayed (after 24 hours) bleeding and perforation rates were 4% and 1.6%, respectively. While increasing age was a predictor of bleeding [OR: 1.05 (95%CI: 1.03-1.08), p<0.001], lesion size was a predictor of perforation [OR: 1.01 (95%CI: 1.00-1.02), p<0.001]. Most common postoperative pathology was tubular adenoma (n=513, 42.3%). Adenocarcinoma rate was 6.2%. Within a median follow-up of 9.2 months, tumor regrowth rate was 6.6%.

Conclusions/Discussion: In this large series of advanced endoscopic resections from a high-volume colorectal surgery unit, lesion size and location have been shown to be significantly associated with en-bloc and R0 resection rates. Complication rates were acceptable, with age being a predictor of bleeding and lesion size being a predictor perforation.

Table 1. Predictors of En-bloc and R0 Resection

Multivariate Analysis for En-bloc Resection				
	Yes (n=685)	**No (n=528)**	**OR**	**p**
Lesion size	30.6 (16.7)	32.9 (15.9)	0.03 (0.0-0.12)	**<0.0001**
Lesion location				
R colon	457 (50.8%)	441 (49.1%)	0.22 (0.13-0.38)	**<0.0001**
L colon	104 (62.6%)	62 (37.3%)	0.31 (0.17-0.59)	**0.0003**
Rectum	119 (84.4%)	22 (15.6%)	Ref.	
Procedure type				
ESD*	504 (74.0%)	177 (25.9%)	Ref.	
EMR*	86 (47.5%)	95 (52.5%)	0.12 (0.08-0.16)	**<0.0001**
Hybrid ESD/EMR	75 (24.1%)	236 (75.9%)	0.26 (0.19-0.39)	**<0.0001**
CELS*	20 (50.0%)	20 (50.0%)	0.36 (0.19-0.70)	**0.0027**
Multivariate Analysis for R0 Resection				
	Yes (n=659)	**No (n=554)**	**OR**	**p**
Lesion size	30.3 (16.8)	33.1 (15.8)	0.03 (0.01-0.13)	**<0.0001**
Lesion location				
R colon	451 (50.2%)	447 (49.8%)	0.41 (0.26-0.66)	**0.000**
L colon	96 (57.8%)	70 (42.2%)	0.47 (0.27-0.82)	**0.0079**
Rectum	107 (75.9%)	34 (24.1%)	Ref.	
Procedure type				
ESD*	486 (71.3%)	195 (28.6%)	Ref.	
EMR*	84 (46.4%)	97 (53.6%)	0.12 (0.09-0.16)	**<0.0001**
Hybrid ESD/EMR	69 (22.2%)	242 (77.8%)	0.28 (0.19-0.40)	**<0.0001**
CELS*	20 (50.0%)	20 (50.0%)	0.39 (0.20-0.75)	**0.005**

**ESD: Endoscopic Submucosal Dissection, EMR: Endoscopic Mucosal Resection, CELS: Combined Endoscopic Laparoscopic Surgery*

TUMOR DEPOSITS SHOULD NOT BE IGNORED IN STAGE III COLON CANCER.

T9

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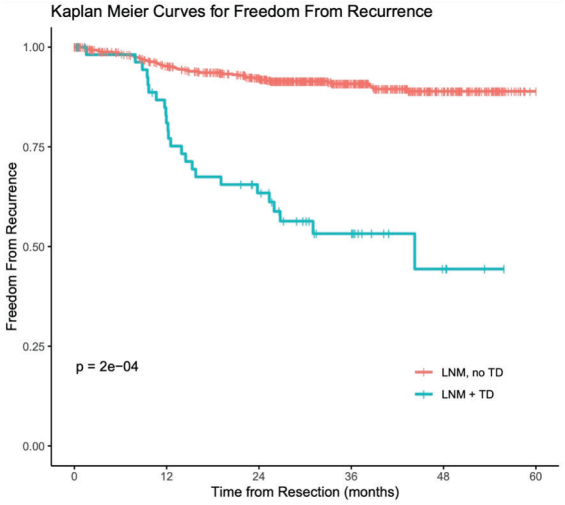
Purpose/Background: Colonic tumor deposits (TD) are focal aggregates of cancer nodules in adjacent pericolic fat or mesentery. Current AJCC staging criteria may undervalue the prognostic impact of TD in the presence of lymph node metastasis (LNM). The current study aims to delineate the prognostic capacity of TD, as well as understand their relationship with other clinicopathologic features.

Methods/Interventions: Using an institutional database we identified patients with stage I-III colon cancer who underwent primary surgical resection from January 2017 to December 2019. Patients with rectal cancer (< 12cm from anal verge), metastatic disease, concurrent malignancy, and those who received neoadjuvant treatment were excluded. Demographic, clinical, and pathologic data were collected by chart review. All pathology was reviewed by an in-house gastrointestinal pathologist. Univariate variables were assessed using chi-squared, T-test, or Mann-Whitney test. Kalpan-Meier was used for survival analysis. Hazard ratios were calculated using a Cox Regression model.

Results/Outcome(s): Of the 770 patients included in the final study population, 69 (9%) had the pathologic presence of TD. The presence of TD was significantly associated with the presence of LNM, more advanced T stage, poorly differentiated tumors, microsatellite stable phenotype, and more lymphovascular and perineural invasion ($p < 0.05$). Multivariable analysis showed the presence of TD (HR 2.55, 95% CI [1.55-4.17]), the presence of LNM (HR 3.51, 95% CI [2.11-5.85]), and stage T3 or T4 tumors (HR 3.13, 95% CI [1.48-6.60]) to be independently associated with decreased time to recurrence. Despite the association between the presence of TD and the presence of LNM, Pearson correlation coefficient demonstrated a weakly positive correlation (0.27) between the number of TD and the number of positive lymph nodes.

Conclusions/Discussion: Tumor deposits are associated with more advanced disease and the presence of high-risk pathologic features. The presence of TD and LNM were found to be independent risk factors for decreased time to recurrence. In our cohort, a patient with both LNM and TD is more than twice as likely to have disease recurrence when compared with a patient who has LNM only (Figure 1). This points to the possibility that TD arise from a pathway distinct from lymphatic spread. Future AJCC colon cancer staging should not ignore TD in the presence of LNM.



Freedom from recurrence for patients with both lymph node metastasis and tumor deposits (n = 57) shown in blue, and patients with lymph node metastasis only (n = 188) shown in red

IMMERSIVE VIRTUAL REALITY PLATFORM FOR SURGICAL PLANNING AND RESIDENT EDUCATION IN LOW PELVIC SURGERY.

NT1

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Purpose/Background: Colorectal surgery involves complex and anatomically challenging operations performed in confined operative fields. Virtual reality is an emerging technology that has shown great potential in facilitating operative planning, staging operative rehearsals, and enhancing resident education. Herein, we present a novel immersive virtual reality platform and demonstrate a model constructed from preoperative cross-sectional imaging of a patient with low pelvic colorectal carcinoma.

Methods/Interventions: Volume rendering was performed using ImmersiveView Software (Chicago, IL) utilizing data from preoperative CT and MRI scans in a patient with a resectable low pelvic tumor.

Results/Outcome(s): A novel virtual reality platform was used to construct a model of the low pelvis from preoperative cross-sectional imaging obtained from a patient with resectable colorectal cancer. Surgically relevant structures were accurately rendered from the DICOM image files. Model construction time was on the order of one day.

Conclusions/Discussion: An immersive volume rendered anatomical model was created based on preoperative cross-sectional imaging from a patient with colorectal carcinoma. This feasibility study proved that model construction could be performed accurately and within a reasonable timeframe. Potential applications include surgical planning, operative rehearsal, and resident education.

ASSOCIATING MYOELECTRIC ACTIVITY FOLLOWING COLORECTAL SURGERY WITH RETURN OF BOWEL FUNCTION.

NT2

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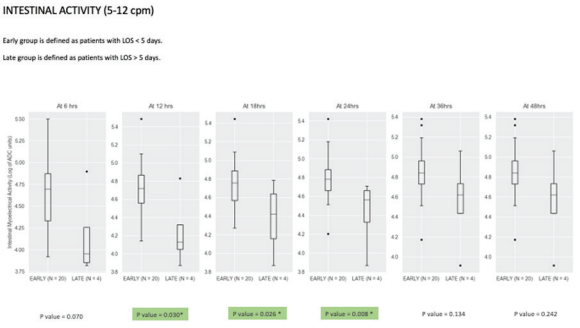
Purpose/Background: Return of bowel function after colorectal surgery is unpredictable and contributes to increased lengths of stay and postoperative readmissions. The purpose of this study was to determine if the myoelectric activity recorded by a novel wireless patch system correlated with left versus right sided colectomies and length of stay (LOS).

Methods/Interventions: We conducted a single-arm, single-site study with patients undergoing colorectal resections with anastomosis. The myoelectric signals originating from patients' abdomens were recorded by a noninvasive wireless patch system linked to a phone-based app. Each patient received three patches within 4 hours of surgery and remained in place throughout the hospital stay. All patches were removed at discharge. The app collected patient-entered timestamps of their first liquid meal, first solid meal, first flatus, and first bowel movement. Cloud-based signal processing algorithms removed extraneous noise and isolated myoelectrical activity levels in cycles per minute (CPM) correlating with known myoelectric signatures of the stomach (2.4-4 CPM), small bowel (5-12 CPM), and colon (12-28 CPM). The raw time series signaling data collected by the patches from each patient was converted to weighted peak histograms for successive 24-hour periods. Patient demographic, preoperative clinical information, and auditing of patient-entered functional recovery was collected via chart review of the electronic medical record. LOS for each patient was stratified as either expected (<5 days) or late (>5 days).

Results/Outcome(s): 24 patients were enrolled out of 47 recruited for the study (50% male, mean age = 61 years). 8 patients underwent right-sided colectomies, 13 underwent left-sided colectomies, 2 underwent enterectomies, and 1 underwent a subtotal colectomy. 22 patients experienced a standard, uneventful recovery pathway without signs of ileus (median LOS=2.5 days). 2 patients had delayed return of bowel function during their hospital stay (median LOS=10.6 days). There were no readmissions for ileus. The 5-12 CPM signal (small bowel) and the 12-28 CPM signal (colon) were found to have statistically significant differences between the early and late discharge groups. For the 5-12 CPM signal, there was significance at 12-, 18-, and 24-hours post-op (Figure 1), and for the 12-28 CPM signal, there was significance at 6-, 12-, 18-, and 24-hours post-op (p=0.02, 0.01, >0.01, 0.02, respectively). There were no significant differences in activity between left and right sided colectomies.

Conclusions/Discussion: Increased small intestinal and colonic myoelectirc activity early postoperatively is associated with a shorter length of stay. Colectomy sidedness did not have a significant effect on myoelectric activity levels. Further use of gastrointestinal myoelectric signaling may help inform clinical decisions regarding the discharge of patients even in the first 12 hours after surgery.



Plots demonstrate the log of the intestinal myoelectrical activity for both the expected (LOS<5 days) and the late group (>5 days).

3D ENDOSCOPIC ULTRASOUND NAVIGATED OVERLAPPING SPHINCTEROPLASTY.

NT3

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Purpose/Background: Sphincteroplasty is considered the standard surgery for a damaged external sphincter due to obstetric and other causes. The short-term results are good (74% improved at three months) but the long-term outcome is far from satisfactory, decreasing to 48% at 80 months. This may be attributed to incomplete repair of sphincter complex and also injury to the neurovascular bundle before or during surgery itself more so for wider defects. 3-Dimensional EUS reconstruction aids in evaluating the extent of sphincter damage and completeness of sphincter repair in real time. Concomitant Doppler EUS ensures identification and preservation of anal neurovascular bundle (NVB) bilaterally for optimal sphincter repair. Additional advantages include feasibility of isolated repairs of internal and external sphincter and accurate sphincter defect identification in cases of secondary repair.

Methods/Interventions: The study was conducted at a tertiary care hospital from November 2021onwards. All patients with severe fecal incontinence, St. Mark's incontinence score [SMIS] > 16) due to anal sphincter injury were included in the study. All patients had either grade 3b or 4-perineal injuries (WHO perineal injury classification) as defined on preoperative evaluation. The definitive repair was typically carried out after an interval of 3 months at our center. Preoperative assessment included - DRE, SMIS, anal manometry and 3D/doppler EUS.

Results/Outcome(s): 5 patients with mean age of 34 years (range 18-45 years) underwent 3D EUS guided overlapping sphincteroplasty. Of them, 2 patients had a prior diversion colostomy. The median preoperative SMIS was 18 (range 15- 24). The median preoperative anal squeeze sphincter pressure of was 22 mmHg (range 10- 44). All 5 patients had intact NVB bilaterally on preoperative EUS. 2 patients had perineal wound infection and were managed conservatively. Mean postoperative hospital stay was 3 days. All patients are under follow up till date, mean duration 6 months (range 3 – 12 months). On digital rectal examination, both resting and squeeze pressures improved. The postoperative SMIS significantly improved in all the patients and varied between 6 and 10. Post-operative anal manometry showed marked improvement in both resting and squeeze pressures. On postoperative EUS examinations, the complete sphincter wrap could be identified along with preserved bilateral neurovascular bundle in all 5 patients.

Conclusions/Discussion: Real time 3D ultrasound reconstruction ensures completeness of sphincter repair in its entire length. Simultaneous use of EUS Doppler probe helps to identify and preserve anal neurovascular bundles, refining sphincteroplasty. This may translate in better long term outcomes requiring further validation.

ON-DEMAND ROBOTICS IN COLORECTAL SURGERY.

NT5

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Lausanne, Switzerland

Purpose/Background: The key benefits of robotics are improved precision and control, thanks to fully articulated robotic instruments and enhanced, stable endoscope control. However, colorectal procedures also require large movements such as medialization of the colon where a robotic platform is not always needed. We present the world's first experience in colorectal surgery with a new open platform of on-demand robotics.

Methods/Interventions: Standard laparoscopic 3-D camera, insufflator, trocars and energy devices, available in all hospitals performing laparoscopic surgery, are used in combination with the Dexter System from Distalmotion SA, which includes two robotic instrument arms, one robotic endoscope arm and a sterile surgeon console. We present the first colorectal cases using the Dexter System.

Results/Outcome(s): Mesh ventral rectopexy and oncological right colectomies were the first cases. All surgeries could be conducted as planned using 4 standard laparoscopy 10/12mm trocars (3 robotic and one assistant). Ventral mesh rectopexies were fully robotic, requiring no switch form standard laparoscopy to robotic assistance. The robotic platform was used for central vascular ligation (CVL) in all oncologic colectomies, whereas medialization

of the colon and transection was performed with standard laparoscopy. For intracorporal anastomosis stapling was performed by standard laparoscopy and suturing of the defect with robotic assistance. The switch between laparoscopy and robotics was performed in a median of 25 seconds. Cases of sigmoidectomies and low anterior resections will also be shown.

Conclusions/Discussion: On-demand robotics is feasible and combines the best of two worlds: Robotics where precision and enhanced dexterity are required and standard laparoscopy where it is at its best. The surgeon remains scrubbed-in at all times, allowing a switch between robotics and laparoscopy within seconds.

TWO-YEAR-EXPERIENCE WITH THE FULLY ARTICULATED LAPAROSCOPIC ARTISENTIAL® INSTRUMENTS: THE FIRST 100 PROCEDURES.

NT6

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Purpose/Background: Under the collective term Artisential®, novel fully articulated laparoscopic instruments have been in clinical use in Europe and specifically in Germany since early on in 2021. A 360° articulated end-effector allows for a 7-degrees-of-freedom level of dexterity in these mechanically driven instruments. In a time frame of two years, one hundred ArtiSential® assisted surgical procedures were performed in our department. We present here our current data with special focus on safety.

Methods/Interventions: Prospectively collected data of patients who underwent an Artisential® assisted laparoscopic procedure between September 2020 and September 2022 was entered into a dedicated registry. Retrospective data analysis was performed. Indications for surgery included colorectal cancer, diverticular disease, inflammatory bowel disease, obstructed defecation syndrome, endoscopically non-resectable adenoma, chronic anastomotic fistula after low anterior resection (LAR), liver tumor, incisional hernia, inguinal hernia, adrenal tumor and symptomatic cholelithiasis.

Results/Outcome(s): 100 Artisential® assisted surgical procedures were performed in 99 patients (38 f, 61 m) with a median age of 63 years (32-88) and a BMI of 27 Kg/m^2 (19-51). The performed procedures included 36 LAR with TME (2 Hartmann procedures included), 8 LAR with PME, 5 APR, 24 left and sigmoid colectomies, 4 right colectomies with CME, 4 laparoscopic ventral mesh rectopexies, 2 proctocolectomies, 2 Turnbull-Cutait procedures, 2 TAMIS, 1 atypical liver resection (segment 4), 2 typical liver resections (segment 7), 2 right hemihepatectomies, 2 right adrenalectomies, 2 TAPP inguinal hernia repairs, 2 eMiLOS incisional hernia repairs, 1 laparoscopic Rives-Stoppa hernia repair and 1 cholecystectomy. The median operative time was 225 minutes (35-458). There was a single conversion to open (1%) in one right hemihepatectomy because of excessive bleeding during parenchymal resection. There were no conversions to using straight sticks and no intraoperative complications with exception of the above-mentioned bleeding. The EBL was 20 ml (0-1500). Patients who were operated on for malignancy received an adequate oncologic resection with a median number of lymph nodes of 15 (12-34) and an R0 rate of 100%. The median LOS was 7 days (1-36). The postoperative complication rate was 9.2% (Clavien-Dindo II: 1 patient, Clavien. Dindo IIIb: 8 patients). There were 2 readmissions, one unrelated. One postoperative mortality (1%), deemed unrelated, was due to superior mesenteric artery thrombosis and acute mesenteric ischemia.

Conclusions/Discussion: 100 cases show that the use of the fully articulated Artisential® laparoscopic instruments to perform complex wide-spectrum surgery is feasible and safe. Furthermore, a benefit in terms of reduction of the conversion-to-open rate can be suggested since no conversions were registered in all colorectal procedures.

COLORECTAL SURGERY USING THE NEW HUGO RAS ROBOTIC SYSTEM: INITIAL EXPERIENCE.

NT7

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[1]Vellore, India; [2]Chennai, India

Purpose/Background: Background: Robotic surgery for colorectal surgery is evolving. Over the last decade there has been increased adoption in the use of surgical robotics. The challenges for wider adoption include access to technology, training and cost. The Hugo Ras system has been recently introduced for general surgery. We present the initial experience with using this new platform for colorectal procedures.

Methods/Interventions: Methodology: This is a retrospective study done at our tertiary referral center in India. We included all patients who underwent robotic colorectal surgery for various indications with the HUGO RAS platform from December 2021 to September 2022. The technical safety of the robotic system, docking duration, surgery duration, and assistant ergonomics were analyzed. HUGO robotic arm has 6 joints with an innovative tilt joint. This provides more flexibility and a large range of movement that makes multiquadrant surgery easy. The arms can be deployed in numerous configurations around the operating table

Results/Outcome(s): Results: Twenty five Robotic colorectal procedures (Low anterior resection n=16, APR n=2, Right hemicolectomy n=6, Rectopexy n=1) were performed using the HUGO RAS platform. The Medtronic system was safe technically and there were no

untoward event endangering patient safety in any procedure. There was no conversion to open procedure in any of these cases. The average duration of docking was 30 mins and this duration decreased with assistants familiarity over time. There were no unplanned blood replacement intraoperatively. The intra and early post operative outcome was uneventful with no complications in any patient. The ergonomics for the assistant was better in this system with the correct placement of the cart and arm angles as per the HUGO protocol.

Conclusions/Discussion: Conclusion Our experience with the HUGO system was the first in the Asian continent. The HUGO RAS system is very promising in terms of technical safety. The early surgical and oncologic outcomes in this early experience is comparable to published outcomes with other robotic platforms. This new platform offers another alternative and may reduce the cost of robotic surgery.

SCANNER ASSISTED CO2 LASER: THE NEW ERA OF CO2 LASER IN PROCTOLOGY.

NT8

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Purpose/Background: Proctological surgery is still strongly correlated with intense and disabling post-operative pain. Despite the introduction of new technologies and new surgical strategies the treatment of the anoderm area is burdened with pain. CO2 laser technology has found new life thanks to the introduction of new tools such as the surgical scanner, the high precision micromanipulator and the association in specific cases to the operating microscope, with the aim of overcoming the limits of the first generation CO2 laser. Aim of this study is to explore the effectiveness of scanner-assisted CO2 laser in Proctology.

Methods/Interventions: From April 2021 to April 2022, all consecutive patients who affected by proctological disease suitable for surgery, were evaluated for a possible use of Scanner assisted CO2 Laser technology. All procedures were evaluated on the basis of technical parameters such as: feasibility of the surgeon with Scanner assisted CO2 Laser (VAS 0-10), docking time (minutes), surgical time (minutes), intraoperative complications, 1 month postoperative complications, average and maximum postoperative pain (VAS 0-10) within 7 days, painkiller days. Paracetamol 1 g every 8 h was prescribed for the first 24 h and then continued according to each patient's need. Ketorolac 15mg was prescribed as rescue.

Results/Outcome(s): The total number of patients was 198 and the pathologies treated were: anal fissure, anal fistula, haemorrhoids, skin tags, pilonidal cysts, HPV related lesions. The number of surgeons involved was 5: the technical feasibility reached an average VAS value of 7.8 (range 7 - 8). Docking times was less than 3 minutes, surgical time varied between 5 and 20 minutes (mean value 12 minutes). No changes in surgical strategy were recorded for either intraoperative pain or technical complications. There were only 3 minor intraoperative bleeds that were treated with monopolar-bipolar energy. The postoperative complications recorded at 1 month were: 5 patients who did not respond to painkillers and 3 patients had delayed wound closure. Post-operative pain was measured at 7 days: the average value recorded was 4.2 (range 0 - 8), the maximum value was 5.5 (range 4 - 10) while the average painkiller days was 4 (range 1-10).

Conclusions/Discussion: Scanner assisted CO2 Laser has proved to be a useful aid for proctological surgery allowing extremely precise ablation, vaporization and debridment procedures with minimal lateral thermal diffusion and reduced secondary post operative pain. Wound healing was rapid, elastic and stable. The wide versatility of pulse shape and energy delivery proved to be an added value by allowing an extreme modulation of the energy delivered according to each specific situation. Studies on single surgical procedures, multicentric and based on comparison with traditional techniques are the next steps necessary to guarantee the good results showed in this preliminary experience.

EVALUATION OF THE USABILITY OF THE SAFEHEAL COLOVAC ANASTOMOSIS PROTECTION DEVICE AS AN ALTERNATIVE TO PROTECTIVE ILEOSTOMY AFTER LOW ANTERIOR RESECTION FOR RECTAL CANCER IN THE SAFE-2 TRIAL.

NT9

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Purpose/Background: The Colovac device (CD) is a flexible bypass sheath anchored to the colon above a freshly constructed colorectal anastomosis (CRA) using a vacuum stent. The sheath is intended to shield the anastomosis from exposure to feces during a 10 day implantation period, so routine diverting loop ileostomy (DLI) is avoided and only performed in cases of incomplete anastomotic healing on imaging at the time of planned CD removal. SAFE-2 is a pivotal, multicenter, prospective, randomized controlled IDE trial evaluating the CD safety and effectiveness in patients undergoing sphincter-saving curative low anterior resection (LAR) for rectal cancer (NCT5010850). CD usability was assessed in the initial 10 run-in non-randomized subjects to capture any challenges during CD deployment.

Methods/Interventions: 10 patients underwent LAR with CD anastomotic protection across 6 US centers from

January to May 2022. Following the CRA construction, the introducer was advanced 15 cm above the sacral promontory (SP). The CD was released to deploy the stent into the colon. The introducer was withdrawn transanally, uncovering the sheath covering the colonic wall from the stent to just below the anus. Two tubes alongside the stent were connected to 2 vacuum bottles. After the surgery, surgeons assessed the feasibility and occurrence of any issues during CD placement. After 10 days of implantation, a CT scan was performed to confirm CRA integrity, followed by CD endoscopic removal. Patients without anastomotic leakage (AL) were discharged home and those with a radiologic AL had a DLI. AL were classified according to ISREC. A clinically significant CD migration was defined as a stent position below the SP documented on X-ray or CT scan.

Results/Outcome(s): CD insertion and deployment was successful in all (100%) patients with mean procedural time of 15 min and no major difficulty reported. CD insertion was associated with 2 minor colonic serosal tears, one of which required oversewing. Technical ease of insertion was rated as easy (50%) or very easy (50%). Minor difficulties, defined as slight difficulty during insertion and/or advancement towards the SP were reported in 5 patients (50%). Three subjects (30%) required early CD retrieval: Two for non-clinically significant CD migration on postoperative day (POD) 7 that did not require stoma conversion (SC), and one for grade A AL diagnosed on a CT scan on POD 8 prompting SC. Two additional subjects required SC for grade A AL diagnosed on CT scan on POD 9. Overall, 7 subjects (70%) avoided SC and 3 (30%) required a DLI.

Conclusions/Discussion: Preliminary results from the first 10 run-in non-randomized CD subjects in SAFE-2 suggest that the CD is technically feasible, easy to use, and effective in protecting CRA. CD performance, effectiveness and safety will be assessed through the SAFE-2 randomized portion.

INITIAL EXPERIENCE WITH THE HANDX DEVICE FOR TAMIS.

NT10

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Purpose/Background: The constrained access associated with Transanal Minimally Invasive Surgery (TAMIS) has encouraged surgical groups to deploy either incumbent large modular robotic-assisted ecosystems or new dedicated, complex single access platforms to offset inherent manoeuvrability limitations and skills deficits for this niche surgical indication. Here, we show instead the use of a handheld, powered laparoendoscopic 5mm light weighted electromechanical digital device (HandX ™, Human Xtensions, Israel) that includes both hardware and software components to convert the surgeons hand movements precisely to the instrument-articulating tip allowing enhance degrees of freedom and full articulation and roticulation for hook diathermy and suturing The device has a small OR print and may offer an advance solution in a more cost-effective manner than other platforms.

Methods/Interventions: After bench and biomedical model training, the Hand-X system was used in three TAMIS procedures for early stage rectal cancer in the frst two cases and the third being a substantial adenomatous growth. The first patient was an 80-year, frail woman with co-morbidity and adversion to stoma and blood transfusion. The lesion was 2cm in maximum dimension and was located posteriorly in the rectum, 5cm from the anus. The second patient was 70year old male, with a significant cardiac history and underlying ulcerative colitis. Rectal lesion in the 2nd case, was 3cm in maximum dimension, located posteriorly and 2cm from the dentate line. The third patient was a 58 year old male, with an adenomatous growth 3.5cm in maximum dimension, located posterolaterally at the anorectal junction. In each case, standard TAMIS set-up and instrumentation (Gelport Part with Airseal) was used with the inclusion of the HandX™ device for initial circumferential lesion marking and thereafter haemostatic full thickness excision in both cases and defect closure in the first only.

Results/Outcome(s): All three procedures were completed without intraoperative complication or undue operative prolongation (TAMIS operating times <one hour). The lesions were fully excised with the patients being discharged 48 hours afterwards.

Conclusions/Discussion: The HandX™ system performed capable in facilitating TAMIS excision thereby providing facility for robot-like instrument movement throughout this endoscopic operation. With time dedicated to instrument understanding and training, the HandX™ provided increased dexterity and precision directly with small operating room foot print that may offer a greater cost-effectiveness than other platforms.

USE OF LEUKOCYTE AND PLATELET-RICH FIBRIN PLASMA (L-PRF) FOR THE PREVENTION OF ANASTOMOTIC LEAK IN STAPPLED COLORECTAL ANASTOMOSIS, RANDOMIZED CLINICAL TRIAL.

NT11

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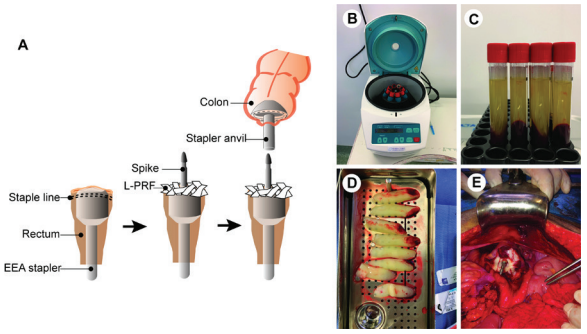
Purpose/Background: Anastomotic leak rate in colorectal surgery is estimated between 4 and 20 percent. Leukocyte and and platelet-rich fibrin plasma (L-PRF) is second generation platelet concentrate whose application in colorectal anastomosis in animals has shown promising results that suppose a lower leakage rate. The objective of this study was to assess the safety of using L-PRF in

colorectal anastomosis and to determine the incidence of anastomotic leak after colorectal anastomosis.

Methods/Interventions: This study took place in Hospital Clínico Regional de Concepción Chile, between years 2018 and 2021. A randomized and one-blinded experimental design was used, that included 106 patients that underwent end-to-end stapled colorectal anastomosis, 53 of them received L-PRF during anastomosis (experimental group).

Results/Outcome(s): Surgery indication in 79% was cancer and laparoscopic procedure was performed in 46% of patients. There were no statistically significant differences in sociodemographic or surgery related variables. Anastomotic leak occurred in 5 patients of the control group (9.4%) and 1 patient from de experimental group (1.9%), with no statistically significant differences (p=0,24).

Conclusions/Discussion: Althought we did not detected significant differences among both groups, we observed a tendency favoring L-PRF treatment. We were able to stablish the safety of L-PRF use in colorectal anastomosis.



CLINICAL ASSESSMENT OF A MINIATURE ROBOTICALLY ASSISTED SURGICAL DEVICE (RASD) FOR RIGHT AND LEFT COLECTOMY.

NT12

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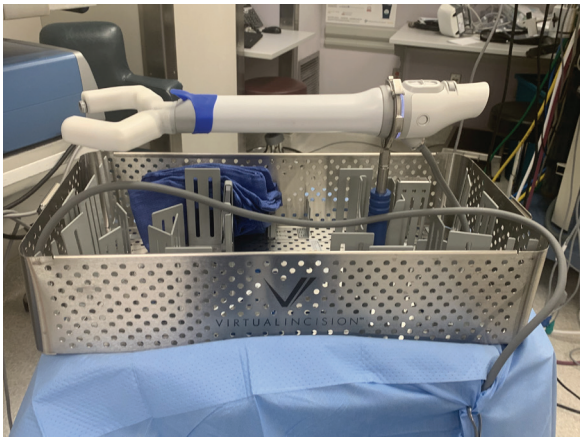
Purpose/Background: The novel miniturized RASD aims to make robotic surgery more accessible through a miniaturized platform which permits multi-quadrant access from a single abdominal incision. Under an investigational device exemption (IDE), the safety and effectiveness of this RASD for colectomy is underway. The goal of this work is to present the first clinical safety and efficacy assessment of the miniature RASD in colectomy procedures. The hypothesis is the miniature RASD will be safe and effective for right and left colectomy.

Methods/Interventions: Prospective review of the initial 10 patients undergoing elective right or left colectomy for malignant or benign colorectal disease was performed. Cases were completed at 2 tertiary referral centers registered under an IDE (G200257)from the Food and Drug Administration (FDA) from 1/1/2022-8/31/2022. Patient demographics, procedural, and 30-day clinical outcomes were reviewed. Descriptive and frequency statistics were used for the analysis. The main outcome measures were rates of intraoperative complications; conversion; laparoscopic ports added; readmission, reoperation, and unplanned encounters; and postoperative morbidity and mortality.

Results/Outcome(s): Included patients were 70% male and 30% female. The mean age was 56.5 (SD 16.8) years and mean body mass index 29.6 kg/m^2(SD 4.2). Surgery indications were colon cancer (60%), tubulovillous polyp (30%), and diverticulitis (10%). Procedures performed were evenly split between right and left/sigmoid colectomies (50% each). The initial fascial incision was a mean 3cm, and the extraction site a mean 5.5cm. Median operative time was 71.2 minutes (range, 60-92); there is no docking time. All cases had one 5mm port added for advanced energy, suction, and retraction. There were no intraoperative complications, either device or procedure-related. There were no conversions. The length of stay was a median 3 days (range 1-3). There were no postoperative complications or adverse events. There were no unplanned readmissions, reoperations, or Emergency Department encounters.

Conclusions/Discussion: The miniature RASD was safe and effective for right and left colectomy, with excellent clinical and quality outcomes. All procedures had successful completion of the dissection, mobilization and resection without conversion or adding additional ports. With case volume, the technical steps will continue to be refined. The ease of use and good outcomes with miniature robotic colorectal surgery will expand the robotic landscape in colorectal surgery as the device becomes widely available.



SUTURELESS LAPAROSCOPIC ILEOCOLIC ANASTOMOSIS USING SELF-FORMING MAGNETS.

VR1

A. Ore, M. Ryou, E. Messaris
Boston, MA

Purpose/Background: We have previously confirmed the safety and efficacy of performing small bowel anastomoses using self-forming magnets (SFM) on previous porcine models. Additionally, there is an ongoing human clinical trial evaluating outcomes of open anastomosis using SFM compared to traditional ileostomy reversals. Despite differences in lumen diameter and tissue thickness, the benefits of SFM with the addition of laparoscopic surgery should allow for a safe and effective laparoscopic ileocolonic anastomosis.

Methods/Interventions: A preclinical study was performed using a porcine model to evaluate an in vivo laparoscopic ileocolonic anastomosis via magnetic compression. Animals were survived and sacrificed on Day 7 and Day 14 for endoscopic and gross anastomotic evaluation.

Results/Outcome(s): Two female Yorkshire pigs were prepped and draped in a standard sterile fashion. A 5cm midline incision was performed, and a single port laparoscopic device was placed after achieving insufflation. A small bowel segment was identified, and an enterotomy was performed using electrocautery followed by laparoscopic delivery of a temporary implant for precision at magnet delivery and avoidance of spillage; once the colon segment was identified and confirmed to be tension free, a second implant was introduced. Using the Endo Magnetic Intracorporeal Anastomosis Delivery System, an SFM was delivered to each of the bowel segments; once anastomosis was confirmed, sutures were removed. Animals survived the procedure and were taken to recovery. Diet was restarted, and daily rake checks were performed to monitor magnet and grommet expulsion. Day 3 fluoroscopic evaluation showed paired magnets, with endoscopic evaluation confirming patent magnets, implant had passed in one pig and remained in place in the other. By day 7, all implants had passed through the fecal stream, the lumen remained patent, and magnets remained in place. By day 14, magnets were expelled; there was minimal evidence of the anastomotic line on endoscopic evaluation, with necropsy showing a thin white line as the only remnant of the anastomosis. Macroscopically there was minimal inflammation with no evidence of adhesion formation.

Conclusions/Discussion: Our study shows that laparoscopic ileocolic anastomosis using SFM can be performed safely and efficiently. Anastomosis at day 14 shows a fully healed mucosa and serosa with a barely noticeable anastomotic line. The benefits of a magnetic anastomosis free of foreign material are well known. This study demonstrates the ability to laparoscopically perform an ileocolic anastomosis, and create a magnetic anastomosis with immediate flow. Temporary implants allow handling of enterotomies and eliminates the need of enterotomy closure and the risks associated with this. This technology has the potential to contribute to minimally invasive colorectal surgeries.

LAPAROSCOPIC DUHAMEL PROCEDURE: TREATMENT FOR ADULT HIRSCHPRUNG'S DISEASE.

VR2

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Spokane, WA

Purpose/Background: The purpose of this video is to provide illustration and guidance on how to complete the Duhamel procedure for treatment of delayed diagnosis / adult Hirschrpung's disease. The patient is a 22-year-old male who presented with a longstanding and debilitating history of constipation and fecal overflow incontinence. Imaging studies and rectal biopsy confirmed the diagnosis of Hirschprung's disease.

Methods/Interventions: The patient underwent laparoscopic Duhamel procedure. Due to personal circumstances, the patient initially underwent a laparoscopic diverting end loop sigmoid colostomy and returned for definitive treatment at a later date. The diverting end loop colostomy was reversed in conjunction with the Duhamel procedure. Key concepts in this video: 1. Bring ganglionated bowel to within 1 cm of the dentate line. 2. Avoid extensive pelvic dissection to avoid sexual or bladder dysfunction. 3. Avoid damage of sensory rectal fibers. Key steps in this video: 1. Patient positioning and trocar placement. 2. Create a posterior tunnel down to levator ani in the presacral space. 3. Mobilize non-dilated ganglionic proximal colon. 4. Place the EEA anvil and ensure adequate reach into the deep pelvis. 5. Resect aganglionic colon and assure correct orientation when creating an end to side circular colorectal anastomosis. 6. Widen the circular anastomosis by adding a side-to-side colorectal linear anastomosis. 7. Excise excess rectum. Utilizing ICG is recommended. 8. Check stapler line and anastomosis integrity. 9. Place a JP drain and proximal diverting ostomy (optional).

Results/Outcome(s): The patients presenting symptoms were definitively cured by the procedure. His post-operative course has been without complication.

Conclusions/Discussion: Several procedures exist for the management and treatment of adult Hirschprung's disease. The main advantage of this approach is the avoidance of rectal mobilization and associated morbidity. The main disadvantage is the preservation of a blind rectal stump with the diseased segment left in situ. Other operative approaches include the transanal endocrectal pull-through (TERPT), Soave, and Swenson. We felt that the Duhamel was most appropriate for this patient. There are no recently published comparative data to evaluate the relative success of these techniques in adults.

TWO TECHNIQUES FOR ROBOTIC SIGMOID COLON CONDUIT AS NEOVAGINA IN GENDER AFFIRMING SURGERY: IMA PEDICLE ROTATION VS SELECTIVE SUPERIOR RECTAL ARTERY LIGATION.

VR3

C. Arellano, B. Abbadessa, J. Anger, h. chau, S. Ramamoorthy, S. Eisenstein, L. Parry, S. Liu
La Jolla, CA

Purpose/Background: Gender affirming surgery for transgender patients can involve the creation of a functional neovagina. Left colon is often used as a favorable conduit for vaginoplasty given its favorable anatomy, length, and ability for self-lubrication. Conduit length is a challenging part of the operation that requires a case by case assessment of sigmoid colon redundancy and vascular pedicle anatomy. Robotic surgery combined with indocyanine green angiography allows for a more precise surgical solution.

Methods/Interventions: In this video we demonstrate our robotic techniques for creation of sigmoid colon conduit for neovagina. We include two cases: one where the distal sigmoid colon is created in antegrade fashion through selective superior rectal artery ligation, and another where the descending colon is used as a rotational conduit due to the lack of redundant sigmoid colon. Perineal dissection and anastomosis is performed by urogynecology.

Results/Outcome(s): Early results from these cases resulted in functional neovagina and good patient satisfaction.

Conclusions/Discussion: In this video we submit our technique for robotic left/sigmoid colon conduit for vaginoplasty for gender affirming surgery. Depending on sigmoid colon length and redundancy, either an antegrade or a rotational conduit could be created for this purpose.

THE BLUE DYE DOESN'T LIE: COMBINED SELECTIVE ANGIOGRAPHY AND INTRAOPERATIVE METHYLENE BLUE INJECTION TO LOCALIZE SMALL BOWEL GI BLEEDING.

VR4

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Purpose/Background: GI bleeding from the small bowel can be a challenge, as it is often difficult to determine the precise source of bleeding. We present a case where selective angiography was combined with intraoperative methylene blue injection to localize a GI bleed in a Crohn's disease patient.

Methods/Interventions: N/A

Results/Outcome(s): The patient is a 68 y.o. male with history of fibrostenosing Crohn's disease of the small intestine. He had a history of multiple complex abdominal surgeries, including multiple small bowel resections. Consequently, the patient developed short gut syndrome with TPN dependence. Just prior to presentation, the patient developed a left upper extremity DVT related to his port-a-cath and was started on Pradaxa. The patient presented to the ER with hematochezia. An urgent CT angiogram demonstrated intraluminal clot at the site of a small bowel anastomosis with evidence of active bleeding. Selective visceral angiography revealed extravasation from a terminal ileal branch near the ileocolic anastomosis. There were numerous diminutive vessels identified arising from a terminal ileal branch supplying the small bowel in this region, which were not amenable to endovascular embolization. After multidisciplinary discussion, the vascular sheath and microcatheters were left in place to assist with intraoperative localization. Intraoperatively, after the small bowel was mobilized, 5 cc of methylene blue was injected into the femoral artery sheath. The involved mesentery and bowel demarcated and served as a visual cue for the extent of resection. Approximately 20 cm of bowel was resected. A stapled side-to-side anastomosis was performed. The remainder of the bowel was carefully inspected and there were no abnormalities. The patient's postoperative course was unremarkable and he recovered well.

Conclusions/Discussion: Several case reports in the literature have described the use of selective mesenteric angiography to identify sources of obscure GI bleeding. Obscure GI bleeding can be challenging to manage, with 45-75% of these cases originating from the small bowel. Given that small bowel bleeding can be difficult to identify during laparotomy, localization techniques like those described here can be extremely useful. In conclusion, superselective mesenteric angiography in combination with intraoperative methylene blue injection can be an effective strategy to localize small bowel GI bleeding when other localization studies have been unrevealing or nonspecific.

LAPAROSCOPIC ILEOCOLECTOMY WITH INTRACORPOREAL ANASTOMOSIS IN SITUS INVERSUS TOTALIS.

VR5

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Orlando, FL

Purpose/Background: Illustrate the feasibility of a completely laparoscopic approach to an ileocolectomy in a patient presenting with situs inversus totalis.

Methods/Interventions: After appropriate workup, preoperative planning and multidisciplinary tumor board discussion, the patient was taken to the operating room for a laparoscopic ileocolic resection with intracorporeal anastomosis.

Results/Outcome(s): Succesful laparoscopic resection without complication noted intraoperatively or post operatively.

Conclusions/Discussion: Preoperative planning revolves around review of the anatomy and appropriate set up in the operating room. This case was approached in much the same way as a standard laparoscopic left hemicolectomy from port placement to positioning. While certainly a challenge, situs inversus totalis does not prohibit the surgeon from succesfully accomplishing a laparoscopic ileocolic resection safely.

CECAL VOLVULUS IN THE SETTING OF SITUS INVERSUS TOTALIS.

VR6

S. Abujbarah, M. Campany, B. Donato, D. Etzioni, G. Han
Phoenix, AZ

Purpose/Background: Situs inversus totalis is a rare congenital disorder with an incidence of 1:6500 to 1:25,000 that results in complete mirror-image positioning of abdominal and thoracic organs. Laparoscopic surgery in the setting of situs inversus requires re-orientation of the abdominal anatomy and adjustments to the usual steps of the procedure to account for the inverted positions of the abdominal organs. We present the video of a 52-year-old woman with situs inversus totalis who was found to have a cecal volvulus and underwent laparoscopic detorsion with right hemicolectomy.

Methods/Interventions: The abdomen was accessed with a direct cut-down technique in the supraumbilical region, and a Hasson trocar was placed. Pneumoperitoneum was established, and three 5 mm trocars were placed at the right upper quadrant, right lower quadrant, and suprapubic region. Upon abdominal entry, a survey of the anatomy revealed situs inversus with mirror-image transposition of the abdominal organs. The omentum overlying the cecal volvulus was retracted cephalad and medially, and detorsion of the volvulus was performed. Lateral-to-medial mobilization of the terminal ileum and ascending colon was performed, and the hepatic flexure was mobilized. The bowel was then exteriorized and a right colectomy with a stapled side-to-side, functional end-to-end anastomosis was performed.

Results/Outcome(s): The patient recovered well on our institution's enhanced recovery pathway and was discharged on postoperative day 3.

Conclusions/Discussion: In this video, we demonstrate the successful laparoscopic detorsion of a cecal volvulus with right hemicolectomy in a patient with the rare anatomic abnormality of situs inversus totalis.

ROBOTIC PROCTECTOMY FOR ADVANCED PELVIC ENDOMETRIOSIS, PARTIAL VAGINECTOMY, OBESE PATIENT.

VR7

S. Marecik, C. Miller, M. Gagnon-Konamna, A. Perez Tamayo, K. Kochar, J. Park
Park Ridge, IL

Purpose/Background: Our patient had advanced endometriosis involving the mid-rectum and the vaginal fornix.

Methods/Interventions: A robotic surgical platform was used to address the problem. After a successful lesion-specific proctectomy the vaginal pathology was addressed. A partial vaginectomy was performed. The left pelvic plexus was also cleared of the disease.

Results/Outcome(s): The patient was discharged home the next day. She had brief urinary retention. She had no identifiable disease at 4 months. Her symptoms were gone. The ileostomy was reversed.

Conclusions/Discussion: Robotic assistance is safe and helpful for advanced pelvic endometriosis involving rectum.

TRANSANAL MANAGEMENT OF AN ANASTOMOTIC STRICTURE USING TAMIS.

VR8

M. Abou Khalil, A. Liberman
Montreal, QC, Canada

Purpose/Background: Transanal Minimally Invasive Surgery (TAMIS) can be used for a variety of applications in colorectal surgery. We present the case of a rectosigmoid stricture managed successfully by TAMIS.

Methods/Interventions: A patient with a rectosigmoid anastomotic stricture was brought to the operating room for stricturoplasty using TAMIS.

Results/Outcome(s): Successful stricturoplasty was done.

Conclusions/Discussion: We present the successful application of TAMIS for stricturoplasty.

ROBOTIC LEFT HEMICOLECTOMY FOR COLORENAL FISTULA AFTER PERCUTANEOUS KIDNEY PROCEDURES.

VR9

V. Yuan, S. Chao
Flushing, NY

Purpose/Background: There are few reported cases of colorenal fistulas managed surgically. We present a video demonstrating a robotic left hemicolectomy and takedown of colorenal fistula. Our patient is a 59 year old male with history of percutaneous nephrostomy tube and kidney biopsy found to have colorenal fistula after outpatient

urology work-up for frequency urination and nocturia. He was referred to colorectal surgery for evaluation.

Methods/Interventions: Colonoscopy confirmed fistulous tract within colon. Our patient was subsequently scheduled for an elective robotic left hemicolectomy.

Results/Outcome(s): There was no evidence of diverticular disease, malignancy, or Crohn's disease seen on pathology. Our patient had complete resolution of symptoms several weeks postoperatively.

Conclusions/Discussion: This patient case demonstrates success of left hemicolectomy for treatment of colorenal fistula.

ROBOTIC LADD'S PROCEDURE.

VR10

C. Evans, A. Patel
Coventry, United Kingdom

Purpose/Background: Congenital mid gut malrotation is rarely encountered in the adult population. Patients can present with both acute intestinal volvulus or with chronic abdominal symptoms thus requiring surgical intervention. The Ladd's procedure is the standard corrective measure for intestinal malrotation in children. The operation consists of: 1) detorsion of bowel (if necessary) 2) division of peritoneal bands (Ladd's bands) traversing the posterior abdomen 3) appendicectomy 4) ensuring functional reorientation of bowel. Ladd's procedure is also performed in symptomatic adults with a laparoscopic described but not well established This video demonstrates the first presentation of a robotic assisted Ladd's procedure in an adult.

Methods/Interventions: An 18 year female presented to a local hospital with acute abdominal pain and intestinal obstruction. She had no significant past medical history or family history of note. She was resuscitated and a CT scan performed. The scan reported acute caecal volvulus and malrotation. Surgery was planned but then cancelled as patients' symptoms fully resolved and bowels opened. She was referred to a tertiary centre where an MRI scan of the abdomen was performed that diagnosed nonrotation of the bowel with no intestinal volvulus. After MDT discussion it was agreed a Ladd's procedure should be performed to prevent recurrent intestinal volvulus. A robotic assisted Ladd's procedure was performed using the da Vinci Xi robot by an experienced robotic colorectal surgeon. Four 8 mm ports were placed horizontally along the lower abdomen. Diathermy scissors, fenestrated bipolar and cadier instruments were used to perform the procedure. The operation was recorded with patient consent for subsequent case presentation.

Results/Outcome(s): Robotic Ladd's procedure was successfully preformed with no acute complication. The patient was discharged day 1 post op. Patient has been reviewed in clinic two months post surgery and remains asymptomatic, returning to full normal activities. The video demonstrates a safe robotic surgical technique to perform a minimally invasive Ladd's procedure.

Conclusions/Discussion: The surgical treament of congential malroation of the intestines is infrequently perfromed by surgeons. A minimally invasive approach when performing a Ladd's proceure in adults improves post operative clinical outcomes but is technically challenging when undertaken laparoscopically. This video demonstrates a robtoic assisted approach for the Ladd's procedure.

ROBOTIC SIGMOID COLON RESECTION FOR RECURRENT DIVERTICULITIS.

VR11

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New York, NY

Purpose/Background: Robotic surgery offers similar morbidity and mortality rates to the laparoscopic approach in colorectal surgery. As surgeons have gained more experience, and the da Vinci Xi® has allowed for the ease of multiquadrant surgery, the robotic platform has been used successfully in increasingly challenging Recurrent Diverticular Disease cases. 3-Dimensional, high-definition visualization, increased dexterity, availability of the wristed instruments, and use of simultaneous energy devices provide additional technical benefit in the management of Recurrent Diverticular Disease.

Methods/Interventions: We report a case of a 60-year-old male with past medical history of diverticulitis for 15 years with about 1-2 episodes per year. This past year he has had 4 episodes requiring oral antibiotics and multiple computed tomography scans at outside institutions. His preoperative workup included reviewing the available imaging and colonoscopy. He was taken to the operating room for a robotic sigmoid colon resection with splenic flexure mobilization and colorectal anastomosis, using the da Vinci Xi® platform. Patient was placed in modified Lloyd-Davies position. After pneumoperitoneum was achieved the splenic flexure was mobilized by first separating the greater omentum off of the transverse colon and accessing the lesser sac. Once the flexure was mobilized, the robot was undocked, flipped and redocked after placing the patient in steep Trendelenburg position. Attention was turned to identifying the IMA and superior hemorrhoidal vessels and the peritoneum overlying these vessels was incised along the right side of the pelvis. The left ureter was identified and preserved and after that the IMA was divided with robotic vessel sealer. Blunt dissection was used to elevate the sigmoid mesentery away from the retroperitoneum. Monopolar was used to mobilize the sigmoid and descending colon from lateral to medial along the white line of Toldt. The remaining colonic mesentery was divided using the vessel sealer to the level of the proximal resection margin. The mesentery of the rectosigmoid colon was cleared and divided with the robotic vessel

sealer to the level of the bowel wall. The 60 mm black load robotic stapler was then used and fired across the recto-sigmoid in an area which was soft and pliable. Specimen was delivered through supraumbilical port. The colorectal anastomosis was done using #28 EEA stapler. The anastomosis was tested and no leak was identified.

Results/Outcome(s): There were no intra or postoperative complications. The postoperative recovery was uneventful, the patient was discharged on POD 2.

Conclusions/Discussion: Robotic sigmoid colon resection with primary anastomosis(using da Vinci Xi®) is safe and feasible for recurrent Diverticular disease in experienced hands. The endo-wristed movements of the robotic arms help overcome difficult dissection in post-inflammatory adhesions and fibrotic tissue planes which are very common after recurrent Diverticulitis.

TURNBULL COLOSTOMY FOR RELIEF OF MEDICALLY REFRACTORY COLONIC PSEUDO-OBSTRUCTION.

VR12

S. Quinones, D. Wong, F. Remzi
New York, NY

Purpose/Background: Patients requiring large bowel decompression often present debilitated and ill with dilated and friable colon. Minimizing the manipulation of the colon and reducing the duration of surgery can be critical in the overall health of these patients. The Turnbull or "blowhole" colostomy, originally developed in the management of fulminant colitis in poor operative candidates, is an important option to consider in frail or ill patients, since it requires minimal manipulation of the dilated colon and offers effective and durable decompression.

Methods/Interventions: The Turnbull colostomy is fashioned by maturing the anterior surface of the colon directly to the abdominal wall and skin. This is performed via a careful cut-down and opening of the peritoneum. Quarantining sutures are placed prior to colotomy. The colon is decompressed with a 14-gauge needle and then an anterior colotomy is made sharply. The colostomy is secured to the fascia and skin circumferentially with interrupted chromic sutures.

Results/Outcome(s): The Turnbull colostomy offers effective decompression of the colon in this case of pseudo-obstruction allowing rapid improvement of the patient and avoiding colonic ischemia or perforation.

Conclusions/Discussion: While the Turnbull colostomy is less common than a loop colostomy in treatment of large bowel obstruction, it remains an important tool for colorectal surgeons to possess in the management of obstructed patients. Overall, the Turnbull colostomy is quick and requires minimal manipulation of the bowel which may be superior to more common approaches such as loop colostomy in select cases.

OPTIMIZED HOUSE FLAP DESIGN FOR SEVERE ANAL STRICTURE RECONSTRUCTION.

VR13

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Bangkok, Thailand

Purpose/Background: Background: Reconstruction for severe anal stenosis is challenging. Several flap designs have been proposed with variable results. The idea is to rebuild the anal canal with adequate anal caliber for normal bowel movement and to prevent further stricture and ectropion formation. **Objectives:** The aim is to demonstrate the modified bilateral house flap for anal reconstruction. The calculation for the optimal flap design is based on the cone shape anatomy of the anal canal and anal margin.

Methods/Interventions: Methods: A 52-year-old man presented with severe anal stricture formation after drainage and debridement for severe perianal abscess. He subsequently underwent diverting loop colostomy. The rectal MRI revealed complete loss of the anoderm and anal margin, however the anal sphincter complex was still intact. The operation was started with midline incision through the stricture formation until reaching the remnant of normal anoderm which closed to the dentate line. The bilateral house flap was designed according to the adequate diameter of the normal anal canal as well as the diameter of the anal margin which was fanned out as a cone pattern. Thus, the body of the flap was wider than base to match the cone shape anatomy of the anal canal and anal margin.

Results/Outcome(s): Results: There were no surgical complications. The patient underwent colostomy closure 2 months subsequently. He reported normal bowel movement with excellent fecal and gas continence. There was no further stricture formation at 6 months follow up.

Conclusions/Discussion: Conclusion: The calculation for optimized house flap design is crucial. This method provides excellent results.

TWO-STAGE TURNBULL CUTAIT PULL-THROUGH COLOANAL ANASTOMOSIS FOR RECURRENT RECTOVAGINAL FISTULA.

VR14

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Cleveland, OH

Purpose/Background: We present the case of a 50 year old woman with recurrent rectovaginal fistula. In October 2019, our patient was diagnosed with low rectal cancer. She received neoadjuvant chemo-radiation, then underwent laparoscopic ultralow anterior resection with stapled anastomosis and diverting loop ileostomy, followed by adjuvant chemotherapy. Her oncological follow up has been uneventful so far. During the operation, an opening at staple line occurred during dissection of the vagina

from the rectal stump; this was repaired with 2/0 Vicryl sutures. One week after her surgery, the patient noticed brown discharge coming from her vagina and a diagnosis of rectovaginal fistula was made. In December 2020, she underwent a transanal and transvaginal primary repair of the fistula by her gynecologist. She was evaluated at our center due to persisting symptoms: during an exam under anesthesia (July 2021) she was found to have a rectovaginal fistula recurrence.

Methods/Interventions: Due to her several risk factors for failure (insulin-dependent diabetes, body mass index of 34, hypertension, dyslipidemia, previous radiotherapy and failed previous procedure) and the need to redo her unhealed anastomosis, we decided to perform a two-stage Turnbull-Cutait procedure. The patient underwent the first stage of the procedure in April 2022 and, after 7 uneventful postoperative days, she was taken back to the operating room for the second stage.

Results/Outcome(s): The patient had an uneventful postoperative course and was discharged on postoperative day 3 after her second stage. She's currently awaiting stoma closure.

Conclusions/Discussion: A two-stage Turnbull Cutait pull-through coloanal anastomosis should be considered as a treatment option for complex and recurrent rectovaginal fistulas.

DELORME PROCEDURE FOR RECTAL PROLAPSE.

VR15

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Purpose/Background: The patient is a 13-year-old boy. Main Complaint: "Rectal prolapsed during defecation for more than 10 years". History of present illness: The patient had a receding mass in the anus more than 10 years ago, and could take it back by himself after defecation, without bleeding and pain. The symptoms gradually worsened with aging, and the mass gradually came out and needed to be taken back by hand. Rectal examination : Normal appearance of anus. Ask the patient to perform Valsaval, then can see part of the rectum out of the anus, about 4-5cm long. Digital examination: anal sphincter relaxation, weak anal contraction. Laboratory tests: no abnormality.

Methods/Interventions: Surgical treatment is the mainstay of therapy for symptomatic rectal prolapse. Perineal procedures, such as the Delorme, pose less risk to the patient, have lower complication rates, and show faster recovery. The Delorme procedure is a mucosal sleeve resection performed via a perineal approach for full-thickness external rectal prolapse. The Indications for a Delorme include a distance from the dentate line to the distal part of the prolapse about 4-5 cm. So, we performed the Delorme procedure on this patient. Preparation: Complete bowel mechanic preparation is essential. Anesthesia: general anesthesia Position: prone position Technique: 1. The use of appendiceal forceps can help deliver the prolapsed segment. 2. The margin was marked about 1.5-2.0cm proximal to dentate line. 3. The submucosal space was injected with a 1:100,000 solution of saline with epinephrine. 4. Sleeve mucosa is dissected from the rectal muscular tube, and the dissection proceeded to reach the apex of the prolapse. 5. Redundant mucosa was resected and the muscular plication performed, which including the mucosa of the anal canal cuff, muscular layer of the rectum, and mucosa of the apex of the prolapsed rectum placed in cardinal points. 6. Closed the mucosal gaps at the rectoanal anastomosis.

Results/Outcome(s): We completed the operation. The postoperative plan is as follows: 1. Patient can drink water 3 hours after surgery. 2. For the next day, patient's diet change to liquid diet and enteral nutrition for 3 days. 3. After 3 days, Patient diet change to semi-liquid for 3 days. 4. Prophylactic antibiotics were used for 2 days. The patient discharged a week later and recovered well. The patient has been followed for 3 months without any complications.

Conclusions/Discussion: Operative complications related to the Delorme procedure are low. Although the recurrence might be suboptimal, it's a simple and a safe operation that can improve the symptoms and function in prolapse, significantly improve the quality of life.

AUTOLOGOUS ADIPOSE-DERIVED STEM CELLS FOR COMPLEX ANAL FISTULAS.

VR16

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La Jolla, CA

Purpose/Background: Anal fistulas continue to be troubled by frequent recurrence and complex treatment regimens. Mesenchymal stem cells (MSC's) have been used for regenerative and immunomodulatory properties with trials reporting good healing rates in treatment of anal fistulas.

Methods/Interventions: In this video we demonstrate a case where we inject abdominal stem cells (ASC) to facilitate closure of a recurrent anal fistula. During this case we also treat the fistula with suture closure of the internal orifice. Abdominal fat harvesting is done by a plastic surgeon while the patient is supine. Next the patient is positioned in lithotomy, re-draped, and the fistula is treated with tract debridement, suture ligation of the internal orifice, and finally injection of ASC. Postoperatively all patients are treated with a week of antibiotics.

Results/Outcome(s): Using this technique, we have observed an approximate 92% improvement in symptoms, a closure rate of 67%, and a recurrence rate of 26%.

Conclusions/Discussion: In this video we submit our technique for use of autologous ASC to facilitate closure of a complex anal fistula. Other strategies exist to close the internal orifice including fibrin plug and leaving it open. ASC injection has the benefit of not creating scar tissue that might make reoperation more difficult like in the case of a ligation of intersphincteric fistula tract or an advancement flap.

RECTOVAGINAL FISTULA REPAIR USING A BIOLOGIC MESH.

VR17

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Purpose/Background: Rectovaginal fistulas pose an important challenge for the colorectal surgeon. Multiple repair methods have been described but a consensus is still to be reached. We present the repair tecnique of a recurrent rectovaginal fistula using a biologic mesh.

Methods/Interventions: A 44-year-old patient with a history of obstetric trauma and perineal laceration was diagnosed with a rectovaginal fistula. She had two previous fistula repair attempts at another center. She was refered to our center with fecal incontinence and passage of feces from the vagina.

Results/Outcome(s): Perineal examination revealed a large caliber anovaginal fistula with associated anal sphincter disruption. A decision to operate was made. The fistula was layed open. Marked perineal fibrosis and poor quality of the anal sphincter ends were encountered as expected after the previous perineal repair attempts. Wide dissection of the rectovaginal septum and careful identification and disection of the right and left anal sphincter ends were performed. The anal canal was reconstructed in layers. Suturing of the anal mucosa was done first, followed by rectal muscular wall repair. A biologic mesh was used to reinforce the suture repair. Sphincter continuity was restored by an overlapping sphyncteroplasty. Perineal repair included reconstruction of the vaginal introitus, anal mucocutaneous junction and perineal body. Preserving the integrity of the anal mucosa during perineal disection and avoiding stenosis during anal canal reconstruction were key. A closed suction drainage was used to avoid hematoma formation.

Conclusions/Discussion: 1. Wide dissection and identification of anatomy are key elements to perineal reconstruction. 2. The use of biologic material to augment tissue resistance may improve the outcome of the surgical technique.

SURGICAL MANAGEMENT OF PERIANAL FISTULA USING AN OVINE FORESTOMACH MATRIX IMPLANT.

VR18

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Purpose/Background: There is currently no optimal surgical technique for managing perianal fistula. Use of ovine forestomach matrix (OFM) as a perianal fistula implant (PAFI) has shown promise in a previously presented pilot series, with a rate of primary healing at 8 weeks of 78% and no recurrence at last follow up (average 44 weeks). The purpose of this video is to demonstrate steps required to successfully perform this minimally invasive technique for fistula closure.

Methods/Interventions: The patient presented was a 23 year old male with well-controlled HIV who initially presented with a perianal abscess. This was drained and a seton was placed in a right posterolateral transphincteric perianal fistula. The seton was left for 12 weeks to allow de-escalation of the inflammatory process. Surgical technique for the PAFI is shown and narrated in the associated video.

Results/Outcome(s): The pateint was discharged on the day of surgery as planned. The fistula was followed closely in clinic at 2 week intervals and noted to be fully healed at 6 weeks. The patient did not experience any postoperative complications.

Conclusions/Discussion: Use of OFM for PAFI can achieve healing within weeks of surgery. There are several advantages to this technique. First, in contrast to more invasive surgical fistula repairs, it has very low risk of damage to surrounding anal and perianal tissues. It is a straightforward procedure with a short learning curve that is accesssible to surgeons without requiring significant training or new surgical equipment. This technique is the subject of ongoing investigation at our institution.

CORE OUT FISTULECTOMY WITH PRIMARY ANAL SPHINCTER REPAIR IN BILATERAL HORSESHOE FISTULA-IN-ANO.

VR19

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Bangkok, Thailand

Purpose/Background: In treatment of complex fistula-in-ano, the colorectal surgeons should have various surgical techniques in their armamentarium. We, therefore, presented this video aims to demonstrate step by step of core out fistulectomy with primary anal sphincter repair in bilateral horseshoe fistula-in-ano.

Methods/Interventions: We presented a 56-year-old man diagnosed with a posterior high transsphincteric fistula-in-ano with deep post-anal space and bilateral horseshoe blind tract extensions. The procedure was started by placing the patient in a prone jackknife position after spinal anesthesia was administered. The prophylactic antibiotic was given, and the perianal skin was prepped in a sterile fashion. We initially identified the internal opening and injected Methylene blue solution through the internal opening to stain the fistula tract. A skin incision was made over the deep post-anal space. The extrasphincteric part of the fistula tract including the deep post anal space and the bilateral horseshoe blind tract extensions were excised. The fistula tract which passed through the external and internal sphincter was cored out. The core out fistulectomy defect at the external sphincter was primarily repaired. To ensure complete closure of the external sphincter defect, saline-diluted Methylene blue solution was injected through the internal opening. The internal opening was closed with interrupted 2-0 Polyglactin suture. Finally, the post-anal space was closed after placing a rubber catheter for drainage.

Results/Outcome(s): The patient recovered uneventfully. During follow-up, the wound healed completely, and he reported no fecal incontinence.

Conclusions/Discussion: Core out fistulectomy with primary anal sphincter repair results in a satisfactory outcome. It is an alternative of sphincter saving procedures in management of posterior high transsphincteric fistula-in-ano, particularly in horseshoe blind tract extension. If further correction is required, this technique still preserves the intersphincteric and submucosal planes for ligation of intersphincteric fistula tract (LIFT) and endorectal advancement flap (ERAF).

STEPWISE APPROACH TO THE "PERFECT LIFT".

VR20

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Purpose/Background: Ligation of intersphincteric fistula tract (LIFT) is a sphincter-saving procedure described by Prof. Arun Rojanasakul for the treatment of trans-sphincteric fistula-in-ano. It has a long-term success rate of 60-90%, with no reported incontinence in our institution. However, controversial outcomes are reported throughout the world, with a success rate of 30-80%, which variations of techniques may cause. This video demonstrates a step-by-step approach for LIFT, providing the crucial critical steps with pearls and pitfalls to maximize the success rate.

Methods/Interventions: A 23-year-old female presented with perianal discharge for three months. On palpation, the external opening was located at 5 o'clock. The single internal opening was located at the level of an anorectal ring 7 o'clock. MRI revealed a well-formed posterior high-transphincteric fistula-in-ano without abscess formation. Under spinal anesthesia, a general exam under anesthesia was performed. Saline injection through the external opening was performed to identify the internal opening. A small curvilinear incision was made on the intersphincteric groove while the anoscope was placed. In order to avoid breaching through the internal sphincter and anal mucosa, the dissection was kept close to the external sphincter. After the tract was identified, careful isolation of the fistulous tract apart from surrounding tissues was made. The strategy to make the perfect "LIFT" includes the ideal ligation on the correct tract. The suture was placed on muscular tissue beside the tract, instead of the fibrotic tissue of the tract itself, on both the internal and external sphincter sides, using Vicryl 2-0, UR-6. To confirm the correct ligated tract, saline injection while pulling the sutures is needed. Reinforced sutures were performed on both sides using PDS 3-0 sutures by placing the sutures perpendicular to the Vicryl. Again, a saline injection was performed before the knot tiring. Dividing the fistulous tract could be safely done. in order to confirm that the divided tract is correct, the bulging of the cut tract was noticed while injecting the saline via an external opening. Distal tract curettage was performed. Saline rinsing at the intersphincteric tract was performed to minimize the intersphincteric wound infection. Finally, the layered closure of the intersphincteric tract was made, then the tube drain was placed in the external opening.

Results/Outcome(s): The postoperative course was uneventful, and the patient was discharged on the first postoperative day. The fistula healed well at 2 weeks after surgery with no incontinence problems.

Conclusions/Discussion: LIFT is a total sphincter-saving procedure of choice for treating trans-sphincteric fistula-in-ano. Perfect steps and precise surgical technique provide impressive results; however, the well-formed Intersphincteric tract is the key to the success of LIFT.

REPAIR OF RECTOVAGINAL FISTULA BY MODIFIED LIFT TECHNIQUE.

VR21

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Purpose/Background: Rectovaginal fistula remains a challenge for surgeons. There are different approaches described with variant success rates and complications. However, procedures that preserve the anal sphincters are recommended. This video shows the LIFT modified technique used for treatment of a rectovaginal fistula.

Methods/Interventions: A 38 years old female complaint of vaginal discharge, gas and liquid feces during one year. She reported this condition emerged following two anal abscess: one of them drained on its own; the last large abscess required surgical drainage. She had had 2 cesarean sections. The patient was assessed by high resolution anal manometry and 3D anorretal ultrasound. The anal pressures are normal. The US 3d showed the tract crossing at the level of the upper anal canal, involving the whole length of the external and internal anal sphincters. Fleet enema was done preoperatively. LIFT modified technique was performed with the patient in lithotomy position, without use seton. The intersphincteric tract was identified and isolated in a higher position by meticulous dissection using scissors. The sutured ligation of the intersphincteric tract was performed and reinforced at distal and proximally positions. The external opening and the tract were excised up to the external anal sphincter and the vagina was closed.

Results/Outcome(s): This video demonstrates the step-by-step of the modified LIFT technique as on option to treat a primary rectovaginal fistula. A fecal diversion was not performed before or during the surgical procedure. The patient was discharged in the second postoperative day. There is no intra and post-operative complication. The patients received oral antibiotic for 2 weeks postoperatively. She had a complete wound healing after 48 days. One follow up year after complete healing didn't show any sign of recurrence.

Conclusions/Discussion: The LIFT modified technique is an effective option for the treatment of primary rectovaginal fistula.

WIDE LOCAL EXCISION WITH MODIFIED CLEFT LIFT LOCAL FLAP IN PILONIDAL SINUS – A VIDEO VIGNETTE.

VR22

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Purpose/Background: There are various surgical techniques in the treatment of pilonidal sinus. This video aims to demonstrate the procedure of wide local excision with a modified cleft lift local flap in the treatment of the pilonidal sinus.

Methods/Interventions: We presented a 27-year-old woman diagnosed with a pilonidal sinus. She underwent wide local excision with a modified cleft lift local flap. Under spinal anesthesia, the procedure was started by placing the patient in a prone jackknife position. The prophylactic antibiotic was given, and the skin was prepped in a sterile fashion. To ensure complete removal of the sinus, saline-diluted Methylene blue solution was injected into the hair pits to stain the tract. An elliptical skin incision was made around the hair pits. We completely excised the sinus tract until the fascia covering the coccyx was reached. The midline defect was closed with a cleft lift local flap by dissection under the deep fascia covering the gluteus maximus muscle. This maneuver preserves the direct linking vessels of the perforators and provides a good blood supply to the skin flap. Finally, multilayer closure of the defect was performed to decrease the tension of the wound.

Results/Outcome(s): The patient recovered uneventfully and was discharged from the hospital on the first postoperative day. The wound healed completely, and the stitches were removed two weeks after the operation.

Conclusions/Discussion: Wide local excision with a modified cleft lift local flap is safe, effective, and easy to perform in the treatment of the pilonidal sinus.

ROBOTIC-ASSISTED MULTIDISCIPLINARY REPAIR OF COMPLEX RECTOURETHRAL FISTULA WITH GRACILIS INTERPOSITION.

VR23

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Purpose/Background: Rectouretheral fistulas are a rare complication of prostatectomy. Surgical management of complex rectourethral fistulas not only require repair, but often concomitant reconstructive procedures. Operative approach can be transperineal, transsphincteric, transanal, or transabdominal and may include proctectomy. We describe a case of a complex rectouretheral fistula repair and reconstruction using a combined robotic-assisted transabdominal and transperineal approach with gracilis interposition.

Methods/Interventions: A 72-year-old man underwent robotic prostatectomy with lymph node dissection, complicated by saddle pulmonary embolus treated with alteplase, and presented with hemoperitoneum and hematochezia. He developed feculent urine output and further imaging revealed a rectourethral fistula and abscess, likely from missed rectal injury. Endoscopy demonstrated a 20mm rectal defect with visible Foley catheter. He underwent laparoscopic end colostomy formation to allow for resolution of inflammation and abscess, therapeutic anticoagulation, and nutritional optimization prior to definitive repair.

Results/Outcome(s): Four months later, he underwent robotic takedown of rectouretheral fistula and left gracilis pedicled muscle flap in combination with colorectal surgery, urology, and plastic surgery. The rectal defect was repaired primarily in two layers and the urethral defect via a transvesical approach. A perineal dissection was performed and the left gracilis was harvested. The flap was introduced through the perineal defect into the pelvis. This was then anchored to the rectum and vesicourethral junction robotically. Intra-operative leak test was negative. He was discharged on post-operative day 5 without complication. Subsequent flexible sigmoidoscopy 2 months later revealed a scar in the distal rectum with healthy mucosa and gastrografin enema did not demonstrate leak. His stoma was reversed 3 months after his reconstruction and he has done well after 5 months of follow up.

Conclusions/Discussion: A team-based approach is necessary to successfully treat large, complex rectourethral fistulas. A transabdominal robotic approach for dissection and primary repair with gracilis interposition is a minimally invasive and organ preserving option for this uncommon yet devastating condition.

ROBOTIC REDO ANTERIOR RESECTION WITH ENBLOCK D3 + RETROPERITONEAL DISSECTION FOR RECURRENT LYMPH NODE METASTASIS.

VR24

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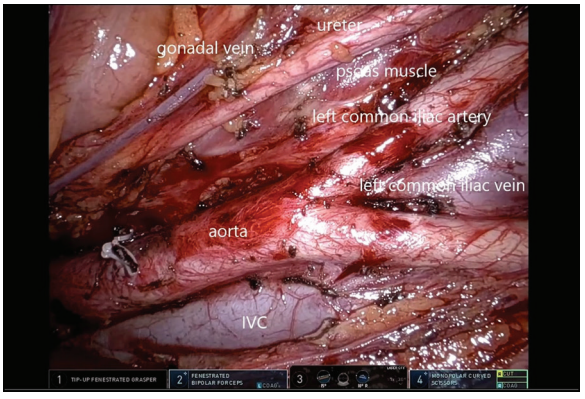
Houston, TX

Purpose/Background: With recent improvement of chemotherapy, radiotherapy and surgical techniques, R0 resection of recurrent colorectal cancer often achieves prolonged survival with possible cure of the disease in selected patients. Particularly, when the recurrence is confined to regional and limited number of retroperitoneal lymph nodes, there is a chance of long survival by complete surgical dissection. However, surgery for recurrent cancer is often associated with massive bleeding and a high risk of intraoperative and postoperative complications. Minimally invasive approach using a robotic platform may provide technical advantage in reducing bleeding and morbidity for such complex procedures.

Methods/Interventions: The author has conducted robotic R0 resection of recurrent lymph nodes in carefully selected patients with limited amount of the disease since 2021. Here we present a video of robotic redo anterior resection with enblock radical lymph adenectomy in the D3 and retroperitoneal area. The patient was 53 year old male who originally had anterior resection with low ligation for rectosigmoid cancer, pT3N2bM0, followed by adjuvant FOLFOX. Two years later, the patient developed multiple enlargement in reginal lymph nodes up to the root of inferior mesenteric artery with extranodal invasion, with indeterminate but suspicious retroperitoneal lymph nodes. Aiming R0 resection, we conducted redo-anterior resection with enblock radical D3 and retroperitoneal dissection. To gain appropriate margin from the recurrent mass and avoid fibrosis on a previous dissection plane, we dissected on a deeper layer exposing surface of IVC, aorta and common iliac vessels, taking lymph nodes with the autonomic nerve covering this area in an enblock fashion. Retroperitoneal dissection was completed up to the level of left renal vein, gonadal vein and psoas muscle, with preservation of sympathetic nerve trunk for minimizing sexual dysfunction. Retrograde injection of ICG from a stent was utilized to visualize and preserve the ureter. Within the pelvis, autonomic nerve was completely preserved for urinary and erectile function.

Results/Outcome(s): Bleeding amount was 150 mL. The patient was discharged on the second postoperative day without complication. The patient developed retrograde ejaculation, but with normal erection and urinary function. Pathology showed 6 positive lymph nodes out of 32 harvested nodes, with negative margin. The patient is free from recurrence with negative ctDNA at 1 year 3 months after surgery.

Conclusions/Discussion: Robotic approach is useful for complex R0 resection of recurrent lymph nodes in selected patients.



ROBOTIC LATERAL PELVIC LYMPH NODE DISSECTION -A VIDEO VIGNETTE.

VR25

S. Bankar, S. Raghavan, P. S, M. Kazi, A. DeSouza, A. Saklani
Mumbai, India

Purpose/Background: We aim to demonstrate robotic lateral pelvic lymph node dissection in a case of locally advanced rectal cancer with persistently enlarged pelvic lymph nodes.

Methods/Interventions: 59 years old lady presented with altered bowel habits since 1 month. On digital rectal examination there was an ulceroproliferative growth at 1 cm from anal verge. Colonoscopy revealed growth in lower rectum at 2cm from anal verge. Biopsy was suggestive of well differentiated adenocarcinoma. Initial MRI Pelvs revelaed low rectal growth with multiple mesorectal nodes with enlarged left internal iliac and obturator nodes. She received SCRT (25Gy in 5#) f/b 4#FOLFOX. Reassessment MRI—Decrease in size of rectal growth and mild decrease in size of mesorectal, left internal iliac and obturator nodes. She underwent Robotic abdominoperineal resection with left lateral pelvic lymph node dissection.

Results/Outcome(s): The surgery was performed over 6 hours with the pelvic lymph node dissection requiring approximately 90 minutes. Postoperative course was uneventful and patient was discharged on the 5th post operative day. Post op Histopathology revealed pathological complete response with 0 out of 28 positive mesorectal and 0 out of 14 positive pelvic nodes.

Conclusions/Discussion: Lateral pelvic lymph node dissection is a technically demanding procedure and it can be performed robotically. The Da Vinci Xi robotic system provides a good steady platform to perform the lateral pelvic lymph node dissection and improving the outcomes.

NODAL DISEASE A DETERMINANT FOR EXTEND OF COLONIC RESECTION - A ROBOTIC EXTENDED RIGHT HEMICOLECTOMY WITH CME FOR A PROXIMAL TRANSVERSE COLON TUMOR.

VR26

P. Thambi, S. Constantinos, R. HARVITKAR, S. Stefan, E. Rawlinson, J. Khan
Portsmouth, United Kingdom

Purpose/Background: A Video illustration of robotic extended right hemicolectomy with complete mesocolic excision for a proximal transverse colon lesion with bulky middle colic lymph nodal disease.

Methods/Interventions: A 19-year-old male patient was evaluated for right-sided abdominal pain and diagnosed to have moderately differentiated adenocarcinoma of the proximal transverse colon. CT Scan revealed no evidence of any metastatic disease, however showed radiological evidence of middle colic nodal disease

Results/Outcome(s): Following the discuxsion and formulation of a treatment plan in the multidisciplinary meeting, given the presence of nodal disease on pre-op imaging, the patient underwent a robotic extended right hemicolectomy with a complete mesocolic excision, ensuring the entire nodal mass was removed en-bloc

Conclusions/Discussion: The role of pre-op imaging and multidisciplinary meeting to aid in formulating patient treatment plans is pivotal. The extend of colonic resection should not only be focused on the site of lesion but also should take into account the draining lymph nodal disease

ROBOTIC-ASSISTED RIGHT HEMICOLECTOMY FOR COLON CANCER IN A PATIENT WITH A PREVIOUSLY CONSTRUCTED ILEAL CONDUIT.

VR27

C. Prien, O. Ostrovetsky, J. Katsiroubas, E. Sutton, R. Rhee
Brooklyn, NY

Purpose/Background: Although minimally invasive approaches for right hemicolectomy are commonly performed, the use of robotic-assisted approach in patients with an ileal conduit is not well described. We aimed to illustrate relevant anatomy, usage of ICG angiography, and robotic-assisted intracorporeal anastomosis technique. This includes tips and important considerations when approaching a patient with an ileal conduit undergoing right hemicolectomy.

Methods/Interventions: We present the case of a 68-year-old male who was found to have a large fungating mass in the proximal ascending colon on screening colonoscopy in August 2022. Biopsies were consistent with tubulovillous adenoma with high grade dysplasia. Attempts were made to endoscopically resect the polyp, that was concerning for malignancy, but were unsuccessful due to the size and inadequate mucosal lift. He was referred for surgical evaluation to discuss treatment options. His surgical history was significant for open creation of an ileal conduit 4 years prior for the treatment of neurogenic bladder. The patient underwent robotic-assisted right hemicolectomy with intracorporeal anastomosis and ICG angiography in October 2022 with members of the urology surgery service present. The robotic platform allowed for identification of the right ureter and preservation of the ileal conduit. ICG angiography was used to ensure adequate perfusion to the ileocolic anastomosis and ileal conduit. An intracorporeal anastomosis was performed to minimize concerns over anticipated tension on the mesentery due to the ileal conduit if an extracorporeal technique had been utilized.

Results/Outcome(s): The surgery was uneventful and the patient recovered on an enhanced recovery after surgery protocol. His postoperative course was complicated by an ileus requiring nasogastric tube decompression, which resolved after two days. He was discharged on post-operative day 8. Final pathology was significant for T1N1a invasive colonic adenocarcinoma.

Conclusions/Discussion: Robotic-assisted approaches with selected use of ICG angiography should be considered for treatment of right-sided malignant lesions in patients with ileal conduits.

COMPLICATIONS DURING LAPAROSCOPIC COLORECTAL SURGERIES.

VR28

A. Sharma, S. Bankar, A. Bhoyar, J. M, P. S, M. Kazi, A. DeSouza, A. Saklani
Mumbai, India

Purpose/Background: Video highlights inadvertent complications encountered during colorectal resections for malignancy at a tertiary care centre in India

Methods/Interventions: Total 6 cases have been highlighted. Case 1: Cautery burn Case 2 : Bowel mesentery twist Case 3 : Injury to splenic vein during IMV dissection Case 4 : Avulsion of IMA base Case 5 : bleeding during lateral lymoh node dissection Case 6: Bleeding from IMA during dissection

Results/Outcome(s): None of the patients required conversion to open procedure. All patients had uneventful post op recovery

Conclusions/Discussion: Careful and methodological dissection along with stringent adherence to patient safety guidelines can help in preventing and managing complications during laparoscopic resections for colorectal cancer

ROBOTIC ULTRA-LOW ANTERIOR RESECTION OF A PROSTATE CANCER RECURRENCE.

VR29

S. Akmal, S. Nithikasem, A. Azzolini, C. Bargoud, A. Rossi, K. Donohue, D. Feingold, N. Maloney Patel
Piscataway, NJ

Purpose/Background: Robotic low or ultra-low anterior resection is a technically demanding and difficult operation even for well-practiced colorectal surgeons. However if possible, it can be preferred over abdominoperineal resection due to some studies reporting improved oncologic outcomes as well as the avoidance of a permanent stoma. We present the case of a 70 year old male with a history of a presacral tumor known to be recurrent prostate cancer. The patient had initially undergone radical prostatectomy and radiation therapy in 2008, and has since had chemotherapy, hormonal therapy, and immunotherapy. In 2013, the patient had recurrence of his prostate cancer in the presacral space. The presacral tumor has been resistant to treatment and has continued to grow since then. The presacral tumor persisted and so the patient presented for surgical resection of the disease. The operative plan was low anterior resection versus abdominoperineal resection. It was undetermined prior to the surgery if resection of the tumor would allow for anastomosis, or if a permanent colostomy was required. The operation was anticipated to be difficult given the patient's prior surgeries and history of radiation treatment to the area.

Methods/Interventions: The patient was placed in steep Trendelenburg and right side down to allow for visualization of the pelvis. Intraoperatively, the mass was ecnountered in the distal presacral space. The mass was found to be adherent to both the sacrum and rectum. The use of the robot allowed for meticulous and careful dissection of the tumor off of the bony structures of the sacrum. The distal rectum was cleared off. This allowed for a stapled coloanal anastomosis with preservation of the sphincter complex and restoration of function. A diverting loop ileostomy was created and a permanent colostomy was avoided.

Results/Outcome(s): Final pathology showed metastatic prostate cancer with negative margins. Post-operatively the patient recovered well. Gastrografin enema revelaed no strictures or anastamotic leak and the patient has since undergone ileostomy reversal without complications.

Conclusions/Discussion: Robotic low or ultra-low anterior resection is a technically demanding and difficult operation even for well-practiced colorectal surgeons. However, it may be preferred for some patients due to reported improved oncologic outcomes as well as avoidance of a permanent stoma. We present a case in which technical proficiency allowed for robotic ultra-low anterior resection of a prostate cancer recurrence. We emphasize the capabalities of robotic surgery to provide the best outcomes for patients.

ROBOTIC COLOSTOMY TAKEDOWN IN DIVERTICULAR DISEASE.

VR30

D. Lai[1], L. Rashidi[2]
[1]*Renton, WA;* [2]*Tacoma, WA*

Purpose/Background: Diverticular disease can be surgically complicated. The robotic platform can be successfully used and beneficial even after perforated diverticulitis and open abdominal cases.

Methods/Interventions: This is a case of a 75 year old female who presented with bowel obstruction and underwent diagnostic laparoscopy which was converted to open by acute care surgery. She was found to have an unresectable diverticular mass and underwent diverting loop colostomy. She was able to have her resection and colostomy

reversed with the help of the robotic platform. She did well and was discharged home on postoperative day 1.

Results/Outcome(s): Successful colostomy reversal and sigmoidectomy after diagnostic laparoscopy converted to open diverting loop colostomy for perforated diverticulitis.

Conclusions/Discussion: The robotic platform can be beneficial and successfully used in complicated diverticular cases that had previously undergone open abdominal surgery.

ROBOTIC BEYOND TME FOR INTERNAL ILIAC NODAL INVOLVEMENT N RECTAL CANCER.

VR31

P. Thambi, J. Khan, S. Constantinos, R. HARVITKAR, E. Rawlinson, S. Stefan
Portsmouth, United Kingdom

Purpose/Background: A video presentation on Robotic beyond TME in a patient with internal iliac lymph nodal involvement on pre-op staging investigations.

Methods/Interventions: A 72-year-old female patient was diagnosed to have moderately differentiated adenocarcinoma of the rectum with preop staging with CT chest abdomen pelvis and MRI rectum suggestive of T2N0 with suspicious internal iliac nodal disease. A PET CT revealed the presence of FDG avid nodal disease around the internal iliac vessels.

Results/Outcome(s): She underwent neoadjuvant downstaging and underwent a robotic beyond TME resection of the lymph nodal mass en-bloc with the rectal specimen. The final histology was suggestive of a T3 N2b M1a R0 with positive internal iliac lymph nodes.

Conclusions/Discussion: The use of Robotic platforms gives the added benefit of better 3D vision and the use of endo wrist instrumentation which aid in performing safe and meticulous surgery.

3-PORT COMPLETE MESOCOLIC EXCISION WITH INTRACORPOREAL ANASTOMOSIS AND THE USAGE OF ICG IN RIGHT HEMICOLECTOMY IS SAFE AND FEASIBLE.

VR32

H. Ng, C. Chong, D. Aw, J. Ladlad, J. Ng, F. Koh, L. Ho
Singapore, Singapore

Purpose/Background: Laparoscopic right hemicolectomy with D3 lymphadenectomy, also known as complete mesocolic excision (CME), and intracorpeal anastomosis is technically challenging with a need for clear understanding of the anatomy of the superior mesenteric vein (SMV). Typically described as a 4/5-port procedure to provide adequate retraction for safe dissection, CME with less ports have not been well described. This video demonstrates that CME with intracoporeal anastomosis can be performed safely with a 3-port technique.

Methods/Interventions: An elderly oriental lady presented with lower abdominal pain and diarrhea was subsequently diagnosed with hepatic flexure adenocarcinoma. The right hemicolectomy with CME was performed in the lateral-to-medial approach but keeping the peritoneal attachments to maintain orientation and aided single-grasper retraction. The SMV and ileocolic pedicle was dissected, and ileocolic vessels were divided at the border of the SMV. This was repeated for middle colic artery with division of its right branch. Bowel transection was completed. The use of indocyanine green fluorescence confirmed adequate bowel perfusion before intracorporeal isoperistaltic stapled ileo-colic anastomosis was fashioned. The specimen was then extracted through a pfennestial incision.

Results/Outcome(s): Total operative time was 240 minutes with estimated blood loss of 20ml. Patient was able to resume diet 3 days post-operatively and discharged 5 days after surgery without complication. Histological assessment of the resected specimen revealed a 6 x 6 cm pT4aN0 (0/23) moderately differentiated hepatic flexure adenocarcinoma with clear margins.

Conclusions/Discussion: 3-port laparoscopic CME with intracorporeal anastomosis is safe and feasible in selected patients. The reduced port technique potentially reduces post-operative pain without excessively prolonging operative duration.

STANDARDIZED LAPAROSCOPIC JAPANESE D3 DISSECTION FOR RIGHT COLON CANCER.

VR33

H. Kobayashi
Kawasaki, Japan

Purpose/Background: There are a variety of surgical techniques for right hemicolectomy because of its anatomical characteristics. Especially, there are three major approaches: cranial approach, medial approach, and inferior approach. We have adopted an inferior approach, because we can easily keep deeper layer and radial margin in patients with advanced colon cancer.

Methods/Interventions: First, the mobilization of right colon and small intestine along with appropriate layer is performed. During the mobilization, keeping the appropriate surgical plane is essential. Duodenum and pancreas are preserved. The next step of lymph node dissection is dividing of ileocolic vessels. Thereafter, lymph node dissection along with surgical trunk is performed. One of the knacks is a marking of the extent of lymph node dissection by an electric cautery when the superior mesenteric vein is recognized. Only right branches of middle colic vessels are divided. The last step is a dividing of accessory right colic

vein from gastrocolic trunk. After extracorporeal anastomosis, mesentery is sutured and closed.

Results/Outcome(s): Laparoscopic inferior approach for right colon cancer is safe from technical and oncological point of view.

Conclusions/Discussion: Radial margin as well as D3 lymph node dissection is important for prevention of local recurrence.

LAPAROSCOPIC SUPRALEVATOR POSTERIOR EXENTERTION FOR LOCALLY ADVANCED RECTAL CANCER.

VR34

A. Sharma, J. M, P. S, M. Kazi, A. DeSouza, A. Saklani
Mumbai, India

Purpose/Background: Video to demonstrate extended TME techniques and laparoscopic supralevator posterior exenteration

Methods/Interventions: 43 y/o female post neoadjuvant therapy underwent laparoscopic supralevator posterior exenteration Total blood loss was 700 ml.

Results/Outcome(s): Patient had pancreatitis on post op day 8 which was managed conservatively Patient was discharged on post op day 12 Histopathology report is awaited

Conclusions/Discussion: Extended TME and supralevator posterior exenterations are feasible via laparoscopic approach in high volume centres by experienced surgical teams

ROBOT LEFT COLECTOMY WITH EN BLOC SMALL BOWEL RESECTION IN A PATIENT WITH NINE PRIOR ABDOMINAL SURGERIES.

VR35

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[1]*Fort Worth, TX;* [2]*Nashville, TN*

Purpose/Background: Patients with multiple prior abdominal surgeries specifically in the setting of Trauma experience extensive adhesions intra-abdominally which makes subsequent surgeries extremely challenging, especially with a minimally invasive approach. We discuss a video robotic left colectomy for a patient with numerous abdominal surgeries that involved significant lysis of adhesions but achieved appropriate oncological resection with the minimally invasive technique.

Methods/Interventions: Video commentary

Results/Outcome(s): Video commentary

Conclusions/Discussion: Despite multiple abdominal surgeries, the robotic minimally invasive approach offers adequate oncological resection while offering all the post-operative benefits of a minimally invasive technique

THE PHANTOM ROBOT.

VR36

C. Sokas, G. Cataldo, J. Pastrana, J. Keane, T. Cataldo
Boston, MA

Purpose/Background: Robotic surgery has become a staple of colon and rectal practice and is particularly useful for hard-to-reach anatomy. Trans-anal endoscopic surgery has been shown to be safe and feasible for the excision of benign and early malignant lesions of the mid-to-proximal rectum. There are a variety of robotic curricula available that emphasize skills proficiency and case observations; including imulations, animal models and trainers that are utilized for the robotic platform. However, these are expensive, difficult to acquire, and unrealistic. Herein we describe and demonstrate the creation of a reproducible, biorealistic phantom for transanal robotic surgical training and practice using low-cost materials and 3D printed models.

Methods/Interventions: To create our anorectal phantom, we began with a 3D negative "buck" of the lumen of virtual rectum with multiple "lesions" created in OnShape, a computer assisted design (CAD) software package and modified in MeshMixer a sculpting package. The buck and an outer shell of the mold were printed on an industrial-grade 3D printer (Raise 3D Pro2) using a water tolerant filament, PETG. We prepared a 10% solution of polyvinyl alcohol (PVA) and the mold cast and set through one freeze-thaw cycle. The final result is a phantom lumen of a rectum with multiple lesions and polyps for excision. Software applications such as the computer aides for 3D modeling described above, are available free of charge or at low cost to students and academics. Once created, the mold can be used repeatedly to generate an infinite number of phantoms. The total cost of the materials for the mold was under $30 and the cost of production of each phantom under $10.

Results/Outcome(s): Our phantom was created specifically for use on an Intuitive DaVinci SP robot platform. The model was secured in a training frame, SP port placed, and robot docked. The lesion is identified and margins marked. Circumferential excision is then performed. For full-thickness excisions, visualization of mesorectal fat should be confirmed. Although not seen in the current video, future iterations of the phantoms include layers of different colors and consistencies to simulate not only rectal wall but also mesorectum. The phantom rectum is made of PVA, a widely used medium in the creation of 3D printed biosynthetic materials, giving the model a more realistic feel than others we have tried. It can easily be colored and modified to recapitulate various tissues. Once set PVA has similar electro conductive properties to live tissue and standard electrocautery can be applied with realistic cutting results. Quality of excision can then be evaluated by assessing tumor fragmentation and resection margin.

Conclusions/Discussion: Here we demonstrate how the average surgeon can use commercially available materials and crowd-sourced knowledge to create their own training models. In the future, such models can be used for training, education and potentially personalized pre-operative planning based on each individual's anatomy.

INTRACORPOREAL ANASTOMOSIS IN LAPAROSCOPIC COLECTOMY - 'PRO-TIPS' FOR IMPROVEMENTS.

VR37

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Purpose/Background: Since the first report of laparoscopic approach for right colectomy in 1991, it has now settled as the standard method of choice for right-sided colon cancer treatment, as it has shorter recovery time and less pain while showing comparable oncologic outcomes. In laparoscopic approach, either intracorporeal or extracorporeal anastomosis is carried out for ileocolic continuity restoration. However, the argument over pros and cons of the two methods has been on-going. Extracorporeal ileo-colic anastomosis (ECA) method and intracorporeal ileo-colic anastomosis (ICA) are both well-established, and oncologic principles under which both methods are performed are the same (no-touch technique, central vessel ligation, and complete mesocolic excision). Many retrospective studies have spoken for the safety and feasibility of ICA, and a few prospective studies have highlighted the advantages of ICA over ECA in spite of few technical challenges and barriers. Recent meta-analyses have shown pooled data of the advantages regarding short-term perioperative outcomes of ICA, such as less mesentery tension, smaller incisions for extraction, risk omittance of mesenteric torsion during anastomosis, to name a few. However, concerns over increased risk of intraperitoneal infection due to luminal content spillage and prolonged learning curve of technical aspects have discouraged surgeons for implying ICA when performing right colectomies.

Methods/Interventions: Here we wanted to share some of the 'pro-tips' of creating ICA including different ways to minimize intraoperative spillage.

Results/Outcome(s): For creation of ICA, there are different options available, and we introduce three methods; overlay side-to-side anastomosis, functional end-to-end anastomosis, and modified Delta-C end-to-end anastomosis. To minimize intraperitoneal spillage, few methods can be administered. First, most operators use stay suture on anti-mesenteric border a few centimeters away from enterotomy site to be able to elevate the bowel wall to avoid over-flowing of bowel contents. Secondly, a new 12mm trocar for endoscopic stapler access is often replaced after the contaminated stapler is retrieved after creating anastomosis. Thirdly, operators may line a sheet of gauze under enterotomy site, either plainly or soaked in betadine solution. Lastly, a novel way created by one participating operator is to wrap the used stapler jaws with plastic cover tightly pursed at the neck by a loop knot when extracting the device. This can securely limit the area of spillage to enterotomy site and prevent further contamination.

Conclusions/Discussion: Despite some advantages and proven safety and efficacy of ICA in right colectomy, some technical challenges and concern for intraperitoneal spillage may discourage others to try. We introduce some 'pro-tips' to improve ICA method and to possibly lower the barriers.

HANDSEWN ILEAL POUCH ANAL ANASTOMOSIS IN REVISINOA POUCH SURGERY.

VR38

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New York, NY

Purpose/Background: Following proctocolectomy and ileal pouch formation the anal anastomosis may be performed either with an end-to-end stapling or handsewn technique following mucosectomy. End to end stapling necessitates a cuff of anal transitional zone be left behind which may not be desirable in cases of distal dysplasia and disease or in the reoperative setting.

Methods/Interventions: After exploration and pouch mobilization, a mucosectomy is performed and the existing pouch and any residual rectum are detached. Any residual pelvic sepsis requires debridement to enable optimal healing. The anastomosis is constructed of 2-0 vicryl stitches placed first in the distal anal mucosa with a small bite of internal sphincter and then into the pouch. Using a double driver method to place stitches and parachute tying avoids excessive pressure on the pouch. Bimanual maneuvers with one hand in the pelvis and the other on the perineal side of the operation are often helpful both during dissection and pouch delivery.

Results/Outcome(s): Patients with handsewn ileal pouch anal anastomoses in revisional pouch surgery have slightly worse function compared to stapled anastomoses, however, patient satisfaction and quality of life are equivalent.

Conclusions/Discussion: Handsewn ileal pouch anal anastomosis following mucosectomy is often necessary in revisional pouch surgery. Functional outcomes are worse, however, this technique is important to possess for surgeons undertaking ileal pouch surgery as stapled anastomoses are not appropriate for some patients or pathologies.

ROBOTIC REDO PELVIC SURGERY: J-POUCH REVISION, DETORSION AND ADVANCEMENT, MUSCULAR MALE.

VR39

S. Marecik, M. Gagnon-Konamna, A. Perez Tamayo, K. Kochar, J. Park
Park Ridge, IL

Purpose/Background: This video describes a robotic J-pouch revision, detorsion, and advancement in a muscular male. Our patient had an IPAA procedure in the past for ulcerative colitis. He developed multiple episodes of small bowel obstruction. The workup suggested possible kink and rotation of the J-pouch.

Methods/Interventions: The robotic surgical system was successfully used for J-pouch revision, detorsion, and advancement.

Results/Outcome(s): The native pouch was saved. A hand-sewn anastomosis was created. The ileostomy was closed 4 months later.

Conclusions/Discussion: Robotic assistance for complex pelvic surgery involving the J-pouch can be safely performed.

ENDOLUMINAL VACUUM THERAPY FOR MANAGEMENT OF LEAK AFTER ILEAL POUCH ANAL ANASTOMOSIS.

VR40

S. Parascandola, M. Ford, A. Hawkins, A. Khan, S. McChesney
Nashville, TN

Purpose/Background: Anastomotic leak after ileal pouch anal anastomosis (IPAA) is a significant risk factor for pouch failure. Options for management of anastomotic leak after IPAA are varied and depend on the extent of the leak and patient's condition. Endoluminal vacuum therapy for anastomotic leaks is well described and involves the creation and insertion of a polyurethane sponge connected to a vacuum suction device into the abscess cavity. Here we describe the technical details of creating an endoluminal vac, using readily available supplies, to treat an IPAA anastomotic leak.

Methods/Interventions: A 42-year-old man with ulcerative colitis developed an anastomotic leak after completion proctectomy with J-pouch construction. We constructed an endoluminal vacuum-assisted closure system using readily available nasogastric and suction tubing, prolene suture, and a regular negative pressure wound therapy system to treat his anastomotic leak. Creation of the endoluminal vac is outlined in the attached video. Pouchoscopy and endoluminal vacuum system exchange was performed weekly for one month until the leak cavity could no longer accommodate the tip of the endoluminal vacuum-assisted closure system.

Results/Outcome(s): After initial pouchoscopy and marsupialization failed to reduce the size of the patient's presacral abscess cavity, we applied the endoluminal vacuum-assisted closure system. The patient subsequently underwent serial pouchoscopy and vacuum exchanges every 7 days, with substantial improvement in his abscess cavity after the third application as demonstrated by pouchoscopy and contrasted enemas. Following removal of the sponge, he underwent repeat marsupialization. Final water-soluble enema demonstrated no residual abscess cavity.

Conclusions/Discussion: An endoluminal vacuum-assisted closure system is a feasible option for the management of leak after IPAA that can be constructed using readily available supplies and is well tolerated by the patient.

REDO J POUCH CREATION IN REVISIONAL POUCH SURGERY.

VR41

N. Balidemaj, D. Wong, F. Remzi
New York, NY

Purpose/Background: Revisional pouch surgery requires creation of a new pouch in approximately half of all of cases. An ideal pouch is well perfused, compliant, without strictures or adhesions and between 12-20cm long. Ischemia, infection, inflammation, or procedural damage may necessitate new pouch creation which is facilitated by preoperative "thoughtful" ileostomy diversion.

Methods/Interventions: Following mobilization and detachment of the existing pouch, the pouch is evaluated for salvage potential. If a new pouch is required, the reach of the ileostomy site is assessed. The ileostomy site is then used as the apex of the new pouch which is created with 2-3 fires of a GIA 100cm blue load stapler. A new tip of the J is created with a TA 30cm blue load, ensuring that the antimesenteric side of the tip of the J is shorter than the mesenteric side. Following this the tip of the J is oversewn. The pouch is everted and the posterior wall is checked for bleeding. An apical purse-string is created with seromuscular bites for the EEA anvil. Indocyanine green (ICG) fluorescence is used to asses perfusion prior to stapled anastomosis. A leak test, visual assessment of anastomotic donuts, and proximal diversion minimizes potential leaks.

Results/Outcome(s): Double stapled redo J pouch creation results in good functional outcome and high levels of patient satisfaction and improved quality of life.

Conclusions/Discussion: New J pouch creation in revisional pouch surgery is required approximately 50% of the time. Thoughtful ileostomy creation prior to revisional surgery facilitates this process and maximizes residual small bowel.

ONE-PERSON ROBOTIC TOTAL ABDOMINAL COLECTOMY FOR ULCERATIVE COLITIS, MORBIDLY OBESE PATIENT.

VR42

S. Marecik, D. Schlund, D. Borsuk, K. Kochar, J. Park
Park Ridge, IL

Purpose/Background: This video describes a one-person robotic Total Abdominal Colectomy for Ulcerative Colitis in a morbidly obese patient.

Methods/Interventions: A robotic surgical system was successfully used. The dissection started with the lateral mobilization of the sigmoid and continued counter-clockwise to the cecum. In the end an ileostomy was created.

Results/Outcome(s): The patient was discharged home on post-op day #2. No complications were observed.

Conclusions/Discussion: A one-person robotic Total Abdominal Colectomy for Ulcerative Colitis in a morbidly obese patient can be safely performed.

HEINEKE-MIKULICZ STRICTUREPLASTY IN DIFFUSE JEJUNOILEAL CROHN'S DISEASE.

VR43

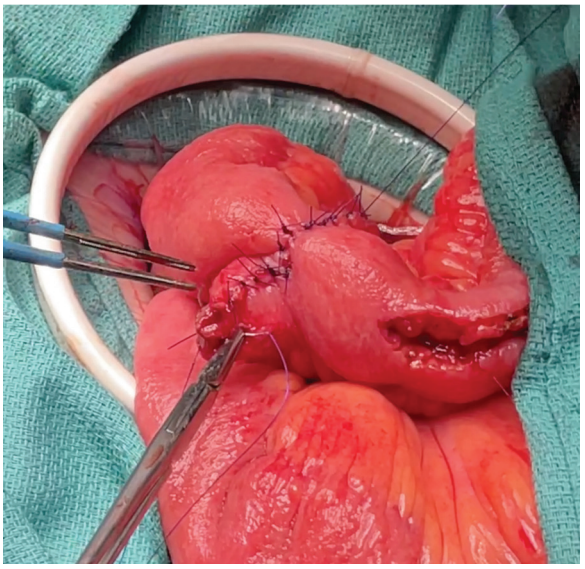
S. Holubar, C. Prien, S. Steele
Cleveland, OH

Purpose/Background: VIDEO SUMMARY This video demonstrates the technical pearls in Heineke-Mikulicz strictureplasty. Highlighted critical steps include how to construct the longitudinal enterotomy, use of stay sutures, how to close the enterotomy transversely, how to check for gaps, and patency/leak testing.

Methods/Interventions: TEACHING POINTS Patient Preparation: If combined with colectomy, antibiotic & mechanical bowel prep may be used. Patient Position: Supine Critical Steps: Run entire small bowel, document all strictures, length of bowel in situ at start/end of case; consider use of Foley balloon or calibration spheres to run bowel intraluminally Contraindications: fistula, abscess, neoplasia, distal obstruction Longitudinal enterotomy made with cautery over the stricture onto normal bowel Enterotomy then sutured closed transversely; avoid back-walling; confirm patency Gap check, consider betadine leak testing Selective proximal diversion based on risk factors for leak

Results/Outcome(s): Technical Pearls/Tips: Short discrete strictures, ≤7 cm, with atleast several cm's normal bowel between strictures Seromuscular longitudinal anti-mesenteric enterotomy with electrocautery; lumen then entered sharply, enterotomy taken full thickness with aid of a right-angled clamp, and extended on both sides onto normal bowel; a "pop" is typically observed as the stricture is fully released Stay sutures placed half-way along the strictureplasty on each side of enterotomy Selective frozen section biopsies in long standing or suspicious strictures Enterotomy closed transversely using full thickness running or interrupted 3-0 suture, SH-1 needle. If interrupted, start either at both ends and sew towards middle, finish in center; alternatively start in middle ("rule-of-halves") If interrupted, completed strictureplasty probed for gaps using one tine of DeBakey forceps; gaps closed Consider a 2nd layer Alternative: closed with transverse stapler; note fixed staple height The patency confirmed with pinch test If not patent, revise or resect Consider leak test using dilute betadine through last enterotomy prior to closure Consider marking each strictureplasty with a metallic clip Selective proximal diversion (surgeon discretion) based on risk factors for leak (such as malnutrition, steroids, others), not necessarily the number of strictureplasties

Conclusions/Discussion: Potential Areas for Injury/Complication: suture line bleeding, obstruction from back walling, leak



LAPAROSCOPIC MODIFIED END KONO-S ANASTOMOSIS USING SELF-FORMING MAGNETS.

VR44

A. Ore, M. Ryou, E. Messaris
Boston, MA

Purpose/Background: Due to high rates of anastomotic recurrence, patients with Crohn's disease have benefited from the Kono-S technique by preventing distortion of the anastomotic lumen and avoiding needed for further operations. Our aim was to perform a laparoscopic modified end Kono-S, preserving the added benefits of the procedure and incorporating the benefits of using self-forming magnets into this technique.

Methods/Interventions: A preclinical study using a porcine model to evaluate an in vivo laparoscopic Kono-s

anastomosis via magnetic compression was performed. The animal was survived and underwent fluoroscopy, endoscopic and gross anastomotic evaluation on Day 14.

Results/Outcome(s): One female Yorkshire pig was prepped and draped in a standard sterile fashion. A 5cm midline incision was performed, and a single port laparoscopic device was placed after achieving insufflation. A segment of the small bowel was identified and resected using a laparoscopic stapler; after this, both end segments of the small bowel were sutured using 3-0 Vicryl sutures, creating a supporting column. An enterotomy was performed 3-4cm distal to the supporting column on each segment of the small bowel using electrocautery. Laparoscopic delivery of a temporary implant on each segment of small bowel for safe control of enterotomy was performed, followed by delivery of two self-forming magnets using the Endo Magnetic Intracorporeal Anastomosis Delivery System. Once magnets were confirmed in adequate position and aligned with enterotomy, they were coupled. The animal survived the procedure and was taken to recovery. Diet was restarted, and daily rake checks were performed to monitor magnet and implant expulsion. On day 14, both magnets and implants had passed through the fecal stream. There was minimal evidence of the anastomosis on endoscopic evaluation with a patent lumen. On necropsy, the supporting column can be seen healed and intact, along with both ends of the small bowel with a large patent lumen. There was mild inflammation, with no evidence of adhesion formation.

Conclusions/Discussion: We performed the first laparoscopic modified end Kono-S anastomosis using self-forming magnets. This technique allowed for maintaining the benefits of a supporting column and significantly reduced the length of enterotomy required on both sides of the small bowel. A shorter anastomosis time was achieved by avoiding the hand-sewn component of the procedure. Due to no foreign body left behind, this procedure can potentially decrease the already elevated risk of stricture and adhesion formation inherent to Crohn's disease.

ILIAC AND OBTURATOR LYMPHADENECTOMY FOR RECURRENT RECTAL NEUROENDOCRINE TUMOR : A VIDEO.

VR45

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Purpose/Background: This is the case of a 60 year old male who initially presented with a rectal polyp, judged unresectable by regular endoscopy. The polyp looked benign and represented half of the rectal circumference, sitting right on the dentate line. An excision was done by TEM, but the final pathology reported a 4 millimeters, well-differentiated neuroendocrine tumor (NET) with 0 mitosis and a Ki-67 at 6%. This was found within a tubulo-villous adenoma with high grade dysplasia. The case was presented to our Colorectal Tumor Board and the patient was followed by CT-scans, tumor markers and colonoscopies. Seven years later, the patient presented with a progressing left internal iliac adenopathy on CT-scan, with good uptake on Ga-68 PET scan. Following the Tumor Board's updated recommendation, the patient was taken to the operating room for a complete iliac and obturator lymphadenectomy.

Methods/Interventions: This video shows a step by step laparoscopic left iliac and obturator lymphadenectomy. We start by carefully examining the peritoneal cavity to exclude any other metastasis. The distal sigmoid colon is mobilized with a lateral to medial approach. The ureter is found on the iliac bifurcation so an extensive distal ureterolysis can be done. The dissection begins on the psoas muscle, along the gonadic vessels and then continues along the external and internal iliac arteries. The obturator fossa is carefully dissected to identify the obturator nerve, which is preserved with its vein. The obturator arterial branches and the obliterated umbilical artery are ligated. At the end of the procedure, the obturator muscle and the iliac vessels are cleared of lymphatic tissue.

Results/Outcome(s): Three out of seven lymph nodes were found positive for grade 2 NET metastasis, with a diameter up to 2,1 centimeters. The Colorectal Tumor Board agreed on not giving adjuvant treatments to this patient.

Conclusions/Discussion: With the right indication and good anatomy knowledge, iliac and obturator lymphadenectomy is a procedure that can successfully be done by the experienced laparoscopist.

POSTTRANSPLANT LYMPHOPROLIFERATIVE DISORDER OF THE ASCENDING COLON WITH COLODUODENAL FISTULA.

VR46

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Purpose/Background: Posttransplant lymphoproliferative disorder (PTLD) of the colon is extremely rare. We present a video case of a 51-year-old woman with a history of heterotopic kidney transplantation who presented with three months of abdominal pain, change in bowel movements, and weight loss. She was found to have an ascending colon mass on CT and underwent colonoscopy which confirmed an obstructing mass with biopsy showing inflammation and CMV.

Methods/Interventions: She was taken to the OR for a robotic right colectomy and was found to have invasion of the right native nonfunctioning kidney and second portion of the duodenum requiring right nephrectomy and takedown of coloduodenal fistula. The duodenal defect

was primarily closed in two layers, with an additional omental patch. Pathology demonstrated EBV-positive lymphoma consistent with monomorphic PTLD invading the duodenum and right kidney.

Results/Outcome(s): She did well postoperatively and her PTLD was treated with reduction in immunosuppression, rituximab, and chemotherapy. She is doing well seven months later.

Conclusions/Discussion: Colorectal PTLD should initially be treated by reducing immunosuppression, but it is not uncommon for these patients to require surgery and/or chemotherapy.

CASE REPORT: ROBOTIC RESECTION OF A PELVIC SCHWANNOMA-A VIDEO VIGNETTE.

VR47

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Purpose/Background: Pelvic schwannomas are rare and usually asymptomatic until they grow enough to compress adjacent organs. Surgical excision of pelvic side-wall localized schwannomas remains challenging due to proximity to vital structures and nerve bundles. Here, we present the video of the robotic excision of pelvic left-sided schwannoma guided by intraoperative neuromonitorization highlighting visibility, precision, and dexterity of the technique.

Methods/Interventions: A 35-year-old female patient (with a history of previous lumbar schwannoma) presented with numbness of the waist and left thigh. MRI revealed a large mass originating from the lumbar plexus adjacent to the rectum and sciatic nerve. Robotic excision was performed with the guidance of neuromonitorization. Bipolar probes were preoperatively placed in the rectus femoris, tibialis anterior, and abductor hallucis muscles bilaterally and into the anal canal. The bulbocavernosus reflex was examined for anal sphincter follow-up and pudendal nerve follow-up. The tumor bulk was sitting below the left ureter and internal iliac artery and attached to L4-L5 roots. Complete excision of the tumor was achieved successfully. There were no intraoperative complications except intentional signal reduction in the tibialis anterior and gastrocnemius muscles.

Results/Outcome(s): Pathological examination revealed ancient schwannoma. In the postoperative course, the patient experienced foot drop managed with angle foot orthosis and physical therapy. The remaining course was uneventful, and the foot drop significantly rehabilitated eight weeks after surgery.

Conclusions/Discussion: Neuromonitorization-guided robotic approach for pelvic side-wall localized schwannoma confers safe and effective resection with reduced risk of neurological morbidity.

LAPAROSCOPIC PELVIC LATERAL LYMPH NODE DISSECTION FOR ANAL CANCER.

VR48

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Purpose/Background: Minimally invasive pelvic lateral lymph node dissection is a complex procedure that comprehends the acknowledge of the anatomical structures which plays an important role to reduce postoperative morbidity and mortality. The evidence regarding the importance of lateral pelvic lymph nodes in disease free survival and overall survival of advanced subperitoneal rectal cancer has grown in the last few years; but there is no data about this procedure after receiving neoadjuvant chemoradiotherapy (ChemoRT) in anal cancer patients with local tumor complete response but positive pelvic lateral lymph nodes

Methods/Interventions: This is the case of a 52 years old female who presented Anal Squamous Cell Carcinoma infiltrating the lower rectum. MRI staging T4 N1a M0. Received neoadjuvant ChemoRT 26 weeks after neoadjuvant therapy, a control MRI showed an 11 mm persistent internal iliac lymph node with no anal canal lesion (Staging ymr T0 N1a). PET-CT scan showed an hypermetabolic lymph node on the left obturator region (10.6 mm, SUV 4.6), with no signs of other hypermetabolic lesions or metastasis. The patient was discussed in oncologic multidisciplinary team deciding to do a laparoscopic pelvic lateral lymph node dissection. We approached the left-sided compartment using four ports. The first step is to identify the ureter crossing the iliac vessels; it should be fully individualized to allow traction by using an "endoloop", then opening the peritoneum covering the ureter should be until the uterine artery crosses by. Identify the anatomical landmarks at the lateral wall (the external iliac vessels) and the medial wall (Internal Iliac artery). Identification of the obturator foramen, obturator vessels and obturator nerve. Obturator nerve is dissected with blunt maneuvers, then ligating with clips and section the Obturator vessels. The remaining lymphatic tissue is dissected identifying the uterine and superior vesical artery, which is clipped. Identify the obturator lymphatic duct to ligate and section. The surgical specimen is taken out of the body within an "endobag" through a Pfannenstiel incision.

Results/Outcome(s): The patient had an excellent postoperative outcome and was discharge on postoperative day 3. The pathology reported 1/7 lymph nodes with squamous cell carcinoma. After 2 years of follow up, the humoral and clinical control are normal

Conclusions/Discussion: Despite the lack of clear indications to perform pelvic lateral lymph node dissection in patients with complete response of anal cancer, a proper selection of patients with imaging evidence of pelvic lateral lymph node disease may be beneficial.

APPENDECTOMY POST-EFTR REMOVAL OF APPENDICEAL ORIFICE.

VR49

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Purpose/Background: Endoscopic full-thickness resection (EFTR) is a new technique used to resect colonic lesions which removes all layers of the gastrointestinal wall while leaving behind a clip to act as a suture to prevent perforation of the colon. EFTR allows removal of lesions in the submucosa and muscularis propria while aiding in accessing difficult locations such as the appendiceal orifice (AO). A concern regarding this technique at the AO is the risk of appendicitis. Recent studies show that between 14-17% of patients who had EFTR performed at the AO developed acute appendicitis, with about half of those patients eventually requiring appendectomy. We have concern that EFTR for AO lesions may result in transforming a simple appendectomy into a complicated case with possible need for cecectomy or ileocolic resection. Our case is a 69 year old female with a history of a 12mm periappendiceal colon polyp unable to be removed via excision and ablation. This lesion was excised via EFTR and closed with a clip over the AO. The patient presented to the ED 2 days after this procedure with right lower quadrant (RLQ) pain. CT showed that the clip was in place and the appendix mildly dilated and inflamed. The patient was treated with antibiotics and discharged. The patient presented to the ED again the next day with persisting RLQ pain and diarrhea and was admitted. CT imaging showed acute appendicitis with perforation, and the patient was discharged on antibiotics 3 days after admission. The RLQ pain persisted until the patient was admitted for an appendectomy 21 days after the original EFTR.

Methods/Interventions: After identifying the inflamed appendix, it was seen that the base of the appendix had involuted into the cecum. As the appendix and right colon were mobilized so that the cecum could be delivered through the umbilical site. The clip was palpated and a finger was passed through the ileocecal valve prior to firing a stapler to conduct the appendectomy with partial cecectomy to ensure that the ileocecal valve was not inadvertently closed.

Results/Outcome(s): The patient had full symptom resolution after appendectomy. The specimen was opened and there was visual confirmation that the clip had fully blocked the AO.

Conclusions/Discussion: This case demonstrates that the use of EFTR for lesions near the AO may not be appropriate, since the risk of appendicitis, while only about 15%, is still much higher than the complication rate of an appendectomy via laparoscopic partial cecectomy. It is important for physicians to be aware of the potential complication of appendicitis leading to a more complex operation than a standard laparoscopic appendectomy when considering utilizing EFTR for periappendiceal lesions.

RECTAL GIST EXCISION BY TRANSANAL ENDOSCOPIC MICROSURGERY: A VIDEO.

VR50

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Purpose/Background: Rectal GISTs are rare and often represent a surgical challenge. When resectable, these tumors can be excised by various approaches, one of them being the transanal endoscopic microsurgery (TEM) technique since it is not indicated to remove the lymph nodes in the mesorectum. Prognosis is generally worse in stromal tumors of the rectum and the most important factor is to obtain negative resection margins. This video demonstrates the excision of a distal rectal GIST by TEM in a 73 year old male with a posterolateral lesion after a one-year course of neoadjuvant imatinib. The tumor went from a non-resectable 37 x 30 millimeters mass, fixed into the puborectalis muscle to a 25 x 21 millimeters mobile lesion, sitting right on the levator ani muscle. Mutations were undetermined in the preoperative setting.

Methods/Interventions: The video shows a step by step TEM procedure, using a rigid platform. It starts with a transmural rectotomy, just proximally to the dentate line. The external sphincter is visualized and preserved. A few fibers of pelvic floor muscles are resected with the tumor to ensure clean posterior margins. The superior and lateral parts of the dissection are completed with the mesorectum reached. After thorough hemostasis, the deficit is closed primarily with two V-lock continuous sutures, free of tension.

Results/Outcome(s): Negative macroscopic margins were obtained after a complete excision of a low rectal GIST. The sphincters were preserved and there was no particular concern for postoperative stenosis. The final pathology report confirmed negative microscopic margins.

Conclusions/Discussion: TEM is a safe and appropriate approach for stromal rectal tumor resection, when negative margins seem achievable, according to the surgeon's judgment and experience.

LAPAROSCOPIC VENTRAL MESH RECTOPEXY WITH LEVATORPLASTY IN RECURRENT RECTAL PROLAPSE.

VR51

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Purpose/Background: Although **r**ectal prolapse is rare with prevalence of ~0.5%, its frequency increases with age in females. Multiple operations have been described for the management of rectal prolapse with overall recurrence rates up to 15%. In terms of recurrent prolapse, studies suggest that abdominal approaches are associated with lower recurrence rates and better functional outcomes.

Depending on the initial operation, ventral mesh rectopexy is an increasingly recognized abdominal approach for recurrent prolapse that avoids the posterior rectal dissection, however its use after perineal approaches is uncertain.

Methods/Interventions: We present the case of a 72-year-old female, BMI 15 kg/m^2, with a recurrent rectal prolapse 6 months after undergoing combined perineal rectosigmoidectomy and colpocleisis for rectal and pelvic organ prolapse. Her presenting symptoms were pain, rectal bleeding, loose stools, and fecal incontinence. Physical exam demonstrated ~ 4 inches of full-thickness prolapse with weak resting anal tone. There was no recurrence of the vaginal prolapse. Given the recurrence, an abdominal approach was considered, specifically a ventral rectopexy. Intraoperatively, a redundant sigmoid colon in the pelvis was held into place by the mesentery which was under tension. A large diastasis of levators was noted as no previous levatorplasty had been performed. The prolapsing sigmoid was first reduced above the levator hiatus. The hiatus was closed excluding the vagina from the repair. This allowed the rectum to stay in the pelvis without it falling below the levators. Due to the nature of the previous perineal rectosigmoidectomy there was no true pouch of Douglas or remaining mesorectum, making anterior or posterior dissection challenging. A biologic mesh graft was secured on the ventral surface of the neorectum with absorbable sutures and then secured to the sacral promontory with non-absorbable sutures. The mesh was completely peritonealized.

Results/Outcome(s): The patient was discharged on POD 1 and after 6 weeks her symptoms significantly improved. Pain and bleeding had resolved, and fecal incontinence was improved with only sporadic Imodium use. The physical exam did not reveal any prolapse.

Conclusions/Discussion: This case illustrates the challenges associated with the repair of recurrent rectal prolapse after perineal rectosigmoidectomy. While tailoring the surgical approach based on the initial prolapse repair is paramount, ventral rectopexy is a valuable option to consider in recurrent disease

ROBOTIC HERNIOPLASTY OF A PRIMARY LEVATOR HERNIA.

VR52

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Purpose/Background: A 76-year-old female with 30-year history of rheumatoid arthritis on chronic steroids presented with complaints of pelvic floor bulging over one year, associated with constipation and straining over the last 6 months. A CT of the pelvis demonstrated a fat containing defect in the right levator musculature. Clinical examination demonstrated a large, non-tender, right sided levator hernia palpable when standing. Subsequent MRI defecography demonstrated the majority of the rectum and mesorectum herniating through the right levator complex during defecation. The purpose of this video is to evaluate the efficacy and safety of a robotic repair.

Methods/Interventions: Robotic transabdominal mobilization of the rectum afforded excellent visualization of the entire pelvic floor and hernia defect. Soft monofilament polyester composite mesh (Symeotex^{TM}) was secured with soft-silk sutures to the entire pelvic floor fully covering the defect. Sutured rectoxpexy was then performed directly to the sacral promontory with permanent sutures.

Results/Outcome(s): A robotic levator hernioplasty with soft, polyester, permament mesh and suture rectopexy was performed without complication. The patient was discharged the same day.

Conclusions/Discussion: A robotic levator hernioplasty with soft, polyester, permament mesh and suture rectopexy was performed without complication. The robotic approach optimizes this operation, with stable, enhanced visualization within the deep pelvis, endowrist manipulation, and easier suturing. Robotic levator hernioplasty is a safe and efficacious procedure.

ROBOTIC TAMIS RECTAL TUMOR EXCISION.

VR53

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Purpose/Background: Neuroendocrine tumors (NETs) are a rare slow-growing malignancy derived from neuroendocrine cells. NETs can occur anywhere within the gastroenteropancreatic system, and the incidence of rectal NETs is increasing. Rectal NETs generally present as small, localized, well differentiated tumors. Current guidelines for rectal NETs recommend local excision, either endoscopically or trans-anally, for well differentiated, localized lesions less than 2 cm, and oncologic colon resection for lesions with high-risk features, or those that are greater than 2 cm in size.

Methods/Interventions: We present a 66-year-old male patient who was found to have a 2.5 cm well differentiated rectal NET 5 cm from the anal verge on screening colonoscopy. Findings were confirmed with MRI, which showed the 2.5 cm lesion without evidence of local invasion. DOTATE scan revealed uptake in the rectum and the mediastinum, and appropriate endobronchial Ultrasound-guided biopsy ruled out metastases. The patient was extensively counseled that given the size of his mass, the standard of care would be colonic resection in the form of a low anterior resection. The patient adamantly refused any major resection, and wished to proceed with local excision.

Results/Outcome(s): The patient was booked and consented for a robotic trans-anal minimally invasive (TAMIS) rectal tumor excision. The patient was positioned in the prone-jackknife position. A 4x4 cm anal

gel port was inserted, and we used 3 robotic trocars and an assist trocar to perform the operation. The lesion was excised full thickness with 1 cm margins, using the mesorectal fat pad as our guide to ensure full thickness resection. The mucosal defect was closed transversely using 2-0 barbed suture. The specimen was removed and oriented with the pathology department in the room. Final pathology showed a T2 well-differentiated NET invasive into the muscularis propria with negative margins. The patient recovered appropriately, and a repeat colonoscopy was performed 2 months post-operatively, which showed a well healed scar. The scar was biopsied and found to be negative for recurrence.

Conclusions/Discussion: In this patient, we successfully performed a robotic TAMIS rectal tumor excision for a 2.5 cm NET. Despite falling outside the recommended range for local excision, the patient refused the more morbid but indicated low anterior resection. Despite this, the patient appears to have had a successful oncologic resection, and has no evidence of recurrence or distant metastasis as of now.

ROBOTIC-ASSISTED LOW ANTERIOR RESECTION OF A RECTAL TUMOR WITH CONCERN FOR INVASION OF THE SEMINAL VESICLES.

VR54

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Purpose/Background: The anatomy of the Denonvilliers' fascia (DVF) remains controversial and poorly understood. This has implications for the surgical management of rectal cancers affecting adjacent urogenital structures. There is a current hypothesis that the Denonvilliers' Fascia consists of an anterior, posterior, and interfascial plane, which is an important anatomical consideration when performing a total mesorectal excision (TME), and before committing to a urostomy. This demonstrates the potential ability of robotic-assisted surgery to perform meticulous and precise fascial dissections to improve post-operative outcomes. We present the case of a 60-year-old male, who was found to have a low-lying rectal cancer on initial imaging by MRI was a T4b tumor with concern for invasion into the seminal vesicles. The patient underwent Total Neoadjuvant Therapy (TNT) with incomplete response. He presented for surgical management of his disease, which included a robotic low anterior resection and planned loop ileostomy.

Methods/Interventions: With the concern for ongoing invasion of the genitourinary structures and for potential invasion into the seminal vesicles and prostate, the patient was seen in clinic and a discussion was had regarding the possibility of total pelvic exenteration vs. coloanal anastomosis with resection of the seminal vesicles and diverting loop ileostomy. Both Colorectal and Urology were involved. Due to the location and complexity of this tumor resection, the decision was made to perform a jejunal sparing operation and to only resect the seminal vesicles to preserve urinary continence. The anterior dissection was then performed by urology, and the seminal vesicles were found to not be involved. The anterior and posterior layers of Denonvilliers' fascia were dissected from one another. The plane was developed nicely with no concern for tumor invasion. The distal limit of the separation was then reached, leaving the seminal vesicles and prostate intact.

Results/Outcome(s): Final pathology showed a mucinous adenocarcinoma with all resection margins negative for tumor. The patient recovered as expected and is currently scheduled for an ileostomy reversal.

Conclusions/Discussion: The meticulous dissection of Denonvilliers' fascia allowed for the avoidance of a urostomy and colostomy in the management of a patient with a low-lying rectal cancer with concern for invasion of the seminal vesicles. Instead, this dissection resulted in a temporary ileostomy and preserved the patient's urinary function. This demonstrates the ability of robotic-assisted surgery to perform meticulous and precise fascial dissections to improve post-operative outcomes. Furthermore, an improved understanding of the Denonvilliers' fascial anatomy can help to improve post-operative outcomes in pelvic surgeries.

ROBOTIC ABDOMINOPERINEAL RESECTION WITH ROBOTIC RECTUS ABDOMINIS MUSCLE AND BILATERAL GLUTEAL ADVANCEMENT FLAPS FOR PELVIC AND PERINEAL RECONSTRUCTION.

VR55

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Purpose/Background: This is a case of a 40-year-old female who initially presented with intermittent rectal bleeding for 6 months associated with rectal pressure, tenesmus, decreased appetite, and unintentional weight loss. She was diagnosed with a T4N1 nearly obstructing low rectal adenocarcinoma with vaginal involvement and perineal fistulas. She underwent total neoadjuvant therapy including chemotherapy and chemoradiation as per multidisciplinary tumor board recommendations.

Methods/Interventions: Upon completion of total neoadjuvant therapy, she presented for surgical resection. She underwent a robotic abdominoperineal resection with partial vaginectomy and robotic harvest of a rectus abdominis muscle rotational flap for pelvic reconstruction and bilateral gluteal advancement flaps for perineal reconstruction. Indocyanine green fluorescence angiography (ICG-FA) was an adjunct to reconstruction.

Results/Outcome(s): The patient recovered well post-operatively. The final pathology revealed rare, scattered foci of residual rectal adenocarcinoma, an unclear anterior radial margin due to scarring, with proximal rectal and distal anal margins that were negative for tumor. There were seven perirectal lymph nodes that were negative for tumor. Pathologic staging was T3N0.

Conclusions/Discussion: This case presents the complex treatment of a locally advanced rectal cancer and provides a video demonstration of a minimally invasive approach with the use of robotic surgery. This presentation underscores the importance of a multidisciplinary tumor board discussion with colorectal surgery, medical oncology, and radiation oncology to provide patient-centered individualized comprehensive care in order to achieve improved outcomes. The multidisciplinary approach to surgical intervention included colorectal surgery, general surgery, plastic reconstructive surgery, and gynecologic oncology. There are few cases reported in the literature that describe the combined use of robotic abdominoperineal resection with robotic harvest of a rectus abdominis muscle advancement flap for immediate reconstruction. This video presentation highlights the capabilities of robotic surgery and innovative surgical technique in this unique case.

ROBOTIC BILATERAL PELVIC LYMPH NODE EXCISION.

VR56

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Purpose/Background: After concluding neoadjuvant treatment, some patients with clinical Stage III rectal adenocarcinoma may still have enlarged lymph nodes on post-treatment imaging studies that are concerning for metastatsis. This should not preclude an operation but rather an attempt to resect these suspious lymph nodes should be performed if possible. This video demonstrates the excision of bilateral pelvic lymph nodes with use of the robot platform.

Methods/Interventions: The DaVinci Xi Robot was used to aid in the resection of enlarged bilateral pelvic lymph nodes in a patient with Stage III disease who had completed neoadjuvant chemotherapy and radiation. This video describes the technique and strategies used to perform this type of operation.

Results/Outcome(s): This operation was successful in removing all three suspicious lymph nodes, in addition to the primary rectal tumor, without complication or injury to the patient. One of the three lymph nodes removed was positive for invasive adenocarcinoma.

Conclusions/Discussion: Use of the robot is able to facilitate a safe excision of enlarged pelvic lymph nodes with care to preserve surrounding neurovascular structures while excising all macroscopic disease.

PELVIC ORGAN PROLAPSE: ARE TWO SURGEONS BETTER THAN ONE?

VR57

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Purpose/Background: Rectal prolapse can be a debilitating disorder associated with fecal incontinence, mucus discharge, constipation, and pudendal neuropathy. The prevalence of urinary incontinence and pelvic organ prolapse in these patients is estimated to be between 21-34%. As minimally invasive approaches have become more accessible and surgical training on these platforms have become more common, a multidisciplinary approach to multicompartment prolapse should become more common practice.

Methods/Interventions: This was a retrospective analysis based on phone survey results to look at outcomes following combined multicompartment pelvic organ prolapse repair. 34 women in total with full thickness rectal prolapse who also underwent simultaneous repair of pelvic organ prolapse were interviewed. The survey examined recurrence and subsequent repair, if applicable, unexpected post operative pain, new urinary incontinence or retention, new fecal incontinence or constipation, and new sexual dysfunction.

Results/Outcome(s): 27 out of 34 patients participated in the survey. 9 patents had recurrence of their rectal prolapse with 3 having already undergone a second repair. Significant post operative pain occurred in 7 of the 27 surveyed. 7 had new urinary incontinence while 10 had new issues with urinary retention. New fecal incontinence was seen in 6 patients and constipation was noted in 8 individuals. Lastly, post-surgical sexual dysfunction was reported in 2 out of 27 patients.

Conclusions/Discussion: Combined prolapse repair decreases overall anesthesia time, repeated entry into the abdomen, concurrent recovery period, and hospital admissions. Although this study is poorly powered to fully assess surgical success, it is out hypothesis that a multidisciplinary approach is best to limit recurrence rates.

LAPAROSCOPIC-ASSISTED ALTEMEIER PROCEDURE FOR TOTAL RECTAL PROLAPSE.

VR58

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Purpose/Background: A single surgical approach is often ineffective in the treatment of severe rectal prolapse, and a combination of multiple surgical approaches is badly required. For the Altemeier procedure, one of the keys during the operation is to judge whether the peritoneal reflex will protrude outside the anus. However, in clinical

practice, it is very hard to judge whether the peritoneal reflex will protrude outside the anus due to individual differences of patients (such as different anal canal lengths, height of peritoneal reflex) and the relaxed state of pelvic floor under anesthesia. Sometimes, for the patients with the length of prolapse is more than 5 cm, especially with prolapse length in the range of 5-7 cm, the peritoneal reflex may not protrude out of the anus, which results in the inability to enter the abdominal cavity during the Altemeier procedure, and this will lead to the failure of the Altemeier procedure and the postoperative recurrence.

Methods/Interventions: During the operation, we firstly explored the lowest location of the peritoneal retroflexed recess and the starting location of the rectal prolapse through a combined transabdominal and perineal approach and applied laparoscopic assistance to completely protrude the bowel out of the anus. The status of the remaining bowel after bowel resection, the position of peritoneal reflexion and the degree of relaxation of the pelvic floor can be judged intuitively by laparoscopic. Depending on the situation during the operation, it is decided whether to close the pelvic floor and elevate the depression of the rectum and bladder to consolidate the effect of the operation.

Results/Outcome(s): The combined transabdominal and perineal approach can probe the lowest location of the peritoneal retroflexed recess as well as the starting position of rectal prolapse and the actual length of prolapse to ensure that the intestinal canal can be prolapsed beyond the anal verge completely.

Conclusions/Discussion: We demonstrated that laparoscopic-assisted Altemeier surgery can ensure that the prolapsed bowel can be completely prolapsed outside the anus, making the actual prolapse length of the bowel can be more accurately definitude, and reducing the risk of postoperative recurrence due to insufficient bowel resection.

PULL-THROUGH AND DELAYED COLO-ANAL ANASTOMOSIS AFTER LAPAROSCOPIC TOTAL MESORECTAL EXCISION WITH PARTIAL INTERSPHINCTERIC RESECTION.

VR59

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Purpose/Background: Fit, informed and motivated patients can be offered a reconstructive option in low rectal cancer. In patients with iuxta-anal rectal cancer, when partial intersphincteric resection (pISR) is needed, delayed colo-anal anastomosis (DCAA) can be an alternative to the standard immediate colo-anal anastomosis (ICAA) with diverting ileostomy. The technique, first described by Turnbull and Cutait, is regaining popularity with some technical modifications. DCAA appears particularly appealing for avoiding the morbidity of a temporary ileostomy without increasing risks and with similar functional outcomes.

Methods/Interventions: In this video we present the main ten steps to perform a laparoscopic anterior resection with total mesorectal excision for low rectal cancer, pISR and rectal pull through followed by DCAA.

Results/Outcome(s): After the rectal dissection is achieved by complete isolation of the anorectal ring at the pelvic floor by laparoscopy; the perineal time begins by performing the pISR starting from an adequate tumor margin. The specimen is then delivered transanally and transected, leaving a colonic stump in place anchored to the anal canal. The second surgical stage usually takes place after about 7 days and consists in colonic stump resection and performing the manual CAA.

Conclusions/Discussion: When restorative surgery for low rectal cancer is pursued, DCAA is a valid alternative to ICAA. Not only DCAA has the advantage of avoiding temporary stoma, but also could potentially decrease the risk of anastomotic leak compared to ICAA in this specific subset. Indeed, the formation of adhesions between the distal colon and the anal canal during the timeframe between the two surgical steps, may allow for a safer coloanal anastomosis. Data on functional outcomes after DCAA are still scarce; some initial evidence is anyway encouraging: one RCT available on the topic by Biondo et.al reported no significant difference in continence at 1 year compared to ICAA, while Olagne et al. describe 90% of patients being fully continent for stool and gas after 2 years from surgery.

IS IT THE LOAD OR THE WAY YOU CARRY IT? A MODEL FOR TENSION FREE VENTRAL MESH RECTOPEXY.

VR60

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Purpose/Background: There are two main theories to describe the pathophysiology of rectal prolapse. These are described as ahernia through a defect in the pelvic fascia or an intussusception of the rectum. However, some feel that the true etiology is actually a combination of both. To address these theories, there are over one hundred techniques for repair of rectal prolapse. However, there is a lack of evidence to suggest which rectal fixation is superior. Suture rectopexy, resection rectopexy and ventral mesh rectopexy are the most commonly performed procedures. Ventral mesh rectopexy, especially in a multidisciplinary setting with sacrocolpopexy, rapidly became the gold standard as it addresses not only the overt prolapse but also improves on constipation, obstructed defecation syndrome, and fecal incontinence as well as associated pelvic organ prolapse. This procedure is associated with

low complication rate and low recurrence rate (0-15%) reported. However, over the last decade many surgeons have described their experience and the need for deviation from the standard limited anterior dissection of the ventral rectopexy. There are several modifications that have been made to the traditional ventral mesh rectopexy by a variety of surgeons. Some of these techniques include additional posterior dissection, freeing up the rectum from the chronic pelvic adhesions, performing a more circumferential distal dissection, and adding a suture rectopexy to the ventral rectopexy have been brought forward as techniques for improving surgical outcomes. Situations where the rectal prolapse is large, heavy, long standing, or severe may require additional intervention. Additionally, cases of early recurrence following initial ventral rectopexy, and dissatisfaction of the surgeon with the limited dissection are other reasons that have been brought forward as examples for why we need to change our approach. The purpose of this video is to initiate discussions on ways to improve rates of recurrence and post-operative complications associated with traditional methods of rectal prolapse repair.

Methods/Interventions: This video presentation highlights some of the modifications to the traditional ventral rectopexy surgery and the situations which require additional intervention.

Results/Outcome(s): We have previously submitted our limited retrospective short term follow up analysis on our techniques for this tension free ventral rectopexy. Our results mirrored those of ventral rectopexy alone, with similarly low rates of post operative complications, like constipation and rectal inertia. Further long term studies are needed to gather more information.

Conclusions/Discussion: Our "tension free" ventral mesh rectopexy is one of the many variations from the traditional robotic ventral mesh procedure. We feel that it is time to start the conversation on ways to improve our repair of rectal prolapse.

MINIMALLY INVASIVE PELVIC FLOOR RECONSTRUCTION USING THE MESENTERIC FLAP.

VR61

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Purpose/Background: Immediate pelvic floor reconstruction after extirpation of advanced pelvic malignancy has been proven to reduce postoperative complications, especially emptying pelvis syndrome (EPS). The empty pelvis created after the surgery leads to fluid accumulation and small bowel adherence to the perineal wound, leading to fistula formation, pelvic abscess, or chronic infection. Several flap techniques have been reported, such as the vertical rectus abdominis musculocutaneous flap and the gracilis flap. However, the flap-specific complications have been documented, which showed no consensus on the best approach. This video aims to demonstrate the step-by-step of a novel technique using a well-vascularized mesenteric flap to fill the pelvic dead space after laparoscopic extralevator abdominoperineal resection (APR).

Methods/Interventions: A 63-year-old male, BMI 31 kg/m2, with low rectal mucinous cancer invading the pelvic floor, underwent long-course chemoradiation and was scheduled for laparoscopic extralevator APR. The procedure was performed in a modified lithotomy position, utilizing 5 trocars. Following the medial-to-lateral mobilization of the sigmoid colon, the rectum was fully mobilized in the TME plane, reaching the pelvic floor level. The attention is pointed to the mesenteric flap, so low ligation of the inferior mesenteric artery, preserved proximal sigmoidal vessels, was performed. The mesenteric transection was performed to the colon, and then resection of the rectosigmoid colon was achieved using an endoscopic linear stapler. After trans perineal dissection and tumor extirpation were complete, primary closure of the perineal skin defect was done. In order to fill the pelvic dead space and pelvic floor defect, the colonic mesentery harvest was performed, started by peritoneal scoring on colonic mesentery beside the bowel wall at the designated level of an end colostomy. Then colonic mesentery transection continued downward until the flap could be freely mobilized. The flap was brought down to fill the pelvic dead space. (Fig.1) Trephine was created at the left lower quadrant of the abdomen, then the ischemic colon was removed, and maturation of end colostomy was achieved.

Results/Outcome(s): The patient was discharged home uneventfully on postoperative day 4. Pathologic report revealed T4bN0 mucinous adenocarcinoma of the low rectum, with a negative margin. There are no perineal wound complications or EPS occur. At 6 months, postoperative MRI showed no evidence of a perineal hernia.

Conclusions/Discussion: Immediate pelvic floor reconstruction using a mesenteric flap is technically feasible and straightforward, which contributes to a promising outcome. Moreover, it provides an economical method using autologous material that could be a viable option for minimally invasive reconstruction to prevent EPS.

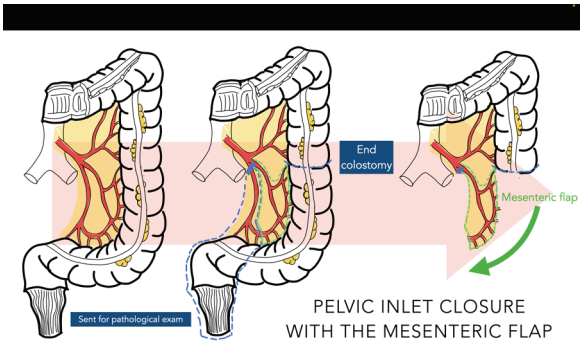

Fig.1 Pelvic floor reconstruction using the mesenteric flap

TRANSANAL EXCISION: TIPS AND TRICKS.

VR62

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Purpose/Background: Transanal excision is an alternative treatment in early lower rectal adenocarcinoma. However, it is difficult to obtain a good resected specimen due to limited working space in the rectal lumen. Therefore, we presented this video to demonstrate tips and tricks of transanal excision.

Methods/Interventions: A 60-year-old woman with underlying hypertension presented with protruding mass during straining. Digital rectal examination and colonoscopy revealed a 2-cm. sessile polyp with a focal area of ulceration located at the anterior wall of lower rectum. Endorectal ultrasonography demonstrated a uT1N0 lesion and CT scan showed no distant metastasis. The patient was placed in a prone jackknife position after spinal anesthesia was administered. Perianal skin was prepped in a sterile fashion and prophylactic antibiotic was given. The video demonstrated several tips and tricks of transanal excision. We prefer applying self-retraining hook retractors to expose the anal canal. Stay sutures were used to pull the lesion to the anal verge. The resection margin should be marked with electrocautery before starting dissection. Submucosal injection with saline-diluted Epinephrine solution mixed with Indigo carmine could reduce the bleeding and define the dissection plane. The plane of dissection could be performed in 3 different planes including the deep submucosal plane, partial thickness plane between inner circular and outer longitudinal muscular layer, and the full thickness plane. Using a needle-tip type cautery for dissection would help dissection precisely. Ligation or suture ligation should be performed if a large feeding vessel is encountered. Finally, per rectal examination should be performed to assess the patency of the rectal lumen.

Results/Outcome(s): The postoperative recovery was uneventful. The pathology report was moderately differentiated adenocarcinoma arising in tubulovillous adenoma. The tumor invaded into superficial submucosa of less than 1,000 microns and all resection margins were free.

Conclusions/Discussion: Understanding tips and tricks would assist junior colorectal surgeons to improve their surgical techniques of transanal excision with an excellent outcome.

LAPAROSCOPIC ABDOMINOPERINEAL RESECTION WITH BILATERAL PELVIC LYMPH NODE DISSECTION WITH S4-5 SACRECTOMY.

VR63

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Purpose/Background: Locally advanced rectal cancer is prevalent in 5% to 10% of patients with the disease (LARC). Treatment for tumors that actually extend to the attachment junction anterior to the sacrum and for those with pelvic lymph nodes are challenging because it necessitates significant surgery to get R0 margin. Any surgery for rectal cancer must be completed with the goal of achieving histologically clear resection margins whereas a R0 resection is the single best indicator of success after surgery.

Methods/Interventions: A sacrectomy is therefore essential to establish a negative margin for improved survival which have been documented a 53% of 5-year survival rate in node negative patients with locally advanced cancer who have achieved clearing margins. Considering that there is no survival advantage from just an R1 resection, this procedure should only be generally performed once the aim is to accomplish a histologically clear resection.

Results/Outcome(s): The extent of local sacral involvement determines surgical morbidity and radicality. It has been demonstrated that resection of the sacrum below or at the level of S3 is both functionally and morbidly acceptable and advantageous in regards of malignancy.

Conclusions/Discussion: This video demonstrates the step-by-step approach for laparoscopic abdominoperineal resection with bilateral pelvic lymph node dissection with S4-5 sacrectomy. Before the definitive surgery, the patient underwent neoadjuvant treatment with long-course chemoradiation followed by consolidation chemotherapy.

LAPAROSCOPIC TOTAL PELVIC EXENTERATION WITH EN-BLOC LATERAL PELVIC LYMPH NODE DISSECTION IN T4 RECTAL CANCER.

VR64

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Purpose/Background: T4 rectal cancers have a significantly poorer prognosis. Multi-visceral organ resection or total pelvic exenteration (TPE) are crucial to achieve R0 resection and improve oncologic outcomes. The incidence of lateral pelvic lymph node metastasis is high, particularly in T4 rectal cancers. Although the indications for lateral pelvic lymph node dissection (LPLND) are still controversial, LPLND has been demonstrated to improve oncological outcomes in selected patients. Minimally invasive approaches for TPE and LPLND have

been shown to be feasible and safe without compromising oncological outcomes. However, the minimally invasive approach for TPE with en-bloc LPLND is a technically demanding and challenging procedure. This video demonstrates a technique of laparoscopic total pelvic exenteration with en-bloc left lateral pelvic lymph node dissection with mesenteric flap pelvic defect reconstruction in a 28-year-old male patient who presented with T4 low rectal cancer invaded prostate gland and left lateral pelvic lymph node metastasis.

Methods/Interventions: The patient received induction chemotherapy followed by long-course concurrent chemoradiation. Then laparoscopic TPE with en-bloc left LPLND and immediate pelvic reconstruction with a colonic mesenteric flap is performed. All nodal tissue around the inferior mesenteric (IMA), left colic, and sigmoidal artery is retrieved to achieve D3 lymphadenectomy. Low ligation of the IMA is then completed, preserving the left colic artery and the first branch of the sigmoidal artery as the blood supplies of the colonic mesenteric flap. Extravascular beyond total mesorectal excision (TME) dissection with en-bloc left LPLND is subsequently performed. The specimen is retrieved via the perineal wound. The perineal defect is then closed by primary suturing. The pelvic defect is immediately reconstructed using the prepared colonic mesenteric flap. An ileal conduit urinary reconstruction is created, followed by an end colostomy.

Results/Outcome(s): Pathology showed ypT4bN2M1 (lateral pelvic lymph node) with negative all resected margins. The patient was discharged home on postoperative day 7 without complications. The patient has no local or distant recurrence at 1-year follow-up.

Conclusions/Discussion: A minimally invasive approach for TPE with en-bloc LPLND in T4 rectal cancer is feasible and safe in selected cases. This issue needs to be further explored in future studies.

LAPAROSCOPIC INJURY AND REPAIR OF OBTURATOR NERVE DURING LATERAL PELVIC NODE DISSECTION IN RECTAL CANCER SURGERY.

VR65

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Purpose/Background: Lateral pelvic lymph node dissection (LPLND) has significant technical difficulty and a high incidence of surgical morbidity. Because of unfamiliarity of surgeons with the anatomy, plane and procedure therefore a steep learning curve is anticipated in performing LPLND. After I performed 17 cases of LPLND for rectal cancer without any complications but finally in the 18th case I had iatrogenic obturator nerve injury during left LPLND and its immediate laparoscopic repair.

Methods/Interventions: A Thai 51 year-old female with Mid rectal cancer, clinical staging T4bN2M0 Post concurrent chemo radiation follow by consolidate chemotherapy 2 cycles, last CAPEOX received 3 week ago. She presented with partial colonic obstruction and thrombocytopenia. Per-rectal examination revealed 90% circumferential fibrosis ulcerative mass at 8 cm. from anal verge. She was treated by rest bowel for 2 day then platelets concentration 10 unit infusion before start the operation. Laparoscopic ultra-low anterior resection with left SO was performed initially completed uneventfully by using a four ports approach. Follow the consisting of 4 steps of LPLND using surgical landmarks. During all fatty and nodal tissue was medially dissected from the distal to proximal part of the obturator nerve, artery, and vein by blunt and ultrasonic dissection, the proximal of left obturator nerve was inadvertently partial thermal transected with ultrasonic devise. The injuries to the obturator nerve edges was immediately repair via laparoscopically re-approximated end to end with four zero prolene, epineural sutures to achieve a tension-free anastomosis. The nerve repair was completed in approximately 10 minutes. The final step of LPLND was continued. The middle plane in the vesico-hypogastric fascia was dissected of the internal iliac lymph nodes group. Identified and preserved the umbilical artery, superior vesical artery, uterine artery and internal pudendal artery.

Results/Outcome(s): Total operative time is 300 minutes with an estimated blood loss of 700 mL from thrombocytopenia induce oozing bleed even if the platelets concentration was infused. The final pathology was revealed ypT0N1bM0. There were 4 left lateral pelvic LNs harvested No metastatic lateral pelvic LNs were identified. Postoperatively, The patient was walking without assistance. She didn't exhibit any clinically apparent loss of adductor function and didn't show painless numbness of the left thigh. The patient was discharged on postoperative day 6 without others complication.

Conclusions/Discussion: Obturator nerve injury is rare and less frequently associated LPLND for rectal cancer. Traction and counter traction, correct the surgical plain and knowledge the landmark anatomy are key to avoid obturator nerve or any vessel injury in LPLND. As in the present case, laparoscopic magnification and use of intracorporeal suturing techniques enable obturator nerve repair.

VIDEO ANIMATION TO SUPPORT PATIENT EDUCATION ABOUT PELVIC FLOOR DISORDERS.

VR66

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Purpose/Background: Rectocele and rectal prolapse can cause symptoms of fecal incontinence and obstructed defecation. Both are complex conditions with multiple treatment options, and it is recommended that providers share the decision with patients. Educational tools that help individuals visualize the interrelationship between anatomy and bowel function has the potential to supplement patient discussions and support shared decision making around treatment options. Our aim is to demonstrate a short video animation developed to help educate patients on the mechanisms of rectocele and rectal prolapse.

Methods/Interventions: The video animation explains the physiopathology and symptoms of rectocele and rectal prolapse. The video was created with the intent of being an open-source material and was made available on YouTube with English, Spanish, and Portuguese translations. Readability of the script was assessed through the Flesch–Kincaid Reading Ease score.

Results/Outcome(s): The video is 100 seconds in length and briefly describes pelvic anatomy, the mechanisms by which rectocele and rectal prolapse develop, and why those diseases can present with obstructed defecation and fecal incontinence. The Flesch–Kincaid Reading Ease score of the script is 61.2, which means it can be easily understood by 8th and 9th grade students (13- to 15-year-olds).

Conclusions/Discussion: This open-source video animation is an accessible tool to support patient education on rectal prolapse and rectocele. Future studies will assess the effectiveness of such tool, and patients' preferences for health education on pelvic floor disorders.

LAPAROSCOPIC-ASSISTED LOW ANTERIOR RESECTION AFTER FAILED "WATCH AND WAIT" IN A MORBIDLY OBESE MALE: THE IMPORTANCE OF A HYBRID APPROACH.

VR67

J. Koury
Harrisburg, PA

Purpose/Background: The treatment for rectal cancer continues to evolve with newer treatment modalities promising improved survival and local control without resection. As more patients are offered nonoperative management, the time between radiation therapy and surgical resection is prolonged and this is thought to make surgical resection more difficult. As illustrated in this video, a minimally invasive, hybrid approach to low anterior resection 13 months after completion of total neoadjuvant therapy for failed "watch and wait" is feasible and associated with good oncologic and short term outcomes even in the obese, narrow male pelvis.

Methods/Interventions: Our patient is a 47 year old male found to have a locally advanced distal rectal adenocarcinoma (T3N1cM0) at 8 centimeters (cm) from the anal verge. His metastatic work up was negative and he underwent total neoadjuvant therapy (TNT) beginning with radiation therapy (50.4 Gy/28 fractions) followed by 8 cycles of chemotherapy (FOLFOX). He was restaged and was noted to have had a complete clinical response. qGiven his young age and performance status, he was offered resection for cure but declined and wished to pursue a "watch and wait" approach. At 13 months after TNT completion, he was found to have a local recurrence without metastatic disease and was taken for a laparoscopic low anterior resection with diverting loop ileostomy

Results/Outcome(s): He had an uneventful postoperative recovery and was discharged to home on postoperative day 5. His pathologic stage was T2NOM0. The mesorectum was complete and all margins were negative. He had a 2 cm circumferential and 3 cm distal resection margin. He underwent successful ileostomy reversal at 3 months postoperatively and is well without local or distant recurrence 1 year postoperatively.

Conclusions/Discussion: With the adoption of "watch and wait", delays to surgical resection will become more common and division of the distal rectum remains challenging regardless of the surgical approach. Our case demonstrates that despite a significant delay between radiation therapy and resection, a minimally invasive approach to rectal cancer is still feasible. We believe the hybrid approach of open rectal division has an important role in this subset of patients to prevent rectal perforation or disruption of the mesorectum during rectal division. While transanal total mesorectal excision may address distal rectal division, it is technically challenging, not widely performed and long-term oncologic outcomes are not yet available. This case illustrates that a hybrid laparoscopic approach to distal rectal cancer in a morbidly obese male with a narrow pelvis is safe and provides good oncologic and short term postoperative outcomes

LAPAROSCOPIC APPROACH TO TOTAL PELVIC EXENTERATION WITH BILATERAL PELVIC NODE DISSECTION FOR LOCALLY-ADVANCED RECTAL CANCER.

VR68

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Mumbai, India

Purpose/Background: The safety and feasibility of a laparoscopic approach to total mesorectal excision (TME) for rectal cancer has been established in literature. However, the evidence for laparoscopic resections beyond TME is less robust, none of the above trials having included clinical T4 disease.

Methods/Interventions: Recent studies from dedicated colorectal units at high volume centres have found that laparoscopic resections may be feasible in select patients with locally advanced rectal cancer (LARC) requiring beyond-TME with respect to short term postoperative outcomes. These may be attributed to advances in instrumentation, more efficacious energy devices and surgical experience. However, further research is required to evaluate long term oncological outcomes.

Results/Outcome(s): This video demonstrates the feasibility of laparoscopic total pelvic exenteration with bilateral pelvic node dissection for LARC following neoadjuvant therapy. The initial phase of mesocolic dissection, pedicle ligation and colonic mobilization is standard to a conventional TME. However, the pelvic phase of surgery involves division of the hypogastric nerves, ureterohypogastric fascia and the umbilicovesical fascia to mobilize the bladder en bloc with the rectal primary and a pelvic nodal dissection for clinically-significant lateral nodes.

Conclusions/Discussion: An oncologically complete resection was achieved with satisfactory postoperative outcomes, suggesting the feasibility of laparoscopic surgery for beyond-TME resections.

ROBOTIC REPAIR OF RECTOCELE WITH ABSORBABLE MESH.

VR69

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Orlando, FL

Purpose/Background: Rectocele is a rectal wall herniation frequently into the vagina. Many patients have concurrent rectal prolapse or gynecologic/urologic dysfunction. Non-emptying of the rectocele may be considered for surgical repair. A transvaginal or transanal repair can be complicated by a fistula, fecal incontinence, or dyspareunia. We present a transabdominal approach involving robotic rectocele repair with absorbable mesh for a non-emptying large rectocele without pelvic organ prolapse.

Methods/Interventions: 58-year-old-female with poor rectal emptying discovered to have a 3.4cm non-emptying rectocele on defecography. She was without pelvic organ prolapse and did not improve with medical management. A robotic rectocele repair with bioabsorbable mesh was performed. Four 8mm and one 5mm assist ports are placed in the upper midline position. The rectovaginal septum is dissected down to the pelvic floor. The anterior rectum is plicated with 3-0 absorbable locking suture in 2 layers, approximating together the rectal wall muscularis. A bioabsorbable 7cm x 10cm, 6-layer, ACell Gentrix Surgical Matrix mesh is sutured to the pelvic floor in the rectovaginal space.

Results/Outcome(s): Operative time was 2 hours and 27 minutes. There were no compilations with minimal blood loss. She was discharged home on post-operative day 2.

Conclusions/Discussion: Robotic rectocele repair with absorbable mesh is a viable option for non-emptying large rectoceles. Further studies are needed to evaluate long-term efficacy and quality of life.

VARIATIONS IN VASCULAR ANATOMY DURING LATERAL LYMPH NODE DISSECTION FOR RECTAL CANCER.

VR70

A. Sharma, S. Bankar, J. M, P. S, M. Kazi, A. DeSouza, A. Saklani
Mumbai, India

Purpose/Background: Aim of the video is to demonstrate the standard steps and normal anatomy along with few variation encountered during lateral lymoh node dissection for rectal cancer

Methods/Interventions: 3 patients with variations have been depicted in this video: Absent internal iliac vein Separate large medial trunk of internal iliac vein Internal iliac vein passing in front of artery and premature origin of superior vesical artery

Results/Outcome(s): All patients had unventful intra-op and post op course

Conclusions/Discussion: While standardisation of steps and knowledge of anatomy are vital to pevic lymoh node dissection, one must be careful to observe variations in anatomy as they can lead to torrential bleeding during surgery

ROBOTIC VENTRAL MESH RECTOPEXY AND SACRALCOLOPOPEXY VIDEO TUTORIAL.

VR71

C. Martinez
Tampa, FL

Purpose/Background: This is a robotic ventral mesh rectopexy and sacralcolopopexy video tutorial. The patient is a 57-year-old female with a history of full thickness rectal prolapse and vaginal prolapse. On examination, she was noted to have perineal descent and full thickness rectal prolapse on commode test. She completed an MRI Defecography preoperatively which demonstrated moderate posterior, middle and anterior compartment prolapse.

Methods/Interventions: The DaVinci Xi robotic system was used to perform the ventral mesh Rectopexy and sacrocolpopexy. The dissection is begun by placing the patient in the Trendelenburg position with left side up. The redundant sigmoid colon is retracted in a cephalad and lateral direction. Attention is then placed to the sacral promontory. The peritoneum is incised to determine if the sacrum is adequate for mesh fixation. The dissection is taken down to the anterior longitudinal ligament over the sacral promontory. The peritoneum is incised along the left side of the rectum down to the pelvic floor, the dissection is taken down to the anterior peritoneal reflection where the peritoneum is then incised in the cul de sac. A plane is then developed along the lateral wall of the rectum in the avascular plane of the mesorectum. There are many ways to determine if you have reached the pelvic floor. You may notice contraction of the pelvic floor muscles and you may perform a digital rectal exam to palpate the robotic instruments. Once this dissection is completed, a bladder flap is created and the bladder is dissected off the anterior vaginal wall to the level of the trigone. A polypropylene mesh is then prepared for fixation. The mesh is cut to the desired length. The mesh is then fixed to the pelvic floor at the perineal body using an absorbable monofilament suture. The rectopexy graft is then secured to the anterior distal rectum using simple interrupted seromuscular bites in eight locations. An EEA sizer is placed in the vagina to elevate the pelvic floor. Using 2-0 PDS on an SH needle, the mesh is then fixed on the vagina posteriorly and anteriorly. The looped end of the mesh is then brought onto the anterior longitudinal ligament. The mesh is then secured onto the anterior longitudinal ligament with two interrupted 2-0 non-absorbable monofilament suture. The peritoneum is then closed over the mesh using a running 3-0 strattifix suture with no mesh exposed at the end of the case. A rectal and pelvic exam is performed to ensure proper prolapse repair.

Results/Outcome(s): The patient sustained an uncomplicated post-operative course.

Conclusions/Discussion: The robotic system is an efficient and ergonomic method for surgical management of rectal and pelvic floor prolapse. It allows for clear visualization in the deep pelvis and also facilitates a multi-surgeon approach in patients who suffer from concomitant rectal and vaginal prolapse.

SINGLE-CELL ANALYSIS REVEALS AN IFNγ-MHC CLASS II-CD4 CYTOTOXICITY AXIS IN TH1-DOMINANT COLORECTAL CANCER.

eP100

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Purpose/Background: Anti-tumor immune responses are shaped by interactions between tumors and immune system with a large diversity across individuals. To date, colorectal cancers have been mainly classified by tumor-intrinsic attributes, which provide limited information on anti-tumor immunity

Methods/Interventions: We performed single-cell RNA-sequencing (scRNA-seq) on single cell suspensions of primary untreated tumor tissues from 46 patients with 17 mismatch repair-deficient (MMRd) and 29 mismatch repair-proficient (MMRp) colorectal cancers (CRCs).

Results/Outcome(s): 26,873 $CD4^+$ T cells of total 158,987 single cells were clustered into six subtypes, including naïve, helper T (Th) 1, Th17, follicular helper T (Tfh), regulatory T (Treg), proliferating, and heat shock protein (HSP) subtype. We stratified CRC tumors into four subgroups by the dominant $CD4^+$ T cell lineage among Th1, Th17, Tfh, and Treg cells. Th1-dominancy, which was marked by the enrichment of Th1 cells with high expression of IFNγ and cytotoxic molecules, was related to better prognosis of CRC patients. Also, MHC class II-expressing tumor cells were abundant in the Th1-dominant subgroup compared to other subgroups and ex vivo assays revealed that $CD4^+$ T cells exhibited cytotoxic activities against autologous tumor cells in a MHC class II-dependent manner. We validate the enrichment of this IFNγ-MHC class II-CD4 cytotoxicity axis in Th1 dominant CRCs using public scRNA-seq datasets.

Conclusions/Discussion: A new classification based on the dominant $CD4^+$ T cells lineage in tumors opens a new window for the interaction between $CD4^+$ T cells and tumor cells, and provides better understanding on anti-tumor immunity in CRCs

Figure 1

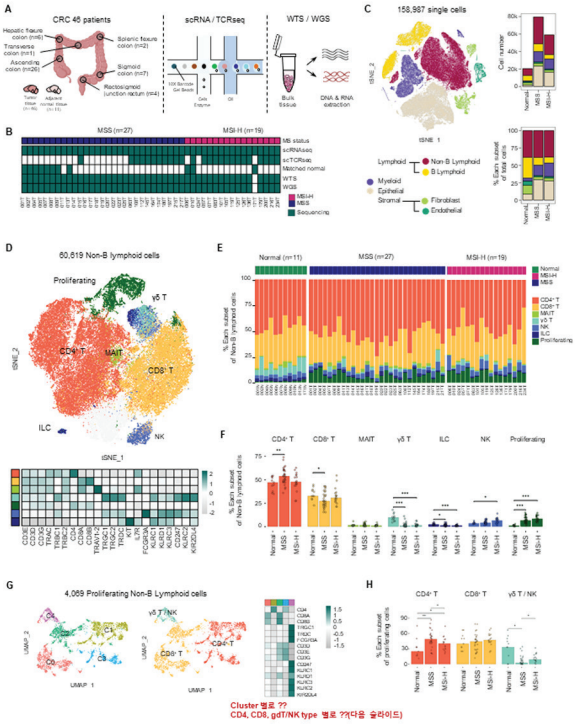

Fig 1. Study design and annotation of cell by scRNA-seq

INTESTINAL EPITHELIAL CGAS DEFICIENCY IS ASSOCIATED WITH DECREASED INTESTINAL AUTOPHAGY AND INCREASED INTESTINAL EPITHELIAL TUMORIGENESIS.

eP101

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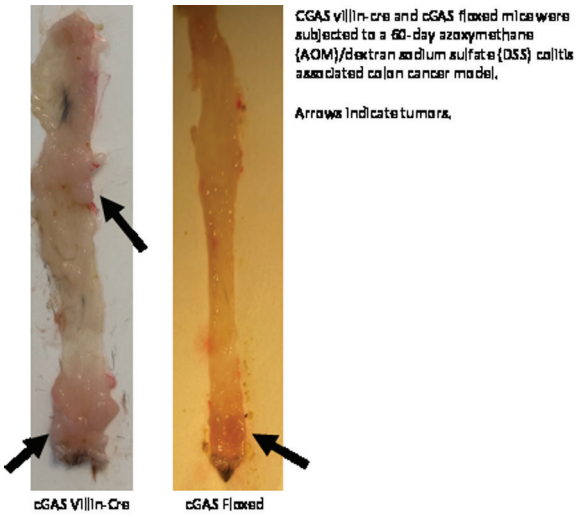
Purpose/Background: Cyclic-GMP-AMP Synthase (cGAS) is a cytoplasmic PRR involved in many inflammatory and autoimmune disease processes. Our previously published data demonstrate that cGAS plays a key role in maintaining the intestinal epithelial homeostasis during human IBD and murine colitis by regulating a balance between autophagy and cell death. Autophagy has been shown to play a crucial role in tumorigenesis. We hypothesize that intestinal epithelial cGAS deficiency leads to increased intestinal tumorigenesis and diminished autophagy.

Methods/Interventions: We subjected cGAS villin-cre (vc) mice and their floxed (fl/fl) controls to a 2% DSS colitis model. We calculated their disease activity index (DAI) scores and evaluated the tissue via qPCR, H&E staining, and WB analysis. We subsequently subjected cGAS KO, WT, cGAS vc, and cGAS fl/fl mice to the standard AOM/DSS colitis associated colon cancer model. Mice were euthanized on the last day of the model. We

measured colonic epithelial tumor count, tumor size (<2mm vs. >2mm), and location (proximal vs. distal).

Results/Outcome(s): Our previous published data demonstrate cGAS KO mice to have worsened intestinal inflammation and diminished epithelial autophagy. We now show intestinal epithelial cGAS deficiency to be associated with increased intestinal epithelial inflammation demonstrated by higher DAI scores ($p<0.05$), increased levels of proinflammatory cytokines including TNFa ($p<0.05$) and IL-1b ($p<0.05$) increased levels of diminished autophagy via decreased LC3-II/actin ratio when subjected to a 7-day DSS colitis model. We demonstrate cGAS KO and cGAS vc mice to have a higher number of colonic epithelial tumors and larger tumors (>2mm) compared to WT mice and cGAS fl/fl respectively when subjected to the AOM/DSS colitis model.

Conclusions/Discussion: We have previously demonstrated global cGAS deficiency to be associated with increased intestinal epithelial inflammation via diminished autophagy. We now demonstrate that intestinal specific cGAS deficiency to be associated with decreased autophagy and increased colitis associated tumorigenesis. Our future work will be focused on determining the mechanism by which cGAS and autophagy are regulating intestinal epithelial tumorigenesis.



DECREASED MUC2 EXPRESSION IN COMPLICATED COMPARED TO UNCOMPLICATED DIVERTICULITIS.

eP102

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Purpose/Background: While the pathogenesis of diverticulitis is not well understood, dysregulation of epithelial defenses as well as microbial dysbiosis have been increasingly implicated. In the gut lumen, the first line of mucosal defense is a physical impediment made of a mucin bilayer produced by epithelial goblet cells. The mucin bilayer is composed of a loose outer layer which provides an interface for bacterial-host interactions and a tight inner layer that is sterile. Previous studies have associated a loss of this mucin barrier with colitis, likely through increased pathologic interactions between the microbiome and epithelium. In the colon, mucin 2 (MUC2) is the predominant mucin, with mucin 5B (MUC5B) also expressed but at lower levels. Due to presumed decreased in barrier function, we hypothesized there is decreased expression of MUC2 and MUC5B gel-forming mucins in complicated compared to uncomplicated diverticulitis.

Methods/Interventions: We identified 30 patients with left-sided diverticulitis that underwent elective, partial colectomy. Cohorts were divided into recurrent uncomplicated diverticulitis vs. complicated diverticulitis as defined by CT-confirmed perforation or abscess. Formalin-fixed surgical resection specimens from uncomplicated ($n=5$) and complicated ($n=5$) diverticulitis patients were evaluated by H&E and Alcian blue staining for goblet cells. RNA was extracted from flash-frozen full-thickness tissue sections and cDNAs were synthesized. Quantitative PCR was performed to measure MUC2 and MUC5B transcripts. Expression levels were normalized to hypoxanthine phosphoribosyltransferase 1 (HPRT1) and TATA binding protein (TBP). Reactions were performed in technical triplicates for each patient and results averaged.

Results/Outcome(s): In our cohort, 68% of patients were female and median age of surgery was 52.3 years. There was no difference in cohorts based on sex, age, smoking status, or BMI. Goblet cells were detected in the crypts and within the epithelial surface, with an increased quantity identified in the complicated diseased tissue. There was decreased expression of MUC2 in the complicated disease cohort ($p=0.037$) and no significant difference in MUC5B expression ($p=0.47$) (Fig 1). MUC5B expression was significantly lower than MUC2 expression in both cohorts.

Conclusions/Discussion: We found decreased MUC2 expression in complicated diverticulitis compared to uncomplicated diverticulitis. These findings indicate complicated disease may be characterized by a decrease in mucin production thus, resulting in diminished barrier function with increased host-bacteria interaction. This corroborates recent findings that correlate decreased MUC2 and MUC5B expression with a more severe ulcerative colitis phenotype. Our results implicate an additional role for epithelial dysfunction in the pathogenesis of diverticulitis and particularly complicated compared to uncomplicated diverticulitis.

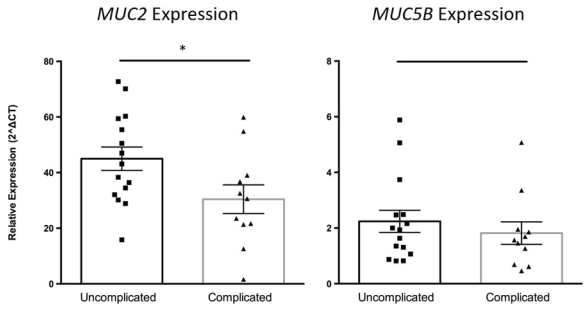

Figure 1: Relative expression of MUC2 and MUC5B in complicated and uncomplicated diverticulitis surgical resection specimens. Relative expression was normalized to HPRTI and TBP. * indicated statistical significance p<0.05.

HARMFUL EFFECTS OF FECAL DIVERSION ON GUT MICROBIOTA IN PATIENTS WITH COLORECTAL CANCER.

eP103

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Purpose/Background: Diverting ileostomy is often used to protect anastomosis after rectal cancer surgery. However, the effect of fecal diversion on gut microbiota is still uncertain. The present study was designed to assess the effect of diverting ileostomy on the composition of fecal microbiota.

Methods/Interventions: We included patients undergoing left-sided colorectal cancer surgery with (ileostomy group) or without (control group) diverting ileostomy. Fecal samples were collected from 10 patients in each group before surgery (t_1) and after ileostomy repair in ileostomy group and 6-9 months after initial surgery in control group (t_2). Change of the composition of fecal microbiota was compared between the two groups.

Results/Outcome(s): Alpha diversity analysis revealed that the complexity of fecal microbiota decreased between t_1 and t_2 only in ileostomy group (OTU, median [interquartile range] 455.5 [336–576] vs. 274.5 [217–353], $p = 0.010$; Shannon diversity index, 4.30 [3.80–4.47] vs. 2.92 [2.16–3.06], $p < 0.001$). Beta diversity analysis showed dissimilarity between t_1 and t_2 only in ileostomy group (Bray-Curtis, $p = 0.001$; generalized UniFrac, $p = 0.001$). The composition of the microbiota was similar between the two groups at t_1. However, at t_2, ileostomy group had lower proportion of beneficial bacteria (Faecalibacterium, 0.01% [0.01–0.02%] vs. 8.46% [4.85–10.63%], $p < 0.001$; Ruminococcaceae, 0.10% [0.04–0.48%] vs. 19.87% [16.69–26.49%], $p < 0.001$) while higher proportion of harmful bacteria (Proteobacteria, 12.49% [7.15–29.00%] vs. 3.62% [2.06–7.09%], $p = 0.01$; Clostridium, 4.90% [1.28–23.52%] vs. 0.61% [0.10–1.03%], $p = 0.013$) compared with control group.

Conclusions/Discussion: Fecal stream diversion was closely associated with less diversity and dysbiosis of gut microbiota.

HYPOPHOSPHATEMIA IS ASSOCIATED WITH PROLONGED POST-OPERATIVE ILEUS AFTER ILEOCOLIC RESECTIONS.

eP104

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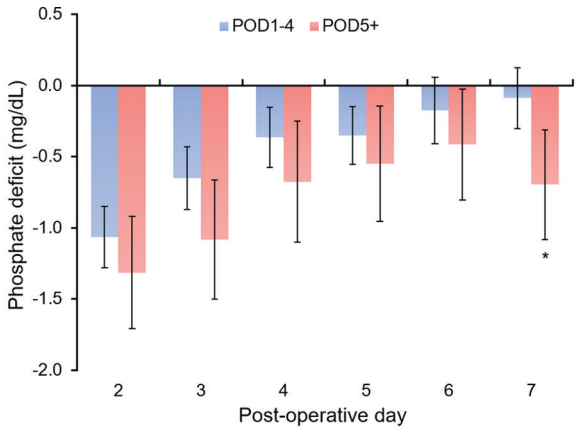
Purpose/Background: Electrolyte imbalances are known to contribute to intestinal ileus. However, the direct impact of hypophosphatemia on incidence of post-operative ileus is unknown. Here, we aimed to determine if hypophosphatemia is associated with prolonged post-operative ileus after colorectal surgery. We chose to investigate ileocolic resections (ICR) to establish a baseline to study phosphate dynamics.

Methods/Interventions: A retrospective study was performed on patients who underwent ICRs at a tertiary referral center, identified using current procedural terminology codes: 44160 and 44205. Perioperative serum phosphate levels, hospital course, postoperative complications, and comorbidities were compared between patients with or without prolonged post-operative ileus. Prolonged post-operative ileus was defined as having return of bowel function on a post-operative day (POD) one standard deviation above the mean (POD5). Students T-tests were used for comparative statistics, and linear regressions were performed to determine rate of change. Phosphate deficit was calculated from POD1 lab values as a baseline.

Results/Outcome(s): From 2020-2021, data from 173 patients were reviewed, including both laparoscopic (77%) and open (23%) approaches. On average, patients had return of bowel function on POD 3.4 ± 1.3. 17% of patients overall had prolonged post-operative ileus. Most patients had low phosphate levels on POD 2, reaching a mean nadir of 2.72 mg/dL. Patients who had prolonged ileus had significantly lower levels of phosphate on POD7 compared with patients who had return of bowel function on POD1-4, with mean phosphate 3.31 mg/dL versus 3.70 mg/dL, $p < 0.05$. In addition, patients who had prolonged post-operative ileus had a phosphate deficit that persisted beginning on POD2, with a mean deficit of –0.69 mg/dL versus –0.31 mg/dL, $p < 0.05$ on POD7. Patients with prolonged post-operative ileus also had a slower rate of phosphate recovery compared to patients with normal return of bowel function, with a mean rate of 0.157 mg/dL/day versus 0.181 mg/dL/day. Lastly, patients with a POD1 serum phosphate of >5.0 mg/dL had a higher incidence of ileus at 39% ($p < 0.05$).

Conclusions/Discussion: We have established baseline phosphate dynamics in patients who undergo ICRs, which

is a standard procedure with a low rate of morbidity and complications. We found prolonged post-operative ileus was associated with a delayed serum phosphate recovery, as well as lower overall phosphate levels. The phosphate deficit seen on POD7 can be attributed to the combination of both these factors. Interestingly, we found that patients with a higher POD1 serum phosphate were at increased risk for developing ileus. This population may be more sensitive to the large serum phosphate drop seen on POD2. As phosphate is required for the generation of ATP for muscle contraction, our work shows that there may be a potential window for intervention in the perioperative period.



Phosphate deficit for POD1-4 and POD5+ patients on POD 2-7. Error bars are 95% CI. *p < 0.05

A NOVEL MICRORNA DEREGULATED IN A SUBSET OF COLORECTAL CANCER PATIENTS AND MODIFIED METASTATIC BEHAVIOR IN EXPERIMENTAL MODES.

eP105

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Purpose/Background: Colorectal cancer (CRC) is one of the most commonly seen cancer types worldwide. Despite advances in the diagnosis and treatment of the disease, CRC remains a major health problem. A better understanding of the molecular mechanisms of CRC formation, spread, stress, and drug resistance mechanisms is required. In search for new markers of CRC, we discovered two microRNAs that were deregulated in CRC tumors compared to corresponding non-tumoral tissues in a large cohort of cancer patients. The role of the miRNA in CRC tumor formation, progression, cellular stress, and death responses was studied using K-RAS mutant CRC cellular models in cancer-related cell growth, migration, extracellular matrix invasion, autophagy, and chemotherapy-related cell death responses. Furthermore, genes targeted by the miRNA and involved in observed phenotypes were investigated to enlighten the molecular mechanisms.

Methods/Interventions: Patients with histopathological colon cancer diagnosis and underwent curative colon surgery, including right hemicolectomy, extended right hemicolectomy, subtotal colectomy, total colectomy, left hemicolectomy and anterior resection between 2016 and 2022 are included in our study. Patient records and tissues are collected prospectively. Tissue/blood plasma collection from patients was made by snap-freezing, and their total RNAs were isolated. miRNA expression levels were measured by rt-qPCR (normalized to U6) upon cDNA conversion with specific stem-loop linkers to miRNAs. CT values were calculated as fold changes of paired non-tumor levels. In vitro phenotypic tests were performed in k-RAS mutant LoVo and SW837 cell lines. miRNA functional assays were carried out with stably knocked-out lines via CRISPR/Cas9. Cell migration/invasion capacity of the cells was assessed with transwell migration, transwell invasion (Matrigel embedded), wound-healing scratch, and 3D modeling assays. Target gene predictions were made via bioinformatic tools; miRDB, TargetScan, and DianaTools.

Results/Outcome(s): The patient cohort can be divided into three groups: upregulated, unchanged, and downregulated miRNA levels. Stably knock-out miRNA cells showed a higher capacity to migrate/invade than wild-type controls. The target genes were analyzed to catch metastasis-related signaling pathways, and gene X was decided to be a direct target, as its mRNA/protein level increases upon miRNA knock-out.

Conclusions/Discussion: Gene X is involved in one of the most critical CRC-related signaling pathways and also participates in the cells' metastatic behavior. Further functional investigations (luciferase reporting, rescue assay, etc.) will conclude a direct miRNA-mRNA binding and subsequent transcriptional regulation.

IMPACT OF DIET ON ANASTOMOTIC LEAK IN A MURINE MODEL OF COLON ANASTOMOSIS.

eP106

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Purpose/Background: Anastomotic leak (AL) is a devastating complication of colorectal surgery, occurring in 3-8% of cases despite optimal surgical technique. Host factors, such as diet and the gut microbiota, interact to contribute to perioperative complications, including AL. A Western diet (WD), which is high in fat and sugar and low in fiber, is known to shift the microbiome towards a pro-inflammatory profile. Our objective was to investigate

the impact of diet on the mouse gut microbiota and its effect on anastomotic healing. We hypothesized that WD-associated microbiota changes would result in dysregulated community function that promotes inflammation, leading to increased rates of AL compared to a lean diet (LD). We further postulated that fecal microbiota transplantation (FMT) of intestinal microbiota prepared from LD mice given to WD mice would reverse dysbiosis and result in improved anastomotic healing, while FMT from WD mice into LD mice would lead to increased AL rate.

Methods/Interventions: C57BL/6J mice (n=32) were fed WD for 10 weeks, then randomized to receive either FMT prepared from LD fecal slurry or PBS via gavage on the day of surgery prior to colon transection and anastomosis. Necropsy was done on POD7 and AL was assessed. The anastomosis was classified as healed, contained leak (abscess), or leak with gross spillage. The same protocol was performed with mice (n=32) fed LD for 10 weeks, then gavaged with FMT prepared from WD fecal slurry or PBS prior to colon surgery. Microbial profiles of fecal samples collected pre- and post-operatively are currently in process.

Results/Outcome(s): Overall survival at POD7 was 59/64 (92%); 3 mice died in the immediate postoperative period due to anesthesia complications and were excluded from analysis. All AL observed at necropsy (n=14) were contained leaks. WD- and LD-fed mice that received PBS gavage had no difference in AL rate: 5/15 (33%) mice demonstrated leak in both groups. LD-fed mice that received WD FMT gavage had no change in AL rate compared to the PBS gavage group (4/16 vs. 5/15 with AL, respectively; Fisher's exact p>0.05). WD-fed mice that underwent LD FMT had significantly improved anastomotic healing compared to those that received PBS gavage (0/15 vs. 5/15 with AL, respectively; Fisher's exact p=0.014).

Conclusions/Discussion: Diet did not impact AL rate in our model; there was no difference in AL in mice preconditioned with WD versus LD. LD-fed mice were not adversely impacted by WD FMT, potentially due to the resiliency of their more robust baseline microbial community. No AL occurred in WD-fed mice that underwent LD FMT. Exploratory analyses currently include microbial characterization as well as immunophenotyping of mice, in particular, WD-habituated mice that received LD donor FMT.

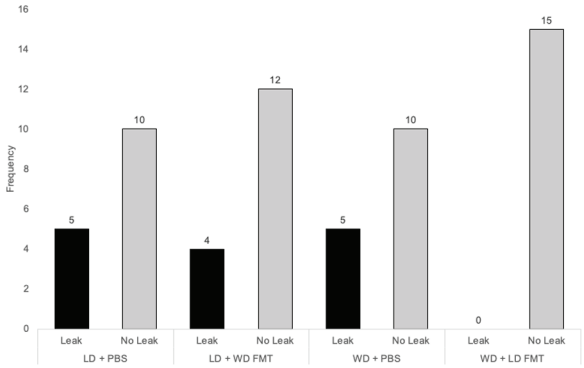

Figure 1. AL rates are equivalent in LD-fed mice receiving WD FMT vs. PBS gavage (4/15 vs. 5/15, Fisher's exact test p>0.05). AL was significantly improved in WD-fed mice receiving LD FMT vs. PBS (0/15 vs. 5/15, Fisher's exact test p=0.014).

A SYSTEMATIC REVIEW OF TRANSANAL FECAL DIVERSION DEVICES WITHIN IDEAL-D FRAMEWORK.

eP107

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Purpose/Background: Trans-anal fecal diversion devices have been designed to protect colorectal anastomoses from the fecal stream, thereby, potentially mitigating the risk of anastomotic leak. Although a number of experimental and clinical studies have been published on the use of such devices, an attempt to stratify the body of evidence into stages of assessment for interventional therapy innovation has never been made. The aim of this systematic review was to assess the status of the use of trans-anal fecal diversion devices and to risk stratify the evidence of the evolution of this innovation.

Methods/Interventions: A systematic search of the PubMed and Google Scholar databases was conducted using predefined search terms. Any experimental or clinical reports on the device were included in this review. Records yielded by the search were screened through titles and abstracts. After eliminating non-relevant records, full-text papers of the remaining records were obtained and screened. After completion of the study selection, data were inserted in predefined tables. IDEAL-D framework (idea, development, exploration, assessment, and long-term follow-up) was used to risk stratify the evidence of the evolution of trans-anal fecal diversion devices.

Results/Outcome(s): After screening the search results, 109 were reviewed through full-text articles, and 42 records were included in this systematic review. About one-fifth of the included records were non-human studies. The majority of the clinical reports were observational in nature. Using the IDEAL-D framework, 85% of the clinical reports were assessed to be at stage 1 or lower.

Conclusions/Discussion: This systematic review suggests that although many reports have been published

on transanal fecal diversion during the past four decades, this innovation is still to prove safety/utility, safety/effectiveness, and post-marketing surveillance, in that order.

META-ANALYSIS OF GENOME-WIDE ASSOCIATION STUDIES ASSOCIATES GENES FOR HAIR GROWTH AND PATTERNING WITH PILONIDAL DISEASE.

eP108

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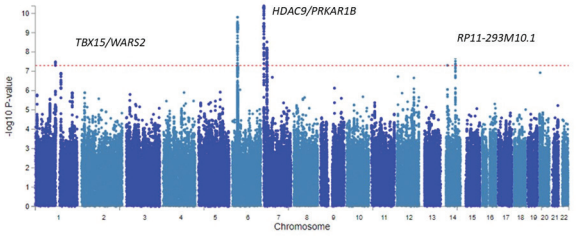
Purpose/Background: Pilonidal disease is a common benign anorectal disease in which hair burrowing in the natal cleft creates sinus tracks which can become super-infected. Many etiologic theories have been put forward, some of which include variations in hair strength and structure, but no genetic analysis has been performed to date.

Methods/Interventions: We performed a genome-wide association study of all European ancestry participants in the United Kingdom BioBank (N=462,918) and FinnGen (N=309,154) biobank with the International Classification of Disease Version 10 (ICD-10) code L05 for pilonidal cyst. To improve power, the databases were combined in a meta-analysis using METAL. We subsequently analyzed single nucleotide polymorphisms (SNPs) which were present in both populations and had a mean allele frequency of > 0.01. We then used FUMA to cluster SNPs to genomic loci, map genes of interest, and identify overlap with expression quantitative trait loci (eQTL). The cut off for genome-wide significance was set at p <5 x 10-8.

Results/Outcome(s): We identified 698 UKBB and 2137 Finngen participants with a billing code for pilonidal cyst. There were 164 genome-wide significant SNPs which mapped to five genomic loci associated with five genes: HDAC9, TBX15, WARS2, RP11-293M10.1, and PRKAR1B. SNPs within the WARS locus were in an eQTL for its expression in sun-exposed skin and fibroblasts. SNPs within the HDAC9 locus mapped to an expression quantitative trait locus for the adjacent gene TWIST1 in sun-exposed skin.

Conclusions/Discussion: This study is the first genomic analysis of pilonidal disease, identifying five potential genes. Three genes have no obvious role pilonidal disease: the function of RP11-293M10.1 is unknown. PRKAR1B is associated with neurodevelopmental disorders and pain perception. WARS2 is a mitochondrial tRNA-synthetase. However, HDAC9 has been identified in multiple genetic association studies of male pattern baldness and HDAC inhibition is an emerging therapy for hair regrowth. Furthermore, variants in HDAC9 have been demonstrated to influence expression of neighboring gene TWIST1, which among other roles regulates hair proliferation. TBX15 controls dorsal-ventral hair patterning in mice and is associated excessive hairiness in humans. These data, though early, are the first genetic investigation of pilonidal disease and reveal the potential biology underpinning the clinical link between pilonidal disease and hair.



MULTIOMIC PROFILE CORRELATES WITH RECTAL CANCER RADIOSENSITIVITY.

eP109

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Purpose/Background: Rectal cancer response to neoadjuvant chemoradiation therapy (nCRT) varies, with better responses associated with decreased local recurrence and improved outcomes. Although many groups have explored genetic factors, there is a paucity of data regarding the influence of other factors in the local tumor microenvironment that likely influence response. We hypothesized that distinct pretreatment metabolic and/or microbial factors would impact nCRT effectiveness.

Methods/Interventions: Pretreatment biopsies of 16 patients with locally advanced rectal cancer were collected. Patients were treated with long course nCRT followed by surgery. Mass spectrometry derived metabolic profiles and 16S rRNA sequencing derived microbiome profiles were obtained for each sample. Differentially abundant metabolites (DAMs) and relative microbiome differential abundance analysis (DAA) between complete responders (AJCC 0) and incomplete responders (AJCC 1,2,3) were identified and analyzed. Pearson correlation coefficient was utilized for integrative analysis of the multiomic profiles.

Results/Outcome(s): Four patients had a complete pathological response (AJCC 0) and 12 patients had incomplete response (AJCC 1,2,3). DAA demonstrated Faecalibacterium prausnitzi and Akkermansia muciniphila significantly enriched in AJCC 0 and Bacteroides sp. 4 3 47FAA enriched in AJCC 1,2,3. DAMs analysis yielded 34 metabolites differentially abundant between AJCC 0 and AJCC 1,2,3 groups. Pathway analysis demonstrated enrichment of sphingolipid metabolism and lysine degradation. We identified a robust statistically significant association comparing each individual patient's multiomic profile between Faecalibacterium prausnitzi and 4 metabolites.

This includes a negative correlation with dimethylarginine (r = -0.644, p=0.007) and N-monomethylarginine (r=-0.618, p= 0.011), both known inhibitors of nitric oxide (NO) synthase.

Conclusions/Discussion: Using a multiomic approach, we identified key pathways and mechanistic interactions associated with rectal cancer radiosensitivity. Highlighted is the direct inverse relationship between Faecalibacterium prausnitzi relative abundance and NO synthase inhibitors, which can cause radiation resistance. These findings warrant further investigation into this bacteria and its metabolites as key players and potential targets in rectal cancer radiation therapy.

ASSAY VALIDATION FOR FREQUENCY OF PI3K MUTATIONS AT EACH PHASE OF ANAL CARCINOGENESIS.

ePI10

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Purpose/Background: The incidence and mortality of anal cancer have increased over the last two decades. There is a gap in knowledge regarding the prevalence and timing of mutations in the dysplasia to cancer pathway, limiting our ability to identify patients at the greatest risk for developing anal cancer. Mutations in the catalytic subunit of Phosphatidylinositol (3,4,5)-trisphosphate Kinase (PI3K) are detected in 20% of anal cancers, making it the most common mutation. We hypothesize that genomic aberrations affecting PI3K are an early event in anal carcinogenesis that can help identify which patients with anal dysplasia are at highest risk for future cancer development and may therefore warrant a personalized screening regimen. Our goal was to validate several digital PCR (dPCR) assays to detect the three most common mutations of PI3K in anal cancer; E545K, H1047R, and H1047L, across the spectrum of anal carcinogenesis.

Methods/Interventions: Reference DNA samples with the following PI3K mutations; E545K, H1047R, and H1047L, were identified from institutional sources. DNA was extracted from formalin-fixed, paraffin-embedded (FFPE) slides with the QIAamp DNA FFPE Tissue kit following the manufacturer's instructions. Commercially available microfluidic dPCR assays for the E545K, H1047R, and H1047L mutations (Qiagen dPCR LNA mutation assays) were selected for validation and tested using 25-50ng of template DNA at a normalized concentration of 5ng/μL with two technical replicates on the QIAcuity dPCR system following manufacturer's instructions. Statistical analysis included unpaired t-tests.

Results/Outcome(s): In regards to the E545K assay, the mean mutant fraction was 4.45% compared to 0.115% in the E545K negative control (p-value = 0.0125). There were a mean 217 positive partitions for the E54K mutant compared to 7 positive partitions in the negative control (p-value = 0.0047). For the H1047R assay, there was a mean mutant fraction of 69.52% compared to 0.085% in control (p-value < 0.0001). There was a mean of 5143 positive partitions in the mutant compared to a mean of 3 positive partitions in the negative control (p-value = 0.0003). Finally, in the H1047L mutation assay, there was a mean mutant fraction of 49.35% compared to 0.015% in control (p-value = 0.0002). There was a mean of 3494 positive partitions compared to a mean of 2 positive partitions in the control (p-value = 0.0005).

Conclusions/Discussion: We were able to validate three Qiagen dPCR LNA mutation assays for assessment of the three most common PI3K mutations found in anal carcinogenesis utilizing reference DNA with known mutations of interest. We plan to utilize these assays to evaluate patient samples across the spectrum of anal carcinogenesis for frequency of PI3K mutation at each stage of disease.

DEVELOPMENT OF A COLON CANCER SPECIFIC ORGANOID BIOBANK: A POWERFUL OPPORTUNITY FOR PRECISION MEDICINE.

ePI13

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Purpose/Background: Colon cancers are intrinsically heterogeneous in cellular compositions and response to treatments which contributes to the difficulty of effective targeted therapies. These challenges call for improved patient specific disease models which accurately represent the physiological complexity of individual colon cancers and allow for assessment of molecular characteristics, diagnostic markers, genetic/epigenetic drivers, and therapeutic screening.

Methods/Interventions: We generated a living colon cancer specific organoid biobank from thirty patient derived tissue specimens. Specimens were obtained real-time in pathology, with the surgeon/pathologist present, a sample of tumor and normal tissue were excised from each specimen. Utilizing these specimens, organoids were grown in three-dimensional gel matrices overlaid with a complex growth medium mimicking the local signals of the colonic mucosa. Whole exome sequencing was used to characterize the genetic alterations in tumor organoids compared to normal controls. Somatic nucleotide polymorphisms (SNPs) of normal organoids were assessed by SNP microarrays to infer germline contribution to disease susceptibility. Colon location and TNM staging were used to annotate the biobank. As a proof of concept, we performed drug testing against epigenetic targets. CUT&RUN was used to profile the chromatin state of matched normal and tumor organoids.

Results/Outcome(s): Robust organoid cultures were successfully derived from 24/30 (80%) tumor specimen

and 30/30 (100%) normal adjacent tissue. Tumor samples were distributed throughout the entire colon. Tumor lines contained striking intrinsic heterogeneity and the removal or addition of growth factors WNT3A and EGF or small molecule disrupters of TGF-β pathway altered their morphology and growth. We identified tumor organoids with various genetic driver events; including a Lynch syndrome tumor organoid with a mutation in the chromatin regulator ARID1A, which was sensitive to the approved EZH2 inhibitor tazemetostat. CUT&RUN assessment of chromatin state showed a dramatic epigenetic drift in tumor organoids from their normal counterparts, characterized by a loss of histone modifications.

Conclusions/Discussion: The development of a colon cancer specific organoid biobank represents a patient centered, tumor-specific library for accurate analysis of individual colon cancers and individual evaluation of responses to targeted therapies. The purity of the organoid culture allows for clear characterization of genetic alterations in each patient with a patient matched normal control. Tumor organoids exhibit an epigenetic rewiring which may impart tumor specific vulnerabilities to agents targeting epigenetic regulators such as EZH2. Further characterization and expansion of this biobank will potentiate higher powered experiments investigating precision medicine approaches to colon cancer subtypes.

METABOLOMICS AND TUMOR RECURRENCE AFTER COLORECTAL CANCER SURGERY.

eP114

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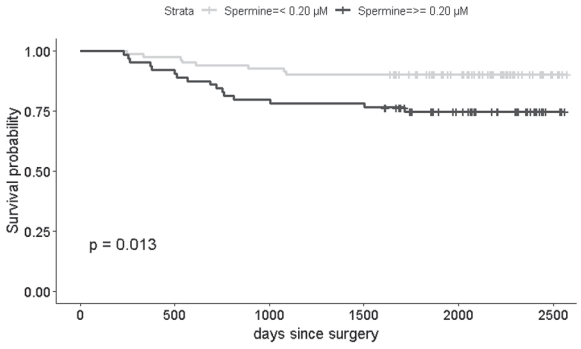
Purpose/Background: Recurrence rates after colorectal cancer surgery range from 15 to 30%, despite performing a radical resection with an optimal lymphadenectomy and chemotherapy when necessary. The most important prognostic factor is lymph node involvement. Other tumor-related prognostic factors, such as lymphovascular and perineural invasion or degree of differentiation, have not improved our capacity to forecast individual oncological outcome. There is a need for studying more factors which could provide information about the mechanisms of recurrence. Metabolic phenotyping is one of the most widely applicable fields for the evolution of the precision medicine. The aim of this study was to investigate metabolomics signatures capable to predict patients at risk for tumor recurrence after colorectal cancer surgery.

Methods/Interventions: Prospective cohort study including colorectal cancer patients operated on for cure from October 2015 to May 2018. Plasma samples were collected before surgery and analysed by mass spectometry-based targeted metabolomics obtaining 149 metabolites and 21 metabolic ratios. Oncological outcomes were collected. Potential associations between preoperative metabolic markers and recurrence were assessed using cox regression.

Results/Outcome(s): 146 patients were included. The mean age was 71.2 ± 12 years, with a 61% of females. After a minimum follow-up of 4.5 years, 24 patients (16%) developed disease recurrence: local in 2 and systemic in 22. After adjusting for potential confounders, 26 metabolic markers were significantly associated with recurrence when analyzing baseline samples and time to recurrence, including sphingomyelins, acylcarnitines, phosphatidylcholines and lysophosphatidylcholines. Spermine was one of the most significant metabolites and it has been shown to be involved in colorectal cancer cell proliferation and differentiation. We established the concentration of this remarked metabolite, which optimally differed among the risk of presenting recurrence (Image).

Conclusions/Discussion: Metabolic profiling could provide biomarkers to identify patients at risk for tumor recurrence after colorectal cancer surgery, which would benefit from stricter follow-up strategies or, in some cases, adjuvant treatment.



TUBERCULOUS APPENDICITIS IN SAFETY NET HOSPITALS.

eP115

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Purpose/Background: Tuberculous appendicitis is a rare diagnosis in the United States, clinical diagnosis is not straight forward, as gastrointestinal tuberculosis can present as an acute or chronic abdomen. There is a paucity of literature available on tuberculous appendicitis and Drug resistant Tuberculosis continues to be a health threat to the US, thus surgeons should be aware of this pathology.

Methods/Interventions: A 38-year-old female born in Mexico, presented to the emergency room with complaints of acute left lower quadrant abdominal pain with nausea, and vomiting. Family history significant for past TB infection in her sibling. Past history was noteworthy for a diagnosis of chronic iron deficiency anemia, normal colonoscopy 4 years ago. Laboratory demonstrated Leukocytosis (18,360/mm3) with neutrophilia. CT scan showed mild

diffuse thickening of the appendix, with minimal fat infiltration, and several lymph nodes were visualized in the ileocolic mesentery. Later her pain moved to RLQ.

Results/Outcome(s): Diagnostic laparoscopy was performed, where a dilated appendix was found. An appendectomy was performed. Procedure was uneventful and she was discharged. She was then seen in the clinic on post-operative day 8 and showed good recovery. Review of the intraoperative specimen pathology analysis reported that the appendix had necrotizing granulomas, with lymphoid hyperplasia and multinucleated giant cells. Acid fast bacilli staining was positive and colonies of the bacteria were present. Infectious disease specialists were consulted, and the patient was started on anti-TB therapy.

Conclusions/Discussion: Gastrointestinal tuberculosis is rare in the United States and even more tuberculous appendicitis. It is of high importance for Surgeons to be aware of this condition, as Tuberculosis tends to occur in underserved communities and ethnic minorities in the US. Diagnosis usually is done after a pathology review. Our case demonstrates the importance of demographic factors. Surgery along with antituberculotic drugs is the treatment of choice for TB of the appendix Implications of Tuberculous appendicitis include the exposure to health-care personnel during patient stay, exposure to patients in shared rooms, the importance of follow-up after surgery, and review of histopathological specimens results by the surgeon. Preoperative diagnosis of TB of the appendix is difficult and infrequent, some advocate pre operative chest X-ray or peritoneal fluid analysis, or CT imaging showing lymph nodes with central necrosis. Most of the cases, the final diagnosis will be done after it is reviewed by a pathologist. According to the statistics 1 in 7 residents in the United States is an foreign, this has immense consequences for the healthcare sector, and requires interventions by the authorities to continue to expand care for TB, and at the same time for medical societies to promote awareness about Tuberculosis.

AN UNUSUAL CASE OF CECAL PERFORATION: ACCIDENTAL INGESTION OF A TOOTH IN AN ELDERLY TRAUMA PATIENT.

eP116

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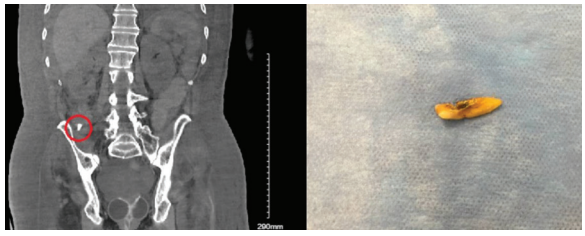
Purpose/Background: Foreign body (FB) ingestion is a common occurrence in the United States, with the majority of FB passing asymptomatically through the GI tract. In the cases where complications occur such as intestinal perforation, it may present as an acute abdomen with diagnostic challenges regarding the etiology.

Methods/Interventions: A 70-year-old male presented as a level 2 trauma after he jumped from the second floor of a burning building. He sustained 10% TBSA second-degree partial thickness burns to his forearms with soot around his nose. He was intubated for airway protection and resuscitated in the Trauma bay, and then admitted to the ICU. His ICU course included management of respiratory failure, sepsis, and acute kidney injury. On hospital day 28, the patient became oliguric and had a distended abdomen with grimacing on palpation. The WBC was elevated. A CT abdomen was obtained which showed moderate pneumoperitoneum with ascites, and diffuse anasarca. The patient was taken to the OR for diagnostic laparoscopy which was converted to exploratory laparotomy. There was gross fecal contamination, with extensive bilious peritoneal fluid. A 1 cm cecal perforation was discovered on the antimesenteric border. Given the hemodynamic status, the ileocecum was resected and left in discontinuity; an Abthera wound vac was placed. He returned to the OR in 2 days, and a loose incisor tooth was found in the right pelvis. A stapled ileocolic anastomosis was done, and the abdomen was closed. On post-op day 26, the WBC was persistently elevated on antibiotics. Imaging revealed findings concerning for an intra-abdominal collection and anastomotic leak. Interventional Radiology was consulted to drain the collection. They aspirated 500 ml of purulent green fluid from the right abdomen. The cultures were positive for Candida Auris.

Results/Outcome(s): Despite attempts at source control, the patient remained septic with a poor prognosis. Goals of care discussion were held with the family and the decision was made to de-escalate or withdraw care.

Conclusions/Discussion: Foreign body (FB) ingestion is a common occurrence in the United States. The majority of FB ingestions are often due to intentional ingestion, in some cases, it can be accidental. FB ingested can be blunt or sharp, blunt objects pass through the GI tract without any incident however sharper objects are more likely to cause complications such as perforations. Perforations can occur at any location in the GI tract, however more often at areas of physiological angulation or narrowing, or previous surgery. Oftentimes, the FB is not detected on plain radiography. In our case, the patient was intubated and sedated then transitioned to tracheostomy and remained non-verbal. Perforation was not initially suspected until the patient's abdomen was noted to become increasingly distended, associated with reduced urine output and leukocytosis. Then a CT confirmed free intraperitoneal air.



ENDOMETRIOSIS MASQUERADING AS A MALIGNANT RECTAL STRICTURE.

ePI17

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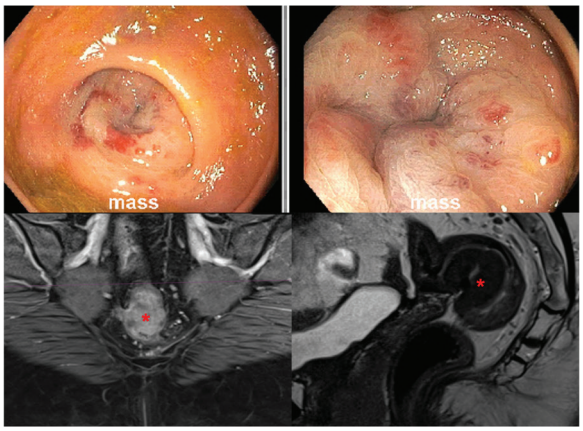
Purpose/Background: Strictures of the colorectum originate from an array of benign or malignant conditions and may restrict stool passage resulting in obstruction or perforation. An uncommon cause of rectal stricture is endometriosis— a condition characterized by the proliferation of viable endometrial tissue outside the uterine cavity. Endometriosis impacts 15% of reproductive-age women and is exacerbated by hormonal imbalance, early menarche, and genetics. We report on a 43-year-old female without prior history of inflammatory bowel disease, radiation, or colorectal cancer who presented with a symptomatic rectal stricture. While there was an initial clinical concern for malignancy, surgical pathology revealed extragenital endometriosis of the rectum.

Methods/Interventions: Our patient is a 43-year-old premenopausal female who presented with intermittent hematochezia, diarrhea, and constipation worsening over 2 years. She underwent a hysterectomy 3 years prior for menorrhagia. Uterine pathology revealed inactive endometrium, a benign polyp, and lower-segment fibrosis. Initial workup for the rectal stricture included colonoscopy which was notable for an obstructing lesion in the mid-rectum. Biopsy was consistent with irregular colonic glands. CT and MRI displayed a partially circumferential upper rectal mass invading the vaginal cuff and multiple enlarged mesorectal nodes, prompting concern for T4bN1 malignancy. Repeat colonoscopy revealed an apple-core lesion 11 cm from the anus, only traversable with a pediatric scope. The stenosis was notably friable with abnormal mucosa, displayed as architectural distortion and lamina propria fibrosis via biopsy. Given the unclear etiology of this stricture, the decision was made to proceed with upfront proctectomy.

Results/Outcome(s): Laparoscopic mobilization of the left colon was performed, followed by open total mesorectal excision. Severe fibrosis was identified near the peritoneal reflection and rectovaginal septum. Frozen sections of the resected mass were negative for malignancy. A low coloproctostomy was fashioned and the operation was concluded without complication. Pathology revealed scattered foci of endometriosis extending from the submucosa to the pericolonic soft tissue involving 1/34 lymph nodes. One year post-op colonoscopy and CT were without evidence of recurrence. The patient has mild Low Anterior Resection Syndrome managed with as-needed Imodium.

Conclusions/Discussion: This presentation highlights the importance of crafting a broad differential diagnosis to include non-neoplastic etiologies when faced with colonic stricture. The colorectum is believed to be involved in 5-12% of all symptomatic cases of endometriosis. Although pathology confirmed the tissue was uterine, the question remains whether our patient had previously undetected endometriosis or developed scar endometriosis as a complication of hysterectomy. Until advancements in imaging are made, maintaining a broad differential is vital for early diagnosis.



EOSINOPHILIC MYENTERIC GANGLIONITIS RESULTING IN SIGMOID VOLVULUS: A CASE REPORT.

ePI18

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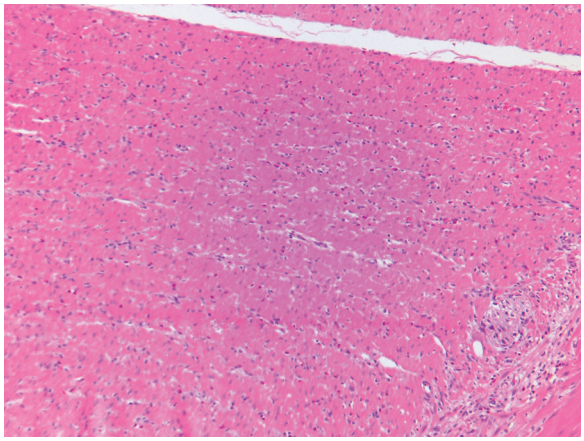
Purpose/Background: Eosinophilic myenteric ganglionitis (EMG) is an inflammatory neuropathy characterized by eosinophilic infiltration and obliteration of the Auerbach myenteric plexus. A rare entity, its diagnosis has almost exclusively occurred in children in the setting of chronic intestinal pseudo-obstruction (CIPO). The exact pathogenesis of EMG is unknown and requires a full thickness biopsy, making it unlikely to diagnose on screening or diagnostic colonoscopy. Treatment in children is debated but suggested to include systemic steroids with or without azathioprine or sulfasalazine. We present a case and suggested management of a 73-year-old man who carried a diagnosis of constipation and ultimately experienced sigmoid volvulus requiring Hartmann's procedure with pathology demonstrating eosinophilic myenteric ganglionitis.

Methods/Interventions: A 72-year-old-man with a history of over ten years of constipation presented to the Emergency Department with acute on chronic abdominal pain, new obstipation, and marked abdominal distention, and was found with radiographic sigmoid volvulus successfully managed with endoscopic detorsion but with evidence of luminal ischemia. Following detorsion, he was taken to the operating room for exploratory laparotomy where the entire colon was found to be grossly dilated and edematous, though most prominent in sigmoid and descending colon. He also had endoscopic evidence of new rectal erythema. Given the above, a Hartmann's procedure

was performed and a rectal tube was placed. His postoperative course was complicated by ileus requiring discharge on total parenteral nutrition on postoperative day fifteen, since weaned off and tolerating an oral diet with robust bowel function.

Results/Outcome(s): Pathology resulted following discharge demonstrating eosinophilic myenteric ganglionitis (Figure 1). In retrospect, he reported roughly ten years of gradually worsening constipation managed with oral and rectal agents; however, had never had a colonoscopy. Two weeks prior to admission, he underwent labral repair and was requiring narcotic pain medications. He did not have a peripheral eosinophilia. The etiology of his sigmoid volvulus is likely from eosinophilic myenteric ganglionitis-induced poor propulsion resulting in worsening sigmoid colon redundancy with an acute insult of prolonged narcotic pain medication use. Given his underlying inflammatory neuropathy, his colostomy was not reversed.

Conclusions/Discussion: EMG is an under-recognized cause of CIPO in adults and can result in sigmoid volvulus requiring surgical management. Given the underlying functional disorder and inability to exclude involvement in the residual colon without full thickness biopsy, we recommend management with a Hartmann's procedure and permanent end colostomy. If ongoing poor bowel function, then subtotal colectomy should be considered given concern for EMG in remnant colon.



A CASE OF SIGMOID MEGACOLON COMPLICATED BY RECURRENT FECALOMA AND BLEEDING.

eP119

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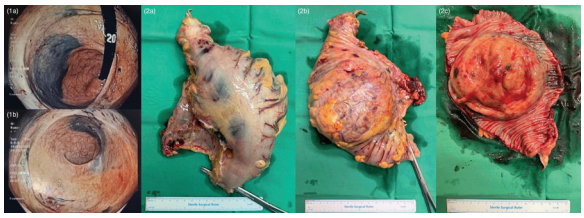
Singapore, Singapore

Purpose/Background: Fecaloma represents an accumulation of impacted feces, typically in the rectum or sigmoid colon, and may be secondary to megacolon. We present an interesting case of acquired megasigmoid with no apparent etiology and our management of the complications that followed.

Methods/Interventions: A 60-year-old male, with a history of chronic constipation and fecal impaction for 9 years, presented to the emergency department with one week of abdominal pain and four episodes of bleeding per rectum (PR) for one day. On examination, his abdomen was soft and there was a firm, mobile 15x8cm mass in the left iliac fossa, representing a recurrent fecaloma. The fecaloma was persistent despite multiple attempts of medical management with laxatives and enemas, necessitating a flexible sigmoidoscopy. Sigmoidoscopy demonstrated a capacious sigmoid colon with a large fecaloma, which was manually broken down with large snares and forceps with much difficulty. After it was cleared endoscopically, a spurting arterial vessel was noted from the ulcers around the fecaloma. Hemostasis was achieved with a clip and adrenaline injection. After a repeat scope showed no active bleeding, the patient declined surgical treatment and was discharged. However, he was readmitted twice within the next month for further PR bleeding and anemia with a hemoglobin drop to 5.3 g/dL. Subsequent sigmoidoscopies showed continued ulcer oozing and another spurting vessel. Control of the persistent bleeding was eventually achieved with clip hemostasis, adrenaline injection and endoscopic hemostat (Fig 1).

Results/Outcome(s): In view of recurrent bleeding, complicated by anemia and frequent readmissions, the patient agreed to definitive surgical management. Because the large fecaloma was broken down endoscopically, a minimally invasive approach was feasible and open surgery was avoided. Hence, a laparoscopic high anterior resection was performed for the diseased segment of colon (Fig 2). Histological findings were non-specific, with features of myopathic change and focally attenuated muscularis propria. There was normal neuronal cell staining in the myenteric plexus and interstitial cells of Cajal were present in the bowel wall. The patient was discharged home with no episodes of further PR bleeding on postoperative day 6.

Conclusions/Discussion: Fecaloma should be considered as a differential in patients with chronic constipation presenting with an abdominal mass. Its complications include stercoral ulceration and persistent bleeding. Surgical resection of the diseased colon is appropriate in certain cases for definitive treatment. While organic diseases, such as Hirschsprung's and Chagas disease, are associated with fecal impaction and can cause megacolon, acquired megacolon is a poorly understood condition with no established diagnostic criteria. Further research and reporting of cases are needed to better study this clinical entity and its treatment options.



(1a) Capacious sigmoid colon (1b) Hemostatic clip applied to spurter within aneurysmal segment of colon (2a) Anterior aspect of resected megasigmoid specimen (2b) Posterior aspect of specimen (2c) Cut specimen with segmental dilation up to 15cm in maximal diameter

CHISELING AWAY THE LARGE BOWEL OBSTRUCTION: A FECALITH CASE REPORT.

eP120

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New York, NY

Purpose/Background: Fecal impaction is hardened fecal matter in the large bowel that cannot be expelled by normal peristaltic activity. If this condition is not promptly identified and treated, it can lead to the development of fecaliths; feces that resemble stones. This condition contributes to the morbidity of the elderly population, with a prevalence as high as 50%. One of the complications that can arise from fecalith is large bowel obstruction. This is a rarely seen outcome in the literature, less than 10 cases documented. Among the methods described includes removal of the fecalith via endoscopy, intracorporeal lithotripsy, manual disimpactation in the OR, and colotomy for removal; Nonetheless, this is the first case to our knowledge of a fecalith removed by a novel technique, that saves the patient from having an invasive surgical intervention.

Methods/Interventions: Case report of a Fecalith causing large bowel obstruction.

Results/Outcome(s): An 88-year-old female with a past medical history of major depressive disorder, UTI, and hysterectomy was brought into the emergency department from her nursing home due to weakness and constipation. During her workup, she was found to have hypokalemia and acute kidney injury. On physical exam noted to have anal sphincter stenosis. CT scan of the abdomen showed a fecalith measuring 6cm in diameter in her distal rectum, which was the cause of her obstruction. The decision was made to take the patient to the OR for examination under anesthesia. Serial dilations to the anal canal were done until a medium size Hill-Ferguson retractor was placed. Using manual transvaginal manipulation, the fecalith was mobilized down to the anal verge and secured in place. It was not possible to pass it through the anal canal. The Tip of a Kelly clamp at the center of the fecalith was hammered gently with the end of a heavy Rongeur. The Kelly clamp was opened and parts of the fecalith started to break away; this was repeated several times until the fecalith size was reduced to smaller pieces enough to remove it through the anal canal. The Rectum was then inspected and no injuries were identified. The patient recovered without further events and was discharged the next day.

Conclusions/Discussion: To our knowledge, this is the first time a fecalith caused large bowel obstruction that was broken down by chiseling it. The key for this technique was that the patient was a female, and the fecalith was on the distal rectum, which allowed it to be secured via transvaginal manipulation. Hence the fecalith was safely broken down and the patient did not require an invasive intervention with its inherent surgical risk, more so on this patient's age cohort.

ACUTE INTERMITTENT PORPHYRIA PRESENTING WITH ISCHEMIC COLITIS IN POSTPARTUM: A CHALLENGING DIAGNOSIS.

eP121

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Purpose/Background: Acute intermittent porphyria (AIP) is a heereditary disease that has several clinical manifestations. Pregnancy is a known trigger for patients with AIP, which causes high rates of obstetric complications. We present a case of a young postpartum woman with severe uncontrollable abdominal pain associated with ischemic colitis, an unclear clinical history, and an uncommon difficult diagnosis.

Methods/Interventions: A 35-year-old female presented with severe abdominal pain, nausea and vomiting in the 9th day postoperative of an uncomplicated C-section. Patient's only past medical history was COVID-19 one month before. Abdominal Computerized Tomography (CT) showed segmental thickening of distal transverse colon and splenic flexure associated with air distension of colon and significant fecal impaction in caecum, ascending colon and distal ileum with mild distension of small bowel. Initial laboratory work showed elevation of C-Reactive Protein and mild hyponatremia. A colonoscopy showed distal transverse and splenic flexure acute colitis and stool in the ascending colon. Patient persisted with severe intermittent abdominal pain. Angio CT of the abdomen was normal. Abdominal distension developed 7 days after and another colonoscopy showed recovery of the inflammation and no residual stool. The abdominal distension resolved but incapacitating abdominal pain kept persistent, making a peridural pump with opioids necessary. Diagnostic laparoscopy was performed, revealing only residual peritoneal liquid. After 10 days with Total Parenteral Nutrition, she persisted with poor oral intake and progressive development of severe muscle weakness, shortness of breath with desaturation episodes and excessive somnolence. On Magnetic Resonance Imaging, there was myocarditis with mild ventricular dysfunction and Electromyography showed severe motor polyneuropathy. After 20 days

of extensive multidisciplinary investigation, patient was tested for Acute intermittent Porphyria, with urinary porphobilinogen of 29.36 mg/L (normal<2) and in volume 167mg/L (normal <2,7), confirming the diagnosis.

Results/Outcome(s): Patient was started on intravenous hemin and progressed with intermittent presence of diverse symptoms, including respiratory failure requiring intubation, severe diarrhea, incapacitating muscle weakness, vocal cord paralysis, atrioventricular block with pacemaker implantation. After 3 months of initial symptoms, the patient was discharged for home care in weekly prophylactic hemin and porphobilinogen follow up.

Conclusions/Discussion: AIP is a rare and difficult diagnosis to make, particularly in the pregnancy and puerperium. This case report reinforces the need of inclusion of AIP in the differential diagnosis of neurological, psychiatric, and gastroenterological alterations (such as Ogilvie syndrome), especially in pregnancy and postpartum, as early detection of the disease may prevent potentially severe consequences.

OPEN CECOSTOMY: A LESS INVASIVE SURGICAL OPTION FOR OGILVIE'S SYNDROME.

eP122

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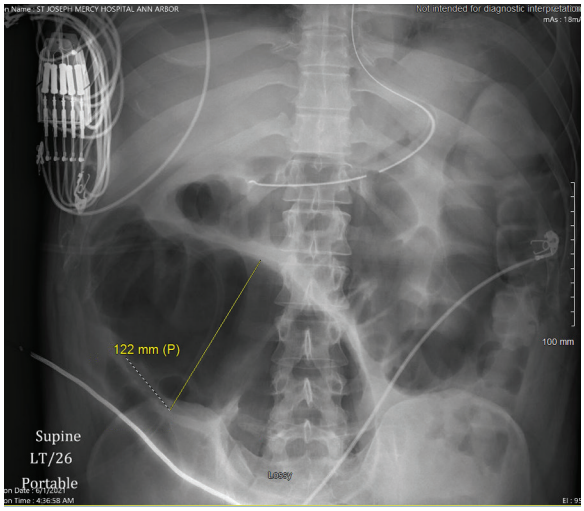
Ann Arbor, MI

Purpose/Background: A 33-year-old man with history of chronic alcohol use, anxiety disorder, and hypertension presented to the emergency department after a syncopal event. He was admitted to the medical intensive care unit for alcohol withdrawal, requiring intubation and sedation. On hospital day 7, abdominal X-ray demonstrated a dilated cecum to 12 cm, transverse colon dilation to 7 cm, and decompressed distal colon (Figure 1). CT scan confirmed dilation of the cecum, ascending, and transverse colon.

Methods/Interventions: The patient was taken to the operating room for cecal decompression with an angiocatheter and then open cecostomy through a small right lower quadrant incision. Nasogastric tube was removed on post-operative day 2 and his diet was advanced. Abdominal X-ray on post-operative day 5 demonstrated no colonic dilation. He was discharged home on post-operative day 7.

Results/Outcome(s): The patient re-presented to the hospital 3 months later with stoma prolapse. Gastrografin enema demonstrated no stricture in the distal transverse colon, previously thought to be present on CT scan. He underwent cecostomy takedown and ileocecectomy via circumstomal incision. He recovered and was discharged home on post-operative day 2.

Conclusions/Discussion: Acute colonic pseudo-obstruction (ACPO) or Ogilvie's syndrome is a nonmechanical, functional large bowel obstruction and is a diagnosis of exclusion. It is thought to be due to sympathetic and parasympathetic imbalance in the colonic autonomic enteric nervous system, although the exact etiology remains unknown. It is rare, with an incidence in the USA of 100 cases per 100,000 hospitalizations. It is associated with a mortality rate of 6-15%, increasing to 36-44% with intestinal ischemia/perforation. The initial treatment of ACPO is medical via correction of electrolyte abnormalities, fluid resuscitation, minimizing opioids and anticholinergic medications, and treatment of other infections such as C. difficile. If symptoms persist beyond 48 to 72 hours, then pharmacologic therapy with neostigmine or endoscopic decompression and rectal tube placement should be considered. Percutaneous endoscopic cecostomy is an option for poor surgical candidates. Surgical intervention for ACPO is reserved for patients who fail medical and endoscopic management or initially present with signs of ischemia or perforation. For patients who fail medical management but are hemodynamically stable and have clinical and colonoscopic confirmation of colon viability, open cecostomy may provide rapid decompression, as was the case for this patient. Ileostomy or colostomy are other options described for clinically stable individuals. Patients presenting with signs of sepsis, colonic ischemia, or colonic perforation should undergo emergent exploratory laparotomy. Depending on intra-operative findings, a subtotal or total abdominal colectomy may be indicated.



Abdominal X-ray demonstrating 12 cm cecal dilation

THE GREAT MIMICKER: COLONIC ENDOMETRIOSIS MIMICKING AS COLON CANCER, A CASE REPORT.

eP123

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[1]*Taguig, Philippines;* [2]*Taguig City, Philippines*

Purpose/Background: Colonic endometriosis is a benign disease that may mimic colon cancer. There are case reports in the literature with patients presenting symptoms and radiologic findings similar to colon cancer, making colonic endometriosis diagnosis a challenge. This report presents a case of a young woman with sigmoid colonic endometriosis mimicking colon cancer based on colonoscopy findings with biopsy revealing colon adenocarcinoma.

Methods/Interventions: The patient is a 42-year-old female with 3 months history of bloatedness, decrease in stool caliber, and blood-streaked stools. She is nulligravid with regular menstrual cycle and occasional dysmenorrhea. She has a history of colon cancer in the family. Fiber sigmoidoscopy revealed a semi-circumferential non-obstructing sigmoid mass with stricture in the sigmoid colon, and biopsy was taken. Histopath showed a sigmoid adenocarcinoma with signet ring cell features. Abdominal CT scan showed two lesions, a distal sigmoid mass and a T3b high rectal mass both adherent to the posterior cervix, with no liver metastasis. Transvaginal ultrasound revealed posterior adenomyosis with multiple intrauterine myomas, bilateral corpus luteum cyst, right endometrial cyst and, an irregular anterior rectal mass adherent to the upper cervix. PET scan showed a circumferential hypermetabolic sigmoid wall thickening relating to sigmoid adenocarcinoma and mild metabolic activity in the rectum. A heterogeneously enhancing pelvic mass was seen apposed to the posterior cervix. No distant metastases. CEA was at 0.08 (Normal <2.5) and CA 125 was elevated at 149 (NV <35). A preoperative diagnosis of sigmoid colon adenocarcinoma probably adherent to the upper cervix was considered. She was admitted by colorectal surgery and gynecology services and taken to surgery. Dense nodular adhesions were seen between the sigmoid, upper rectum, posterior uterine wall, and bilateral ovaries. The sigmoid colon has an irregular wall thickening with mass. The left ovary was cystically dilated and the right ovary extruded chocolate-like grayish substance. The surgical conduct was Laparoscopic Anterior Resection, Wide Mesorectal Excision with End-to-End Colorectal Anastomosis, Total Laparoscopic Hysterectom, Bilateral Salpingooophorectomy, Cryopreservation of Left Ovary, with Frozen Section of Right Ovarian Cyst.

Results/Outcome(s): The frozen section findings revealed a right ovarian cyst suspicious for adenocarcinoma. However, final histopathology results revealed sigmoid colonic endometriosis up to the upper rectum, bilateral ovarian endometriosis, and the right ovarian cyst turned out to be endometriosis. The patient was discharged 7 days after surgery.

Conclusions/Discussion: Colonic endometriosis presents with a diagnostic dilemma and should be considered as a differential diagnosis in reproductive-age women despite preoperative and intraoperative findings suggestive of colon cancer, as seen in this case report.

PRESENTATION OF COLONIC INTERNAL HERNIA AFTER LAPAROSCOPIC SIGMOID RESECTION.

eP124

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Stamford, CT

Purpose/Background: Colonic internal hernia after sigmoid resection is a rare complication and is only described in literature briefly. It is difficult to differential between volvulus and internal hernia with the diagnosis needing to be made promptly to prevent colonic ischemia and perforation. The mechanism of this complication is due to leaving the mesenteric defect open during colonic resection.

Methods/Interventions: We present a 60 year old male with 3 days of diffuse abdominal pain. The patient had a past medical history of malrotation, obstructive sleep apnea, hyperlipidemia and prior sigmoid diveriticulitis. Past surgical history include a laparoscopic sigmoidectomy with primary anastomosis 4 years prior and exploratory laparotomy as a child for an unknown reason. He reported obstipation for the past 2 days. He had associated nausea, but no vomiting. On physical exam patient had mild LUQ tenderness, no rebound, no guarding, but moderate distension. WBC is 6.9 and Hgb is 15.3. CT Abd/Pelvis demonstrated suspected internal hernia vs localized volvulus in the left upper quadrant involving the splenic flexure with adjacent fat infiltration.

Results/Outcome(s): The patient was taken for colonoscopic decompression of suspected splenic flexure volvulus. On colonoscopy the cecum was reached easily without any colonic ischemia, but did demonstrate twisting with proximal distension at the sigmoid anastomosis. Patient was admitted and observed without resolution of his nausea and abdominal pain. Repeat CT Abd/Pelvis with rectal contrast demonstrated persistent sigmoid obstruction due to volvulus vs internal hernia with passage of contrast into proximal colon. HD 2 patient was taken for exploratory laparotomy with lysis of adhesions, reduction of internal hernia and closure of mesenteric defect. The cecum was decompressed and redundant descending colon was reduced from the mesenteric internal hernia and colonopexy was performed, all bowel was viable. Hospital course was uncomplicated. Patient was brought back to OR several month later for open left colectomy due to chronic constipation and intermittent left upper quadrant pain without complication.

Conclusions/Discussion: Successful treatment was achieved by reduction of the colonic internal hernia and closure of the mesenteric defect, however the patient eventually required left colectomy due to persistent symptoms of constipation and pain.

UNCOMMON GROUNDS: MANAGEMENT OF A TRAUMATIC 4TH DEGREE PERINEAL LACERATION IN A PEDIATRIC PATIENT: REVIEW OF THE LITERATURE AND DISCUSSION OF MANAGEMENT.

eP125

V. Melkonian
Saint Louis, MO

Purpose/Background: As we continue to progress through endeavors of surgical research, our field of practice continues to develop guidelines and best-practices for virtually all presenting pathology. Despite this ever enlarging guide to modern surgical intervention, encountering a rare injury pattern to an uncommon anatomic region can still prove to be quite challenging. An example of this would be facing a complex perineal injury with vaginal and rectal involvement in a pediatric patient. While traumatic perineal injuries in pediatric patients are rare, with a reported incidence of 4 – 6%, there are no apparent case studies discussing a 4th degree perineal tear in a pediatric patient, or how to approach such a scenario (1). As such there is a paucity of recommendations regarding repair, and much of this has to be extrapolated from management of these injuries in the post-partem obstetric setting. In our case study below we discuss a traumatic complex 4th degree perineal tear in a 9 year old pediatric patient, and discuss management recommendations based on review of our current literature regarding similar injuries in the adult patient.

Methods/Interventions: N/A

Results/Outcome(s): Case Presentation: A 9 year old female presented to an outside emergency department following a penetrating straddle injury where she fell out of a tree and impaled in her perineum with a garden hook. This was removed prior to presentation to the outside hospital. She was transferred to our tertiary pediatric hospital for higher level of care. In the operating room the exam under anesthesia revealed significant bruising and edema to the right labia majora with a full thickness posterior vaginal laceration and obliteration of the perineal body consistent with grade IV perineal injury. There was avulsion of the right side of the anal canal with division of the anal sphincter. This was irrigated, packed and planned for delayed definitive repair. The patient was taken back to the operating room three days later for reconstruction. The perineal body and posterior vaginal wall were repaired first, followed by re-approximation of the perineal body with the bulbocavernosus muscle. Utilizing a Pena stimulator the components of the sphincteric complex were identified and were reapproximated, followed by repair of the anal mucosa and skin. Colostomy was taken down 2 months following her original injury with no complications and no incontinence.

Conclusions/Discussion: Perineal injury is rare in pediatric patients which can make it a difficult injury to manage. Penetrating injuries may be complex and thorough evaluation with exam under anesthesia is essential. It is important to limit complications while attempting to restore function of the perineal body as well as physical appearance. Much of the recommendations for intervention are extrapolated from what is known in obstetrics.

MECKEL'S DIVERTICULUM MASQUERADING AS CROHN'S DISEASE: A SINGLE INSTITUTION CASE SERIES.

eP126

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Purpose/Background: Meckel's diverticulum (MD) is the most common gastrointestinal congenital anomaly and may present with lower gastrointestinal bleeding, abdominal pain, and nausea. Imaging and endoscopic findings can be similar to those of Crohn's disease including transmural inflammation, stricturing, and superficial ulceration most frequently in the distal ileum. We present a case series documenting three patients who were initially diagnosed with Crohn's disease and ultimately found to have MD on final pathology.

Methods/Interventions: Three patients who underwent surgery for presumed Crohn's disease and ultimately found to have MD on final pathology were identified at a single tertiary care institution.

Results/Outcome(s): Three male patients ages 32, 56, and 63 at the time of diagnosis presented with obstructive symptoms including abdominal pain, nausea, and vomiting. They were found to have stenosis and inflammation of the distal ileum on computed tomography imaging and diagnostic colonoscopy. Though biopsies did not demonstrate evidence of chronic inflammation, all patients received diagnoses of suspected Crohn's disease. Two patients were initiated on medical therapy including mesalamine and adalimumab, and all three received steroid courses. All three were referred for surgical evaluation for medically refractory disease. Two patients underwent ileocolectomy and one underwent a small bowel resection of the distal ileum. Final pathology for all patients demonstrated the presence of a Meckel's diverticulum and the absence of microscopic evidence for inflammatory bowel disease. All three patients recovered postoperatively uneventfully and have since been taken off Crohn's medical therapy.

Conclusions/Discussion: Meckel's diverticulum can present with clinical, radiographic, and endoscopic findings that overlap with those of inflammatory bowel disease, including lower gastrointestinal bleeding, abdominal pain, and a propensity for distal ileal involvement. The standard management approach for symptomatic MD is surgical resection. Misdiagnosis leads to delaying surgical therapy in addition to exposure to therapies that are not indicated including high dose steroids and biologic therapy. This single institution case series, the highest in literature review, highlights the importance of maintaining a high index of suspicion for MD particularly without microscopic evidence of IBD.

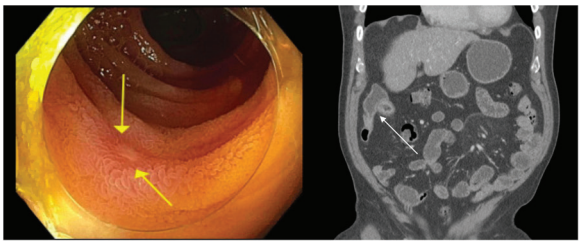

Figure 1. Representative endoscopic and computerized tomography (CT) images demonstrating shallow ulceration in the distal ileum and corresponding mural thickening and bowel wall enhancement in a 56 year old male with obstructive symptoms.

MYCOTIC ANEURYSM SECONDARY TO AN ANASTOMOTIC LEAK FROM A LAPAROSCOPIC LOW ANTERIOR RESECTION FOR THE RECTAL ADENOCARCINOMA.

ePI27

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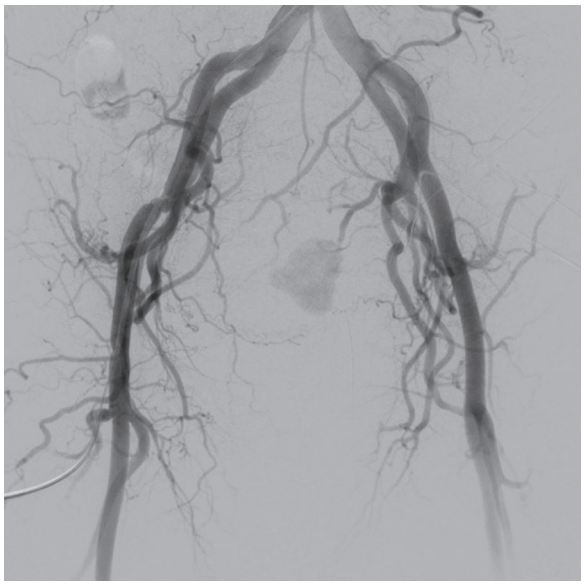
Purpose/Background: Mycotic aneurysms are outward bulging of the arterial wall arising from an infection, which is usually bacterial. Some risk factors identified are infective endocarditis, immunosuppression, a pre-existing atherosclerotic plaque or a native aneurysm, iatrogenic arterial trauma, and direct arterial involvement from adjacent infection. At present, mycotic aneurysms are rare because of the vast improvement in antibacterial therapy. Arterial infection may be caused by haematogenous seeding from distant sources such as endocardial vegetations, infected thrombi or intravascular devices; either directly into the arterial intima or the deeper layers by the vasa vasorum, contiguous extension or direct inoculation via iatrogenic injury angiography or through intravenous drug use. This is the first case of a mycotic aneurysm known to arise from an anastomotic leak. These are several cases - mostly secondary to endocardial vegetations, infected thrombi or devices.

Methods/Interventions: This is a case of a female Southeast Asian in her late 60's who was diagnosed with Rectal Adenocarcinoma, Stage II (T2N0M0) and cholecystolithiasis. She underwent laparoscopic lower anterior rectal resection and cholecystectomy and was discharged in improved condition three days post operatively. On her 15th post operative day recurrence of hematochezia was noted, A CT angiogram of the abdominopelvic region showed a region of contrast pooling noted at the pelvic region, just anterior to the sacrum and proximal coccyx, located at the distal end of a branch of the left internal iliac artery. Subsequently, embolization of the left internal iliac artery branch was done.

Results/Outcome(s): In this case, since the patient had recurrent bouts of hematochezia, delaying the procedure longer was not possible. Angiographic embolization was done as adjunct to the surgical and endoscopic control of bleeding as the suspected source was identified by CT angiography. As in most cases, angioembolization can be done after locating the bleeding site by angiography, with immediate control of bleeding in 76 to 100% of patients Close follow up was done to monitor for any signs of infection.

Conclusions/Discussion: The patient was started on an intensive broad spectrum antibiotic therapy, which was shifted to targeted antibiotic therapy with guidance from Infectious Disease Service. The patient had recurrent bouts of hematochezia, delaying the procedure longer was not possible. Angiographic embolization was done as adjunct to the surgical and endoscopic control of bleeding as the suspected source was identified by CT angiography. Patient underwent an invasive arteriography and embolization of the branch of the left internal iliac artery. As in most cases, angioembolization can be done after locating the bleeding site by angiography, with immediate control of bleeding in 76 to 100% of patients.



OPEN LAPAROTOMY CONVERTED TO ROBOTIC LOW ANTERIOR RESECTION FOR RECTAL CANCER IN THE DIFFICULT PELVIS.

eP128

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Purpose/Background: The robotic assisted approach is becoming one of the preferred ones for Low Anterior Resection (R-LAR) due to its improved visibility, lower post-op complication rates and shorter length of hospital stay compared to an open procedure. There are factors that make a pelvis difficult; male pelvis, narrow pelvis, obesity, fatty mesorectum, previous pelvic surgery, and radiation. There is a paucity of data on converting an open approach to a robotic one. We describe a case when the patient's prior surgical history, extensive adhesions and difficult pelvis, led to performed open adhesiolysis and convert to the initially planned R-LAR. This was deemed appropriate due to better visualization and exposure of critical structures that would have been even more challenging to identify via an open approach.

Methods/Interventions: This is a 75-year-old female with a history of obesity, COPD, rectal carcinoma, and open surgical history of hysterectomy, hiatal hernia repair, duodenal ulcer repair, appendectomy and cholecystectomy In the OR, the patient was placed in lithotomy and lighted ureteral stents were placed. The abdomen was insufflated with a Veress needle, and entered under direct visualization, because here were extensive adhesions and poor visualization, a midline incision was performed, and adhesiolysis were performed for 4 hours to expose the deep and narrowed pelvis. The laparotomy incision was partially closed in the upper aspect, a gel port was placed in the lower opening to continue the LAR robotically.

Results/Outcome(s): After the partial closure of the upper aspect of the laparotomy, the entirety of the LAR was performed robotically, the midline gel port was used as an assistant port and for surgical extraction. The surgical margins were appropriate, negative for malignancy and the mesorectal envelope was intact. A diverting loop ileostomy was performed due to the prolonged surgical time and complexity of the case.

Conclusions/Discussion: There is paucity of data regarding converting an open procedure to laparoscopic or robotic, in many cases continuing a case open is logical and easier. The pelvis is an area that an open approach can become very challenging specially in a difficult pelvis. The patient had a difficult pelvis, multiple open abdominopelvic surgeries, and rectal cancer below the peritoneal reflection. The upper portion of the laparotomy incision was closed, a gel port was placed in the lower aspect of the incision; This would allow capnoperitoneum, have an assist port and use the incision as the extraction site. The LAR was performed robotically. There is abundancy of literature describing converting a laparoscopic procedure to open, however with the advantage of robotic surgery and its benefits, like better visualization, easier reach for deeper structures, converting an open procedure to robotic make sense and the surgery can be performed easier and safely.

COLONIC PERFORATION DUE TO LARGE CELL LYMPHOMA: A CASE REPORT.

eP129

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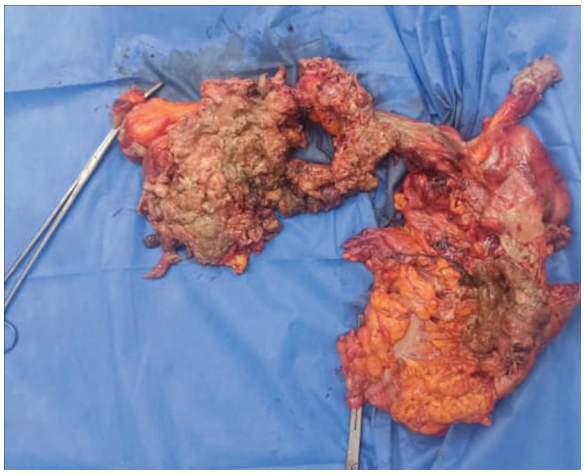
Purpose/Background: Colonic lymphomas represent a small percentage of diffuse large B cell lymphoma (DLBCL), a non-Hodgkin lymphoma (NHL). We provide a review of the clinical manifestations and epidemiology of colonic lymphomas.

Methods/Interventions: A 49-year-old male with a 2-month history of abdominal pain, constipation and abdominal mass sensation. A 10x5x4 cm tumor was palpated during physical examination of a distended abdomen in the right iliac fossa as well as absent bowel sounds and rebound tenderness. Laboratory workout revealed WBC 14.5, Hgb 13.2, Hct 40, Plts 251, Cr 3.19, Lac 4.36. A chest x ray is performed where subdiaphragmatic free gas is revealed. Surgery is indicated due to hemodynamically unstable patient requiring aminergic support. An emergency exploratory laparotomy was performed with the following findings: 2000 ml of fecal matter and purulent liquid, 2x2 cm perforation in the ascending colon, and a 15x15 cm tumor dependent on the ascending colon and terminal ileum. A resection of the ascending colon and terminal ileum was performed and in addition, an ileostomy was performed. The patient was placed in the intensive care unit where

he died 8 hours later. Pathology of the sample reported non-Hodgkin's lymphoma and chronic ischemic ileitis. Immunohistochemistry was performed which determines diffuse large B-cell lymphoma (CD20 positive, BCL6 positive >30%, Ki67 positive 30%).

Results/Outcome(s): DLBCL accounts for 40% of non-Hodgkin's lymphomas. The incidence of primary colorectal lymphomas is rare and corresponds to 10-20% of gastrointestinal lymphomas and only 0.2-0.6% of colon neoplasms (1). Of these, the most frequent subtype is diffuse large B-cell lymphoma (2). When the colon is affected, the most frequent location is the cecum (74% - 86%), followed by the sigmoid (2.5% - 14.2%) (3). The most commonly performed surgery is right hemicolectomy since most of the lesions are located in the cecum. The Ki 67 protein is synthesized at the beginning of cell proliferation and is currently used to evaluate the proliferative activity of lymphoma; its expression is associated with a poor prognosis (4). The most common symptoms and signs are abdominal pain and diarrhea. The perforation rate in B-cell lymphomas reaches 30% due to mucosal involvement and invasion of vascular walls causing ischemia and necrosis (5). Computed tomography is used in the diagnosis and staging of lymphomas. Colonoscopy plays an increasingly important role as a diagnostic tool, allowing biopsies to be taken for histological studies (6). Treatment involves a multidisciplinary approach, using a combination of surgery, chemotherapy and radiotherapy.

Conclusions/Discussion: Colon lymphoma is a rare variety of NHL, and it is still difficult to make a timely diagnosis, since the clinical manifestations are nonspecific. Some patients may require emergency surgical treatment in up to 50% of cases, therefore, it should be considered when evaluating these symptoms.



Surgical piece, sigmoid colon and tumor.

THE IMPACT OF SARCOPENIA ON POSTOPERATIVE AND ONCOLOGIC OUTCOMES IN PATIENTS UNDERGOING CYTOREDUCTIVE SURGERY AND HYPERTHERMIC INTRAPERITONEAL CHEMOTHERAPY FOR COLORECTAL PERITONEAL METASTASES.

eP130

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Purpose/Background: Cytoreductive surgery with hyperthermic intraperitoneal chemotherapy (CRS-HIPEC) is a treatment option for colorectal peritoneal metastases (CPM) but is associated with significant postoperative morbidity. The aim was to determine the prognostic value of computed tomographic (CT)-measured sarcopenia on postoperative outcomes and survival in patients undergoing CRS-HIPEC for CPM.

Methods/Interventions: This is a retrospective cohort study conducted at a tertiary oncologic center between 2012 and 2020.

Results/Outcome(s): One-hundred and twenty-six patients (mean age 59.6 ± 9.6, 53.2% male) were included, of which 37 (29.4%) were sarcopenic. The proportion of major postoperative complications (Clavien-Dindo ≥ III) was not higher in the sarcopenic group (13.5% in sarcopenic patients vs. 20.2% in nonsarcopenic patients, P = 0.45). The mean Comprehensive Complication Index scores, HIPEC-related toxicities, length of hospital stay, and duration of parenteral nutrition were comparable regardless of sarcopenia status. In the multivariate logistic regression analysis of severe complications, only peritoneal carcinomatosis index reached statistical significance (OR, 1.12; 95% CI, 1.04 to 1.22, P = 0.003). Sarcopenia did not impact overall survival on Cox regression analysis.

Conclusions/Discussion: CT-measured sarcopenia in our cohort was not associated with worse rates of postoperative severe comorbidities or worse survival. Alternative methods for measuring sarcopenia could be explored in prospective studies to improve preoperative screening of patients at risk for severe complications prior to undergoing CRS-HIPEC for CPM.

PREDICTORS OF TIMELY INITIATION AND COMPLETION OF ADJUVANT CHEMOTHERAPY IN PATIENT'S WITH COLORECTAL CANCER.

eP131

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Purpose/Background: Advancements in the treatment of colorectal cancer (CRC) have led to substantial improvement in overall survival. Chemotherapy and radiotherapy continue to be an important and effective modality in the treatment of advanced stages of CRC. Several clinical trials advocate the initiation of adjuvant chemotherapy (AC) within 6-8 weeks of surgical resection. In addition, there is mounting evidence of improved survival with early initiation of AC. Our aim was to evaluate factors that predict early initiation and completion of AC consequently improving patients' survival.

Methods/Interventions: A total of 451 patients underwent colon resection for CRC at Medstar Franklin Square Medical center between 2014 and 2022 were identified retrospectively. Of those, 110 patients had stage II/III colon cancer who underwent resection followed by AC were included. Exclusion criteria included patients <18 years or > 85 years, patients with T4 disease who underwent multivisceral resection, patients with history of IBD, and patients with stage 4 disease. Multivariable logistic regression analysis was performed to identify factors that predicted delay in AC of more than 8 weeks. Secondary outcomes included rate of chemotherapy completion, factors that influence patients completing chemotherapy, disease free survival, and overall survival.

Results/Outcome(s): In this study, 110 patients were eligible for the final analysis. The median time to initiation of adjuvant chemotherapy (TTAC) was 6.9 weeks (IQR=5.8-9.5). In total, 36.4% of patients had a delay > 8 weeks to initiation of AC and only 40% of patients completed treatment. The surgical approach (open vs. MIS) had no effect on the TTAC or the rate of completion. Patients with BMI 25 (OR=1.84 95% CI: 0.81 - 4.16), and patients who had a diverting loop ileostomy (OR=2.02 95% CI: 0.86 - 4.73) had a statistically significant delay in TTAC of > 8 weeks. On multivariable logistic regression analysis, preoperative albumin 3.5 (OR=0.31 95% CI: 0.12 - 0.80) was the most significant factor that predicted timely initiation of AC. With regards to the rate of chemotherapy completion, a poorly differentiated tumor (OR=0.25 95% CI: 0.05 – 1.17) and a delay in TTAC > 8 weeks (OR=0.4 95% CI: 0.17 - 0.94) were significantly associated with a lower rate of AC completion. Furthermore, completion of AC was associated with a higher overall survival. Inability to tolerate chemotherapy due to its side effects was an independent predictor for patients to not complete AC. The most common cause of a delayed TTAC was surgical complication.

Conclusions/Discussion: Preoperative albumin is a significant predictor for timely initiation of AC in patients with CRC, further emphasizing the importance of patient's nutritional status preoperatively. In addition, a delay in TTAC > 8 weeks was associated with a significantly lower rate of AC completion. Patients who did not complete AC had a worse overall survival.

ANALYSIS OF SURGEONS' SUCCESS RATES AND OUTCOMES OF HIGH LIGATION OF THE INFERIOR MESENTERIC ARTERY IN LEFT-SIDED COLON AND RECTAL CANCER SURGERY.

eP132

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Purpose/Background: High ligation of the inferior mesenteric artery (IMA), defined as ligation at the take-off from the aorta, is often described as the gold standard in low left-sided colon and rectal cancer surgery. Little data is available that characterizes surgeon accuracy of performing left-sided pedicle ligation at the desired level. The aim of this study is to quantify the rate of ligation at the described level (successful ligation) at a single high-volume academic center. We also analyze the outcomes of successful versus unsuccessful high ligation in regards to lymph node yield and positivity, need for adjuvant therapy, and time from surgery to adjuvant therapy.

Methods/Interventions: This retrospective cohort study included patients ages 18 and over with low left-sided colon, rectal, and anal cancers undergoing surgical resection between Nov 2017 and Dec 2020 at a large university hospital. Patients who did not have clinical indications for high ligation and those with inadequate post-operative CT imaging were excluded. First post-operative CT was read by university-employed radiologists. Radiographic evidence of high ligation was defined as ligation of the IMA before the take-off of the left colic artery. Recurrence was defined as new metastasis or new disease after initial remission. Patient demographics, surgical management, operative reports, lymph node collection, radiologic studies, adjuvant therapy, and recurrence rates were analyzed. Patients with and without radiographic evidence of high ligation on CT were compared using Pearson's Chi-Squared test and Welch's t-test.

Results/Outcome(s): 168 patients (54% male) were included in the study. Mean age was 56 years (SD 11). 61.5% of operative reports described high ligation of the IMA. There was radiographic evidence of high ligation in 55.6% of total patients and in 70.2% of patients where high ligation was intended. There was no significant difference in surgeon experience (p=0.958), surgical procedure (p=0.169), TATME receipt (p=0.093), or surgical

approach (p=0.070) between patients with and without radiographic evidence of successful ligation. There was no difference in lymph node yield (p=0.252), time to adjuvant chemotherapy (p=0.410), or recurrence rates (p=0.852) between the groups.

Conclusions/Discussion: This study demonstrates good technical success rate of high ligation of the IMA but shows no difference in short term patient measured outcomes between high and low ligation (or successful and unsuccessful high ligation). High ligation may be an unnecessary step, as low ligation shows non-inferiority. Further studies are required to evaluate long term differences between the two groups particularly in regards to cancer recurrence and genitourinary function.

TOEING THE DRIVELINE: FEASIBILITY OF LAPAROSCOPIC RIGHT COLECTOMY FOR COLON CANCER IN THE SETTING OF A LEFT VENTRICULAR ASSIST DEVICE.

eP133

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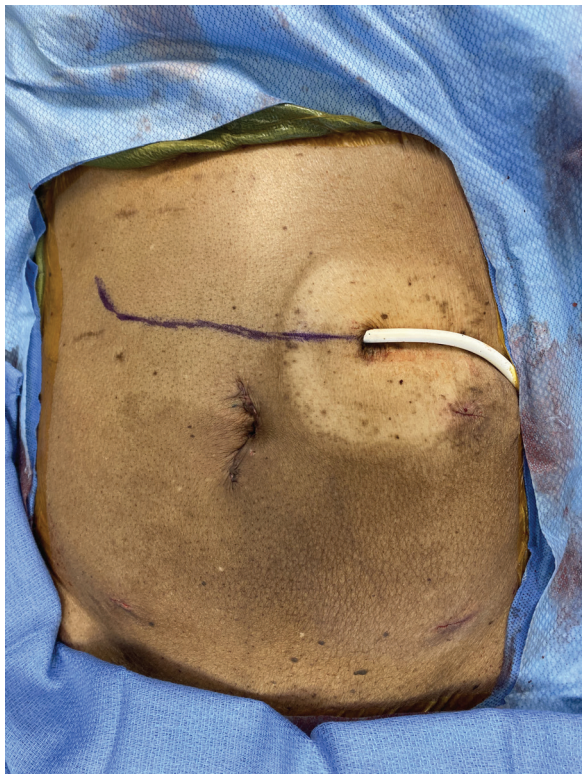
Washington, DC

Purpose/Background: TC is an 80-year-old gentleman with a history of non-ischemic cardiomyopathy who had undergone placement of left ventricular assist device (LVAD) in 2015 who was admitted to the hospital for hematochezia and found to have adenocarcinoma of the ascending colon. The colon and rectal surgery team was consulted for management and ultimately performed a laparoscopic right hemicolectomy. Laparoscopic colorectal surgery in the LVAD patient has scarcely been described.

Methods/Interventions: Staging work-up revealed no evidence of metastatic disease or nodal involvement. Operation was planned in conjunction with cardiothoracic anesthesiology and LVAD nursing coordinator teams. Pre-operative imaging showed the driveline coursing within the subcutaneous tissue transversely across the abdomen superior to the level of the umbilicus from left to right before coursing up towards the right upper quadrant. After intubation, the driveline was palpated and traced. The abdomen was entered through an infraumbilical incision and driveline visualized along anterior abdominal wall with the laparoscope. 5mm ports were placed in the left upper quadrant, right lower quadrant, and left lower quadrant, taking care to palpate and keep the driveline safely out of the way. The right colon and terminal ileum were mobilized in medial to lateral fashion. The infraumbilical incision was extended, taking care to stay caudal to the driveline. The right colon was exteriorized and removed with stapler. A stapled ileocolonic anastomosis was fashioned and returned to the abdomen. The patient was extubated. The LVAD device functioned appropriately the entire case.

Results/Outcome(s): The patient was managed via Enhanced Recovery After Surgery (ERAS) guidelines. His heparin infusion was slowly restarted on the first post-operative day and by the second post-operative day he was at a therapeutic level of anticoagulation. This was transitioned back to his home warfarin doing prior to his discharge on post-operative day 8. Final staging per American Joint Commission on Cancer (AJCC) guidelines was T1N0M0.

Conclusions/Discussion: In this report, we present a case of an 80-year old gentleman who successfully underwent a laparoscopic right hemicolectomy for colon cancer in the setting of an LVAD device. There is a scarcity of data on oncologic colorectal surgery via laparoscopy in the setting of an LVAD. This subset is particularly vulnerable, as the rate of surgical site infections is known to be markedly higher in those undergoing colorectal surgery, and many of these patients may require adjuvant chemotherapy. The successful outcome we report was made possible by the multidisciplinary effort of the colon and rectal surgery team, the cardiac anesthesiologists, and the LVAD coordinator nursing staff.



Laparoscopic port placement with mapped driveline.

ADEQUACY OF LYMPH NODE HARVEST IN PATIENTS WITH PT4 COLON CANCER UNDERGOING MINIMALLY INVASIVE SURGERY: A NATIONAL CANCER DATABASE ANALYSIS.

eP135

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Purpose/Background: The advances in minimally invasive surgical techniques have improved the short-term outcomes of colon cancer. The oncologic outcomes among patients who undergo surgical resection with a minimal invasive surgery (MIS) approach are equivalent to those who undergo an open resection. It is believed that there is a significant difference in T4 tumors undergoing MIS compared to open resection. A recent review of the National Cancer Database (NCDB) for the 2010-2014 period concluded that the MIS cohort had an adequate lymph node harvest, surgical margins, and short-term outcomes. As a result, a trend favoring the MIS approach for colon cancer has occurred in patients with T4 colon tumors in recent years

Methods/Interventions: The NCDB for the 2010-2018 period was analyzed. A comparison of an adequate lymph node harvest in patients with pT4 colon cancers treated with upfront surgery using either MIS or open surgery was conducted. An adequate lymph node harvest was defined as 12 or more lymph nodes examined. A logistic regression model including multiple tumor characteristics (location, type of resection, pT4 classification, number of lymph nodes harvested) and demographic variables (sex, age, income, race, and location) was performed

Results/Outcome(s): 25196 cases were analyzed. A total of 9410 (37.3%) underwent MIS and 15786 (62.7%) had open surgery. 1795 cases (7.1%) had inadequate lymph node harvest. On logistic regression, the patients who underwent MIS were more likely to have inadequate lymph node harvest (OR 1.77, $p<0.001$) compared to those who underwent open surgery

Conclusions/Discussion: The use of MIS has been increasing in recent years due to its proven benefits and safety profile. There is conflicting data regarding the adequacy of MIS in locally advanced colon cancer. Our review of the NCDB suggests that patients who underwent MIS for pT4 tumors are less likely to achieve an adequate lymph node harvest. More liberal use of open surgery should be considered for pT4 tumors. Prospective studies are required to better evaluate the adequacy of MIS in achieving oncologic standards in locally advanced colon cancer. Of note, we hypothesized that the increasing use of robotic-assisted MIS in colon cancer could have a role in improving oncologic standards, and further prospective studies are advised

SHORT-TERM OUTCOMES OF REDUCED-PORT ROBOTIC COLORECTAL CANCER SURGERY USING THE DA VINCI SP SURGICAL SYSTEM: A COMPARISON WITH THE MULTIPORT ROBOTIC SYSTEM.

eP136

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Purpose/Background: Technological advances in robotic systems enabled surgeons to operate with reduced number of ports. With the da Vinci SP system, surgeons can operate with three fully wristed elbowed instruments through a single-site platform, enabling reduced-port surgery to be performed even in complex cases. The aim of this study was to compare the perioperative outcomes between robotic reduced-port system and multiport system in colorectal cancer.

Methods/Interventions: Patients who underwent robotic surgery for colorectal cancer between November 2020 and November 2021 at a single tertiary center were included. Clinicopathological characteristics and perioperative outcomes were retrospectively analyzed to compare between the reduced-port and multiport groups. All patients were operated either by the da Vinci SP or Xi (multiport) system. Cumulative sum analysis was performed to assess the quantitative learning curve of the SP system.

Results/Outcome(s): A total of 151 patients were included in the study. Sixty-three patients were operated on with the SP system and 88 patients with the Xi system. There was no difference in clinicopathologic characteristic between the two groups excepting tumor location. SP group had higher rate of colon cancer compared to Xi group, 57 (90.5%) and 46 (44.7%) patients respectively ($p<0.001$). Operation time between the two groups did not show significant difference. The total incision length was shorter in the SP group (4.9 ± 1.3cm) compared to Xi group (9.2 ± 0.7cm) ($p<0.001$). Postoperative complication rates were similar between the two groups. The postoperative pain score was significantly less in the SP group at postoperative 1, 8, and 24 hours. The operation times using the SP system decreased over the consecutive cases for the right colectomies, but not in the anterior and low anterior resections.

Conclusions/Discussion: Reduced-port robotic surgery using the SP system presents comparable perioperative outcomes to multiport robotic surgery, with significantly less postoperative pain and almost half of the incision length.

Table 1. Outcomes related to postoperative pain

Variables	SP (n = 63)	Xi (n = 88)	*P* value
Total incision length, cm	4.9 (±1.3)	9.2 (±0.7)	<0.001
Numeric Rating Scale, pain			
Postoperative 1 hour	5.9 (±2.1)	6.9 (±1.8)	0.003
Postoperative 8 hours	3.1 (±0.5)	3.5 (±1.1)	0.009
Postoperative 24 hours	2.9 (±0.6)	3.2 (±0.8)	0.008
Rescue analgesics administered			
Postoperative day 0	1.5 (±0.9)	1.7 (±0.8)	0.269
Postoperative day 1	0.9 (±1.2)	0.8 (±1.2)	0.531

Values are presented as a number (%) or as a mean ± standard deviation unless otherwise indicated. cm, centimeter.

LAPAROSCOPIC OVARIAN TRANSPOSITION PRIOR TO PELVIC RADIATION IN YOUNG FEMALE PATIENTS WITH PELVIC GASTROINTESTINAL MALIGNANCIES.

eP138

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Purpose/Background: Young women undergoing radiation therapy for pelvic malignancies are at risk of developing premature ovarian insufficiency. Ovarian transposition aims to preserve ovarian function in these patients. However, its role in gastrointestinal malignancy has yet to be firmly established. The aim of this review was to determine the effectiveness of laparoscopic ovarian transposition in preserving ovarian function in premenopausal women undergoing neoadjuvant pelvic RT for gastrointestinal malignancies.

Methods/Interventions: Medline, EMBASE, and CENTRAL were systematically searched from inception through to May 2022. Articles were included if they evaluated ovarian function after OT before RT in women with gastrointestinal malignancies. The primary outcome was ovarian function preservation. The secondary outcome was thirty-day postoperative morbidity following OT. A DerSimonian and Laird inverse variance random-effects meta-analysis of proportions was used to generate the overall effect size of each outcome along with their respective 95% confidence intervals (CI) to confirm the effect size estimate.

Results/Outcome(s): From 207 citations, 10 studies with 133 patients with rectal or anal cancer who underwent OT prior to RT were included. Meta-analysis of pooled proportions of preserved ovarian function demonstrates an incidence of 66.9% (95%CI 55.0-79.0%, I^2=43%). The thirty-day postoperative morbidity rate was 1.2% (n=1). There was heterogeneity in interventions and outcome reporting.

Conclusions/Discussion: Laparoscopic OT in premenopausal patients undergoing pelvic radiation for gastrointestinal malignancies can preserve ovarian function in two thirds of patients (66.9%, 95%CI 55.0-79.0%, I2=43%). The pooled data and meta-analyses must be interpreted within the context of clinical heterogeneity of the included studies. Further studies are required to fully investigate the outcomes of OT in patients undergoing pelvic radiation for gastrointestinal malignancies.

CONCURRENTLY RESECTION OF SYNCHRONOUS COLORECTAL CANCER LIVER-LIMITED METASTASES: A 14-YEAR INSTITUTIONAL FOLLOW-UP FOR OUTCOMES OF ADJUVANT REGIMEN DIFFERENCES.

eP139

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Purpose/Background: According to NCCN guidelines, chemotherapy is an adviced adjuvant regimen for the patients who are resectable liver or lung metastases only colorectal cancer. Despite evidence-based results emerged in current years, the clinical physicians worried about microscopic resection (R1) or nominal stage IV cancer, target therapy were added on for better disease control. This study compared overall survival and disease-free survival rates of patients who receiving adjuvant regimens after concurrent resection for synchronous colorectal cancer liver metastases in the real world data.

Methods/Interventions: Between 2008 and 2021, 102 patients were enrolled retrospectively at a medical center hospital in Taiwan, all patients underwent synchronous resection of colorectal cancer and liver metastases. 29 patients who received chemotherapy only were matched against 73 patients who received chemotherapy plus target therapy as adjuvant regimen.

Results/Outcome(s): There were no significant differences in overall survival (74.2 v.s. 71.0 months, hazard ratio[HR] 0.874; 95% CI 0.49- 1.55; p=0.634) and disease-free survival (33.7 v.s. 26.5 months, hazard ratio [HR]; 95% CI 0.61- 1.60; p=0.953) between the groups. There were no significant differences in age, sex, RAS status, metastatic numbers and R0 resection rate between the groups. R1 resection (hazard ratio [HR] 1.96, 95% CI 1.2- 3.2) had impact on disease progression survival in multivariate analysis. Subsequent subgroup data were analyzed.

Conclusions/Discussion: Chemotherapy is situable for patients who receiving synchronous resection of colorectal cancer liver metastases as adjuvant regimen. Complete resection of metastatic liver lesions has benefits for disease control.

ADENOSQUAMOUS CARCINOMA OF THE COLON: A SINGLE-CENTER REVIEW OF PATIENT DEMOGRAPHICS AND OUTCOMES.

eP141

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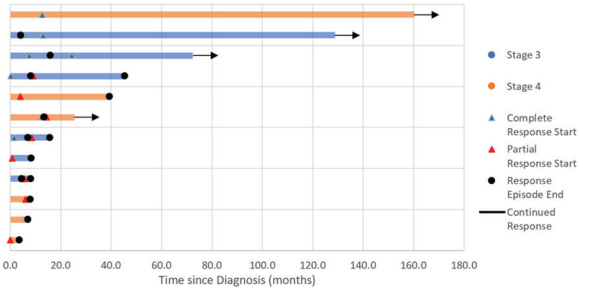
Purpose/Background: Adenosquamous carcinoma (ASC) of the colon is rare, constituting less than 1% of all colon cancers. While colonic ASC is believed to present at more advanced stages and to have worse outcomes compared to adenocarcinoma, its rarity and the limited number of published studies makes its characterization challenging. We present a cohort of patients with colonic ASC, to include information on clinical characteristics, treatments, and outcomes.

Methods/Interventions: We conducted a single-center retrospective review of patients from 2000 to 2020 with ASC of the colon, either on initial diagnostic pathology or final surgical pathology. After screening with ICD-O codes for adenosquamous carcinoma, we reviewed patient charts to select cases with colonic ASC. We subsequently reviewed patient clinical variables to include demographics, AJCC stage at diagnosis, primary tumor location, treatments received (to include surgery and chemotherapy), recurrences, and survival.

Results/Outcome(s): 61,126 patients with colorectal cancer were identified in our database, of which 13 patients had adenosquamous histology (0.02%). Mean age was 48.7 years, with 8 male (61.5%) and 5 female patients. The cecum/ascending colon was the most common site, with 6 of 13 cases (46.2%), followed by the transverse colon (4 of 13, 30.8%) and the descending/sigmoid colon (3 of 13, 23.1%). Six (46.2 %) patients had stage III disease at initial presentation, six (46.2%) Stage IV, and one (7.7%) Stage II. Eleven of 13 patients (84.6%) underwent surgical resection, with 9 (69.2%) additionally undergoing adjuvant chemotherapy and 2 patients (15.4%) undergoing both neoadjuvant and adjuvant chemotherapy. Recurrence occurred in 7 of 13 patients (53.8%); of these, 4 recurrences were locoregional, 2 were distant metastases, and 1 recurrence had both local and regional mets. Our cohort's 5-year survival was 38.5%, with median survival of 39.4 months; this was lower for both Stage III disease (30.5 months) and Stage IV disease (23.7 months).

Conclusions/Discussion: Adenosquamous carcinoma of the colon is a rare entity. In our cohort, most cases originated in the right colon and presented with advanced stage. Despite optimal management, overall survival is poor, and recurrence is common. These appear consistent with the limited published studies about colonic ASC. Additional research is needed to clarify how these characteristics and outcomes translate into management recommendations, as well as differences with comparably staged colonic adenocarcinoma.



Swimmer's Plot of Stage 3 and 4 adenosquamous colon cancer patients in the cohort, detailing response intervals. Due to lack of available clinical information on follow-up, the Stage 2 patient was not included in this figure.

USING A MODIFIED DELPHI PROCESS TO EXPLORE INTERNATIONAL SURGEON-REPORTED BENEFITS OF ROBOTIC-ASSISTED SURGERY TO PERFORM ABDOMINAL RECTOPEXY.

eP142

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Purpose/Background: Robotic-assisted surgery (RAS) offers improved visualisation and dexterity compared to laparoscopy. As a result, RAS is considered an attractive option for performing rectopexy, particularly in the confines of the lower pelvis. The aim of this study was to explore the benefits of RAS in rectopexy by analysing the experience of an International-group of expert-surgeons.

Methods/Interventions: A three-round Delphi process was performed. Combined qualitative, Likert scale and binary responses were utilised in rounds one and two with binary responses seeking overall consensus in round two and three. Particular areas that were studied included: clinical aspects of patient selection, technical aspects of using RAS to perform rectopexy, ergonomic factors, training, and consideration of the 'learning-curve'. Consensus was defined as agreement >80% among participants. Potential experienced RAS rectopexy surgeons were identified using PubMed where authors of studies reporting outcomes from RAS rectopexy were searched and invited.

Results/Outcome(s): Twenty surgeons participated from the following countries: France, Germany, Ireland, Italy, Netherlands, Switzerland, UK, and USA. Participants had mean operative experience of 153 rectopexies and 60 robotic rectopexies. All participants agreed that patient-reported functional outcomes and improved quality-of-life were the most important outcomes following rectopexy. Participants agreed the most significant benefits offered by RAS for rectopexy were improved precision due to better visualisation (80%), improved dexterity (90%) and improved overall accuracy e.g., for suture placement

(90%). 90% agreed that the superior ergonomics of RAS rectopexy has improved their performance of several steps of the operation, in particular: mesh fixation 85% and rectovaginal dissection 80%. Consensus on the learning curve for RAS abdominal rectopexy was not agreed: 45% (n=9) reported the learning curve as 11-20 cases and 55% (n=11) as 21-30 cases.

Conclusions/Discussion: International experienced RAS abdominal rectopexy surgeons report RAS positively impacts on performance of rectopexy in terms of technical performance, improved dexterity and visualisation and ergonomics.

Figure Two: Statements reaching consensus regarding the use of robotic-assisted surgery to perform rectopexy

DOES SURGEON BIAS OVERESTIMATE FRAILTY? EVALUATING THE RISK ANALYSIS INDEX IN DECISION-MAKING FOR RECTAL PROLAPSE.

eP143

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Purpose/Background: Abdominal versus perineal repairs for rectal prolapse are selectively offered to patients based on the surgeon's assessment of patient risk. However, interpretations of the risk associated with comorbidities can vary. The Risk Analysis Index (RAI) is a validated measure of frailty that is strongly associated with perioperative and postoperative outcomes. We sought to understand how pre-operative RAI score aligned with our existing decision-making process and post-operative outcomes following rectal prolapse repair.

Methods/Interventions: We recorded consecutive cases of rectal prolapse repair in a prospectively maintained IRB-approved registry from 2017-October 2022. Abdominal (AB) vs. perineal (PN) operations were determined based on an experienced surgeon's recommendation. The pre-operative RAI was collected; a score >= 30 indicates clinically relevant frailty. Length of stay, post-operative complications, and recurrence were compared by t-tests and Fisher's exact tests.

Results/Outcome(s): 132 patients underwent abdominal repairs, and 52 underwent perineal repairs. Patients who had a perineal operation were more likely to be frail than those who had abdominal operations (PN frail=40.4%; AB frail=6.8%). The mean RAI score in each group was: AB/non-frail-17 (SD 7), AB/frail-35 (6), PN/non-frail-25.4 (3), PN/frail-41(7). In the frail abdominal cohort, factors that most contributed to a high RAI score were age, loss of appetite and weight loss, and a diagnosis of chronic kidney disease. In the non-frail perineal group, clinical factors that may have contributed to the decision to offer a perineal operation included having cardiac comorbidities (60.0%), needing assistance with mobility (30.0%), and living in an assisted living facility (20.6%). Among non-frail patients undergoing perineal repair, only 23.3% had a prior rectal prolapse repair, and most (71.5%) had prior abdominal repairs. Post-operatively, all patient groups did well overall. Frail and non-frail patients had similar length of stay (PN/non-frail-3.4 days, PN/frail-3.5 d, p=0.91; AB/non-frail-2.1 d, AB/frail-1.6 d, p=0.49). The complication rates were similar across all groups (PN/non-frail=20.1%, PN/frail=23.8%; AB/non-frail=22.4%, AB/frail=25.0%). Frail patients had higher recurrence rates for both operative groups, but these differences were not statistically significant in this sample (PN/non-frail=33.3%, PN/frail=47.6%, p=0.46; AB/non-frail 8.3%, AB/frail=22.2%, p=0.42.

Conclusions/Discussion: Most patients receiving abdominal repairs did not meet criteria for frailty, but many non-frail patients underwent perineal operations based on surgeon perception of co-morbidities. These patients had higher prolapse recurrence rates as is expected with perineal approach. Using the RAI tool may provide an opportunity to guide decision making around operative approach for rectal prolapse and overcome potential surgeon bias.

CURRENT TRENDS IN RECTAL PROLAPSE REPAIR ACROSS NEW YORK STATE.

eP144

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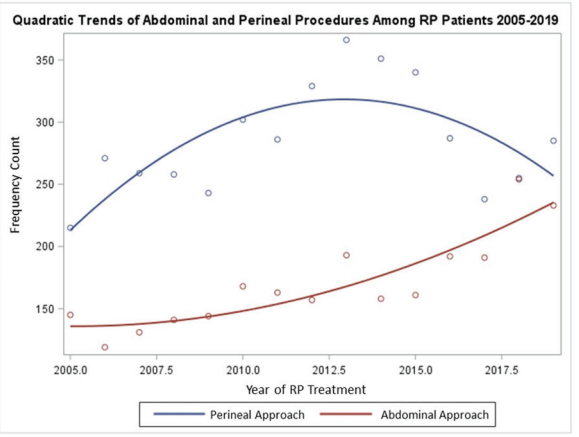
Purpose/Background: Strong evidence indicates that abdominal rectopexy (with or without resection or mesh) has been shown to be safe and effective in the management of rectal prolapse (RP) and associated with less recurrence compared to perineal repair procedures. However, there is a paucity of evidence examining real-world practice patterns in the treatment of RP. We examined current trends in RP management across New York State (NYS) and factors driving these patterns.

Methods/Interventions: Using 2005 to 2019 data from NYS's Statewide Planning and Research Cooperative System (SPARCS), we identified adult patients presenting with RP. Surgical approach among patients treated within one year of diagnosis were identified by ICD and CPT codes, including rectopexy, resection rectopexy, ventral mesh rectopexy, altemeier, delorme, sphincter repair, Thiersch stitch, and anal cerclage. Bivariate and multivariate analyses were employed to examine relationships between patient demographics and comorbidities, and treatment choice.

Results/Outcome(s): Among 17,865 RP patients, 6365 (36%) underwent a surgical repair within 12 months post-diagnosis. Average age at treatment was 65.5 years and 82.8% were female. Of the treated patients, 77.4%, 5.9%, and 16.7% were White, Black, and other race respectively, and 63.0% carried public insurance. Untreated patients were more likely to be male, Black, and uninsured ($p < 0.01$), and diagnosed with chronic conditions (diabetes, $p=0.02$; hypertension, $p<0.01$; congestive heart failure, $p<0.01$). Overall, the majority of treated patients (62%) underwent perineal repair. During 2012-2019, perineal procedures decreased from 67.7% to 50.1%, while abdominal procedures increasing steadily from 32.3 % to 49.9%. Among abdominal procedures, rectopexy was the most common (52.9%) followed by resection rectopexy. Use of resection rectopexy (42.6%) decreased from 16.7% (2012) to 8.8% (2019) while ventral mesh rectopexy (VMR) increased from 0.6% to 4.8%. Patients receiving abdominal procedures were more likely younger, white, and privately insured, and less likely to be diagnosed with hypertension and congestive heart failure ($p < 0.01$ for all).

Conclusions/Discussion: There is an encouraging shift towards an increased use of evidence-based abdominal approach to RP repair, although perineal procedures are still more commonly performed in NYS. Disparities in access to high quality care among minority and uninsured patients should be investigated and addressed to improve long-term outcomes. Further analysis to assess surgical decision-making, including provider and hospital characteristic is necessary to address the disparities gap.



THE CORRELATION BETWEEN RECTOCELE GRADING ON ECHO DEFECOGRAPHY (EDF) AND CLINICAL SYMPTOMS IN PATIENTS WITH OUTLET OBSTRUCTION CONSTIPATION.

eP145

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Purpose/Background: To establish the grading system of rectocele (RC) on echodefecography (EDF) and analyze the correlation between the grading score and the clinical symptoms of outlet obstruction constipation (OOC).

Methods/Interventions: Forty-Nine female patients diagnosed with RC were studied from December 2018 to April 2021 in the Department of colorectal surgery, the Second Affiliated Hospital of Nanjing University of Chinese Medicine. Among them, 37 patients were diagnosed with OOC and 12 with functional anorectal pain (FAP). Both x-ray and EDF were performed on 38 patients. First, the values of the X-ray and EDF of 38 patients with RC were analyzed by linear regression, and the RC grading of EDF was calculated. On this basis, binary and multiple logistic regression analysis was conducted on the RC grading score of the 37 OOC patients and their symptoms.

Results/Outcome(s): A regression equation was obtained by linear regression analysis: y=0.188x+5.973 (P<0.05). According to x-ray criteria, a mild EDF was 7~9mm, moderate was 9~12mm and severe was over 12mm. Binary logistic regression analysis showed that there was no significant correlation between RC grading and defecation, anal distension, and abdominal distention. However, there was significant correlation between RC grading and the feeling of defecation difficulty, feeling of defecation obstruction, feeling of incomplete evacuation, and infrequent defecation. Multiple logistic regression analysis showed that there exist a significant correlation between RC grading and defecation frequency, less than 1 time/week, moderate and severe feeling of incomplete evacuation, moderate and severe sense of defecation obstruction and moderate and severe sense of defecation difficulty(P<0.05).

Conclusions/Discussion: The RC grading score on EDF were associated with clinical symptoms of OOC, such as defecation difficulty, sense of defecation obstruction, feeling of incomplete evacuation, and infrequent defecation, especially closely related to defecation difficulty. These findings suggest that EDF is an effective method that can be used to diagnose RC. Further study is needed to validate its value in evaluating OOC.

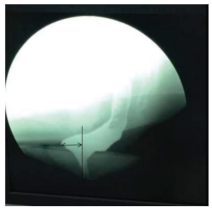

Image 1. RC on X-ray

Image 2. RC on EDF

Table 1: Linear regression analysis

	Unstandardized coefficient		Standardzed coefficient			95.0% confidence interval of B	
Model	B	Standard error	Beta	t	P	Lower limit	Upper limit
(constant)	5.973	1.695		3.523	0.001	2.535	9.411
X-ray	0.188	0.073	0.396	2.585	0.014	0.040	0.335

Table 2: Binary Logistic Regression Analysis of RC Grading and Clinical Symptoms of OOC Patients

Clinical symptoms	Regression coefficient	OR (95% CI)	*P*
Self-defecation	0.094	1.099(0.633 ~ 1.908)	0.738
infrequent defecation	0.958	2.606(1.145 ~ 5.932)	0.022
anal distension	0.044	1.045(0.549 ~ 1.989)	0.894
feeling of incomplete evacuation	0.809	2.246(1.016 ~ 4.967)	0.046
Sense of defecation obstruction	1.241	3.460(1.053 ~ 11.369)	0.041
Sense of defecation difficulty	1.714	5.553(1.198 ~ 25.745)	0.028
Abdominal distension	0.111	1.117(0.608 ~ 2.053)	0.721

Table 3: Multivariate Logistic Regression Analysis of RC Grading and Clinical Symptoms of OOC Patients

Clinical Symptom	Regression coefficient	OR (95% CI)	*P*
Defecation frequency			
1 time/1-2 days		1.000	
<3 times/week	0.721	2.057(0.855 ~ 4.950)	0.108
<1 time/week	1.304	3.685(1.406 ~ 9.661)	0.008
feeling of incomplete evacuation			
none		1.000	
mild	0.184	1.202(0.423 ~ 3.414)	0.729
moderate	1.007	2.737(1.092 ~ 6.857)	0.032
severe	1.144	3.140(1.145 ~ 8.614)	0.026
Sense of defecation obstruction			
none		1.000	
mild	0.326	1.386(0.285 ~ 6.741)	0.686
moderate	1.379	3.972(1.082 ~ 14.581)	0.038
severe	1.788	5.977(1.416 ~ 25.227)	0.015
Sense of defecation difficulty			
none		1.000	
mild	0.558	1.747(0.159 ~ 19.233)	0.648
moderate	1.897	6.669(1.329 ~ 33.464)	0.021
severe	1.754	5.776(1.121 ~ 29.768)	0.036

OUTCOMES ASSOCIATED WITH ROBOTIC VENTRAL MESH RECTOPEXY VS OPEN POSTERIOR SUTURED RECTOPEXY: WHAT IS THE OPTIMAL SURGICAL PROCEDURE FOR INITIAL MANAGEMENT OF RECTAL PROLAPSE.

eP146

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Purpose/Background: The optimal abdominal surgical management for rectal prolapse is unclear. Traditional management has been a posterior sutured rectopexy (PSR) but more recent studies have suggested that a robotic ventral mesh rectopexy (VMR) may offer better functional outcomes, shorter length of stay and equivalent recurrence rate. The current study was conducted to evaluate the outcomes of both procedures in a tertiary community colorectal specialty practice as it transitioned from PSR to VMR

Methods/Interventions: A retrospective chart review of all patients undergoing a first abdominal rectopexy between 2017-2021 was conducted. Patient demographics and operative approach were recorded. Primary outcome variables were operative time, length of stay (LOS), surgical complications and prolapse recurrence at 2 years. Variables for the groups as a whole and individual surgeons were obtained.

Results/Outcome(s): A total of 161 patients were treated for rectal prolapse during the study period. The mean age of the cohort was 58 years, female patients accounted for majority of patients (n=144, 89%), mean BMI was 26 and 75% of the patients had had prior abominal surgery. The two groups had no significant differences in demographic makeup. One hundred twenty one patients (75%) underwent VMR and forty (25%) underwent PSR. Surgical approach was at the discretion of the operating surgeon. The first year of the study was the last year of predominantly PSR (87%) while the other four years were predominantly VMR (81%) reducing inherent bias in study design. Synthetic mesh was used in all VMR and one major mesh related complication occured (0.8%) and the rate of open conversion was 0.8%. Mean operative time for VMR was PSR was 125 minutes versus 75 minutes. Mean LOS was 1 versus 2.5 days. Recurrence at 2 years was 15% versus 5%. All of these variables were statistically significant ($r<0.5$). Significant variation in operative volume was observed amongst participating surgeons (80 vs 44 vs 36 cases. Operative volume was positively associated with improvements in outcome variables (mean operative time VMR 108 vs 168 minutes, VMR LOS 0.9 vs 2.3 days and VMR prolapse recurrence 10 vs 19%) suggesting that increase experience with the robotic platform and VMR procedure will result in improved patient outcomes.

Conclusions/Discussion: In the current study, VMR was associated with a shorter length of stay than PSR however VMR was associated with a longer operative time and higher 2 year recurrence rate. Increased experience with the robotic platform and VMR procedure appears to result in improvement in measured outcomes variables. Further research is required to assess the optimum abdominal surgical approach that balances treatment morbidity with durable prolapse repair.

TRANSVAGINAL RECTOCELE REPAIR ASSOCIATED WITH ADDITIONAL PELVIC FLOOR PROCEDURES IMPROVE PATIENTS' SYMPTOMS WITHOUT INCREASING POST-OPERATIVE COMPLICATIONS.

eP147

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Purpose/Background: The standard repair offered in our trust for women with rectocoele leading to obstructive defaecation symptoms (ODS), refractory to extensive conservative treatment, is a native tissue transvaginal rectocoele repair (TVRR) combined with levatorplasty. When urinary and/or additional pelvic organ prolapse symptoms are present, a combined procedure might be offered. The aim was to compare post-operative complications, length of hospital stay and symptoms improvement after TVRR alone with those who underwent a joint procedure.

Methods/Interventions: Single centre retrospective study conducted between 2006-2018 at Guy's and St Thomas' Hospital, UK. In total, 1888 patients presented with main symptoms of ODS and underwent conservative management. During the same period of time, 215 patients who failed conservative management were considered suitable for a transvaginal rectocoele repair in our centre. Of those, 59 patients had a joint procedure for urinary dysfunctions and/or anterior/middle compartment symptoms. The decision about suitability for TVRR was made after discussion in a multidisciplinary meeting if consensus among participants was achieved.

Results/Outcome(s): Of the 59 patients underwent an additional procedure combined with TVRR, the following procedures were performed: 32 tension-free vaginal tape obturator (TVTO), 5 TVTO and hysteropexy, 1 TVTO and anterior repair, 1 TVTO and hysteropexy, 4 anterior repair and hysterectomy, 2 anterior repair and hysteropexy, 6 hysterectomy, 1 hysteropexy, 1 sacrospinous fixation, 2 others. Between the two groups, demographic characteristics and pre-operative characteristics were similar (Table 1). The only exception was the presence of urinary symptoms which are present in 98.3% (58/59) of the patients required combined surgical procedures compared to 51.9% (81/156) of those who underwent TVRR alone. Stress urinary incontinence was the most represented and the only one reaching statistical significance; 81.4% (48/59) in patients

requiring joint procedure vs 29.5% (46/156) of patients underwent only TVRR. Patient underwent joint procedure has a slightly longer length of hospital stay compared to those having solo TVRR (3.5 vs 3.1, p=0.050). In hospital complications were non-statistically significant between the two groups (9 vs 15, p=0.241). 30-days post-operative complications were lower in the joint procedure group 0% (0/59) compared to the solo TVRR one 9% (14/156), with demonstration that combined pelvic floor procedures don't increase complications risk (p=0.017).

Conclusions/Discussion: Pelvic floor dysfunctions may affect all three compartments of the pelvic floor and joint surgical repair is an option. In our experience, patients who underwent combined surgical procedures had a perceived increase satisfaction without experiencing a longer recovery time or increased complications.

Table 1. Transvaginal rectocoele repair vs Joint TVRR procedures pre-operative symptoms

Pre-operative symptoms	Only TVRR (n=156)	Joint procedure (n=59)	p-value
Anal incontinence	83 (53.2%)	36 (61%)	0.304
Flatus	71 (45.5%)	32 (54.2%)	0.253
Urge	28 (17.9%)	8 (13.6%)	0.442
Passive	1 (0.6%)	1 (1.7%)	0.473
Soiling	47 (30.1%)	13 (22%)	0.238
Faecal urgency	74 (47.4%)	30 (50.8%)	0.655
ODS	152 (97.4%)	57 (96.6%)	0.743
Constipation	31 (19.9%)	8 (13.6%)	0.284
Maneuvers			
Vaginal splinting	69 (44.2%)	30 (50.8%)	0.385
Anal digitation	44 (28.2%)	12 (20.3%)	0.241
Vaginal symptoms			
Vaginal bulge	122 (78.2%)	53 (89.8%)	0.51
Dyspareunia	13 (8.3%)	4 (6.8%)	0.767
Bowel symptoms			
Post-def soiling	106 (67.9%)	40 (67.8%)	0.983
Incomplete evacuation	154 (98.7%)	58 (98.3%)	0.818
Multiple attempts def	58 (37.2%)	25 (42.4%)	0.485
Urinary symptoms	81 (51.9%)	58 (98.3%)	0.000
Urgency	55 (35.3%)	26 (44.1%)	0.234
Stress	46 (29.5%)	48 (81.4%)	0.000
Frequency	28 (17.9%)	16 (27.1%)	0.137

USE OF ANAL ENCIRCLEMENT (BIO-THIERSCH) AS AN ADJUNCT TO PERINEAL PROCTECTOMY IN THE TREATMENT OF RECTAL PROLAPSE.

eP148

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Purpose/Background: Rectal prolapse affects approximately 1 percent of patients over 65 years old. Perineal proctectomy remains a popular surgical option for elderly patients who wish to avoid an abdominal operation. A major drawback of perineal proctectomy has been a high recurrence rate reported in range of 10 to 40 percent. To improve recurrence rates, there is some support for anal encirclement with a biologic mesh (Bio-Thiersch) as an adjunct to perineal proctectomy. This study aimed to evaluate the postoperative outcomes and recurrence rates of perineal proctectomy alone vs perineal proctectomy with Bio-Thiersch.

Methods/Interventions: Electronic medical records of all adult patients at our single institution who underwent perineal rectal prolapse repair from 2017 through 2020 were retrospectively queried. Patients were separated into two groups based on surgical treatment: perineal proctectomy alone or with Bio-Thiersch.

Results/Outcome(s): There were a total of 66 patients selected for the study: 42 patients underwent perineal proctectomy alone and 24 patients underwent the combined procedure. There were no significant differences in age, ASA classification, prior repair, operative time, hospital stay, follow-up time, or complications (Table). There were no mesh-related complications or infections with Bio-Thiersch. There were no significant differences demonstrated in the recurrence rate (5 patients (20.8%) with Bio-Thiersch vs 7 (16.6%) with perineal proctectomy alone, p = 0.7452).

Conclusions/Discussion: There were no significant differences in perioperative or postoperative outcomes between perineal proctectomy alone or with Bio-Thiersch. Most importantly, there was no difference in prolapse recurrence rate. Further investigation and longer follow-up is needed to justify the additional cost associated with biologic mesh usage.

	Perineal proctectomy with Bio-Thiersch	Perineal proctectomy alone	p value
n	24	42	
Age (yrs)	77.2 ± 12.5	75.5 ± 15.0	0.6436
ASA	2.9 ± 0.5	2.7 ± 0.6	0.3955
Previous Repair	9 (37.5%)	15 (35.7%)	>0.9999
Operative Time (min)	100.9 ± 26.6	94.5 ± 28.5	0.3714
Hospital Stay (days)	1.6 ± 0.9	2.1 ± 1.2	0.0989
Complications	1 (4.1%)	4 (9.5%)	0.6455
Recurrences	5 (20.8%)	7 (16.6%)	0.7452
Time to Recurrence (mos)	11.2 ± 9.2	7.8 ± 4.2	0.4209
Follow-up Time (mos)	5.9 ± 10.0	8.3 ± 11.3	0.3872

CASE STUDY: SIGMOID COLON INTUSSUSCEPTION AND PROLAPSE.

eP149

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Purpose/Background: Prolapse of large bowel through the anus is a difficult condition to treat and often has a devastating impact on patients' quality of life. It has a prevalence of ~ 1 % in adults over 65 years old. In most cases, the rectum prolapses through the anus, but there are reports of sigmoid intussusception resulting in

prolapse. Colocolonic intussusception is a rare condition often causing obstruction and is often associated with an underlying mass or malignancy. We present a case of intussuscepted sigmoid colon and resulting prolapse without a pathologic lead point.

Methods/Interventions: A 68 year-old female presented to our emergency department with prolapsed bowel on examination (Figure 1). After bedside reduction was unsuccessful, she was taken to the operating room and placed in the prone position for planned perineal rectosigmoidectomy (Altmeier's procedure). However, after induction of anesthesia, she was found to have prolapsed intussuscepted sigmoid colon with an intact rectum. Reduction was successful at this time. Given concern for ischemic changes, she was repositioned in supine lithotomy and underwent a successful laparoscopic low anterior resection (LAR) with primary anastomosis. Despite an intraoperative anaphylactic reaction to albumin requiring a post-operative ICU stay, she recovered to her baseline with normal bowel function. Pathology evaluation demonstrated ischemic changes in the involved segment of sigmoid colon without a mass or lesion to serve as a lead point for her intussusception and prolapse.

Results/Outcome(s): Sigmoid intussusception and prolapse has rarely been reported in the literature. In sigmoid intussusception, there is most often a lead point, such as sigmoid adenomas, adenocarcinomas, or inflammatory changes. Isolated large bowel intussusception only accounts for 17% of all intussusception in adults. Intussusception often presents with abdominal pain and obstructive symptoms in adults. While our patient experienced several days of constipation prior to presentation, she had a normal bowel movement just prior to her prolapse. Additionally, on final pathology, the intussuscepted segment was identified without a pathologic lead point.

Conclusions/Discussion: This case represents a rare case of idiopathic sigmoid colon intussusception and prolapse. While our patient did not have an underlying lesion, it is crucial to assess for this in cases of sigmoid intussusception by colonoscopy following reduction. LAR is an appropriate operative approach when unable to fully reduce the prolapse or when there is concern for bowel ischemia. Resection allows for pathology review of the affected sigmoid colon. Additionally, it should be noted that CT scan can be helpful in diagnosing colocolonic or rectosigmoid intussusception, but it is rarely used in the work-up for rectal prolapse without concern for intussusception. It is important to keep sigmoid and rectosigmoid intussusception on the differential for suspected rectal prolapse.

Figure 1. Sigmoid colon intussusception and prolapse.

PERFORMANCE OF THE AXONICS SYSTEM IN TREATING FECAL INCONTINENCE.

eP150

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[1]Stanford, CA; [2]West Columbia, SC; [3]Hanover, MD; [4]Franklin, TN; [5]Little Rock, AR; [6]Cincinnati, OH; [7]Irvine, CA

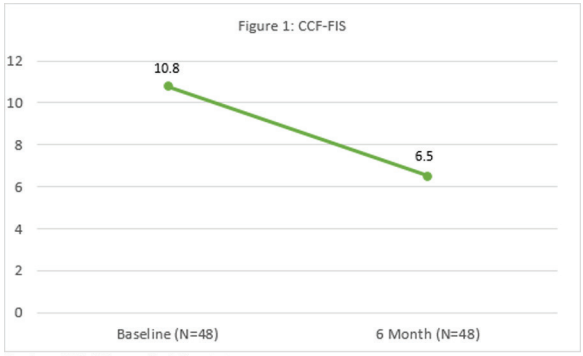
Purpose/Background: Fecal incontinence (FI) affects up to 20% of the adult population and has a significant impact on quality of life yet is grossly undertreated. Sacral neuromodulation (SNM) is a guideline approved therapy for the treatment of FI with proven long-term efficacy. The ARTISTRY registry study aims to gain real-world experience employing the Axonics System in the treatment of urinary and bowel dysfunction. This analysis evaluates the 6-month efficacy of the Axonics System for the treatment of FI.

Methods/Interventions: All patients enrolled in ARTISTRY completed the Cleveland Clinic Fecal Incontinence Score (CCF-FIS) questionnaire at baseline, and if the baseline score was ≥ 6, they also completed it at follow-up visits. Participants underwent an Axonics external trial, with either a peripheral nerve evaluation (PNE) or tined lead trial. Participants were asked to report when their FI symptoms first improved, and if improved, the participant was defined as a responder (responder criteria). Patient satisfaction questionnaires were collected at 6 months. The Wilcoxon Rank Sum test was used to correlate symptom improvement on the CCF-FIS.

Results/Outcome(s): 91 participants qualified as having FI based on the CCF-FIS of > 6, however only 53 (58%) initially self-reported having FI or dual incontinence. At the time of analysis, 70 participants had completed an external trial of which, 36 underwent a PNE and 34 a tined

lead trial. Responder rates for these groups were 92% and 94% respectively. Forty-eight (48) participants completed both baseline and 6-month visits at the time of this analysis. At 6 months, the vast majority of participants (96%) reported > 50% improvement, 89% reported they would undergo the procedure again, and successful charging was reported by 96%. **Figure 1** shows meaningful improvement in the CCF-FIS from baseline to 6 months (p<.001). With regards to safety, there was one (1) reported infection that required explant; there were no reports of lead fracture, impedance issues or lead migration.

Conclusions/Discussion: This data demonstrates that the Axonics System is an effective treatment for patients suffering from FI with meaningful improvement in the CCF-FIS with 96% reporting a >50% improvement in symptoms. The safety profile with the Axonics System is consistent with other reports and it is notable that no lead issues of any kind were encountered. Interestingly, only 53 participants had self-reported FI but 91 qualified as having FI based on the CCF-FIS. This may indicate patients are unaware of how to define their condition or are in denial of their symptoms.



P-value <.001, Wilcoxon Rank Sum test

UNDERSTANDING THE RELATIONSHIP OF LOW ANTERIOR RESECTION SYNDROME TO CHEMOTHERAPY-INDUCED PERIPHERAL NEUROPATHY.

eP151

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New Haven, CT

Purpose/Background: Despite advances in treatment for rectal cancer, patients can be left with effects from treatment that have a detrimental impact of patients' quality of life. Two of these effects are low anterior resection syndrome (LARS) and chemotherapy-induced peripheral neuropathy (CIPN). At present, the relationship between CIPN and LARS is not well understood. We hypothesize that the presence and severity of CIPN may influence the development of LARS. In this study, we aim to understand the concurrence of major LARS and CIPN in patients who were treated for rectal cancer with surgery and chemotherapy.

Methods/Interventions: Patients who underwent a low anterior resection and received chemotherapy between 2017-2022, with and without international classification of diseases 10 code (ICD) for chemotherapy neuropathy, were identified in the electronic medical record (EMR) of a single hospital system. We contacted patients by telephone for participation in the study and the patients answered a questionnaire via email or telephone. We used the LARS Score to measure LARS and the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Chemotherapy-Induced Peripheral Neuropathy-20 (EORTC QLQ-CIPN20) to measure neuropathy. Severe LARS was defined as a score of >30/42. Sensory CIPN was defined as a score of >30/100. Clinical information regarding surgical treatment, chemotherapy, and other demographic information was pulled from the EMR. Descriptive statistics were performed using STATA (College Stations, TX)

Results/Outcome(s): We identified 55 patients with the C20 ICD10 code (malignant neoplasm of rectum), of which 30 patients were eligible to participate in the study. 13 patients were successfully contacted and consented to participation, and 8 patients returned the questionnaire (61.5% response rate). Patients had an average age of 58.9 years (+ 10.8). The mean distance of the lowest extent of tumor from the top of the anal sphincter was 4.6 cm (+ 3.6, range 0.1-11). Clinical tumor stage ranged from T2N1 to T3N2. The average LARS score of patients was 37.9 (+ 5.3, range 25-41) and the average sensory neuropathy score of patients was 43.8 (+ 27.2, range 11-89). 87.5% of patients had major LARS, and among those patients with major LARS, 100% had CIPN20 scores indicating sensory CIPN.

Conclusions/Discussion: Quality of life after treatment for cancer is an area of importance to patients and clinicians. LARS and CIPN both have a negative impact on patients' quality of life and the relationship between the two is not clear. In this study, we found a high concurrence of both major LARS and sensory CIPN among patients. Further study is needed to understand if a potential underlying neuropathic mechanism contributes to the high rates of both LARS and CIPN seen in this population.

RATES OF COLOSTOMY CREATION FOLLOWING SACRAL NERVE STIMULATOR IMPLANTATION FOR FECAL INCONTINENCE.

eP152

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Salt Lake City, UT

Purpose/Background: Fecal incontinence was historically managed non-operatively with limited long-term symptom relief. The development of sacral nerve stimulation presents a safe and effective alternative. The data on long-term

outcomes, specifically the durability of symptom relief, is limited. It is unclear how many patients who undergo successful staged implantation of sacral nerve stimulator experience loss of efficacy requiring colostomy creation.

Methods/Interventions: This study was a single-center retrospective review of treatment outcomes. The population studied included patients treated between January 2017 and October 2022 at a community hospital in Salt Lake City, Utah. Adult patients 18 years old and older with a diagnosis of fecal incontinence who underwent sacral nerve stimulator implantation were included. Patients were identified by procedure code (64581 implant neuroelectrodes). All patients underwent sacral nerve stimulator implantation. The primary outcome measured was number of patients who required colostomy creation following initially successful sacral nerve stimulator implantation due to loss of efficacy. Secondary outcomes measured include post-operative complications (pain, infection, wound dehiscence) and device explantation.

Results/Outcome(s): A total of 74 patients underwent staged implantation of sacral nerve stimulation device. Four patients (0.05%) progressed to unsatisfactory symptom management with the sacral nerve stimulation device and went on to have a colostomy created. An additional 2 patients failed stage I of the implantation process and did not go on to stage II, but rather proceeded directly to colostomy.

Conclusions/Discussion: The study was limited by its retrospective nature and small sample size with single site study population. In carefully selected patients, sacral nerve stimulation is demonstrated to be highly effective in improving symptoms of fecal incontinence with low post-operative morbidity.

IMPACT OF SACRAL NEUROMODULATION ON CONCOMITANT FUNCTION PELVIC DISORDERS IN PATIENTS WITH FECAL INCONTINENCE.

eP153

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New York, NY

Purpose/Background: While sacral nerve stimulation (SNS) has become one of the mainstays of treatment for fecal incontinence (FI), anecdotal reports suggest that it might also improve associated pelvic floor conditions (pelvic floor dysfunction and functional anorectal pain). Aim of this study is to assess the effect of SNS on associated pelvic floor conditions in patients treated for FI.

Methods/Interventions: Data for all consecutive patients treated with SNS for FI refractory to standard treatment (dietary/lifestyle modifications, biofeedback) at our pelvic floor center between 2015-21 were evaluated. Patients with incomplete functional assessment data were excluded. Demographics, clinical characteristics, and outcomes were retrieved. Pre- and post-SNS placement reported symptoms were assessed. The diagnosis of associated pelvic floor conditions was based on clinical and manometric findings.

Results/Outcome(s): 52 eligible patients were treated with SNS for FI during the study period. Median age was 66 years (25-89 years); most patients were female (32, 69.2%). 31 (59.6%) patients had a history of sphincter injury. 25 (48%) patients had an associated pelvic floor condition: 14 (26.9%) dyssynergic defecation, 4 (7.7%) chronic proctalgia, and 7 (13.5%) both. On preoperative manometry, median resting pressure was 29mmHg (16-135mmHg), median squeeze pressure 62mmHg (26-327mmHg) and median maximum tolerated volume 140cc (40-220cc); 13 (25%) patients failed the balloon expulsion test. The most common associated symptom was difficult evacuation (18, 34.6%; 3 reported self-digitation), along with tenesmus (18, 34.6%), followed by chronic proctalgia (12, 23.1%) and painful evacuation (5, 9.6%). After SNS, 41 (78.8%) patients reported significant subjective improvement of FI, with complete resolution in 25 (48.1%) cases; results were sustained at 30-days in 39 (92.3%) cases. Most patients reported resolution of the above reported associated pelvic floor symptoms: 11 (61.1%) out 18 no longer experienced difficulty evacuating (with 2 out of 3 no longer requiring self-digitation), tenesmus resolved in 12 (66.7%) cases and chronic proctalgia in 7 (58.3%), with 4 (80%) out of 5 no longer experiencing pain with evacuation. The most common complication of SNS was uncomfortable/painful stimulation in the perineum/sciatica distribution (5, 9.6%); there was one case of lead malfunction and one of surgical site infection. At a median follow up of 42 months, the SNS was removed in 15 (7.5%) patients, most commonly due to lack of efficacy (11, 73.3%).

Conclusions/Discussion: This retrospective study supports the notion that SNS, a safe and effective treatment for FI, can provide symptomatic relief in a considerable percentage of patients with pelvic floor dysfunction and functional anorectal pain. Larger prospective studies might help evaluate the role of SNS in these common, disabling conditions with limited alternative treatment options.

A COMPARATIVE STUDY ON THE SURGICAL OPTIONS FOR RECURRENT RECTAL PROLAPSE.

eP154

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Gwangju, Korea (the Republic of)

Purpose/Background: Although there are various surgical methods for the treatment of rectal prolapse, it can be divided into an abdominal and a transanal approach. The recurrence rate according to the recent studies, it is reported to be low in the abdominal approach. This study aimed to evaluate the outcomes of both surgical approaches for recurrent rectal prolapse.

Methods/Interventions: We studied patients who underwent surgical treatment for recurrent rectal prolapse at a tertiary institution from March 2016 to February 2021. We analyzed the previous operating methods in patients with recurrent rectal prolapse, and the operating time, complications, hospital stay, and re-recurrence rates in the transanal and abdominal group.

Results/Outcome(s): A total of 41 patients who underwent surgery for recurrent rectal prolapse among a total of 239 patients were retrospectively enrolled. Median age was 70.09 years and there were more female (82.9%) than male. Median follow-up duration was 14.78 months. Recurrent rectal prolapses were surgically treated either by transanal (n = 25, 61.0%) or abdominal approach (n = 16, 39.0%). The operating time was longer in the abdominal group than perineal group (98.44 vs 58 mins, p=0.001). Hospital stay was longer in abdominal group (9.19 vs 6.00 days, p=0.012). Re-recurrence rate after repeat operation was not different between the groups (p=0.777). Four cases had voiding difficulty in the transanal group, 3 in the abdominal group (p=0.496).

Conclusions/Discussion: Transanal approach has an advantage of shorter operating time and hospital stay. There was no difference in the rate of re-recurrence. Both approaches can be saft and feasible options for the treatment of recurrent rectal prolapse.

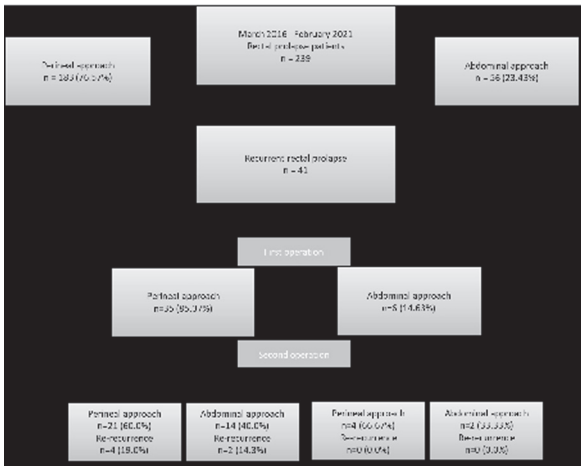

Figure. Flow chart comparing primary and secondary surgical methods and re-recurrence rates for recurrent rectal prolapse.

ROBOTIC HERNIOPLASTY OF PRIMARY LEVATOR HERNIAS: A CASE SERIES AND LITERATURE REVIEW.

eP155

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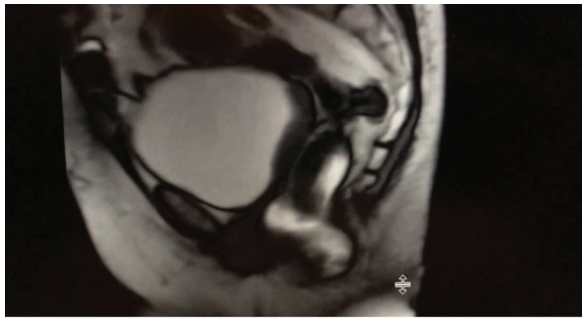
Purpose/Background: Primary levator hernias are extremely rare, and there is no standard accepted surgical repair. Limited case reports have denoted the benefits of laparoscopic over open transabdominal repair, but there are few descriptions of a robotic approach. We present two cases of primary levator hernias, repaired robotically with mesh reinforcement and rectopexy.

Methods/Interventions: Case 1: A 76-year-old female with 30-year history of rheumatoid arthritis on chronic steroids presented with complaints of pelvic floor bulging over one year, associated with constipation and straining over the last 6 months. A CT of the pelvis demonstrated a fat containing defect in the right levator musculature. Clinical examination demonstrated a large, non-tender, right sided levator hernia palpable when standing. Subsequent MRI defecography demonstrated the majority of the rectum and mesorectum herniating through the right levator complex during defecation (Figure 1). Case 2: An 87-year-old otherwise healthy female with no prior major pelvic surgery presented with new onset constipation and symptoms of obstructive defecation. CT of the abdomen and pelvis demonstrated protrusion of the rectum through a posterior-left defect in the levator muscle complex. On clinical exam, the patient had a palpable defect in the left levator.

Results/Outcome(s): Robotic transabdominal mobilization of the rectum afforded excellent visualization of the entire pelvic floor and hernia defect. Soft monofilament polyester composite mesh (Symbotex^{TM}) was secured with permanent sutures to the entire pelvic floor fully covering the defect. Sutured rectoxpexy was then performed directly to the sacral promontory with permanent sutures. In follow up, both patients had resolution of symptoms and no signs of recurrence.

Conclusions/Discussion: Primary levator hernias are extremely rare. Historically, they were corrected by direct suture repair, autologous tissue flaps, or mesh reinforcement via a transabdominal or transperineal approach. In the minimally invasive era, transabdominal laparoscopy has been performed most often, with only two previously described robotic repairs. A minimally invasive approach offers the advantages of better visualization, faster patient recovery, and excellent reduction and hernia repair. The robotic approach further optimizes this operation, with stable, enhanced visualization within a deep pelvis, endowrist manipulation, and easier suturing. We describe a robotic transabdominal hernioplasty with permanent, soft mesh and rectopexy for both of our cases demonstrating the safety and efficacy of the robotic approach.



IMPLEMENTATION OF A PATIENT-CENTERED CORE OUTCOME SET TO EVALUATE LONG-TERM FUNCTIONAL OUTCOMES FOLLOWING ILEAL POUCH ANAL ANASTOMOSIS.

eP156

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Boston, MA

Purpose/Background: Total restorative proctocolectomy with Ileal Pouch Anal Anastomosis (IPAA) is a widely implemented surgical treatment for patients with ulcerative colitis (UC). A recent study by Cavallaro et. Al[1] used the Delphi consensus methodology with patients as key stakeholders to identify high priority outcomes. It was proposed to use the term ileoanal pouch syndrome (IPS) to describe range of expected functional symptoms following IPAA. We aimed to identify long-term functional outcomes in patients following IPAA based on the above-mentioned patient-centered core outcome set.

Methods/Interventions: Patients with UC who underwent restorative proctocolectomy with IPAA at a single academic institution over a 6-year period were included in the study. Demographics, surgical characteristics, and postoperative complications were reviewed. A 13-question questionnaire was developed based on the symptoms and consequences that define IPS and conducted over the phone. IPS is defined as having at least 1 symptom and 1 consequence including: fecal incontinence, soiling, urgency, frequency, clustering, perianal and nocturnal symptoms, pad usage, toilet awareness, dietary/medical adjustments, and sleep/energy/social/intimacy/mental/emotional alterations.

Results/Outcome(s): Sixty-four patients were identified. Phone interviews were conducted with a response rate of 47% (n=30). Mean age was 40 years, 40% were female, and 93.3% White. Median follow-up time was 43 months and median time from surgery to questionnaire 54 months. Postoperative complications rates were as follow: 13.3% SSI, 53.3% pouchitis, 16.7% cufitis, 6.7% stricture, 20% leak, and 10% sexual dysfunction. Overall, 86.7% of patients fit criteria for IPS. 96.7% reported the need to have a bowel movement (BM) while sleeping; 53.3% having more than 7 BMs in a day; 66.7% making changes in diet or taking additional medications to change frequency/consistency of BMs; 56.7% having sudden need to rush to the toilet (16.7% daily and 23.3% at least 3 times/week); 30% having unplanned BMs during daily activities; 56.7% experiencing soiling and 36.7% wearing pads to protect cloth; 46.7% having to have a BM even though their bowels were empty; 60% looking for the location of the restroom once they enter a room; 23.3% having negative changes in their sexual life, 20% in sleep pattern, and 23.3% in energy levels.

Conclusions/Discussion: Undergoing IPAA may result in numerous long term functional problems. In our study, ~ 90% of patients classify as having IPS and ~97% were found to have nocturnal symptoms. To our knowledge, this is one of the first studies to evaluate functional outcomes proven to be important to patients after pouch surgery. Further larger studies are warranted to standardize this outcome measure to better identify, treat, and educate patients.

TOFACITINIB EXPOSURE DOES NOT INCREASE POSTOPERATIVE COMPLICATIONS AMONG PATIENTS WITH ULCERATIVE COLITIS UNDERGOING TOTAL COLECTOMY: A RETROSPECTIVE CASE-CONTROL STUDY.

eP157

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Rochester, MN

Purpose/Background: Tofacitinib, a JAK kinase small molecule inhibitor, was approved to treat ulcerative colitis (UC) in 2018. There are concerns for increased postoperative complications among patients with UC on tofacitinib undergoing colectomy, which are not well characterized, in particular venous thromboembolism (VTE). Therefore, we aimed to determine if preoperative tofacitinib exposure increases postoperative complications among patients with UC undergoing total colectomy or total proctocolectomy.

Methods/Interventions: Following institutional review board approval, a retrospective case-control study was performed on adult patients with UC at Mayo Clinic undergoing total abdominal colectomy or total proctocolectomy after 2018 who were taking tofacitinib within 30 days of surgery (n=48 cases) or not (n=48 controls). Cases and controls were matched for age and sex. Patient demographics, medical and operative characteristics, and 90-day postoperative outcomes (length of hospital stay, postoperative complications, emergency room visit, readmission) were abstracted from the electronic medical record.

Results/Outcome(s): Patients with UC undergoing total colectomy or total proctocolectomy without tofacitinib exposure (n=48 controls) and with tofacitinib exposure within 30 days of surgery (n=48 cases) were well matched for age (35.0+/-11.8 vs 35.1+/-11.4 years) and sex (42% female). There were no differences in 30-day preoperative exposure to immunomodulators or biologic medications. However, controls were more likely to be exposed steroids (n=41, 85% vs n=32, 67%, p= 0.03) in the 30 days before surgery. Operative approach (all were minimally invasive), duration, and blood loss did not differ. Outcomes did not differ between groups. Length of hospital stay (5.4+/-6.2 vs 4.4+/-2.9 days, ns), rates of emergency room visit (n=10, 21% vs n=11, 23%, ns) and readmission (n=6, 13% vs n=6, 13%, ns) were not different between groups. Rates of any postoperative complication did not differ between groups (n=15, 31% vs

n=12, 25%). Postoperative ileus or obstruction were the most common postoperative event (n=12, 25% vs n=11, 23%, ns) in both groups. Rates of VTE in the 90 days after surgery were not different between controls and cases (n=7, 15% vs n=2, 4%, ns, respectively).

Conclusions/Discussion: In this single institution study of a matched cohort of patients with Ulcerative Colitis undergoing total colectomy or total proctocolectomy, preoperative exposure to tofacitinib did not increase the risk of postoperative complications. Importantly, the rate of VTE did not increase with exposure to tofacitinib. Larger studies need to be conducted, given the conflicting data currently existing on the risk of postoperative VTE among patients with UC taking tofacitinib.

	No Preoperative Tofacitinib (n=48)	Preoperative Tofacitinib (n=48)	
Age (years, mean (stdev))	35.0 (11.8)	35.1 (11.4)	ns
BMI (mean (stdev))	25.5 (8.20)	25.0 (4.9)	ns
Female	n=20, 42%	n=20, 42%	ns
White	n=42, 88%	n=44, 92%	ns
Current Smoker	n=4, 8%	n=2, 4%	ns
Any Major Comorbidity	n= 7, 15%	n=3, 6%	ns
Steroids within 30 days before surgery	**85%**	**67%**	**p=0.03**
Immunomodulator within 30 days before surgery	n=16, 39%	n=25, 61%	ns
Biologic within 30 days before surgery	n=35, 46%	n=27, 35%	ns
Surgery Duration (minutes, mean (stdev))	215 (83)	213 (86)	ns
Estimated Blood Loss (ml, mean (stdev))	91 (95)	72 (61)	ns
Ostomy (end or protective)	n=47, 98%	n=48, 100%	ns
Discharged on VTE prophylaxis	n=41, 85%	n=41, 85%	ns
Length of Hospital Stay (days, mean (stdev))	5.4 (5.2)	4.4 (2.9)	ns
Any Complication within 90 days	n=15 (31%)	n=12 (25%)	ns
Venous Thromboembolism	n= 7 (15%)	n=2 (4%)	ns
Infection	n=6 (13%)	n=3 (6%)	ns
Ileus or Small Bowel Obstruction	n=12 (25%)	n=11 (23%)	ns
Bleed	n=4 (8%)	n=3 (6%)	ns
Reoperation	n=2 (4%)	n=0	
*No patients had cardiopulmonary complications, required ICU level care, or died			
Emergency Room Evaluation	n=10 (21%)	n=11 (23%)	ns
Hospital Readmission	n=6 (13%)	n=6 (13%)	ns

PATTERNS AND RAPID TRANSITIONS OF DISEASE MODIFYING DRUGS PRECEDING COLECTOMY FOR REFRACTORY DISEASE IN IBD-ASSOCIATED COLITIS.

eP158

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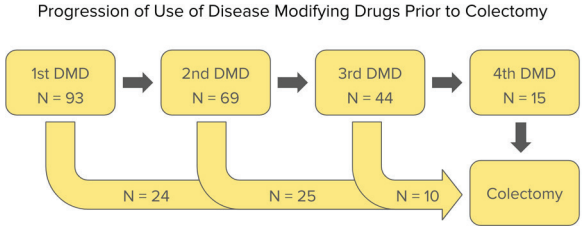
Purpose/Background: Novel disease modifying drugs (DMDs), including the biologic agents and small molecule inhibitors such as tofacitinib, represent important developments in the treatment of IBD. Despite these agents, a subset of patients still requires total abdominal colectomy or proctocolectomy. Patterns of use and escalation of these agents in the period leading up to colectomy remain understudied, despite implications for cost and perioperative morbidity.

Methods/Interventions: Using an institutional database, we identified patients with Crohn's or ulcerative colitis who underwent total abdominal colectomy or proctocolectomy at a tertiary academic medical center between January 2018 and October 2022. Patients undergoing surgery for indication other than medically refractory disease, and those without precise data regarding the month of DMD initiation, were excluded. Charts were reviewed for the number and duration of DMD use preceding colectomy. Linear regression was used to examine use of DMDs over time, with $p<0.05$ considered statistically significant.

Results/Outcome(s): Overall, 104 patients met inclusion criteria, the majority of whom had UC (73%) and were male (56%), mean age at diagnosis was 31.6 years. Mean time between diagnosis and resection was 10.1 years. The majority of patients were ASA class II (46.6%) or III (48.2%). The most common reason for discontinuation of the first DMD was refractory disease (69.6%). Median duration of the first DMD was only 6 months, after which 24 patients underwent colectomy and 69 were switched to a second agent. Second agents were used for a median of 8 months, after which 44 individuals went to a third agent, while 25 underwent colectomy. Third agents were used for a median of 8.5 months, after which 10 patients underwent colectomy while 15 were trialed on a fourth agent, which was used for a median of 7 months before colectomy. Examining exclusively the two years before colectomy; 2 people used four agents, 22 used three agents, 36 used two agents, while 42 used one agent. Just over half the cohort (51%) were started on their first DMD in these two years, 38% of patients were initiated on two or more DMDs within this time frame. Additionally, the number of DMDs used prior to colectomy increased over time, with a mean of 1.65 in 2018 and 2.72 in 2022. Simple linear regression demonstrated year of colectomy accounted for 6.02% of the variation in DMD use ($p = .009$).

Conclusions/Discussion: Rapid initiation and successive transitioning of DMDs is high in patients who ultimately require colectomy, particularly in the two years proceeding colectomy, and has increased over the past 5 years. These findings highlight the need to identify early predictors of success for various classes of DMDs to mitigate harm by avoiding immune-modulating agents that offer no clinical benefit and prolong an inflammatory state leading to possible increased perioperative morbidity.



POUCH FAILURE IN PATIENTS WITH CROHN'S DISEASE AFTER ILEAL POUCH ANAL ANASTOMOSIS (IPAA).

eP159

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Grand Rapids, MI

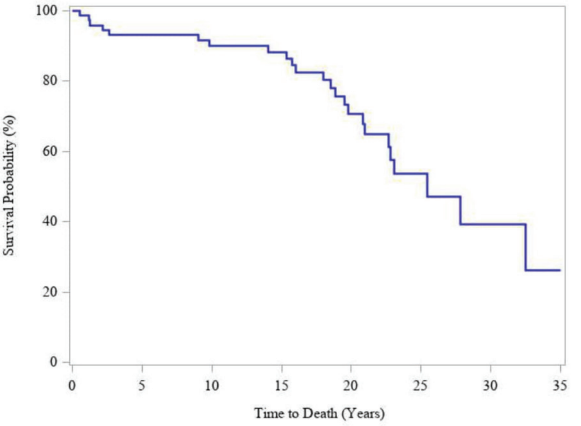
Purpose/Background: Despite surgical removal of the colorectum for ulcerative colitis, autoimmune destruction of the digestive track continues in many patients over time. With longer term follow-up after IPAA construction, it is increasingly evident that the incidence of Crohn's disease increases with time. The aim of this study is to identify the degree to which patients with a diagnosis of Crohn's disease after IPAA will progress to pouch failure.

Methods/Interventions: A single-center, retrospective study of adult patients with a history of IPAA creation from 1981-2020 was conducted. The primary outcome was time to pouch failure in the subset of patients diagnosed with Crohn's disease. Crohn's of the pouch was defined as having chronic inflammation on endoscopy and histopathology in addition to being responsive to immunosuppressive medications. Pouch failure was defined as undergoing excision, diversion or recreation of the IPAA. Kaplan-Meier probability curves were used to identify probability of pouch failure. Secondary outcomes included the relation of biologic therapy and pouch survival.

Results/Outcome(s): Among 379 patients identified with an IPAA, 74 were diagnosed with Crohn's disease at a mean of 11.8 years from pouch creation. At time of diagnosis the mean age was 48.9 (+/- 13.1) years, 53% were female, 97% were of Caucasian race and mean body mass index was 27 kg/m^2. All patients had been diagnosed with chronic pouchitis prior to their Crohn's diagnosis. Biologic therapy initiated in 86.5% of patients at a mean of 12.2 years after IPAA formation. The overall rate of pouch failure was 33% which increased over time. Pouch survival probability at 10, 20, 30, and 35 years were 90%, 70.7%, 39.2%, and 26.1%, respectively. There was no association between biologic use and pouch failure (p=0.29).

Conclusions/Discussion: Over time the rate of pouch failure increases in patients diagnosed with Crohn's disease after IPAA. Although biologic therapy was not associated with decreased rates of pouch loss, it is unknown if earlier initiation of immunosuppression would improve pouch salvage.

Image 1.Kaplan-Meijer curve of pouch survival



TaTME: COMPLETION TRANSANAL PROCTECTOMY USING AN ADVANCED ARTICULATING LAPAROSCOPIC INSTRUMENT.

eP160

D. Farinas Lugo, L. Devane, L. Bustamante-Lopez, M. Albert
Orlando, FL

Purpose/Background: We present this case of a 75 year old male with history of chronic ulceratice colitis that had been refractory to medical therapy. He had a history of multiple previous abdominal surgeries including total abdominal colectomy with end ileostomy and ventral incisional hernia repair with mesh. The patient continued to have refractoty proctitis with severe symptoms. We recommended he undergo completion proctectomy and elected to perform this transanally to avoid an abdominal approach due to his extensive surgical history.

Methods/Interventions: The patient underwent minimally invasive surgical transanal total mesorectal excision using an advanced articulating laparoscopic dissector with electrocautery.

Results/Outcome(s): A complete transanal total mesorectal excision was performed with final pathology revealing chronic proctitis without evidence of dysplasia or malignancy.

Conclusions/Discussion: We performed a transanal total mesorectal proctectomy in a patient with a history of medically refractory ulcerative colitis and an extensive surgical history. This was done to demonstrate the advantages of performing transanal surgery using a novel advanced articulating laparoscopic instrument. This articulating instrument facilitated accurate dissection in the confined space of the rectum.

IMPACT OF MODIFIED FRAILTY INDEX SCORES AND RACE ON RESTORATIVE PROCEDURES FOR ULCERATIVE COLITIS: A REVIEW OF THE AMERICAN COLLEGE OF SURGEONS NATIONAL SURGICAL QUALITY IMPROVEMENT PROGRAM DATABASE.

eP161

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Sayre, PA

Purpose/Background: The restorative procedure for ulcerative colitis (UC) is total proctocolectomy (TPC) with ileal pouch-anal anastomosis (IPAA). The procedure (TPC+IPAA) can be performed as a single stage or a multi-stage procedure with proximal diversion. The comparison of single-stage TPC+IPAA and two-or multiple-stage TPC+IPAA was made to assess the impact of race and modified frailty index (mFI) scores on post operative outcomes.

Methods/Interventions: The prospectively collected, multi-institutional National Surgical Quality Improvement Program (NSQIP) files were reviewed retrospectively for the years 2010-2020 in patients undergoing a restorative procedure for UC. The restorative proctocolectomy with IPAA participant user files (PUF) were selected using CPT and ICD-9/10 diagnosis codes. The 30-day postoperative outcomes and mFI scores were compared in patients undergoing single and multi-stage restorative procedures. Univariate and multivariate analyses were performed with 95% confidence intervals.

Results/Outcome(s): A total of 4872 patients undergoing restorative surgery for UC were identified, of which 3061 underwent single-stage TPC+IPAA, and 1811 underwent multi-stage TPC+IPAA. Patients undergoing single stage surgery were noted to have a history of hypertension (14.9% vs. 11.5%, p<0.001), recent weight loss (5% vs. 2.4%, p<0.001), pre-operative steroid use (46.9% vs. 15%, p<0.001) and higher mFI scores (1 or ≥2:16.8% vs. 13.3%, p=0.005). On univariate analysis, patients undergoing a single-stage procedure were more likely to have a longer length of stay (LOS) (7.3 days vs. 6.4, p<0.001) and organ space surgical site infection (SSI) (8.9% vs. 7.1%, p=0.034). For patients undergoing single-stage procedures, higher mFI scores were also associated with a higher rate of SSI and a higher rate of 30-day readmission. On subset analysis, patients with staged procedures and higher mFI scores were found to have longer operative duration, LOS, and a higher rate of non-routine discharge disposition. There were no differences in outcomes for different race groups. On multivariate analysis, unplanned admissions (OR 4.1, 95%CI 1.47-11.47, p=0.007) and single-stage procedures (OR 1.53, 95% CI 1.104-2.11, p=0.01) were found to be associated with higher odds of reoperation within 30 days.

Conclusions/Discussion: Our results indicate that higher mFI may adversely impact outcomes after restorative surgery for UC. These results also suggest that single-stage TPC+IPAA may be associated with a higher 30-day rate of reoperation compared to staged TPC+IPAA.

Table 1: Multivariable analysis for related 30-day re-operation rate after restorative surgery for Ulcerative Colitis

Covariate	OR	Lower 95% CI	Upper 95% CI	p-value
Age Groups=41-65 vs 18-40	0.89	0.66	1.20	0.456
Age Groups=65+ vs 18-40	0.47	0.20	1.14	0.095
Male vs Female	1.15	0.87	1.52	0.338
Hispanic vs African American	0.74	0.34	1.59	0.442
White vs African American	0.63	0.22	1.83	0.399
Other Race vs African American	0.75	0.42	1.33	0.321
BMI	1.02	0.99	1.05	0.130
Smoker	1.15	0.66	1.98	0.624
Weight Loss	1.35	0.72	2.52	0.349
Unplanned admission	4.11	1.47	11.47	**0.007**
Pre-operative Steroid use	1.27	0.95	1.71	0.108
Operative Time	1.00	1.00	1.00	0.419
Modified Frailty Index Score	1.21	0.87	1.69	0.253
Single-stage vs Multi-staged procedure	1.53	1.10	2.11	**0.01**

PREOPERATIVE MAGNETIC RESONANCE ENTEROGRAPHY IN CROHN'S DISEASE: BUYER BEWARE!.

eP162

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Purpose/Background: Magnetic resonance enterography (MRE) is now well established as a diagnostic tool for patients with Crohn's disease. MRE may be especially attractive in long standing/reoperative cases where patients typically have had extensive previous radiation exposure from years of imaging studies. It is precisely in these complex cases where surgeons often rely heavily on preoperative imaging studies both to decide on the appropriateness of surgery and for surgical planning. We have observed that MRE underperforms in this high stakes setting. We sought to validate the findings at MRE with later operative and pathologic findings.

Methods/Interventions: A retrospective review of 87 consecutive patients who underwent preoperative MRE and operative intervention for Crohn's disease at a single institution from 2010-2016 was undertaken. Demographics, time elapsed between MRE and surgery, and history of prior surgical intervention were recorded for all patients. MRE results were compared to findings at operation and on final pathology with regard to disease localization and phenotype.

Results/Outcome(s): In 30 of 87 patients (34%), MRE failed to accurately predict operative and pathologic findings. Of the 30 patients in whom MRE was inaccurate,

it under-called disease in 21 (70%), while in the other 9 (30%), disease was over-called. Of those with inaccurate preoperative MRE, there was a higher percentage of patients who had undergone previous bowel operations (11 patients, 37%) compared to those with accurate MRE (9 patients, 16%; p=0.035). Of those with over-called disease on MRE, 55% had undergone prior surgery. Patients with an inaccurate preoperative MRE had a trend towards a higher rate of future operative intervention for recurrent CD compared to those with accurate preoperative MRE (p=0.12).

Conclusions/Discussion: MRE fails to accurately characterize and predict operative findings of Crohn's disease in approximately 1/3 of cases. In the vast majority of cases in which MRE is inaccurate, the disease is under-called compared to findings at surgery and on final pathology. MRE was less accurate in patients who had undergone a previous bowel operation. IBD surgeons should avoid overreliance on preoperative MRE both with reference to the decision for surgery and expectations regarding actual operative findings.

COMPARISON OF LONG-TERM OUTCOMES OF CONTINENT ILEOSTOMY TO ILEAL POUCH-ANAL ANASTOMOSIS: A PROPENSITY MATCH ANALYSIS.

eP163

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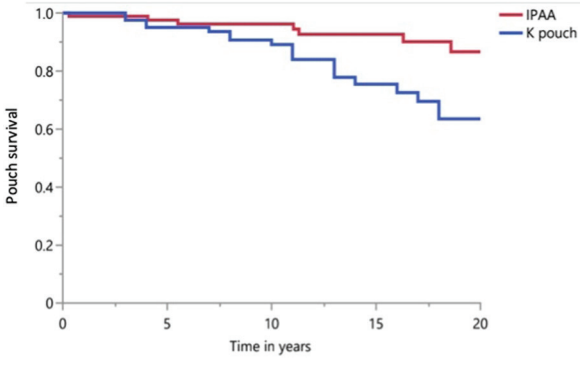
Purpose/Background: A total proctocolectomy may be necessary surgical treatment for several conditions, including inflammatory bowel disease and familial adenomatous polyposis (FAP). Either an ileal pouch anal anastomosis (IPAA) or a continent ileostomy (CI) may be offered to avoid an end-ileostomy. We hypothesized that short- and long-term outcomes, and quality of life, were comparable between IPAA and CI.

Methods/Interventions: In this retrospective study, our prospectively maintained pouch registry (1980-2021) was reviewed. Patients were stratified in 2 groups: IPAA (n=4,071) and CI (n=91). A propensity score matching 1:1 based on age, gender, BMI, and length of follow-up was performed. Demographics, operative details, quality of life (QoL), life restrictions and pouch survival were compared. Redo IPAA and redo CI were excluded. QoL was assessed using Cleveland Global Quality of Life (CGQL) validated questionnaire.

Results/Outcome(s): A 91 matched pairs of IPAA and CI patients were constructed. The IPAA and CI groups were well-matched (p>0.05) in terms of age (37.2 +1.3 vs 40 +1.3 years), BMI (24.5 +6.6 kg/m^2 vs 24.2 +5.0 kg/m^2) and females (71% vs 61%). The diagnoses in the IPAA vs. CI groups were: ulcerative colitis (49% vs 51%), Crohn's(37% vs 27%), indeterminate colitis (13% vs 10%), FAP(0 vs. 4%) p=0.03. In the IPAA group, 87% had J-pouches, while 13% had S-pouches; 86% were stapled. Postoperative morbidity was 39% in IPAA vs 37% in CI (p=0.52). Postoperative complications after IPAA: pouchitis (27%), small bowel obstruction (12%), anastomotic stricture (12%), pelvic sepsis (3.3%), fistula (3.3%), and anastomotic leak (1.1%). Postoperative complications after CI: pouchitis (6.6%), slipped valve (6.6%), enterocutaneous fistula (5.5%), parastomal hernia (2.2%), small bowel obstruction (1.1%) and anastomotic leak (1.1%). Cumulative pouch survival was significantly higher in the IPAA vs CI group at 1-, 5-, 10-, 15-, and 20-years, respectively (96% vs 94%, 88% vs 78%, 87% vs 77%, 85% vs 75%, and 73% vs 65%), (p<0.001)(Figure). Reasons for pouch failure in the IPAA group: pelvic sepsis (2.2%), fistula (1.1%), pouch dysfunction (1.1%), IPAA stricture (1.1%), Crohn's (1.1%). Reasons for CI failure were: slipped valve (9%), CI necrosis (3.2%), fistula (3.2%), CD (2.2%), parastomal hernia (1.1%), pouchitis (1.1%). In terms of QoL, the IPAA group had fewer dietary restrictions (33% vs 52%, p<0.001), less social (11% vs 33%, p<0.002), working (18% vs 52%, p<0.002) and sexual restrictions (19% vs 40%, p=0.002). Overall QoL was higher after IPAA vs CI: 0.8 (0.6 – 0.9) vs 0.63 (0.4 – 0.8), p<0.001, as were energy levels: 7 (6-9) vs 6 (3-7), p<0.001.

Conclusions/Discussion: IPAA patients were observed to have higher pouch survival, higher overall QoL, with fewer restrictions compared to CI patients. However, continent ileostomy was associated with acceptable outcomes and remains a valid option for patients when IPAA is not a feasible.



LONG-TERM OUTCOMES OF S-CONFIGURED ILEAL POUCH-ANAL ANASTOMOSIS.

eP164

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Purpose/Background: The ileal pouch-anal anastomosis (IPAA) is the gold standard for restoration of intestinal continuity after a total proctocolectomy, with the J-pouch

most commonly used. S-pouches are more infrequently performed, and often in the setting of mesenteric length problems. We analyzed the indications and outcomes of S-pouches in the prior to and since the 21st century.

Methods/Interventions: A prospectively maintained pouch database (1983-2015) was queried to identify patients with an S-pouch with underlying inflammatory bowel disease. The cohort was stratified into groups based on the time of operation: before 2000 (group 1) and after 2000 (group 2). Patients' demographics, postoperative complications, cumulative Kaplan – Meier pouch survival, function, and quality of life (QoL) were analyzed.

Results/Outcome(s): A total of 349 patients were identified: group 1 – 314 patients and group 2 – 35 patients. The median follow-up in group 1 was 12 years (16-24) vs. 4 (2-10) years in group 2 ($p<0.001$). Patients were comparable in terms of age, gender, BMI, and ASA scores (all $p>0.05$). The histopathological diagnoses were also similar in group 1 (UC 77%, CD 10%, IC13%) vs. group 2 (UC 65%, CD 6%, IC 29%), $p=0.07$. The median preoperative duration of IBD was significantly longer in group 2:11(4 - 18) years vs. group 1:7 (3-11), $p<0.001$. Group 1 vs. 2 was treated with steroids more (62% vs. 25%, $p<0.001$). The majority underwent colectomy for medically refractory disease; however, dysplasia was present more in group 2 (28% vs. 14%), $p<0.001$. After 2000, the 3-stage approach was utilized more frequently: 18.5% vs. 31%;$p=0.01$. Single-stage IPAA were more common in group 1(5% vs. 0%), while handsewn anastomoses were more common in group 2: 69% vs. 36%, $p=0.003$. The majority had challenges reaching the pelvis leading to S-pouch creation with 37% patients in group 2 sighting bulky and short mesentery due to obesity and had proximal stoma creation. The median hospital length of stay was significantly longer in the group 1: 9(8-11) days compared to group 2: 5 (4-6.5) days, $p<0.001$. The overall morbidity was similar (group 1 vs.2 :85% vs.74%, $p=0.12$). There were significantly more anastomotic separations in group 1 vs. 2: 5% vs: 25%($p=0.001$). The rates of anastomotic stricture and fistula were comparable. The Kaplan-Meier pouch survival was better in group 1 compared to group 2: at 1-year (99% vs. 90%), 5-years (96% vs. 85%), and at 10-years (94% vs. 85.3%), $p=0.001$. The number of stools were comparable:group 1 vs. 2: 6 (4-9) vs. 6 (5-9), $p=0.81$. The quality of life did not differ in group1 vs. 2: 0.8 (0.7 – 0.9) vs.0.7 (0.6 – 0.9)$p=0.18$.

Conclusions/Discussion: S-pouches are less frequently used since 2000, with more recent S-pouch construction showing higher rates of leak and pelvic sepsis yet allowing adequate reach to allow pouch construction in most patients.

GREAT SAPHENOUS VEIN GRAFTS TO OVERCOME THE SHORT MESENTERY OF ILEAL J-POUCH.

eP165

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Purpose/Background: One of the difficulties while creating the ileal J-pouch and ileo-anal anastomosis is inadequate length of pouch mesentery and inability to reach rectal stump. Most often these are the pouch vessels that cause the lack of length. In this situation, the attempts to elongate the mesentery with standard maneuvers are ineffective, and ileo-anal anastomosis is deemed impossible. Here, we describe a unique experience of overcoming the short mesentery of ileal J-pouch by elongating its feeding artery and vein with great saphenous vein grafts.

Methods/Interventions: A male patient, 30 years old, in February 2020 underwent colectomy with end ileostomy because of amoebic toxic megacolon. Six months later a reconstructive ileal J-pouch, ileorectal anastomosis and protective ileostomy was performed. Two months later he was diagnosed with ileorectal anastomotic leak and 5 cm length presacral anastomotic fistula. Because of persistent infection, the leaking J-pouch had to be removed. However, the patient insisted on second attempt of reconstruction. In February 2022 surgery was performed. Previously created J-pouch was excised from the pelvis en bloc with presacral cavity. A new J-pouch 18 cm length was created from the distal part of remaining ileum, but it didn't reach the anal canal with the gap of 10 cm. The vascular surgeon joined the team. At the inner surface of the left hip, the left great saphenous vein was mobilized, and all branches ligated. Distal end was divided, the vein lumen rinsed with heparin solution and proximal end divided, resulting in a graft 6 cm length. The same was performed from the right side, thus two venous grafts, each of 15 cm in length, were obtained. The origins of ileal pouch mesenteric artery and vein from superior mesenteric artery and vein, respectively, were skeletonized. After clamping the aorta, an incision was performed two cm from the bifurcation. One of venous grafts was sutured to the aorta. The ileal pouch mesenteric artery and vein were divided at their origins. The artery was sutured to the end of first venous graft. Likewise, the ileal pouch vein was elongated by the second saphenous vein graft and sutured to the inferior vena cava. After that, the J-pouch reached the anal canal without tension, handsewn ileoanal anastomosis and protective ileostomy performed. Intraoperative endoscopy – J-pouch continent, no areas of ischemia visible.

Results/Outcome(s): One month later barium enema demonstrated no anastomotic leakage, endoscopy – no signs of ischemia, so ileostomy was closed. In September 2022, 6 months later, the patient had stool 3 times per day, contrast CT demonstrated functioning aorta-saphenous-ileal and

cava-saphenous-ileal anastomoses, endoscopy – normal pouch mucosa without ischemia.

Conclusions/Discussion: In highly selected patients in case of short mesentery of ileal J-pouch the great saphenous venous grafts can be a viable option to elongate the ileal vessels.

OUTCOMES AFTER COLECTOMY IN PATIENTS OVER THE AGE OF 65 WITH CROHN'S DISEASE.

eP166

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Purpose/Background: Patients 65 years or older have worse outcomes compared to their younger counterparts after a major abdominal surgery. There are limited data regarding surgical outcomes for older patients with inflammatory bowel disease (IBD), including Crohn's Disease (CD). We utilized a national database to examine outcomes after colectomy in older patients with CD.

Methods/Interventions: The ACS NSQIP was queried for all surgical patients with a diagnosis of CD and compared patients age 65 and older (older patients) to patients under age 65. Univariate and multivariate logistic regression were performed to evaluate differences in morbidity and mortality rates.

Results/Outcome(s): A total of 7,297 patients were identified with CD with 734 (10.1%) patients over the age of 65. When evaluating operative characteristics, older patients were more likely to undergo emergent surgery (11.2% vs. 6.4%, p<0.0001) and have a post-operative ileus (22.8% vs. 15.4%, p<0.0001), but were less likely to be on pre-operative steroids (49.6% vs. 65.3%, p<0.0001). There was a significant difference in pre-operative albumin (3.4 +/- 0.8 vs 3.6 +/- 0.7, p<0.0001) and a dependent functional status (2.6% vs. 0.6%, p<0.0001). There was no statistically significant difference in approach, anastomotic leaks, or post-operative wound infections. Older patients had more co-morbidities, most notably diabetes (12.9% vs. 2.6%, p<0.0001), COPD (4.9% vs. 1.0%, p<0.0001), and hypertension requiring medical treatment (52% vs. 12.2%, p<0.0001). There was an increased length of hospital stay (9.5 +/- 8.5 vs. 8.2 +/- 8.0, p<0.0001) and discharge to a rehabilitation facility (13.5% vs. 2.0%, p<0.0001), but no difference in 30-day readmission. Older patients had an increase in morbidity (26.4% vs. 19.8%, p<0.001) and mortality (2.0% vs. 0.2%, p<0.0001) after univariate analysis. Multivariate analysis showed no significant difference in morbidity, but did show an increased odds of 30-day mortality (4.81, CI 1.687-13.695, p<0.003). Emergent surgery increased the odds of both morbidity and mortality, but had a larger effect on mortality (morbidity: 1.44, CI 1.11-1.86, p 0.005; mortality: 3.85, CI 1.42-10.48, p 0.008).

Conclusions/Discussion: Older patients with CD that undergo a colectomy may be at increased risk of mortality. They do not, however, appear to have an increased risk of morbidity compared to younger patients, even though they receive emergency surgery more often. Optimizing these patients may reduce the risk of mortality, but further prospective trials are warranted to further elucidate the ideal optimization strategies.

SURGICAL APPROACH AND SHORT-TERM OUTCOMES AFTER RIGHT HEMICOLECTOMY FOR CROHN'S DISEASE.

eP167

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Purpose/Background: A right sided segmental colectomy represents the standard management of patients with ileocolic Crohn's disease (CD) that is refractory to medical management. Per ASCRS practice guidelines, a laparoscopic (lap) approach should be considered while balancing patient and disease characteristics, given better patient reported outcomes of lap compared to open resections. However, the role of robotic resection for segmental colectomy in patients with CD has not been elucidated. We hypothesized that there is a significant selection bias in the choice of approach in patients undergoing resections for ileocolic CD. We sought to compare 30-day perioperative outcomes by surgical approach in patients with CD undergoing right hemicolectomy using a national database.

Methods/Interventions: Patients with Crohn's disease who underwent right hemicolectomy between 2012-2020 were identified from the targeted colectomy National Surgical Quality Improvement Program (NSQIP) database as it can distinguish between open, laparoscopic and robotic resections. Patient demographic factors, co-morbid conditions, complications, operative factors, and length of stay were evaluated. Major complications were analyzed.

Results/Outcome(s): 8,911 patients were identified, of which 40% underwent open, 56% laparoscopic, and 4% robotic resections. Patients undergoing open surgery were more likely to have higher ASA class, pre-operative weight loss, contaminated or dirty wound class, and to be non-elective. Operative time differed by approach (median open vs. lap vs. robotic: 153 vs. 139 vs. 193 min respectively, p <0.001). Length of stay was longer in open cases (median open vs. lap vs. robotic was 6 vs. 4 vs. 3 days, p <0.001). Open cases had higher rates of reoperation (open vs. lap vs. robotic: 5.3 vs. 2.7. vs. 3.0%, p <0.001) and readmission (median open vs. lap vs. robotic: 14.7 vs. 9.2 vs. 8.4%, p <0.001). Major complication rates were higher in open cases (open vs. lap vs. robotic: 4% vs. 2 vs. 2%, p <0.001), with open associated with increased risk rates of superficial infections (open vs. lap vs. robotic:

4% vs.1% vs.1%, p <0.001), deep infections (open vs. lap vs. robotic: 11 vs. 4 vs.5%, p <0.001), anastomotic leak (open vs. lap vs. robotic: 5 vs. 3 vs. 3 %, p <0.001), dehiscence (open vs. lap vs. robotic: 0.66 vs. 0.17 vs. 0.30%, p <0.001), and ileus (open vs. lap vs. robotic: 20.31 vs. 9.23 vs. 10.81%, p <0.001). In the adjusted analysis, approach was not associated with differences in rates of major complications (Table 1; compared to open, lap OR 1.02 [0.96 - 1.09], robotic OR 1.03 [0.96 - 1.10]).

Conclusions/Discussion: We observed that laparoscopic and robotic right sided colectomy are safe and feasible in well selected patients. However, patient and disease factors, potentially more than approach, play a role in patient outcomes. As such, operative approach may be more a matter of surgeon preference based on patient and disease characteristics.

Table 1. Multivariate analysis of factors associated with major complications in patients with Crohn's undergoing right hemicolectomy.

Characteristics	Odds Ratio [95% CI]	P-value
Male Sex	1.00 [0.99 - 1.0]	0.62
Age >50	1.01 [1.00 - 1.0]	0.08
Emergency Surgery	1.00 [0.98 - 1.02]	0.89
Steroid Use	1.00 [1.00 - 1.01]	**0.05**
Significant Weight loss	1.00 [0.99 - 1.02]	0.59
Albumin <3	1.00 [0.99 - 1.02]	0.35
ASA classification		
1	Reference	
2	0.99 [0.97 - 1.02]	0.61
3	1.00 [0.98 - 1.03]	0.82
4	1.02 [0.97 - 1.06]	0.48
5	2.42 [1.77 - 3.32]	**<0.001**
Wound Classification		
Clean-Contaminated/Clean	Reference	
Contaminated	1.03 [0.98 - 1.08]	0.27
Dirty	1.03 [0.98 - 1.08]	0.30
Technique		
Open	Reference	
Laparoscopic	1.02 [0.96 - 1.09]	0.46
Robotic	1.03 [0.96 - 1.10]	0.43
Preop Sepsis	1.03 [0.94 - 1.11]	0.54
Preop Transfusion	0.96 [0.92 - 1.00]	0.05
Bowel prep		
Mechanical Only	Reference	
Oral Antibiotics Only	0.98 [0.97 - 0.99]	**0.002**

AESTHETIC BENEFIT OF ILEO-CAECAL RESECTION FOR CROHN'S DISEASE BY SINGLE TROCAR VERSUS CONVENTIONAL LAPAROSCOPY.

eP169

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Purpose/Background: Studies evaluating the single trocar (ST) found an identical rate of postoperative complications and length of hospitalization, with a probable aesthetic benefit compared to multi-trocar laparoscopy (MT). The aim of this study was to compare the aesthetic result after ileocecal resection (ICR) for Crohn's by ST or MT.

Methods/Interventions: All ICR with anastomosis (2012-2020) were retrospectively included. The aesthetic result was evaluated by the Body Image Questionnaire. A case-control study was carried out by matching on: age, sex, BMI, smoking, surgical history, surgical indication, corticosteroid therapy and associated procedure.

Results/Outcome(s): 206 patients (ST=65; MT=141) were included. Overall morbidity was 37.4% (severe morbidity=5.3%), with no difference between the groups. 124 patients (71%) responded to the questionnaire (mean follow-up: 4.7 years). Body image was identical in both groups but the aesthetic scale was better in the ST group (21.1 vs. 18.4, p<0.001). In the ST group, body image was better in patients who had a trans-umbilical versus periumbilical incision (5.2 versus 6.4, p=0.04), the aesthetic scale was identical regardless of the incision. After matching (ST=37; MT=37), body image remained identical in the two groups but the aesthetic scale remained better in the ST group (21.1 vs. 19.3, p=0.03). In univariate analysis, the factors associated with a very good aesthetic result were the ST and the absence of a history of abdominal surgery. After multivariate analysis, only ST approach (OR=2.30[1.01-5.28], p=0.05) was associated with a good result.

Conclusions/Discussion: The ST approach for ICR for Crohn's allows a better aesthetic result compared to the MT, especially with a trans-umbilical incision.

LOOP COLOSTOMY OR ILEOSTOMY FOR PROXIMAL DIVERSION? IS IT TIME TO REINVENT THE WHEEL?

eP170

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Purpose/Background: Proximal diversion is often employed when performing a high-risk anastomosis. A loop ileostomy is associated with a high risk of dehydration, prolonged length of stay, and hospital readmission. The purpose of this study is to re-evaluate the role of a loop transverse colostomy as an alternative to an ileostomy for proximal diversion, regarding the risk of dehydration, hospital readmission, and stoma-related complications.

Methods/Interventions: A retrospective chart review was conducted at a single tertiary care center. All patients between 2016-2021 who underwent a sigmoid or rectal resection with proximal diversion were identified. Severe dehydration was defined as high ostomy output, either inpatient or outpatient, requiring intravenous fluid (IVF) administration after the initial hospital stay. Unplanned hospital encounters were defined as total emergency department or inpatient visits due to dehydration. High stoma output was defined as the need for anti-diarrheal medications. Independent sample t-tests, chi-square, and logistic regression were used to compare patient outcomes.

Results/Outcome(s): A total of 114 patients underwent a sigmoid or rectal resection with proximal diversion. Thirty-seven (32.5%) underwent a diverting proximal

transverse loop colostomy and 77 (67.5%) a loop ileostomy. The colostomy group was older (62.4 vs 58.4, p= 0.04), had a higher ASA score (2.7 vs. 2.4, p < 0.01), and was less likely to have a diagnosis of rectal cancer (48.6% vs 72.7%, p = 0.01) than the ileostomy group. The colostomy group had a significantly lower rate of severe dehydration (5.4% vs 20.8%, p = 0.04) and unplanned hospital encounters (2 vs 23, p = 0.03) than the ileostomy group. Scheduled outpatient IVF administration was necessary for 7 (9.1%) ileostomy patients and no colostomy patients (p = 0.06). The use of anti-diarrheal medications for high ostomy output was required for only 2 (5.4%) colostomy patients compared to 48 (62.3%) ileostomy patients (p < 0.01). No difference was seen in the rate of stoma prolapse (2 vs 3 patients, p= 0.32) with one ileostomy patient requiring operative revision. These findings maintained significance when analyzed in a multivariate logistic model. No difference was found in the operative time of the initial surgery. Loop colostomy reversal operative time was longer than loop ileostomy reversal (134 vs 109 minutes, p < 0.01). There was no difference in mean length of stay following the initial operation (6.7 vs 7.2 days) or ostomy reversal (4.2 vs 3.7 days).

Conclusions/Discussion: Loop colostomy was associated with significantly less severe dehydration and fewer unplanned hospital encounters when compared to loop ileostomies, without increased risk of stoma complications. A loop colostomy could be considered as an alternative to a loop ileostomy, especially in patients at a higher risk of dehydration.

N=114	Loop colostomy n=37	Loop Ileostomy n=77	p-value
Age	62.4	58.4	**0.04***
BMI	31.3	29.0	0.12
ASA score	2.70	2.42	**<0.01***
Severe Dehydration	2 (5.4%)	16 (20.8%)	**0.04***
Total Unplanned Hospital Encounters for Dehydration	2	23	**0.03***
Outpatient IVF	0	7	0.06
High Output with Anti-Diarrheal Use	2 (5.4%)	48 (62.3%)	**<0.01***
Stoma Prolapse	2 (5.4%)	3 (3.9%)	0.46
Ostomy Reversal	34 (91.9%)	74 (96.1%)	0.35

SURGICAL RESECTION IS DELAYED IN PATIENTS WITH UNCOMPLICATED DIVERTICULITIS.

eP171

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Purpose/Background: Diverticular disease is an increasingly common condition and leading diagnosis for inpatient and outpatient medical visits. Diverticulitis leads to multiple hospital admissions and Computed Tomography (CT) scans in patients who ultimately undergo surgery. The ASCRS clinical practice guidelines recommend elective resection for patients with abscess, perforation, fistula, and/or stricture. In contrast, an individualized approach is recommended for patients with uncomplicated disease. This creates ambiguity when discussing surgical recommendations for patients with less severe disease. The aim of this study was to evaluate patients who underwent elective resection for diverticulitis and compare differences between patients with uncomplicated and complicated disease.

Methods/Interventions: A retrospective chart review was performed on patients who underwent elective resection for diverticular disease between March 2021 and March 2022 by our colorectal practice. Demographic information, disease characterization, time between diagnosis and surgery, and number of hospitalizations and CT scans were evaluated. Univariate analysis was performed with t-test and Fischer's exact test.

Results/Outcome(s): There were 102 patients included in our study. The mean time between diagnosis and surgery was 53 months. Patients underwent an average of 2 hospitalizations and 3 CT scans. Seven patients required CT-guided drainage of an abscess. When patients with complicated disease (abscess, perforation, fistula, and/or stricture, n=45, 44%)) were compared to patients with uncomplicated disease (n=57, 56%), the time between diagnosis and surgery was 35.3 and 66.3 months, respectively (p=0.01). Hospital admissions, number of CT scans, and IV antibiotics did not have a statistically significant difference (Table 1).

Conclusions/Discussion: Over half of patients who underwent elective surgery for diverticulitis had uncomplicated disease. Patients with uncomplicated disease have almost twice as much time between diagnosis and resection compared to those with complicated disease. Identification of additional characteristics that could guide surgical decision making in uncomplicated diverticulitis could decrease time to surgery as well as the burden of additional hospitalizations and/or imaging.

Table 1. Comparison between Complicated and Uncomplicated patients with Diverticulitis

	Complicated (n=45)	Uncomplicated (n=57)	P value
Age at Surgery (years)	60.0	58.4	0.543
Time Between Diagnosis and Surgery (months)	35.3	66.3	0.01*
Admissions (average)	2.2	2.3	0.818
CT Scans (average)	3.1	3.3	0.731
IV Antibiotics	35 (78%)	36 (63%)	0.179

t-test and Fischer's exact test

INDOCYANINE GREEN FLUORESCENCE IN THE ASSESSMENT OF ANASTOMOTIC VASCULAR PERFUSION IN COLORECTAL SURGERY IN A DEVELOPING COUNTRY TERTIARY HOSPITAL.

eP172

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Purpose/Background: Indocyanine green (ICG) is an amphiphilic substance with an acceptable safety profile that has found utility in various surgical settings. Studies have shown that ICG fluorescence imaging has led to decreased incidence of anastomotic dehiscence when used on left-sided colonic and rectal resections. In the setting of a developing country where surgical complications impact heavily on finances and a patient's capacity to complete cancer-related treatment, the benefits of ICG fluorescence may be of much value. This study aimed to determine how ICG fluorescence imaging may influence the level of bowel resection prior to anastomosis. We also attempted to establish a difference in the anastomotic leak rates between patients who had ICG fluorescence imaging, and those who did not.

Methods/Interventions: Using a retrospective cohort design the investigators gathered data using the Integrated Surgical Information System (ISIS) and Registry of Admissions and Discharges (RADISH) of the Philippine General Hospital (PGH) from January 2018 to September 2022. Patients included were those who underwent elective resection for a left-sided colon, or rectal, pathology, with anastomosis; aged 18 to 75 years old; open, or minimally-invasive, approach; with or without a protecting stoma. The following protocol is followed by the Division on the use of ICG: 1. The surgeon marks the intended line of resection; 2. A slow intravenous push of ICG (0.1mg/kg) diluted in sterile water is administered; 3. Adequacy of perfusion is assessed after 2-5 mins; 4. If inadequate, adjustment of resection margin is recorded and the perfusion is assessed again before and after anastomosis.

Results/Outcome(s): Data of 86 patients were obtained from the database. Patient characteristics, tumor characteristics, and surgical approach were not significantly different between the groups. In the ICG group, all patients had a baseline ICG infrared imaging. A change in the intended resection margin was found to be necessary in four patients. A mean of 3.25 cm (range 2-4 cm) of additional bowel length from the originally planned line of resection was removed. The anastomoses were checked afterwards with ICG imaging. None of the anastomoses had to be re-done after the second ICG. With regard to postoperative complications, 27.9% of patients in the ICG group and 37.2% in the no-ICG group experienced at least one morbidity. Significantly higher rates of anastomotic leak (recognized during admission), 30-day anastomotic leak (recognized within 30 days postoperatively and after discharge), and return to the OR were noted in the no-ICG group. There was no note of adverse events associated with the use of ICG.

Conclusions/Discussion: This study showed that ICG use was associated with a decrease in anastomotic leak rates among patients who underwent left-sided colon and rectal resections. There were also no adverse events documented.

Characteristic	No ICG (N=43)	With ICG (N=43)	p-value (<0.05)
Age in years (Mean ±SD)	56 (±10.3)	59 (±12.6)	0.287
Sex M/F	24:19	23:20	0.831
BMI kg/m² (Mean ±SD)	23.2 (±3.1)	24.0 (±4.3)	0.296
ASA Class (n) I/II/III/IV	4/37/2/0	3/37/3/0	0.568
Cancer Staging (n) T1/2/3/4	1/7/27/8	1/8/27/7	0.749
N0/1/2	8/27/8	16/23/4	0.064
M0/1	33/10	33/10	1.000
Preoperative chemotherapy (n, %)	21 (48.8%)	14 (32.6%)	0.127
Preoperative radiotherapy (n, %)	19 (44.2%)	14 (32.6%)	0.273
Open surgery/Laparoscopic/Robotic (n, %)	30 (69.8%)/ 11 (25.6%)/ 5 (11.6%)	25 (58.1%)/ 15 (34.9%)/ 3 (7.0%)	0.740
Splenic flexure mobilization (n, %)	28 (65.1%)	25 (58.1%)	0.512
High/Low ligation of IMA (n, %)	9 (20.9%)/ 34 (79.1%)	4 (9.3%)/ 39 (90.7%)	0.082
Protecting stoma (n, %)	22 (51.2%)	17 (39.5%)	0.284
Level of anastomosis in cm <8 cm (n, %)	22 (51.2%)	14 (32.6%)	0.126
8-9 cm (n, %)	7 (16.3%)	9 (20.9%)	
>10 cm (n, %)	14 (32.6%)	20 (46.5%)	
Operative time (Mean ±SD)	352.5 (±114.5)	333.9 (±115.0)	0.464
Blood loss (Mean ±SD)	566.0 (±433.8)	425.1 (±385.1)	0.115

Characteristic	Data		
Baseline ICG infrared image acquired	100%		
Change to resection margin, (n, %)	4 (9.3%)		
Distance from planned transection in cm (Mean ±SD)	3.25 (±0.96)		
ICG infrared image after anastomosis	100%		
Change in anastomosis after ICG	0%		
Confirmation of vascular supply after anastomosis	100%		
Characteristic	No ICG (N=43)	With ICG (N=43)	p-value (<0.05)
Postoperative morbidity (n, %)	17 (39.5%)	12 (27.9%)	
Anastomotic leak	10	3	0.035
30-day anastomotic leak	11	4	0.047
Ileus	8	8	0.135
Return to operating room	9	4	0.002

Table 1a (Left). Patient characteristics, tumor characteristic, and surgical data; Table 1b (Right). ICG use and postoperative complications

INTERESTING CASE REPORTS OF ADENOMATOID TUMORS FOUND IN THE GASTROINTESTINAL TRACT.

eP173

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Purpose/Background: Adenomatoid tumors are an overall uncommon benign neoplasm of mesothelial origin and are commonly found in the male and female genital tract. They can be angiomatoid, cystic or solid in appearance and stain positive for various immunohistochemical (IHC) stains. These tumors can be found incidentally or can grow large enough to cause compressive symptoms and mainstay of treatment include surgical resection for diagnostic purposes. Very rarely can these tumors be present outside of the genital tract, and there have been some case reports of adenomatoid tumors in the adrenal gland, heart, mediastinum, liver and peritoneum. There have only been 2-3 case reports published of adenomatoid tumors present within the gastrointestinal (GI) tract so far.

Methods/Interventions: Here we present a single institutional retrospective case series of patients who were found to have adenomatoid tumors within their GI tract. Pathology reports of adenomatoid tumors from Mayo Clinic Arizona, Minnesota and Florida were reviewed from 2010-2022.

Results/Outcome(s): A total of 39 cases of adenomatoid tumors were identified, out of which three patients had adenomatoid tumors of the GI tract located within the omentum, small bowel and colon. These masses were able to be excised successfully. Diagnosis was confirmed on IHC and all adenomatoid tumors were found to be non-malignant.

Conclusions/Discussion: Here we present an interesting small case series of three patients with GI adenomatoid tumors arising from the omentum, small bowel and colon.

All three cases had full excision of the mass, which was later found to be a benign adenomatoid tumor on pathology. There are only a handful of non-genital tract adenomatoid tumors published, with some being present within the small bowel/ colon mesentry and only one prior case of it being found at the appendix. This may be the first case report of an adenomatoid tumor being present alongside the colon lumen and not within the mesentry. This case highlights the diagnostic dilemmas of these solid masses that may be unsafe to biopsy and show the role of surgery in diagnosing and treating this condition.

ANTIDIARRHEAL USE PATTERNS AND UNPLANNED HEALTHCARE UTILIZATION IN NEW OSTOMY PATIENTS.

eP174

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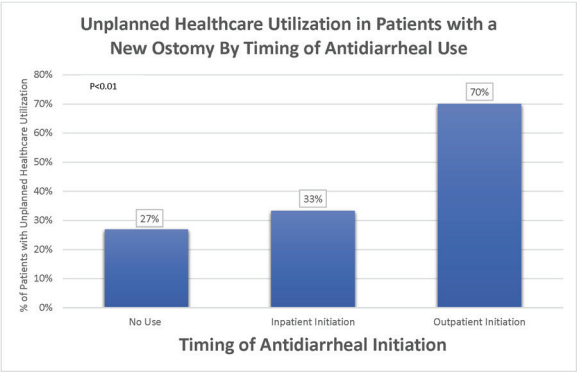
Purpose/Background: Ostomy construction is associated with one of the highest hospital readmission rates among all gastrointestinal procedures and is often related to dehydration from high ostomy output. Though several interventions have targeted readmissions in ostomy patients, there is limited evidence about the timing of antidiarrheal (AD) initiation and risk of readmission. In this study, we hypothesized that AD initiation following hospital discharge would be associated with higher rates of 60-day unplanned healthcare utilization in new ostomy patients.

Methods/Interventions: We retrospectively identified patients with a new ostomy created between April 2018 and December 2021 at a single institution. Patients wtih age <18 years or history of prior ostomy were excluded. The independent variable of interest was AD use categorized into three groups: no AD use, AD initiated as inpatient (inpatient AD), or AD initiated as outpatient (outpatient AD). The primary outcome included any unplanned healthcare utilization, defined as any emergency room visit or inpatient readmission within 60 days after discharge. Multivariable logistic regression was used to examine the association between AD use and 60-day unplanned healthcare utilization adjusting for demographic and procedure factors. A sub-analysis of patients with an ileostomy was performed given their increased rate of AD use.

Results/Outcome(s): Among 321 patients who underwent surgery with a new ostomy, 76.3% (n=242) had no AD use, 17.7% (n=57) started AD as an inpatient, and 6.0% (n=20) started AD as an outpatient. The overall unplanned healthcare utilization rate was 30.7%. Age, race, and BMI were similar among the three AD groups, however having an ileostomy was more frequent in the AD inpatient (93%) and AD outpatient (90%) groups compared to the no AD group (50.8%; p<0.01). Sixty-day unplanned healthcare utilization was significantly higher in the outpatient AD group (70.0%) compared to the inpatient AD group (33.3%) and no AD use group (26.9%; p<0.001). On multivariable analysis, 60-day unplanned healthcare utilization was significantly higher in the outpatient AD initiation group (OR 8.47, 95%CI 3.04-26.63) but not the inpatient AD group (OR 1.41, 95%CI 0.76-2.96) compared to the no AD group. A sub-analysis of ileostomy patients showed similar findings with outpatient AD initiation associated with a 72.2% 60-day unplanned healthcare utilization versus 32% and 25% in the inpatient AD and no AD use groups, respectively (p<0.001).

Conclusions/Discussion: Unplanned healthcare utilization following surgery with ostomy construction is strikingly higher among patients who have to start an antidiarrheals following hospital discharge. This risk was not seen for patients who required antidiarrheals during their inpatient stay. The finding suggests a role for routine antidiarrheal prescription and education for ostomy patients at discharge to reduce the risk of readmission.



SIGMOID COLON OBSTRUCTION SECONDARY TO AN ADHESIVE INTERNAL HERNIA CAUSED BY OMENTAL RING: A CASE STUDY.

eP175

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Purpose/Background: We present an interesting case to highlight a rare presentation of an internal hernia with sigmoid colonic obstruction caused by an adhesive omental ring.

Methods/Interventions: The patient is a 67-year-old male with extensive, but unclear, past surgical history who presented with chronic recurring abdominal pain and imaging findings (figure 1-A) concerning for internal hernia versus sigmoid volvulus. The patient initially underwent attempt at detorsion with colonoscopy without evidence of volvulus. Repeat abdominal radiographs showed continued bowel gas distention without pneumoperitoneum. Due to persistent symptoms and concern for internal hernia, the patient was taken to the operating room for exploratory laparotomy. Intraoperatively, patient was found to have

an adhesive ring (figure 1-B) of chronically inflamed omentum with a loop of chronically dilated and thickened sigmoid colon herniating through it causing a partial obstruction. He subsequently underwent lysis of adhesions with reduction of internal hernia, partial omentectomy, and sigmoid colectomy with stapled end to side colorectal anastomosis.

Results/Outcome(s): The patient had an uncomplicated post-operative course and was discharged home on postoperative day three. The final pathology of the omentum showed fibroadipose soft tissue with acute and chronic inflammation, abscess formation, fat necrosis, hemorrhage, vascular congestion and granulation tissue. The final pathology of the colon showed no evidence of dysplasia or malignancy.

Conclusions/Discussion: The presentation of abdominal pain is highly nonspecific, and as a result, it creates a wide array of differential diagnoses. One specific cause of abdominal pain is large bowel obstruction (LBO), which is the intrinsic or extrinsic occlusion of the colonic lumen resulting in dilation of the bowel proximal to the site of obstruction. The more common etiologies of a LBO include neoplasm, volvulus, and diverticulitis. Internal hernias secondary to adhesive disease are a rare cause of LBO. The radiographic diagnosis of an internal hernia can be quite challenging. As with this case, adhesive internal hernias can be masked as a sigmoid volvulus, and many times cannot be determined until time of operation. As such surgical exploration is imperative if there is concern for internal hernia.

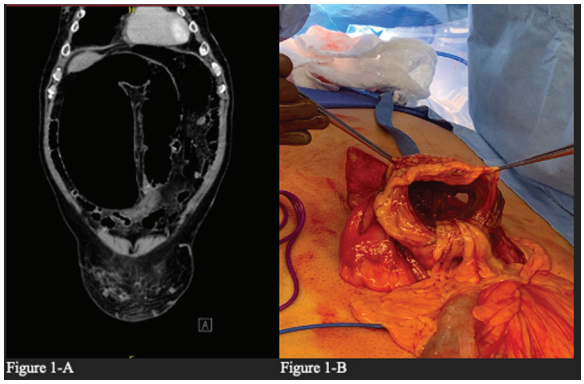

Figure 1-A Figure 1-B

TREATMENT OF DIVERTICULITIS IN OCTOGENARIANS.

eP176

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Purpose/Background: Diverticulitis occurs when there is inflammation, infection, or perforation of a diverticulum. Diverticulitis is a colonic disease common in the elderly, but surgical treatment can be complex due to complications such as advancing age and prior medical diagnoses. More minimally invasive surgical techniques, such as laparoscopic and robotic-assisted surgeries, are associated with reduced morbidity and mortality rates for diverticulitis cases. This study will examine diverticulitis in octogenarians at Prisma Health-Upstate, specifically investigating the types of treatments that patients received and the outcomes of those interventions.

Methods/Interventions: A retrospective chart review was conducted using patients of ages greater than 80 who were diagnosed with diverticulitis at Prisma Health-Upstate from January 2017 to May 2022. Data were collected from the patient's electronic health records and entered into a REDCap database. This data was then compared to a similar data set from a control group of patients younger than 80.

Results/Outcome(s): Our results revealed that the female gender was more likely to be diagnosed with diverticulitis in both groups. Also, a CT scan was the modality commonly made the diagnosis, likely due to increasing availability. Results also revealed that significantly fewer patients underwent surgery over 80. There was no difference in surgical site infection, ICU admission, or intraoperative complications between the group. A statistically significant difference was noted in death between the two groups (2% in <80, and 9.7% in >80), a finding potentially explained due to more open procedures performed in older patients, the presence of co-morbidities, and the chronicity of the disease. Interestingly, diabetes and hypertension were noted more in the younger group, whereas COPD, CKD, and CHF were noted in the older group. Many patients underwent surgery in the control group due to recurrent/intractable disease; however, zero patients in the >80 age group underwent surgery for the same reason.

Conclusions/Discussion: It may be reasonable to consider elderly patients to undergo minimally invasive surgery on an elective basis for diverticular disease without a significant difference in morbidity instead of making the argument for treating the older population non-operatively, which could make the outcomes worse if an emergent surgery is needed due to chronicity of the disease process.

SALVAGE MANEUVERS FOLLOWING LEFT-SIDED COLORECTAL RESECTION: DEROTATION OF THE RIGHT COLON AND RETROILEAL ANASTOMOSIS.

eP177

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Purpose/Background: Derotation of the right colon (Deloyers procedure - DRC) and retroileal anastomosis (RIA) are salvage techniques when insufficient reach occurs after left-sided colorectal resection. The aim of this study was to identify the indications for salvage maneuvers and to assess feasibility and patient outcomes.

Methods/Interventions: A retrospective review identified all patients undergoing colorectal resection performed by a single surgeon between January 1, 2012 and August 31, 2022. Patients requiring either DRC or RIA were identified. Exclusion criteria included those patients without 90 days of follow-up.

Results/Outcome(s): We identified 442 patients that underwent left-sided colorectal resection between 2012 and 2022. Of those, 18 patients (4.1%) underwent DRC, while 15 patients (3.4%) had RIA. The median age was 65-years-old for both subsets. Median BMI was 29.40 kg/m^2 and 29.27 kg/m^2 for the DRC and RIA patients, respectively. Table 1 demonstrates the indications for surgery, operative details and post-operative outcomes for the two groups. DRC was often planned pre-operatively based upon the location of pathology. The indications included colon adenocarcinoma, colonic inertia, Crohn's colitis with stricture, and diverticular disease of the sigmoid, descending, and distal transverse colon, as well as for gastrointestinal bleeding with the intention of preserving the ileocecal valve. RIA, however, was more often an intra-operative decision required in pelvic operations. These patients underwent LAR, with all patients receiving rectal or coloanal anastomoses. We identified two anastomotic complications (2/33, 6%), one in each group. The patient who underwent a DRC for inertia developed obstipation and dehiscence and returned to OR for completion colectomy and end ileostomy. The patient receiving RIA had leukocytosis and underwent IR drainage of pelvic collection with resolution, and underwent stoma closure. Planned diverting ileostomy occurred in 11.1% (2/18) of DRC patients and 40% (6/15) of RIA patients, and 75% (6/8) had reversal. The two patients without reversal expired at 4 months and 6 months post-operatively from causes unrelated to their operation. The 90-day mortality rate was 0%.

Conclusions/Discussion: DRC and RIA represent salvage maneuvers for anastomotic construction. In this series, such maneuvers were necessary in 7.5% of colorectal resections. Anastomotic complications were rare and only one resulted in end stoma creation (1/33, 3%). These techniques enabled anastomotic construction with proximal colon and spared our patients from end stoma or, alternatively, completion colectomy and ileorectal anastomosis. This report demonstrates that derotation of the right colon and retroileal anastomosis, though uncommon, offer safe, technical maneuvers in patients undergoing left-sided colorectal resection when reach proves difficult.

	Derotation of the Right Colon (DRC) n=18	Retroileal Anastomosis (RIA) n=15
Indication		
Colon Cancer	8	1
Rectal Cancer	0	5
Chronic Diverticular Disease	2	2
Chronic Constipation	5	0
Crohn's Colitis	1	2
Colostomy Reversal	0	4
Enterocolitis	0	1
Gastrointestinal Bleeding	2	0
Surgical Approach		
Laparoscopic with hand-assist	10	4
Laparoscopic converted to open	2	3
Open	6	7
Robotic converted to open	0	1
Level of Anastomosis		
Descending	2	0
Sigmoid	4	0
Upper Rectum	10	4
Mid Rectum	2	6
Coloanal	0	5
Anastomotic Technique		
Handsewn End-to-End	5	0
Stapled End-to-End	13	10
Handsewn Coloanal J Pouch	0	1
Stapled Coloanal J Pouch	0	4
Clavien-Dindo Complication		
None	5	6
I	3	5
II	2	3
IIIa	2	0
IIIb	4	1
IVa	1	0
IVb	1	0
Unplanned IR Procedures	1	2
Unplanned Re-operations	4	0
Postoperative Leak	1	1
Planned Diverting Ileostomy	2	6
Ostomy Reversal	1	5

Table 1. Operative Indications and Outcomes for DRC and RIA

IMPACT OF COVID-19 ALPHA WAVE ON ACUTE APPENDICITIS.

ePl78

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Purpose/Background: Acute appendicitis is the most frequent cause of urgent abdominal surgery worldwide. Appendectomy is the gold standard for uncomplicated appendicitis. During the COVID-19 pandemic, non-emergent surgeries were restricted nationwide. Appendectomies in America are estimated to have been reduced by 24%. The aim of this study is to evaluate the effect of the COVID-19 pandemic on presentation, treatment and outcomes in acute appendicitis.

Methods/Interventions: A retrospective review in a single institution located in Queens, New York (NY) was conducted. Patients who presented with appendicitis between March 1st to June 30th of 2018-2021 were included. Pre-COVID was defined as March to June 2018 and 2019, peak-COVID March to June 2020 and late-COVID March to June 2021. This time period reflected the peak of COVID cases and healthcare disruptions in NY. Data was abstracted using NSQIP. R (version 4.2.1) was used to conduct statistical analyses.

Results/Outcome(s): 553 patients admitted with appendicitis were identified. Average age was 39 years and 53% were male. 36% of patients were Hispanic, 17% Caucasian, 39% Asian, and 5% were Black. 335 patients were admitted pre-COVID, 92 patients peak-COVID,126 patients late-COVID. Compared to pre-COVID, patients who presented during peak-COVID were younger

(p=0.0007) and more likely to be Hispanic (p=0.03). However, after peak-COVID, the demographics were similar to pre-COVID. There was no difference in gender, race, or payment status (p>0.05). There was no difference in duration of symptoms at presentation (p=0.7). Patients during peak-COVID were less likely to have fever on admission (15% vs. 7.3%, p=0.12). Albumin levels were higher for those who presented during peak-COVID (p=0.03). White blood cell count on presentation were not significantly different. There was no significant difference in rates of simple vs complex appendicitis (p=0.4). No difference in operative management of acute appendicitis between the time periods was seen (p=0.11), but patients were more likely to be ASA classification 2 (70% vs. 89%, p=0.002) and less likely to be ASA 3 (14% vs. 5.6%, p=0.002). There was no difference in antibiotics management on discharge (p=0.12). Patients were significantly more likely to have a shorter length of stay (2.37 vs. 2.85 days, p=0.04). There was no difference in readmission rate (p=0.7).

Conclusions/Discussion: This study shows a demographic and clinical difference in presentation of patients with appendicitis during the peak of COVID. Patients who presented to the hospital tended to be younger, Hispanic, and have a higher ASA (class II). We speculate that elderly and frail patients avoided the hospital setting for fear of COVID exposure. These results lead us to hypothesize that more patients with appendicitis might have been managed outpatient. Further studies should be done looking at the rate of outpatient nonoperative management of appendicitis and its outcomes.

Characteristics	Overall N=553[1]	Pre-COVID N=335	Peak-COVID N=92	Post-COVID N=126	p-value
Age	39 (19)	39 (20)	34 (18)	43 (18)	0.007
Ethnicity					0.025
Hispanic Or Latino	201 (36%)	130 (39%)	38 (41%)	33 (26%)	
Not Hispanic Or Latino	285 (52%)	172 (51%)	39 (42%)	74 (59%)	
Simple vs. Complex					0.5
Complicated	235 (42%)	136 (41%)	42 (46%)	57 (45%)	
Simple	318 (58%)	199 (59%)	50 (54%)	69 (55%)	
Surgery					0.2
No Surgery	105 (19%)	56 (17%)	22 (24%)	27 (21%)	
Surgery	448 (81%)	279 (83%)	70 (76%)	99 (79%)	
Duration of Symptoms	2.41 (3.46)	2.38 (3.53)	2.57 (3.83)	2.37 (2.95)	0.9
White Blood Cells	13.2 (4.6)	13.4 (4.6)	13.4 (4.8)	12.6 (4.4)	0.4
Albumin level	4.65 (0.45)	4.60 (0.43)	4.73 (0.53)	4.76 (0.42)	0.003
Fever on Admission	67 (12%)	50 (15%)	8 (8.7%)	9 (7.1%)	0.040
ASA 2 - Mild Disturb	339 (74%)	200 (70%)	64 (89%)	75 (75%)	0.016
Antibiotic at Discharge					<0.001
None	318 (58%)	203 (61%)	46 (50%)	69 (55%)	
PO	214 (39%)	125 (37%)	45 (49%)	44 (35%)	
Number of Readmissions	13 (2.7%)	9 (3.0%)	1 (1.3%)	3 (3.0%)	0.9

1 Mean (SD); n (%)
2 One-way ANOVA; Fisher's exact test; Pearson's Chi-squared test; Fisher's exact test with simulated p-value

VENOUS THROMBOEMBOLISM RISK AFTER ROUTINE OSTOMY REVERSAL.

eP179

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Purpose/Background: Temporary ostomies are frequently utilized to minimize morbidity associated with the management of several colorectal diseases. The American Society of Colorectal Surgeons released Clinical Practice Guidelines for pharmacological thromboprophylaxis in 2018 recommending use in moderate or high-risk patients undergoing colorectal operations. This recommendation was based on studies with patients undergoing major colorectal surgeries; however, ostomy reversal is largely considered a low morbidity procedure and has thus not been included in guideline recommendations or ever studied. This study aimed to elucidate the symptomatic venous thromboembolism (VTE) rate post- ostomy reversal to better inform inpatient and outpatient thromboprophylaxis guidelines.

Methods/Interventions: A retrospective review of all patients within a single institution who underwent ostomy reversal between 2010- 2022 was performed. Data collected included patient demographics, diagnosis resulting in ostomy creation, type of stoma, operative details, use of in-hospital and post- discharge chemothromboprophylaxis, and in-hospital and 90-day post hospital discharge symptomatic VTE events.

Results/Outcome(s): A total of 9,658 patients were identified as having undergone an ostomy reversal, of which 33% (n=3,200) had an initial diagnosis of inflammatory bowel disease (IBD), 24% (n=2,324) colorectal cancer, 21% (n=2,050) had diverticulitis, and the remainder having other diagnoses. The overall VTE rate across all diagnoses was 2.7%, with significantly more VTE events in cancer and diverticulitis patients than IBD patients (p<0.0001). The type of ostomy created (ileostomy versus colostomy) did not significantly impact the VTE rate (p=0.4), but end colostomies did result in more VTE events than loop ileostomies (2.7% versus 2.5%). Intra-operatively, those who subsequently developed VTEs lost more blood on average (43.3 cc versus 32.9 cc). Post-operatively, patients who received inpatient thromboprophylaxis had fewer VTE events (16.1% versus 13.4%); of note, post-operative VTE rates were higher in those prescribed extended prophylaxis (2.3% versus 1.0%). Age was significantly higher for those who developed symptomatic VTE (p<0.0001). (Table 1) Positive smoking history (58.6 % versus 50.5%), contraceptive use (5.4% versus 3.9%), hypercoaguable state (15.7% versus 1.6%) and cardiovascular disease history (24.5% versus 12.45) were seen more frequently in symptomatic VTE patients.

Conclusions/Discussion: Although considered to be a relatively low risk colorectal operation, ostomy reversal

conferred an overall 2.7% VTE rate. Consistent use of in-hospital and potential post-discharge VTE chemoprophylaxis may be beneficial following ostomy reversal. Further multi-institutional and prospective studies would benefit in determining the risk-to-benefit ratio for chemothromboprophylaxis in this subset of colorectal surgeries.

Table 1: Comparison of key variables between patients who had symptomatic VTE events and those who did not

	VTE Status (-) VTE Event, N = 9397 (97.3%)	(+) VTE Event, N = 261(2.7%)	p-value
	Mean (SD)	*Mean (SD)*	
Age, *years*	52.3 (16.3)	57.6 (15.1)	<.0001
	n (%)	*n (%)*	
Diagnosis			<.0001
Cancer	2256 (24.0%)	68 (25.1%)	
Diverticular Disease	1984 (21.1%)	66 (25.3%)	
IBD	3151 (33.5%)	49 (18.8%)	
Unknown	2006 (21.4%)	78 (29.9%)	
Ostomy			0.4
Colostomy	1572 (16.7%)	39 (14.9%)	
Ileostomy	7335 (78.1%)	204 (78.2%)	
Unknown	490 (5.2%)	18 (6.9%)	

SURGEONS FOLLOW DISTINCT PATTERNS WHEN COUNSELING OLDER PATIENTS WITH DIVERTICULAR DISEASE.

eP180

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Purpose/Background: Older adults with colonic diverticular disease present unique challenges for surgeons given their higher rate of postoperative complications and increased risk for severe illness at recurrence if nonoperative management is pursued. Current guidelines recommend that surgeons individualize care for these patients. In previous studies, surgeons have described heterogeneity in decision-making surrounding surgical treatment and counseling of patients. We sought to better understand how colorectal surgeons counsel older adults about treatment options for diverticular disease in the outpatient setting.

Methods/Interventions: This is a multi-center study of older adults (≥65) with diverticular disease presenting for outpatient consultation with a colorectal surgeon. Patient frailty was measured using the FiND Questionnaire pre-consultation. We recorded and transcribed surgical consultations, then performed a preliminary qualitative thematic analysis to characterize how surgeons counsel older adult patients about treatment options.

Results/Outcome(s): To date, we have enrolled 15 surgeon-patient dyads at 3 sites. Patient demographics and disease characteristics are shown in Table 1. Themes included "straightforwardness" of cases and patient decisional autonomy. In patients with diverticulitis with ongoing symptoms, surgeons took one of two approaches. For patients who would clearly benefit from colectomy, surgeons expressed a strong recommendation for surgery at the beginning of the visit followed by a description of the surgical procedure, risks and recovery. In cases with diagnostic uncertainty or greater than average surgical risk, surgeons described surgery versus observation with expected outcomes, and came to a decision based on patient preference. One surgeon in this scenario said, "depends on if (your diverticulitis) is bothering you enough to where you want to go through (surgery), then it's the right thing to do". For patients with diverticulitis with resolved symptoms, surgeons described the risks and benefits of surgical resection versus observation but emphasized the individual decision-making process with the patient, as exemplified by a surgeon stating, "the discussion about when to do surgery for diverticulitis is…about weighing the risks and benefits". The final decision was left up to the patient, with surgeons counseling them to consider their quality-of-life goals.

Conclusions/Discussion: This preliminary analysis suggests that there are distinct patterns by which surgeons counsel older patients with diverticular disease, influenced by the presence of ongoing symptoms, diagnostic uncertainty, and surgical risk. Surgeons' approaches to decision-making and counseling patients may not be as heterogeneous as previously thought, which may inform future efforts to develop patient education materials.

Patient Characteristics	N	%
Demographics		
Age (Years)	74 (IQR 69-75)	
Sex (Male)	7	47%
Race (White)	14	93%
Ethnicity (Non-Hispanic)	14	93%
Frail	5	33%
Type of Diverticulitis		
Ongoing Symptoms		
Smoldering diverticulitis	4	27%
Diverticulitis resulting in fistula	3	20%
Diverticulitis resulting in stricture	2	13%
Resolved Symptoms		
Recurrent, uncomplicated diverticulitis	5	33%
Diverticular abscess	1	7%

Table 1.

ANGIOEMBOLIZATION FOR MAJOR COLONIC HEMORRHAGE, IS IT SAFE AND FEASIBLE?

eP181

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Purpose/Background: Over the last fifty years, angioembolization has been prioritized in the management of significant lower gastrointestinal bleeding (LGBI). Endovascular embolization treatment allows for potential avoidance of surgical intervention in compromised, under resuscitated patients. The purpose of this study is to evaluate the outcomes in a cohort of patients who underwent angioembolization for acute colonic hemorrhage.

Methods/Interventions: We performed a retrospective study from a prospectively accrued, deidentified Enterprise Level Clinical Database for patients with

colonic hemorrhage managed by angioembolization from 2016-2021. Analysis included demographics (age, sex, race and BMI) admission laboratories (leukocyte count, lactic acid and platelets), vasopressor use, blood transfusions, surgical intervention post embolization, re-bleeding, 90 days re-admissions and length of stay (LOS) pre and post-angioembolization. Non-colonic embolization and blind embolizations were excluded. Statistical analysis of potential prognostic factors on the outcome was performed.

Results/Outcome(s): Total of 142,146 patients were admitted with LGIB. Only 162 (0.1%) patients presenting with LGIB required colon angioembolization for management. Seventy six percent of these admissions came from home. There was a mean age of 68.4 years (range 18-89). Overall mean LOS was 8.9 days. 117 (72.2%) patients required intensive care unit (ICU) admission. Sixty seven (41%) patients required multiple red cell transfusions. Mean preangiography red cell transfusion was 4.7 units. 53 (32.7%) patients required vasopressor support. The majority of the patients underwent angioembolization beyond the index day of admission (2.65 days ± 4.73). After angioembolization, mean transfusion was 2.5 units. 3 (1.9%) patients required colon resection. Mean LOS after embolization was 6.5 days and total ICU LOS was 5.6 days. Most patients were discharged home (74; 45.7%) or to nursing facility (65; 40.1%). Recurrent LGIB, requiring readmission, developed within 90 days in 58 (35.8%). All cause 90 day mortality after undergoing angioembolization was 21 (13%), of which 7 (4.3%) were after re-admission.

Conclusions/Discussion: Angioembolization for patients with acute onset colonic hemorrhage was quite uncommonly employed in those admitted with LGIB, however successful in controlling hemorrhage without subsequently requiring surgical intervention. The significant rate of new discharge to a nursing facility and the 90 day all cause mortality is indicative of the debilitating nature of major colonic hemorrhage.

YOU PULLED IT OUT OF WHERE? THE EXPERIENCE OF A COMMUNITY-BASED COLORECTAL PRACTICE WITH STOMA SITE EXTRACTION IN ROBOTIC-ASSISTED COLORECTAL RESECTION.

eP182

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Purpose/Background: For minimally invasive surgeries involving colorectal resection and ostomy creation, the ideal approach to remove the specimen remains unknown. Current options include stoma site extraction (SSE), Pfannenstiel, right lower quadrant, or midline incisions. The purpose of this study is to determine if there is an association between site of extraction (stoma vs. incisional) and stoma related complications in patients undergoing robotic assisted colorectal resection and ostomy creation.

Methods/Interventions: This retrospective cohort study included patients age 18 years or older who underwent robot assisted resection with ileostomy or colostomy creation between 2017 to 2021 at a single institution. Patients were excluded if they had a pre-existing ostomy, emergent surgery, converted to an open, abdominoperineal resection, or if site of extraction was natural orifice. Stoma related complications included parastomal hernia, retraction, dehiscence, necrosis, obstruction, prolapse, stenosis, and ischemia. They were categorized as early (30 days post-operative) or long-term complication (>30 days up to 1 year post-operative).

Results/Outcome(s): Ninety five patients were identified, of which, 71.6% had a SSE (n=68) and 28.4% had an incisional extraction (n=27, 17.9% Pfannenstiel, 10.5% lower quadrants). The average age was 56 years, 57.9% were male, 68.4% Caucasian, average BMI 27.7 kg/m2. 77.9% had colorectal cancer and 80.9% had a low anterior resection with a diverting loop ileostomy. 84.2% had an ostomy reversal after the index surgery. The overall complication rate was 12.6% (12 patients with 14 events). 3.2% were early complications and 10.5% reported a long-term complication. 10.3% of the SSE group had any stoma related complication compared to 18.5% of the incisional group. Early complications were limited to the SSE group (i.e. parastomal irritation, obstruction, prolapse). Long-term complications occurred in 7.4% of SSE and 18.5% of incisional extractions. There were no statistically significant associations between site of extraction and complications (any, early, or long-term). In an independent t-test, the total operative time was significantly greater in the incisional group with a mean of 322 minutes (±111.5 SD) compared to 278 minutes (±79.2 SD, $t = -2.2$, $df = 93$, $p = .03$).

Conclusions/Discussion: This study observed an overall low rate of stoma related complications in robotic-assisted bowel resection. While SSE may have an increase in early stoma complications, the overall rates were similar. Further, SSE procedures demonstrated a shorter average operative time. Based on these findings, SSE is a reasonable method of specimen site extraction. Due to the small sample size, further research is needed to conclude non-inferiority/equivalence in site of extraction.

MECHANICAL COMPLICATIONS OF INTESTINAL OSTOMIES: A SYSTEMATIC SCOPING REVIEW.

eP183

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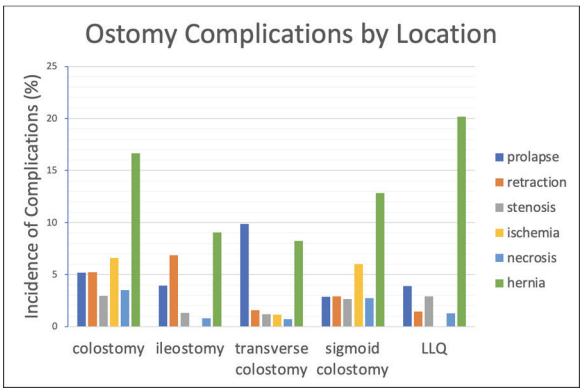
Purpose/Background: The incidence of mechanical intestinal stoma complications (prolapse, parastomal hernia (PSH), ischemia, necrosis, retraction, stenosis) is

high despite preoperative siting, use of devices including mesh and rods, and improvement in surgical technique. Some studies suggest there may be an association between anatomical location of the stoma and rate of mechanical complications; however, this association remains incompletely characterized.

Methods/Interventions: On January 1, 2021, Ovid MEDLINE, Ovid Embase, and Cochrane Library were searched with keywords pertaining to mechanical intestinal stoma complications (prolapse, parastomal hernia (PSH), ischemia, necrosis, retraction, stenosis). All research studies (no case reports) that reported one or more of the target complications and details regarding the anatomical location of the stomas were included. Studies that only included patients with stoma complications were excluded. Stoma locations were defined differently in many studies (within/outside the rectus, sigmoid/transverse, colon/ileum, etc), and were all included. Systematic reviews and meta-analyses that met our criteria were not included but the studies that comprised them were considered for inclusion. Four authors independently reviewed 6,898 studies (2 authors per study), with another author serving as the arbitrator when necessary. The same process was used for data extraction. All data were extracted and analyzed in Excel.

Results/Outcome(s): 22,991 patients were included in 112 studies, 10 (8.9%) of which were randomized controlled trials. Of the 23 locations, most commonly reported locations included colostomy (11,506 patients, 80.4% of studies) and ileostomy (4,979 patients, 41.1% of studies). Stoma locations associated with the highest rate of complications were left lower quadrant (LLQ) (24.0%, 195/811), colostomy (23.3%, 2675/11506), and sigmoid colostomy (19.5%, 247/1268). Most common complications overall were PSH (3150/21816, 14.4%), ischemia (82/1475, 5.6%), and prolapse (698/14167, 4.9%). PSH was the most common complication for most locations, ranging from 8.3% (transverse colostomy) to 20.2% (LLQ).

Conclusions/Discussion: Stoma-related complications are very common, with incidences of >20%. With an overall incidence of 14.4%, PSH was the most common complication for most locations. Colostomies and ostomies sited in the LLQ had the highest overall complication rates. These findings may be used to guide clinicians in siting stomas and counseling patients on risks.



COLONIC PHYTOBEZOAR AS A RARE CAUSE OF LARGE BOWEL OBSTRUCTION: A CASE STUDY.

eP184

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Purpose/Background: Seed bezoars are a type of phytobezoar, caused by accumulation of indigestible vegetable or fruit seeds in the intestine. Obstructions caused by bezoars account for 0.4–4% of all intestinal obstructions and occur mainly in the stomach and small bowel. Colonic obstruction caused by bezoars are rare. Here we discuss a case of sigmoid obstruction caused by a seed bezoar in a young male without risk factors and the successful endoscopic approach used to treat him.

Methods/Interventions: The patient is a 48-year-old male with asthma, hypertension, and no prior surgical history, who presented to the emergency department with 24 hours of cramping abdominal pain, bloating and obstipation. Two days prior the patient had eaten an entire bag of sunflower seeds with intact shells. The following day he experienced increased distension and rectal pressure, prompting him to seek medical care. He was stable on arrival with a WBC of 12.3, moderate abdominal distension but no peritonitis. Abdominal X-ray showed colonic dilation with air-fluid levels, but no small bowel dilation. CT scan showed dilatation of the descending and proximal sigmoid colon upto a 2 cm region of focal sigmoid thickening **(Figure 1A).** The patient was given a fleet enema but passed only a small amount of stool and gas. The following day, a repeat CT with rectal contrast demonstrated a 4-6 cm segment of narrowing in the mid sigmoid colon with large fecal burden and distension proximally, concerning for a possible benign sigmoid stricture versus malignancy **(Figure 1B).** The patient then underwent bowel prep and a flexible sigmoidoscopy. The scope revealed a large phytobezoar made of sunflower seeds and shells in the sigmoid colon. This was successfully removed endoscopically. There was no active inflammation, stricture or mass in the sigmoid colon.

Results/Outcome(s): The patient had multiple bowel movements post-procedure. He tolerated a diet and was discharged the following day.

Conclusions/Discussion: Bezoars are a rare and difficult to diagnose cause of intestinal obstruction. Bezoars should be considered in patients presenting with obstruction with known risk factors such advanced age or impaired GI motility. Interestingly, seed bezoars appear to represent a unique pathophysiology. Unlike fiber phytobezoars that are usually found in the stomach, seed bezoars are usually found in the sigmoid colon/rectum of young patients without predisposing factors. Seeds easily pass the pylorus and ileocecal valve due to their small size and accumulate in the colon causing constipation and pain. It is important to obtain a detailed history of dietary habits and perform a digital rectal exam. CT scan can help distinguish between a bezoar and other causes of obstruction. Prompt diagnosis and management of colonic bezoars is required to prevent progression to perforation. In stable patients with suspicion of distal bezoar obstruction, early endoscopic removal should be considered prior to laparotomy.

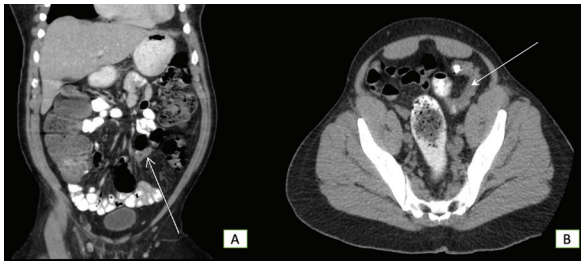

Figure 1A. Coronary view in first CT scan showing focal region of thickening which measured approximately 2 cm concerning for possible sigmoid stricture **Figure 1B.** Transverse view in repeat CT scan showing a 4-6 cm segment of decompressed mid sigmoid colon with proximal large fecal burden and distension

POSSIBLE TECHNICAL RISKS FACTORS FOR BENIGN ANASTOMOTIC STRICTURES IN COLORECTAL AND/OR COLOANAL ANASTOMOSIS: A RETROSPECTIVE COHORT STUDY.

eP185

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Purpose/Background: Anastomotic strictures occur in up to 30% of colorectal resections and despite being common, evidence on its risk factors and preventive measures remains scarce. This study aimed to identify technical risk factors related to colorectal and coloanal anastomotic strictures.

Methods/Interventions: Retrospective cohort study of an IRB- approved database of all patients who were treated for anastomotic stricture by resection and/or re-do anastomosis between January 2011 and August 2021 in a tertiary referral center. Patients with an anastomotic stricture were compared to an equal number of randomly selected patients without anastomotic complications who were operated on in the same time period. Main outcome measures were technical risk factors of anastomotic stricture.

Results/Outcome(s): Each group included 50 patients. The two groups were similar in terms of age, sex, ASA score, distance of anastomosis from the dentate line and indication for surgery. The median follow-up was significantly longer in the non-stricture group (38.6 months versus 12.6 months, p=0.04). Splenic flexure mobilization (HR=0.17, 95%CI: 0.08-0.389, p<0.001), high ligation of inferior mesenteric artery (HR 0.22, 95%CI: 0.09-0.5, p<0.001), high ligation of the inferior mesenteric vein (HR 0.2, 95%CI: 0.08-0.5, p<0.001) were associated with lower odds of anastomotic stricture whereas a circular stapler of 25 mm in diameter (HR=24.7, CI=6.8-89, p<0.001), clinically significant anastomotic leak (HR=3.94, CI: 2.04- 7.64, p<0.001), >1 stapler firings for rectal division (HR=24.7, CI=6.8-89, p<0.001) and diverting stoma formation (HR= 3.087. CI: 1.736-5.491, p<0.0001) were predictive of anastomotic stricture.

Conclusions/Discussion: Technical steps including splenic flexure mobilization and high ligation of the inferior mesenteric vessels were associated with lower odds of anastomotic stricture whereas a smaller circular stapler and multiple stapler firings were predictive of anastomotic stricture. Further prospective trials are warranted to confirm our preliminary results.

FACTORS ASSOCIATED WITH DIVERTING OSTOMIES IN THE SURGICAL MANAGEMENT OF DIVERTICULAR COLOVAGINAL FISTULAS.

eP186

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Purpose/Background: Colovaginal fistula is a well-known complication of diverticulitis that can have profoundly negative impacts on quality of life. However, there are limited data with regards to factors associated with the need for fecal diversion and with surgical failure in patients undergoing surgical management of diverticular colovaginal fistulas. The objective of this study was to evaluate for those factors.

Methods/Interventions: This retrospective cohort study identified all adult patients who underwent sigmoid resection for diverticular colovaginal fistulas at a quaternary care center from 1/1/2010 to 9/1/2022. Patients with non-diverticular fistulas, active abdominal malignancy, or those who underwent emergent operations were excluded. Patients with concurrent fistulas (e.g., colo-colonic, colo-enteric, etc.) were eligible for inclusion if at least one fistula was colovaginal. A univariate

analysis was performed to evaluate for demographic and operative factors in the following patients: 1) those who were diverted vs not at the index operation; 2) those with successful resolution of symptoms after surgery vs. those who had surgical failure, which was defined as symptom recurrence or the inability to undergo ostomy reversal within one year of creation.

Results/Outcome(s): Fifty patients were included, of whom 15 (30%) underwent fecal diversion. Steroid therapy at time of surgery was associated with fecal diversion (p = 0.023). The following intraoperative factors were associated with the need for fecal diversion: intraoperative injury (p = 0.019), need for omental flap repair (p = 0.024), and abdominal and/or pelvic drain placement (p = 0.005). Five (10%) patients experienced surgical failure. Patients who experienced surgical failure were more likely to have an abdominal or pelvic drain placed at the time of surgery (p=0.045). Of the 15 (30%) patients in this study who underwent laparoscopic repair, none required fecal diversion or experienced surgical failure.

Conclusions/Discussion: Surgery is highly effective in the repair of diverticular associated colovaginal fistulas in most patients. Laparoscopic approach should be utilized when possible. Steroid therapy should be weaned as able prior to surgical repair. Technically demanding cases were associated with higher rates of fecal diversion; however, surgery remains a very safe course for the treatment of colovaginal fistula with only 10% of patients in this study experiencing surgical failure.

Table 1: Univariate analyses for surgical outcomes in patients with diverticular colovaginal fistulas

Variable	Success (N = 45)	Failure (N = 5)[a]	p-value
Age, median (IQR)	68.8 (61.04 - 78.84)	78 (59.77 - 82.21)	0.4768
White race / ethnicity (vs non-White, n(%)	11 (24.44)	1 (20)	0.4181
BMI, median (IQR)	28.82 (25.79 - 33.85)	29.18 (28.39 - 31.75)	0.5275
Smoking Status, n (%)			0.5389
Current	5 (19.23)	0 (0)	
Former	17 (57.78)	1 (20)	
Never	22 (48.89)	4 (80)	
ASA Class, n (%)			1
1	0 (0)	0 (0)	
2	21 (46.67)	2 (40)	
3	22 (48.89)	3 (60)	
4	2 (4.44)	0 (0)	
Pre-operative factors, n (%)			
Diabetes mellitus	5 (19.23)	2 (40)	0.1789
Additional colonic fistula present	8 (17.78)	1 (20)	1
History of prior abdominal operations	29 (64.4)	4 (80)	0.6498
History of prior pelvic operations	48 (93.25)	5 (100)	1
Number of prior abdominal or pelvic operations	2 (2 - 3)	2 (2 - 2)	0.3692
Prior pelvic radiation	1 (2.22)	0 (0)	1
Fistula Symptoms, n (%)			
Sensation of air/gas in vagina	29 (64.4)	3 (60)	0.642
Abnormal discharge or passage of stool per vagina	45 (100)	4 (80)	1
Vaginal irritation or infection	10 (22.2)	1 (20)	1
Weight loss	10 (22.2)	2 (40)	0.3819
Fistula visualization on imaging, n (%)[b]			
CT (39 had CT scans)	33 (73.33)	3 (75)	1
Lower GI series (3 had lower GI studies)	4 (57.14)	2 (100)	0.3
Diagnostic endoscopy (25 had endoscopic exam)	1 (4.55)	0 (0)	1
Pelvic exam (27 had pelvic exam)	11 (44.8)	2 (100)	0.2222
Immunosuppression, n (%)			
Immunosuppressant use	2 (4.44)	0 (0)	1
Steroid use	3 (6.67)	0 (0)	1
Surgical approach, n (%)			0.2582
Open	8 (17.78)	3 (60)	
Laparoscopic	13 (28.9)	0 (0)	
Laparoscopic converted to open	15 (33.33)	2 (40)	
Hand-assist	3 (6.67)	0 (0)	
Robotic	3 (6.67)	0 (0)	
Operative factors, n (%)			
Any intraoperative injury	5 (19.23)	1 (20)	0.3497
Concurrent additional operation	5 (19.23)	0 (0)	1
Ureteral stenting	14 (31.11)	1 (20)	1
Splenic flexure mobilization	27 (60)	2 (40)	0.6378
Omental flap repair	3 (6.67)	2 (40)	0.0718
Abdominal or pelvic drain placement	2 (4.44)	2 (40)	0.045
Post-op course			
ICU admission, n (%)	3 (11.11)	2 (40)	0.198
Ileus, n (%)	4 (8.89)	1 (20)	0.4284
Length of Stay, median (IQR)	4 (3 - 5)	9 (2.5-4.5)	0.759
Readmission, n (%)	3 (6.67)	1 (20)	0.3858
Anastomotic leak, n (%)[c]	0 (0)	1 (20)	0.1
Symptom recurrence, n (%)[c]	0 (0)	2 (40)	0.0082

[a] Defined as symptom recurrence or the inability to undergo ostomy reversal within one year of creation.
[b] Percentage out of patients with imaging study performed.
[c] From time of operation to last known follow up within study period.

SAFETY AND EFFICACY OF ANTIFIBRINOLYTICS IN COLORECTAL SURGERY: SYSTEMATIC REVIEW AND META-ANALYSIS.

eP187

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Purpose/Background: Perioperative bleeding and transfusion is a common complication in colorectal surgeries, associated with significant morbidity and mortality. Emerging evidence has demonstrated the safety and efficacy of prophylactic antifibrinolytic use to decrease perioperative bleeding. However, the role of TXA use in specific surgical subspecialty contexts, including colorectal surgery, is unclear. The objective of this study was to investigate the safety and efficacy of prophylactic antifibrinolytic use in colorectal surgery patients.

Methods/Interventions: PRISMA and GRADE guidelines were followed. Medline, Embase, and Cochrane Library databases were searched from inception to October 2022. We included all comparative studies involving colorectal surgery patients that studied the effects of intravenous antifibrinolytic use on blood loss, allogenic red blood cell transfusion, anastomotic leaks, venous thromboembolism (VTE), seizures, and other safety parameters. A meta-analysis was performed using random effects models. The Mantel-Haenszel method was used to report odds ratio (OR) values for dichotomous variables, and inverse variance weighting was used to calculate difference in means (MD) for continuous variables.

Results/Outcome(s): Five randomized controlled trials (RCT), a pilot RCT, and 2 retrospective studies involving 550 colorectal surgery patients and 12632 non-cardiac surgery patients were identified for inclusion. Meta-analysis demonstrated trends toward decreased perioperative transfusion (OR 0.78 [0.20, 2.98], p=0.72, i^2=42%, n=2 studies) and decreased blood loss (MD -380.01ml [-1111.88, 351.87], p=0.31 i^2=92%, n=2 studies) with TXA use. The use of antifibrinolytics was associated with decreased rates of anastomotic leaks (OR 0.70 [0.43, 1.14], p=0.15, i^2=0%, n= 3 studies). The meta-analyses did not include the 12632 non-cardiac surgery patients because granular data pertaining to colorectal surgery patients was not available. Safety parameters including VTE and seizures could not be pooled, but there were no differences in safety outcomes that were independently reported by the included studies. Although the quality of quantitative evidence is low, this review highlights the need for further study to determine safety and efficacy of antifibrinolytic use in colorectal surgeries, as it may improve surgical outcomes.

Conclusions/Discussion: Current evidence suggests no differences in perioperative transfusion, blood loss and

anastomotic leaks with prophylactic antifibrinolytic use in colorectal surgery. However, considering the trends favouring antifibrinolytics, this merits further investigation through larger studies dedicated to colorectal surgery populations.

ACHIEVING SAFE ANASTOMOSIS WITH INTRAOPERATIVE PERFUSION ASSESSMENT USING VISUAL GRADING SYSTEM IN LEFT-SIDED COLORECTAL CANCER SURGERY.

ePI88

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Purpose/Background: Anastomosis leakage not only compromises postoperative hospital courses, but also oncologic outcomes. New technical ways such as indocyanine greens (ICG), doppler ultrasound and flowmetry were introduced to reduce anastomosis complications, but still lacks reproducibility. By using our intraoperative visual grading system, perfusion of the resected proximal colon can be assessed instantly with high accuracy without additional tools. We aimed to reduce anastomosis complication and evaluate the clinical feasibility of our grading system.

Methods/Interventions: 50 patients with primary left-sided colon cancer who underwent curative-intent surgery without ostomy diversion were prospectively enrolled. Before anastomosis, the marginal vessel of the resected proximal bowel was cut and perfusion status was assessed by the visual grading system. Patients were stratified in one of the five gradings(Table) and categorized into 4 degrees of perfusion groups: good (grade A and B), moderate (grade C), poor (grade D) and none (grade E). Anastomosis was done only in grade A and B as we previously noticed anastomosis ischemia in grade C in our previous study. In case of Grade C, additional bowel was resected till it showed a good degree of perfusion. We evaluated overall surgical outcomes and compared perioperative outcomes between groups that initially showed grade A or B and that showed grade C.

Results/Outcome(s): There was no (0%) anastomosis complication in all 50 patients. 6 patients (12%) initially had moderate perfusion with grade C, but after further resection, all 6 patients achieved grade B perfusion and had no anastomosis leakage. Length of additionally resected bowel was 4.25cm on average, and 2 patients (33%) required splenic flexure mobilization for tension-free anastomosis. Higher portion of patients (33.3% in grade C, 15.9% in grade A and B) required splenic flexure mobilization for tension free anastomosis in initially graded C patients, but was statistically insignificant. There was no significant difference in total operation time and postoperative courses between the two groups.

Conclusions/Discussion: Our intraoperative visual grading system is a simple and useful clinical way to assess perfusion of the anastomosis. It is easy to understand and applicable for all surgeons from beginners to experts, without any expensive devices. Additional resection of the bowel and mobilization of the splenic flexure may be necessary to secure sufficient blood flow and reduce tension to the anastomosis. This clinical assessment tool will be able to readily aid the surgeon's decision.

Grade	Definition	Degree of perfusion
A	Brisk, bright red, ≥ 1 cm projectile bleeding	Good
B	Bright red, pulsatile, but not projectile bleeding	
C	Two color bleeding with bright red arterial and the dark red venous blood, not pulsatile	Moderate
D	Only dark red venous blood is observed	Poor
E	No bleeding	None

Table 1. Visual grading system of marginal vessel perfusion assessment

A CLASS OF ITS OWN? DIVERTICULITIS WITH AN INTRAMURAL ABSCESS COMPARED TO ITS COUNTERPARTS.

ePI89

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Purpose/Background: Diverticulitis with an intramural abscess (D+IMA) is not distinguished in the traditional Hinchey classification system, nor by a specific diagnostic code, making it difficult to study. For this unique form of diverticulitis, where the abscess is contained within the bowel wall, the clinical course/expected recovery is less well understood or defined. D+IMA has not been directly studied as a single entity. To our knowledge, there is no published studies on this topic. The aim of this study was to understand the clinical course and outcomes of patients with D+IMA compared to other forms of diverticulitis.

Methods/Interventions: A retrospective chart review of adult patients admitted with a primary diagnosis of diverticulitis, confirmed by CT scan, in a large, multi-hospital healthy system from 2009 - 2020 was performed. Patients with D+IMA were identified using language recognition from the CT report. Patients were grouped into 4 groups: D+IMA, uncomplicated (UD), complicated with percutaneous drainage (CD+PD), and without (CD-PD). The primary outcome was emergent surgery (within 24 hours of admission) and urgent surgery (>24 hours of admission). Secondary outcomes included 30-day readmission for diverticulitis and length of hospital stay. A propensity-score matched analysis was performed to compare groups.

Results/Outcome(s): There were 7,874 patients identified: 7259 (92.2%) in UD, 116 (1.4%) CD+PD, 354 (4.5%) CD-PD, and 145 (1.8%) in D+IMA. There were no significant differences between groups with respect to age ($p = 0.839$), sex ($p = 0.690$), race ($p = 0.774$), Charlson Comorbidity Index Score ($p = 0.174$), and smoking status ($p = 0.068$). The odds of undergoing emergent surgery within 24 hours of hospitalization with complicated diverticulitis compared to uncomplicated

was significantly higher for CD-PD (10.24; 95% CI 7.02, 14.72) and CD+PD (5.472; CI 2.44, 10.74), but not significant for D+IMA (2.087; CI 0.65, 5.00). However, the need for urgent surgery within the hospitalization was significantly higher for D+IMA (OR 5.51 [95%CI 2.09-12.0]), as well as for D-PD (OR16.3 [CI 10.64, 24.77] and D+PD(OR 14.8 [CI 7.37, 27.49]. The mean length of stay was 0.3 days(UD), 2.2 (D+IMA), 4.9 days(CD-PD) and 7.3 days(CD+PD; p=<0.001), and on the propensity-weighted analysis, was not significantly different for D+IMA(OR 1.34 [95% CI 0.65-2.03]). Thirty-day readmission rates were 10%(UD), 15%(D+IMA), 21%(CD-PD), and 25%(CD+PD;p=< 0.001), readmission was not significantly higher on the weighted analysis for D+IMA(OR 1.42, 95%CI 0.86-2.23).

Conclusions/Discussion: Patients with D+IMA have a higher rate of urgent surgery, but otherwise similar outcomes than their uncomplicated counterparts. While these results do not necessarily suggest that D+IMA should be a distinct Hinchey classification, they do provide some clinically useful information to guide patient expectations. This provides the basis for future prospective work with this group of patients.

PRIMARY ANASTOMOSIS WITH DIVERTING LOOP ILEOSTOMY VERSUS HARTMANN'S PROCEDURE FOR ACUTE COMPLICATED DIVERTICULITIS: ANALYSIS OF THE NATIONAL INPATIENT SAMPLE 2015-2019.

eP190

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Purpose/Background: Approximately 5-15% of patients with acute diverticulitis experience complicated disease. Of patients with complicated disease, up to 50% require operative management on their index admission. Studies comparing colectomy followed by primary anastomosis with or without diverting ileostomy and Hartmann's procedure, suggest the former is safe and reduces the risk of permanent stoma. There has yet to be a study comparing primary anastomosis with diverting ileostomy to Hartmann's procedure using the National Inpatient Sample (NIS). The present study aims to compare postoperative complications in patients undergoing either Hartmann's procedure or primary anastomosis and diverting ileostomy for perforated diverticulitis using NIS data.

Methods/Interventions: Retrospective analysis of the NIS was performed. Patients who underwent either colectomy followed by primary anastomosis and diverting ileostomy or Hartmann's procedure for perforated diverticulitis from October 2015 to December 2019 were included. The primary outcomes were postoperative in-hospital morbidity and mortality. Secondary outcomes included postoperative intensive care unit admission and postoperative length of stay (LOS). Univariate and multivariate regression were utilized to determine the association between postoperative outcomes and type of operation. Patient, disease, and hospital characteristics were used in adjusted analyses.

Results/Outcome(s): The NIS sample population included 642 patients undergoing primary anastomosis with diverting ileostomy and 4,482 patients undergoing Hartmann's procedure. Baseline characteristics were similar between groups aside from a larger proportion of patients receiving care in large hospitals (aOR 1.32, 95% 1.03-1.70, p=0.028) and teaching hospitals (aOR 1.56, 95%CI 1.23-1.97, p<0.001) in the primary anastomosis and diverting ileostomy group. Adjusted analysis did not demonstrate a difference in in-hospital mortality between groups (aOR 0.93, 95%CI 0.45-1.92, p=0.844). The incidence of postoperative infectious complication (aOR 1.21, 95%CI 0.84-1.76, p=0.300), surgical site infection (aOR 1.54, 95%CI 0.64-3.72, p=0.334), and postoperative ileus (aOR 0.95, 95%CI 0.74-1.23, p=0.705) were similar between groups on adjusted analyses. In the primary anastomosis with diverting ileostomy group, 12.8% of patients experienced an anastomotic leak. Adjusted analysis suggested a significant reduction in postoperative LOS for patients undergoing Hartmann's procedure (aMD 0.79 days, 95%CI 0.15-1.43 days, p=0.013).

Conclusions/Discussion: The present study confirms that colectomy followed by primary anastomosis with diverting ileostomy is safe for patients presenting with perforated diverticulitis. Patients undergoing primary anastomosis with diverting ileostomy may have slighting increased postoperative LOS but this difference is likely not clinically meaningful.

SHOULD ALL PATIENTS 45 YEARS OF AGE AND YOUNGER UNDERGO COLONOSCOPY AFTER RESOLUTION OF DIVERTICULITIS?

eP191

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Purpose/Background: Colonoscopy six weeks after an episode of acute diverticulitis is recommended to exclude colorectal cancer. While the incidence of malignancy may be as high as 11% for complicated diverticulitis, several studies suggest that the incidence of malignancy in patients diagnosed with uncomplicated diverticulitis on computed tomography (CT) is similar to that of the general population, arguing against reflex follow-up colonoscopy in these patients. In this retrospective review, we aim to determine how many patients 45 years or younger were found

to harbor malignancy on colonoscopy after an episode of diverticulitis. We hypothesize that the rate of malignancy is low in patients younger than the recommended screening age, with colonoscopy providing minimal benefit to this population.

Methods/Interventions: All patients 45 years of age and younger who underwent complete colonoscopy after an episode of diverticulitis at a safety-net hospital between 2015 and 2022 were included. Patients who underwent surgical intervention prior to colonoscopy were excluded. Patient demographic and disease-related data was abstracted using retrospective chart review. CT scans, colonoscopy reports, and pathology reports were reviewed. Complicated diverticulitis was defined as the presence of abscess, fistula, stricture, and/or gross perforation on CT imaging.

Results/Outcome(s): 58 patients who met criteria were identified and included. Average age among this cohort was 37.3 (range 26 to 45) years. 79.3% (n=46) were male. 89.6% (n=52) were Hispanic. 50.0% (n=29) had complicated diverticulitis on CT imaging. 8.6% (n=5) presented with cecal diverticulitis, and all other patients presented with sigmoid diverticulitis. 43.1% (n=25) had biopsies performed during colonoscopy, with a total of 37 biopsies performed. All biopsies revealed benign pathology (Table 1). 15.5% (n=9) of patients were found to have at least one tubular adenoma. 24.1% (n=14) underwent elective sigmoid resection after colonoscopy. All surgical pathology was benign.

Conclusions/Discussion: In our 58 patients 45 years or younger who underwent complete colonoscopy after resolution of diverticulitis, half of whom presented with complicated diverticulitis, none were found to have a malignancy. These results suggest that performing a colonoscopy after resolution of diverticulitis may not be necessary in younger patients, even in the case of complicated diverticulitis. Instead, adoption of a standard screening colonoscopy timeline for this population may be reasonable.

Table 1: Biopsy Results from Colonoscopy after Resolution of Diverticulitis in Patients 45 Years & Younger [N (%)]
Figure 1: Number & Locations of Tubular Adenomas

Total number of biopsies	37
Tubular Adenoma	10 (27.0)
Rectum	2 (5.4)
Sigmoid	3 (8.1)
Descending	1 (2.7)
Transverse	2 (5.4)
Ascending	1 (2.7)
Cecum	1 (2.7)
Hyperplastic Polyp	7 (18.9)
Other benign pathology*	10 (27.0)
No significant findings	10 (27.0)

*lymphoid aggregates or granulation tissue

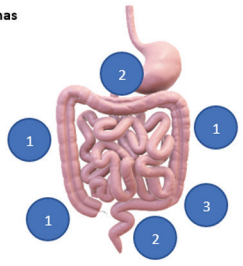

Table 1: Biopsy Results from Colonoscopy after Resolution of Diverticulitis in Patients 45 Years & Younger [N (%)]Figure 1: Number & Locations of Tubular Adenomas

TREATMENT PREFERENCES IN DIVERTICULITIS ARE COMMON AND RARELY CHANGE AFTER A CLINIC VISIT.

eP192

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Purpose/Background: With increasing prevalence of diverticulitis, professional guidelines recommend individualizing surgical treatment. This individualization of treatment is being studied through both prospective trials and survey data. However, both patients and surgeons have biases towards what the best treatment might be, even before meeting each other to discuss options. These real-world biases, though poorly quantified, might drive many treatment decisions.

Methods/Interventions: Our institution prospectively tracks all patients with a CT-confirmed episode of diverticulitis. As part of this, we performed semi-structured interviews with the three colorectal surgeons at our institution, asking about what factors drive decisions towards or against surgery for diverticulitis. We then sampled consecutive clinic visits for diverticulitis, across all surgeons, and provided standardized pre-visit and post-visit treatment decision questionnaires, specifically asking about whether there was enough information to make a treatment decision (including imaging, colonoscopy reports, and other parts of the medical record), equipoise between operative and non-operative treatment decision, and if, outside a clinical trial, the surgeon or patient had preferences for the 'best treatment.'

Results/Outcome(s): We reviewed 27 consecutive clinic patient visits from 3 colorectal surgeons. In pre-visit screening, surgeons felt like they had adequate clinical information to make a treatment decision in 26/27 cases (96%), characterized diverticulitis as complicated in 12/27 (44%), and felt like patient would be eligible for randomization into a trial in 14/27 (52%) of cases. Independent of clinical trials, surgeons felt like the best option for their patients, before ever meeting them was surgical in 19/27 (70%) of cases. Subsequent to the clinic encounter, surgeons felt like 10/27 (42%) of patients were eligible for randomization, and that independent of trials, best treatment option would be operative in 15/27 (56%) of cases. Reasons cited for or against operative management are shown in Table 1.

Conclusions/Discussion: The colorectal surgeons in this study have a practice biased towards complicated disease, and, before ever meeting patients, believed that the best treatment is typically operative. After meeting patients, the preference was still towards operative treatment. In most cases, there are preferences by either the surgeon or the patient towards the best treatment, such true equipoise was hard to find.

Table 1. Surgeon preferences for treatment of diverticulitis, stratified by patient preferences.

Based on my evaluation, I think the best treatment for this patient would be:	N	%
Operative	**15**	56
Complicated diverticulitis or immunosuppression	9	33
Uncomplicated diverticulitis	6	22
Increasing frequency of uncomplicate episodes	4	15
Randomized to COSMID trial - medical arm	1	4
Patient prefers non-operative	1	4
Needs optimization with subsequent operation	**1**	4
Nonoperative	**11**	41
Complicated diverticulitis or immunosuppression	2	7
Patient asymptomatic	1	4
Patient prefers to avoid surgery	1	4
Uncomplicated diverticulitis	9	33
Patient preferences to not have surgery	8	30
Patient preference for surgery	1	4

ENDOMETRIOSIS IS ASSOCIATED WITH WORSE OUTCOMES AFTER COLORECTAL SURGERY THAN DIVERTICULAR DISEASE.

eP193

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Purpose/Background: Endometriosis is a debilitating disease marked by deposits that can infiltrate the sigmoid colon and rectum and require colorectal surgery. However, there remains a paucity of evidence in the colorectal literature on outcomes after bowel resection in this patient population. The objective of this study was to report the short-term outcomes for patients undergoing colorectal resection for endometriosis and compare them to elective resection for diverticular disease.

Methods/Interventions: The 2016-2020 American College of Surgeons National Surgical Quality Improvement Project (ACS-NSQIP) database was queried for adult patients undergoing elective colorectal resections for endometriosis. Resections coded as secondary procedures were also included. Main outcomes included 30-day overall complications, reoperations, readmissions, and length of stay (LOS). The comparative cohort consisted of female patients undergoing elective resection for diverticular disease. Regression analyses were performed (using multiple logistic or Poisson, as appropriate) to determine the effect of disease indication on the main outcomes, adjusting for the ACS-NSQIP morbidity risk score and minimally invasive approach.

Results/Outcome(s): A total of 117,287 women underwent colorectal resections between 2016-2020, of which 590 (0.5%) had a diagnosis of endometriosis: mean age 40.2y, mean BMI 27.8, and ASA III+ 18.5%. The proportion of colorectal resections performed for endometriosis significantly increased over time (p trend = 0.01). Most cases (80%) were performed by a general surgeon as primary surgeon (20% by gynecologists). A concomitant hysterectomy and/or oophorectomy was performed in 30.7%. Most patients underwent proctectomy (56.8%) and a minimally invasive approach (laparoscopic 52.8%, robotic 18.4%, converted to open 7.4%, open 21.4%). A stoma was created in 64 patients (10.9%). The overall 30-day complication rate was 20.7%, including reoperation in 3.4% and readmission in 8.8%. Mortality occurred in 1 patient. The median LOS was 4 days (IQR 3-5). Colectomy-targeted data was available in 349 patients, of which 30 (8.6%) had an ileus and 11 (3.2%) had an anastomotic leak. When compared to female patients undergoing elective colorectal resection for diverticular disease, endometriosis patients had more overall 30-day complications (adjusted OR 1.70, 95%CI (1.38-2.09)), longer LOS (adjusted IRR 1.20, 95%CI (1.16-1.25)) despite being significantly younger (40.2y vs. 61.3y, p<0.01) and less comorbid (ASA III+ 18.5% vs. 44.3%, p<0.01).

Conclusions/Discussion: These data demonstrate the relative higher surgical risk of endometriosis patients undergoing colorectal resection, particularly in comparison to elective resection for diverticular disease. This highlights the need to identify modifiable predictors of worse outcomes and formulate evidence-based colorectal practice guidelines for endometriosis.

RISK FACTORS FOR SURGICAL SITE INFECTIONS AND TRENDS IN SKIN CLOSURE TECHNIQUE AFTER DIVERTING LOOP ILEOSTOMY REVERSAL: A MULTI-INSTITUTIONAL ANALYSIS.

eP194

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Purpose/Background: Diverting loop ileostomy (DLI) closures are commonly performed with surgical site infections (SSIs) being a problematic complication. For this reason, several techniques of skin closure have been advocated for, with the American Society of Colon and Rectal Surgeons 2015 Clinical Practice Guidelines highlighting the advantages of purse-string skin closure. Therefore, we aimed to determine the incidence of SSIs after DLI closure in a multi-institutional cohort of patients to identify potential risk factors for SSIs and to assess temporal trends in skin closure technique.

Methods/Interventions: A retrospective review was conducted using the American College of Surgeons National Surgical Quality Improvement Program database for adult patients who underwent a DLI closure between January 2012 and December 2021 across three sites of a multistate health system. Additional data, including skin closure technique, was obtained by retrospective chart review. Skin closure technique was categorized as primary, primary + drain, or purse-string closure. The primary outcome was SSI at the former DLI site. Secondary outcomes included trends in DLI closure technique over time and risk factors for SSIs. Univariate comparisons and multivariable analysis were performed for risk factors for

SSIs. Cochran-Armitage trend test was used for analysis of skin closure technique over time.

Results/Outcome(s): A total of 678 patients underwent DLI closure (Institution A, n=484 [71.4%]; Institution B, n=101 [14.9%]; and Institution C, n=93 [13.7%]). A stoma site SSI was diagnosed in 5.6% (n=38) of patients; 6.6% (n=21) for primary closures, 5.5% (n=13) for primary closure + drain, and 3.3% (n=4) for purse-string closure (p=0.41). Institution, diagnosis, and operative time were significantly associated with SSIs on univariate analysis (p<0.05). On multivariable analysis, diagnosis was significant for Crohn's disease (odds ratio [OR] 4.1, 95% confidence interval [CI] 1.2-13.3; p=0.02) and diverticulitis (OR 4.9, 95% CI 1.9-12.5; p<0.001) compared to cancer. Closure type was 47.2% (n=320) primary, 35.0% (n=237) primary + drain, and 17.8% (n=121) purse-string, and varied across institutions (p=<0.0001). There was a positive trend of purse-string closures performed across the institutions over time (p<0.0001) (Figure 1).

Conclusions/Discussion: Rates of SSIs across a multi-state health system after DLI closure were lower than historically reported and did not vary by skin closure technique. Utilization of purse-string closure increased over time. DLI closure in patients with a diagnosis of Crohn's disease or prior diverticulitis was associated with an increased risk of SSIs. Patients with Crohn's disease or prior diverticulitis may benefit more from purse-string closure than others.

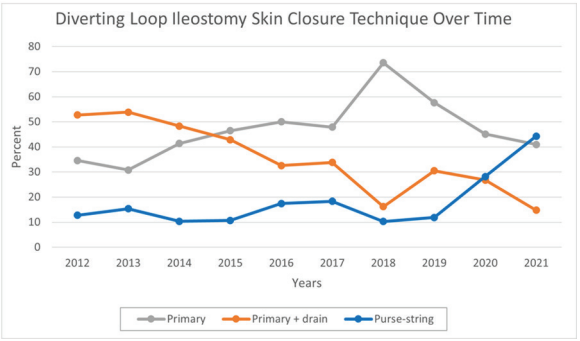

Figure 1.

RECURRENT DIVERTICULAR DISEASE AFTER SIGMOIDECTOMY: A COMPARISON OF SURGICAL APPROACHES.

eP195

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Purpose/Background: Acute diverticulitis is a common colorectal disease with prevalence of up to 45% in western and industrialized countries. Approximately 4-15% of patients with diverticulosis develop diverticulitis. Historically, elective surgery for diverticulitis was recommended after 2 episodes. Continually developing surgery techniques for sigmoidectomy, including robotic assisted sigmoidectomy (RAS), have fewer complications, less recurrence of disease, a decreased length of hospital stay, decreased pain scores, and better quality of life. With developing surgery techniques comes an increased incidence of elective sigmoidectomy over the past few decades. Sigmoidectomy is usually performed to decrease diverticulitis; however, recurrence is possible. Studies into risk factors of recurrence are limited, but one suggested colosigmoid anastamosis compared to colorectal anastomosis may lead to increased risk. At our institution, we have noticed an increased recurrence of diverticulitis in patients who have undergone specifically RAS. The goal of this study is to use data to determine whether an increased rate of diverticulitis recurrence following RAS compared to laparoscopic or open sigmoidectomy exists.

Methods/Interventions: Patients over 18 years old who underwent elective sigmoidectomy from March 2016-April 2022 were included. Exclusion factors were emergency surgery, history of previous sigmoidectomy, and ostomy that was not reversed. Post operative recurrence was defined as diverticulitis as seen on abdominal CT.

Results/Outcome(s): Nine out of 576 patients developed diverticulitis after sigmoidectomy, and there was no significant difference between open (0.9%), laparoscopic (1.1%), or robotic (3.1%) approaches (p=0.187). The length of specimen resected was significantly shorter in the robotic group than the open group (15.7cm vs 17.6cm, p=0.035), and the splenic flexure was mobilized in significantly less patients in the robotic group (11.7%) than in the open (29%) or laparoscopic (34%) groups (p<0.001). Multivariable logistic regression revealed that the only factor that could positively predict diverticulitis recurrence was length of specimen resected. For each decreased cm of bowel resected there was a 16% increase in the odds of recurrence, regardless of surgical approach (odds ratio 0.84, p=0.043).

Conclusions/Discussion: There was no statistical significance in development in recurrent diverticular disease between robotic assisted, laparoscopic or open surgical approaches. However, patients with less bowel resected are at an increased risk of developing recurrent diverticulitis following sigmoidectomy, regardless of surgical approach or mobilization of the splenic flexure. This could potentially mean that the increase use of the robotic assisted approach for elective sigmoidectomy could lead to a possible increase in diverticulitis recurrence given tendecy towards shorter specimen length.

ENDOMETRIOSIS WITH COLONIC AND RECTAL INVOLVEMENT: SURGICAL APPROACH AND OUTCOMES IN 142 PATIENTS.

eP196

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Purpose/Background: Endometriosis involving the colon and/or rectum (CRE) is operatively managed using various methods. We aimed to 1) analyze patient demographics and surgical approach in consecutive CRE cases in a high-volume endometriosis center and 2) determine if a more limited excision is associated with 30-day complications, symptom improvement and/or recurrence.

Methods/Interventions: All patients who underwent surgical management of CRE between 2010-2018 were included. Univariable logistic and Cox regression models were used to estimate the association between risk factors and symptom improvement and 30-day complications and time to recurrence. Multivariable logistic regression models assessed the independent risk factors for postoperative symptoms.

Results/Outcome(s): Of 2,681 cases of endometriosis during the study period, 142 [5.3%, mean age 35.4 (31.0;39.0) years, 73.9% stage IV] underwent CRE excision (superficial partial=66.9%/ segmental=27.5%/ full thickness=1.41%). Minor complications (14.8%) were associated with blood loss (150 [112;288] vs 100 [50.0;200]mls, p=0.046), sigmoid involvement (45.5% vs 12.2%, HR 5.89 [1.49;22.5], p=0.01), defunctioning stoma (52.6% vs 8.9%, HR 10.9 [3.65;34.1], p<.001) and segmental resection (38.5% vs 5.8%, HR 9.75 [3.54;30.4], p<.001). Superficial, partial thickness resection were associated with decreased risk (4.2% vs 36.2%), HR 0.08 [0.02;0.24], p<.001). Factors associated with major complications (8.5%) were: blood loss (250 [100;400] vs 100 [50.0;200] mls, p=0.03), open surgery (31.6% vs 4.9%, HR 8.74 [2.36;32.9], p=.001), stoma (42% vs 3.3%, HR 20.3 [5.41;90.0], p<.001) and segmental colectomy (28.2% vs 0.97%, HR 34.6 [6.25;876], p<.001). Partial thickness resection was associated with decreased risk (1.05% vs 23.4%, HR 8.74 [2.36;32.9], p<.001). Sixty percent reported symptom improvement (mean follow up=46.8 [12.8;73.1] months). No factors were associated with improvement. Nineteen percent experienced disease recurrence. The cumulative recurrence incidence over 3 years was 15.6%. Open surgery (5.26% vs 21.3%, HR 0.14 [0.02;1.05], p=0.027) and superficial partial thickness excision (23.4% vs 10.6%, HR 2.86 [1.08;7.59], p=0.027) were associated with recurrence. Segmental resection was associated with decreased risk (7.69% vs 23.5%, HR 0.27 [0.08;0.91], p=0.024).

Conclusions/Discussion: Limiting resection to partial-thickness or full-thickness disc excision compared to bowel resection may improve complication risk but increase recurrence risk. A multidisciplinary approach is recommended to ensure the most appropriate intervention is performed and provides the best outcome.

Table 1. Surgical Variables (n = 142)

Access	**n (%)**
HALS	1 (0.7%)
Laparoscopic assisted	2 (1.4%)
Laparoscopy converted to laparotomy	6 (4.2%)
Laparoscopy	116 (81.7%)
Laparoscopy/Robotic	4 (2.8%)
Laparotomy	13 (9.2%)
Procedure	**n (%)**
Superficial partial-thickness excision of multiple sites	95 (66.9%)
Appendectomy	22 (15.5%)
Full thickness disc excision	2 (1.41%)
Segmental bowel resection	39 (27.5%)
Other	7 (4.93%)
Procedure with defunctioning stoma	19 (13.4%)
Concomitant gynecology procedure: fertility-preserving procedure	19 (13.4%)
Concomitant gynecology procedure: other	76 (53.5%)
Concomitant gynecology procedure: none	48 (33.8%)
CORS participation	59 (41.5%)
Nature of CORS participation	
CORS participation: flex sig	24 (16.9%)
CORS participation: laparoscopy	2 (1.41%)
CORS participation: segmental resection	45 (31.7%)
CORS participation: other	14 (9.8%)
Estimated Blood Loss	100 [50.0;200]

Note: HALS=hand-assisted laparoscopic surgery; CORS=Colorectal Surgery, denotes results presented as Median [Q1;Q3]

ORAL HYDRATION AND REGIMENTED POSTOPERATIVE CLINCI VISITS DECREASE READMISSIONS FOR COLORECTAL SURGERY PATIENTS WITH ILEOSTOMIES.

eP197

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Purpose/Background: Ileostomies constitute 20-43% of readmissions after colorectal surgery, most commonly due to dehydration/acute kidney injury (AKI) from high stoma output. Targeted interventions at our institution previously decreased readmissions but not in the ileostomy patient subgroup. In addition to established enhanced recovery perioperative stoma education, additional interventions that include an oral sodium-glucose hydration solution protocol and frequent additional regimented standardized post-discharge clinic visits were designed to address readmissions in patients with ileostomies. The purpose of this study was to determine the impact of these interventions on ileostomy patient readmissions and other secondary outcomes.

Methods/Interventions: This is a retrospective comparison of patients with ileostomies on an enhanced recovery colorectal surgery service before and after implementation of the targeted oral sodium-glucose hydration solution and post-discharge clinic visits that included standardized documented review of inputs and outputs, antimotility needs, appliance assessment, and re-education opportunities 4-7 days after discharge, at 30-days, and then every 1-2

weeks until no longer needed. The primary outcome was the readmission rate due to AKI between study groups. Secondary outcomes included overall readmission and ED visit rates and readmissions and ED visits due to other diagnoses. Unadjusted differences were assessed using chi-square and t-tests. Adjusted analyses were done using inverse probability of treatment weighting (IPTW).

Results/Outcome(s): There were 312 patients that met inclusion criteria – 199 in the pre-intervention and 113 in the post-intervention ileostomy groups. Mean age was 59.0 years, predominantly white (94.9%) and evenly split between men and women. The most common diagnosis was diverticulitis (43.3%); most common procedure was high anterior resection with diverting loop ileostomy (DLI) (38.8%) followed by low anterior resection with DLI (16.35%), and 59.9% were elective procedures. Patient and procedure characteristics in the pre- and post-intervention groups were well matched. After IPTW, the AKI readmission rate significantly decreased between the pre- and post-intervention study groups (45.7% vs 16.5%, p=0.039). There were also significant decreases in AKI ED visits (12.0% vs 1.7%, p<0.001), and readmissions from all causes (24.33% vs 10.6%, p=0.005). Readmissions due to ileus increased (20.1% vs 52.9%, p=0.029). Average stoma output 24-hours before (776cc vs 625cc, p=0.005) and after (993cc vs 890cc, p=0.025) discharge significantly decreased in the post-intervention group.

Conclusions/Discussion: A sodium-glucose oral hydration solution and frequent regimented standardized post-discharge visits led by trained nursing staff decreases readmissions and ED visits in enhanced recovery colorectal surgery ileostomy patients.

Table. Differences in Outcomes before and after applying weights.

			Inverse Probability Weighted		
Variable	Category	P Value	Pre	Post	P Value
LOS, Mean (SD)		0.73	9.2 (5.62)	8.79 (5.74)	0.538
Complications					
AKI/Dehydration		0.009	22%	8.26%	0.002
Ileus		0.987	35.74%	35.5%	0.978
SSI I/II		0.255	3.43%	7.96%	0.097
SSI III		0.287	12.56%	7.19%	0.136
Sepsis		0.707	2.08%	2.13%	0.975
Leak		0.537	1.07%	0%	0.194
Cardiac		0.745	4.67%	2.69%	0.362
Pulmonary		>0.999	2.72%	1.77%	0.606
UTI		0.164	3.95%	0.73%	0.074
VTE		>0.999	1.91%	1.91%	0.792
Other Complication		>0.999	4.31%	4.95%	0.801
Count of Complications, Mean (SD)		0.073	0.95 (0.88)	0.73 (0.98)	0.065
Reoperation		0.657	2.11%	0.54%	0.186
ED Visit					
ED Visit - Any Reason		0.054	29.94%	19.61%	0.063
ED AKI/Dehydration		0.006	12.04%	1.74%	<0.001
ED Ileus		0.707	4.85%	7.03%	0.483
ED SSI I/II		>0.999	1.57%	1.46%	0.947
ED SSI III		0.429	2.88%	1.19%	0.395
Readmission					
Readmit - Any Reason		0.011	24.33%	10.59%	0.005
Readmit AKI/Dehydration		0.197	45.7%	16.45%	0.039
Readmit Ileus		0.067	20.09%	52.89%	0.029
Readmit SSI I/II		>0.999	6.46%	0%	0.282
Readmit SSI III		>0.999	11.82%	11.25%	0.96
Stoma					

PREVALENCE AND RISK OF COLORECTAL SURGERY IN LUNG TRANSPLANT RECIPIENTS.

eP198

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Purpose/Background: Lung transplantation is associated with greater risk of colorectal cancer formation and increased rates and severity of diverticulitis. Despite the increased occurrence of colorectal diseases, there remains a paucity of literature regarding the frequency and safety of performing colorectal surgery in these patients. This study aims to determine the occurrence of colorectal surgery and risk factors associated with post-operative mortality and morbidity in this population.

Methods/Interventions: The Nationwide Inpatient Sample (NIS) database was used to identify lung transplant recipients who had received abdominal surgery between the years of 2010 and 2019. Procedure type and post-operative mortality and morbidity was analyzed for this group. Univariate analysis was utilized to analysis predictors of mortality and morbidity.

Results/Outcome(s): 3277 lung transplant recipients were identified who had undergone abdominal surgery between 2010 and 2019. A total of 5785 abdominal procedures were performed in this cohort. Of those, 3584 (62.0%) were colorectal procedures. 772 (23.6%) patients received open total abdominal colectomy (TAC), 631 (19.3%) received laparoscopic colectomy, 582 (17.8%) received colostomy formation, 581 (17.7%) received a Hartmann procedure, 529 (16.1%) received rectal resection, and 489 (14.9%) received laparoscopic TAC. The mortality rate was 6.9%. The most common post-procedure morbidities were respiratory failure in 953 (28.5%), renal failure in 847 (25.8%), and pneumonia in 634 (19.3%). Non-elective admission (p=0.007, p<0.001, p=0.001, p<0.001) and admission to a non-teaching or rural hospital (p=0.04, p<0.001, p=0.0009, p<0.001) were independent predictors of mortality, respiratory failure, renal failure, and pneumonia.

Conclusions/Discussion: The most frequent abdominal surgery underwent by lung transplant recipients is colorectal surgery. Therefore, it is important to further evaluate this population and determine the safety of performing colorectal procedures. Mortality and morbidity were significantly increased in patients who underwent a non-elective admission. As such, urgent or emergent colorectal procedures should be undertaken with caution, and a thorough conversation regarding the increased risks should be undertaken. Additionally, admission to a teaching hospital was associated with improved mortality and morbidity compared to non-teaching or rural hospitals. In light of this data, early transfer of these patients to larger tertiary care centers should be considered to facilitate improved patient outcomes. Many colorectal procedures are often performed at rural or non-teaching centers,

however the specialized care available at large teaching centers which can address the patients' respiratory, immunosuppressant, and colorectal needs at a more advanced level may be essential to safely caring for this population.

MAJOR COMPLICATIONS OF SIGMOID VAGINOPLASTY: A CASE SERIES.

eP199

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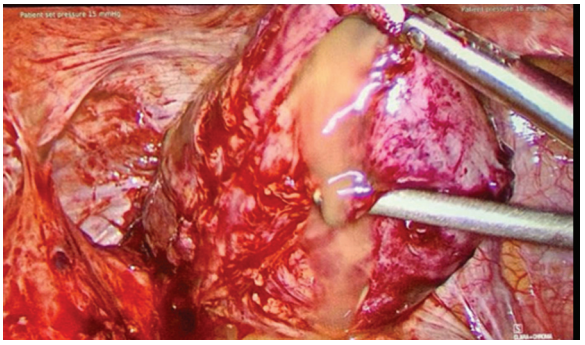
Purpose/Background: Gender affirmation surgery includes an array of procedures; of those, trans feminine genital reconstruction is most often achieved with either penile inversion vaginoplasty (PIV) or sigmoid vaginoplasty (SV). Regardless of technique choice, multidisciplinary care is important. SV requires collaboration between colorectal and plastic surgeons. This collaboration must occur in both the index operation and in post-operative management. We present a series of two cases at a single institution with major complications and their subsequent management.

Methods/Interventions: Patient A underwent primary SV in 2017. One year postoperatively, she presented to the emergency department with abdominal pain, mucinous discharge, and an inability to dilate. CT imaging found abrupt narrowing of the sigmoid conduit with a fluid collection in the pelvis. An exam under anesthesia found a vaginal stricture that was subsequently dilated, but further endoscopy was concerning for perforation. Midline laparotomy revealed a 2 cm perforation of the necrotic appearing sigmoid conduit. This necrotic segment was resected at the level of the staple line to the phallus skin and removed. Patient B underwent primary SV in 2016. She presented 3 years later with abdominal pain and leukocytosis, with CT imaging showing a dilated sigmoid conduit. Exam under anesthesia revealed the neovagina was stenotic at the anastomosis with the sigmoid. Confirmation by laparoscopy revealed a dilated and ischemic sigmoid conduit (Fig 1). The decision was made to resect the sigmoid conduit.

Results/Outcome(s): The invasive intra-abdominal and pelvic portions of sigmoid vaginoplasty lead to numerous risks. Consistent dilation after either PIV or SV is important to maintain sexual function and prevent stenosis. Stenosis of the sigmoid conduit has further implications that can lead to surgical emergencies and loss of the neovagina. In both cases we describe diffuse stenosis of the neovagina as a result of failure of adequate dilation, and additional ischemia in the sigmoid conduit requiring resection. The interventions performed with a coordinated effort from plastic and colorectal surgery, while curative, led to cosmetic and functional morbidity in both patients.

Conclusions/Discussion: In contrast to penile vaginoplasty, use of the sigmoid colon provides a more physiologic analogue to vaginal mucosa allowing for lubrication while also increasing depth of the neovagina in gender affirming surgery. Both cases demonstrated failed dilation of their neovagina, which may have been avoided with consistent follow up and monitoring. Providing this education and follow up in a multidisciplinary setting can better address these patients and improve postoperative outcomes. While beneficial for reconstruction, the sigmoid vaginoplasty comes with increased surgical complexity and unique risks. It is imperative that the team care approach be maintained postoperatively to monitor patients for any complication that may arise.



THE ROLE OF ABDOMINAL DRAINAGE AFTER LAPAROSCOPIC APPENDECTOMY FOR PERFORATED APPENDICITIS.

eP200

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Purpose/Background: Perforated appendicitis is associated with the development of postoperative collections. Abdominal drainage during appendectomy is thought to reduce the risk of the development of postoperative collections. The aim of the study is to determine the value of abdominal drainage in the reduction of postoperative collections.

Methods/Interventions: Between September 2018 to June 2022, all patients (age > 7) diagnosed with perforated appendicitis, by imaging and confirmed by intraoperative findings, and subsequently underwent laparoscopic appendectomy, from a university affiliated government hospital in the state of Kuwait, were included in the study. Intraoperative drain placement was at the discretion of the surgeon. All patients received postoperative antibiotics for 7-14 days. Demographic, clinical, and perioperative characteristics were compared between patients who had intraoperative abdominal drain placement and those who did not. The primary outcome was development of postoperative intrabdominal abscess. Secondary outcomes included overall postoperative complications, length of stay (LOS), readmission and postoperative percutanous drainage. Patients with non-perforated appendicitis were excluded from the study.

Results/Outcome(s): There were 78 patients meeting inclusion criteria. Of these 47 (60.3%) underwent intraoperative abdominal drain placement. All appendectomies were performed laparoscopically with two patients requiring conversion to open approach in either group. In comparing patients with and without drains, patients were similar with regards to age, sex, and Charleson Comorbidity Index (CCI) (Table. 1). Postoperatively, there was no difference in the development of intraabdominal abscess in patients who underwent intrabdominal drain placement compared to those who did not (10.6% vs. 6.5%, p=0.697). Patients with abdominal drains had a longer LOS (4.7 (±1.4) vs. 3.5 (±1.5), p=0.001). There was no difference in overall complications (19.1% vs. 6.5%, p=0.184), need for post operative intervention (8.5% vs. 3.2%, p=0.643) and readmission (6.4% vs. 6.5%, p=1.000). All readmissions were for postoperative intraabdominal abscess.

Conclusions/Discussion: This study suggests that intrabdominal drain placement after laparoscopic appendectomy for perforated appendicitis does not prevent postoperative abdominal abscess and is associated with increased LOS.

Variable		No Drain n=31	Drain N=47	P value
Patient characteristics				
Age		30.7 (±16.9)	30.0 (±17.4)	0.710
Sex (male)		20 (64.5%)	32 (68.1%)	0.810
Charlson Comorbidity Index (CCI)	0	26 (83%)	41 (87.2%)	0.280
	1	1 (3.2%)	4 (8.5%)	
	≥2	4 (12.5%)	2 (4.3%)	
Postoperative outcomes				
Overall complications		2 (6.5%)	9 (19.1%)	0.184
Intraabdominal abscess		2 (6.5%)	5 (10.6%)	0.700
Postoperative percutaneous drain		1 (3.2%)	4 (8.5%)	0.640
SSI		1 (3.2%)	3 (6.4%)	1.000
UTI		0 (0.0%)	1 (2.1%)	1.000
Ileus		0 (0.0%)	1 (2.1%)	1.000
Length of Stay (LOS)		3.5 (±1.5)	4.7 (±1.4)	0.001
Readmission within 30 days		2 (6.5%)	3 (6.4%)	1.000

SAME DAY DISCHARGE FOLLOWING ELECTIVE LOOP OSTOMY REVERSAL: PARADIGM CHANGES FROM COVID-19.

eP201

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Purpose/Background: Patients undergoing loop ileostomy or colostomy reversals routinely are admitted for postoperative care. The COVID-19 pandemic led to a paradigm shift in approaches to care due to staffing and inpatient bed limitations. As a result, feasibility of same-day discharge for appropriate patients was considered. This is a retrospective case series of 7 same-day discharges (SDD) following elective ileostomy reversal. Objective: To describe the characteristics of patients for whom SDD following elective ileostomy reversal was possible, including comorbid conditions, American Society of Anesthesiologists (ASA) score, and Charlson Comorbidity index (CCI).

Methods/Interventions: Retrospective chart review was performed of 37 patients who underwent elective loop ileostomy or colostomy reversal at our institution between March 2021 and August 2022. Candidates for SDD were identified by the surgeon based on medical co-morbidities and other patient factors. They were counseled regarding outpatient reversal and signs of complications. Data were collected for patient demographics, surgical indication, CCI score and ASA score. As this was not randomized, statistics are provided solely for subjective comparison.

Results/Outcome(s): Patient characteristics, indication for diverting ostomy, and survival estimates are listed in the table. Of the 37 patients undergoing elective reversal, 8 (21.6%) were SDD, 8 (21.6%) were discharged on the first postoperative day (POD), and 24 (56.8%) beyond the first POD. Five of 8 (62.5%) SDD patients had an ASA below 3, and only 1 of the 8 patients had an expected ten-year survival below 90% based on CCI. One patient required readmission and adhesiolysis for a postoperative small bowel obstruction. Of the 21 patients discharged beyond 24 hours from the operation, only 5 (23%) had an ASA below 3; 10 out of 21 (47%) had a predicted ten-year survival of <90% based on CCI.

Conclusions/Discussion: Same day discharge following elective loop ostomy reversal is a feasible approach selected patients. Since nearly half of the patients were discharged by POD 1, SDD may be possible for a larger percentage of patients Limitations: This was a single surgeon case series of non-randomized highly-selected patients.

Table: Patient characteristics, surgery features, and survival estimates for ostomy reversal patients.

	Same day discharge	Discharge POD 1	Discharge POD >1
Number of patients	8 (21.6%)	8 (21.6%)	21 (56.8%)
Gender (% male)	87.5%	75.0%	52.4%
Age: (mean, st dev)	45.6, 16.4	55.8, 6.4	61.5, 14.4
ASA Score			
ASA 1	0.0%	0.0%	0.0%
ASA 2	62.5%	37.5%	23.8%
ASA 3	37.5%	62.5%	71.4%
ASA 4	0.0%	0.0%	4.8%
Indication			
Benign	100.0%	62.5%	81.0%
Malignant	0.0%	37.5%	19.0%
Ostomy type			
Ileostomy	87.5%	87.5%	85.7%
Colostomy	12.5%	12.5%	14.3%
CCI-predicted <90% 10-year survival	12.5%	0.0%	47.6%

ASA: American Society of Anesthesiology; st dev: standard deviation; CCI: Charlson comorbidity index.

ROBOTIC NICE PROCEDURE USING TRIPLE STAPLE LINE TECHNIQUE.

eP202

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Purpose/Background: Studies show intracorporeal anastomosis have improved outcomes and fewer anastomosis leaks. A recent study in presented in DCR about robotic natural orifice intracorporeal anastomosis with transrectal extraction and colorectal end-to-end handsewn anastomosis was feasible and safe. This corroborates the

safety of earlier studies using handsewn EEA. No study to date evaluates the triple staple line technique (TSLT), otherwise known as a Baker-type side to end anastomosis. The purpose of this retrospective single surgeon observational study is to compare the outcomes of TSLT compared to handsewn anastomosis for the NICE procedure. Benefits of TSLT intracorporeal anastomosis include a faster more uniform anastomosis that is easier to reproduce and standardize. My hypothesis is TSLT will lower anastomosis complication rate.

Methods/Interventions: All left-sided colorectal resection with planned anastomosis were performed using the DaVinci X platform between January 2019 to October 2022. In December 2020 all subsequent diverticulitis were treated using the TSLT unless contraindicated (severe ileus, unstable patient, unprepped colon). NICE was considered contraindicated for neoplastic, malignant or unknown disease. The specimen was routinely debulked and an Alexis was used during extraction. EEA stapler anvil was introduced and placed through specimen-side sigmoid colotomies. A proctoscope air leak test and flexible sigmoidoscopy was performed for all procedures.

Results/Outcome(s): 81 patients had robotic left-sided resection with anastomosis. A total of 33 consecutive diverticulitis patients underwent TSLT NICE. The median age was 56 (eldest 76), average BMI 35 (highest 56), average console time was 156 minutes, 55% female, 51% had intraoperative abscess (1 fistula) and 12% were urgent. 18% (6) diverticulitis patients did not undergo NICE because: colostomy (2), initially unknown disease, extraction through hernia repair, conversion to open laparotomy and a high stool burden. The average hospital stay was 2.6 days: 4 stayed 1 day, 14 for 2 days, 9 for 3 days, 2 for 4 days, 2 for 5 days and 1 for 6 days. There were no anastomosis leaks, postoperative abscess or surgical site infections.

Conclusions/Discussion: Motivation to perform NICE is well established because MIS hemicolectomy reduces SSI, decreases postoperative pain, opioid use and bowel recovery. Smaller incisions also decrease adhesions, incisional hernia and improves cosmesis. Eliminating the specimen extraction incision exemplify these benefits. This case series demonstration the TSLT anastomosis to be equivalent to handsewn EEA and might be associated with less anastomosis leak. Theoretically TSLT has decreased anastomosis variability by eliminating purse string bunching and standardizing operative skill level to allow for a flush EEA staple line that does not vary in thickness or cross staple lines. The TSLT may also prove an easier alternative for laparoscopic surgery.

STAPLED ANASTOMOSIS AFTER ELECTIVE SIGMOIDECTOMY FOR DIVERTICULAR DISEASE: DOES SIZE MATTER?

eP203

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Purpose/Background: A stapled anastomosis using a circular EEA-stapler has become the technique of choice to restore bowel continuity after sigmoidectomy for diverticular disease. Multiple device diameter sizes are commercially available, and the choice is made on a case-by-case basis depending on surgeon's preference. No high-quality data is available assessing the clinical implications of the stapler size on postoperative outcomes in this population. The aim of this study is to determine if the EEA stapler size impacts perioperative morbidity or anastomotic outcome after sigmoidectomy for diverticular disease.

Methods/Interventions: Review of a prospective institutional colorectal outcomes database was performed after obtaining review board approval. All adult patients who underwent elective sigmoid colectomy for diverticular disease at a quaternary referral hospital between 2012-2022 were included; patients were excluded for emergent surgery, ileostomy creation, and incomplete technical data. The cohort was divided in 2 groups based on EEA-stapler size: 25-29mm and 30-33mm. Demographics, comorbidity, and intraoperative variables were retrieved. Outcomes, including overall complication, surgical site infection, and anastomotic leak were assessed. Univariable association between EEA-stapler size and outcome was determined using Pearson Chi-square or Mann-Whitney U test, as appropriate; statistical significance was defined as $p<0.05$.

Results/Outcome(s): 316 elective sigmoid colectomies with colorectal anastomosis were performed for diverticular disease during the study period. Most of the anastomoses were performed with a 31-33mm stapler (56.3%). A 31-33mm EEA was used more frequently in male than female patients (77.8% vs 43.9%, $p<0.01$). Patients in the 31-33mm group were significantly younger (median age 57 vs 64 years, $p<0.01$), with a higher BMI (median 28 vs 26, $p<0.01$). Other demographics and comorbidities were similar in the two groups. The incidence of any 30-day post-operative complication was 13.0% (n=41); In the 25-29mm EEA group, 21 (15.2%) had any complication, compared with 20 (11.2%) in the 31-33mm group ($p=0.3$). Rates of surgical site infection, anastomotic leak, ileus, and other complications were also similar between the two groups (Table 1). The retrospective nature of this series, and the arbitrary choice of stapler size, are potential sources of bias. These are mitigated by the large sample size, strict inclusion/exclusion criteria, and use of a prospectively collected database.

Conclusions/Discussion: The EEA-stapler size does not significantly impact 30-day morbidity or anastomotic

outcomes after elective sigmoid resection for diverticular disease in a high-volume center. These data suggest that, provided sound principles for anastomotic construction are followed, the EEA-stapler size choice can be safely left to the surgeon's judgement.

Table 1. Baseline characteristics and outcomes of patients with diverticular disease undergoing elective sigmoid resection with stapled anastomosis either with 25-29mm or 31-33mm EEA stapler

	Overall cohort (n, %)	25-29mm EEA (n, %)	31-33mm EEA (n, %)	Univariable p-value*
N	316 (100)	138 (43.7)	178 (56.3)	
Age (median, range)	**61 (28-90)**	**64 (29-89)**	**59.5 (28-90)**	**<0.01**
Female sex	198 (62.9)	111 (81.0)	87 (48.9)	<0.01
ASA				
1	7 (2.3)	1 (0.8)	6 (3.4)	0.2
2	**204 (67.8)**	**90 (72.0)**	**114 (64.8)**	
3	90 (29.9)	34 (27.2)	56 (31.8)	
Body mass index in kg/m^2 (median, range)	**27.9 (17-51)**	**25.9 (17-52)**	**27.8 (17-51)**	**<0.01**
Tobacco use	33 (10.6)	16 (11.9)	17 (9.6)	0.5
Diabetes mellitus	**41 (13.5)**	**18 (13.8)**	**23 (13.2)**	**0.9**
Cardiac comorbidity**	28 (9.2)	15 (11.4)	13 (7.5)	0.2
Steroids use	**7 (2.3)**	**2 (1.5)**	**5 (2.9)**	**0.4**
Laparoscopy	302 (95.9)	128 (93.4)	174 (97.8)	0.06
Intra-operative outcome				
Conversion to open surgery	8 (2.7)	3 (2.4)	5 (2.9)	0.7
Intra-operative transfusion	**2 (0.7)**	**0 (0)**	**2 (1.2)**	**0.2**
Post-operative outcome				
Any complication	**41 (13.0)**	**21 (15.2)**	**20 (11.2)**	**0.3**
Surgical site infection	3 (0.9)	1 (0.7)	2 (1.1)	0.7
Anastomotic leak	**4 (1.3)**	**1 (0.7)**	**3 (1.7)**	**0.4**
Ileus	13 (4.2)	5 (3.7)	8 (4.6)	0.7
Post-operative transfusion	**19 (5.0)**	**13 (9.3)**	**6 (3.5)**	**0.2**
Reoperation	11 (3.6)	5 (3.9)	6 (3.4)	0.8
Readmission	**25 (8.3)**	**14 (11.0)**	**11 (6.3)**	**0.1**
Length of stay, day (median, range)	3 (0-62)	3 (0-28)	3 (1-62)	0.5

*Univariable p-values calculated using Pearson's chi-squared test for categorical variables, and Mann-Whitney U test for non-parametric variables. P-values <0.05 determined to be statistically significant. **ASA, American Society of Anesthesiology. ***Cardiac comorbidity, defined as a history of prior myocardial infarction, percutaneous coronary intervention, angina symptoms, or congestive heart failure.

PERISTOMAL MEDICAL ADHESIVE SKIN INJURY - A NEW OBSERVATION.

eP204

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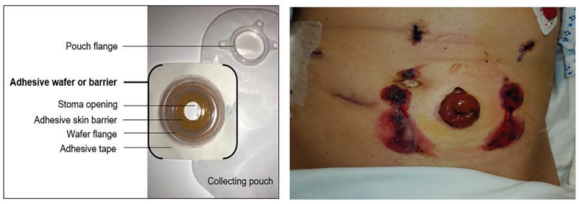
Purpose/Background: Peristomal Medical Adhesive Related Skin Injury (MARSI) is a known entity that can drastically affect patient quality of life after the surgical creation of an ostomy. Upto 80 percent of patients with a newly created ostomy will experience stomal or peristomal complications within the first 2 years. Erythema, skin erosion or tears, bullae or vesicles caused by adhesive ostomy pouching appliances are considered peristomal MARSI. MARSI is caused when the skin-to-adhesive attachment is stronger than the skin cell-to-cell attachment. As a result, the epidermal layers separate from the dermis. Adhesive removal results in the detachment of the superficial epidermal cell layers. Our objective is to highlight a unique case series of four patients with peristomal MARSI, believed to be a result of stretching of the abdominal wall skin post laparoscopic pneumoperitoneum creation.

Methods/Interventions: We observed peristomal epidermal damage observed at the first ostomy appliance change after laparoscopic ostomy creation in four patients. In all patients, standard ostomy appliances available at our institution were placed after desufflation of the abdomen and closure of incisions within the operating room. There was no difference in the technique used to place the ostomy appliance

Results/Outcome(s): In all cases, peristomal skin damage as seen in the figure was seen at the first ostomy appliance change. It appeared that MARSI occurred under the border adhesive tape component of the appliance, and not the hydrocolloid adhesive skin barrier. The skin damage in all patients was managed with local wound care and subsequently resolved.

Conclusions/Discussion: Peristomal MARSI is a common finding in patients with new ostomies. However, it generally develops over the first few months of ostomy adhesive appliance use. It is rarely observed within the first 1-2 days of ostomy appliance use. Risk factors identified are age, steroid use, location of stoma, and nutritional status. In our literature review, we did not find any data reporting peristomal MARSI specifically resulting from laparoscopic or robotic surgery. In our cases, the peristomal skin damage was related to the tape border and not the hydrocolloid ring immediately surrounding the stoma. We hypothesize that this may be a result of residual inflation or stretch of the skin of the abdominal wall as a result of pneumoperitoneum which subsequently improves after the first few days after laparoscopic surgery. Skin tearing is painful and greatly impacts patient satisfaction. We suggest that the protective paper covering the adhesive tape border be left in place following laparoscopic ostomy surgery which might prevent this complication. The hydrocolloid adhesive skin barrier immediately surrounding the stoma is the most critical component of the seal. The protective paper backing from the adhesive tape border may be removed at a later time.



SURGICAL MANAGEMENT OF DIVERTICULITIS: A SYSTEMATIC REVIEW AND NETWORK META-ANALYSIS.

eP205

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New Orleans, LA

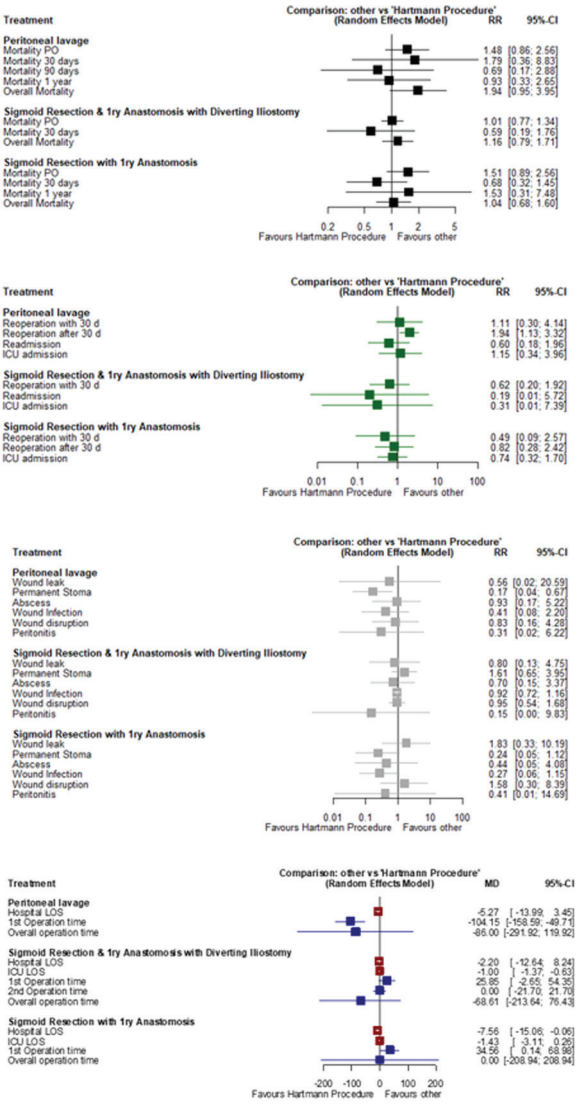
Purpose/Background: Perforated diverticulitis carries the risk of significant morbidity regardless of treatment. Historically, the Hartmann procedure has been the most widely-accepted surgical approach. Recently, other surgical methods have been compared and described to be similar or preferred to Hartmann, including primary resection with anastomosis (with or without diversion) or laparoscopic lavage. This study seeks to compare operative approaches for perforated diverticulitis in traditional meta-analysis and in network meta-analysis techniques.

Methods/Interventions: We performed a systematic review of studies that managed surgical treatment of diverticulitis. Criteria for inclusion were: (1) a cross-sectional study design, prospective or retrospective cohort study,

case-control study, or clinical trial (2) diverticulitis which was perforated and classified as Hinchey III and/or VI (3) surgical management defined as one or more of the following: Hartmann Procedure, Sigmoid Resection with Primary Anastomoses, Sigmoid Resection with Primary Anastomoses with Diverting Ileostomy, and Peritoneal Lavage.

Results/Outcome(s): After screening for our inclusion criteria, 12 studies were included in our study population. In total, 2724 were treated surgically for the treatment of diverticulitis, 1982 whom underwent Hartmann Procedure, 455 Sigmoid Resection with Primary Anastomosis, 105 Sigmoid Resection and Primary Anastomosis with Diverting Ileostomy, and 182 for Peritoneal Lavage. When comparing Peritoneal Lavage with Hartmann, there was a trend toward increased mortality (RR 1.94 CI 0.95-3.95) and significant >30 day reoperation rate (RR 1.94 CI 1.13-3.32) with Peritoneal Lavage, though there is significantly greater operative time (RR -104.15 CI -158.59, -49.49), likelihood of permanent stoma (RR 0.17 CI 0.04-0.67), and likelihood for cardiac event (RR 0.43 CI 0.21-0.86) with the Hartmann approach. There was a significantly increased likelihood for >IIIb Clavien-Dindo complication in Hartmann compared to Primary anastomosis with diversion (RR 0.31 CI 0.10-0.99). Hartmann also trended toward an increase in permanent stoma (RR 0.24 CI 0.05-1.14) and overall wound infection (RR 0.27 0.06-1.15) when compared to Primary anastomosis without diversion.

Conclusions/Discussion: Surgical management of perforated diverticulitis is uniquely amenable to network meta analysis because of the low number of surgical techniques typically used and the size of comparison data between them. Our data suggests a need for focused patient selection and risk-adjusted decision making when determining the technique for an index operation, particularly when discussing Peritoneal Lavage compared to Hartmann procedure. Our data also suggests the need for wider adoption of Primary anastomosis with or without proximal diversion as a safe and effective technique for perforated diverticulitis.



SURGICAL IMPACT ON OUTCOMES AFTER ENDOSCOPIC DETORSION FOR SIGMOID VOLVULUS.

eP206

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Purpose/Background: This project compares the impact of operative approach (open vs. minimally invasive surgery [MIS]) and timing of resection in patients with sigmoid volvulus who underwent successful endoscopic detorsion, relative to the non-operative patient cohort. Especially since many patients do not elect to proceed to resection.

Methods/Interventions: A retrospective chart review of the prospectively accrued HCA enterprise-wide database was undertaken from January 2016 to December 2021. Patients between 18 and 90 years of age with successful endoscopic detorsion were included. This resulted in 766 patients being included in this study.

Results/Outcome(s): No advantage was found for patients who were operated on in the first 48 hours after detorsion compared to those who were operated on after 48 hours. There was no statistically significant difference in mortality in patients who underwent an operation (open or MIS) compared to those who underwent non-operative management. The MIS group was less likely to be readmitted within 90 days compared to those who underwent either open colectomy or medical management. MIS patients also had a significantly shorter length of stay (LOS) compared to those in the open colectomy group. There was no difference in anastomotic leaks or intra-abdominal abscesses between the open and MIS groups. Elixhauser Comorbidity Index (ECI) was predictive of LOS and 90-day readmission, such that as the ECI increases, so does the LOS and likelihood of readmission.

Conclusions/Discussion: All resected patients did at least as well as the non-operatively managed cohort, based on mortality and readmission rates. MIS patients had similar LOS and mortality rates with better readmission rates. In the absence of contraindication to MIS, MIS colectomy for sigmoid volvulus after endoscopic detorsion allows for better outcomes than the two studied alternatives: open resection and conservative medical management. Resection, especially with MIS technique, is underutilized in this clinical setting.

INFECTION OF LUMBAR SPINAL FUSION AND POPLITEAL EMBOLUS IN THE SETTING OF COMPLICATED DIVERTICULITIS.

eP207

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Purpose/Background: Implant associated spinal infections are challenging to treat and finding the etiology of the infection is key for appropriate management. Moreso, septic thrombophlebitis is a rare complication of intra-abdominal infections, most commonly diverticulitis leading to superior mesenteric vein thrombus. We herein report a case of a 49-year-old male with prior lumbar fusion who presented with an acute limb in the setting of complicated diverticulitis.

Methods/Interventions: Review of case notes.

Results/Outcome(s): 49-year-old male who was transferred from an outside hospital for a cold left lower extremity. He presented with no sensation from the knee down and was unable to move his left leg, prompting a CT abdomen and pelvis with bilateral runoff. On this, it was found that he had occlusion of the left popliteal artery with no opacification, as well as sigmoid diverticulitis, with a large presacral abscess anterior to lumbar vertebral bodies and extended along the posterior aspect of the left external iliac vessels. Given the proximity of the abscess, it was thought to contribute to the implant-associated infection. During this hospital course, the patient underwent left popliteal embolectomy with four-compartment fasciotomy followed by drainage of bilateral psoas abscesses with partial lumbar and sacral corpectomy, debridement of the spinal case with antibiotic bead placement; as well as multiple IR guided drain placements. He ultimately underwent Hartmann's procedure with drainage of the large retroperitoneal abscess, with subsequent Hartmann reversal with small bowl resection and lysis of adhesions.

Conclusions/Discussion: Spinal infections in the setting of colonic disease are a rare occurrence, and even more so embolisms. This is the first case of acute limb ischemia in the setting of complicated diverticulitis and the second case of spinal involvement in the setting of diverticular disease. We report such a rare presentation as it underlies the importance for awareness so that appropriate treatment can be completed. Management of complicated diverticulitis with extracolonic complications such as these requires a multidisciplinary approach.

ACUTE GUT OBSTRUCTION FROM INTESTINAL ENDOMETRIOSIS AND SCHISTOSOMIASIS.

eP208

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Purpose/Background: Endometriosis, which affects 10-15% of women, often presents with pelvic pain or infertility.[1] Acute small bowel obstruction (SBO) may occur due to intestinal endometriosis. While schistosomiasis is endemic in the Philippines, particularly Samar, Leyte and Mindoro[2], the likelihood of bowel endometriosis with schistosomiasis is rarely documented. We present a case of SBO secondary to intestinal endometriosis and schistosomiasis.

Methods/Interventions: A 49-year-old female presented with a 4-week history of abdominal pain and decreased stool caliber. She had stable vital signs with a soft and distended abdomen that was nontender to touch. Plain abdominal radiographs showed dilated bowels loops with

differential air-fluid levels. Nasogastric tube decompression was done at the emergency department (ED). A computed tomography (CT) scan showed a terminal ileal mass near the ileocecal junction with minimal passage of contrast. Small bowels proximal to the mass were markedly dilated. This prompted surgical intervention.

Results/Outcome(s): Intraoperatively, a stricture at 10 cm from the ileocecal valve was determined to be causing the SBO. A limited right hemicolectomy was done, with proximal and distal oncologic margins required of a terminal ileal malignancy. On cut-section, submucosal fibrosis was noted. No mucosal lesion was evident. She was discharged well on postoperative day 6. Biopsy showed endometriosis of the ileum, with incidental schistosomiasis. The patient was eventually treated with oral progestin for the endometriosis to address her pelvic pain, and given praziquantel for the schistosomiasis.

Conclusions/Discussion: Intestinal endometriosis is a deep infiltration of ectopic endometrial tissue within the muscularis layer of the bowel, occurring in 5-12%[3] of women. Most (70-93%) are found in the rectosigmoid.[4,5] Terminal ileal endometriosis is uncommon, accounting for 4.1% of cases.[6] These present with severe abdominal pain and obstructive symptoms. Schistosomiasis is highly endemic in the Philippines. S. mansoni infestation outside the portal system may include the intestines, which is an ideal site for implantation due to its high vascularity.[7] This leads to lower abdominal pain, bleeding, and at times, intestinal obstruction.[8,9] Concurrent endometriosis and schistosomiasis is rare, but possible. A paper by Abrao (2006)[4] described a patient with pelvic pain who underwent laparoscopic resection for a 4 cm rectosigmoid lesion. Biopsy turned out to be epithelioid granuloma and calcified eggs of S. mansoni within an endometriotic lesion. Endometriosis may be managed medically with progestogens, and schistosomiasis treated with praziquantel. Surgical management in both cases are done if patients present with obstruction, intractable pain, or perforation. No specific correlation has yet been established between endometriosis and schistosomiasis.

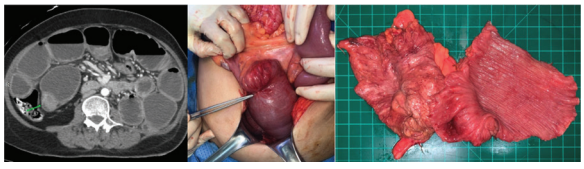

Figure 1. (A) CT scan showing terminal ileal mass, (B) Intraoperative stricture at 10cm from ileocecal valve (C) Cut specimen with absence of intraluminal extension of the stricture. PGH, 2022.

DIVERTICULECTOMY AS AN ATYPICAL SURGICAL TECHNIQUE IN ACUTE COMPLICATED DIVERTICULITIS OF THE LEFT COLON.

eP209

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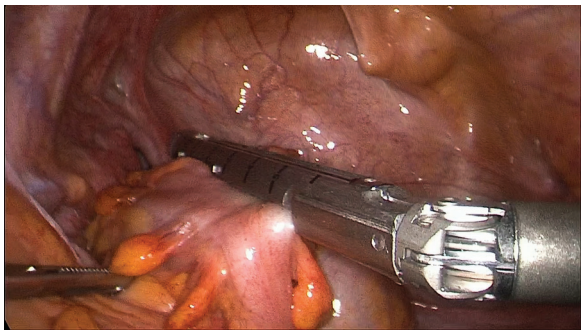
Purpose/Background: We present a poster where we performed a surgical approach by mechanical intracorporeal diverticulectomy with endostapler and epiploplasty with stitches for an acute perforated diverticulitis of a single sigmoid diverticulum. Solitary sigmoid diverticula are anecdotal and isolated diverticulectomy in complicated acute diverticulitis is a rare and controversial approach.

Methods/Interventions: A 66-year-old female patient came to emergency room with intense acute pain in the lower abdomen. On examination, she presented peritonism predominantly in the left iliac fossa. Laboratory tests with leukocytosis and increased acute pase reactants. Abdominal CT scan showed diffuse pneumoperitoneum with free fluid.

Results/Outcome(s): Urgent laparoscopy was performed, revealing purulent peritonitis in the pelvis (Hinchey III) and perforated diverticulitis of a single sigmoid diverticulum. In view of the indemnity of the rest of the sigmoid colon, mechanical intracorporeal diverticulectomy was performed with an endostapler and subsequently epiploplasty with stitches. Correct postoperative period and hospital discharge after 6 days.

Conclusions/Discussion: Approximately 95% of patients with colonic diverticulosis in Western countries present diverticula in the left colon, these being multiple and most of them only in the sigma (65% of cases). The presentation in the form of isolated sigmoid diverticulum is anecdotal, being more frequent in Asian patients in the form of solitary cecal diverticulum. Acute diverticulitis is the most common complication of left colon diverticulosis, and treatment varies according to the patient's hemodynamic status/comorbidities and the severity of the diverticulitis. Currently, in cases of acute diverticulitis with frank perforation and purulent peritonitis (Hinchey III), urgent surgery is recommended. If the patient presents good preoperative conditions, segmental colectomy with primary anastomosis with/without protective ileostomy is recommended, while in cases of hemodynamic instability, Hartmann's procedure is recommended. There is low scientific evidence to support diverticulectomy in cases of single complicated diverticulum in the left colon, mainly because it is a very rare entity. However, the evidence is greater in solitary cecal diverticula which, although being mostly observational studies, present good results and may suggest that it is a plausible surgical strategy in selected cases such as the one we present in this communication.



ILEOCECAL INTUSSUSCEPTION IN AN ADULT PATIENT WITH GASTROINTESTINAL TUBERCULOSIS.

eP210

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Purpose/Background: The prevalence of tuberculosis (TB) in the Philippines is tenth in the world. It also has one of the highest multiple drug resistant TB (MDRTB) cases. Extrapulmonary including gastrointestinal tract infections are an important cause of morbidity and mortality especially in endemic areas. A Filipino male presented with abdominal pain, weight loss, and eventually intestinal obstruction. On imaging, a cecal mass with ileocecal intussusception was found. A right hemicolectomy was done and histopathology revealed gastrointestinal tuberculosis (GITB).

Methods/Interventions: This is a case of a 56-year-old male presenting with a two-month history of abdominal pain and weight loss. Abdominal distention and hyperactive bowel sounds were noted on physical exam. Abdominal computed tomography (CT) scan showed a long segment thickening of distal ileum telescoping into the cecum causing luminal narrowing of the distal ileum and the ileocecal junction with resultant dilatation of the proximal small bowels. The scan illustrated the classic target sign seen with intussusception. Emergent laparotomy revealed a bulky cecal mass with an intussuscepted segment of ileum, multiple omental seeding, and enlarged mesenteric nodes. A right hemicolectomy with ileostomy and distal mucus fistula was performed.

Results/Outcome(s): The patient was discharged on the 3rd postoperative day. Final histopathologic report revealed chronic granulomatous inflammation with Langhan's-type giant cells and caseation necrosis consistent with TB. The patient has since been started on anti-tuberculous therapy (ATT).

Conclusions/Discussion: The most common sites of extrapulmonary TB (EPTB) are the lymphatic system, genitourinary organs, bone, central nervous system, and the gastrointestinal tract. A local study in the same institution showed a total of 241 GITB cases managed over an 11-year period. Intestinal obstruction due to an ileocecal mass was the most common indication for surgery, with a right colectomy being the most often performed procedure. Dubbed the "great mimic," TB must be differentiated from other conditions such as malignancy and inflammatory bowel disease. Diagnosis is demonstrated by chronic granulomatous inflammation with Langhans-type giant cells and caseous necrosis from biopsy. Treatment involves a regimen of isoniazid, rifampin, pyrazinamide, and ethambutol for two months (intensive phase), followed by isoniazid and rifampin for four months (maintenance phase). If a patient develops complications such as obstruction, perforation, or bleeding, surgery may be indicated. Our patient presented with intestinal obstruction from an intussusception caused by an ileocecal mass. Majority of intussusception in adults present with a pathologic lead point, commonly a malignant neoplasm, needing surgical intervention. The absence of a histopathologic diagnosis led to the decision for an oncologic resection. However, upon confirmation of GITB by histopathology, ATT was given.

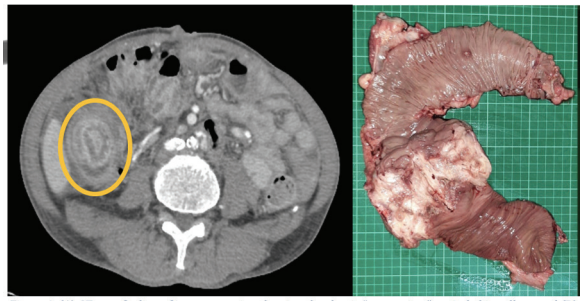

Figure 1. (A) CT scan finding of intussusception showing the classic "target sign," encircled in yellow; and (B) Specimen with submucosal thickening at the ileocecal area. PGH, 2022

Figure (A) CT scan finding of intussusception showing the classic "target sign," encircled in yellow; and (B) Specimen with submucosal thickening at the ileocecal area. PGH, 2022

RARE CASE OF SMALL BOWEL VOLVULUS FROM MECKEL'S DIVERTICULUM IN AN ADULT.

eP211

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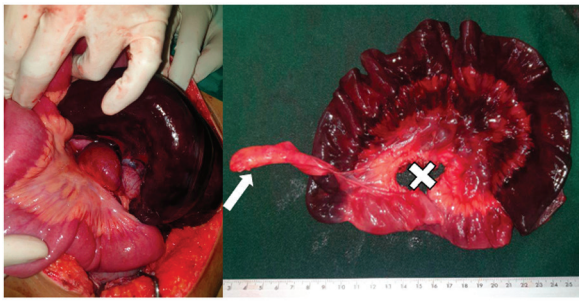
Purpose/Background: Meckel's diverticulum is considered the most common congenital anomaly of the gastrointestinal tract, and has been estimated to be present in 2% of the general population. It may cause complications such as ulceration, bleeding, perforation, obstruction, and very rarely, tumor growth. Meckel's diverticulum is not often the first diagnosis considered for many abdominal complaints. For this particular case, a 19-year old female patient presented with acute abdominal pain with allegedly no prior symptoms, and on physical exam her abdomen was distended with direct and rebound tenderness in all quadrants. The working impression was ruptured appendicitis. This turned out to be small bowel volvulus complicated by a Meckel's diverticulum.

Methods/Interventions: Work-up showed leukocytosis with a white blood cell count of 19.2 x 10^9/L. An abdominal ultrasonography requested by the ED physician showed "minimal free intraperitoneal fluid collection, no evidence of a dilated compressible, blind-ended, tubular structure, which may represent an inflammed appendix." With the impression of an ruptured appendicitis, the patient was referred to Surgery and was brought to the Operating Room for laparotomy through a midline incision.

Results/Outcome(s): Intraoperatively, 700 mL of foul-smelling serosanguinous ascitic fluid was noted with necrotic twisted small bowels approximately 100 cm in length, beginning from 300 cm from the ligament of Treitz. The patient underwent resection-anastomosis of the involved ileal segment. A 6 cm Meckel's diverticulum 15 cm from the ileocecal valve with enlarged mesenteric nodes was noted. The diverticulum was noted to be attached to the mesentery of the necrotic bowel loop. The appendix was normal. The patient was discharged well on the fourth postoperative day. The final histopathology was: "consistent with Meckel's diverticulum, hemorrhage and necrosis consistent with volvulus." After a year, the patient has remained well with no recurrence of abdominal pain.

Conclusions/Discussion: Meckel's diverticulum is rarely diagnosed before surgery, especially in adults. The most common complication is intestinal obstruction which may be caused by various mechanisms: volvulus, intussusception, Littre's hernia, mesodiverticular band, stricture, enterolith, fibrous bands, and tumors. In this case, volvulus occurred wherein the small bowels twisted around the Meckel's diverticulum that caused subsequent obstruction and ischemic necrosis, and eventual gangrene of the involved bowels. The diverticulum was noted to be attached to the mesentery which probably would have been the anchor point for rotation of the small bowels causing obstruction. Any surgeon should be prepared to properly manage a patient in the eventuality that intraoperative findings are not consistent with one's preoperative diagnosis.



Intraoperative photograph showing necrotic small bowels and the gross specimen resected showing a segment of necrotic small bowel that twisted around a Meckel's diverticulum (white arrow). The diverticulum was noted to be attached to a portion of the mesentery (white cross).

IMPACT OF PREOPERATIVE CHEMOTHERAPY ON PERIOPERATIVE MORBIDITY IN COMBINED RESECTION OF RECTAL CANCER AND LIVER METASTASES.

eP212

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Purpose/Background: Combined resection of rectal cancer and synchronous liver metastases (sLM) is feasible in select patients. Though preoperative chemotherapy is used to improve resectability, these regimens can be associated with adverse effects on liver parenchyma. The data on whether preoperative chemotherapy increases postoperative complications in patients undergoing rectal or hepatic surgery is conflicting. Even less is known about the relationship between preoperative chemotherapy and early postoperative morbidity for patients undergoing combined resection of rectal cancer and sLM.

Methods/Interventions: Retrospective cohort study using the National Surgical Quality Improvement Program database between 2016 and 2020.

Results/Outcome(s): Among 574 patients who underwent combined resection of a primary rectal cancer and sLM, 450 (78.40%) received preoperative chemotherapy. There were no significant differences in the rates of 30-day overall and serious morbidity between patients who received preoperative chemotherapy and those who did not (34.22 vs. 39.52%, p=0.275; 16.22 vs. 20.16%, p=0.302; respectively) (Table 1). Patients with preoperative chemotherapy exhibited similar rates of wound infections, bleeding complications, readmission, bile leak (preoperative chemotherapy 2.67 vs no preoperative chemotherapy 4.76%, p=0.415), and postoperative liver failure (4.13 vs 3.13%, p=0.999) as those without preoperative chemotherapy. Furthermore, patients with preoperative chemotherapy had lower rates of 30-day mortality, cardiac complications, and unplanned intubations. On adjusted analysis, there was no association between preoperative chemotherapy and overall and serious morbidity (adjusted OR=0.78, 95% CI 0.50-1.21, p=0.262; OR=0.79, 95% CI 0.46-1.36, p=0.401; respectively). Similar findings were seen among patients undergoing high- and low-risk surgeries in the subgroup analyses. The study is limited by lack of granularity of data regarding chemotherapy regimens; specifically, the chemotherapy regimen, total duration of chemotherapy, and time elapsed between chemotherapy and surgery is not assessed. Additionally, patients who received preoperative chemotherapy and ultimately did not undergo surgery are not captured by the data.

Conclusions/Discussion: Preoperative chemotherapy does not appear to be associated with increased perioperative morbidity in patients undergoing combined resection of primary rectal cancer and sLM.

Table 1. 30-Day Outcomes Stratified by Use of Preoperative Chemotherapy in Rectal Cancer

Outcome (%)	Total 574	No Preoperative Chemotherapy 124 (21.60)	Preoperative Chemotherapy 450 (78.40)	*p*
Overall morbidity [a]	203 (35.37)	39 (39.52)	154 (34.22)	0.275
Wound infection	31 (5.40)	6 (4.84)	25 (5.56)	0.755
Organ space SSI	59 (10.28)	16 (12.90)	43 (9.56)	0.277
Pneumonia	17 (2.96)	4 (3.23)	13 (2.89)	0.770
Urinary tract infection	9 (1.57)	3 (2.42)	6 (1.33)	0.414
Venous thromboembolism	17 (2.96)	3 (2.42)	14 (3.11)	0.999
Cardiac complication	10 (1.74)	5 (4.03)	5 (1.11)	**0.043**
Renal complication	11 (1.92)	3 (2.42)	8 (1.78)	0.711
Shock/sepsis	31 (5.40)	7 (5.65)	24 (5.33)	0.892
Unplanned intubation	14 (2.44)	7 (5.65)	7 (1.56)	**0.016**
On ventilator >48 hours	10 (1.74)	4 (3.23)	6 (1.33)	0.235
Bleeding requiring transfusion	117 (20.38)	28 (22.58)	89 (19.78)	0.493
Serious morbidity [b]	98 (17.07)	25 (20.16)	73 (16.22)	0.302
Readmission	62 (10.80)	13 (10.48)	49 (10.89)	0.898
Reoperation	34 (5.92)	6 (3.84)	28 (6.22)	0.563
LOS days, median (IQR)	7 (5-9)	7 (5-10)	7 (5-9)	0.602
Mortality	6 (1.05)	4 (1.3)	2 (0.44)	**0.022**

Abbreviations: SSI, Surgical Site Infection; LOS, Length of Stay; IQR, Interquartile Range.
[a] Overall morbidity: Wound infection, pneumonia, urinary tract infection, pulmonary embolism, venous thromboembolism, cardiac complication, shock/sepsis, unplanned intubation, bleeding transfusion, renal complication, on ventilator >48 hours, organ space SSI.
[b] Serious morbidity: Clavien-Dindo III-IV (cardiac complication, shock/sepsis, unplanned intubation, renal complication, on ventilator >48 hours, organ space surgical site infection, and reoperation).

SHORT-TERM OUTCOMES AFTER OPEN VERSUS ROBOTIC ABDOMINOPERINEAL RESECTION: COMPARATIVE RESULTS FROM A TERTIARY COMMUNITY PRACTICE.

eP213

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Seattle, WA

Purpose/Background: Minimially invasive approaches to abdominal colectomy for both benign and malignant disease have become commonplace. More controversial howerver is its role for proctectomy especially for malignant diagnoses. The aim of this study was to evaluate outcomes of both procedures at a tertiary community practice transitioning from open to robotiuc abdominoperineal resection (APR)

Methods/Interventions: A retrospective review of all patients undergoing APR from 2017 to 2021 in a tertiary community colorectal specialty practice was performed. Patient demographics, diagnosis and operative technique were obtained. Primary outcome variables were operative time, length of stay (LOS) and surgical morbidity for the entire cohort and for individual surgeon were obtained. For patient with a malignant diagnosis intact mesorectum, tangential margin and lymph node harvest rate were obtained

Results/Outcome(s): A total of 140 patients were included: 91 (65%) underwent robotic APR while 49 (45%) underwent open APR. The first year of the study was the last year of predominantly open (93%) APR while the next four were predominantly robotic (81%). The operative approach was at the discretion of the surgeon. The mean age of the entire cohort was 62 years, 53% were malemean BMI was 28 and 67% had had prior abdominal surgery. No significant differences in demographic factors were identified between groups. Surgery was conducted for rectal cancer (80%), anal cancer (9%), inflammatory bowel disease (9%) and radiation proctitis (2%). A higher percentage of patients undergoing robotic APR had a malignant diagnosis (81 vs 49%). Mean operative time was similar beetween groups (robot 245 min vs open 239 min). Open conversion was required in 13% (12/91). A statistically significant improvement in LOS was seen with the robotic approach (5.5 vs 7.2 days, r<0.5). The overall incidence of superficial SSI was higher in the open group (0 vs 6%) and deep space SSI was similar (9 vs 10%). For those with a malignant diagnosis no significant differences in complete mesorectum (78 vs 82%), positive tangential margin (10 vs 8%) and lymph node harvest rate (15 vs 12). Operative volume was positiviely associated with improved operative time (199 vs 345 min)

Conclusions/Discussion: Adoption of the robotic platform for APR in this study appears to offer improvement in LOS and superficial SSI without extending operative time. There did not appear to be any compromise in short term oncologic outcomes associated with the robotic approach.

GOLDILOCKS AND THE THREE RESUSCITATION STRATEGIES: INTRAOPERATIVE FLUID MANAGEMENT IN THE SURGICAL TREATMENT OF RECTAL CANCER.

eP214

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Purpose/Background: Fluid management is a key part of surgical therapy. In colorectal surgery, the Enhanced Recovery After Surgery (ERAS) pathway has guidelines on intraoperative fluid management, including maintaining euvolemia and avoiding excessive fluid perioperatively. However, there is no specific optimal fluid management strategy in the treatment of primary rectal cancer. We aim to evaluate intraoperative fluid management strategies in patients undergoing surgery for rectal cancer. We hypothesize a restrictive or balanced strategy would correlate to decreased length of stay (LOS).

Methods/Interventions: Adult patients with rectal cancer undergoing surgical resection from 2007-2017 were identified in the US Rectal Cancer Consortium. Patients were excluded if they required emergency or palliative surgery, had EBL >500mL, or had preoperative comorbidities affecting fluid administration (AKI, CKD, dialysis). Patients were grouped based on total volume of intraoperative crystalloid, albumin, and blood administration. Based on previously described cutoffs, we defined a restrictive fluid management strategy as < 5mL/kg/h, a balanced strategy as 5-8 mL/kg/h, and a liberal strategy as >8mL/kg/h. Primary outcome was postoperative LOS. Secondary outcomes were return of bowel function,

total complications and complications categorized by organ system. A retrospective analysis was performed using negative binomial (count data), logistic regression (binary outcomes), and ordinal logistic regression (ordinal outcomes) models to evaluate the effect of restrictive, balanced, and liberal fluid management strategies.

Results/Outcome(s): Of 399 patients that were included in the study, 322 (80.7%) patients fell into the liberal fluid management group, 50 (12.5%) in the balanced group, and 18 (4.5%) in the restrictive group. On both univariable and multivariable analyses, both balanced and restrictive strategies had shorter LOS compared to the liberal strategy (adjusted RR=0.9); however, these associations were not statistically significant. On multivariable analysis, age, ASA class, type of operation, and operative time were statistically associated with LOS (all p-values <0.001). Fluid management strategy was not associated with return of bowel function, the median number of postoperative complications, or postoperative creatinine. Age was significantly associated with return of bowel function (interquartile range OR=2.16, p= 0.001).

Conclusions/Discussion: We did not observe an association between the amount of IV fluid administered during surgical treatment of rectal cancer and LOS or postoperative complications. Instead, patient characteristics — age, gender, ASA—and operation variables—operation type and time—are the primary drivers of post operative outcomes. Future strategies to improve postoperative care should focus on these areas rather than fluid management.

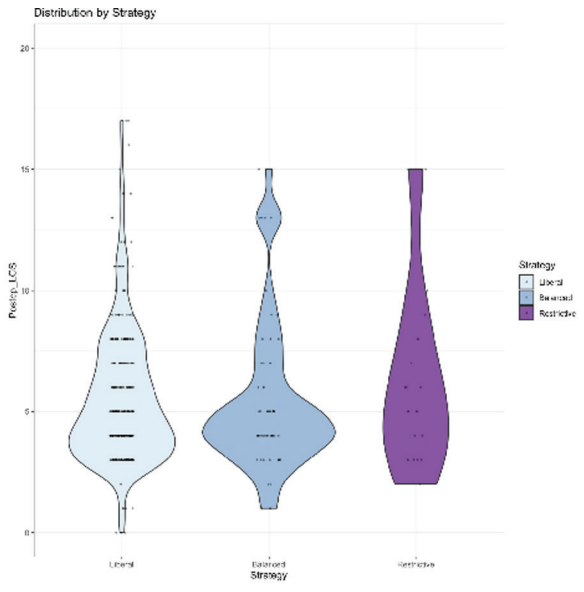

Figure 1: Univariable Model comparing postoperative length of stay with fluid management strategy.

EXTRALEVATOR VERSUS CONVENTIONAL ABDOMINOPERINEAL EXCISION: COMPARISON OF TUMOUR PERFORATION AND CIRCUMFERENTIAL RESECTION MARGIN INVOLVEMENT, OUR SINGLE CENTRE EXPERIENCE.

eP215

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Purpose/Background: Extralevator abdominoperineal excision (ELAPE) of rectal cancer, which entails excision of levator ani close to its bony origin, is more radical than the conventional abdominoperineal excision (cAPE). It has been shown to decrease tumour perforation (TuP) and circumferential resection margin (CRM) involvement. However, in this era of neoadjuvant chemoradiotherapy (NACRT) this may not be so in all patient. This study was undertaken to quantify the incidence of IOP and CRM positivity in these two operations

Methods/Interventions: Data was captured prospectively since the start of operation theatre in August 2011. The details of patients with rectal adenocarcinoma who underwent NACRT followed by ELAPE or cAPE, were analysed. Chi-square test was used to compare proportions using SPSS® v.21; p value less than 0.05 was considered significant.

Results/Outcome(s): Between August 2011 to August 2021, 152 patients underwent these operations. Based on the locoregional MRI staging and MDT decision, 124 patients underwent NACRT followed by either APE (24) or ELAPE (100). This cohort had 49 (39.5%) females and 75 (60.5%) males (median age: 51 years). There was 10 weeks gap between NACRT completion and surgery in both groups. The median size of the formalin-fixed tumour in each group was 3 cm. In the cAPE group TuP was noticed in 4 (17.4%) specimens while this was present in 4 (4%) patients who underwent ELAPE (p = 0.04). CRM involvement (gross and microscopic) was seen in 8 (33.3%) and 18 (18%) patients in the cAPE and ELAPE group respectively (p = 0.160).

Conclusions/Discussion: This study shows that the perceived oncological superiority of ELAPE may not be automatically so in all patients in this era of NACRT. This finding is in keeping with contemporary literature. However, its inherent radicality combined with the ergonomic ease of perineal dissection performed in prone position makes it the standard operation.

COMPARING ISOMETRIC TO STANDARD MRI SEQUENCES FOR ACCURACY IN DETERMINING RESPONSE TO NEOADJUVANT THERAPY IN RECTAL CANCER.

ePoster: eP216

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Purpose/Background: Rectal cancer management relies heavily on advanced imaging for diagnosis and monitoring. The National Comprehensive Cancer Network (NCCN) guidelines recommend pelvic Magnetic Resonance Imaging (MRI) for initial staging as well as restaging for those undergoing neoadjuvant therapy for locally advanced tumors. While MRI is an invaluable tool in rectal cancer treatment, it is imperfect. Tumor depth has been found to be incorrect in up to one-third of pre-treatment MRIs. Incorrect assessment of residual tumor may exclude a patient from consideration of a watch and wait strategy, or perhaps worse, delay surgical treatment of resectable disease. Images obtained as isometric 3T MRI sequences offer the possibility of viewing the rectum in three dimensions with improved image resolution. The aim of this study was to determine if MRI with the addition of isometric pulse sequences improves the accuracy of predicting complete response in those undergoing neoadjuvant therapy for rectal cancer.

Methods/Interventions: This was a single-institution, prospective, observational study that enrolled patients diagnosed with locally advanced rectal cancer between August 2017 and May 2021 who had received neoadjuvant therapy but had not yet undergone surgical resection. Prior to surgery, or watch-and-wait surveillance, patients underwent an MRI that included an isometric Magnetic Resonance (MR) sequence (3D HyperCube, GE). Study MRIs were reviewed by a radiologist who was blinded to the patient's post-neoadjuvant pathologic or clinical outcome and any post-neoadjuvant treatment imaging.

Results/Outcome(s): 32 patients were enrolled, all underwent 3D HyperCube MRI and 25 (78%) patients underwent post-treatment MRI with standard sequences. 10 (31.2%) patients were found to have a complete response (CR), 5 (15.6%) with pathologic CR and 5 (15.6%) with clinical CR. Average time from end of treatment to study MRI was 102.7 days (range: 33-449). 3D HyperCube MRI sensitivity was 55.6% and specificity was 35.7%, compared to sensitivity of 75% and specificity of 37.5% for standard MRI sequences. 17 patients had discordant 3D MRI and pathologic/clinical findings, 9 (52.9%) were overstaged and 8 (47.1%) were understaged. 10 patients had discordant standard MRI and pathologic/clinical findings, 9 (90%) were understaged. 3D MRI correctly estimated CR in 5 (50%) cases, standard MRI correctly estimated CR in 6 (60%) cases.

Conclusions/Discussion: Compared to standard MR sequences, 3D isotropic MR sequences were less sensitive and less likely to correctly predicted CR to neoadjuvant therapy. However, 3D Hypercube MRI was more likely to overstage patients, compared to standard MR sequences, suggesting greater ability to detect abnormalities but an inability to delineate remaining tumor from scar tissue. Further work is needed to delineate these imaging characteristics.

MULTIDISCIPLINARY CONFERENCE FOR RECTAL CANCER – MEASURING PATIENT CARE IMPACT.

ePoster: eP217

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Purpose/Background: Multidisciplinary Conferences (MDC) are considered standard of care in the management of rectal cancer. Improved clinical staging and individualized multimodality treatment are key goals of MDC. The current literature suggests pre-conference plans are changed by MDC discussion in 22-29% of cases. At our institution, MDC for all rectal cancer cases was established in July of 2015. This objective of this study is to determine the impact of MDC on clinical staging, investigations and management plans for rectal cancer patients treated at a quaternary care colorectal surgery center.

Methods/Interventions: At St. Paul's Hospital, pre- and post-conference data were prospectively collected starting in 2015. Specialist attendance was recorded. Pre and post-conference plans were recorded for each patient and categorized based on treatment plan. Post-conference plans were considered "changed" when patients had moved from one treatment category to another and "deferred" if the MDC had recommended additional investigations or consults prior to establishing a definitive plan. Descriptive analysis was performed for tabulation and summarization of data points.

Results/Outcome(s): Between May 2021 and April 2022, pre- and post-conferences plans were prospectively recorded for 44 consecutive meetings. Pathology, Radiology, Medical Oncology and Surgery were present for 100% of meetings and Radiation Oncology was present for 93% of meetings. In total, 276 patients were reviewed. Imaging was reviewed in 95%, pathology in 24% and endoscopic images in 41% of cases. Of the patients reviewed, 137 were new diagnoses of rectal adenocarcinoma. Radiology reports were changed in 26% (35/137) of patients, pathology reports 4% (5/137) and overall treatment plans were deferred in 15% (20/137) and changed in 27% (37/137) of patients. Of the patients who were originally planned for immediate surgical intervention, post-MDC treatment plan included neoadjuvant

therapy in 15% (6/40). For 10% (8/80) of patients who were originally planned for neoadjuvant therapy, post MDC treatment plan was surgery first. Overall, 18% more patients (18/80 pre-conference to 33/80 post-conference) were recommended for total neoadjuvant therapy.

Conclusions/Discussion: MDC recommended changes to pre-conference plans 27% of the time. Further, MDC recommended additional investigations or consults 15% of the time. Our study suggests comprehensive review by a team of treating physicians changes patient care plan in a consequential percentage of rectal cancer patients. Further investigation of the impact of MDC on patient outcomes is needed.

FACTORS ASSOCIATED WITH NOT UNDERGOING SURGERY FOR LOCALLY ADVANCED RECTAL CANCERS AND ITS IMPACT ON SURVIVAL: AN NCDB PROPENSITY MATCHED ANALYSIS.

ePZ18

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Purpose/Background: The traditional treatment paradigm for patients with stages II/III rectal cancers has been neoadjuvant chemoradiation followed by curative intent surgery and adjuvant chemotherapy. The aims of this study were: 1) to assess factors associated with not undergoing surgery for locally advanced rectal cancers (LARCs) and 2) to compare survival outcomes of patients who underwent neoadjuvant+surgery+/-adjuvant therapy with those who underwent non-surgical therapy.

Methods/Interventions: Adult patients with stage II/III rectal cancer who underwent chemotherapy only, radiation only, chemoradiation only, or neoadjuvant+surgery+/-adjuvant therapy were retrospectively analyzed from the National Cancer Database (2004-2019). Patients who did not undergo surgery because it was not a planned course of treatment were excluded from the study. Factors associated with not undergoing surgery were identified using multivariable logistic regression. Propensity score matching was applied and produced well-balanced groups on all baseline characteristics. Kaplan-Meier and log-rank test were used for 5-year overall survival analysis stratified by stage and treatment type.

Results/Outcome(s): A total of 72,653 patients were identified, with 64,396 (88.6%) patients undergoing neoadjuvant+surgery+/-adjuvant therapy, 579 (0.8%) chemotherapy only, 916 (1.3%) radiation only, and 6762 (9.3%) chemoradiation only. The proportion of patients who underwent surgery declined over the study period (95.6% in 2006 to 92.3% in 2019, p-trend <0.001) while the proportion of patients who refused surgery despite recommendations increased (1.5% to 4.5%, p-trend <0.001). On adjusted analysis, factors associated with not undergoing surgery for LARCs include older age (age ≥70: OR 3.79, 95% CI 3.40-4.21, p<0.001), Black race (OR 1.47, 95% CI 1.35-1.60, p<0.001), higher Charlson/Deyo score (score ≥3: OR 1.79, 95% CI 1.58-2.04, p<0.001), stage II cancer (OR 1.22, 95% CI 1.17-1.28, p<0.001), lower median household income, and non-private insurance. Chemotherapy only, radiation only, and chemoradiation only were associated with worse 5-year overall survival compared to neoadjuvant+surgery+/-adjuvant therapy, regardless of stage in both unmatched and propensity score matched cohorts (Figure).

Conclusions/Discussion: Surgery remains an integral component in the management of LARCs. Providers should engage in discussions with patients to understand patient perspectives, guide them towards surgery if deemed appropriate candidates, and address barriers to undergoing or refusing surgery. As organ preservation strategies continue to advance, providers should tread with caution and ensure that patients receive optimal treatment in rectal cancer care.

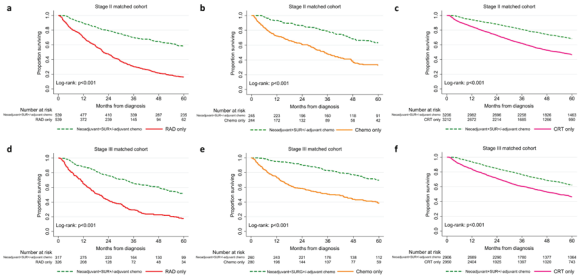

Figure. Kaplan-Meier 5-year overall survival curves for patients with locally advanced rectal cancer stratified by stage II (a-c) and III (d-f) and treatment type. 1:1 nearest neighbor propensity score matching: one Neoadjuvant+Surgery+/-Adjuvant Chemo patient was matched with one Radiation Only/Chemotherapy Only/Chemoradiation Only patient with the closest propensity score.

COLORECTAL AND THERAPEUTIC GI WORKING TOGETHER: WHAT IS THE ROLE FOR TRANSANAL MINIMALLY INVASIVE SURGERY (TAMIS) FOR BENIGN LESIONS?

ePZ19

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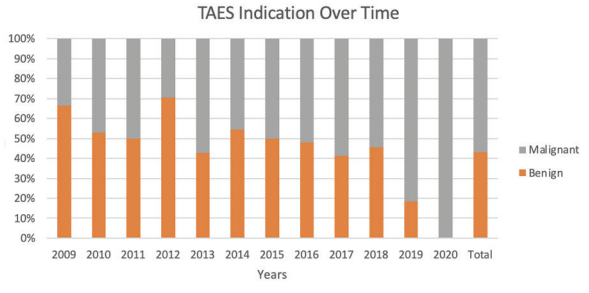
Purpose/Background: Transanal minimally invasive surgery (TAMIS) provides a valuable alternative to radical surgery for resecting both benign and malignant diseases of the rectum. With the introduction and evolution of advanced endoscopic techniques such as endoscopic mucosal resection (EMR) and endoscopic submucosal dissection (ESD), more complex lesions are being treated endoscopically. We have adopted a collaborative patient centered approach between colorectal surgery and gastroenterology (GI) at our center. The objective of this study is to determine whether the reason for TAMIS intervention has changed over time.

Methods/Interventions: A retrospective cohort study was conducted of patients who underwent transanal endoscopic surgery (TAES, includes both TAMIS and TEMS platforms) from 2009 to 2020 at a single center. Primary outcome was indication for TAES over time, and they were analysed on a per-year basis. Secondary outcomes include pathologies from both preoperative endoscopic biopsy and surgical specimen. A descriptive analysis was performed, results were presented graphically.

Results/Outcome(s): A total of 253 patients were included, 40% female, and mean age of 65 (25 to 95). 73.6% of the patients were referred from regional community hospitals. 40% of all lesions had attempted endoscopic removal, 12% were assessed by the advanced gastroenterology therapeutics group. Malignancy represented 56.8% of all cases. The most common indication for TAES was rectal cancer (including malignant polyp) at 42%, followed by endoscopically unresectable polyp at 31%. There has been a shift towards more malignancy-related indications for TAES over time, where 81% were performed for malignant causes in 2019 and 100% in 2020, compared to a range between 29.4% to 59% from 2009 to 2018. The most common histology on endoscopic biopsy was invasive adenocarcinoma (45%), followed by adenoma without high-grade dysplasia (28%). Similarly, the most common histology on post TAES pathology was invasive adenocarcinoma (36%), followed by adenoma without high grade dysplasia (28%).

Conclusions/Discussion: Since the introduction of TAES in 2009 at this center, accompanied by the evolution of endoscopic techniques, the indication for the use of this platform has shifted from benign to malignant indications. A cooperative approach has led to less patients requiring transanal surgery for benign lesions. Further studies are needed to validate this trend in other centers, as well as to analyse the impact of advanced GI therapeutics team on the role and indication of TAES.



PATTERNS OF EXTENDED VENOUS THROMBOEMBOLISM PROPHYLAXIS AFTER DIVERSION IN RECTAL CANCER IN ALBERTA.

eP220

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Purpose/Background: Current guidelines suggest use of extended duration venous thromboembolism (eVTEp) after proctectomy for rectal cancer. The role and patterns of use of eVTEp and VTE events after diversion or non-curative resection are not well described. This patient population may also be at elevated risk of postoperative VTE, even in the absence of a pelvic dissection. The aim of this study was to describe current usage patterns, to quantify 90 day VTE rate and to identify any association between compliance and 90 day VTE rate.

Methods/Interventions: Using a provincial database, patients with rectal cancer who underwent surgery without pelvic dissection in the years 2012, 2017 and 2019 were identified. Demographics, disease stage, hospital, comorbidities, medications, specific surgery and 90-day VTE events were collected. Compliance with eVTEp was defined as a prescription in those discharged within 28 days and without therapeutic anticoagulation. Data on use of neoadjuvant or palliative therapy and whether definitive resection occurred was also collected. Data was compared using Fischer exact test and ANOVA.

Results/Outcome(s): A total of 115 patients were identified, of whom 54.8% has stage IV disease. Patients most commonly underwent diversion (89.5%) in the form of loop colostomy. Subsequent definitive resection occurred in 27.0%. Fifteen (13.0%) were deceased within 90 days postoperatively. The use of eVTEp was low at each time point. Compliance rates were 17.9%, 34.8% and 21.4% in 2012, 2017 and 2019, respectively ($p=0.058$). Presence of stage IV (OR=0.23 $p=0.019$) and stage III disease (OR=0.25 $p=0.041$) and smaller hospital size (OR=0.30 $p=0.049$) predicted omission of eVTEp in multivariate analysis. The 90-day VTE rate was 2.7%. None of these patients were discharged with eVTEp. Three patients had a second, definitive operation within 90 days. Eleven patients had a VTE event beyond 90 days (63.6% within 1 year) and most had stage IV disease (72.7%).

Conclusions/Discussion: The use of eVTEp after diversion or other non-curative surgical intervention remains low despite an elevated risk of VTE. The highest risk of omission was seen in those with stage IV disease, despite being known to have the highest risk of VTE. Quality improvement initiatives should target those with stage IV disease.

SHORT-COURSE RADIOTHERAPY WITH CONSOLIDATION CHEMOTHERAPY VERSUS LONG-COURSE CHEMORADIOTHERAPY FOR RECTAL CANCER AT THE PHILIPPINE GENERAL HOSPITAL.

eP221

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Purpose/Background: Colorectal cancer is the third most common malignancy worldwide, and the second most common cause of cancer-related deaths; about a third develop in the rectum. Neoadjuvant therapy (NAT) is standard for locally-advanced disease. We compared the rates of sphincter-preserving surgery, short-term outcomes, and pathologic complete response rates in patients who received short-course radiotherapy with consolidation chemotherapy (SCRT-CCT) and long-course chemoradiotherapy (LCCRT).

Methods/Interventions: This was a retrospective descriptive study that included rectal cancer patients who received SCRT-CCT, which was based on the RAPIDO (Rectal cancer And Preoperative Induction therapy followed by Dedicated Operation) trial, or LCCRT prior to surgery at the PGH from January 2020 to August 2022. The type of surgery done, short-term outcomes (i.e., NAT- and surgery-related morbidity and mortality), and histopathologic results were reviewed.

Results/Outcome(s): Of the 65 patients (31 SCRT-CCT, 34 LCCRT) included in the study, the median age was 58 years in the SCRT-CCT group, and 62 years in the LCCRT group. Majority of the patients in both groups were female, at least clinical stage IIIB on diagnosis, and tumors located in the low- to mid-rectum. Stoma creation prior to NAT was significantly higher in the SCRT-CCT group (51.6%). Three patients in the SCRT-CCT group had disease progression that resulted in unresectability of the tumor in two patients (6.5%), and death in one (3.2%). Most underwent open surgery (58.1% SCRT-CCT; 61.8% LCCRT). Majority of the patients underwent sphincter-saving surgery; no significant difference was seen between the groups. Operative time was significantly shorter in the LCCRT group. Both groups had surgery-related morbidity (22.2% SCRT-CCT; 9.7% LCCRT), but no surgery-related mortality. Based on the modified Ryan scheme for tumor regression, 37% of the patients in the SCRT-CCT group had poor or no pathologic response. Majority (48.4%) in the LCCRT group had partial response. Comparing the two groups, a higher number of patients in the SCRT-CCT group had complete response (25.9% vs. 12.9%), although this did not reach statistical significance.

Conclusions/Discussion: Apart from a shorter operative time in the LCCRT group, no other significant differences in surgery-related and early oncologic outcomes were found between the two modalities. In a focus group discussion conducted among surgeons involved in the care of the patients, there were similar observations of more intense fibrosis in the SCRT-CCT group. The tissue edema seen after LCCRT appeared to have facilitated dissection. SCRT-CCT was preferentially given to patients with resectable stage IV disease. Ultimately, the choice of NAT for rectal cancer should be discussed by an MDT to improve quality of cancer care. Investigation of the long-term outcomes is currently being conducted.

Characteristics	SCRT-CCT, N=31 No. of patients (%)	LCCRT, N=34 No. of patients (%)	p-value*
Age (yr)			
Median	58	62	0.047
Range	35-78	22-77	
Sex			
Male	13 (41.9)	15 (44.1)	
Female	18 (58.1)	19 (55.9)	0.443
Comorbidity	10 (32.3)	12 (35.3)	0.547
Clinical Stage post-NAT			0.004
I	1 (3.2)	0	
IIA	3 (9.7)	3 (8.8)	
IIB	0	3 (8.8)	0.625
IIC	0	1 (2.9)	
IIIA	0	2 (5.9)	
IIIB	12 (38.7)	20 (58.8)	0.485
IIIC	7 (22.6)	5 (14.7)	
IV	8 (25.8)	0	
Distance from anal verge (cm)			
At the verge to 4	12 (38.7)	14 (41.2)	
5 to 8	14 (45.2)	16 (47.1)	
9 to 12	5 (16.1)	4 (11.8)	
Mean	5.23	4.94	0.77
Stoma prior to NAT	16 (51.6)	5 (14.7)	0.003
Time from NAT to surgery (mo)	2.39	2.44	0.185
Approach of surgery			
Open	18 (58.1)	21 (61.8)	
Laparoscopic	4 (12.9)	7 (20.6)	0.792
Robot-assisted	5 (16.1)	3 (8.8)	
No resection	4 (12.9)	3 (8.8)	
- Lost to follow-up	1 (3.2)	3 (8.8)	
- Unresectability	2 (6.5)		
- Death	1 (3.2)		
Type of resection			
Sphincter saving	19 (70.4)	18 (58.1)	0.468
Abdominoperineal resection	8 (29.6)	13 (41.9)	
Involvement of adjacent organs	12 (38.7)	7 (22.6)	0.114
Mean operative time (hr)	5.8	5.2	0.0029
Mean estimated blood loss (ml)	580	544	0.578
Mean postoperative length of stay (day)	10	7	0.81
Surgical complications			
Morbidity	6 (22.2)	3 (9.7)	0.222
- Anastomotic leak	3 (11.1)	2 (6.5)	
- Anastomotic injury	1 (3.7)		
- Partial gut obstruction from postoperative adhesion	1 (3.7)		
- Superficial surgical site infection	1 (3.7)		
- Upper gastrointestinal bleed from stress-related mucosal injury		1 (3.2)	
- Urethrovesical leak		1 (3.2)	
Mortality	0	0	
Pathologic stage			
T stage			
0	7 (25.9)	4 (12.9)	
1	2 (7.4)	2 (6.5)	
2	4 (14.8)	5 (16.1)	0.602
3	10 (37.0)	17 (54.8)	
4	4 (14.8)	3 (9.7)	
Nodal metastasis			
Absent	17 (63.0)	20 (64.5)	0.559
Present	10 (37.0)	11 (35.5)	
Tumor regression score			
0 (complete response)	7 (25.9)	4 (12.9)	
1 (near complete response)	1 (3.7)	3 (9.7)	0.497
2 (partial response)	9 (33.3)	15 (48.4)	
3 (poor or no response)	10 (37.0)	9 (29.0)	
Invasion			
Lymphovascular	11 (40.7)	10 (32.3)	0.451
Perineural	9 (33.3)	10 (32.3)	0.573
Tumor deposits	5 (18.5)	6 (19.4)	0.551
Distant metastasis	4 (14.8)	0	

*Mann-Whitney U test was used for continuous variables, and Fisher's exact test for categorical variables.

Table 1. Patient profile, type of surgery, short-term outcomes, and histopathologic results of rectal cancer patients who underwent neoadjuvant therapy followed by surgery, January 2020 to August 2022.

SUBMUCOSAL LIFTING AGENT DURING EMR LEADING TO THE RADIOGRAPHIC UPSTAGING OF RECTAL CANCER: CASE REPORT AND WORD OF CAUTION.

eP222

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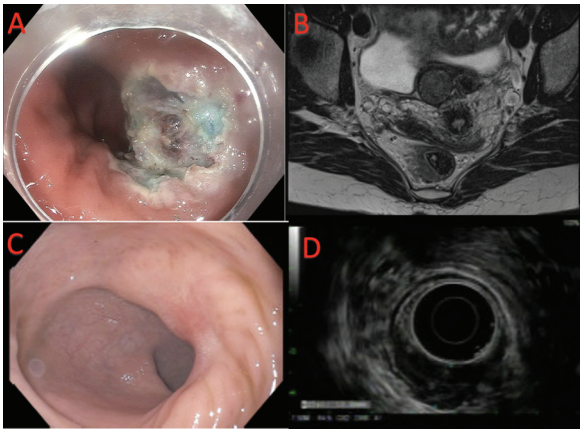
Purpose/Background: ORISE gel is a synthetic submucosal lifting agent that was approved by the FDA in 2018 to aid endoscopic mucosal resection (EMR) and endoscopic submucosal dissection (ESD) of large colorectal polyps and early-stage cancers. There have been reports that these submucosal agents can cause a distinct foreign body reaction histologically and have even caused a mass-like appearance endoscopically with concern for malignancy.[1,2]

We report a case of a 46-year-old woman with a mid-rectal tubulovillous adenoma (TVA) located 8 cm from the anal verge. The TVA was removed via EMR with the aid of ORISE gel with incidental finding of malignancy.

Methods/Interventions: Biopsy results from the piecemeal EMR demonstrated a focus of poorly differentiated carcinoma arising from the TVA with <1mm clear margin posteriorly (Image 1A shows post EMR site). Staging CT showed no evidence of metastases and pelvic MRI, completed 6 weeks post EMR to minimize artifact, demonstrated a mrT3N0 rectal mass with questionably threatened mesorectal fascia (Image 1B). CEA was 1 ng/mL. On repeat sigmoidoscopy, there was no evidence of residual disease, but thickening of the biopsy site (Image 1C). Endorectal ultrasound confirmed uT3N0 rectal mass (Image 1D). Upon review at multidisciplinary tumor board, neoadjuvant treatment followed by TME was recommended. The patient was reluctant to undergo chemoradiation and sought a second opinion at another institution, where biopsy of the prior EMR site demonstrated fibrosis. Based on the discrepancy between endoluminal, histologic and radiographic staging, the patient opted for upfront surgery, which was performed 3.5 months following initial EMR.

Results/Outcome(s): The patient underwent laparoscopic low anterior resection without diverting loop ileostomy. She was discharged home on POD3 without complication. Final pathology showed pT0N0 with 0/12 positive nodes and no evidence of lymphovascular invasion. The prior EMR site featured an ill-defined expansile mass-like lesion with associated acellular mucin-like material and extensive foreign giant cell reaction, involving submucosa, muscularis propria, and subserosa, consistent with lifting agent granuloma.

Conclusions/Discussion: There are no reports of ORISE gel or other synthetic lifting agents leading to the radiographic upstaging of a rectal malignancy. This case demonstrates a potential diagnostic and treatment dilemma when submucosal lifting agents are used for EMR or ESD of rectal tumors as a result of the foreign giant cell reaction these agents can cause. It is important to recognize that synthetic lifting agents can lead to distortion of the rectal wall especially when injected into layers deep to the submucosa. Alternative lifting agents should be considered during EMR to prevent tissue distortion, and potential radiographic upstaging and overtreatment of rectal tumors.



SURGICAL OUTCOMES FOLLOWING IMPLEMENTATION OF A TOTAL NEOADJUVANT THERAPY PROTOCOL FOR RECTAL CANCER: A SINGLE CENTRE EXPERIENCE.

eP223

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Purpose/Background: While total neoadjuvant therapy(TNT) has recently received increasing acceptance for management of locally advanced rectal cancer, little is known about how TNT is being implemented into clinical practice outside of clinical trials. The objective of this study was to report how TNT was implemented into clinical practice, as well as the clinical outcomes associated with this approach in a tertiary care setting.

Methods/Interventions: This study is a retrospective case review of all patients newly diagnosed with rectal cancer for who TNT was recommended at Rectal Cancer Multidisciplinary Cancer Conference(MCC) between 2 academic sites from July 2021 to September 2022. An institutional protocol for the management of TNT was established and used to guide treatment decisions at MCC. Demographics, treatment details and outcomes for each patient were collected.

Results/Outcome(s): TNT was recommended in 45 of 104 patients. The results for the first 20 patients are reported here and data analysis is ongoing. Patients were recommended chemoradiotherapy (50.4 Gy) and chemotherapy (5-6 cycles CAPOX or 8 cycles FOLFOX) as either consolidation chemotherapy(CCT) or induction chemotherapy(ICT). The mean age at diagnosis was 55 years, 11 received CCT, 9 ICT. See **Table 1** for baseline characteristics and surgical outcomes. In CCT 54.5%(6/11) had non-operative management as part of a watch and wait protocol(WW): 3 complete clinical response(CCR), 3 near complete response(NCR). An additional 36.4%(4/11) underwent resection after TNT, 1 had palliation and death before surgery. Two of 4 WW had early

local regrowth with 1 going to resection (initial CCR), 1 awaiting resection (initial NCR). A third WW (initial NCR) had local regrowth and developed liver metastases; both were resected. In ICT 33.3%(3/9) had surgery after TNT, 44.4%(4/9) underwent WW (3 CCR, 1 NCR with treated lung metastases), 1 patient refused surgery (then developed unresectable metastases), 1 patient's final status is unknown (awaiting re-staging after TNT). Nine patients had resection of the primary tumour(7) or local re-growth(2). Total mesorectal excision(TME) was incomplete in 1, 2 had R1 resections (all primary resections). At diagnosis 40%(8/20) would have required abdominoperineal resection(APR), only 10%(2/20) had APR after TNT. None had an anastomotic leak, or emergency re-operation.

Conclusions/Discussion: Our centre implemented a TNT protocol for locally advanced rectal cancer and early results suggest this is feasible. The first 20 patients resulted in a relatively high rate of CCR 30%(6/20) and WW 50%(10/20). Despite TNT 10%(2/20) developed unresectable disease and were palliated (1 died). TME for the primary tumour was performed in 45%(9/20): 22.2%(2/9) for local regrowth, APR in 22.2%(2/9). These results stress the importance of monitoring oncologic and surgical outcomes after TNT to ensure they do not deviate from standard care.

Table 1: Baseline patient characteristics and final surgical outcomes

	Consolidation chemotherapy n (%) or mean N=11	Induction chemotherapy n (%) or mean N=9
Mean age at diagnosis (years)	64.6	42.9
Male	4 (36.4)	5 (55.6)
ECOG performance status 0 or 1	11 (100)	8 (88.9)
T stage		
T2	1 (9.1)	2 (22.2)
T3	6 (54.5)	5 (55.6)
T4	4 (36.4)	2 (22.2)
N stage		
N1/N2	8 (72.7)	8 (88.9)
M stage		
M1	1 (9.1)[a]	2 (22.2)[b]
Extramesorectal adenopathy[c]	5 (45.5)	2 (22.2)
High-risk MRI features		
Threatened CRM[d,e]	7 (63.6)	5 (55.6)
Extramural vascular invasion (EMVI)	1 (9.1)	5 (55.6)
Levator involvement	1 (9.1)	1 (11.1)
Sphincter involvement	2 (18.2)	2 (22.2)
Perineal infiltration involvement	2 (18.2)	1 (11.1)
Obstructing at diagnosis[f]	1 (9.1)	1 (11.1)
Pre-treatment diversion	1 (9.1)	1 (11.1)
Mean distance from anal verge on MRI (cm)	4.09	5.81
Tumour palpable on DRE	9 (81.8)	8 (88.9)
Resection of primary	6 (54.5)	3 (33.3)
Operation performed		
LARS[g] with loop ileostomy	4(66.7)[h]	2 (66.7)
Abdominoperineal resection (APR)	2(33.3)[i]	0 (0)
Proctocolectomy with end ileostomy	0 (0)	1 (33.3)
Mean blood loss (mL)	263	450
Completeness of Total Mesorectal Excision		
Complete	2 (33.3)	1 (33.3)
Near complete	1 (16.7)	2 (66.7)
Incomplete	1 (16.7)	0 (0)
Not reported	2 (33.3)	0 (0)
CRM[d] negative	6 (100)	2 (66.7)
Distal margin negative	5 (83.3)	3 (100)
R resection		
R0	5 (83.3)	2 (66.7)
R1	1 (16.7)	1 (33.3)
Final ypTN staging		
ypT1N0	2 (33.3)	0 (0)
ypT2N0	2 (33.3)	1 (33.3)
ypT3N+	1 (16.7)	2 (66.7)
ypT4N1	1 (16.7)	0 (0)

[a] staging via external iliac nodes
[b] 1st patient: staging via external iliac nodes; 2nd patient: staging via obturator nodes, external iliac nodes and lung metastases
[c] > 1cm lymph nodes
[d] CRM: circumferential resection margin
[e] threatened CRM within 1 mm (either primary tumour, tumour deposit, node or EMVI)
[f] clinical or endoscopic suspicion of obstruction
[g] LAR: low anterior resection
[h] Two patients had en bloc resection of other organs (1st patient: partial bladder, 2nd patient: seminal vesicle)
[i] One APR was a planned LAR pre-operatively

DOES THE PRESENCE OF HIGH TUMOR INFILTRATING LYMPHOCYTES CORRELATE WITH COMPLETE PATHOLOGICAL RESPONSE AFTER NEOADJUVANT THERAPY FOR LOCALLY ADVANCED RECTAL CANCER.

eP224

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Purpose/Background: Prior work from our center and others reported a positive correlation between favorable survival outcomes and the presence of a high degree of Tumor Infiltrating Lymphocytes (TILS) in breast cancer. Organ preservation as a management strategy for locally advanced rectal cancer (LARC) is gaining wide acceptance world wide. Accurate clinical staging after completion of neoadjuvant therapy is critical for the success of this approach. Identification of pathological tumor factors that predict a favorable tumor response may aid in improving the accuracy of clinical staging after preoperative therapy is completed. This study aims to investigate whether there is a correlation between the presence of high TILS in the biopsy specimens obtained at time of diagnosis and achieving complete pathological tumor response (PCR) after neoadjuvant therapy

Methods/Interventions: We retrospectively reviewed the medical records of patients diagnosed with LARC in our institution during the period of 2009 to 2020. We also retrieved and re-examined the pathological slides of the tumor biopsy obtained at the time of diagnosis. We quantified the presence of TILS as low (Less than 10%) intermediate (15-55%) or high (more than 55%) Cases were eligible for this review only if their clinical presentation at diagnosis mirrored our eligibility criteria for enrollment in our current organ preservation phase II trials. The availability of the pathological slides from the diagnostic biopsies was an additional requirement

Results/Outcome(s): Forty patients represent the study population. 40 patients with clinical stage T2(1), T3 N0(29) and T3 N1(10), T3 N2(0). All patients were treated by preoperative radiotherapy to a total radiation dose between 45-50.4 Gy given concurrently with 5FU or Capecitabine. 10 of the patients also received induction FOLFOX chemotherapy regimen. The time interval between completion of radiation therapy and surgical resection ranged between 2 to six months. Low TILS was identified in 17 (42%) cases while intermediate and high TILS were reported in 18 (45%) and 5 (13%) respectively. Complete pathological response was noted in 15 out of 40 cases (38%). The number of cases achieving PCR and presented with low or intermediate TILS is 6 and 9 respectively. None of the cases with high TILS achieved PCR.

Conclusions/Discussion: We could not establish from this study the presence of a correlation between achieving

PCR after completion of neoadjuvant therapy and the extent of TILS in the biopsy specimen taken at time of diagnosis. Our study is limited by its retrospective nature and small size.

THE INCIDENCE OF UNPLANNED LAPAROSCOPIC CONVERSION TO OPEN RESECTION DURING RECTAL CANCER SURGERY AND ITS NEGATIVE IMPACT ON PERIOPERATIVE OUTCOMES.

eP225

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Purpose/Background: In general, conversion to an open approach during laparoscopic surgery can occur for patient and disease related factors and impact postoperative outcomes. Despite being a challenging operation, laparoscopic rectal resections are considered as being the standard surgical approach for treating rectal cancer. Most of the data on conversion during laparoscopic rectal resections comes from institutional studies or controlled trials, with a paucity of data in a "real-life" cohort. Utilizing the American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) dataset we evaluated patient and disease related factors associated with laparoscopic conversions during rectal cancer surgery and its impact on 30-day perioperative outcomes.

Methods/Interventions: The ACS-NSQIP colectomy- and proctectomy-targeted databases were queried for rectal cancer patients who underwent a laparoscopic and unplanned laparoscopic conversion to open resection during a low anterior resection (LAR) or an abdominoperineal resection (APR). Univariate and multivariate, stepwise logistic regression analyses were used to determine factors leading to conversion to open and the effect of conversion on postoperative morbidity.

Results/Outcome(s): A cohort of 4,289 rectal cancer patients (mean age: 61; mean BMI: 28.0 kg/m^2, 60% male) were analyzed, of which 812 (18%) patients underwent a laparoscopic conversion to open resection. There were no differences in conversion rates between APR and LAR (18% vs 19%; p =0.49). On multivariate logistic regression, patient factors including male gender, obesity, and ASA class ≥3, and disease factors including (y)pT3-T4 staging were associated with laparoscopic conversion (all p <0.05) (Figure). Compared to laparoscopic resections, conversion was associated with increased 30-day complications (16% vs 26%), readmission rate (16% vs 21%) and length of stay (6 vs 7.7 days) (all p <0.05) but not with returning to the operating room (5% vs 6%, p = 0.31). On multivariate logistic regression, conversion to an open resection was associated with a higher incidence of complications (OR 1.55, CI [1.22-1.97], p <0.001). Additionally, other factors such as diabetes, COPD, hypoalbuminemia, and (y)pT3-T4 staging were independently associated with increased morbidity (all p <0.05).

Conclusions/Discussion: Almost one in six patients undergoing a laparoscopic rectal resection require conversion to an open resection. This is comparable to large, controlled trials but higher than what is seen in institutional studies. Conversion is associated with increased risk of morbidity however factors associated with conversion are not necessarily modifiable. While laparoscopic rectal resections are technically feasible, the adverse impact of conversions should be carefully considered in the selection of operative approach for patients undergoing proctectomy for rectal cancer.

Multivariate analysis of significant univariate factors associated conversion to open.

Variable	OR	95% CI	P value
Male sex	1.24	0.98-1.57	0.069
Obesity	2.33	1.85-2.94	**< 0.001**
Bleeding disorder	2.41	1.37-4.26	**0.002**
Preop. chemotherapy	1.22	0.97-1.54	0.088
ASA class 3-4	1.29	1.01-1.64	**0.043**
Hypoalbuminemia	1.62	1.16-2.27	**0.005**
(y)pT3-T4	1.34	1.07-1.69	**0.012**
Significance determined at p < 0.05 and bold text.			

MULTIDISCIPLINARY APPROACH TO A PRESACRAL SOLITARY FIBROUS TUMOUR: A CASE REPORT.

eP226

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Purpose/Background: Highly vascularized tumours found in the presacral area present a challenge for surgical management. We present a large presacral tumour successfully resected through the efforts of a multidisciplinary team consisting of colorectal surgery, orthopedics, vascular surgery, urology, interventional radiology, and neurology.

Methods/Interventions: A previously well 52-year-old female presented with 4 months of bladder fullness and painless hematuria. Abdominal computed tomography showed a large lobulated soft tissue tumour in the presacral area. She was advised resection and underwent exploratory laparotomy but was deemed unresectable due to bleeding and dense adhesions. Core needle biopsy done instead revealing hemangiopericytoma and referred to our center for further management. At our institution a multidisciplinary team was formed to review the case. Pelvic magnetic resonance imaging showed a well-defined soft tissue presacral mass extending from S1-S5 measuring 11cm with mass effects on the rectum and urinary bladder. The mass was supplied by the lateral sacral arteries with a prominent vascular pedicle at S4-S5. Preoperative embolization of the tumour was done achieving complete angiographic devascularization of feeding vessels. Preoperative cystoscopy and bilateral ureteral stent insertion was also done. She underwent posterior pelvic exentration with en bloc excision of presacral hemangiopericytoma, extensive

adhesiolysis, segmental terminal ileal resection and anastomosis, end colostomy, sacrectomy S2-S5 and laminectomy S1+S2.

Results/Outcome(s): Intraoperatively noted a firm well-encapsulated mass densely adherent to the anterior border of the sacral spine from distal portion of S2 to the coccyx. The anterior portion of the S2 body was noted to have very soft bone tissue, although negative for tumor on frozen section. There were dense adhesions of small bowel to anterior abdominal wall, cecum, sigmoid colon. No carcinomatosis or ascites seen. The combined approach allowed us to mobilize the sacrum and tumour posteriorly and release the adhesions to the pelvic wall and bowels anteriorly. En bloc resection would not have been possible with a single approach. Final histopathology revealed a 10.4cm solitary fibrous tumor with clear surgical margins. Immunohistochemistry panel: CD34 diffusely positive, STAT6 positive, PanCK negative, S100 negative, SMA negative confirmed the diagnosis.

Conclusions/Discussion: This tumour has intermediate risk for metastasis (31% at 5 years and 50% at 10 years) based on validated risk stratification models. Data shows no role for adjuvant chemotherapy for a completely resected tumor with negative margins. There is also no established role for radiotherapy in solitary fibrous tumors, highlighting the importance of a complete surgical resection. This case illustrates the benefit of a multidisciplinary approach used in successfully removing a large and highly vascularized presacral soft tissue tumour.

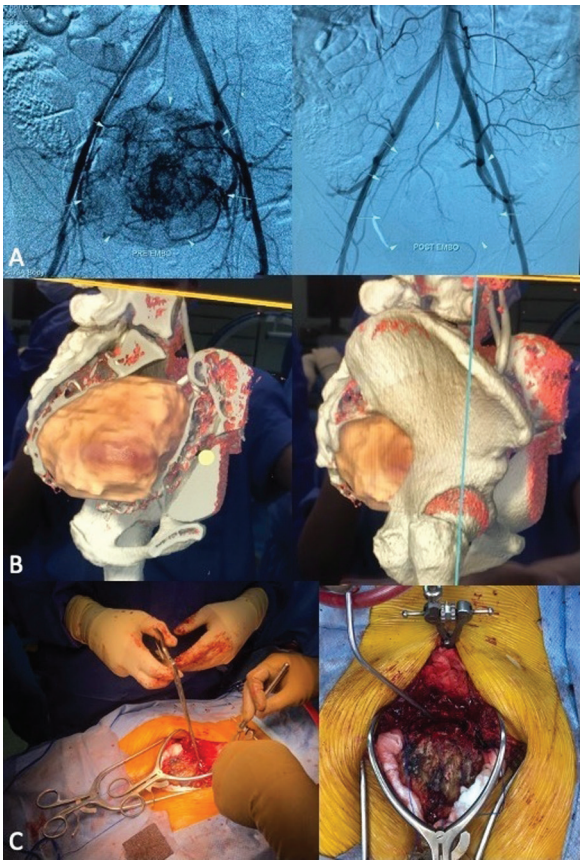

Fig 1. Stages in the multidisciplinary approach to resection of a presacral tumor A. Pre and post-embolization showing devascularization of the tumor B. 3-D reconstruction using BrainLab™ software for intraoperative guidance C. Posterior approach with sacrum exposed

THE ROLE OF LATERALITY IN THE MANAGEMENT OF ENDOSCOPICALLY RESECTED MALIGNANT COLONIC POLYPS: A POPULATION-BASED ANALYSIS.

eP227

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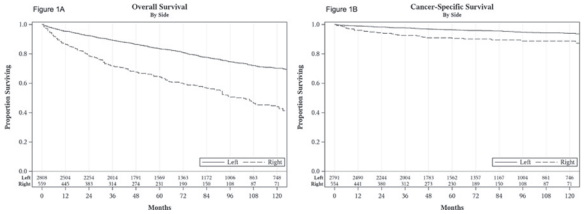
Purpose/Background: A malignant polyp is defined as one with cancerous cells infiltrating the submucosa (pT1). Endoscopic resection is considered an appropriate treatment for T1 polyps with favorable characteristics including negative margins, low histologic grade, and no angiolymphatic invasion. While right-sided location has been associated with worse prognosis in advanced stage colon cancer, current evidence on the prognostic implication of laterality in T1 polyps is limited. We hypothesized that malignant polyps located proximally, similar to right-sided colon cancers, would be associated with worse outcomes than distal T1 polyps following curative endoscopic resection.

Methods/Interventions: The Surveillance, Epidemiology, and End Results (SEER) database was

analyzed to identify adult patients with a T1NxMx colon adenocarcinoma who underwent endoscopic polypectomy alone between 2003 and 2019. Patients with overlapping or unknown tumor locations, treated with radiation or chemotherapy, or more than one lifetime diagnosis of cancer were excluded. Cox proportional hazard models were employed to estimate the effect of patient and disease characteristics on overall survival (OS) and cancer-specific survival (CSS).

Results/Outcome(s): A total of 3,367 patients were identified in the database: 17% (n=559) had proximal T1 polyps. Endoscopically resected proximal malignant polyps were more common in patients who were older (median age: 73 vs 62 years, p <0.01). Among those with complete pathologic data, median tumor size was similar between the two groups (proximal: 0.6cm vs. distal: 0.8cm). The 5-year OS was 64% vs. 83% for proximal and distal malignant polyps (Figure 1A), while the 5-year CSS was 91% vs. 96%, respectively (Figure 1B). After adjustment for available patient and tumor factors, proximal polyp location remained significantly associated with worse OS (HR 1.59, 95% CI 1.36-1.87, p <0.01) and CSS (HR 1.66, 95% CI 1.15-2.38, p <0.01).

Conclusions/Discussion: Despite the excellent 5-year survival of endoscopically managed pT1 polyps, proximal location within this population-based cohort was independently associated with a significantly lower OS and CSS. This observation substantiates the fact that tumor location is a relevant prognostic factor for colon cancer even at very early stages. Therefore, these data suggest that laterality should be considered when determining management and/or surveillance protocols of endoscopically excised pT1 polyps.



CLINIC OR OPERATING ROOM: DOES LOCATION OF HIGH RESOLUTION ANOSCOPY FOR ANAL DYSPLASIA INFLUENCE PATIENT FOLLOW-UP?

ePXXX

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Purpose/Background: A common surveillance strategy for patients at high-risk of anal dysplasia involves annual anal pap smear followed by either in-office or operating room (OR) based high-resolution anoscopy (HRA). Despite the known progression of high grade anal intraepithelial neoplasia (AIN) to anal squamous cell carcinoma (ASCC), dropout rates among patients in annual screening programs remain high with little understood about factors that influence follow-up. This study examines whether patients undergoing an OR-based HRA with monitored anesthesia care (MAC) have better follow-up rates compared to those receiving an in-office procedure with topical lidocaine.

Methods/Interventions: From 2018-2021, demographic, clinical, and pathologic data for patients receiving an HRA after abnormal anal pap smear were retrospectively reviewed. Two experienced colorectal surgeons performed all HRAs with procedure location determined at the provider's discretion. The follow-up group included patients who obtained a repeat anal pap smear within 18 months of HRA. Histology results were categorized as benign (normal or negative biopsy), low-grade dysplasia (AIN-1) or high-grade dysplasia (AIN-2, AIN-3, carcinoma in situ). A multivariable logistic regression model accounting for baseline characteristics, comorbidities, follow-up during COVID-19, histology and HRA location was built to define predictors of follow-up.

Results/Outcome(s): 253 patients with abnormal anal pap smears underwent HRA during the study period, with 52.2% of all patients and 32.2% of those with high-grade dysplasia (HGD) lost to follow-up. Over half (58.5%) of HRAs took place in clinic. Of the 17% of patients who required two procedures, the most common reasons for inability to complete in-office HRA included extensive disease (41.8%), inadequate visualization (14%) and patient discomfort (11.6%). Compared to patients who did not return to clinic, patients with HIV (65.3 vs. 51.5%; p=0.027), prior diagnosis of dysplasia (19% vs. 8.3%; p=0.013), history of anal procedures (19% vs. 8.3%; p<0.001), and HGD (35% vs. 16%; p=0.002) had significantly higher follow-up rates. On multivariable logistic regression analysis, history of anal procedures (OR 3.45; 95%CI 1.48-8.29) and HGD (OR 2.34; 95%CI 1.10-4.97) remained independent predictors of follow-up. Dropout rates did not differ by HRA location.

Conclusions/Discussion: Long-term surveillance and prevention of ASCC among high-risk groups remains a challenge, with large numbers of patients failing to return for repeat screening. While this study demonstrates that HRA location does not appear to impact patient follow-up, our results highlight a concerning dropout rate of 32.2% among patients with HGD. Future research should focus on developing interventions that improve adherence to surveillance programs and on defining an ideal screening interval.

Multivariable Logistic Regression Analysis: Factors Associated with Patient Follow Up

	OR	95% CI	P value
Male gender	1.26	0.48-3.32	0.638
Private insurance	0.56	0.31-1.02	0.059
Non-white race/ethnicity	0.99	0.53-1.83	0.968
Age	1.00	0.97-1.02	0.855
HIV positive	1.42	0.74-2.75	0.294
Intended follow up during COVID-19 [A]	0.84	0.47-1.49	0.539
History anal or cervical dysplasia	1.29	0.47-3.55	0.618
History of anal procedure	3.45	1.48-8.29	***0.004***
HRA histology [B]			
Low Grade (AIN1)	1.18	0.57-2.38	0.642
High Grade (AIN2, AIN3, CIS)	2.34	1.10-4.97	***0.028***
Procedure location [C]			
In-Office and OR	2.1	0.92-4.88	0.077
OR	0.77	0.38-1.58	0.479

A multivariable logistic regression analysis was performed accounting for gender, insurance status, race/ethnicity, age, HIV status, intended follow-up during COVID-19, history of anal or cervical dysplasia, history of anal procedure, HRA histology and procedure location.
[A] For the purposes of this study, follow-up during the COVID-19 pandemic was defined as intended follow-up between March 2020 and June 2021.
[B] The Odds Ratio (OR) for HRA histology was calculated relative to patients with benign HRA results.
[C] The OR for procedure location was calculated relative to HRAs performed in-office

FACTORS ASSOCIATED WITH HIGH-GRADE SQUAMOUS INTRAEPITHELIAL LESION RESOLUTION IN ANAL CANCER SCREENING.

eP229

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Purpose/Background: High-resolution anoscopy (HRA) with treatment of anal high-grade squamous intraepithelial lesions (HSILs) has been recently shown in a randomized controlled trial to significantly lower the risk of anal cancer among people with human immunodeficiency virus (PWH) compared to monitoring without treatment. We sought to characterize associations between patient-specific and treatment factors with successful HSIL resolution.

Methods/Interventions: We conducted a retrospective study of 62 PWH who underwent HRAs with treatment at the University of Virginia from 12/01/17 to 07/01/22 with collection of demographic and clinical data. All included participants were ≥30 years old with ≥2 HRAs with treatment and ≥1 HSIL lesion on biopsy. Poisson and logistic regressions were used to assess factors associated with HSIL resolution and HSIL recurrence after resolution.

Results/Outcome(s): Of the 62 PWH studied, 53 (85.5%) had resolution of at least one area of HSIL with number of resolved HSIL ranging from 0 to 6 with a median of 2. Thirteen PWH (20.9%) experienced recurrence of HSIL after initial treatment and resolution. Undergoing five or more HRAs in comparison to only 2 HRAs was associated with resolution of HSIL (adjusted rate ratio [aRR] 2.82 (confidence interval [CI] 1.55-5.15), p<0.001). History of any tobacco use was negatively associated with HSIL resolution (aRR 0.62 (CI 0.43-0.90), p=0.01). Number of HRAs with treatment was associated with more breakthrough HSIL (aRR 2.50 (CI 1.25-4.98), p=0.01).

Conclusions/Discussion: The findings in this study support the utility of HRA with treatment in PWH for anal cancer surveillance. More than 85% patients in our study experienced resolution of at least one HSIL. Greater number of HRAs with treatment were associated with increased rate of HSIL resolution. Tobacco use was associated with a less HSIL resolution rate, highlighting a need to encourage smoking cessation in this population. As the pendulum shifts towards increased use of HRA for the surveillance of anal cancer, it is important for clinicians to understand factors associated with successful HSIL resolution and risk factors for HSIL recurrence.

Table 1: Results of multivariate regression comparing variables to HSIL resolution (primary outcome) and breakthrough HSIL (secondary outcome)

Multivariate regression for HSIL resolution (primary outcome)		
Variables	p-value	Rate Ratio (95% CI)
Number of HRAs		
2	Ref	Ref
3	0.28	1.40 (0.76-2.58)
4	0.06	1.87 (0.99-3.54)
5 or more	<0.001	2.82 (1.55-5.15)
Lifetime sexual partners		
≤5	Ref	Ref
≥6	0.46	1.42 (0.56-3.56)
Race		
White	Ref	Ref
Non-white	0.24	0.76 (0.47-1.21)
Sex assigned at birth		
Male	Ref	Ref
Female	0.87	1.05 (0.61-1.80)
HPV status at time of first HRA		
Negative	Ref	Ref
HPV 18 or other high-risk strain	0.21	1.61 (0.77-3.38)
HPV 16	0.55	1.25 (0.61-2.57)
Tobacco use		
Never smoker	Ref	Ref
Former or current smoker	0.01	0.62 (0.43-0.90)
Multivariate regression for HSIL breakthrough after treatment (secondary outcome)		
Variables	p-value	Odds Ratio (95% CI)
Number of HRA (continuous)*	0.01	2.50 (1.25-4.98)
Lifetime sexual partners		
≤5	Ref	Ref
≥6	0.99	1.03 (0.02-53.90)
Race		
White	Ref	Ref
Non-white	0.17	0.19 (0.02-2.07)
Sex assigned at birth		
Male	Ref	Ref
Female	0.42	2.78 (0.24-32.84)
HPV 16 status at time of first HRA*		
Negative	Ref	Ref
Positive	0.98	1.03 (0.19-5.43)
Tobacco use		
Never smoker	Ref	Ref
Former or current smoker	0.51	1.80 (0.32-10.19)

* Due to small sample size, categories were modified in multivariate regression for HSIL breakthrough after treatment.

HOUSTON, WE HAVE A PROBLEM: CAN WE USE ENDOSCOPIC RECTAL VALVE ANATOMY TO LOCATE THE PERITONEAL REFLECTION IN RECTAL CANCER?

eP230

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Purpose/Background: Locally advanced rectal cancer is treated with neoadjuvant therapy when the tumor is at or below the peritoneal reflection. The exact location of the peritoneal reflection is typically determined by MRI, with reported diagnostic accuracy of approximately 80%. We hypothesized that tumor location in relationship to the rectal valves of Houston (proximal, mid, distal) assessed on endoscopy, correlates with its location relative to the peritoneal reflection on final pathology.

Methods/Interventions: A retrospective review of all patients treated with rectal cancer at a single tertiary referral center by four board certified colon and rectal surgeons from 2018-2021 was performed. Patients without a preoperative MRI, endoscopic evaluation detailing the tumor's location, or formal proctectomy with residual evidence of tumor location were excluded. Final pathologic location of the tumor relative to the peritoneal reflection on the surgical specimen was compared to preoperative MRI and endoscopic assessment relative to rectal valve location.

Results/Outcome(s): Overall, 168 (67%) of 250 patients with rectal cancer underwent surgical resection, of which 144 (86%) patients met inclusion criteria. Prior to surgery, a total of 59 patients (41%) underwent total neoadjuvant therapy (chemoradiation followed by consolidation chemotherapy), 46 patients (32%) underwent neoadjuvant long course chemoradiation, and 7 patients (5%) underwent short course radiation, while 32 patients (22%) went straight to surgery. Final pathology showed tumor above the peritoneal reflection in 31 patients (21%) and involving or below the peritoneal reflection in 117 patients (79%). Tumor location on endoscopic evaluation was compared to final pathologic location of the tumor relative to the peritoneal reflection(Table1). Among tumors endoscopically localized at or distal to the mid rectal valve, 94% (99/105) were at or below the peritoneal reflection on final pathology. Among tumors that were proximal to the mid rectal valve, 33% (13/39) were at or below the peritoneal reflection. When the mid rectal valve is used as a proxy for the peritoneal reflection, the sensitivity and specificity is 87% and 80% respectively. The sensitivity and specificity of MRI for determining whether the tumor was at or below the peritoneal reflection were 96.4% and 30 % respectively. Concordance between MRI and final pathology was 82%.

Conclusions/Discussion: Tumor location at or below the mid rectal valve on endoscopy is a good predictor for pathologic location below the peritoneal reflection. Although MRI sensitivity was high, specificity was low indicating that MRI is likely to err on the side of calling the tumor at or below the peritoneal reflection when it is close to the reflection. Endoscopic location of tumors relative to rectal valves of Houston can be used in conjunction with MRI to guide the selection of patients for neoadjuvant therapy.

Table 1: Rectal tumor location on endoscopy and on final pathology relative to the peritoneal reflection

Rectal cancer location on endoscopy	Number (%) at or below peritoneal reflection on final pathology
Proximal to proximal rectal valve (n=5)	1(20%)
At proximal rectal valve (n=11)	3 (27%)
Between proximal and mid rectal valve (n=23)	9 (39%)
At mid rectal valve (n=17)	15 (88%)
Between mid and distal rectal valve (n=46)	42 (91%)
At distal rectal valve (n=19)	19 (100%)
Distal to distal rectal valve (n=23)	23 (100%)

ANAL SQUAMOUS CELL CANCER: RETROSPECTIVE REVIEW OF A LARGE COLORECTAL PRACTICE.

eP232

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Purpose/Background: Although anal cancer is only 3% of all gastrointestinal malignancies[1], the rate of new anal cancer cases has been rising about 2.2% each year (2010-2019) with death rates rising 3.9% each year[2]. Anal squamous cell cancers constitute about 80% of anal cancers[3] and since the 1970s treatment is based on Dr. Nigro's protocol: chemotherapy with 5-fluorouracil and mitomycin C with 45 Gy to 59 Gy radiation with survival rates of 70-90% [3,4] We sought to evaluate the experience in a large colorectal practice with a high volume of patients with anal squamous cell cancer.

Methods/Interventions: All patients were included from a large private practice of 7 colorectal surgeons in a retrospective chart review. Patients treated between January 2017 - September 2022 and identified by diagnosis codes–squamous cell carcinoma of anal skin, malignant neoplasm of anus, malignant neoplasm of anal canal, and unspecified malignant neoplasm of anal canal–were reviewed. Demographics, stage at diagnosis, chemoradiation treatment and interruption of treatment were collected.

Results/Outcome(s): 276 patients were reviewed of which 134 (48.6%) were found to have been diagnosed with squamous cell cancer of the anal canal (SCCa). 71.6 % of patients were women, median age at diagnosis was 63 years (SD±10.7) and median age for men 60 years (SD±10.4) ($p=0.08$). 12.7% of patients had a history of HIV of which more were men ($p<0.001$). Stage II accounted for 44%, stage III, 36.6% followed by 9.7% for stage I and 1.5% for stage IV. Average radiation duration was 42 days (SD ± 8.2) for average total dose of 53 Gy (SD ± 7.3 Gy) with 93.3% completing concurrent chemotherapy. 20.9% of patients had treatment interruptions (n=28). No significant difference in treatment interruption stratified by age, sex, smoking, HIV, stage or initial complaint. There was a

higher rate of APR in those with treatment interruptions although not significant. Significant difference in total radiation dose received based on treatment interruption (p=0.02).

Conclusions/Discussion: When reviewing our large database retrospectively, no difference was found between men versus women in age at diagnosis. Most patients were diagnosed with stage II or III disease. 95.5% of patients completed treatment. Overall low rate of treatment interruptions (21%) compared to those reported of 35-80% in literature. Further data is needed on follow-up to assess outcomes given low rate of treatment interruptions.

DIFFICULT COLONOSCOPY: DOES SEX AND BMI PLAY A ROLE?

eP233

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Purpose/Background: A complete and adequate colonoscopy is dependent on many factors. Physician experience, sex, body mass index (BMI) and age are factors that may affect the timely completion of a colonoscopy. The time to reach the cecum can be used as a surrogate marker of the difficulty experienced when performing a colonoscopy.

Methods/Interventions: Retrospective review of 1893 patients that underwent colonoscopy performed by three colorectal surgeons between January 2020 and June 2022. Patient demographics and time to reach the cecum were assessed.

Results/Outcome(s): 1893 colonoscopies were included in the study. 917 were female with a mean BMI and age of 31.8 kg/m2(15.11-52kg/m2) and 63(17-92) respectively. The mean BMI for male patients was 28.7 kg/m2 (18.01-59.72 kg/m2) and mean age was 58 (16-94) respectively. Mean time to reach the cecum was significantly longer in females at 10:21 min vs 7:34 min, respectively, $p < 0.0001$. BMI negatively correlated to colonoscopy difficulty, with a lower BMI resulting in a prolonged colonoscopy time. Age did not significantly correlate with colonoscopy difficulty.

Conclusions/Discussion: In this large, retrospective study we identified sex as one of the most important factors leading to a difficult colonoscopy, with female patients requiring a significantly longer time. The colon in females is typically longer than in males and contained in a smaller abdominal cavity, leading to sharper flexures and a transverse colon that dips more significantly into the pelvis, resulting in a more acutely angulated and tortuous colon. BMI significantly impacts difficulty, with a lower BMI correlating with a longer time needed to reach the cecum. Although it is described that with increased age the mesentery increases its laxity, age remained insignificant. Our study suggests that women with low BMI will require more time to reach the cecum.. These findings lend scientific support to trends commonly taught to trainees learning endoscopy.

EXTRAGONADAL PERIRECTAL MATURE CYSTIC TERATOMA IN THE ADULT MALE: A CASE REPORT.

eP234

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Purpose/Background: Extragonadal abdominopelvic teratomas in adults are extremely rare, and those in males are exceedingly rare. These masses are most commonly found incidentally and require surgical excision for diagnostic confirmation after a thorough workup. This is a case report of a 49-year-old male who was incidentally found to have a pelvic mass on computed tomography urogram prompting colorectal surgical evaluation and subsequent laparoscopic complete excision. The clinical presentation, radiographic findings, and histopathological findings are described along with a literature review of extragonadal abdominopelvic mature cystic teratoma, also referred to as a sacrococcygeal teratoma. Albeit rare in the male and adult population, sacrococcygeal teratoma is a plausible differential diagnosis for a pelvic mass. Under-represented in the literature in regard to guidelines on management, complete surgical excision is the gold standard, with this case focusing on laparoscopy being a reasonable approach.

Methods/Interventions: For this case report, sites searched included PubMed, Elsevier, Science Direct, Research Gate. Terms searched include retroperitoneal teratoma, mature cystic teratoma, lararoscopic excision of presacral teratoma, presacral teratoma in adult male. Relevant articles were reviewed, focusing on surgical management. The laparoscopic excision of a retrorectal teratoma was first reported in 1995, but there have been scarce reports since then describing a laparoscopic approach to these specific tumors.

Results/Outcome(s): Due to the rarity of this diagnosis, there is no published consensus on its management apart from surgical excision. An operation can be performed via the open or laparoscopic abdominal approach, perineal approach, or a mixed approach based on the location of the mass and the surgeon's preference and experience. The laparoscopic excision of a retrorectal teratoma was first reported in 1995, but there have been scarce reports since then describing a laparoscopic approach to these specific tumors. The laparoscopic approach does have drawbacks, including the need for advanced surgical training and the lack of direct touch to discern tumor boundaries. Albeit its challenge, we recommend a laparoscopic approach as the advantages are statistically significant across the literature

comparing open to laparoscopic approaches. Our case demonstrates that laparoscopic excision is a feasible and promising approach to management of a sacrococcygeal teratoma.

Conclusions/Discussion: Mature Cystic Teratomas are rare in the adult population, and much more rare in the male sex with detection only on imaging after presentation with vague symptoms related to mass effect. Imaging only yields further diagnostic uncertainty given the broad differential. Surgical excision is the standard of care despite no strong evidenced based literature on its management. Laparoscopic excision is a feasible and promising approach to management of these tumors.

ESTIMATING RISK OF LOCOREGIONAL FAILURE IN ANAL CANCER FOLLOWING CHEMORADIATION: A MACHINE LEARNING APPROACH.

eP235

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Purpose/Background: Squamous cell cancer of the anal canal is primarily treated by chemoradiation with high curative rate. However, some patients experience treatment failure or recurrence and require abdominoperineal resection (APR). Few resources exist to assist clinicians with prognosis and current decision support tools rely on linear models that can fail to capture the complex relationships between socioeconomic, tumor, and treatment facility characteristics that affect outcomes. Machine learning is a computational approach that can overcome these limitations. We sought to develop and validate machine learning-based models for predicting locoregional failure for patients with anal cancer undergoing chemoradiation.

Methods/Interventions: We used data from the National Cancer Database and split the dataset into a training/validation set for model development (2004-2015) and a test set (2016-2018) to calculate evaluation metrics. The study population included patients with stage I-III anal squamous cell cancer who underwent chemoradiation and had at least 2 years of follow-up. The primary outcome was locoregional failure, defined as need for APR. Variables used for model development included patient, tumor, facility, and treatment characteristics, with 28 variables included in total. Multiple machine learning techniques were applied, including random forest (RF), gradient boosting (XGB), and neural networks (NN). These were compared with traditional logistic regression (LR). Models were evaluated using area under the receiver operating characteristic curve (AUROC), sensitivity, and specificity. The relative importance of variables included in the model was assessed using Shapley additive explanations.

Results/Outcome(s): The dataset included 19,537 patients, of whom 3.8% experienced locoregional failure requiring APR. 12.2% of patients had Stage I disease, 45.6% Stage II, and 42.2% Stage III. Of the machine learning techniques, XGB showed the best performance with an AUROC of 0.790 (95% CI 0.784 - 0.795) compared with an AUROC of 0.662 (95% CI 0.656 - 0.669) for LR. RF and NN also outperformed LR with AUROCs of 0.785 (95% CI 0.779 - 0.790) and 0.736 (95% CI 0.730 - 0.742) respectively (Figure 1A). XGB showed a sensitivity of 72% with a specificity of 70%, while LR showed a sensitivity of 52% with a specificity of 70%. Of the variables included, lymphovascular invasion, tumor size, grade, T stage, and sex had the strongest influence on model predictions (Figure 1B).

Conclusions/Discussion: This project developed and internally validated machine learning-based models which showed high accuracy in identifying patients who will require APR after chemoradiation for anal squamous cell cancer. With further development and external validation, these models could be used to stratify patients who are at high risk of locoregional failure and inform more personalized follow-up regimens.

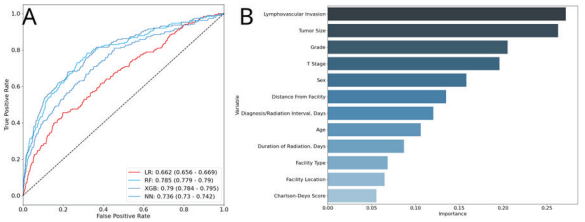

Figure 1. A: Receiver operating characteristic curves for prediction of locoregional failure in anal cancer, B: Relative importance of variables in the gradient boosting model

THE EFFECT OF THE COVID-19 PANDEMIC ON COLONOSCOPY COMPLETION RATES IN A TEACHING INSTITUTION.

eP236

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Purpose/Background: In 2021, the Commission on Cancer, American Cancer Society, and National Accreditation Program for Breast Centers proposed a PDSA QI initiative that aimed to examine the effect of the COVID-19 pandemic on cancer screening rates. We conducted a similar study to assess trends of colorectal cancer screening in our community.

Methods/Interventions: Retrospective chart review from March 2019 to June 2021 was completed at a single institution in the Denver Metro area. Colonoscopy referrals to a general surgery clinic serving the underserved and uninsured population of Denver were tabulated. Referrals received from March 15, 2019 – March 15, 2020, designated Group 1, served as the pre-pandemic data set, and

referrals received from March 16, 2020 – June 15, 2021, Group 2, served as the post-pandemic data set. Patient records were reviewed for completion of colonoscopy by June 2022. Data analysis was completed with Microsoft Excel.

Results/Outcome(s): In Group 1, 326 referrals for colonoscopy resulted in 214 (66%) completed colonoscopies. In Group 2, 355 referrals resulted in 214 (60%) procedures. The time to colonoscopy was significantly different, with a shorter time to procedure in the post-pandemic period (124 days vs 95 days, $p = 0.01$). Biopsies were performed in 41% of procedures. In 19%, one or two tubular adenomas less than 1cm were removed, indicating a therapeutic procedure (removal of a polyp with no change in screening interval). In 5.6% of cases, pathology determined a shorter surveillance interval. In 0.94% of procedures, pre-or malignant pathology was identified requiring colectomy.

Conclusions/Discussion: We report a statistically significant decrease in time to colonoscopy after the pandemic. While this finding is contrary to what others have reported, it may be a consequence of accelerated scheduling to recover from the backlog of the pandemic. Future work should be focused on increasing colonoscopy completion rates in our community.

SELECTIVE SUPERFICIALLY INVASIVE SQUAMOUS CELL CARCINOMAS OF ANUS (SISCCAS) LIKE LESIONS CAN BE MANAGED SAFELY BY SURGICAL EXCISION ALONE IN A HIGH RESOLUTION ANOSCOPY (HRA) CENTRE.

eP237

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Purpose/Background: Superficially Invasive Squamous Cell Carcinomas (SISCCAs) of the anus is a small subvariant of T1 squamous cell carcinoma of the anus first described in 2012. SISCCAs are considered to be early tumours with a better prognosis, and surgical excision alone may adequately treat such lesions. This study compared the outcomes of a prospective cohort with SISCCA like lesions between a High-Resolution Anoscopy (HRA) centre versus non-HRA standard colorectal care.

Methods/Interventions: This is a 8-year prospective cohort study of patients with SISCA like lesions between January 2013 and October 2021 at University Hospital of Dorset, UK. A SISCCA like lesion was defined as an actual tumour size less than 15mm. Our SISCCA surveillance protocol includes regular HRA assessments, annual CT scan for the first three years, 3-6 monthly digital rectal examinations and 3-yearly flexible sigmoidoscopy.

Results/Outcome(s): Overall, 29 patients were identified, with a median age of 62 years. 20 patients (69%) were female, of those seven (35%) had known multizonal dysplasia. Four patients (14%) were immunocompromised including HIV. The median tumour size was 11.5mm (IQR:7-15) horizontally, and 38% were unexpected diagnosis. 72% were intra-anal lesions. After an initial satisfactory surgical excision, 23 patients (79%) underwent the HRA surveillance, of those 14 patients (48%) were referred from non-HRA hospitals. 11 patients (38%), who were initially referred for AIN3 disease, were diagnosed with SISCCA after a HRA assessment or during their HRA surveillance. Following a diagnosis of a SISCCA, the median referral time o the HRA service was 4.5 months (IQR: 1.75-8.25). Two patients (14%) had progressed to a node positive disease at the time of presentation with SISCCAs. One patient (4%) on HRA surveillance developed a squamous cell carcinoma (SCC) in the rectum, requiring chemoradiotherapy. Conversely, five patients (17%) were treated with chemoradiotherapy after the initial excision at non-HRA centres, of three patients (60%) had a node positive disease. The median follow-up period was 42 months (IQR: 3-91).

Conclusions/Discussion: This study demonstrates that HRA surveillance of SISCCA type lesions after an initial surgical excision is safe and effective alternative to chemoradiotherapy if adequate expertise is available.

TRAUMATIC SPLENOSIS VS METATASTATIC APPENDICEAL NEUROENDOCRINE TUMOR- A DIAGNOSTIC AND THERAPEUTIC DILEMMA.

eP238

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Purpose/Background: Incidentally found appendiceal NETs after appendectomy are a rare finding. While debated, guidelines for additional surgical management in the form of a right hemi-colectomy are described based on tumor size and pathologic features. Based on pathology and clinical features, somatostatin receptor based imaging may be indicated for staging. This modality carries the highest sensitivity to assess for non-liver metastatic disease. Here we present a unique intra-operative/imaging correlation in a NET of the appendix following appendectomy with evidence of distant lymph node metastasis based on pre-operative 68 Dotatate PET/CT scan.

Methods/Interventions: A 39 year old woman with a remote history of a traumatic splenectomy underwent a laparoscopic appendectomy for acute appendicitis. Final pathology revealed a 1.7 cm grade 1, well-differentiated NET, Ki-67 <3%, with subserosal and lympovascular invasion, negative margins, and one metastatic lymph node resulting in a pT3N1MX tumor. She subsequently underwent staging work-up which included a Dotatate PET/CT after a post-operative CT of the abdomen/pelvis raised concern for metastatic disease. This scan identified three enlarged mesenteric lymph nodes with increased activity

concerning for metastasis. After multidisciplinary tumor board evaluation, a right hemi-colectomy with tumor debulking was recommended. Intra-operatively, multiple nodules throughout the abdominal cavity were identified, including those correlating with the "metastatic" lesions identified on the PET Dotatate. These lesions were grossly consistent with splenic tissue which frozen and permanent pathologic review confirmed. A right hemicolectomy and removal of mesenteric nodules was completed without intra-operative complications.

Results/Outcome(s): Pathologic review revealed a well-differentiated neuroendocrine tumor in 1 of 42 lymph nodes, no malignancy identified in the colon or ileum. Additionally, found to have multifocal splenic nodules characteristic of post-traumatic splenosis. No evidence of metastatic WDNET was identified. Her final stage is pT3N1M0. She is scheduled for ongoing surveillance per NANETS guidelines with her medical oncologist. Adjuvant therapy was not recommended.

Conclusions/Discussion: PET Dotatate scan is often used as diagnostic test for staging in patients with neuroendocrine tumors. In addition to somatostatin uptake by NETS, somatostatin receptors are also largely located in the red pulp of the spleen. Patients with appendiceal NET who have a history of a traumatic splenectomy or accessory splenules may have a falsely positive metastatic work up. It is important to take this into consideration as the prognosis and operative plan for metastatic NET differs from that of non-metastiatic WDNET. As such, a patient's surgical history needs to be taken in consideration with using Dotatate PETCT for metastatic work up in neuroendocrine tumors of the appendix.

RISK FACTOR ANALYSIS OF LYMPH NODE METASTASIS FOR RECTAL NEUROENDOCRINE TUMOR: WHO NEED A RADIAL RESECTION IN THE 1-2CM SIZED RECTAL NEUROENDOCRINE TUMOR?

ePoster 239

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Purpose/Background: Rectal neuroendocrine tumors (NETs) have malignant potential, and lymph node or distant metastasis can occur. However, there are controversies about how to treat 1-2cm sized NETs. This study aimed to identify predictive factors of lymph node (LN) metastasis and prognostic factors for recurrence in rectal NETs, especially 1-2cm sized tumor.

Methods/Interventions: Between October 2004 and November 2020, 453 patients underwent endoscopic or surgical treatment for rectal NET in Seoul national university hospital. The data on these patients were collected in our database prospectively and reviewed retrospectively. In cases of local excision, we evaluated lymph node metastasis with radiologic image including computed tomography (CT), magnetic resonance imaging (MRI) or ^{68}Gallium (^{68}Ga)-DOTA PET/CT before the treatment and during the follow-up periods.

Results/Outcome(s): Endoscopic mucosal resection or submucosal dissection was performed in 355 (78.4%) patients, transanal excision was in 45 (9.9%) patients, and radical resection was in 53 (11.7%) patients. LN metastasis and distant metastasis were present in 40 (8.8%) and 15 (3.3%) patients. There were no significant differences in age, sex, and distance of tumor from anal verge (AV) between the patients with and without LN metastasis. Otherwise, the higher rate of LN metastasis was identified in larger tumor size (<1cm, 0.6%; 1 ≤ size < 2, 30.0%; ≥2, 66.7%, p<0.001), advanced T stage (T1, 3.9%; T2, 20.0%; T3, 85.0%; T4, 80.0%, p<0.001), presence of lymphovascular invasion (Neg., 4.5%; Pos., 43.1%, p<0.001), perineural invasion (Neg., 4.9%; Pos., 67.9%, p<0.001), high tumor grade (G1, 3.3%; G2, 28.3%; G3, 33.3%, p<0.001). In multivariable analysis, the significant risk factors for LN metastasis were tumor size (1≤ size < 2 cm, hazard ratio [HR] 64.07, 95% CI 13.95-294.25; size ≥ 2 cm, [HR] 102.37, 95% CI 15.30-684.85, p<0.001), and tumor grade (G2, [HR] 3.63, 95% CI 1.10-12.02, p=0.034; G3, [HR] 5.09, 95% CI 1.04-24.88, p=0.044). We performed subgroup analysis of patients with 1-2cm sized tumor (N=60). Comparing patients with and without LN metastasis, significant difference was identified in tumor grade (G1, 23.1%; G2, 63.6%; G3, 66.7%, p=0.017). In multivariable analysis, the risk factors for LN metastasis was tumor grade (G2, [HR] 6.34, 95% CI 1.47-27.22, p=0.013). In total patients, the median follow-up period was 62.0 months, and recurrence developed in 15 (3.3%) patients. In higher tumor grade, the tumor recurrence rate was increased (G1, 0%; G2, 10.9%; G3, 42.9%, p<0.001), while the overall survival rate was inferior (G1, 98.6%; G2, 89.1%; G3, 36.4%, p<0.001).

Conclusions/Discussion: Tumor grade combined with tumor size is an important predictive factor for LN metastasis. In NETs of 1-2cm size, the tumor grade is also important to LN metastasis and it would be considered to decide the radical resection.

CLINICAL PREDICTION RULE TO OPTIMIZE SCREENING OF ANAL HIGH-GRADE INTRAEPITHELIAL LESIONS (HSIL).

ePoster 240

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Purpose/Background: Timely treatment of anal high-grade intraepithelial lesions (HSIL) has been shown to decrease progression to anal cancer. Current screening tools available, anal cytology and high-risk HPV testing,

have inconsistent and suboptimal performance. High-resolution anoscopy with guided biopsy is the gold standard exam to diagnose HSIL, but it is costly and requires highly trained personnel. Therefore, efforts to optimize screening strategies are crucial to improve the care of patients at high risk for developing anal cancer.

Methods/Interventions: Medical records of patients from two institutions were retrospectively reviewed to identify candidate predictors of HSIL (age, sex assigned at birth, men who have sex with men, HIV status, use of immunosuppressant medication, other HPV-related genital disease, perianal disease, anal cytology, and high-risk HPV status). Cases with missing data on candidate predictors were excluded. A clinical prediction model was built using penalized logistic regression via least absolute shrinkage and selection operator (LASSO). The model was internally validated with five-fold cross-validation. Diagnostic performance of the model was assessed through calculation of the area under the ROC curve (AUROC).

Results/Outcome(s): Among 465 patients included, 352 (76%) were people living with HIV, 142 (30%) were women, and 276 (59%) were men who have sex with men (MSM). Mean age was 48.9 (SD 11.9) and the prevalence of biopsy-proven HSIL was 17% (78/465). The final model included MSM (yes/no), immunosuppressant use (yes/no), perianal disease (yes/no), anal cytology (normal, ASCUS, or LSIL/HSIL), and high-risk HPV (positive/negative) and is described as: Log(Odds)= -2.04 + 0.03*(MSM) + 0.25*(use of immunosuppressant) + 0.43*(perianal disease) + 0.63*(high-risk HPV) + 1.25*(LSIL/HSIL cytology) - 0.66*(normal cytology). The AUROC of the final model was 0.79 in the full dataset (95%CI 0.73; 0.85), and a cutoff value of >=0.143 had a sensitivity of 70.5%, specificity of 73.9%, and correctly classified 73.3% of the cases (Figure 1).

Conclusions/Discussion: This clinical prediction model demonstrated a promising performance, and it can be particularly useful when HPV genotype is unknown. Limitations of this study include underrepresentation of women and patients in use of immunosuppressants. Future studies will aim to calibrate and externally validate this model.

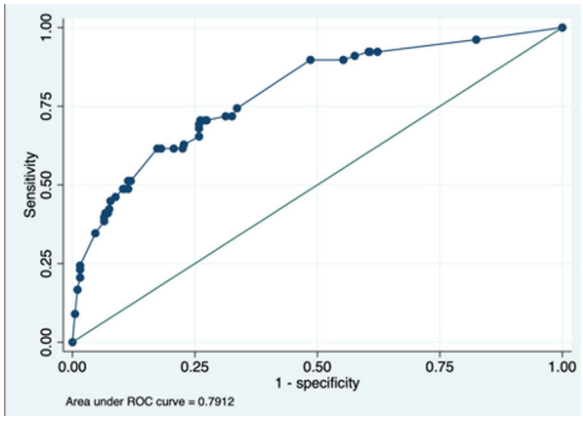

Figure 1. ROC curve

SINGLE-INCISION ROBOTIC SURGERY WITH THE DA VINCI SP® SURGICAL SYSTEM FOR 9 CASES OF PELVIC MASS.

eP241

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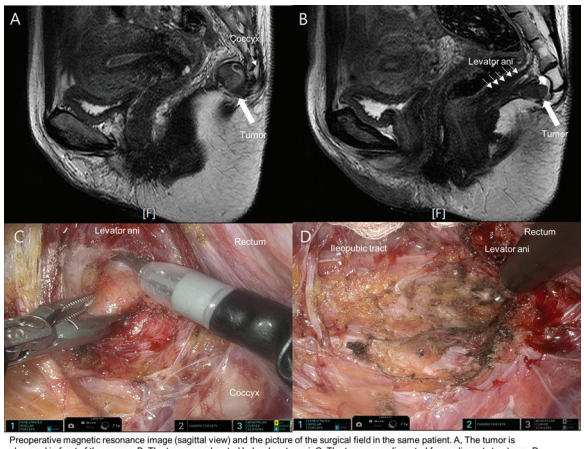
Purpose/Background: Pelvic mass is uncommon and pathologically heterogenous. The approach to surgical excision has been controversial. This study aimed to evaluate the abdominal surgical excision with the da Vinci SP® surgical system for various types of pelvic mass.

Methods/Interventions: A retrospective analysis of all patients who underwent excision of the pelvic mass with the da Vinci SP® surgical system at a single institution between April 2020 and April 2022 was performed. Demographics, preoperative imaging, operative details, complications, pathology, and follow-up were reviewed.

Results/Outcome(s): This study included 9 patients (7 females) with a median age of 54.0 years (range, 39–89 years). One case was symptomatic. Tumors were retro-rectal in 7 patients (77.8%) and pre-rectal in 2 patients (22.2%). Three patients (33.3%) had heterogenous features on preoperative magnetic resonance imaging. Median tumor size was 51mm (range, 15-80mm). The distal margin of tumors was below the coccyx in 2 patients (22.2%), opposite the coccyx in 5 (55.6%), and above the coccyx in 2 (22.2%). In 7 patients (77.8%), tumors were in supra-levator. One tumor showed a supra- and infra-levator extension, and one was in infra-levator. All patients received single-incision robotic surgery using an abdominal approach with the da Vinci SP® surgical system. R0 resection was performed in all patients, although intraoperative perforation was observed in 5 patients (55.6%). Median operative time, docking time, and console time were 195.0mins, 7.0mins, and 140.0mins, respectively. The median estimated blood loss was 50.0ml (range, 30-600ml). The median hospital stay was five days (range, 3-12days). Postoperative complications were Clavien-Dindo (CD) classification grade II in 2 patients (wound hematoma, bleeding requiring a transfusion) and CD grade III in 1 patient (pleural effusion). One patient (11.1%) showed an incisional hernia in the long-term follow-up period. Two patients (22.2%) were found to be malignant. Median follow-up was 6.1 months (range, 2.6–26.6 months) with no recurrence.

Conclusions/Discussion: Pelvic mass can be safely excised with single-incision robotic surgery with the da Vinci SP® surgical system regardless of the tumor level.



Preoperative magnetic resonance image (sagittal view) and the picture of the surgical field in the same patient. A, The tumor is observed in front of the coccyx. B, The tumor was located below levator ani. C, The tumor was dissected from adjacent structures. D, The tumor was excised completely.

COLORECTAL SURGERY AND ENDOSCOPY IN A PHILIPPINE DISTRICT HOSPITAL: A THREE-YEAR SUMMARY OF FINDINGS.

eP242

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Purpose/Background: Screening and diagnosis of colorectal diseases, both benign and malignant, is usually done using colonoscopy. In addition, colonoscopy also provide treatment for certain colorectal disorders, and it may guide surgeons in further medical or surgical management of their patients. This study may provide vital information regarding the profile of Filipino patients in the rural setting that are undergoing treatment for various colorectal diseases.

Methods/Interventions: This is an observational study presenting data from a rural district hospital in Lubao, Pampanga, a town, roughly 90 kilometers north of Manila, Philippines. The demographic data presented is retrieved from the beginning of our Colorectal Surgery Center in June 2019 and up to June of 2022.

Results/Outcome(s): Between 2019 and 2022, four colorectal surgeons and one fellow in training conducted 4321 outpatient consultations and a combined total of 1036 endoscopic procedures. Of the 1036 endoscopy cases, there were 899 colonoscopies, 111 flexible sigmoidoscopies and 26 rigid proctosigmoidoscopy. In 98 colonoscopies, only incomplete evaluation was performed and majority were due to tumor obstruction (46.9%). A total of 220 surgical procedures were performed composed of 94 colorectal and 126 anorectal cases. There were three morbidities in patients that underwent endoscopy and 10 morbidities in patients that underwent surgery. There were two mortalities in patients that underwent abdominal operations and no mortalities in the endoscopy or anorectal surgery group.

Conclusions/Discussion: The results of this study represent real-world data on the practice of colorectal endoscopic diagnostics and surgical intervention in a rural setting. They show that even in a less ideal setting, maximization of resources may continue to improve the diagnosis and treatment of colorectal disease for Filipinos.

COMPARISON OF STERILE VS TAP WATER FOR IRRIGATION IN COLONOSCOPY: A SCOPING REVIEW.

eP243

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Purpose/Background: The use of water irrigation in colonoscopy is increasing with improved adenoma detection rates and decreased pain and sedation rates compared to air insufflation. Most guidelines recommend using sterile water for irrigation. However the evidence to support these recommendations has not been reviewed. Switching to tap water for irrigation in colonoscopy would have significant positive environmental and financial impacts. The objective of this scoping review is to identify the evidence exploring the impact of tap vs sterile water in colonoscopy and its associated effects on patient outcomes, healthcare systems, and environmental impacts.

Methods/Interventions: A scoping review was performed based on the framework described by Arskey and O'Malley and elaborated by Levac et al. Any study examining the effects of irrigation source during colonoscopy on patient outcomes, healthcare systems, and environment were included. Two reviewers performed independently and in duplicate title and abstract screening, full text screening, and data extraction using a piloted standardized form. A quantitative analysis was performed on the population and patient outcomes. Key stakeholders such as endoscopists, infection prevention and control leads, provincial quality improvement directors, and manufacturer leads were involved in various stages of the study. EMBASE, MEDLINE, CINAHL, and Web of Science were searched from inception to July 2022 by a health information specialist using PRESS standards to identify studies that involved any patients undergoing colonoscopy wherein the irrigation source was described.

Results/Outcome(s): 317 articles were identified and 3 were included in the final analysis. All 3 were prospective studies published between 1996 to 2002 in the United States. A total of 137 colonoscopies and 38 flexible sigmoidoscopies were reported. Two studies compared sterile vs tap water with 7/118 (6%) and 35/327 (11%) positive water cultures, respectively. There were no clinical adverse events including infections. One study compared warm vs room temperature tap water and measured patient pain scores (2/10 and 4/10, respectively). Infectious

complications were not reported. Importantly, the infectious concerns were identified in the ERCP literature.

Conclusions/Discussion: There are no adverse events associated with tap water irrigation in colonoscopy. Current dogma appears to be extrapolated from case reports of infection linked to endoscopic retrograde cholangiopancreatography Tap water appears to be a safe choice and is economically and environmentally more beneficial compared to sterile water. In the context of the climate crisis and increasing financial healthcare burden, tap water in re-usable bottles should be used for irrigation in colonoscopy.

METASTATIC GASTROINTESTINAL NEUROECTODERMAL TUMORS (GNET); MULTIDISCIPLINARY APPROACH AND THE ROLE OF SURGERY.

eP244

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Purpose/Background: Gastrointestinal Neuroectodermal Tumors (GNET) are very rare, scarcely reported and highly aggressive, previously termed clear-cell sarcoma-like tumor of the gastrointestinal tract (CCSLTGT). The tumors are biologically heterogeneous but typically characterized by an EWSR1 gene rearrangement fused with either ATF1 or CREB1. Standardized management for unresectable or advanced disease has not been established; median survival is less than 1 year. Resection, chemotherapy, and surgical debulking have been the treatments available for these patients. Recently, adjuvant checkpoint inhibitors, which have drastically improved cure rates in advanced melanoma, have been thought to be beneficial in GNET treatment.

Methods/Interventions: Case study of two patients. Review of published literature.

Results/Outcome(s): We present two cases of metastatic GNET treated with Nivolumab (AN) monotherapy following tumor resection. Case 1: an 18-year-old man whose workup of melena with MRE revealed distal ileum thickening and PET/CT with PET-avidity concerning for malignancy. He underwent a small bowel and omental nodule resection that revealed a 2.2cm GNET, followed by adjuvant AN monotherapy. After 18 months of good initial control, he developed disease progression that led to various immunotherapy, chemotherapy, and interventional treatments that are ongoing (see Table 1). The patient has now survived 89 months from his initial presentation. Case 2: A 38-year-old man found to have a mass in distal ileum on colonoscopy for evaluation of abdominal pain and iron deficient anemia. Surgical resection showed a 7.1cm GNET and PET/CT revealed a mildly PET-avid liver lesion, which is being monitored for potential palliative interventions. AN therapy has been started (Table 1).

Conclusions/Discussion: GNETS are managed like most cancers; a multidisciplinary approach involving the departments of surgery, oncology, interventional radiology, radiation oncology, and pathology. Whereas metastatic cancers typically deemed unresectable are referred for systemic therapy or palliative care only, GNETs often undergo resection along with chemotherapy and metastastectomy. Due to the rarity of these tumors, no established management guidelines exist. Most chemotherapy and immunotherapy agents have been found futile against these tumors, but emergence of DNA checkpoint inhibitors such as Nivolumab, brings potential for successful treatment. For Case 1, the multidisciplinary approach with surgery, oncology and AN may have contributed to prolonged survival compared to the reported median. Case 2 is doing well thus far and is undergoing a second cycle of AN treatment. Our reported multidisciplinary approach, with a balanced delivery of surgical interventions and adjuvant therapies appear to have benefited these patients. Further evaluation of treatment of this rare malignancy is warranted and requires multi-institutional collaboration.

NO REGRETS? ASSESSING DECISION REGRET IN PATIENTS UNDERGOING ENDOSCOPIC MUCOSAL RESECTION FOR ADVANCED COLORECTAL POLYPS.

eP245

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Purpose/Background: Endoscopic mucosal resection (EMR) is a treatment modality for advanced colorectal polyps that can be offered as an alternative to surgical resection. Despite being less invasive, EMR has a risk of polyp recurrence and need for frequent endoscopic surveillance, which could lead to decision regret. It is unclear if patients undergoing EMR experience this negative emotion.

Methods/Interventions: Patients with advanced colorectal polyps who presented for consultation and ultimately underwent EMR between 2013-2021 were identified. Demographic and endoscopic outcomes such as procedure time, complications, and recurrence were extracted. Double channel endoscopes were utilized for all EMRs. Patients were contacted via phone to complete the Decision Regret Scale, the Gastrointestinal Quality of Life Index (GIQLI), and queried regarding their understanding of the treatment options available and the need for frequent surveillance colonoscopy. Regret was stratified into "No regret", "Mild regret", and "Moderate/severe regret". Descriptive statistics and univariate analyses were performed.

Results/Outcome(s): A total of 135 patients underwent EMR. Patients who had died since their procedure, non-English speakers, and those unable to be contacted were excluded. 92 patients were included in the analysis (79% response rate). Median polyp diameter was 25mm (range 5- 80mm), with 60% located in the right colon and 15% in the transverse colon. Median procedure time was 108 minutes (range 29-375 min). 89 patients had at least one surveillance colonoscopy and of those 15 (18%) had a recurrence. Fourteen of the recurrences were managed endoscopically and 1 patient underwent a surgical resection. Six patients experienced a complication from EMR (3 post-polypectomy syndromes, 2 perforations, and 1 bleeding episode requiring endoscopic intervention). Of the 92 patients, 78% expressed no decision regret, 20% expressed mild regret, and 2% expressed moderate/severe regret. In our univariate analyses, patients who had a complication, had a recurrence, did not understand the need for frequent surveillance colonoscopies, and described the bowel preparation as "intolerable" were more likely to express decision regret (Table). Patients with regret endorsed worse gastrointestinal quality of life with a mean GIQLI score of 128.5 vs 139.3 in those with no regret (GIQLI scored 0-144, p=0.01).

Conclusions/Discussion: Overall regret in patients who underwent EMR for resection of advanced colorectal polyps was low. Mild regret was seen in patients who had a recurrence, but those with a poor understanding of endoscopic surveillance were more likely to have severe regret. These findings highlight the need for robust preoperative counselling and patient guided decision making in the treatment of advanced colorectal polyps.

Characteristic	All participants N = 92	No regret N = 72 (78%)	Mild regret N = 18 (20%)	Moderate/Severe regret N = 2 (2%)	P value
Age, mean (± SD)	71.2 (10.6)	71.1 (11.1)	70.0 (7.8)	85.9 (8.4)	0.13
Gender, Female	44 (48%)	34 (47%)	8 (44%)	2 (100%)	0.32
GIQLI score[a] (± SD)	138.4 (5.9)	139.3 (5.5)	136.1 (6.3)	128.5 (3.5)	0.01
Had a recurrence on surveillance endoscopy	15 (18%)	8 (13%)	7 (39%)	0	0.04
Had a complication	6 (7%)	3 (4%)	2 (11%)	1 (50%)	0.02
Understood the need for frequent surveillance endoscopy[b]	80 (87%)	64 (89%)	16 (89%)	0	0.001
Understood there was a choice between EMR and surgical resection[b]	84 (91%)	66 (92%)	17 (94%)	1 (50%)	0.10
Described bowel preparation as intolerable	12 (13%)	7 (10%)	3 (17%)	2 (100%)	<0.001

a. Gastrointestinal Quality of Life Index at time of questionnaire. Scored 0-144 with higher scores representing higher quality of life.
b. Prior to undergoing EMR.

MANAGEMENT OF ANAL ADENOCARCINOMA IN THE UNITED STATES: A POPULATION-BASED ANALYSIS.

eP247

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Purpose/Background: Anal adenocarcinoma (AA) is a rare form of malignancy, accounting for 5-10% of all anal cancers. To date, there is no standardized treatment for this tumor, with different combinations of chemotherapy, radiation, local excision (LE), and abdominoperineal resection (APR) used in its management. Using a national, population-based registry, we analyzed patterns of care and outcomes of AA.

Methods/Interventions: Adults diagnosed with AA were identified in the Surveillance, Epidemiology, and End Results (SEER) database (2004-2019). Exclusion criteria were unknown stage, overlapping lesions of the anus and rectum, and >1 lifetime diagnosis of cancer. Six main patterns of care were identified: chemoradiotherapy (CRT)+APR, CRT+LE, CRT alone, upfront APR, LE only, and alternative treatments, including any combination other than the previously listed. In patients with localized or regional disease, multinomial and Cox proportional hazard regressions were employed to analyze factors associated with patterns of care and determine the 5-year overall (OS) and disease-specific survival (DSS).

Results/Outcome(s): Of 1,040 patients, 48% were female, median age was 67 [55-79] years, and 18% had distant metastases. The majority were Caucasian (65%) and lived in urban areas (86%). Among 746 patients with local or regional disease, 22% underwent CRT+APR, 14% CRT+LE, 18% CRT alone, 8% upfront APR, 22% LE only, and 17% alternative treatments. In multinomial analysis with CRT+APR as reference, gender, race, and marital status were not associated with type of treatment. However, age >75, rural location, tumor size, and regional involvement were significantly associated with treatment modality (Table 1). Five-year OS and DSS were highest for LE only (67% and 85%) and lowest in the alternative group (34% and 48%). Five-year OS and DSS for the remaining groups were as follows: CRT alone 44% and 55%, upfront APR 66% and 71%, CRT+LE 65% and 74%, CRT+APR 61% and 67%. After adjustment for available confounders, CRT+APR, CRT+LE, and upfront APR had similar outcomes, while CRT alone and alternative treatments were associated with worse prognosis. Conversely, patients having LE only had improved DSS. Additionally, age >75, single status, poor tumor differentiation, and regional disease were independently associated with lower OS and DSS.

Conclusions/Discussion: In this population-based cohort, we observed significant heterogeneity in the treatment of AA, confirming the lack of a standardized

approach. Age, tumor size, and disease stage were the main factors associated with treatment selection with early-stage cases undergoing LE with or without CRT, while more advanced cancers received CRT+APR. Both treatment modalities had good[SM1] outcomes in appropriately selected patients, while omission of surgical intervention in the setting of CRT was associated with worse OS and DSS suggesting a relevant role of primary tumor resection in AA management.

Table 1. Factors associated with treatment modality in the management of anal adenocarcinoma.

Characteristics	Treatment modality OR (95% CI)					
	CRT+APR	*CRT+LE*	*CRT alone*	*Upfront APR*	*LE only*	*Alternative treatments*
Age						
18-64	Ref					
65-74	Ref	1.43 (0.79-2.59)	1.55 (0.87-2.74)	1.62 (0.74-3.53)	0.95 (0.51-1.78)	1.01 (0.52-1.96)
>75	Ref	**2.73 (1.33-5.62)**	**4.31 (2.22-8.37)**	**6.07 (2.68-13.76)**	**4.62 (2.34-9.15)**	**7.97 (4.12-15.42)**
Living area						
Urban	Ref					
Rural	Ref	**0.31 (0.13-0.72)**	**0.46 (0.23-0.94)**	0.52 (0.20-1.38)	0.79 (0.41-1.52)	0.54 (0.26-1.11)
Tumor Size						
0-2 cm	Ref					
2.1-5cm	Ref	**0.41 (0.20-0.82)**	0.75 (0.36-1.58)	0.71 (0.30-1.67)	**0.12 (0.06-0.26)**	0.86 (0.38-1.95)
>5cm	Ref	**0.33 (0.13-0.84)**	0.94 (0.39-2.25)	0.93 (0.32-2.70)	**0.20 (0.07-0.54)**	1.00 (0.39-2.61)
SEER Stage						
Local	Ref					
Regional	Ref	**0.42 (0.25-0.71)**	**0.60 (0.36-0.98)**	**0.41 (0.21-0.80)**	**0.06 (0.03-0.13)**	**0.58 (0.34-0.98)**

Ref = Reference; OR = Odds Ratio; CI = Confidence Interval; CRT = Chemoradiotherapy; APR = Abdominoperineal Resection; LE = Local Excision

P<0.05

Adjusted for gender, race, and marital status.

EXPERT OPINIONS ON THE MANAGEMENT OF ANAL NEOPLASIA: A DELPHI CONSENSUS STUDY.

eP248

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Purpose/Background: Anal cancer is preceded by high grade squamous intraepithelial lesions (HSIL). The timely detection and treatment of anal HSIL can prevent anal cancer. However, guidelines for which populations to screen, details of neoplasia screening and treatment, and long-term management related to HSIL are inconsistent. We aim to present a consensus of expert opinions to guide clinicians in anal neoplasia screening and management to improve outcomes for those at risk of anal neoplasia.

Methods/Interventions: We employed a modified Delphi method to determine consensus opinions regarding multiple key aspects of anal neoplasia screening and management. Experts who detect and treat anal neoplasia were invited to participate in the study. The Delphi approach uses two rounds of an online survey questionnaire that are sent sequentially to participants. In round one, the experts responded to a series of quantitative and qualitative questions. Answers were aggregated as any agreement, neutral and any disagreement and the distributions were compared using Pearson's Chi-Square test. A second round of questions will be sent to the participants. The second round will consist of quantitative questions, derived from the qualitative data obtained in round one, as well as a repeat of the questions from round one that did not reach 80% agreement between the respondents. We are presenting the initial findings from round one.

Results/Outcome(s): A total of forty-six global experts in anal neoplasia were invited to participate in this study and twenty-five participants completed the survey. Of the 25 experts, 88% were MD/DO, 56% practiced in a University Hospital setting, and the majority specialized in colorectal surgery (32%) or infectious disease (36%). Experts agreed (>80%) on populations to screen such as persons living with HIV, men who have sex with men not living with HIV, and persons with a history of anal condyloma, incidental neoplasia, or current HPV disease. High-risk (HR)-HPV testing and cytology results accompanied by HR-HPV tests were agreed upon as the primary screening tools for referral to high-resolution anoscopy (HRA). Consensus on the best procedure to detect neoplastic lesions was HRA with a colposcope in an office setting without sedation. Any lesion indicative of high-grade, particularly with diagnosis of HR-HPV, was recommended for treatment. Treatment practices favored ablative vs. topical therapy. Regular screening for at risk individuals as well as those at risk of recurrence after treatment was recommended.

Conclusions/Discussion: Anal HSIL is the anal cancer precursor and treating HSIL reduces anal cancer incidence. The findings from this study present a preliminary consensus of experts' opinions regarding the optimal screening and treatment modalities and can serve as a tool to help address the lack of detailed guidelines for anal neoplasia screening and management.

INCOMPLETE COLONOSCOPY IS ASSOCIATED WITH ATYPICAL AND CHRONIC DIVERTICULAR DISEASE.

eP249

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Purpose/Background: Incomplete colonoscopy occurs in a considerable number of screening and diagnostic lower gastrointestinal procedures. In this study, we assess reasons for incomplete colonoscopy with an aim towards identifying imaging features of atypical or chronic diverticular disease.

Methods/Interventions: We reviewed all cases of incomplete colonoscopy from 4/1/2005 through 5/1/2022.

Next, we abstracted data such as patient info, indication for colonoscopy, procedural data, imaging data, and surgery details. Scans were reviewed with particular attention to identifying imaging findings of atypical and or chronic diverticular disease as defined by evidence of bowel wall thickness, diverticulosis, and inflammatory changes. Then we assessed factors associated with diverticular disease including the eventual role of surgery.

Results/Outcome(s): From a database of 140,846 colonoscopies, we abstracted a cohort of 2,925 patients with one or more incomplete colonoscopies (2.1%). From this group, 495 patients (16%) had multiple prior incomplete colonoscopies with average age of 62+/- 15. Most colonoscopies terminated in the left/sigmoid colon (38%) and the most common reasons for unintended colonoscopy termination were poor bowel prep (24%), tortuous/redundant colon (16%), and severe stricture (11%). Of all patients, 980 (34%) had virtual colonoscopy or CT scan of the abdomen/pelvis. Of the group with imaging completed, signs of atypical or chronic diverticular disease were noted in 255 (26%). Procedures that terminated for reasons of inflammation (n=143) or stricture (n=331) had the highest rate of diverticular disease, 28% and 25% respectively. From the group with evidence of diverticular disease on imaging, 29% had surgery but most patients were never referred to a surgeon for discussion regarding treatment.

Conclusions/Discussion: Atypical or chronic diverticular disease is identified on imaging in a considerable proportion of patients with incomplete colonoscopies. Although 29% of patients with incomplete colonoscopy and diverticular disease eventually undergo surgery, most patients never see a surgeon. Patients with incomplete colonoscopy should be considered for assessment of gastrointestinal quality of life with potential referral to a surgeon.

SMALL-CELL CARCINOMA OF THE RECTUM: 30-YEAR EXPERIENCE.

eP250

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Purpose/Background: Small-cell carcinoma of the rectum is a very rare malignant tumor that carries a poor prognosis. Diagnosis is usually accompanied with metastatic disease and specific treatment strategies are lacking. The aim of this study is to present our 30-year experience managing small cell carcinoma of the rectum.

Methods/Interventions: All patients who underwent treatment of small cell carcinoma of the rectum at Mayo Clinic from 1990-2020 were included. Data collected included demographics, clinical presentation, tumor pathology, adjuvant therapy, treatment response, surgical approach, disease progression, and mortality. Statistical analysis was performed using IBM SPSS Version 22 (SPSS Inc, Chicago, IL). Survival analysis was performed with the Kaplan-Meier method and group differences were assessed with the log rank test. Variables that were normally distributed were analyzed with t-test for independent samples. Variables that were not normally distributed were analyzed with the Mann-Whitney-Wilcoxon rank sum test. P values <0.05 were considered statistically significant.

Results/Outcome(s): A total of 43 patients were identified during the study period of which 27 (62.8%) were female. The average age at the time of diagnosis was 58 years (range, 33 - 86). A total of five (12%) presented with stage I or II, fourteen (32%) with stage III and 24 (56%) with stage IV disease. The most common symptoms at presentation were perianal pain and hematochezia. Mean follow-up was 14 months. Overall survival for the entire cohort was 16% at 36 months. Patients with local and regional disease had longer median overall survival than those with metastatic disease (p=0.05). Platinum-based agents and etoposide was the first-line chemotherapy in 38 (90%) patients and radiotherapy was used as an adjunct in 23 (54%) of the patient. Eleven (24%) of patients underwent surgical intervention, and only seven with curative intent. Initial response to treatment was observed in 29 (67%) patients resulting in a significantly better survival compared to those without an initial response (p<0.001). Patients who underwent a curative surgical intervention did not show improved overall survival (p=0.96).

Conclusions/Discussion: Small-cell carcinoma of the rectum is a rare malignant tumor with a poor prognosis. Treatment modalities have not been standardized and despite multimodal therapy, disease progression is likely to occur. Our experience revealed high rates of metastatic disease at presentation with high progression rates, and poor overall survival. Further study is necessary to determine optional treatments to improve outcomes.

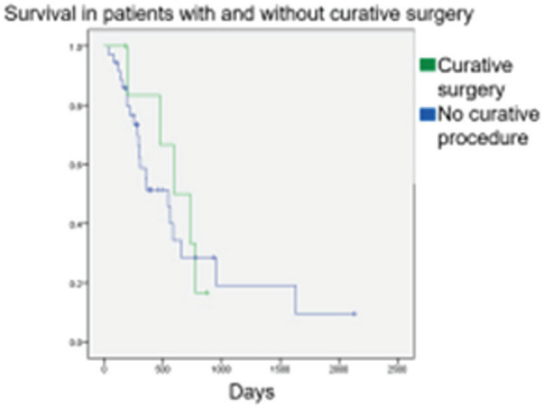

Figure 1. Overall survival in patients with and without curative surgery.

A CASE REPORT OF MINIMALLY INVASIVE HIPEC FOR APPENDICEAL MUCINOUS ADENOCARCINOMA AND LITERATURE REVIEW.

eP251

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Purpose/Background: The role of cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC) is a well-established treatment modality for peritoneal surface malignancy. HIPEC has shown improved long-term outcomes and helped solve the difficulty of chemotherapy delivery, which is not easily addressed by traditional methods. Generally, a laparotomy is made to allow for the evaluation of all peritoneal disease followed by cytoreduction. Once completed, intraabdominal perfusion catheters facilitate the perfusion of chemotherapy, commonly mitomycin C. Recently, there is interest in minimally invasive approaches to CRS/HIPEC, especially in cases with low disease burden. Studies have suggested minimally invasive CRS/HIPEC is feasible and safe. This case report highlights a robotic-assisted right hemicolectomy, right lower quadrant peritonectomy, greater omentectomy, and HIPEC for an appendiceal mucinous adenocarcinoma.

Methods/Interventions: EMR reviewed and Literature Review via PubMed.

Results/Outcome(s): 37-year-old female who initially underwent robot-assisted appendectomy for presumed perforated appendicitis, was found to have T4a appendiceal adenocarcinoma with a positive proximal margin on final pathology. The patient was subsequently taken to the operating room, upon diagnostic evaluation she was found to have peritoneal deposits limited to the right lower quadrant alone. She underwent a robotic-assisted right hemicolectomy with ileocolic anastomosis followed by right lower quadrant peritonectomy (CC-0). Greater omentectomy was completed as well. Subsequently, HIPEC was performed with mitomycin C by placing perfusion cannulas via port sites. Specimens were removed via Pfannenstiel incision. The patient tolerated the procedure well and was discharged on postoperative day 3 without any complications. Final pathology found residual mucinous adenocarcinoma in the right colon, 0/26 lymph nodes, and negative margins. Peritoneal resection and omental resection demonstrated deposits of metastatic mucinous adenocarcinoma. Final Stage IVb (T4a, pN0, pM1b, G2). She was referred to medical oncology for adjuvant chemotherapy and was started on FOLFOX.

Conclusions/Discussion: Historically, there has been fear of intraperitoneal dissemination of cancer cells with the use of insufflation during minimally invasive surgery, however, this has been challenged and repeatedly invalidated. Understanding this has allowed surgeons to attempt minimally invasive methods in arenas not previously thought amenable to laparoscopy or robotic surgery. A recent study published by The American Society of Peritoneal Surface Malignancies (ASPSM) found minimally invasive CRS/HIPEC is safe and can be considered in patients with limited tumor burden. Our case underscores the effectiveness and safety of a minimally invasive approach in the appropriate patient.

CASE STUDY OF RARE SYNCHRONOUS PRIMARY NEOPLASMS OF THE APPENDIX.

eP252

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Purpose/Background: Previously healthy forty-three-year-old female presented with several weeks of right lower abdominal pain with concerns of acute on chronic appendicitis. No previous colonoscopy history or family history of any cancers. Her CT abdomen and pelvis showed concerns of a tubular structures are near the appendix which was also close to the ovaries. Decision was made to proceed with operative exploration. She was taken to the operating room and underwent a laparoscopic appendectomy. Pathology report showed a low grade appendiceal mucin neoplasm (LAMN) and a well-differentiated neuroendocrine tumor (NET). There was no extra-appendiceal mucin (acellular or cellular) or dissecting mucin. There was no disruption or perforation of the specimen during surgery.

Methods/Interventions: She underwent an outpatient follow up with a medical oncologist. Baseline chromogranin-A, serotonin, and CEA levels were normal. There was no immediate treatment deemed necessary as patient had no tumor perforation or any current symptoms. Further management was guided by limited literature as there is still few evidence based research for management of synchronous appendiceal neoplasms. Furthermore, due to this rare combination, she followed up with our surgical oncologist for further management and care. Patient also followed up with a gastroenterologist and had a negative gastric emptying study, EGD study, and colonoscopy.

Results/Outcome(s): Patient followed up in the surgical oncologist clinic in a couple of months from her original surgery with complaints of obstructive symptoms and vague abdominal pain. Multiple imaging was unrevealing as to the source. Furthermore, there was no evidence of recurrence on any imaging as well. Given the unclear underlying etiology, the patient underwent a laparoscopic lysis of adhesions. In the post-operative clinic visit, it was found that this alone resolved most of her symptoms and she was satisfied with her results. Return precautions to clinic were given the patient.

Conclusions/Discussion: Synchronous appendiceal neoplasms are a rarity and are not commonly seen in

surgical practice Our patient was managed per the available evidence for each histologic type. While both tumors at advanced stages can be lethal; fortunately, in our patient both tumors were found early and addressed with no morbidity.

LAPAROSCOPIC AND ROBOT-ASSISTED RESECTION OF GIANT SACRAL CHORDOMA: A CASE SERIES.

eP253

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Purpose/Background: The surgical treatment of sacral chordoma is technically demanding, particularly because tumor growth occurs mainly towards the pelvis. We herein describe our series of complex en-bloc sacrectomies for giant chordoma aided by laparoscopic or robot assisted pelvic dissection.

Methods/Interventions: We retrospectively analyzed peri-operative data of five patients who had undergone surgery for giant sacral chordoma December 2019 to March 2022, in which the rectal dissection was accomplished in a minimally invasive fashion. Before surgery, all patients underwent staging CT scan and multidisciplinary evaluation. After inducing pneumoperitoneum, the operation begins with the upper sacral chordoma dissection and postero-lateral rectal mobilization, either by pure laparoscopy or by da Vinci Xi robotic assistance. After the abdominal phase and closure of the peritoneum with barbed sutures, the patient is placed in a prone position and sacrectomy is performed.

Results/Outcome(s): The sample comprised four men and one woman with a mean age of 65,7 years, and a mean body mass index of 26,9 Kg/m^2. In the female patient, the abdominal dissection was carried out by pure laparoscopy, whereas in male patients, the da Vinci Xi was employed. The mean operative time was 402 minutes. No intra-operative complications were registered. In all cases the upper sacral chordoma and rectal dissection made the sacrectomy easy to be performed, without any damage to the surrounding organs. Along the same line, we didn't experience any post-operative complication, and the mean hospital stay was 11 days. In one case surgical margins came out as focally marginal; The remaining margins were assessed as wide. In a mean FU of 11months no local recurrence occurred.

Conclusions/Discussion: Minimally invasive surgery can be a valid approach to dissect bulky sacral tumors from surrounding tissues, particularly from rectum. While in female patients the dissection can be easily performed by pure laparoscopy, for male patients the availability of the robotic system can enhance the dissection of the narrow and uneasy space left by a giant sacral chordoma extensively occupying the pelvis.

FACTORS AFFECTING MINIMALLY INVASIVE SURGERY UTILIZATION DURING ELECTIVE COLECTOMIES FOR DIVERTICULAR DISEASE IN THE UNITED STATES.

eP254

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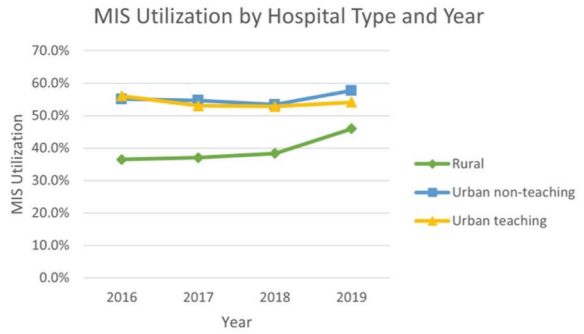
Purpose/Background: Compared with open surgery, minimally invasive surgery (MIS) has been shown to have improved outcomes, including decreased morbidity and length of hospital stay. This study aims to analyze current trends in the utilization of MIS for elective colectomy for diverticular disease in the United States and to identify individual variables and hospital characteristics associated with MIS utilization.

Methods/Interventions: The National Inpatient Sample (NIS) was analyzed using data from 2016 to 2019. The NIS represents approximately 20% of hospital discharges in the United States. Factors assessed included hospital geographic region, rural vs. urban location, teaching status, bed size, and individual's expected primary payer, age, race, and sex. Furthermore, this study compared the length of hospital stay, in-hospital mortality, and total hospital costs.

Results/Outcome(s): A total of 100,100 patients underwent elective colectomies for diverticular disease between 2016 and 2019. MIS utilization remained fairly constant (54.4% in 2016, 52.3% in 2017, 51.8% in 2018, and 54.3% in 2019; p=81.) Hospitals in the midwest used MIS less than other regions (midwest 49.2%, northeast 53.7%, south 54.8%, and west 55.1%, p<0.0001). Rural hospitals had less MIS utilization (rural 39.2%, urban non-teaching 55.1%, and urban teaching 54%, p<0.0001), although the difference narrowed over time (Figure 1a). Hospital bed size was not associated with differences in MIS utilization (small, 54.3%; medium, 54.3%; large, 52.1%; p=0.064). Patient sex was also not associated with differences in MIS utilization (male 53.8%;, female 52.8%; p=0.15). MIS utilization decreased as patient age increased (age <51, 58.1%; 51-65, 53.7%; 66-80, 49.2%; >80, 41.8%; p<0.0001). There were variances in MIS utilization based on expected primary payer (Medicare, 48.3%; Medicaid, 48.6%; private insurance, 56.7%; self-pay, 48.7%; no charge, 39.7%; p<0.0001). There was also a racial disparity in MIS utilization (white, 53.2%; black, 46.7%; Hispanic, 57.8%; Asian and Pacific Islander, 55.6%; Native American, 41.1%; other, 55.5%; p<0.0001%; Figure 1b). MIS was found to decrease the length of stay (mean 3.9 days versus 5.4 days, p=<0.0001), with similar in-hospital mortality (0.1% versus 0.2%, p=0.32) and similar overall hospital costs ($72,369 versus $77,296, p=0.43).

Conclusions/Discussion: Consistent with other studies, MIS utilization decreased the length of stay compared to open surgery. Costs and mortality rates were similar in this study. Most elective colectomies for diverticular disease in the United States are performed using MIS approaches. While there is no longer any variance in MIS utilization based on hospital bed size or teaching status, disparities concerning patient race and insurance status remain. Further investigation is needed to determine the roots of these disparities.



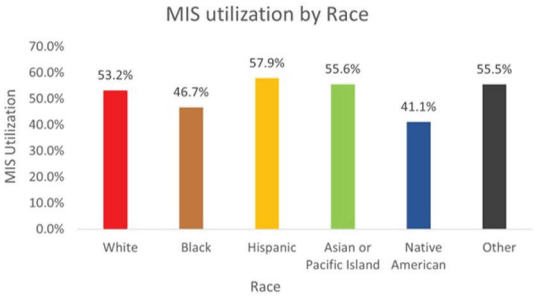


Figure 1a. MIS utilization by hospital type and year.Figure 1b. MIS utilization by race.

COMPLIANCE TO AN ENHANCED RECOVERY AFTER SURGERY PROTOCOL FOR PATIENTS UNDERGOING CYTOREDUCTIVE SURGERY AND HYPERTHERMIC INTRAPERITONEAL CHEMOTHERAPY.

eP255

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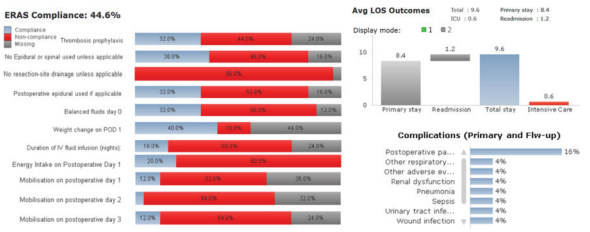
Purpose/Background: Enhanced Recovery After Surgery (ERAS) has led to improved clinical outcomes when compared to traditional care.[1] Cytoreductive surgery (CRS) with hyperthermic intraperitoneal chemotherapy (HIPEC), on the other hand along with improvements in systemic chemotherapy also have improved survival and quality of life for patients with peritoneal surface malignancies.[2] In patients who are undergoing CRS and HIPEC, ERAS has has been shown to reduce opioid and narcotic use, intravenous (IV) fluids use, complication rates, and hospital length of stay (LOS).[3,4] Currently, the Philippine General Hospital (PGH) is the only ERAS Center of Excellence in our country. However, there are no data reporting on the outcomes and compliance to an ERAS protocol for patients undergoing CRS and HIPEC.

Methods/Interventions: Through a retrospective study design data of patients who underwent CRS and HIPEC were obtained from the patient information systems of the Department of Surgery and the PGH from January 2019 to September 2022. An in-house ERAS Clinical Pathway Checklist was used to guide surgical trainees on how to comply with the ERAS components. This is then digitally recorded in EIAS, a web-based data system used to facilitate the implementation of and monitor compliance to the ERAS Protocols.

Results/Outcome(s): A total of 25 patients were enrolled under the ERAS protocol from January 2019 to September 2022. The team's compliance rate perioperatively was 44.6%. Compliance was highest in the preoperative phase (74.6%). There was poor compliance (<50% compliance) with the following components: 1. Use of epidural or spinal anesthesia, 2. Resection site drainage, 3. Postoperative epidural analgesia use, 4. Balance fluids immediately postoperatively, 5. Weight change on postoperative day (POD) 1, 6. Duration of IV fluid infusion, 7. Energy intake immediately postoperatively, 8. Energy intake on POD 1, 9. Mobilization on POD 1, 10. Mobilization on POD 2, 11. Mobilization on POD 3, 12. Alcohol cessation, 13. Iron replacement treatment, and 14. Thrombosis prophylaxis. The average LOS was 8.4 days (range, 7 to 9.6 days) with an average of 0.6 day (range, 1 to 3 days) stay in the intensive care unit (ICU) and postoperative length of stay at an average of 6.4 days (range, 4 to 7 days). Readmission rate was 12%. Morbidity rate was 40%, majority of which was due to postoperative ileus (16%). There was one mortality (4.0%) due to the congestive heart failure.

Conclusions/Discussion: While there are still challenges with regards to compliance to the entire protocol because of aspects of CRS HIPEC and components in the ERAS protocol that require adjustments in the team, ERAS still presents a promising adjunct for patients undergoing CRS HIPEC due to the reduced length of stay and minimized mortality and morbidity rates.



Complicance on ERAS components and Outcomes of Patients who underwent CRS and HIPEC

SUSTAINABLE REDUCTION IN SURGICAL SITE INFECTIONS WITH IMPLEMENTATION OF A SYSTEMS-WIDE ENHANCED RECOVERY AFTER SURGERY PROGRAM IN COLORECTAL SURGERY.

eP256

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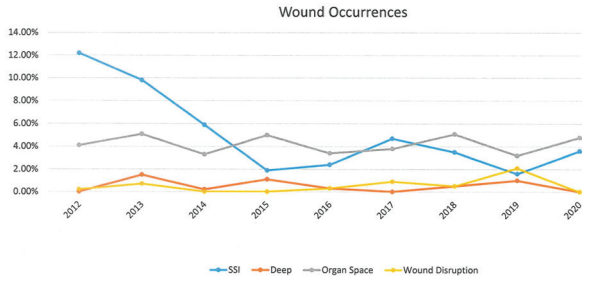
Purpose/Background: Enhanced recovery after surgery (ERAS) pathways are multimodal perioperative care regimens designed to standardize operative preparation in order to optimize postoperative outcomes. Studies have demonstrated the benefit of ERAS on improving postoperative wound complications after colorectal surgery among short-term institutional series, yet none have assessed the efficacy and sustainability of ERAS on outcomes after multi-institutional ERAS implementation.

Methods/Interventions: A retrospective review of ACS-NSQIP data from four hospitals that form a multi-institutional colorectal surgery collaborative group was performed. Either all colorectal patients or sampling as per NSQIP guidelines were used for patient data. The study group included all colorectal patients who underwent either colectomy or proctectomy between 01/2012 and 12/2020. A collaborative-wide institution of ERAS occurred in 2014. The preoperative ERAS bundle includes liquid chlorhexidine soap, mechanical bowel prep, antibiotic bowel prep, a complex carbohydrate drink, intravenous antibiotics within one hour of incision, goal directed fluid therapy, and non-opioid analgesic medication. The primary outcome was rates of postoperative wound complications.

Results/Outcome(s): Across four institutions, the combined rate of surgical site infections (SSI) in 2012 prior to the implementation of ERAS was 13.7%. The first year of implementation of ERAS, 2014, saw a decrease in this rate to 9.8%. From 2015 to 2020 there was a sustained reduction of SSI rates to less than 6.75% for each year, continually below the national ACS-NSQIP average. The incidence of SSI in each individual hospital decreased sustainably for the duration of the study period. In assessing different types of post-operative infections, the most notable decrease was among superficial SSI (Figure). There was no difference found in the rates of deep incisional infections, organ space infections, or wound disruption.

Conclusions/Discussion: Implementation of a successful multi-institutional ERAS program is possible and beneficial for patient care. Adherence to an ERAS pathway is associated with significant reductions in superficial surgical site infections.



INTERNAL HOSPITAL DATA PIPELINES PROVIDE ACCURATE AND TRANSFERRABLE REAL-TIME REPORTING OF COLORECTAL SURGERY READMISSIONS COMPARED TO ABSTRACTED SURGICAL QUALITY REPORTING SYSTEMS.

eP257

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Purpose/Background: Accurate measurement of surgical complications is important in determining the quality of surgical outcomes. Abstracted and sampled databases include the National Surgical Quality Improvement Project (NSQIP) and state-wide quality programs (SWQP) and are considered the gold standard for surgical quality reporting. However, abstraction is labor intensive, expensive, and has significant time lag intrinsic to optimal reporting. Near real-time identification of surgical complications using hospital-based internal data pipelines (IDP) could mitigate these shortcomings. Unplanned emergency department (ED) visits and readmission after colorectal surgery (CRS) are common and important quality benchmarks and offer an opportunity to compare these two quality reporting systems

Methods/Interventions: We collected 1 year of post-operative ED visits and in-patient readmission after CRS from two academic institutions and compared standard abstraction via NSQIP and a SWQP to an IDP at each hospital. Standardized patient eligibility criteria for each database was matched between the IDP cohorts. Concordance between standard abstracted databases and the IDPs was compared.

Results/Outcome(s): Elective CRS from CY 2021 were reviewed at two institutions. Institution 1 uses NSQIP while institution 2 uses a SWQP. Concordance between cases and events were measured at each institution. A high rate of concordance was found at both institutions between NSQIP/SWQP and IDPs for all metrics (Table 1).

Conclusions/Discussion: Excellent concordance for CRS cases, ED visits, and readmissions was observed between IDP and abstracted data sets. These results indicate that IDPs are highly accurate and transferrable across

institutions. IDPs may provide inexpensive, modifiable, real-time data that provides actionable results.

	Cases	ED visits	Readmission
Institution 1			
IDP	496	58	40
NSQIP	442	57	41
Concordance %	89%	98%	98%
Institution 2			
IDP	242	12	28
SWQP	238	11	24
Concordance %	98%	92%	86%

Table 1 Concordance Level

EVALUATION OF INTERDISCIPLINARY CARE PATHWAY IMPLEMENTATION IN OLDER COLORECTAL SURGERY AND NEUROSURGERY PATIENTS USING THE CONSOLIDATED FRAMEWORK FOR IMPLEMENTATION RESEARCH.

eP258

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Purpose/Background: The American College of Surgeons Geriatric Surgery Verification Program outlines best practices for surgical care in older adults. These recommendations have guided institutions to create workflows to better support needs specific to older surgical patients. This qualitative study explored clinician experiences to understand influences on implementation of frailty screening and an interdisciplinary care pathway in older elective colorectal surgery and neurosurgery patients.

Methods/Interventions: Semi-structured in-person and video-based interviews were conducted from July 2021-March 2022 with clinicians caring for patients >70 years on the colorectal surgery and neurosurgery services. Interviews addressed familiarity with and beliefs about the intervention, intervention alignment with routine workflow and workflow adaptations, and barriers and facilitators to performing the intervention. Interviews were analyzed using the Consolidated Framework for Implementation Research (CFIR) to find themes related to ongoing implementation.

Results/Outcome(s): Thirty-two clinicians participated (56.3% female, 58.8% White). Fifteen relevant CFIR constructs were identified (Table 1). Key themes to implementation success included strong participant belief in effectiveness of the intervention and its advantage over standard care; the importance of training, reference materials, and champions; and the need for institution-level investment in resources to amplify the impact of the intervention on patients and expand the capacity to address their needs.

Conclusions/Discussion: Systematic evaluation found implementation of frailty screening and an interdisciplinary care pathway in elective colorectal surgery and neurosurgery patients to be supported by participating clinicians, yet sustainability of the intervention and further adoption across surgical services to better meet the needs of older patients would necessitate organizational resource allocation.

Table 1. Themes surrounding Frailty Screening and Care Pathway Implementation for Older Surgical Patients in connection with Consolidated Framework for Implementation Research constructs

Construct	Description	Related Themes
Intervention Characteristics		
Evidence strength & quality	Perceptions of quality and validity of evidence supporting belief that intervention will have desired outcomes	-Existing evidence of pathway benefit in older patients on trauma service -Request for pilot results for colorectal and neurosurgery patient outcomes
Relative advantage	Perceived advantages of implementing intervention versus existing plan of care	-Frailty screening instrument easy to use -Geriatric recommendations tailored to patient
Adaptability	Degree to which intervention may be tailored to specific needs of surgical service	-Intervention adaptable to elective patients -Pathway less suitable to ICU patients and high-risk neurosurgery patients
Trialability	Ability to test intervention on a small scale	-Prior pathway implementation on trauma service -Current pathway pilot on neurosurgery spine patients
Complexity	Perceived difficulty of intervention, including scope, disruptiveness, and steps	-Different age criteria for frailty screening and pathway in elective surgery patients -Additional steps to access pathway order set
Design quality & packaging	Perception of how intervention is presented and bundled	-Room for improvement with frailty screening documentation and pathway integration in EMR
Outer Setting		
Patient needs & resources	Extent to which patient needs are known and prioritized, also barriers and facilitators to meet needs	-Additional patient populations capable of benefit from pathway -Some patients unable to receive prompt frailty screening and/or geriatric evaluation
Inner Setting		
Networks & communications	Nature and quality of communication within organization	-Discussion of patients on pathway within surgical team and between nursing and surgical team -Direct communication between geriatric and surgical teams
Culture	Values of organization	-Understanding and acceptance of pathway across clinical roles
Implementation climate Tension for change Compatibility Relative priority	Shared receptivity of involved individuals to intervention Degree to which stakeholders perceive current situation as needing change Extent to which intervention fits with organizational values and existing workflows Shared perception of importance of implementing intervention	-Visual cues and documentation as shared willingness to engage in pathway -Pathway credibility as model of care in spine patients as impetus for driver for expansion in neurosurgery -Minimal conflicts with existing patient management -Tradeoff between EMR integration and click fatigue -Time constraints
Readiness for implementation Available resources Access to knowledge & information	Tangible indicators of organizational commitment to implement intervention Level of resources dedicated to implementation and ongoing operations Ease of access to information about intervention	-Limited current capacity for preoperative frailty screening -Inadequate staffing of geriatric team, patient care assistants, and physical therapy -Pathway compliance impacted by room availability and lack of regionalization -Frequent use of signs, presentation slides, dotphrase, and pocketcard
Individual Characteristics		
Knowledge & beliefs about intervention	Individuals' attitudes on intervention and familiarity with details of intervention	-Belief in value of pathway and patient benefit -Introductory training with adequate and appropriate content regarding pathway
Self-efficacy	Individual belief in capability to perform intervention	-Training and repetition as path to routine
Individual stage of change	Individual progress toward use of intervention	-Familiarity with pathway based on previous experience caring for patients on trauma service
Process		
Engaging Opinion leaders Internal implementation leaders Champions Key stakeholders Intervention participants	Involving relevant individuals in implementation Individuals with influence on colleagues in organization Individuals assigned with responsibility of implementing intervention Individuals dedicated to supporting and overcoming resistance to intervention Individuals directly involved in performing intervention Individuals participating in intervention	-Dedicated training by clinical role -Awareness of pathway variable and often limited in attending role -Geriatric surgery physician assistant as point of contact for pathway training and logistics -Champions integral to role-specific pathway implementation and addressing hurdles -Utility of annual training on frailty screening and pathway -Patient awareness of pathway facilitates engagement

Themes surrounding Frailty Screening and Care Pathway Implementation for Older Surgical Patients in connection with Consolidated Framework for Implementation Research constructs

INTRAOPERATIVE METHADONE USE IN PATIENTS UNDERGOING COLORECTAL SURGICAL PROCEDURES.

eP259

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Purpose/Background: Pain control is central to recovery after colorectal surgery. The current standard of care for abdominal operations relies on the postoperative use of short-acting opioids. Recent literature, however, has explored the use of a single perioperative dose of methadone, a long-acting opioid. There are limited studies on the efficacy of methadone as a part of an enhanced recovery

after surgery (ERAS) protocol and none within colorectal surgery. In this study, we examined the use of methadone after colorectal resection and evaluated its impact on opioid utilization, hospital cost, pain scores, length of stay, and time to return of bowel function.

Methods/Interventions: This is a retrospective study of opioid use in patients treated at a tertiary referral center undergoing minimally invasive colorectal surgery. Consecutive patients receiving methadone on induction of anesthesia between February 2019 to November 2021 were included. Historical controls were matched based on procedure type and controlled for age, ASA class, and pre-operative opioid usage. Post-operative opioid use was calculated as inpatient morphine milligram equivalents (MME) and collected from induction through postoperative day 3. Minimum and maximum pain scores were collected daily. Cost of opioids, length of stay, and time to return to bowel function were reported.

Results/Outcome(s): Patients who received methadone (n=89) used significantly more MMEs compared to controls (n=89) (249.23 vs 200.25, p=0.015). There was no significant difference in pain scores (3.5 vs 3.3, p=0.630), length of stay (7.2 vs 7.7 days, p=0.809), or time to return to bowel function (1.3 vs 1.5 days, p=0.140). Average total costs for opioids were $43.49 (methadone) vs $3.69 (control). In patients with pre-operative narcotic use, there was no difference in MME usage between methadone (n=25) and control groups (n=15) (294.56 vs 239.34 MME, p=0.841), but a significant increase in opioid naïve methadone patients (n=64) when compared to naïve controls (n=74) (233.05 vs 192.33, p = 0.003). There was no significant difference in length of stay between methadone and control naïve patients (6.34 vs 5 days, p=0.251) or non-naïve patients (7 vs 12.5 days, p=0.108). Finally, there was a significant decrease in time to return to bowel function in naïve methadone patients (1.27 vs 1.57 days, p=0.044) but no difference in non-naïve patients (1.48 vs 1.33, p=0.670).

Conclusions/Discussion: Patients who received methadone in the context of laparoscopic colorectal surgery did not have a significant reduction in overall opioid use or pain control but did incur higher costs. There was no significant difference in length of stay or time to return to bowel function compared to non-methadone patients. Given our findings, we have excluded methadone in our ERAS protocol.

PFIGHT PFOR PFANNENSTIEL.

eP260

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Purpose/Background: With the advent of robotics in colorectal surgery and the ease of training and potential for better patient outcomes there has been a shift towards using the robotic platform in elective colorectal cases. However, most robotic cases require a small Pfannenstiel incision to retrieve the specimen potentially causing similar postoperative pain as an open resection via a formal Pfannenstiel.

Methods/Interventions: This retrospective single institution observational review assessed hospital length of stay, postoperative opioid pain medication use and overall complications of patients who had a low anterior resection or sigmoidectomy via an open Pfannenstiel incision versus a robotic resection. We identified a total of 332 patients between January 2015 and December 2019, 243 (73.2%) robotic, and 89 (26.8%) open Pfannenstiel on the colorectal service.

Results/Outcome(s): The groups were similar in basic demographics as well as indications for surgery with malignant pathology in 51.7% of the open group versus 43.2% robotic group (P = 0.17). The open group was found to have no significant difference in hospital length of stay than the robotic group (mean 4.3 vs 3.39 days; P = 0.149). Similarly, there was no difference in opioid pain medication use between the open and robotic groups (58.4 vs 50.3 mg; P = 0.397), overall complications (31.5 vs 27.2%. P = 0.441), or surgical site occurrence (10.1 vs 7%; P= 0.349). There was a significantly higher operative time in the robotic group compared to the open group (203.9 vs 123.8 minutes; P = <0.001).

Conclusions/Discussion: In conclusion, while the access to robotic surgery grows, it is still acceptable to offer and provide open resections for malignant and benign colorectal disease that require a low anterior resection or sigmoidectomy. We recommend using a Pfannenstiel incision as either the open operative approach or in junction with minimally invasive techniques for its overall low complication rate and acceptable patient pain tolerance.

Characteristic	Open	Robotic	p-value
Number of Patients	89	243	---
Operating Room Time Minutes (Mean ± SD)	123.8 ± 40.6	203.9 ± 66.3	<0.001*
Range	58, 274	97, 527	
Days to Solid Diet: (Mean ± SD)	1.77 ± 1.27	1.74 ± 1.38	0.818
Range	0, 8	0, 8	
Days to Bowel Function:(Mean ± SD)	2.01 ± 1.29	1.99 ± 1.16	
Range	0, 8	0, 8	0.874
Hospital LOS (Days): (Mean ± SD)	4.30 ± 5.68	3.39 ± 2.90	0.149
Range	1, 43	1, 25	
Any Complication: No. (%)	28 (31.5)	66 (27.2)	0.441
Complication: No. (%)			
Ileus	7 (7.9)	16 (6.6)	0.684
SBO	3 (3.4)	5 (2.1)	0.490
UTI	0 ---	3 (1.2)	0.292
Respiratory Failure	4 (4.5)	2 (0.8)	0.026*
Anastomotic Leak	6 (6.7)	5 (2.1)	0.035*
Hernia	4 (4.5)	8 (3.3)	0.603
DVT	0 ---	1 (0.4)	0.544
PE	1 (1.1)	1 (0.4)	0.458
Death	2 (2.3)	2 (0.8)	0.292

Primary Outcomes of open vs Robotic Sigmoidectomies and Low Anterior Resections

OUTCOMES OF COLON RESECTION BY SURGEON CASE VOLUME: A RETROSPECTIVE STUDY.

eP261

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Purpose/Background: General surgery has become ever more specialized in recent years with fellowships becoming more popular. As a result, highly complex operations have become stratified across subspecialists and general surgeons alike depending on geography and resource availability. In endeavoring to ensure patient safety, surgical volume is often utilized as an indirect measure of competency. In the literature, such comparisons of operative volume and patient outcomes has demonstrated a direct correlation between high hospital volume and improved outcomes. In this study, we specifically examined the ramifications of surgeon-specific colon resection case volume at a single tertiary care center with regards to patient outcomes.

Methods/Interventions: Retrospective analysis of 1359 colon resections performed at a tertiary referral center between 2018-2020 comprising of thirteen surgeons with various training backgrounds. Colon resections were performed minimally invasive or open and under urgent/emergent or elective circumstances. Surgeons were classified by annual colon resection case volume and then designated high, medium, and low-volume by quartile. Comparison of the surgeon groups accounted for the urgent/emergent nature of the case as well as the patient's Charlson Comorbidity Index. Primary outcomes included readmission, complication rate, 30-day mortality, survival, and length of stay.

Results/Outcome(s): No significant difference was noted in patient comorbidity in the high-volume group compared to the other groups. 14.7% of colectomies performed by high volume surgeons occurred in urgent/emergent scenarios compared to 52.1% of colectomies by low volume surgeons. Hospital length of stay was shorter for high-volume surgeons (average 4 days, $p < 0.05$). Low-volume surgeons performed open colectomies 81.5% compared to 42.7% performed by high-volume surgeons. Complications occurred less in the high-volume group (25.5%) compared to low and medium volume groups (47.1% and 53.8%, $p < 0.001$). Readmission rate was highest among the low-volume surgeons (20.2%, $p < 0.001$).

Conclusions/Discussion: Our data suggests that higher annual surgeon case volume is associated with improved patient outcomes including readmission, length of stay, and complications. Surgeons with high annual case volumes of colon resections were more likely to perform them in non-emergent situations and through minimally invasive techniques.

THE DEATH OF SMALL PRACTICES IN COLORECTAL SURGERY.

eP262

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Purpose/Background: Physicians have gravitated toward larger group practice arrangements in recent years. However, consolidation trends in colorectal surgery have yet to be independently examined. The focus of this study was to assess current trends in practice consolidation within colorectal surgery and evaluate underlying demographic trends. We hypothesized that practice consolidation patterns would largely be driven by younger surgeons.

Methods/Interventions: Data from 2015 and 2022 were collected via the National Downloadable File from the CMS Physician Compare database, which contains data on physicians registered with Medicare and their affiliated practices. Colorectal surgeons were identified by primary specialty designation. Surgeons were placed in size categories based upon the total number of physicians (including all specialties) in their affiliated practice (1-2, 3-9, 10-24, 25-49, 50-99, 100-499, 500+ members). The data were stratified by U.S. region (Midwest/Northeast/South/West), physician gender (M/F), median date of graduation from medical school (Older/Younger), and new colorectal surgeons since 2015.

Results/Outcome(s): From 2015 to 2022, the number of colorectal surgeons in the U.S. increased from 1360 to 1595 (+17.3%). There was an overall decrease in the number of practices with which they were affiliated (790 to 786, -0.5%). The proportion of colorectal surgeons in groups of 1-2 members fell from 19.1% to 10.7%. Conversely, those in groups of 500+ members grew from 25.1% to 44.9%. The linear trend toward consolidation was significant ($p<0.001$). The Midwest region demonstrated the highest degree of consolidation, where surgeons affiliated with practices of 500+ climbed from 38.7% to 61%. Group practices of 500+ members saw the largest increase for both female and male surgeons (+71.9% and +80.2%, respectively). Female colorectal surgeons had a smaller percent change in the 1-2 group size (-24.3%) compared to a much larger decrease in the 3-9 group size (-63.8%). In contrast, male colorectal surgeons had a similar decrease in both the 1-2 (-46.2%) and 3-9 (-50.2%) group sizes. Older surgeons had a smaller decrease in practices of 1 or 2 compared to younger surgeons (-37% vs. -58.1%, respectively). Surgeons who joined the workforce between 2015 and 2022 overwhelmingly practiced in larger groups — 44% worked in practices of 500+ physicians compared to only 2.6% who worked in solo or duo practices (Figure 1).

Conclusions/Discussion: The number of small colorectal surgery practices is shrinking. Although this

change is happening across all demographic groups, it is unevenly distributed across region, gender, and age. New surgeons are disproportionately joining large group practices. Identifying the driving forces of practice consolidation in colorectal surgery is an avenue for further research.

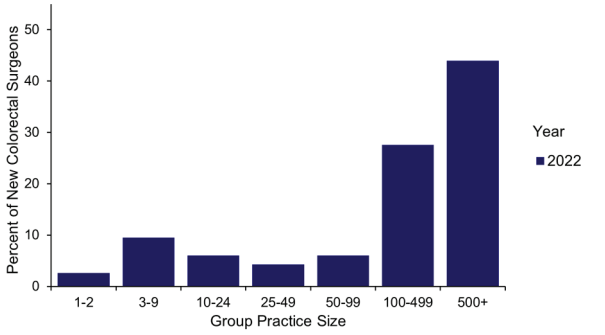

Figure 1. Current Practice Distribution of New Colorectal Surgeons Joining Since 2015

Conclusions/Discussion: Cannabis use has been increasing amongst patients undergoing surgery. Nevertheless, CUD was not associated with increased post-operative morbidity in patients undergoing proctectomy.

TABLE. Clinical Outcomes for all Adult Proctectomy Patients, Stratified by the Presence of Cannabis Use Disorder

	Unadjusted Analysis			Adjusted Analysis*		
Characteristic, n (%)	No Cannabis Use Disorder 82507	Cannabis Use Disorder 173	*p*	No Cannabis Use Disorder 173	Cannabis Use Disorder 173	*p*
Composite Morbidity	16202 (19.64)	34 (19.65)	0.980	44 (25.43)	34 (19.65)	0.198
Anastomotic Leak	3119 (3.78)	11 (6.36)	0.076	19 (10.98)	11 (6.36)	0.126
Wound Infection	4529 (5.49)	11 (6.36)	0.616	9 (5.20)	11 (6.36)	0.645
Pneumonia	2217 (2.69)	2 (1.16)	0.339	7 (4.05)	2 (1.16)	0.174
Renal Dysfunction	3410 (4.13)	8 (4.62)	0.746	8 (4.62)	8 (4.62)	0.999
Myocardial Infarction	585 (0.71)	0 (0.00)	0.639	1 (0.58)	0 (0.00)	0.317
Sepsis	1963 (2.38)	2 (1.16)	0.449	7 (4.05)	2 (1.16)	0.174
Urinary Tract Infection	5586 (6.77)	11 (6.36)	0.829	11 (6.36)	11 (6.36)	0.999
Delirium	750 (0.91)	3 (1.73)	0.210	1 (0.58)	3 (1.73)	0.623
Venous Thromboembolism	730 (0.88)	1 (0.58)	0.999	4 (2.31)	0 (0.00)	0.123
Length of Stay	6 (5-8)	6 (4-8)	0.874	6 (5-9)	6 (4-8)	0.912
Total Hospital Charges, USD	56742 (36639-87952)	60423 (43310-94110)	0.489	62725 (42833-108849)	60423 (43310-94110)	0.431

Abbreviations: USD, United States Dollar; IQR, Interquartile Range.
*For the adjusted analysis, 1:1 propensity score matching was used to account for differences in baseline characteristics between patients with and without cannabis use disorder. Patients were matched in a 1:1 ratio with respect to age, sex, race, median household income, year of surgery, indication for surgery, procedure type, Charlson Comorbidity Score, obesity, hypertension, diabetes, congestive heart failure, kidney dysfunction, chronic obstructive pulmonary disease, smoking history, and alcohol abuse history.

THE ASSOCIATION BETWEEN CANNABIS USE DISORDER AND POST-OPERATIVE OUTCOMES FOLLOWING PROCTECTOMY.

eP263

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Purpose/Background: Cannabis is the most commonly used recreational drug amongst patients undergoing surgery. Studies have demonstrated increased adverse post-operative outcomes in patients with cannabis use disorder (CUD) across a variety of surgical specialties, including gastrointestinal surgery. However, the effects of CUD on postoperative outcomes following rectal surgery have not been investigated.

Methods/Interventions: Adult patients undergoing elective proctectomy were analyzed in the National Inpatient Sample database (2004-2018). CUD was defined using the relevant ICD-9/10 diagnostic codes. Patients with CUD were matched to patients without CUD using propensity score matching in a 1:1 ratio to control for differences in baseline patient characteristics. The primary outcome was composite post-operative morbidity. Secondary outcomes were length of stay and total hospital charges.

Results/Outcome(s): A total of 173 patients with CUD underwent proctectomy. The overall prevalence of CUD was 0.21%, following an increasing trend and reaching the highest level in 2015 (0.69%). There was no difference in the rate of overall morbidity between patients with CUD (34/173, 19.65%) and patients without CUD (44/173, 25.43%) (p=0.198). In addition, there were no differences in median length of stay (CUD: 6, IQR 4-8; No CUD: 6, IQR 5-9, p=0.912) or total hospital charges (p=0.431) (Table).

EARLY REMOVAL OF FOLEY CATHETERS AFTER COLORECTAL SURGERY IS NOT ASSOCIATED WITH POSTOPERATIVE URINARY RETENTION.

eP264

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Purpose/Background: Foley catheters are utilized for major abdominal operations in colorectal surgery. Timing of catheter removal has to balance the risks of both early and delayed removal such as urinary retention and catheter associated urinary tract infection (CAUTI). Data are mixed regarding optimal foley management. Despite the guidelines form the American Society of Colorectal Surgery, perioperative foley management practice patterns still vary.

Methods/Interventions: We implemented a foley catheter management protocol developed from consensus among 5 colorectal surgeons. Data were collected over a 3-month time period pre-implementation and post-implementation for patients that underwent non-emergent major colorectal operations. Patients with chronic indwelling catheters, unexpected return to the operating room, surgery requiring bladder repair, multiple surgical teams and operations greater than 9 hours were excluded. Our primary outcome was rate of urinary retention requiring catheter replacement. Secondary outcomes were urinary tract infection (UTI), catheter utilization, total catheter time, length of stay (LOS), and protocol compliance. Baseline characteristics, overall procedure and individual procedure outcomes were analyzed by bivariate analysis. Regression analyses were performed for factors associated with decreased foley catheter time and to explore an association of procedure compliance with LOS.

Results/Outcome(s): A total of 185 patients were included, 48% of whom were in the pre-implementation cohort. Overall rates of UTI and urinary retention were 1% and 2% respectively. The pre-protocol cohort was 5 years older (p= 0.03), but there were no differences in remaining patient demographics. On bivariate analysis comparing outcomes between the pre- and post-implementation cohorts, total foley time was 14 hours shorter (p <0.001) and length of stay was 1 day shorter (p=0.02) (Figure 1). There were no differences in UTI, foley replacement, intermittent catheterization, or overall number of catheters placed for surgery. Those that underwent loop ostomy closures had a 50% decrease in foley placements for surgery (p=0.02), and those who had a catheter placed had a 10 hour decrease in mean foley time after protocol implementation (p=0.02). Protocol compliance rates increased over 50% for the right colectomy, small bowel resection and upper proctectomy (p=0.03), mid/lower proctectomy, APR and IPAA operations (p=0.001). Protocol compliance was associated with a shorter LOS.

Conclusions/Discussion: Implementation of a single institution, perioperative foley management protocol was associated with decreased foley time and length of stay after major abdominal colorectal operations, without increasing urinary retention or UTI rates. Further studies are needed to explore barriers to standardized protocol compliance.

Figure 1: Patient outcomes before and after protocol implementation

	Before protocol change	After protocol change	p-value
Total operations (n)	88	97	
CAUTI or Urinary tract infection within 30 days	1 (1%)	1 (1%)	0.94
Urinary retention after foley removal	2 (2%)	3 (3%)	0.73
Foley catheter replaced	2 (2%)	1 (1%)	0.5
Intermittent catheterization required	0 (0%)	2 (2%)	0.18
Foley catheter placed for surgery	82 (93%)	85 (88%)	0.2
Total foley time (hours), mean (SD)	33.9 (31.9)	21.0 (16.0)	<0.001
LOS, mean (SD)	5.6 (3.8)	4.5 (3.1)	0.023
LOS, median [IQR]	5 [3.5,7]	4 [3, 5]	

USING HEART RATE VARIABILITY TO DEVELOP A PREDICTIVE MODEL FOR POST-OPERATIVE CARDIOVASCULAR COMPLICATIONS: A PILOT STUDY.

eP265

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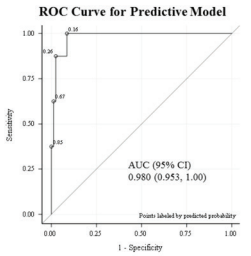
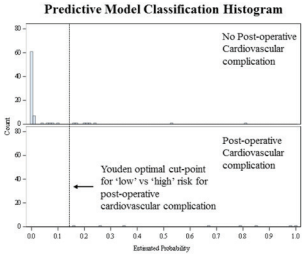
Purpose/Background: Heart Rate Variability (HRV), derived from continuous electrocardiogram (ECG) monitoring, is a dynamic reflection of the composite outcome of heart rhythm regulation by various physiological inputs. HRV deviations have been found to correlate with short- and long-term clinical outcomes in patients with cardiovascular diseases or under physiological stresses. Perioperative cardiovascular complications (CVC) occur in up to 5% of adult patients undergoing non-cardiac surgery and are associated with significantly increased mortality. We aimed to develop a model predictive of post-operative CVC using HRV parameters, to allow for early risk prediction to aid post-operative clinical decision-making.

Methods/Interventions: Adult patients admitted to the High Dependency Unit (HD) post major elective non-cardiac surgery at our hospital were recruited and followed through the perioperative period, with ECG monitoring for HRV derivation at three time points – pre-operative, immediately post-operative, and post-operative day 1. The primary composite outcome was defined as CVC within 7 days post-operatively. HRV parameters were computed from the ECGs and candidate predictors were identified using univariate logistic regression analysis. Significant HRV variables (at $p \leq 0.2$) were subsequently included as candidate predictors in a multivariable logistic regression analysis incorporating a stepwise selection algorithm. The predictive capability of the model was assessed using Receiver Operating Characteristic (ROC) analysis with area under the ROC curve (AUC) as a measure of overall predictive accuracy. Statistically optimal cut-off points were identified using Youden's J-statistic.

Results/Outcome(s): In our pilot study, a total of 89 patients were included in the analysis, with 8 experiencing the primary outcome of CVC. Using stepwise multivariable logistic regression, we found that three HRV parameters (sdHR, Total Power and DFA Alpha 1), when measured immediately post-operatively and composited with patient age, provide the basis for a predictive model with AUC of 0.980 (95% CI: 0.953, 1.00). The negative predictive value is 1.00 at a statistically optimal predicted probability cut-off point of 0.16.

Conclusions/Discussion: Our model holds potential for accelerating clinical decision-making and aiding in patient triaging post-operatively, using easily acquired HRV parameters derived from immediate post-operative ECG monitoring routinely done in the post-anaesthesia care unit (PACU). Patients assessed to have a low risk profile of post-operative CVC with our model may be suitable for management in the general ward after major elective surgery, avoiding unnecessary HD admissions and eventually reducing HD usage. As this is a pilot study, further verification is needed. A larger cohort study is currently underway to validate our preliminary results.





ROC Curve analysis summary

Predicted Probability	Sens	Spec	PPV	NPV	Youden Index
0.036	1.000	0.840	0.381	1.000	0.84
0.061	1.000	0.852	0.400	1.000	0.852
0.066	1.000	0.864	0.421	1.000	0.864
0.080	1.000	0.877	0.444	1.000	0.877
0.101	1.000	0.889	0.471	1.000	0.889
0.159	1.000	0.901	0.500	1.000	0.901
0.163	1.000	0.914	0.533	1.000	0.914
0.166	0.875	0.914	0.500	0.987	0.789
0.202	0.875	0.926	0.538	0.987	0.801
0.214	0.875	0.938	0.583	0.987	0.813
0.221	0.875	0.951	0.636	0.987	0.826
0.237	0.875	0.963	0.700	0.987	0.838

Odds Ratios (Wald 95% CI) and p-values

Variable	Odds ratio	Wald 95% CI		P-value
sdHR (ms)	0.091	0.009	0.916	**0.042**
Total power (ms^2)	0.990	0.982	0.998	**0.017**
DFA alpha1×100	0.655	0.452	0.948	**0.025**
Age (years)	1.154	0.962	1.383	0.122

Logistic regression linear predictor:
$y = 22.3667 - 2.3974 \times sdHR - 0.00972 \times TotalPower - 0.42376 \times DFAalpha1 \times 100 + 0.1432 \times Age$

Predicted Probability of post-operative cardiovascular complication: $p = e^y / (1 + e^y)$

Predictive model for total post-operative cardiovascular complications using Heart Rate Variability parameters measured immediately post-operatively

COST-BENEFIT OF EARLY ILEOSTOMY CLOSURE IN 3-STAGE ILEAL POUCH-ANAL ANASTOMOSIS (IPAA) FOR TREATMENT OF ULCERATIVE COLITIS: A PREDICTIVE MODEL AT A HIGH-VOLUME TERTIARY CENTER.

eP266

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Purpose/Background: The use of temporary diverting loop ileostomy (DLI) is standard practice in 3-stage ileal pouch-anal anastomosis (IPAA) for treatment of ulcerative colitis (UC). Closure of the ileostomy usually occurs 8-12 weeks after confirming anastomotic integrity. While DLI protects against septic complications of anastomotic leakage, it is associated with significant morbidity including obstructions and high output, often leading to hospital readmission. It has been shown that early ileostomy closure after rectal cancer resection is safe and results in fewer complications relative to delayed closure. We aimed to investigate whether early ileostomy closure could also be cost effective.

Methods/Interventions: Using a prospective database, all patients who underwent IPAA surgery between 2017-2021 were identified. Hospital cost data of inpatient stays from IPAA surgery, readmissions following IPAA, DLI closure, and readmissions following DLI closure were collected. A predictive model of early ileostomy closure was created from estimated readmission rates and length of stay (LOS) based on institutional data from our prospective IBD database. In our predictive model, patients would undergo IPAA, upon confirmation of anastomotic integrity by CT imaging on POD #7 and DLI reversal would be performed on POD #8-10 of the same admission with total LOS of 13-15 days. We compared total average (expected) cost per patient of the predictive model versus the current practice model.

Results/Outcome(s): We identified 113 UC patients who underwent all 3 stages of IPAA at our institution. The average cost of IPAA + DLI admission was $24043, IPAA readmission $20545, DLIR admission $19860, and DLIR readmission $12907. The rate of <30-day readmissions following IPAA procedure was 22.1% and >30-day readmissions was 13.2%, of which 80% and 86.7% were due to ileostomy complications respectively. The expected total cost per patient undergoing IPAA + DLI and DLIR under current practice model is $51,340 with 11-day LOS. The estimated total expected cost for early ileostomy closure model was calculated to be $50340 for 13-day LOS, $52538 for 14-day LOS, and $56736 for 15-day LOS.

Conclusions/Discussion: There is potential cost benefit to early ileostomy closure following IPAA when performed in selected patients. DLI reversal performed 8-12 weeks following IPAA averaged 11-day total hospitalization versus 13-15 days in our predicted early ileostomy closure model. However, based on high readmission rates from ostomy-related complications, we estimate lower expected hospital costs with our predictive model relative to current practice. An early ileostomy closure pathway may help reduce ostomy-related morbidity readmission, as well as overall costs if hospitalization limited to 14 days.

Table 1: Expected Cost of Current Practice versus Predictive Model

	Expected Cost of IPAA + DLIR ($)	Expected Cost of IPAA Readmission ($)	Expected Cost of DLIR Readmission ($)	**Total Expected Cost ($)**
Current Practice	43,903	7212	1,484	52,600
Predictive Model (LOS 13)	48,856	0	1,484	50,340
Predictive Model (LOS 14)	52,054	0	1,484	52,538
Predictive Model (LOS 15)	55,252	0	1,484	56,736

Estimated total expected average cost per patient for current practice model versus predictive model with 13, 14, and 15 day LOS

ROOM FOR IMPROVEMENT: EXTENDED VENOUS THROMBOPROPHYLAXIS AFTER ABDOMINAL AND PELVIC SURGERY FOR COLORECTAL AND ANAL CANCER. THE IMPACT OF GUIDELINE-RECOMMENDED THROMBOPROPHYLAXIS IN PATIENTS UNDERGOING ABDOMINAL SURGERY FOR COLORECTAL AND ANAL CANCER AT A TERTIARY REFERRAL CENTER.

eP267

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Purpose/Background: Background: Venous thromboembolism occurs in approximately 2% of patients undergoing abdominal and pelvic surgery for cancers of the colon, rectum, and anus, and is considered preventable.

The American Society of Colon and Rectal Surgeons recommends extended prophylaxis in high-risk patients, but this remains an opportunity nation-wide. **Objective:** This study aims to analyze the impact of venous thromboembolism risk-guided prophylaxis in patients undergoing elective abdominal and pelvic surgeries for colorectal and anal cancers from 2016 to 2021.

Methods/Interventions: Setting: The study was conducted at a multisite tertiary referral academic healthcare system. **Patients:** Patients who underwent elective abdominal or pelvic surgery for colon, rectal or anal cancer. **Interventions:** None **Main outcome measures:** Receipt of Caprini-guided venous thromboembolism prophylaxis, 90 days postoperative rate of deep vein thrombosis, pulmonary embolism, venous thromboembolism, and bleeding events.

Results/Outcome(s): Results: A total of 3,504 patients underwent elective operations, of which 2,224 (63%) received appropriate thromboprophylaxis in the inpatient setting. Following additional exclusions, including inpatient venous thromboembolism, a post-discharged cohort of 2,769 patients were analyzed, of which 2,721 (98%) received less than the ASCRS recommended post discharge thromboprophylaxis. In-hospital deep vein thrombosis, pulmonary embolism and venous thromboembolism rates in the suboptimal thromboprophylaxis group were 1.09%, 0.94%, and 1.48%, respectively, compared to 0.22%, 0.09%, and 0.31% in the appropriate thromboprophylaxis group. All were statistically significant with p-values < 0.001. At 90 days post-discharge, the deep vein thrombosis, pulmonary embolism, and venous thromboembolism rates were 0.60%, 0.40%, and 0.88%, respectively. Postoperative bleeding was not different between the two groups. Counterintuitively, postoperative bleeding prior to discharge was less common in patients who received appropriate thromboprophylaxis, 1.80% vs. 4.45%, p < 0.001. **Limitations:** Limitations to our study include its retrospective nature, use of aggregated electronic medical records, and single healthcare system experience.

Conclusions/Discussion: Conclusion: Most patients in our healthcare system undergoing abdominal or pelvic surgery for cancers of the colon, rectum, and anus were discharged with less than the optimal Caprini-guided VTE prophylaxis. Risk-guided prophylaxis was associated with decreased rates of venous thromboembolism at 90 days without an increase in bleeding events.

Table 1: VTEs by Appropriate Prophylaxis

Inpatient	Not appropriate (N=1280)	Appropriate (N=2224)	Total (N=3504)	P value
Postoperative DVT	14 (1.09%)	5 (0.22%)	19 (0.54%)	**<0.001**
Postoperative PE	12 (0.94%)	2 (0.09%)	14 (0.40%)	**<0.001**
Postoperative VTE before discharge	19 (1.48%)	7 (0.31%)	26 (0.74%)	**<0.001**
Inpatient mortality	4 (0.31%)	7 (0.31%)	11 (0.31%)	1.00
Inpatient PE & mortality	0 (0.00%)	1 (0.04%)	1 (0.03%)	1.00
Post-discharge	Not appropriate (N=2721)	Appropriate (N=48)	Total (N=2769)	P value
DVT in 30 days after discharge	6 (0.22%)	0 (0.00%)	6 (0.22%)	1.00
DVT in 90 days after discharge	17 (0.62%)	0 (0.00%)	17 (0.61%)	1.00
PE in 30 days after discharge	6 (0.22%)	0 (0.00%)	6 (0.22%)	1.00
PE in 90 days after discharge	11 (0.40%)	0 (0.00%)	11 (0.40%)	1.00
VTE in 30 days after discharge	10 (0.37%)	0 (0.00%)	10 (0.36%)	1.00
VTE in 90 days after discharge	24 (0.88%)	0 (0.00%)	24 (0.87%)	1.00
30-day mortality	9 (0.33%)	0 (0.00%)	9 (0.33%)	1.00
90-day mortality	37 (1.36%)	0 (0.00%)	37 (1.34%)	1.00
30-day PE & mortality	0 (0.00%)	0 (0.00%)	0 (0.00%)	
90-day PE & mortality	1 (0.04%)	0 (0.00%)	1 (0.04%)	1.00

VTEs by Appropriate Prophylaxis

THE USE OF ICG FOR SAFE ROBOTIC ASSISTED TRANS-ANAL SURGERY WITH TME.

eP268

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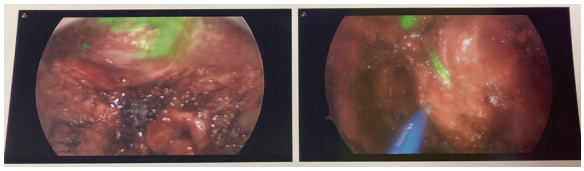
Purpose/Background: Introduction TAMIS was initially described more than a decade ago as a feasible readily available alternative to Endoscopic microsurgery EMS for local excision of rectal tumor that requires a less steep learning curve (1) it is fascinating to see the multiple application of TAMIS in different areas of colorectal surgery starting from the use for managing complications related to pelvic surgeries such as the complex rectourethral fistula (2) to achieve TME resection for low-lying rectal cancer(3,4). Urology injuries are not uncommon in colorectal surgery due to the proximity of the colon and rectum to the ureter, bladder, and urethra.

Methods/Interventions: Case Report Our patient is a 50 year old male with low-lying rectal ulcerating cancer that was treated with TAMIS assisted robotic low anterior resection with TME. The transanal dissection 2 cm distal to the tumor was carried out after purse string suture of the rectum distal to the tumor, then the TAMIS GelPOINT Path Transanal Access Platform was introduced via the anus and circumferential dissection of the rectum started posteriorly over the sacrum, then laterally while preserving the ureters, then anterior dissection of the rectum was carried out separating it from the prostate and membranous urethra after infusion of ICG that helped successfully visualize and preserve the structure. The surgery was completed via abdominal approach after complete mobilization of the rectum up to the peritoneal reflection, and the specimen was delivered via a pfannenstiel incision. Transanal colorectal anastomosis was performed using 29 mm EEA stapler.

Results/Outcome(s): Successfully utilizing ICG for safe dissection in low rectal tumor

Conclusions/Discussion: Discussion TAMIS is a relatively new approach for transanal surgery but carries an increased risk of urethral damage which is fairly unique to this approach. Urological injuries like urethral transection can result in a devastating outcome like a rectourethral fistula and require a complex treatment approach, especially if they are not recognized early and addressed. Preventive measures to avoid injuries to the urethra, bladder, and ureter or early recognition and addressing of the injury would save the patient from complications and postoperative morbidity. Intraoperative use of ICG is a helpful tool to avoid or at worst identify those injuries and address them intraoperatively. Conclusion We believe presenting this case will help shine the light on using ICG to help identify vital structures such as the urethra and prostate while operating on low rectal cancer to avoid injuries or identify them and address them early. TaTME has made it easier to operate on such lower tumors with better visualization of vital structures and flexibility than the abdominal approach, and we find adjuncts like ICG important in avoiding inadvertent injury.



SURGICAL MANAGEMENT OF RECTAL CANCER WITH SYNCHRONOUS TREATMENT OF PROSTATE CANCER.

eP269

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Purpose/Background: Synchronous rectal (RC) and prostate cancer (PC) is a rare entity with a complex management. Prostatectomy combined to total mesorectal excision (TME) implies two adjacent anastomoses. Moreover, curative radiotherapy (RT) for PC requires higher doses than long-course neoadjuvant chemoradiotherapy (CRT) for RC. We assessed the safety and efficiency of synchronous treatments for RC and PC.

Methods/Interventions: Single-center retrospective observational study of consecutive patients from 2007 to 2021 treated with neoadjuvant RT and TME for RC with synchronous treatment of PC. Palliative RC treatments were excluded.

Results/Outcome(s): Among the 14 patients, the median age was 72 years. Six (43%) had low and seven (50%) had mid RC. Half had node-positive disease and one had resectable liver metastases. Concomitant PC were low-, intermediate- and high-risk in three (21%), seven (50%) and four (29%) patients respectively and eight (57%) received hormonotherapy (HRT). Ten (71%) patients underwent pelvic CRT (45 or 50.4 Gy) followed by prostate brachytherapy (15 Gy), two (14%) received pelvic CRT (45 or 50.4 Gy) followed by external prostate RT boost (26 Gy) and one had rectal brachytherapy with HRT. One patient only received pelvic CRT (50.4 Gy) due to palliative treatment of his metastatic PC. TME was performed by low anterior resection in 12 (86%) patients, with stapled colorectal (67%) or handsewn delayed coloanal anastomosis (33%), of whom nine (75%) had a diverting ileostomy. Two (14%) had an abdominoperineal resection with terminal colostomy. Laparoscopic approach was used in 12 (86%) patients including two transanal TME, two (14%) had open surgery and one required conversion to laparotomy due to difficult ventilation. The median operative time, blood loss and hospital stay were of 238 minutes (IQR: 201-288), 125 mL (50-163) and 6 days (5-6.5) respectively. Thirty-day postoperative complications are reported in table 1. Five (36%) patients had Clavien-Dindo grade IIIb complications. Leaks occurred in 3/12 anastomoses (25%) and 7/9 (78%) diverting ileostomies were reversed. After a median follow-up of 37 months (18-70), local RC recurrence was reported in two (14%) patients and distant recurrence in four (29%), all of which were pulmonary metastases. Five patients died including two from their RC. There was no PC recurrence or death.

Conclusions/Discussion: Synchronous RC and PC is a rare challenging entity. We treated most patients with pelvic CRT followed by prostate brachytherapy and TME. This management avoided supplemental external RT to the rectum and a prostatectomy, therefore potentially reducing the risk of anastomotic leak and colourinary fistula. It demonstrated acceptable surgical outcomes and reanastomosis appeared safe. PC should not limit the curative intent of RC as all recurrences were from rectal origin.

Table 1: Thirty-day postoperative complications

	n = 14 (%)[a]
Clavien-Dindo complication classification[b]	
No complication	6 (43)
Grade I or II	3 (21)
Grade IIIa	0 (0)
Grade IIIb	5 (36)
Grade IVor V	0 (0)
Anastomotic leaks[c]	**n = 12**
≤30 days	1 (8)
>30 days	2 (17)
Detailed complications excluding leaks[d]	
Urinary retention	1 (7)
High output stoma	1 (7)
Ileus with nasogastric tube	2 (14)
Pelvic hematoma	1 (7)
Pelvic abscess	1 (7)
Hepatic flexure colonic perforation	1 (7)
Colostomy dehiscence	1 (7)
Internal hernia[e]	1 (7)
Rehospitalization[f]	4 (29)
Reoperation[f]	5 (36)

[a] Results are proportions (percentages)
[b] Clavien-Dindo classification: Grade IIIb, reoperation under general anesthesia
[c] Excluding patients with abdominoperineal resection
[d] Some patients had multiple complications
[e] This patient also had an anastomotic leak ≤30 days
[f] Within 30 days post-surgery

OBJECTIVE COMPARISON OF SHORT-TERM SURGICAL OUTCOMES FROM TOTAL MESORECTAL EXCISION BETWEEN RAPIDO PROTOCOL, STANDARD LONG COURSE RADIOTHERAPY AND UPFRONT SURGERY - A PROSPECTIVE COHORT STUDY IN A SINGLE ASIAN INSTITUTION.

eP270

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Purpose/Background: Aim: The advent of the RAPIDO protocol has increased the fidelity and popularity of total neoadjuvant therapy (TNT) in the management of locally advanced rectal cancers. However, technical difficulty of the total meso-rectal excision (TME) after TNT remains unknown. We evaluated the surgical outcomes of 3 groups of patients with rectal cancers – RAPIDO vs standard long course radiotherapy (LCRT) vs upfront surgery to objectively determine the effects of TNT on TME.

Methods/Interventions: Methods: A review of prospectively collected data was performed for patients who have rectal cancer and underwent low anterior resection from January 2016 to May 2022. Data on patient demographics, disease staging, peri-operative details and up to 2-year follow-up outcomes were analysed. The surgical and oncological outcomes were compared. Patients were followed up until 31 May 2022.

Results/Outcome(s): Results: A total of 57 patients were included in this review, 36 (63.2%) patients underwent upfront surgery, 9 (15.8%) underwent RAPIDO TNT protocol and 12 (21.1%) underwent LCRT. Forty-two patients (73.7%) were male and median age of patients was 65 years-old (interquartile range: 57-71). Patients who underwent upfront surgery had a statistically higher proportion of smokers (58.3%, p=0.04) and patients with diabetes (55.6%, p=0.03). There were significantly more patients with family history of colorectal cancer in the RAPIDO group (33.3%, p=0.04). Median follow up period for the cohort was 24 months (interquartile range: 14-35). There were no statistical differences in operative times (335 vs 360 vs 286, p=0.26), with a median duration of 305.5min (interquartile range: 250.5-364.25). Intra-operative blood loss showed no significant differences (250 vs 200 vs 150, p=0.31) with a median blood loss of 200ml (interquartile range:150-200). Subgroup analysis of the 2 types of neoadjuvant therapy, RAPIDO and LCRT, showed that both had similar peri-operative outcomes of operative time (335 vs 360, p=0.94) and blood loss (200 vs 150, p=0.71). There was a significantly higher proportion of patients achieving tumour regression grading of 3 who had undergone RAPIDO compared to LCRT (33% vs 0%, p=0.02) and no difference in distal (22.2% vs 18.2 %, p=0.82) or local (11.1% vs 18.2%, p=0.66) recurrence rates.

Conclusions/Discussion: Conclusion: Based on the objective short-term surgical outcomes, there does not appear to be any significant technical differences in RAPIDO and LCRT patients. However, there was a significantly improved tumour regression seen in the RAPIDO group which may impact the longer-term local and distant recurrence rates.

TOLERABILITY AND SAFETY OF ADJUVANT CHEMORADIOTHERAPY WITH S-1 AFTER LIMITED SURGERY FOR T1 OR T2 LOWER RECTAL CANCER: A MULTICENTER PHASE II TRIAL IN JAPAN.

eP271

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Purpose/Background: Chemo-radiotherapy (CRT) after complete local excision for pT1 with high-risk of lymph node metastasis and pT2 rectal cancer is recommended as an optional treatment to achieve both curability and maintenance of quality of life. The aim of this study was to evaluate the short-term safety of combining limited surgery with adjuvant CRT for T1 or T2 lower rectal cancer.

Methods/Interventions: This was a multicenter, single-arm, prospective phase II trial. Patients diagnosed with lower rectal or anal canal cancer (clinical T1 or T2 with a maximum diameter of 30 mm and N0 and M0) underwent transanal local excision or endoscopic resection. Patients received CRT with S-1 (tegafur/gimeracil/oteracil) after confirmation of well- or moderately differentiated adenocarcinoma, and negative margins, and/or depth of submucosal invasion ≥ 1000 μm or muscularis propria, and/or positive lymphovascular invasion, and/or tumor budding grade of 2/3. The primary endpoint was relapse-free survival. Secondary endpoints included overall and local relapse-free survival, safety, anal sphincter preservation rate, and anal function.

Results/Outcome(s): Pathological diagnosis was T1 in 36 patients and T2 in 16 patients. Serious complications after local excision were not reported. The CRT completion rate per protocol was 86.5% (45/52). Thirty-two patients developed 54 events of CRT-related adverse events, including only one patient with a grade 3 event (stomatitis). The most common CRT-related adverse event was diarrhea (n = 14). No patients showed deterioration of anal function at 3 years postoperatively.

Conclusions/Discussion: CRT with S-1 after limited surgery for T1 or T2 lower rectal cancer resulted in a low incidence of toxicities and maintenance of anal function.

SINGLE-STAPLED ANASTOMOSIS IS ASSOCIATED WITH LESS ANASTOMOTIC LEAKS THAN DOUBLE-STAPLED TECHNIQUE AFTER MINIMALLY INVASIVE TOTAL MESORECTAL EXCISION FOR MRI-DEFINED LOW RECTAL CANCER (LOREC).

ePXXX

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Purpose/Background: After total mesorectal excision (TME) distal rectal transection and anastomosis are critical for oncological and functional outcomes, including anastomotic leak (AL). A double pursestring single-stapled (SS) anastomosis avoids cross stapling, overcoming the potential drawbacks of transabdominal rectal transection and double-stapled (DS) anastomosis. This study aims to compare the AL rates in DS and SS anastomoses after minimally invasive TME (MI-TME) for MRI-defined low RC, according to the LOREC-definition.

Methods/Interventions: Adult patients (>18 years old) undergoing MI-TME for MRI-defined low RC with a stapled low anastomosis (below 5 centimetres from the anal verge) between January 2010 and January 2022 at a single institution were allocated in two groups according to the anastomosis: DS (abdominal stapled transection and DS anastomosis), SS (transanal rectal transection and double pursestring SS anastomosis). Exclusion criteria were non-restorative procedures or any type of manual anastomosis. The primary endpoint was the rate of clinical and radiological AL.

Results/Outcome(s): 185 SS and 458 DS were included. Baseline and tumor characteristics were comparable. AL rate was significantly lower in the SS group (6.48% vs 15.28%; p=0.002), with similar rates of grade and timing. Thirty- and ninety-days complication rate were higher in the DS group (p=0.0001; p=0.02), with comparable Clavien-Dindo grades. At multivariable analysis, DS anastomosis (p=0.01), smoking habit (p=0.03), and the presence of comorbidities (p= 0,01) resulted independently associated with AL.

Conclusions/Discussion: Transanal transection and double pursestring SS anastomosis was associated with a lower AL rate after MI-TME for low RC.

Cox proportional hazard regression analysis on Anastomotic Leak

	Univariate analysis		Multivariate analysis	
Variable	OR/MD (95%CI)	p-value	OR (95%CI)	p-value
Anastomosis type (SS vs DS)	2,39 (1,28-4,44)	0.002	2,27 (1,21-4,26)	0.011
Gender (M vs F)	0,63 (0,38-1,03)	0.043	1,29 (0,76-2,19)	0,341
Smoking		0.008	1,87 (1,06-3,29)	0.030
Age	2,61 (-0,15/5,39)	0,064		
BMI	-0,008 (-0,93/0,91)	0,986		
ASA	---	0,168		
Previous abdominal surgery	0,92 (0,57-1,46)	0,412		
Comorbidities	2,33 (1,31-4,13)	0.002	2,12 (1,18-3,81)	0.011
Neoadjuvant RT-CHT (yes vs no)	0,75 (0,47-1,13)	0,137		
Pathology stage	---	0,265		
Distance of the tumor from anal verge	0,25 (-0,26/0,76)	0,337		
OR time	10,74 (2,41/44,61)	0.029	1,002 (1,00-1,005)	0.048
Ileostomy	0,82 (0,47-1,43)	0,294		

ACCURACY OF CLINICAL EVALUATION AFTER NEOADJUVANT THERAPY IN LOCALLY ADVANCED RECTAL CANCER.

ePXXX

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Purpose/Background: The implementation of total neoadjuvant therapy (TNT) for the treatment of locally advanced rectal cancer has resulted in greater rates of pathologic complete response and has precipitated the possibility of non-operative management (NOM). The detection of persistent disease after neoadjuvant therapy (NAT) is critical to patient selection for NOM, however the accuracy of clinical reassessment is not well known. We aimed to define the accuracy of multimodal clinical evaluation of rectal cancer after NAT using comparison with histologic evidence of disease as a gold standard.

Methods/Interventions: Patients were identified through multidisciplinary tumor board conferences across multiple institutions within New York State's largest healthcare system from 2019 to 2022. Patients with locally advanced rectal cancer who underwent NAT and surgical resection were included. Clinical assessments of persistent disease after NAT (as evaluated by MRI, sigmoidoscopy, and DRE) were compared to surgical pathology specimens as the reference standard.

Results/Outcome(s): 67 patients who underwent NAT and TME were included for analyses. Mean age at diagnosis was 62.8 years, and 41 patients (61.2%) were male. 48 (71.6%) patients underwent TNT, 16 (23.9%) patients underwent neoadjuvant chemoradiotherapy alone and 2 (3.0%) patients underwent neoadjuvant chemotherapy alone. 3 patients (4.5%) presented with T2 disease, 58 (86.6%) patients presented with T3 disease, and 6 (9%) patients presented with T4 disease. 38 patients (56.7%) presented with nodal involvement.

Upon surgical resection, 74.6% of patients had histologic confirmation of persistent tumor of the primary lesion, and 20.9% of patients had positive lymph nodes on pathology. Sensitivity, specificity, negative predictive value (NPV), positive predictive value (PPV) and area under the curve (AUC) for each diagnostic modality are presented in Table 1. Combined evaluation with MRI and sigmoidoscopy provided the greatest sensitivity (97.3%) at detecting persistent tumor after NAT. DRE was the most specific (88.2%) mode of clinical reassessment. MRI was specific at detecting persistent lymph node involvement (92.9%) but was not sensitive (27.3%). When stratified by tumor location, lower rectal tumors were most accurately detected by DRE (AUC 0.822), and upper rectal tumors were most accurately detected by sigmoidoscopy (AUC 0.955).

Conclusions/Discussion: Clinical assessment after NAT is critical to patient selection for NOM. Multimodal evaluation increases sensitivity in detecting persistent disease but has a concerning false positive rate confounding decision making for patients who would otherwise be candidates for organ preservation. Further work to improve and standardize clinical assessment after NAT is necessary to optimize patient selection for non-operative management, and investigation into complementary diagnostic evaluation (i.e, ctDNA) is warranted.

Table 1. Accuracy of Multimodal Clinical Assessment of Persistent Rectal Cancer after NAT as compared to Surgical Pathology

	Sensitivity	Specificity	NPV	PPV	AUC
Sigmoidoscopy	91.3%	41.2%	53.8%	86.3%	0.638
DRE	50.0%	88.2%	31.3%	94.3%	0.699
MRI	90.0%	35.3%	54.5%	80.4%	0.622
MRI or Sigmoidoscopy	97.3%	25.0%	75.0%	80.0%	0.617
MRI or DRE	96.9%	26.7%	80.0%	68.1%	0.617
Sigmoidoscopy or DRE	90.0%	37.5%	50.0%	84.4%	0.602
MRI, DRE or Sigmoidoscopy	91.9%	37.5%	66.7%	91.9%	0.652
MRI evaluation of lymph nodes	27.3%	92.9%	83.0%	50%	0.6

VARIABILITY IN THE USE OF NEOADJUVANT THERAPY AND NONOPERATIVE MANAGEMENT OF STAGE II OR III RECTAL CANCER IN THE US.

ePXXX

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Purpose/Background: Total neoadjuvant therapy (TNT) and nonoperative management (NOM) of stage II or III rectal cancer are emerging treatment strategies. However, little is known about broad adoption of these treatments in the US. We hypothesized that, despite availability of practice guidelines and evidence-based treatment algorithms for rectal cancer treatment, there remains meaningful variation in neoadjuvant therapy and NOM strategy across the US.

Methods/Interventions: The US Rectal Cancer Research Group (RCRG) was established by invitation and through social media, comprising of surgeons throughout the US. A survey about the participant's use of neoadjuvant therapy and NOM in the treatment of stage II or III rectal cancer was distributed electronically. Results were analyzed with chi-squared test.

Results/Outcome(s): There were 44 centers in the RCRG, including 30 (68%) academic/university-based centers and 14 (32%) non-academic/university-based. Of the 44 centers, 16 (36%) were accredited by the National Accreditation Program for Rectal Cancer (NAPRC). A multidisciplinary team approach (MDT) was utilized in 40 (91%) centers. TNT was the general neoadjuvant strategy for all stage II/III rectal cancer in 30 (68%) centers. In 14 (32%), TNT was used selectively and dependent on factors including tumor stage, location, and nodal stage. Long-course radiotherapy (LCRT) was primary choice in 22 (50%) centers, 6 (14%) generally utilized short course radiotherapy (SCRT), while 16 (36%) centers selectively used SCRT or LCRT. Of the 44 centers, 37 (84%) included NOM as treatment option for patients with a clinical complete response (cCR) but only 12 (27%) centers described NOM as the "goal" of neoadjuvant therapy. Median time from completion of neoadjuvant therapy to initial restaging was 6 weeks but ranged from 2-12 weeks. Pelvic MRI, rectal endoscopy, and CT imaging were used to restage after neoadjuvant therapy in 89%, 68%, and 68% of centers, respectively. In cases of near cCR, 20 (45%) centers opted for re-evaluation at a median of 8 (4-12) weeks while 18 (41%) favored immediate surgery. For NAPRC vs non-NAPRC centers, 100% vs 85% utilized MDT for all (p=.38), 81% vs 85% offered NOM to all (p=.70), 75% vs 64% utilized TNT for all (p=.46), 50% and 50% vs 35% and 50% used SCRT or LCRT (p=.07). 50% vs 35% managed near cCR with surgery and 50% vs 42% with re-evaluation (p=.36).

Conclusions/Discussion: The majority of stage II or III rectal cancer patients in US are managed with a multidisciplinary approach. However, neoadjuvant strategy, radiotherapy regimen, goal and assessment of response to neoadjuvant therapy, management of near cCR, and use of NOM varied substantially by center and was not influenced by NAPRC accreditation. Our findings suggest a continued uncertainty about the optimal treatment strategy for stage II or III rectal cancer in the US despite the availability of practice guidelines and treatment algorithms.

COMPARISON OF EARLY AND LATE ANASTOMOTIC LEAKAGE AFTER LOW ANTERIOR RESECTION IN RECTAL CANCER PATIENTS.

eP275

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Purpose/Background: Anastomotic leakage(AL) after low anterior resection is the main concern for rectal cancer patients and colorectal surgeons. Early AL is a life-threatening complication and has been well investigated. Late AL affects to the quality of life for the patients in various ways, but few studies were reported about late AL. The aim of this study is comparison of early and late anastomotic leakage in clinical characteristics and management in rectal cancer patients who underwent low anterior resection.

Methods/Interventions: Between Mar 2001 and Dec 2021, Data of 855 patients who underwent low anterior resection for rectal cancer were retrieved from a retrospective database. Of these, 91 patients who had anastomotic leakage were classified into early AL group (n = 44) and late AL group (n = 47). Two groups were divided based on 30 days after surgery. They were compared with respect to clinical and operative outcomes.

Results/Outcome(s): The overall rate of early AL and late AL were 5.1% and 5.5% (among 855 patients). The average time to diagnosis of AL is 9.5 days in early AL and 173.2 days in late AL. The patients who had high ASA score (grade III and IV) (p = 0.034) and previous medical history (p = 0.005) tend to experience early AL than late AL. The patients who had neoadjuvant chemoradiation therapy or postoperative radiation therapy can be associated with late AL than early AL (p = 0.014). In early AL, intervention rate was significantly higher than late AL (p < 0.005). 45% of the patient (n = 20) with early AL need ostomy for treatment but only 6% of the patient (n = 3) in late AL.

Conclusions/Discussion: Based on the present data, early and late AL have different clinical characteristics and management. The physicians should consider the risks for the AL and give attention that the patients who underwent low anterior resection can suffer the late anastomotic leakage in outpatient care.

Table 1. Comparison of clinical manifestation for the patients between early anastomotic leakage and late anastomotic leakage

	Early AL (n=44)	Late AL (n=47)	*P*
Age (yrs)	59.09	59.66	0.802
Sex			0.851
male	32 (72.7%)	35 (74.5%)	
female	12 (27.3%)	12 (25.5%)	
ASA			0.034
I II	36 (81.8%)	45 (95.7%)	
III IV	8 (18.8%)	2 (4.3%)	
BMI (kg/m^2)	23.93	23.6	0.541
Medical Hx			0.005
no	16 (36.4%)	31 (66.0%)	
yes	28 (63.6%)	16 (34.0%)	
Alcohol intake	9 (20.5%)	13 (27.7%)	0.422
Smoking history	11 (25.0%)	15 (31.9%)	0.466
Radiation therapy	14 (31.8%)	27 (57.4%)	0.014
Location			0.442
Upper (>10cm)	12 (27.3%)	11 (23.4%)	
Mid (≤10cm)	27 (61.4%)	26 (55.3%)	
Lower (≤ 5cm)	5 (11.4%)	10 (21.3%)	
Anemia	16 (36.4%)	17 (36.2%)	
Albumin level	4.17	4.2	0.617

COMPARISON OF SURGEON AND PATHOLOGIST TOTAL MESORECTAL EXCISION GRADE AFTER RECTAL CANCER RESECTION: A SINGLE INSTITUTION ANALYSIS.

eP276

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Purpose/Background: Total mesorectal excision (TME) is the standard of care operation for rectal cancer. TME grading is considered a rectal cancer management quality metric. We participated in a MSQC Colorectal Cancer Project (CRCP) effort designed to increase TME grading amongst surgeons and pathologists. Surgeons were educated in intraoperative TME grading documented in a standardized synoptic operative report. The purpose of this study is to assess the impact of this quality initiative and the level of agreement between surgeons and pathologists.

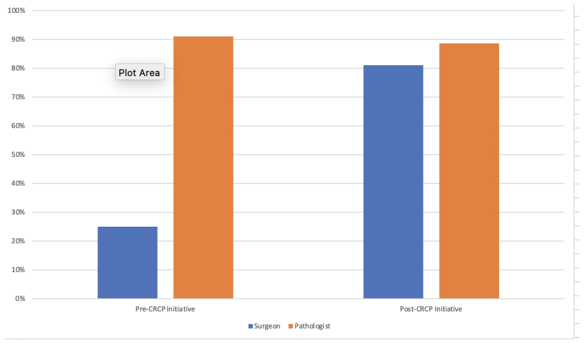
Methods/Interventions: This is a single institution retrospective analysis of a prospectively maintained institutional colorectal surgery database of all patients who underwent TME for rectal cancer. Surgeon and pathologist TME grades were compared in the time period prior to the MSQC CRCP initiative (1/1/2014 to 7/31/2018) with cases after implementation of the initiative (8/1/18 to 12/31/2021). TME grade was defined as complete, nearly complete, and incomplete. The primary outcome was percentage of surgeon and pathologist TME-graded cases for both time periods. Chi-square test was used to determine if rates changed significantly. Cohen's weighted kappa was used to determine strength of agreement between the grades of surgeons and pathologists.

Results/Outcome(s): The study population included 165 rectal cancer cases – 112 operations prior to, and 53 operations following implementation of the MSQC

CRCP initiative. There were few significant differences in baseline demographics and comorbidities between groups. There was a significant increase in surgeon TME reporting in the post-initiative period (25.0% pre- vs 81.1% post-, p<0.001). Pathologist TME grade reporting was high in both time periods and there was no significant change (91.1% pre- vs 88.7% post-, p=0.84). The level of surgeon and pathologist agreement was 59.3% in the pre-initiative period (kappa "minimal" = 0.356) and 65.0% in the post-initiative period (kappa "moderate" = 0.605) and there was no significant difference between periods (p=0.827). There was no significant association between clinical T stage and surgeon or pathologist TME grade in either study period.

Conclusions/Discussion: This study shows that the rate of surgeon TME grading improved with education and synoptic operative reporting. Pathologist TME grading at our institution has always been high level. There is only moderate agreement in TME grade between surgeon and pathologist, a phenomenon that will require further study. Organized regional rectal cancer initiatives are effective at implementing rectal cancer management quality improvement.

Figure 1. Surgeon and Pathologist TME Grading



Variable	Pre CRCP	Post CRCP	P Value
TME Recorded - Surgeon	28 (25%)	43 (81.13%)	< 0.001
TME Recorded - Pathologist	102 (91.07%)	47 (88.68%)	0.839

TEGAFUR–URACIL/LEUCOVORIN PLUS OXALIPLATIN (TEGAFOX) AS CONSOLIDATION REGIMEN AFTER SHORT-COURSE RADIOTHERAPY IS EFFECTIVE FOR LOCALLY ADVANCED RECTAL CANCER.

ePP277

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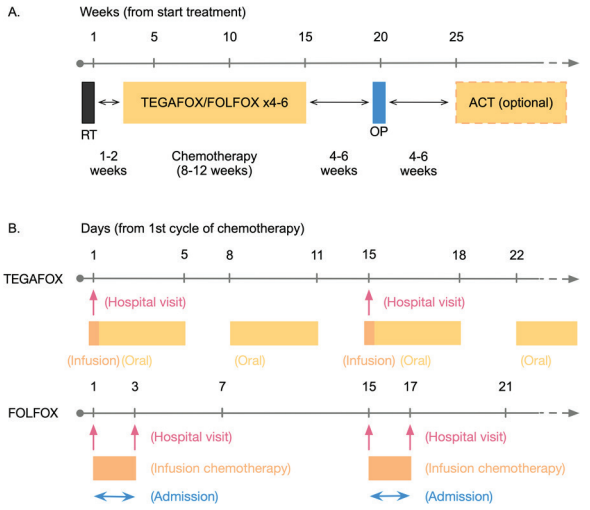
Purpose/Background: This study aimed to explore the safety and efficacy of neoadjuvant SCRT and tegafur–uracil/leucovorin plus oxaliplatin (TEGAFOX) for LARC in comparison to those of the modified 5-fluorouracil, leucovorin, and oxaliplatin (mFOLFOX-6) regimen.

Methods/Interventions: We retrospectively evaluated 15 and 22 patients with LARC who underwent SCRT, followed by consolidation chemotherapy with TEGAFOX and mFOLFOX-6 before surgery, respectively, between January 2015 and December 2019. The primary endpoint was the tumor response rate. The secondary endpoints were compliance, toxicity, complications, overall survival (OS), and disease-free survival (DFS).

Results/Outcome(s): The dose reduction rate was lower in the TEGAFOX group (0 vs. 9.1% (n = 2)). No grade III-IV toxicities occurred in the TEGAFOX group. Two and four patients in the TEGAFOX and mFOLFOX-6 groups, respectively, achieved clinical complete responses. The pathologic complete response rate was lower in the TEGAFOX group (7.7% vs. 17.6%). Overall, 11 (73.3%) and 17 (81.0%) patients had a neoadjuvant rectal (NAR) score of <16 in the TEGAFOX and mFOLFOX-6 groups, respectively. All patients in this study received sphincter-preservation surgery. One patient in each group developed Clavien–Dindo grade III complications. There were no significant between-group differences in the 3-year OS (81.8% vs. 84.8%, p = 0.884) and 3-year DFS (72% vs. 71.6%, p = 0.824) rates.

Conclusions/Discussion: TEGAFOX, as consolidation chemotherapy after SCRT, achieves good tumor downstaging and patient compliance in LARC. The toxicity, complications, and surgical outcomes are similar to those of mFOLFOX-6. Thus, TEGAFOX can be considered a chemotherapy option for rectal cancer treatment



(**A**) The timeline of each individual therapeutic intervention in this study; (**B**) The detailed timeline of the 1st and 2nd cycle of consolidation chemotherapy. RT: radiotherapy; OP: operation; ACT: adjuvant chemotherapy.

TRANSANAL TOTAL MESORECTAL EXCISION AND ANAL FUNCTION: A PROSPECTIVE STUDY.

eP278

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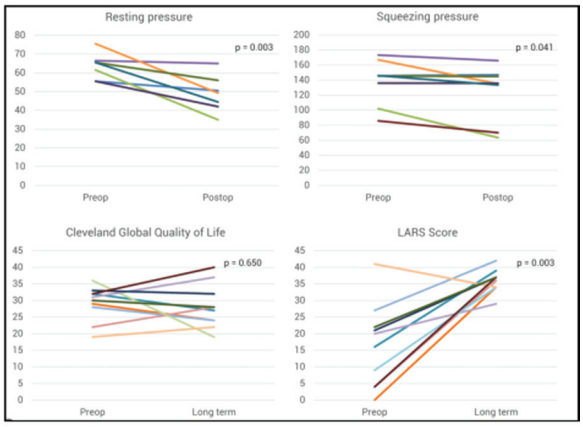
Purpose/Background: Transanal Total Mesorectal Excision (TaTME) has been popularized as a surgical approach for the treatment of mid to low rectal cancers as it facilitates dissection in the pelvis, especially in males and obese patients. How this approach affects patient quality of life, sphincter function, and continence remains poorly understood. The aim of this prospective study was to evaluate sphincter function, quality of life, and continence before and after TaTME. We hypothesized TaTME would result in decreased anal sphincter function manifesting as a deterioration in postoperative fecal continence and resultant quality of life.

Methods/Interventions: We performed a prospective clinical trial of rectal cancer patients who underwent resection via TaTME at our Institution (October 2017 – April 2020). Patients underwent anorectal physiology studies before and after surgery. Additionally, patients completed a set of validated questionnaires (Fecal Incontinence Severity Index (FISI), Cleveland Clinic Florida Fecal Incontinence Score (CCF-FI), Cleveland Clinic Global Quality of Life Score (CGQL), Low Anterior Resection Syndrome Score (LARS)) preoperatively, postoperatively, and at long-term follow-up.

Results/Outcome(s): Eleven patients were included in this study (45% female, median age 54 years, median BMI 32.9 kg/m^2). Tumor T-stage at the time of diagnosis was T2 in 6 (55%), T3 in 4 (36%) and T4 in 1 (9%) with a median distance of 6 [4.5 – 6] cm from the anal verge. Nearly all (91%) had some degree of nodal involvement. All patients underwent neoadjuvant therapy. The median operative time was 290 [264 – 429] minutes. Coloanal anastomosis was stapled in 6 (55%) and handsewn in 5 (45%) with all (100%) patients having a diverting ileostomy created. An R0 resection was achieved in all patients with the mesorectal specimen quality grade of "complete" in 8 (73%) and "near complete" in 3 (27%). The median interval to ileostomy closure was 155 [99 – 201] days. Postoperatively, both anal sphincter resting pressure (63.5 vs. 47mmHg, p = 0.003) and squeeze pressure (146 vs 135 mmHg, p = 0.041) decreased. Prior to surgery, patients reported a median CCF-FI score of 2, which increased to 17.5 (p=0.008) postoperatively and 13 (p=0.012) at long-term follow-up. Patients reported a median LARS score of 20 preoperatively, which increased to 41 (p=0.090) postoperatively and was 36 (p=0.003) at long-term follow up. CGQL scores did not significantly change following surgery or at long-term follow-up. Median time to long-term follow-up was 42 [42 – 45] months.

Conclusions/Discussion: Transanal Total Mesorectal Excision (TaTME) leads to decreased anal sphincter function, as well as worsened long-term incontinence and LARS scores. Postoperative quality of life does not seem to be affected.



Picture 1: Top 2 panels depict the results of the anorectal physiology studies showing the change in anal sphincter function. Bottom 2 panels depict the changes in patient reported quality of life and LARS scores from preoperative evaluation to long term follow-up.

COMPUTERIZED PATHOMIC DESCRIPTORS OF RESIDUAL TUMOR ON DIGITIZED PATHOLOGY SPECIMENS FOR EVALUATION OF TUMOR STAGE AND REGRESSION GRADE AFTER NEOADJUVANT CHEMORADIATION IN RECTAL CANCERS.

eP279

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Purpose/Background: Histopathology evaluation of excised specimens from rectal cancer patients is used to determine tumor (T) stage and regression grade (TRG) after neoadjuvant treatment (nCRT). To overcome limitations in visual inspection of pathology slides, we hypothesized that automated tissue quantification via pathomics of digitized pathology specimens could capture subtle image-based patterns associated with tumor response. This proof-of-concept study evaluated pathomics features from residual tumor regions on pathology specimens for machine learning classification of rectal cancer patients based on T-stage and TRG after nCRT.

Methods/Interventions: This IRB-approved, retrospective, single-center study included rectal cancer patients who had undergone nCRT followed by total mesorectal excision, for whom pathologic T-stage and TRG were available via chart review. Excised rectal specimens underwent formaldehyde fixation, whole-mount sectioning, hematoxylin & eosin staining, and scanning at 40x magnification to yield multiple whole-slide images (WSIs) per patient. After quality control to retain usable regions

from artifact-free WSIs, non-overlapping 2048x2048 tiles were extracted which underwent stain normalization to ensure homogeneous tissue appearance. Tiles comprising over 60% tumor (based on pathologist annotations) had co-occurrence pathomics features extracted to quantify subtle texture patterns. Multiple runs of cross-validation (for robustness), tile oversampling (for class balancing), and statistical testing were used to reliably identify pathomic features significantly associated with non-regression after nCRT (defined as ypT3). Top-ranked features were evaluated via (i) the average cross-validated area under the receiver operating characteristic curve (AUC) of a quadratic machine classifier distinguishing between ypT1-2 vs ypT3, (ii) statistical testing between ypTRG1 vs ypTRG2.

Results/Outcome(s): From the 12 patients included in this study, 80 WSIs were split into 1349870 tiles from which 3926 tiles were used for pathomic analysis (601 tiles from yp1-2, 3325 tiles from ypT3). After oversampling to 6931 tiles, 5 top-ranked pathomic co-occurrence descriptors of entropy, variance, and correlation were identified which yielded a tile-level AUC of 0.67± 0.03 for distinguishing ypT1-2 vs ypT3. All 5 top-ranked pathomic features were also significantly different between TRG groups.

Conclusions/Discussion: Pathomic features from residual tumor on WSIs were found to exhibit textural differences based on T-stage and regression grade after nCRT, with increased entropy and variance exhibited by patients with minimal response to nCRT. This first attempt at pathomics analysis of post-surgical digitized whole-slide images for characterizing response to nCRT in rectal cancers is now being validated in a larger patient cohort.

Pathomic Features	ypT1-2 vs ypT3	TRG1 vs TRG2
Sum Entropy	8.12e-126	8.28e-169
Information Measure of Correlation I	1.22e-69	4.64e-186
Correlation	1.40e-61	1.52e-153
Sum Variance	2.06e-78	2.62e-26
Entropy	3.55e-126	2.46e-241

TABLE: Top-ranked pathomics features from residual tumor on WSIs, showing significant differences between T-stage and TRG groupings in rectal cancer patients after chemoradiation.

Top-ranked pathomics features from residual tumor on WSIs, showing significant differences between T-stage and TRG groupings in rectal cancer patients after chemoradiation.

FUNCTIONAL OUTCOMES AND QUALITY OF LIFE FOLLOWING RECTAL CANCER TREATMENT: WATCH-AND-WAIT VERSUS TOTAL MESORECTAL EXCISION.

eP280

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Purpose/Background: Watch-and-wait (WW) is a non-operative approach to treating locally advanced rectal cancer that can be offered to the 15-40% of patients that achieve a complete response to neoadjuvant chemoradiation therapy. The alternative treatment, total mesorectal excision (TME), resects the radiated rectum but may affect patients' quality of life through stoma creation, sexual dysfunction, abnormal urinary activity, and altered bowel habits. Thus, this study aims to evaluate patient-reported outcomes, including bowel function and quality of life, between patients that underwent WW compared to those with TME.

Methods/Interventions: A retrospective, single-institution study of patients treated with neoadjuvant chemoradiation therapy for locally advanced rectal cancer between 6/1/2014 and 6/1/2018 was performed. Clinical data was collected from the electronic medical record. Functional outcomes were assessed using patient-completed surveys including the Memorial Sloan Kettering Cancer Center Bowel Function Instrument to evaluate bowel function and the EQ-5D-5L with Visual Analogue Score to evaluate quality of life. Questionnaire scores were acquired at baseline (time of final neoadjuvant treatment), six-month, and three-year timepoints. The cohorts were compared using Kruska-Wallis and Fisher's exact tests for continuous and categorical variables, respectively.

Results/Outcome(s): Amongst the 100 patients treated for locally advanced rectal cancer, 17 (17%) patients were deemed to have a complete clinical response and were treated WW and 83 (83%) were treated with TME. The cohort's demographics were similar including sex, race, BMI, and clinical TNM stage. The WW group was significantly older (67 vs 54.5, $p<0.01$) and more frequently underwent total neoadjuvant therapy (65% vs 15%, $p<0.01$). Compared to TME cohort, patients who underwent WW had similar baseline bowel function scores (67.64 vs 69.83, $p=0.62$), but superior scores at six months (69.94 vs 58.93, $p<0.01$) and three years (72.09 vs 59.91, $p=0.01$). Quality of life did not significantly differ between WW and TME cohorts at baseline (81.10 vs 70.52, $p=0.12$), 3 months (82.93 vs 79.62, $p=0.55$), or 6 months (87.26 vs 79.12, $p=0.28$).

Conclusions/Discussion: A watch-and-wait approach was associated with superior bowel function scores compared to total mesorectal excision at six months and three-years post-treatment without any differences

in health-related quality of life between the groups. A non-operative management strategy may provide superior bowel function to appropriate candidates.

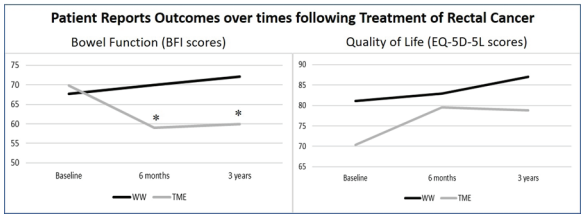

Figure. BFI and EQ-5D-5L index quality of life scores over time. BFI=Memorial Sloan Kettering Bowel Function Instrument; WW=watch-and-wait; TME=total mesorectal excision.

DOES PREVIOUS COLORECTAL SURGERY AFFECT EARLY SURGICAL OUTCOMES FOLLOWING TOTAL PELVIC EXENTERATIONS?

eP281

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Purpose/Background: Total pelvic exenteration (TPE) is performed for locally advanced rectal cancers (LARC) or recurrent rectal cancer (RRC). Patients often are referred after primary resection following recurrence, or after emergency defunctioning. The multivisceral en-bloc organ resection can result in complicated recoveries with significant morbidity and mortality rates. The aim of the study is to evaluate early surgical outcomes in patients with previous colorectal surgery against those without.

Methods/Interventions: A retrospective study was performed analysing patients who underwent TPE 2019-2022. Patients' characteristics including history of previous abdominal surgery, peri-operative data and complications requiring prolonged follow up were collected. Post-operative information regarding length of stays, blood loss, post-operative complications, intensive care admissions and re-intervention rates, were collected within 90 days post-procedure and 12 month mortality reviewed. Complications were graded based on the Clavien–Dindo (CD) classification system.

Results/Outcome(s): In total, 80 patients (72% primary LARC, 28% RRC) were included. Median age 63, (SD: 9.57), 87% male and 13% female with 57% had undergone previous colorectal surgery (13% anterior resection, 87% stoma formation). Severe complications (CD3a or above) were more common in patients who had previous colorectal surgery (50% vs 35%, p= 0.090), particularly post-operative collections (56% vs 62%, p= 0.327), resulting in higher re-intervention rates under either local or general anaesthetic (32% vs 68%, p= 0.008). Findings included no significant difference in intra-operative blood loss between patients who'd had previous surgery and those who hadn't (mean: 1986mls vs 1635mls, p= 0.053) respectively, median length of stay was found to be equal (21 days). 12-month mortality rates were also found to be similar between the cohorts, (3%; 4% respectively). Of note, data analysis showed no statistical significance in patient average CD score (p=0.497). Complications requiring prolonged follow up were congruent across the patient groups (37% in those with surgical history, in 41% without surgical history, p=0.350).

Conclusions/Discussion: TPE carries a high risk of post-operative complications. Patients with previous colorectal surgery had higher rates of complications resulting in re-intervention, particularly IR drainage of collections. However, this does not impact on overall length of stay. Although, on average the overall trend of CD score and mortality was similar throughout both cohorts, a higher proportion of patients experienced more severe complications such as aspiration, re-intervention and admission to intensive care. Further analysis is required to establish correlation between pre-operative patients' characteristics and post-operative morbidity and mortality.

REVIEW OF OUTCOMES FROM ROBOTIC VENTRAL MESH RECTOPEXY FOR EXTERNAL RECTAL PROLAPSE USING BIOLOGIC VERSUS SYNTHETIC MESH.

eP282

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Purpose/Background: Minimally invasive robotic surgery for rectal prolapse provides enhanced visualization within the pelvis with finer dexterity and precision. Uniform consensus on the type of mesh to use remains in debate and data comparing synthetic (polypropylene or polyester) and biologic mesh for robotic ventral mesh rectopexy (RVMR) is limited. The purpose of this study was to evaluate surgical outcomes, recurrences, and post-operative complications from RVMR.

Methods/Interventions: A retrospective review of a prospectively maintained database of all patients from a single academic medical center with complete rectal prolapse treated with RVMR using biologic or synthetic mesh between December 2016 and September 2021 was performed. Age, BMI, type of mesh, and concomitant gynecologic procedure at time of repair were collected. Surgical outcomes, post-operative complications, and rates of recurrence were analyzed. Male patients were excluded to minimize confounding effect.

Results/Outcome(s): 42 female study participants were included for analysis. There was no significant difference between mean age (68.6 years and 68.9 years; p=0.96) or BMI (26.4 kg/m^2 and 26.7 kg/m^2; p=0.90) between cohorts. 15 patients underwent concomitant gynecologic

surgery of which 26.7% received biomesh and 58.3% received synthetic mesh (p=0.05). Recurrence occurred in 20% (6/30) with biomesh repair and 16.7% (2/12) with synthetic mesh repair (p=0.80). There were no mesh related complications. Higher odds of recurrence were associated with biomesh usage (OR 1.2; (95% CI=0.21-7.30); p=0.80), concomitant gynecologic procedure (OR 1.1; (95% CI=0.22-5.40); p=0.91), older age (OR 1.01; (95% CI=0.96-1.06); p=0.78) and higher BMI (OR 1.05; (95% CI=0.93-1.19); p=0.42). Patients who underwent RVMR using biomesh had 32% elevated odds of reoccurrence compared to those who received RVMR with synthetic mesh (OR=1.32; (95% CI=0.21-8.45); p=0.77).

Conclusions/Discussion: RVMR effectively treats complete rectal prolapse with a low complication rate and acceptable recurrence rate. There was a tendency toward increased risk of recurrence using biologic mesh repair. One third of patients in this series received concomitant gynecologic surgery at time of repair which necessitates caution when comparing against data from multicompartmental prolapse or internal prolapse. Prospective randomized trials on homogeneous patient groups are needed to draw definitive conclusions on mesh type usage.

Table 2: Descriptive statistics and logistic regression analysis of rectal prolapse recurrence.

	Biomesh, n (%)	Synthetic Mesh, n (%)	p-value
	30 (71.4)	12 (28.6)	
Recurrence			0.80
No	24 (80.0)	10 (83.3)	
Yes	6 (20.0)	2 (16.7)	
Gynecologic procedure			0.05
No	22 (73.3)	5 (41.7)	
Yes	8 (26.7)	7 (58.3)	

	Univariate		Multivariate	
	OR (95%CI)	p-value	OR (95%CI)	p-value
Type of mesh				
Biomesh vs Synthetic	1.25 (0.21-7.28)	0.80	1.32 (0.21-8.45)	0.77
Gynecologic procedure				
Yes vs No	1.10 (0.22-5.42)	0.91	1.09 (0.20-5.90)	0.92
Age	1.01 (0.96-1.06)	0.78	1.02 (0.96-1.08)	0.51
BMI	1.05 (0.93-1.18)	0.42	1.07 (0.93-1.24)	0.32

COMBINED SACROCOLPOPEXY AND SUTURE RECTOPEXY FOR PELVIC ORGAN PROLAPSE ASSOCIATED WITH FULL-THICKNESS RECTAL PROLAPSE.

ePXXX

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Purpose/Background: Pelvic organ prolapse (POP) is a dynamic disorder that results in multicompartment dysfunction of the anterior, middle, and posterior compartments. The optimal surgical approach in patients with full-thickness rectal prolapse and concomitant prolapse of the anterior and middle compartments remain unknown. The aim of this study was to assess bowel and urinary function after combined sacrocolpopexy with sutured rectopexy in patients with rectal prolapse and prolapse of the anterior and middle compartments.

Methods/Interventions: Retrospective review of patients undergoing combined sacrocolpopexy and sutured rectopexy for full-thickness rectal prolapse and prolapse of the anterior and middle compartments at the University of Colorado from February 2019 to August 2021. All patients were evaluated by a urogynecologist and a colorectal surgeon. Preoperatively, all patients were administered the validated colorectal-anal distress inventory-8 (CRADI-8) questionnaire to assess bowel symptoms. Post-operative symptoms were evaluated based on patients' subjective complaints reported in clinic notes. Descriptive statistics were reported.

Results/Outcome(s): Among 20 female patients, median age was 63 years (56-68 IQR), BMI was 27.9 mg/kg^2 (25.5-31.0 IQR), 45% (n=9) had a prior hysterectomy, and 25% (n=5) underwent prior pelvic floor repair. POP-Q score was stage 2 in 9 (45%) patients, stage 3 in 9 (45%), and stage 4 in 2 (10%). Preoperatively, constipation was present in 60% (n=12) of patients, fecal incontinence in 50% (n=10) of patients, and urinary incontinence in 75% (n=15) of patients. All patients underwent an open operation with a median operating time of 207 minutes (176-270 IQR) and blood loss was 125 mL (88-175). A posterior repair and perineorrhaphy were performed in 50% (n=10) and 70% (n=14) of patients, respectively. Median length of stay was 1 day (range 0-3). At a median follow up of 6 months, 50% (n=6) of patients with preoperative constipation and 80% (n=8) of patients with preoperative fecal incontinence had resolution of symptoms. Only 1 patient developed new onset constipation after surgery and no patient developed new fecal incontinence. Among the 15 patients with preoperative urinary incontinence, 60% (n=9) of patients had resolution of symptoms following surgical repair. No patient developed recurrent rectal prolapse.

Conclusions/Discussion: In this retrospective review of females with rectal prolapse and concomitant prolapse of the anterior and middle compartments, a combined surgical approach with sacrocolpopexy and sutured rectopexy was associated with a significant improvement in bowel and urinary dysfunction in the majority of the patients. While no patient in the present study developed recurrent prolapse, larger prospective studies with longer follow up are needed to validate these findings.

COMPARISON OF ROBOTIC VS. OPEN SUTURE RECTOPEXY AND SACROCOLPOPEXY IN WOMEN WITH PELVIC ORGAN PROLAPSE.

eP284

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Purpose/Background: Pelvic organ prolapse (POP) is common among women and simultaneous sacrocolpopexy and suture rectopexy may restore normal anatomy and improve symptoms, but the optimal surgical technique remains unknown. The aim of this study was to compare POP recurrence rates and functional outcomes between robotic and open sacrocolporectopexy.

Methods/Interventions: We performed a retrospective review of patients who underwent either robotic or open combined sacrocolpopexy and suture rectopexy for multicompartment POP within an academic health system (January 2019 to September 2021). All patients had a minimum of 12 months of follow up postoperatively. Preoperative, intraoperative, and postoperative outcomes were reviewed. Wilcoxon rank-sum tests and Chi-squared tests were used to compare groups.

Results/Outcome(s): Among 293 eligible female patients, 237 (81%) underwent open sacrocolporectopexy and 56 (19%) underwent a robotic operation. The robotic group was younger (58 vs. 63 years), less likely to have stage III or higher POP (32% vs. 57%), and more likely to identify as Hispanic (14% vs. 3%)(all $p<0.05$). The two groups were similar in BMI, preoperative risk classification, number of vaginal deliveries, prior pelvic floor repair, and presence of rectal prolapse, enterocele, rectal intussusception, or rectocele (all $p>0.05$). Preoperatively, the incidence of constipation (59% vs 61%; $p=0.9$) and fecal incontinence (FI) (29% vs 35%; $p=0.4$) were similar in the robotic and open groups, respectively. Conversion to an open operation was required in 4 (7%) patients. Posterior colporrhaphy was performed at a similar rate in the robotic and open groups (93% vs. 86%; $p=0.3$), but perineorrhaphy was less often performed in the robotic group (38% vs 88%; $p<0.01$). Operative time was similar in the open and robotic groups (243 vs. 237 minutes, $p=0.7$), but blood loss (200 vs. 50 mL), length of stay (1 vs. 0 days), and any postoperative complication within 30 days of surgery (21% vs. 4%) were significantly higher in the open group compared to the robotic group (all $p<0.05$). Patients in the open group were significantly more likely to get readmitted after surgery (8% vs. 0%, $p=0.03$), but there was no difference in reoperation rates (1% vs. 0%, $p=0.1$). POP recurrence rates were comparable in the open and robotic groups (3% vs. 2%, $p=0.74$). Similarly, there was no difference in new postoperative constipation (19% vs. 9%), persistent constipation (28% vs. 27%), new FI (1% vs. 3%), or persistent FI (7% vs. 6%) in the open vs. robotic groups, respectively (all $p>0.05$).

Conclusions/Discussion: In this retrospective review of outcomes after combined sacrocolpopexy and suture rectopexy for the treatment of multicompartment POP, a robotic approach improved perioperative recovery and provided a durable POP repair with equivalent functional bowel outcomes compared to an open approach in appropriately selected patients.

Table 1: Postoperative outcomes after robotic versus open combined sacrocolpopexy and suture rectopexy

	Open Operation (N=237)	Robotic Operation (N=56)	Significance (P value)
Recurrence of POP	6 (3%)	1 (2%)	1.0
New Constipation Post-op	18/93 (19%)	2/23 (9%)	0.4
Persistent Constipation Post-op	41/144 (28%)	9/33 (27%)	1.0
New FI Post-op	1/155 (1%)	1/40 (3%)	0.4
Persistent FI Post-op	6/82 (7%)	1/16 (6%)	1.0
Median Operation Length (IQR)	243 minutes (205-292 minutes)	237 minutes (218-265 minutes)	0.7
Median Estimated Blood Loss (IQR)	200 ml (100-300 ml)	50 ml (50-100 ml)	**<0.01**
Median Length of Stay (IQR)	1 day (1-2 days)	0 days (0-1 days)	**<0.01**
Clavien-Dindo Class I or Higher Complication within 30 days	49 (21%)	2 (4%)	**<0.01**
Superficial Surgical Site Infection	6 (3%)	1 (2%)	
Abscess	4 (2%)	0 (0%)	
Ileus	8 (3%)	0 (0%)	
Major Adverse Cardiac Event	2 (1%)	0 (0%)	
Hemorrhage Requiring Intervention	13 (5%)	1 (2%)	
Urinary Retention	19 (8%)	0 (0%)	
Other	4 (2%)	0 (0%)	
ER visits within 30 days	40 (17%)	0 (0%)	**<0.01**
Readmissions within 30 day	18 (8%)	0 (0%)	**0.03**
Reoperations within 30 days	3 (1%)	0 (0%)	0.1

Table 1: Postoperative outcomes after robotic versus open combined sacrocolpopexy and suture rectopexy

TRANSABDOMINAL ROBOTIC APPROACH TO PRIMARY LEVATOR HERNIOPLASTY.

eP286

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Purpose/Background: Perineal hernias are defined as a protrusion of intra- or extraperitoneal organs through the pelvic diaphragm. Secondary perineal hernias are the most common and occur after major pelvic operations. Primary levator hernias are rare, and there is no standard accepted surgical repair. Limited case reports have denoted the benefits of laparoscopic repair over an open transabdominal repair, but there are few descriptions of a robotic approach. We present a case of a symptomatic, primary levator hernia, repaired robotically with mesh reinforcement and rectopexy.

Methods/Interventions: An 87-year-old otherwise healthy female with no prior major pelvic surgery presented to the clinic with new onset constipation and symptoms of obstructive defecation. A non-contrast computed tomography of the abdomen and pelvis demonstrated findings of pelvic floor dysfunction with protrusion of the rectum through a defect in the left levator ani complex. On

clinical exam, the patient had a palpable defect in the left levator complex resulting in pocketing of hard stool and issues with evacuation.

Results/Outcome(s): Robotic transabdominal hernia repair allowed for excellent hernia visualization and reduction, a secure repair with coated mesh, and rectopexy. The patient was discharged uneventfully without complication. In short-term follow-up, the patient had resolution of symptoms and no signs of recurrence.

Conclusions/Discussion: Levator hernias are rare and as such there is no clear optimal surgical approach defined in the literature. There are numerous reported options for repair including direct suture repair, autologous tissue flaps, and mesh reinforcement; as well as different surgical approaches including transabdominal (open, laparoscopic or robotic), perineal, or combined. A minimally invasive approach offers the advantages of better visualization, quicker patient recovery, and excellent reduction of hernia contents with reinforcement of the hernia repair. The robotic approach further optimizes this operation, with stable, enhanced visualization within a deep pelvis, endowrist manipulation and easier suturing.

NATURAL ORIFICE ENDOSCOPIC RECTOPEXY: A FUNCTIONALLY VIABLE ALTERNATIVE IN YOUNG MALES.

eP287

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Purpose/Background: Complete rectal prolapse is rare in young males with poorly understood pathophysiology. Choosing the right surgical procedure in young males is often difficult due to the use of mesh and functional problems. The aim of the study was to evaluate the functional outcomes of a new endoluminal treatment for rectal prolapse in young males.

Methods/Interventions: Young males with complete rectal prolapse who were not willing for standard abdominal procedures were included in the study after explaining the new procedure and obtaining informed consent. Rectum was fixed ventrally to the undersurface of anterior abdominal wall with percutaneous trans fascial sutures and posteriorly to the sacral promontory from within the anorectum. Entire procedure was done endoluminally without mobilisation as previously reported.

Results/Outcome(s): 14 patients with a mean age of 30 + 6.92 (17 – 40) years underwent the procedure. Duration of symptoms ranged from 8 months to 28 years. All the patients are under follow up till date (range 1 – 48 months). Nine patients had constipation and two patients reported incontinence before the procedure. Patients were subjectively evaluated pre and post operatively by, SMIS (St. Marks Incontinence Score), ODS (Obstructed Defecation Syndrome) score and quality of life questionnaire in local language, which showed significant improvement. Immediate anatomical correction of prolapse was observed in all patients. Postoperative dynamic MR Defecogram and manometry showed improvement in anorectal angle and pressures respectively. De novo sexual dysfunction including impotence and retrograde ejaculation were not reported after the procedure. No urinary dysfunction was observed post procedure. Mean duration of surgery was 104 + 14.25 minutes and mean hospital stay 2.5 + 0.60 days. There was no significant morbidity, two patients developed surgical site infection at ventral fixation site which responded to antibiotics. Two patients had partial recurrence (tenth day and 3 months following surgery) for which subsequent endoscopic ventral fixation was done.

Conclusions/Discussion: Natural orifice endoscopic rectopexy is functionally safe in young males in short term. The procedure may be offered to this subset of patients who wants to avoid using of a mesh and abdominal incisions. It needs long term validation in a larger patient population.

STUDY EFFECT OF FEMALE GENITAL MUTILATION ON ANORECTAL FUNCTION AND BARRIERS TO COLORECTAL CANCER SCREENING AMONGST SOMALI MIGRANTS.

eP288

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Purpose/Background: Female genital mutilation (FGM) is defined by the World Health Organization as "all procedures involving partial or total removal of the external female genitalia or other injury to the female genital organs for non-medical reasons". There are an estimated 500,000 women and girls in the United States who have undergone FGM or are at risk of undergoing this procedure with predicted rises from international migration for coming years. While the obstetrical literature documents some of the short- and long-term complications, few studies have explored the unique anorectal function concerns and treatment challenges among Somali migrant women in the United States who have undergone FGM.

Methods/Interventions: Using a qualitative study design, we explored the impacts of FGM on quality of life as well as the barriers and facilitators to screening and treatment. Semi-structured interviews were conducted with seven Somali migrant women in the United States aged 18-75 who have undergone FGM. Descriptive content analysis was used to analyze these data.

Results/Outcome(s): Three themes emerged as needs to address: (1) pelvic floor issues, (2) willingness to undergo cancer screening, and (3) understanding of colorectal cancer (Table 1). Participants described a

variety of pelvic floor issues including chronic constipation, difficulty evacuating, straining, and need for position changes or manually disimpaction to evacuate. Although participants in this study asserted a willingness to undergo cancer screening, most spoke about their discomfort and shyness around it. Several participants asserted a preference for a female physician while others expressed concern with using interpreters due to the belief that their health information may be spread in their community. Finally, participants expressed mixed levels of understanding related to colorectal cancer, including causes, screening methods and symptoms. When probed, participants often connected this lack of understanding to cultural factors, including some who described a pervasive believe that cancer was simply a disease "brought on by God".

Conclusions/Discussion: These findings provide insight into the concerns and challenges faced by these migrant women who have undergone FGM. Colorectal surgeons need to be cognizant of the unique challenges experienced by this population in order to better treat anorectal dysfunction after FGM and eliminate disparities in colon cancer screening and treatment.

Table 1. FGM Main Themes and Exemplary Quotes

Pelvic Floor Issues	"It is difficult to have a normal bowel movement because I still have the tear in my rectum. I have like a bulge growing into my vagina area. I have to like push back. It is a little hard to have a normal bowel movement. I am supposed to see a surgeon, but I am worried a little bit. So, to see a surgeon they will see my damage so I am worried about that." (46y.o. F) "When [stool] is not coming out, sometimes I use my hand to push it out. Especially in the beginning is when it is most difficult. Sometimes I feel like there is tearing in my anus with the force that I use. But once the beginning part comes out, the rest comes out [easily]." (45y.o. F)
Willingness to Undergo Screening	"I think it has do with that kind of invasiveness of the procedure [colonoscopy] and kind of involving that you have something to be inserted into your anus. That must be it, if there is any reason to hesitate. It must be because it is kind of unusual. It is not something that you have grown up with and heard about it, if you ever needed to do it." (37y.o. F) "Sometimes, a lot of people that I come across do not want to have to use an interpreter, because they are scared their issues will be the talk of the town." (37y.o. F) "First of all, truthfully, I think that our people have difficulty with shyness (or embarrassment) about sickness and discussing this with a doctor or a professional. Most of the time, they hide their illness/pain." (48y.o. F)
Understanding of Colorectal Cancer	"I actually have no idea. I just hear that a lot of people die from that [cancer] and have it – it's a bad disease. That's all I know, a bad disease. But I don't know how it started, how its coming... I don't know." (50y.o. F) "I believe that the causes are the foods that we eat and also the stomach not being cleaned and the feces not all being cleared out, and bacteria being born out that." (48y.o. F) "I think that like every disease, it is one that just happens. A disease brought by God." (45y.o. F)

Table 1. FGM Main Themes and Exemplary Quotes

RECTAL PROLAPSE IN ELDERLY PATIENTS: MINIMALLY INVASIVE RECTOPEXY VERSUS THE ALTEMEIER PROCEDURE.

eP289

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Purpose/Background: Surgical approaches to rectal prolapse fall under two categories: abdominal and perineal. Perineal rectosigmoidectomy (i.e. the Altemeier procedure) is purportedly associated with fewer anesthesia-related complications. However, the procedure carries risk of anastomotic leak, and loss of fecal reservoir after proctectomy can lead to increased fecal incontinence. In this retrospective study of rectal prolapse in patients 70 years and older, we compare outcomes between the Altemeier procedure and minimally invasive rectopexy (MIR). We hypothesize that even elderly patients experience lower recurrence rates and better functional results with MIR, and the minimally invasive aspect of the operation may in fact curtail complications.

Methods/Interventions: Retrospective chart review was used to obtain relevant data regarding all patients 70 years or older with rectal prolapse who underwent surgical correction at a single tertiary care center between the years 2010 and 2022. Only patients with at least one follow-up visit were included in our analysis. All robotic and laparoscopic techniques of rectopexy were included in the MIR cohort. Patients who had a Delorme procedure were excluded. Functional outcomes were self-reported. Groups were compared using t tests and Fisher's exact test, as appropriate.

Results/Outcome(s): 42 patients who underwent MIR and 13 patients who underwent perineal rectosigmoidectomy were included. Average age was 79.8 (range 70 - 92) years in the MIR group and 79.8 (range 71 - 87) years in the Altemeier group. 92.9% (n=39) of the MIR group and 76.9% (n=10) of the Altemeier group were female. Average ASA class was 2.6 in the MIR group and 2.9 in the Altemeier group. Postoperative complications classified as Clavien-Dindo grade II or higher were evaluated. 11.9% (n=5) of the MIR group and 53.8% (n=7) of the Altemeier group suffered complications, the most common being urinary retention (2.4% [n=1] MIR, 23.1% [n=3] Altemeier). No patients in the MIR group required operative intervention for a complication. One patient in the Altemeier group underwent abdominoperineal resection after developing a recurrent incarcerated rectal prolapse and anastomotic leak. 9.5% (n=4) of the MIR group and 30.8% (n=4) of the Altemeier group developed recurrent rectal prolapse. In the MIR group, 77.3% (n=34) reported functional recovery with regular bowel movements at an average 29.6 (range 2.4 - 349.0) week follow up. In the Altemeier group, 38.5% (n=5) reported functional

recovery with regular bowel movements at an average 33.6 (range 3.9 - 77.1) week follow up.

Conclusions/Discussion: Based on our data, compared to perineal rectosigmoidectomy, MIR in elderly patients with rectal prolapse yielded significantly lower rates of postoperative complications & recurrence, and a higher rate of bowel function regularity. For these reasons, MIR should be seriously considered over the Altemeier procedure in this patient population.

Table 1: Minimally Invasive Rectopexy (MIR) versus the Altemeier Procedure Demographics and Outcomes [N(%), unless otherwise specified]

	MIR (n=42)	**Altemeier** (n=13)	**P value**
Demographics			
Age, years [average (range)]	79.8 (70-92)	79.8 (71-87)	0.986
Female	39 (92.2)	10 (76.9)	0.107
ASA [average (range)]	2.6 (2-4)	2.9 (2-4)	0.057
Outcomes			
Preop fecal incontinence	30 (71.4)	9 (69.2)	1.000
Operative Time, minutes [average (range)]	155.5 (42-330)	87.1 (48-215)	**< 0.001**
Length of Stay, days [average (range)]	2.6 (1-5)	2.6 (1-7)	0.954
Postop Complications	5 (11.9)	7 (53.8)	**0.004**
Functional Recovery	34 (77.3)	5 (38.5)	**0.006**
Recurrence	4 (9.5)	4 (30.8)	0.079
Follow Up, weeks [average (range)]	29.6 (2.4-349.0)	33.6 (3.9-77.1)	0.802

ROBOTIC SACRAL COLPOPEXY IS SAFE TO PERFORM IN COMBINATION WITH VENTRAL MESH RECTOPEXY IN PATIENTS WITH MULTICOMPARTMENTAL PELVIC ORGAN GROUP.

eP290

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Purpose/Background: Rectal prolapse is commonly a disease of older women. Patients with this condition are likely to have other associated pelvic organ prolapse (POP). Ventral rectopexy, which has been gaining favor for the treatment of rectal prolapse, minimizes nerve injury associated with posterior mobilization of the rectum and avoids the potential morbidity of a resection. When multiple compartments are involved due to consequences of advanced pelvic relaxation, management requires a multidisciplinary approach. The purpose of this study was to compare patients with rectal prolapse undergoing robotic assisted ventral mesh rectopexy with patients undergoing concomitant sacral colpopexy.

Methods/Interventions: We performed a retrospective chart review of patients who underwent robotic ventral rectopexy with or without sacral colpopexy from January 2015-December 2021. We collected demographics and data on indications. Length of operation, mesh utilization, and immediate as well as delayed postoperative complications were evaluated. We compared the two groups across these variables using chi-square and Mann Whitney U test, where appropriate.

Results/Outcome(s): We identified 24 patients with a median age of 73 (range 24-84) who underwent robotic assisted ventral mesh rectopexy. All but 1 were female. The median operative time was 187 minutes (range 117-429), with no intraoperative complications. Fifteen patients (63%) underwent surgery for full thickness rectal prolapse, while 9 (37%) underwent surgery for internal prolapse. Six (21%) had prior operations for rectal prolapse. Nine (37%) had sacral colpopexy in addition to the rectopexy for other POP. Of the 24 meshes used, 14 were composite, 9 were pure synthetic, and 1 was a biologic graft. The median length of stay (LOS) was 1 day (range 0-6 days), and all patients were discharged home. There were 5 immediate postoperative complications (21%) - 1 aspiration pneumonia, 1 port-site hernia, 1 stroke, 1 urinary retention, and 1 urinary tract infection. The patient with port-site hernia was the only 30-day readmission. There were no recurrences of rectal prolapse at a median follow up of 6 months. Of 11 patients who presented with fecal incontinence (FI), 10 had improvement, and 1 had worsening FI. Patients undergoing ventral rectopexy with sacral colpopexy had longer operative times and were more likely to have had a prior hysterectomy and to have had pure synthetic mesh used. LOS and postoperative complication rates were similar.

Conclusions/Discussion: In this case series of 24 patients undergoing robotic assisted ventral mesh rectopexy, 9 underwent simultaneous sacral colpopexy with similar outcomes. In short term follow-up, there were no recurrences, and FI was improved in a majority of patients. Our data suggest that robotic mesh rectopexy can be safely performed with simultaneous sacral colpopexy in patients with multicompartmental POP.

ANXIETY AND DEPRESSION ARE KEY-FACTORS IN POSTOPERATIVE OUTCOMES AFTER VENTRAL MESH RECTOPEXY FOR RECTAL PROLAPSE: A SINGLE-CENTER EXPERIENCE FOR FUTURE PERSPECTIVES.

eP291

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Purpose/Background: Recently, an interesting link between anxiety and postoperative complications was reported in several surgery settings. A relationship between anxiety/depression and rectal prolapse has been also hypothesized. Therefore, we aimed to assess the impact of anxiety and depression on surgical outcomes after ventral mesh rectopexy (VMR) for rectal prolapse.

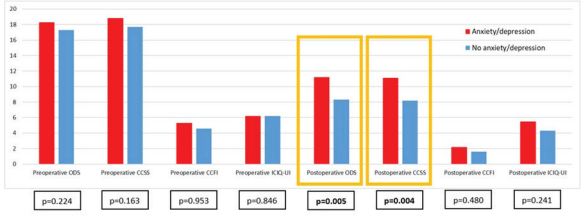
Methods/Interventions: Patients taking anxiolytic/antidepressant, admitting themselves suffering of anxiety/depression, and reporting a history of alimentary disorders were scheduled as "anxious/depressed". Pre-postoperatively, specific scores for obstructed defecation, fecal and urinary

incontinence (ODS, CCSS, CCFI and ICIQ-UI) were prospectively collected. At follow up, STAI-1, STAI-2 and BDI tests were administered to evaluate anxiety/depression; patient's satisfaction was graded. Postoperative complications and rectal prolapse recurrences were recorded.

Results/Outcome(s): From January 2011 to December 2021, 137 patients (136 females, 99.3%) with clinical and defecographic diagnosis of internal or external rectal prolapse underwent VMR by a single experienced surgeon. 40 patients (39 females, 29.2%) showed anxiety/depression before surgery, in particular only 3 female patients reported moderate depression. No major depression was recorded. Based on preoperative simplified defecographic Oxford classification, anxiety/depression was associated to 14.7% of intrarectal, 40.4% of intra-anal, and 26.1% of external rectal prolapse (p=0.029). No other differences in baseline characteristics were found between patients with or without anxiety/depression. After VMR, a significant reduction in ODS (17.6±6.0 vs. 9.1±6.2, p=0.0001), CCSS (18.0±5.1 vs. 9.0±5.6, p=0.0001), CCFI scores (4.8±5.9 vs. 1.8±4.1, p=0.0001), and ICIQ-UI (6.2±6.4 vs. 4.7±6.0, p=0.0001) were reported. Postoperative ODS and CCSS scores were significantly worse in anxious/depressed patients (Figure 1). Anxious/depressed patients reported a lower satisfaction grade (7.3±2.4 vs. 8.4±2.7, p=0.001). Furthermore, they showed higher postoperative STAI-1 (50.2±14.4 vs. 44.2±13.5, p=0.050), STAI-2 (48.6±15.1 vs. 41.6±11.8, p=0.041), and BDI scores (8.7±6.2 vs. 6.1±5.6, p=0.042). Postoperative complications and prolapse recurrences were statistically similar.

Conclusions/Discussion: Anxiety and depression showed an interesting role in postoperative outcomes after VMR, especially related to obstructed defecation symptoms and patient's satisfaction. A targeted psychological assessment before surgery may improve patients' selection and surgical outcomes in anxious patients.

Figure 1. Comparison between pre- and postoperative scores for obstructed defecation (ODS, CCSS), fecal (CCFI) and urinary (ICIQ-UI) incontinence in patient with and without anxiety/depression who underwent ventral mesh rectopexy (*Mann–Whitney U test was used for statistical analysis*).



Data are calculated as mean±standard deviation. ODS= Obstructed Defecation Syndrome score; CCSS= Cleveland Clinic Constipation Scoring System score; CCFI= Cleveland Clinic Fecal Incontinence score; ICIQ-UI= International Consultation on Incontinence Questionnaire-Urinary Incontinence.

NONOPERATIVE TREATMENT OF OBSTRUCTIVE DEFECATION.

eP292

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Purpose/Background: Obstructive defecation (ODS) is a result of either a defect in the pelvic support or abnormality in the function of the pelvic floor muscle. This results in difficulty in evacuation of stool. Patients may complain of constipation, incomplete evacuation, frequency or necessity to strain with bowel movement. This can be caused by rectocele, rectal intussusception, enterocele, pelvic floor organ prolapse, rectal prolapse and pelvic dyssynergia. The management of obstructive dedication syndrome is mainly conservative consisting of diet, laxatives, rectal irrigation, biofeedback and pelvic floor physical therapy. Surgical therapy includes, subtotal colectomy, ventral rectopexy as well as Malone's enema, myotomy of the puborectal as well as stoma have been successful in some cases. ODS mainly affect women but there are also a number of male patients who suffer from this condition. Since myotomy of the puborectalis as well as other aggressive surgical options have been shown to be a success in the treatment of ODS, botox injection may offer less morbidity for ODS. Patients with ODs often have MR defecogram that reveals a hypertrophied or hyperactive puborectalis muscle.

Methods/Interventions: Between March 2021 and October 2022, 24 patients underwent botox injection to their puborectalis muscles for ODS. Most patients had their injection under sedation. A total of 50 units were used in the initial injection. 17 had pelvic floor physical therapy for at least 3 months. 8 patients had MR defograms. 18 of the 24 had manometric measures prior to botox injection. 10 of the 18 had high resting pressure over 60. All 10 had a drop in their resting pressure after botox injection.

Results/Outcome(s): Of the 24 patients who underwent injection of botox for ODS, there were no complications from the injection. 16 patients got relief, 6 unchanged and 2 felt the treatment was worse. 9 patients with high tone received over 100 units of botox with no complaint of fecal incontinence.

Conclusions/Discussion: Obstructive defecation is a challenging diagnosis and can be caused by functional or organic in nature. Functional relating to anxiety/depression, non-relaxing puborectalis on straining, and organic as cystocele, pelvic floor prolapse, recto-rectal intussusception. The latter causes are usually treated with surgery. For those with functional non relaxing puborectalis, botox offers the least invasive alternative for patients with ODS.

ROBOTIC VENTRAL RECTOPEXY WITH ABSORBABLE MESH DOES NOT INCREASE RECURRENCE RATE.

eP293

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Purpose/Background: Robotic ventral rectopexy is associated with reduced recurrence rates but concerns remain for the risk of mesh infection. We wish to examine the use of absorbable mesh in robotic ventral rectopexy repair.

Methods/Interventions: This is a prospective observational study of patients undergoing robotic rectopexy. Patients were offered repair with permanent mesh or Poly-4-hydroxybutyrate (Phasix^{TM}) absorbable mesh. Follow up was performed via clinic visit, my chart documentation, or phone contact and all patients were requested to complete the Pelvic Floor Symptoms Impact Survey on follow up. Patient and procedural characteristics were recorded and analyzed for their impact on 30-day complications and prolapse recurrence.

Results/Outcome(s): From January 2015 through June 2021, 73 patients with mean of 36 (6 – 72) months follow up (5 deceased, 5 lost to follow up) were included. Patient characteristics included a median age of 68 years (range 20 – 91 years), mean BMI was 25 kg/m^2, 3 patients were male, 13 (18%) patients had a known connective tissue disorder, 18 (25%) patients had a prior rectal prolapse repair, and 7 (10%) patients had internal rectal prolapse. Procedural characteristics included 13 (18%) patients who had combined procedures with urogynecology, and 18 (25%) patients were repaired with Phasix^{TM} mesh. Median length of stay was 2 days (range 1- 9) and the complication rate was 3% (1 mesh infection). 7 (10%) patients had recurrent prolapse (2 mucosal only) and the characteristics associated with recurrence are shown in the table. 28 (44%) patients with follow up completed the Impact Survey and patients with recurrent rectal prolapse had significant higher score than those without recurrence (47.5 vs. 17.3, p=0.01).

Conclusions/Discussion: The robotic ventral rectopexy performed with Poly-4-hydroxybutyrate (Phasix^{TM}) appears to be safe and effective in a diverse population of patients with rectal prolapse. Additional randomized prospective studies are needed.

Table: Characteristics of patients with recurrent rectal prolapse following Robotic Ventral Rectopexy

Characteristic	Recurrence (n = 7)	No Recurrence (n= 66)
Age (median, range in years)	68 (23 - 79)	68 (20 – 91)
Female	7 (100%)	63 (95%)
Connective tissue disorder	2 (29%)	12 (18%)
Prior rectal prolapse repair	1 (14%)	17 (26%)
Combined procedures	2 (29%)	11 (16%)
Phasix™ mesh	1 (14%)	17 (26%)

SEMG ASSESSMENT EXPLORES THE COMMON FEATURES OF PELVIC FLOOR DYSFUNCTION: A MULTICENTER PROSPECTIVE STUDY FROM CHINA.

eP294

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Purpose/Background: sEMG-guided pelvic floor biofeedback is the first choice for pelvic floor dysfunction, but training goals affect efficiency. Observing the common features and simplifying the biofeedback training is the key to success. To explore the common features of pelvic floor muscle activity in dyssynergic defecation, pelvic floor relaxation, and functional anorectal pain.

Methods/Interventions: During the period 2010-2015, four studies were conducted in three pelvic floor centers. Before enrolling, patients were diagnosed and classified according to symptoms, digital examination, and anorectal manometry, excluding contraindications, and then signed informed consent. **Standardized sEMG test protocol:** It is a five-step evaluation sequence, including, one-minute rest for pre-baseline, then five rapid contractions for phasic contraction, then for tonic contraction, then a single 60-second endurance contraction, and one-minute rest for post-baseline. It is shown in Figure 1 marked as 1-5 steps. Mean amplitude (AVG) and electromyography variability (Variability = SD/AVG, standard deviation divided by amplitude) were figured to evaluate the myoelectric activity and stability. **Groups:** First, the **asymptomatic group**(n=196, M: F=80:116, age M: F=36.6±13.4 vs 34.9±13.1), to explore the gender and age-related differences of the asymptomatic group as a control group. Then the age-matched asymptomatic group was selected **as the control group**, and collect the characteristics data of the **dyssynergic defecation group** (n=73, M: F=31:42, age 28.0±5.8y VS age-matched control group 27.0±4.3y), **pelvic floor relaxation group** (n=145, M: F=12:143, age 57.1±9.8y), and **functional anorectal pain group**(n=146, M: F=45:101, age 49.3±12.4y) were analyzed respectively.

Results/Outcome(s): Asymptomatic group: Female muscle activity is generally weaker in contraction than males. The electromyography variability is related to age, but not gender. Therefore, the three disease groups were not further subdivided into gender subgroups. **Dyssynergic defecation group:** resting hypertonicity and instability and reduced muscular endurance capacity in pelvic floor muscles. **Pelvic floor relaxation group:** resting and contraction hypotonicity and poor endurance capacity. **Functional anorectal pain group:** 75 (51.3%)patients have the same findings as the dyssynergia defecation group and others have the same findings as the pelvic floor relaxation group. **Limitations:** The sample size and multicenter data size for each disease group are still limited and may be subject to bias. A prospective randomized control study is needed.

Conclusions/Discussion: Poor muscle stability is a common feature in pelvic floor dysfunction, indicating that slow and fast switch muscle activity is not harmonious. Variability of resting and contractive is an important predictor, rather than amplitude. It provides a general scheme for simplifying the goal of pelvic floor biofeedback training.

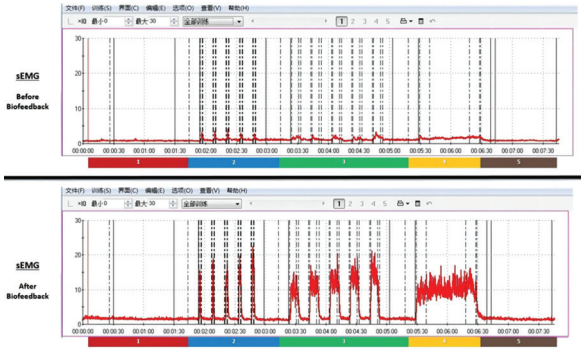

Figure 1: standardized five-step surface electromyography. sEMG test was performed on a 65 y male patient with functional anorectal pain before and after pelvic floor biofeedback training.

POCKET REVISION: A REVIEW FROM A MEDTRONIC SACRAL NERVE STIMULATOR (SNS) CENTER OF EXCELLENCE.

eP295

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Purpose/Background: Sacral neuromodulation is considered a first-line treatment for incontinence, as decreased frequency of incontinence episodes after implantation have been demonstrated with a low safety profile. Despite a low safety profile, complications have been reported in prior retrospective reviews, with a paucity of detail surrounding pocket revision. To further investigate the reason for pocket revision after SNS implantation, we reviewed the current rate of pocket revision after SNS implantation and cause for pocket revision at a single, Medtronic SNS Center of Excellence.

Methods/Interventions: A Medtronic SNS database was retrospectively reviewed for complication of pocket revision after SNS implantation by a sole surgeon at a single, Medtronic SNS Center of Excellence from 2015-2022. The main factors examined were age and BMI at time of implantation, elapsed time in months between implantation and revision, reasons for pocket revision, initial and revised pocket location, and associated trauma, weight loss, and lead fracture. Characteristics of patients undergoing pocket revision were reported as descriptions, averages, and percentages. Due to low complication rate, univariate analysis was not performed.

Results/Outcome(s): A sole surgeon at a single Medtronic SNS Center of Excellence performed 154 SNS implantations from 2015-2022 for bowel or bladder incontinence. Of 154 cases, 11 were complicated by pocket revision (7%). All patients who underwent pocket revision were female, with average BMI 31.7 and age 46. On average, revision occurred 12 months after initial implantation. Eighteen percent (2/11) of cases reported trauma to device due to fall, and 9% (1/11) reported weight loss, both causing change in device position. The majority reported pain/discomfort at the device site as the primary reason for revision (90%, 10/11). One patient who underwent pocket revision for pain at device site had experienced a superficial surgical site infection that resolved with antibiotics. Approximately one-third of patients were found to have a flipped device at the time of operation (36%, 4/11). There was concomitant lead fracture in 18% of cases (2/11). Most revisions were performed on the same side (10/11, 90%) with the left-side being the preferred laterality for initial placement (7/11, 64%).

Conclusions/Discussion: SNS has a known low safety profile, and a subset of patients require pocket revision. We found 7% of SNS implantations at a single Medtronic SNS Center of Excellence underwent pocket revision. Most patients required revision for pain/discomfort at the device site suggesting need for optimization of device implantation location. Preoperative marking for SNS implantation should be considered and further studied to potentially impact the complication of pocket revision.

BOWEL RECONSTRUCTION AFTER DAMAGE CONTROL LAPAROTOMY FOR TRAUMATIC DESTRUCTIVE COLON INJURY.

eP297

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Purpose/Background: Over the last seventy years, controversy has persisted regarding the ideal approach to colon reconstruction after damage control laparotomy (DCL) for significant colon injuries. Two commonly employed and studied techniques after DCL includes immediate reconstruction with proximal diversion (IRPD) and stoma creation with deferred reconstruction (SCDR). The purpose of this study is to evaluate these two fundamentally different colonic operative strategies.

Methods/Interventions: We employed a retrospective cohort review from the prospectively accrued, deidentified HCA Enterprise Level Clinical Database for patients with destructive colon injuries undergoing IRPD or SCDR during 2014-2019. Analysis included comparison of comorbidities, complications and clinical outcomes. The regression models controlled for age, gender, race, need of vasopressor, colonic injury location, blood transfusions, abdominal reconstruction with mesh and comorbidities of special interest (BMI, hypovolemic shock, major vascular

injury, splenic injury, hepatic injury, acute renal injury, pre-existing chronic renal dysfunction, nicotine dependence, COPD, diabetes, small bowel injury and pancreatic injury).

Results/Outcome(s): 4,718 adult patients having undergone trauma DCL with a destructive colon injury were identified. This included both penetrating and blunt abdominal injury etiologies. IRPD and SCDR accounted for 3,765 and 953 patients respectively. When comparing complications among IRPD and SCDR, no significant difference in developing retroperitoneal abscess. Small bowel and colon anastomotic leak were significantly more common in SCDR group (4.99% vs. 9.76%, $p<0.05$), however the odds of experiencing anastomotic leak were comparable between the SCDR group and the IRPD group. Simultaneous injuries in left and right colon, isolated right colon injuries, small bowel injuries, acute renal injury, vasopressor use, need of blood transfusion, and the use of mesh for abdominal wall reconstruction upon fascia closure were also significantly associated with anastomotic leak complication, ($p<0.05$). Enteric fistulae formation was significantly more common in patients with SCDR relative to the IRPD group. Abdominal wall reconstruction with mesh increases up to 5-fold in developing fistulas. Stoma complication was significant in SCDR group, when compared to IRPD. There was no significant difference in 90-day mortality. Overall hospital length of stay was significantly longer in SCDR group compared to IRPD group.

Conclusions/Discussion: IRPD after DCL in stabilized trauma patients is safe, associated with fewer complications, and a shorter length of stay. Future consideration should be given to defining DCL clinical criteria where subsequent SCDR is required and when proximal diversion can be omitted for IRPD patients.

READMISSION AFTER ILEOSTOMY CREATION IN A SUBURBAN HEALTHCARE CENTER.

eP298

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Purpose/Background: Readmission after ileostomy creation significantly burdens the healthcare system and affects quality of life. The National Surgical Quality Improvement Program (NSQIP) has designated colorectal surgery outcomes as important quality indicators of patient care. Readmission after ileostomy creation can be as high as 40 percent. Causes include high-output ostomy resulting in dehydration and renal failure, surgical site infections, prolapse, and parastomal hernias. Our objective was to evaluate the factors contributing to readmissions in our suburban healthcare center and compare them to a national database.

Methods/Interventions: In our single-institution observational study, we collected patient data over a 36-month period from the Electronic medical record (EMR) system. Data was collected for patients who underwent the creation of an ileostomy. The patient database was not limited to a specific indication and we considered ileostomies created individually or as part of a larger procedure (i.e., diverting ileostomy). Outcomes were measured as readmission within 90 days (3 months) from the creation of an ileostomy for any cause. Factors considered within readmission were age, gender, cause of readmission, and final disposition from the hospital. Readmission for reversal of the ileostomy were not considered.

Results/Outcome(s): 109 patients underwent new ileostomy creation by the colorectal and acute care surgery services within our institution. There were no deaths among these patients and all were discharged to either home or rehabilitation. All patients were provided with standard institutional ostomy education prior to discharge. 61 patients (61%) were male. 19 patients (17%) were readmitted within 3 months to our hospital. Among these, the most common cause of readmission was dehydration from high ostomy output resulting in 9 patients (47%). All of these patients had an elevation in their readmission serum creatinine level compared to discharge. 6 patients (31%) were readmitted with ileus, vomiting, or generalized abdominal pain. 2 patients (10%) were found to have catheter-associated infections from indwelling catheters required for parenteral nutrition to supplement poor oral intake. There were no deaths on readmission. None of the patients in our study needed surgical revision of the ileostomy prior to discharge. 4 patients (23%) required rehabilitation on discharge. The mean duration of readmission was 4.7 days (range - 2 to 10).

Conclusions/Discussion: Common factors associated with readmission following ileostomy creation are high ostomy output, dehydration, renal failure, improper ostomy care, ileus, catheter-associated infections, or a combination of these factors. Our experience was reflective of that observed in more extensive databases like the NSQIP database which showed a similar readmission rate. Visiting nursing referrals are an indispensable part of ileostomy care within the community and can be targeted to improve patient outcomes.

ILEORECTAL ANASTOMOSIS - WHO SHOULD WE DIVERT? AN ANALYSIS OF 985 PATIENTS.

eP299

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Purpose/Background: Total abdominal colectomy (TAC) with ileorectal anastomosis (IRA) is a surgical treatment option for polyposis syndromes with rectal

sparing, multifocal colon cancer, slow transit constipation, and inflammatory bowel disease (IBD) patients. Perioperative complications and anastomotic leak (AL) rates were historically relatively high (6 - 23%) following IRA. We aimed to describe selection criteria for, and outcomes associated, with diverting loop ileostomy during IRA. Our hypothesis was that construction of DLI during IRA was associated with a decreased AL rate.

Methods/Interventions: Patients undergoing TAC with IRA, or end-ileostomy takedown with IRA after previous TAC, with or without DLI, between 1980-2021 were identified from a prospectively maintained institutional database. Short-term (30-day) surgical outcomes were collected using our institutional NSQIP database. Redo IRA cases were excluded. AL after IRA was defined as an anastomotic fluid collection seen on cross-sectional imaging with signs of sepsis or radiographic evidence of contrast extravasation.

Results/Outcome(s): Of 985 patients in the study cohort, 909 (92%) underwent TAC with IRA and 76 (8%) underwent ileostomy takedown with IRA. Overall, DLI was performed in 267 (27%) patients. The most common indications for surgery were multifocal cancer (31%), constipation (28%), polyposis (18%), and IBD (16%). The median age of the cohort was 47 (IQR 34-60) years and 37% were male. Patients who underwent DLI had lower BMI (25 vs 26 kg/m^2, p=0.01), higher rate of smoking (36% vs 19%, p<0.001), more comorbidities including coagulopathy, steroid use, preoperative weight loss, and higher ASA scores (63% vs 44% ASA 3 or 4, p<0.001) compared to those who did not undergo DLI. Amongst those undergoing DLI, there were higher rates of open surgery (60% vs 44%) and adhesiolysis (26% vs 7%), increased surgery time, and increased intraoperative blood loss (all p<0.01). The overall AL rate was 3%; 1% and 4% in those with and without DLI, respectively (p=0.05). On multivariable analysis DLI was independently associated with decreased AL (OR 0.34, 95% CI 0.12-0.98, p=0.04). Patients with DLI had a higher overall postoperative complication rate (51% vs 36%, p<0.001) including superficial wound infections, urinary tract infections, dehydration, blood transfusions, and portomesenteric venous thromboses (all p<0.03). Stoma-related complications occurred in 2% of DLI patients. Current or past smoking, depression, and preoperative weight loss were also independently associated with postoperative complications (Table).

Conclusions/Discussion: In this largest series of patients undergoing IRA reported to date, in which one-third were diverted, we observed an overall anastomotic leak rate of only 3%. DLI was used more often in patients with increased comorbidities and in technically demanding cases, but was protective against anastomotic leak.

Table: Multivariable risk factors associated with postoperative complications following ileorectal anastomosis

	Univariable OR	95% CI	P-value	Multivariable OR	95% CI	P-value
Preoperative weight loss	5.57	1.54-20.1	0.009	3.82	1.03-14.2	0.05
Depression	2.01	1.47-2.95	<0.001	1.72	1.19-2.47	0.003
Smoking	1.71	1.29-2.34	<0.001	1.38	1.01-1.19	0.04
Diverting loop ileostomy	1.86	1.41-2.46	<0.001	1.36	1.01-1.86	0.05

Table: Multivariable risk factors associated with postoperative complications following ileorectal anastomosis

SURGERY FOR YOUNG ONSET DIVERTICULITIS: IS IT CURATIVE?

ePoster P300

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Purpose/Background: Previously considered a disease of old age, diverticular disease (DD) is increasingly prevalent in younger populations. Guidelines on surgical resection have shifted from recommending resection for all young-onset diverticulitis patients to an individualized approach. This study aimed to determine the perioperative complication and the radiographical and surgical recurrence rates in patients under 40 years old undergoing resection for DD.

Methods/Interventions: All patients <40 years undergoing operative intervention at the Cleveland Clinic Ohio for left-sided DD between Jan 2010-July 2017 were identified from a retrospectively collected database. Demographics collected included: age, gender, BMI, ASA grade and diverticular phenotype. Operative details included: status (emergency vs elective), indication, approach, resection type and operation duration. Outcomes were: length of stay (LOS), pathology in resection specimen and intraoperative and postoperative complications. Anastomotic leak is defined as a radiologically detected leak (on computed tomography or contrast enema) with or without the requirement for return to the operating room. Recurrence was determined by individual review of patient imaging and operative reports subsequent to resection. Descriptive statistics were used to report the findings.

Results/Outcome(s): One hundred and forty seven (n=107, 72.8% male, mean age=34.9 [+/- 4.1] years) patients were included. The number of resections increased from 16 in 2010 to 23 in 2016. The majority were ASA 1 or 2 (n=41, 27.9% and n=82, 55.8%). The most common indication for surgery was uncomplicated diverticulitis without a history of abscess or perforation in the past (n=77, 52.4%). This was followed by perforation (n=26, 17.7%). The majority (n=108, 73.5%) of cases were performed electively and/or laparoscopically (n=79, 57.3%). Primary anastomosis without diversion was the most common surgical outcome (n=108, 73.5%). Median

length of stay was 5 (4,7) days. There was no intraoperative or postoperative mortality. There were three (2.0%) intraoperative and 38 (25.9%) postoperative complications (Clavien-Dindo III-IV: n=14, 36.8%). The most common complications were ileus (n=8, 21.0%) and anastomotic leak (n=6, 15.7%). The majority (n=5) of leaks occurred after elective surgery. Only four patients had incidental pathology on their resection specimens. Two (1.3% of cohort) were benign and two were neoplastic (a tubular adenoma with low-grade dysplasia and a malignant polyp). Over a mean follow-up of 96 (74, 123) months, only 2 (1.3%) patients experienced a surgical or radiological recurrence.

Conclusions/Discussion: Leaks after primary anastomosis even in the elective setting warrant careful consideration of a defunctioning ileostomy. Recurrence after resection for DD in young-onset patients is rare. Incidental neoplasia is also rare.

EARLY URINARY CATHETER REMOVAL AFTER COLECTOMY FOR COLOVESICAL FISTULA IS NOT ASSOCIATED WITH INCREASED A POSTOPERATIVE COMPLICATIONS.

eP301

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Purpose/Background: Colovesical fistula (CVF) occurs in up to 5% of patients having operative intervention for diverticulitis. Definitive management includes partial colectomy (usually sigmoid) and takedown of the fistulous tract. There is no standard management of the bladder defect after fistula takedown and recommendations for duration of urinary drainage are inconsistent. This study was designed to determine if urinary catheter drainage duration was associated with fewer postoperative complications.

Methods/Interventions: This is a retrospective single institution cohort study of all Enhanced Recovery Pathway (ERP) patients that underwent open or minimally invasive colorectal resections for diverticular CVF from 2015 through 2021. Urinary catheter drainage was defined as Early (≤7 days postoperative) and Late (>7 days postoperative). The groups were then subdivided into 1-2 days, 3-5 days, 6-7 days, and >7 days for further analysis. Primary outcome was a composite of postoperative bladder leak, SSI III, sepsis, reoperation, and hospital LOS ≥ 7 days. Secondary outcomes included ileus, UTI, AKI, and cardiac complications. Fisher's Exact test was used to compare primary and secondary outcome variables according to catheter removal group. Propensity scores were used to control for baseline demographics and comorbidities.

Results/Outcome(s): A total of 73 patients met inclusion criteria – 64 in the Early group and 9 in the Late group. The Late group consisted of more patients with large bladder defects (33.3% vs 7.8%, p=0.054), significantly more patients that underwent suture repair (55.6% vs 14.1%, p=0.01), and significantly more patients that had an intraoperative pelvic drain placed (66.7% vs 15.6%, p=0.003). There was no difference between groups in intraoperative bladder leak testing. There was no significant difference in unadjusted outcomes between groups. After propensity score inverse weighting, the Late group had significantly more cystogram-detected postoperative bladder leaks (p=0.002), ileus (p=0.042), and cardiac events (p=0.014) than the Early group. Unadjusted analysis of specific postoperative days showed that when removing the urinary catheter on postoperative days 1-2, there were no bladder leaks, significantly fewer patients with hospital LOS >7 days, and less patients with ileus.

Conclusions/Discussion: Urinary catheter removal ≤7 days after surgery was associated with fewer postoperative complications after definitive management of CVF. There may be some outcomes advantages to removing the urinary catheter on postoperative day 1-2, including no increase in bladder leaks. Further investigation is required to determine optimal time for urinary catheter removal and if intraoperative bladder leak testing and postoperative cystograms are useful adjuncts in decision making.

Table 1. Unadjusted Outcomes by Postoperative Day for Urinary Catheter Removal

Variable	1-2 days (N=19)	3-5 days (N=33)	6-7 days (N=12)	> 7 days (N=9)	*p*-value
Acute Kidney Injury	0 (0%)	3 (9.1%)	2 (16.7%)	2 (22.2%	0.128
Bladder Leak (cystogram)	0 (0%)	0 (0%)	0 (0%)	1 (12.5%)	0.342
Ileus	0 (0%)	4 (12.1%)	4 (33.3%)	3 (33.3%)	0.02
Surgical Site Infection I/II	0 (0%)	1 (3.0%)	0 (0%)	0 (0%)	>0.99
Surgical Site Infection III	2 (10.5%)	3 (9.1%)	1 (8.3%)	2 (22.2%)	0.671
Sepsis	0 (0%)	2 (6.1%)	0 (0%)	1 (11.1%)	0.342
UTI	1 (5.3%)	2 (6.1%)	0 (0%)	0 (0%)	>0.99
Cardiac Event	1 (5.3%)	0 (0%)	2 (16.7%)	2 (22.2%)	0.024
Hospital LOS >7 days	0 (0%)	7 (21.9%)	5 (41.7%)	3 (33.3%)	0.008
Reoperation	1 (5.3%)	2 (6.1%)	0 (0%)	0 (0%)	>0.99
Composite*	3 (15.8%)	8 (24.2%)	5 (41.7%)	3 (33.3%)	0.406

*one or more of the following outcomes: postoperative bladder leak requiring intervention, anastomotic leak, pelvic abscess (SSI III), sepsis, reoperation, or hospital LOS ≥ 7 days
LOS = length of stay

URETERAL STENTS DO NOT INCREASE THE RISK FOR ACUTE KIDNEY INJURY AFTER COLORECTAL SURGERY.

eP302

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Purpose/Background: The adoption of ureteral stent placement at the time of colorectal surgery has increased in recent years. Ureteral stents are thought to prevent or help identify ureteral injuries. Studies suggesting that ureteral stents increase the risk of postoperative acute kidney injury show inconsistent conclusions. The large and variable ureteral stenting volume at our institution provides a unique opportunity for granular analysis not previously reported. The objective of this study is to determine if

ureteral stenting at the time of colorectal surgery increases the risk for postoperative acute kidney injury.

Methods/Interventions: This is a single institution retrospective cohort analysis of cases in a prospectively maintained colorectal surgery database between 07/01/2018 and 12/31/2021. Colorectal operations including prophylactic ureteral stents were compared with operations without stents. Cases not typically considered for stent placement were excluded. The primary outcome was acute kidney injury (AKI) defined as an increase in creatinine ≥ 0.3mg/dL and a 1.5 fold increase in creatinine within 48 hours postoperatively. Unadjusted differences in outcomes were assessed using Chi-square or Fisher exact tests. Adjusted analysis was performed with inverse probability weighting.

Results/Outcome(s): There were 406 patients in the study population – 300 patients in the Stent group and 106 in the No Stent group. There were 6 ureteral injuries, 2 (0.67%) in the Stent group and 4 (3.77%) in the No Stent group (p=0.07). Unadjusted analysis revealed that AKI was not significantly different between Stent and No Stent groups when defined as creatinine increase ≥0.3mg/dL (No Stent 16.9% vs Stent 28.89%, p=0.63) and when defined as 1.5 fold increase in creatinine (p=0.28). After adjustment, there was still no significant difference in AKI between Stent and No Stent groups again defined by ≥0.3 mg/dL creatinine increase (No Stent 21.4% vs Stent 26.4%, p=0.49) and 1.5 fold increase in creatinine (No Stent 13.5% vs Stent 15.3%, p=0.77). Subgroup analysis showed that lighted stents were associated with significantly more AKI than No Stent patients when defined as creatinine increase ≥0.3mg/dL (38.6% vs 16.9%, p=0.007) but not when defined as 1.5 fold increase in creatinine (p=0.135).

Conclusions/Discussion: Prophylactic ureteral stenting does not increase the risk of acute kidney injury for patients undergoing enhanced recovery colorectal surgery. The use of non-lighted stents may be preferred to lighted stents. Studies further examining contrasting roles, risks, and benefits of ureteral stents in open and minimally invasive colorectal surgery are warranted.

Table. Unadjusted descriptive statistics of outcome variables by stent status.

Variable	No Stent n=106	Stent n=300	*p*-value
Acute Kidney Injury Definition 1*	12 (16.9%)	69 (28.87%)	0.063
Acute Kidney Injury Definition 2**	7 (10.0%)	38 (16.17%)	0.278
Ileus	15 (14.15%)	57 (19%)	0.329
Surgical Site Infection I/II	2 (1.89%)	8 (2.67%)	>0.99
Surgical Site Infection III	8 (7.55%)	16 (5.33%)	0.554
Sepsis	1 (0.94%)	4 (1.33%)	>0.99
Anastomotic Leak	2 (1.89%)	3 (1%)	0.609
Urinary Tract Infection	1 (0.94%)	5 (1.67%)	>0.99
Cardiac	3 (2.83%)	5 (1.67%)	0.435
Pulmonary	2 (1.89%)	3 (1%)	0.609
Venous thromboembolism	1 (0.94%)	4 (1.33%)	>0.99
Death	1 (0.94%)	2 (0.67%)	>0.99
Logged Length of Stay	4.98 (3.67)	5.72 (4.69)	0.146
Emergency Department Visit	21 (19.81%)	58 (19.33%)	>0.99
Readmission	16 (15.09%)	36 (28.8%)	0.02 *
Days to Readmission mean (STD)	8.38 (5.84)	13.47 (12.05)	0.155
Creatinine - Day 0 (mg/dL) mean (STD)	0.96 (0.24)	0.99 (0.25)	0.347
Creatinine - Day 1 (mg/dL)	0.91 (0.27)	0.94 (0.26)	0.413
Creatinine - Day 2 (mg/dL)	0.86 (0.23)	0.89 (0.26)	0.419
Ureteral injury	4 (3.77%)	2 (0.67%)	0.07

STD = standard deviation

*absolute increase in serum Cr ≥0.3mg/dL in 48-hour period

**1.5-fold increase in serum Cr in 48-hour period

TOTAL COLECTOMY AND PARTIAL PROCTECTOMY: ILEAL POUCH RECTAL ANASTOMOSIS TO THE RESCUE?

eP303

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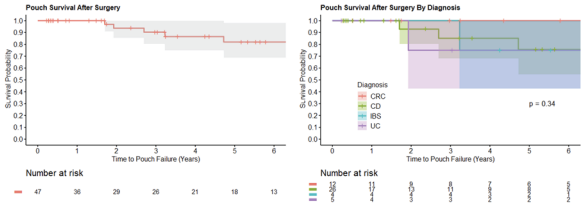
Purpose/Background: Ileal pouch rectal anastomosis (IPRA) is a rarely employed alternative to straight ileal rectal anastomosis or permanent ileostomy. It is a method utilized to maintain intestinal continuity in patients who have insufficient residual rectal reservoir capacity following total colectomy and partial proctectomy or coexistent perianal disease. However, it has failed to gain acclaim and there are limited reports on patient outcomes. We aimed to assess the outcomes of individuals who underwent IPRA for benign and malignant diseases.

Methods/Interventions: Our institutional pouch registry was queried for patients who underwent IPRA between 1995 and 2019. Patients diagnosed with inflammatory bowel disease (IBD), familial adenomatosis polyposis (FAP), colorectal cancer (CRC), or constipation dominant irritable bowel syndrome (IBS-C) with an IPRA anastomosis were identified. An IPRA was defined as an ileal pouch intentionally anastomosed to the rectum ≥ 4 cm superior to the dentate line. The mean number of daily bowel movements was used to assess functionality. Kaplan-Meier analysis was performed to evaluate pouch survival and compare intergroup differences.

Results/Outcome(s): Forty-seven patients underwent IPRA: 21 (44.7%) females, mean age of 43.7 ± 15.5 years, mean BMI of 44.2 kg/m^2. The most common diagnoses were Crohn's disease (CD) in 26 (55.3%) patients and CRC in 10 (21.3%) patients. The most common operative indication was medically refractory disease in 55.3% of

patients. More than half (51.1%) suffered from previous perianal disease. All surgeries were performed laparoscopically utilizing a double-staple technique with anastomoses located a mean distance of 8.5 ± 2.9 cm superior to the dentate line. Overall, 31 patients (66%) underwent a 3-stage IPRA, 15 (31.9%) underwent a 2-stage, and 1 (2.13%) patient was converted from a straight ileorectal anastomosis to IPRA. Postoperatively, 32 (68.1%) patients experienced a complication in the first 30 days including intraabdominal sepsis in 20 (62.5%), dehydration in 20 (62.5%), and ileus in 16 patients (50%). There were zero mortalities. Long-term, the most common complications were bowel obstruction in 11 (23.4%) and anastomotic stricture in 8 patients (17.0%). There was no significant difference in bowel function between patient groups, though anti-diarrheal medication was needed by most (74.5%). A significant association was observed between CD and the number of pouchitis episodes (p=0.001) with 18 (38.3%) experiencing either 1, 2, or 3 episodes. Overall, 5-year pouch survival was 87.2% with no significant difference with respect to underlying diagnosis.

Conclusions/Discussion: Regardless of underlying diagnosis or perianal disease history, IPRA represents a viable option of last resort for patients seeking to maintain intestinal continuity but who are not candidates for traditional ileorectal or ileoanal anastomoses.



Picture 1: (Left) Kaplan-Meier curve of overall pouch survival. (Right) Kaplan-Meier curve of pouch survival by underlying diagnosis.

OUTCOMES OF NON-OPERATIVE TREATMENT OF ACUTE APPENDICITIS IN ADULTS WITH SARS-COV-2 INFECTION: EXPERIENCE FROM A COVID-19 REFERRAL CENTER.

eP304

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Purpose/Background: Acute appendicitis is one of the most common surgical emergencies in adults, where appendectomy, whether open or laparoscopic, is the standard treatment. The option for non-operative management (NOM) in select patients has gradually come to the fore. When COVID-19 was first documented in the country in March 2020, the Philippine General Hospital (PGH) became a National Referral Center. With reported increase in morbidity and mortality observed in COVID-19 patients undergoing surgery, the management of acute appendicitis shifted towards NOM. This study aimed to determine outcomes of COVID-19 cases with acute appendicitis managed non-operatively at the PGH over a 2-year period (March 2020 to February 2022).

Methods/Interventions: A retrospective observational study was conducted on adult patients with acute appendicitis and SARS-CoV-2 infection admitted at the PGH from March 2020 to February 2022 and underwent NOM. Pediatric cases; those with clinical, or radiologic evidence of perforation; or evidence of appendicolith on abdominal computed tomography (CT) were excluded. The following data were collected: success, or failure of NOM; re-admission, morbidity, and mortality rates.

Results/Outcome(s): Sixty-two adult cases of acute appendicitis with COVID-19 were seen over a 2-year period. Immediate surgery was performed in 41 cases for failure to meet the criteria for NOM. All patients who had surgery recovered, with ileus as most common complication noted in 34% of cases. Twenty-one cases had NOM with an average length of stay (LOS) of 6.8 days (range 1 to 22 days). No failure of NOM was observed during their admission, and all cases were discharged or transferred to a quarantine facility. There were no readmissions, morbidities, and mortalities in all cases at 30-, and 60-days post discharge. One case was readmitted after 93 days for ruptured appendicitis requiring surgery. The failure rate of NOM beyond 6 months was 4.76% (Figure 1).

Conclusions/Discussion: Patients who had NOM received intravenous cefoxitin on admission and shifted to oral antibiotics on discharge to complete 7 to 10 days. They were advised to observe for recurrence of abdominal pain, fever, and other associated symptoms and were followed up via telemedicine. The wide range of LOS was due to existing quarantine protocols, lack of quarantine facilities, and incapacity for home isolation. The data showed that NOM can be safely and effectively applied after careful patient selection as an alternative to surgery in select COVID-19 cases. This approach, however, requires close monitoring and early recognition of treatment failure. Outcomes observed are promising and may serve as reference in modifying treatment guidelines for acute appendicitis with COVID-19, and perhaps even in the general population.

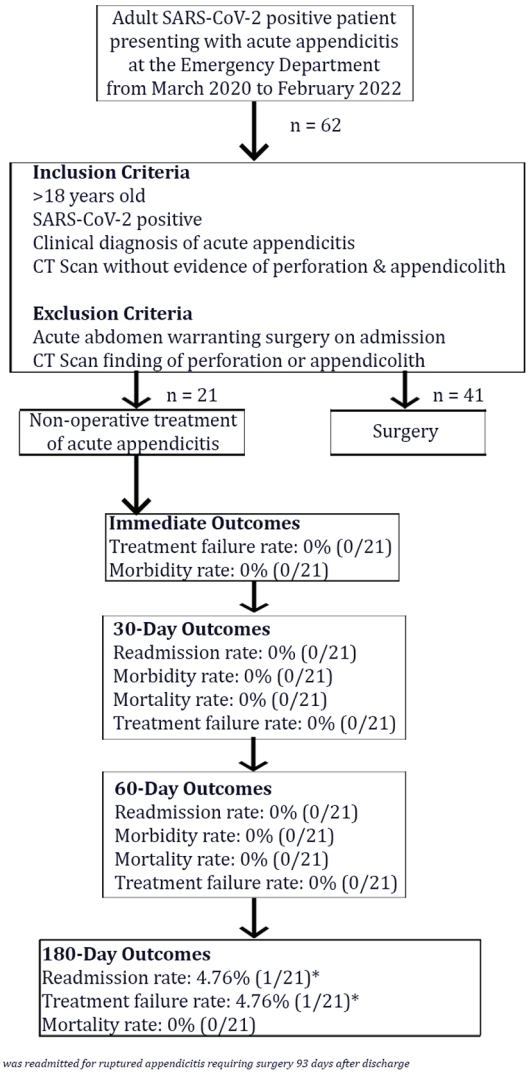

Figure 1. Outcomes of non-operative treatment of acute appendicitis in adults with SARS-CoV-2 infection. (PGH, 2022)

LONG-TERM OUTCOMES FOLLOWING NON-OPERATIVE MANAGEMENT OF ACUTE APPENDICITIS: A POPULATION-BASED ANALYSIS.

eP305

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Purpose/Background: Despite emerging evidence supporting the safety of non-operative management (NOM) of acute appendicitis (AA) as an alternative to surgery, there remains a reluctance to adopt this practice. Population-based data with extended follow up to investigate real-world treatment failure following NOM for AA are lacking.

Methods/Interventions: We performed a population-based retrospective study of all adult patients presenting to any emergency department (ED) in Ontario, Canada between April 2002 and Dec 2019 with a primary diagnostic code for AA. Patients who did not undergo an appendicitis-related operation or interventional procedure on index presentation comprised the NOM cohort. The primary outcome, treatment failure, was defined as emergency admission requiring an urgent appendicitis-associated operation or interventional procedure following initial NOM. Patients were followed for the duration of the observation window with a maximum of 16 years of follow up.

Results/Outcome(s): Of 176,602 patients identified with an index ED presentation for AA, 21,186 underwent NOM. The annual proportion of patients undergoing NOM increased significantly over time (8.5% in 2002 vs.16.2% in 2019, p<0.001). The remaining 155,416 underwent an appendicitis-associated procedure on index admission (intervention cohort), including appendectomy (90.9%), appendectomy with drainage of intra-abdominal abscess for perforated appendicitis (5.4%), segmental colon resection (2.1%) or percutaneous drainage (1.5%). Patients in the NOM group were slightly older (mean age [SD], 43.0 [18.0] vs. 40.3 [16.3] years, p<0.001) with greater proportion of moderate to high comorbidity burden as defined by 8 or more Johns Hopkins aggregated diagnosis codes (51.1% NOM vs. 24% intervention, p<0.001). Treatment failure occurred in 10.4% of the NOM cohort, including appendectomy (9.2%), appendectomy with operative drainage of abscess indicative of perforation (0.7%) and segmental resection (0.5%). There were no interventional drainage procedures following initial NOM. Median time to treatment failure was 120.5 days (IQR 26 to 419 days), with 2.8% treatment failure at 30 days, 4.6% at 60 days, 7.5% at 1 year and 9.7% at 5 years (Figure 1).

Conclusions/Discussion: Over the span of over 16 years the proportion of patients undergoing NOM increased significantly. Treatment failure following NOM was lower than previously reported, but the rate of failure continues to increase over time.

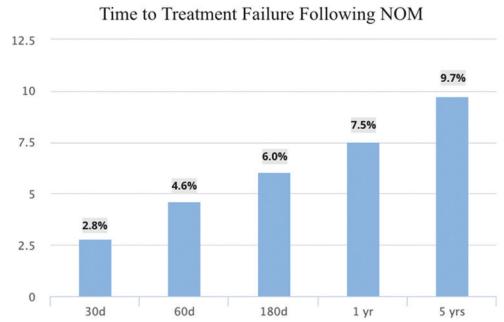

Figure 1: *Proportion of patients undergoing initial NOM with treatment failure requiring emergency appendicitis-related operative or percutaneous drainage procedure at 30 days, 60 days, 180 days, 1 yr and 5 years.*

FREQUENCY AND ASSOCIATE FACTORS FOR COMPLICATIONS IN GASTROINTESTINAL STOMAS.

eP306

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Purpose/Background: Gastrointestinal ostomy construction is a common procedure, annually in the United States approximately 150,000 are created. Indications for stoma construction are diverse, they can be for benign or malignant disease, and emergency or elective. The reported incidence of complications ranges between 21 to 70%. The risk of complications varies depending on the conditions of the patient and the circumstances for the ostomy construction. Multiple risk factors have been proposed for developing complications, including age, gender, body mass index, nutritional status, ASA, and use of steroids, technical factors, elective or emergency scenarios, the location of the stoma, and finally the specific indication for the formation of the stoma. The aim was to determine the frequency of complications of gastrointestinal stomas and the potential associated factors.

Methods/Interventions: Patients who underwent gastrointestinal ostomy construction at Hospital General Dr. Manuel Gea Gonzalez in Mexico City, Mexico, from January 2017 to December 2018 were included. Patients were retrospectively identified and analyzed using the hospital registry. The frequency of complications related to gastrointestinal ostomy construction was described. Multivariate Logistic regression analysis was used to determine factors associated with ostomy complications. This study was approved by the our local Institutional Review Board.

Results/Outcome(s): Our selection criteria yielded 99 cases of gastrointestinal ostomies. There were 60 males, the mean age was 50.4 years, the mean BMI was 25.7, 18.1% had obesity, 61.7% had at least one morbidity (diabetes mellitus being the most frequent), 49 patients (49.5%) were classified as ASA III-IV, 32.3% were current smokers, 28.2% had cancer, and the mean preoperative albumin was 3.1 g/dL. The 87.9% of the patients had their stoma constructed under emergency circumstances. Regarding the frequency of complications, we found a 35.3% of total postoperative complications and 17% had complications exclusively related with the ostomy. Among the ostomy complications, 6% had ostomy stenosis, 3% prolapse, 3% mucocutaneous dehiscence, 1% retraction, and 4% parastomal hernia. The complicated group (n=64) had higher BMI (p=0.042). A higher frequency of stoma complications was observed among obese patients (25.7% vs 14%). On univariate analysis, the indication of the stoma due to anastomotic leak was a risk factor associated with ostomy related complications (OR 6.413, CI 95% 1.219 to 33.731, P = 0.021). Multivariate analysis identified as potential risk factors for complications, the BMI (OR=2.5) and ostomy for anastomotic leakage (OR=5.2), however both were non significant.

Conclusions/Discussion: Gastrointestinal ostomy construction is associated with high risk of morbidity. In our study, the increased body mass index and the ostomy constructed for anastomotic leakage were considered as potential risk factors for complications.

Comparison of complicated vs uncomplicated abdominal stomas.

Variable	complicated stoma		P value
	Yes (n=35)	No (n=64)	
Stoma indication			
Intestinal occlusion	9 (25.7)	17 (26.5)	0.927
inflammatory pathology	7 (20)	9 (14)	0.443
Anastomotic leak	6 (17.1)	2 (3.1)	**0.021**** (OR 6413, 95% CI 1219 to 33731)
Abdominal trauma			0.612**
Cancer	2 (5.7)	2 (3.1)	0.129**
Sigmoid volvulus	2 (5.7)	11 (17.1)	0.122**
Fournier/abscess	2 (5.7)	0	0.158**
mesenteric ischemia	0	5 (7.8)	0.550
Intraoperative bowel injury	0	3 (4.6)	0.538**
Others	0	2 (3.1)	0.970
	7 (20)	13 (20.3)	
Type of stoma, n (%)			
ileostomy	18 (51.4)	31 (48.4)	0.776
colostomy	16 (45.7)	33 (51.5)	0.578
Jejunostomy	1 (2.8)	0	0.353**
Urgency, n (%)	33 (94.2)	54 (84.3)	0.149
Type of approach, n (%)			
Open	33 (94.2)	56 (87.5)	0.487**
laparoscopic	2 (5.7)	8 (12.5)	

NOT ALL DIVERSIONS ARE THE SAME: DIFFERENCES IN COMPLICATIONS AND READMISSIONS IN DIVERTING ILEOSTOMIES AND COLOSTOMIES.

eP307

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Purpose/Background: Fecal diversion with ileostomy or colostomy is commonly used to protect distal anastomoses, divert from obstruction, or control sepsis from perforation or fistulae. The type of diversion may result in varied patient morbidity: ileostomies predispose patients to dehydration while colostomies are prone to prolapse. Few studies have directly compared outcomes from the two diversion types, the results of which may influence surgical decision making.

Methods/Interventions: A single institution retrospective review of patients with fecal diversion via loop ileostomy or colostomy for all indications from 2015-2020. Patients with diversion for Ileoanal pouch were excluded due to more proximal diverting stoma. Records were reviewed for readmissions and indications, stoma revisions, or stoma related complications occurring between stoma creation and reversal if reversal occurred.

Results/Outcome(s): 283 patients were included, which comprised 212 ileostomies and 71 colostomies. Patients with diverting colostomy were older (63 vs 58 years old) (p=0.002) and had higher ASA scores (p<0.001) compared to ileostomy. Compared to colostomies, more ileostomies

were created electively (49% vs 78%) and subsequently reversed (31% vs 92%; p<0.001). 21% (n=45) of patients with ileostomy had stoma related readmissions compared to 13% (n=9) of patients with colostomy (p=0.12). 67% (n=30) of patients readmitted with ileostomy were readmitted for dehydration compared to only 22% (n=2) of patients readmitted with a colostomy (p=0.02). Infusion of home intravenous fluids (IVF) didn't prevent readmission; 18% (n=14) of patients readmitted received home IVF (71% (n=10) of patients on home IVF with a readmission were readmitted for dehydration); 3.9% (n=8) of patients not readmitted received home IVF (p<0.001). Patients with an ileostomy had higher rate of pouching trouble (71% vs 38%; p<0.001) including: leaking (37% vs 24%, p=0.04), skin irritation (60% vs 37%, p=0.001), and high output (21% vs 4%, p=0.001). 12 (6%) patients required early reversal of their ileostomy (mean 17 ± 3.6 days) due to uncontrolled output. Patients with colostomy had higher prolapse rate (13% vs 4%, p=0.02), but no significant difference in the number of stoma revisions compared to ileostomy (11% vs 5%, p=0.09).

Conclusions/Discussion: Patients with diverting ileostomy had similar rates of stoma related readmissions compared to colostomy. Most ileostomy readmissions due to dehydration, home IVF didn't prevent dehydration. Patients with ileostomy reported more issues with pouching and managing output, and some patients required early reversal of the ileostomy due to high output. While patients with colostomy had higher rate of prolapse there was no difference in the rate of stoma revision between ileostomy and colostomy. Surgeons should consider these outcomes when discussing potential diversion options and expectations post operatively with patients.

All readmissions	Total (n=285)	Diverting Ileostomy (n=212)	Diverting Colostomy (n=71)	p-value
Total number of readmissions	129	93/129 (72)	36/129 (28)	
Number of patients readmitted	79 (28)	60 (28)	19 (27)	0.879
Readmission indications				
Dehydration*	32	30	2	
Abscess/infection	12	9	3	
Hernia*	2	2	--	
Obstruction*	7	7	--	
Bleeding/hematoma*	3	1	2	
Cancer related issue	11	4	7	
Stoma/skin pain*	4	3	1	
Abdominal pain	1	1	--	
Ileus	1	1	--	
Stoma prolapse*	6	2	4	

	Total (n=281)	Readmitted (n=79)	Not readmitted (n=204)	p-value
Home intravenous fluids	22 (7.8)	14 (17.7)	8 (3.9)	<0.001

Stoma related readmissions and pouching trouble	Total (n=285)	Diverting Ileostomy (n=212)	Diverting Colostomy (n=71)	p-value
Number of patients Readmitted with stoma related issues	54 (19)	45 (21)	9 (13)	0.12
Of patients readmitted with stoma-related complications*, number readmitted for dehydration	32/54 (59)	30/45 (67)	2/9 (22)	0.023
Home intravenous fluids	22 (8)	18 (9)	4 (6)	0.610
Pouching trouble	177 (63)	150 (71)	27 (38)	<0.001
Leaking	96 (34)	79 (37)	17 (24)	0.040
Skin irritation	154 (54)	128 (60)	26 (37)	0.001
Managing output	47 (17)	44 (21)	3 (4)	0.001
Changing pouch	16 (6)	15 (7)	1 (1)	0.081

Stoma complications and revisions	Total (n=283)	Diverting Ileostomy (n=212)	Diverting Colostomy (n=71)	p-value
Early closure	12 (4)	12 (6)	0	0.041
Parastomal hernia	21 (7)	17 (8)	4 (6)	0.609
Stoma prolapse	18 (6)	9 (4)	9 (13)	0.021
Retracted stoma	19 (7)	13 (6)	6 (9)	0.583
Stoma revision	18 (6)	10 (5)	8 (11)	0.087
Indication:				0.097
Prolapse	7 (39)	2 (20)	5 (63)	
Hernia	2 (11)	1 (10)	1 (13)	
Obstruction	7 (39)	6 (60)	1 (13)	
Retracted stoma	1 (6)	--	1 (13)	
Bleeding mesentery	1 (6)	1 (10)	--	
Stoma revision post-op day, median (IQR)	21 (9, 113)	17 (7, 54)	52 (14, 163)	0.214

All data expressed as number (percentage) unless otherwise specified
*Indicates stoma-readmission indication (Dehydration, hernia, obstruction, bleeding/hematoma, stoma/skin pain, stoma prolapse)

RESULTS OF COLORECTAL SURGERY FOR DEEP INFILTRATING ENDOMETRIOSIS IN WOMEN OPERATED AT INDISA CLINIC, CHILE YEARS 2016-2022.

eP308

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Purpose/Background: Endometriosis is defined as the presence of endometrial tissue outside the uterine cavity. Intestinal involvement occurs in less than one third of women diagnosed with endometriosis, being the most common site the rectosigmoid junction. Deep infiltration endometriosis (DIE) is considered a specific aggressive form of endometriosis, penetrating more than 5 mm below the surface of the peritoneum. Surgical management for DIE is the gold standard with previous studies that have reported improvements in generic quality of life. There are few publications that report results of colorectal surgeries associated with DIE in a single center.

Methods/Interventions: Design: Retrospective, Observational. Objective: Describe early surgical results of colorectal surgery for DIE in women operated at INDISA clinic. Patients: Women treated by colorectal surgical for DIE, at INDISA clinic. Intervention: Colorectal resections for endometriosis. Time: January 2016–June 2022.

Results/Outcome(s): One hundred and sixty patients were operated by DIE at INDISA clinic between 2016 and 2022, 56 discoidal resections (Group I) and 104 sigmoidectomies (Group II). The demographic characteristics of both groups were similar with the exception of smoking, which showed a predominance in group II (p=0.04). Analysis of the surgical variables showed that the distribution in both groups is balanced (anastomosis height p=0.75, type of approach p=0.27, conversion rate p=0.27, protective ostomy p=1.0). Comparing both groups in relation to postoperative evolution, Group I presented a significant decrease in the refeeding time (2 vs 3 days, p=0.01) without difference in gas expulsion, first stools, days of hospitalization and to Clavien-Dindo complications ≥3 (p=0.9, p=0.62, p=0.35, p=1.00).

Conclusions/Discussion: This study evaluated postoperative evolution and complications of patients undergoing two different surgical techniques in colorectal surgery for DIE. Although our study is retrospective, it stands out for being one of the few carried out in a single center with a population greater than 100 patients and shows results similar to the international literature. When comparing these two techniques of colorectal surgery in DIE, it is concluded that patients operated by discoidal resection have an earlier feeding, with no significant differences related to the surgical approach, postoperative complications and days of hospitalization. Both techniques can be considered safe for the treatment of DIE. Further increase in patient samples is needed for future studies.

Table 1. Demographic and surgical characteristics

	Discoidal Resections (N=56)	Sigmoidectomies (N=104)	P-Value
Age	35.07 (±5.08)	36.67 (±5.22)	0.07
BMI	24,41 (± 3,30)	24,56 (± 4,5)	0,487
Smoking habit	1 (1.89%)	13 (12.5%)	0.04
Alcohol Consumption	4 (7.55%)	15 (14.42%)	0.30
HTA	2 (3.77%)	6 (5.83%)	0.72
DM T II	0 (0%)	3 (2.91%)	0.55
Lung Disease	0 (0%)	2 (1.94%)	0.55
Surgical approach			0.27
- Laparoscopic	52 (97.11%)	94 (90.38%)	
- Open surgery	0 (0%)	3 (2.88%)	
Conversion	1 (1.89%)	7 (6.79%)	0.27
Height anastomosis			0.75
- <5 cm	1 (1.89%)	1 (0.96%)	
- 5 a 10 cm	15 (28.30%)	34 (32.69%)	
- >10 cm	37 (69.81%)	69 (66.35%)	
Protective ostomy	2 (3.77%)	5 (4.81%)	1.00

Table 2. Postoperative results.

	Discoidal (n=56)	Sigmoidectomies (n=104)	P-Value
Days hospitalization	5 (4-6)	5 (4-5.5)	0.35
Clavien-Dindo »3			1.00
- Leaks	1 (1.89%)	8 (7.69%)	
- Intraop-bleeding	1 (1.89%)	2 (1.94%)	
Intestinal transit			
- Gases	2 (2-3)	2 (2-3)	0.90
- Bowel-movements	3.56 (±0.12)	3.64 (±0.11)	0.62
- Feedback with solids	2 (2-3)	3 (2-4)	<0.01
Mortality 30 days	0 (0%)	0 (0%)	-

DEFINING MORTALITY AFTER SURGERY FOR ACUTE COLONIC PSEUDO-OBSTRUCTION IN THE MODERN ERA: NOT SUCH A POISON PILL?

eP309

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Purpose/Background: Acute colonic pseudo-obstruction (ACPO), eponymously known as Ogilvie's syndrome, is characterized by massive colonic dilation in the absence of mechanical obstruction, occurring primarily in frail patients with underlying comorbidities. Although non-surgical treatments including neostigmine and decompressive colonoscopy may reduce the need for surgery, historically, surgical treatment has been reported to be associated with a mortality of up to 30%. However, little if any modern data exists regarding the outcomes of surgery for ACPO. We aimed to describe the short-term (30-day) outcomes of surgery for ACPO. We hypothesized that surgery for ACPO in the modern era is associated with a significantly lower 30-day mortality compared with prior reports.

Methods/Interventions: Our prospectively maintained colorectal surgery registry was queried for patients diagnosed with ACPO who underwent surgery from 2009-2022 using CPT and ICD codes. Data regarding demographics, ACPO treatments, and surgical outcomes are reported. Postoperative complications were graded according to the Clavien-Dindo (CD) classification. Data are reported as median/interquartile range (IQR) or mean/standard deviation (SD).

Results/Outcome(s): A total of 27 patients who underwent colorectal surgery for ACPO were identified. Demographics: women, 9 (33); age, years-old 70 (61 – 80); BMI, Kg/m^2 29 (24 – 34). Comorbidities, precipitating factors, and treatments are summarized in **Table 1**. The preoperative length of stay was 9.4 ± 8.4 days (SD). Preoperatively, the maximum colonic diameter was 13.5 ± 3.1 cm. Intraoperative findings revealed colonic dilation in all patients, colonic ischemia in 6 (22%) and large bowel perforation in 3 (11%). The operations included total colectomy with end-ileostomy (11, 41%), diversion without resection (8, 30%), ascending colectomy (6, 22%), total abdominal colectomy with ileo-rectal anastomosis (1, 4%) and Hartmann's procedure (1, 4%). The majority of operations were open (17, 63%); intraoperative estimated blood loss was 138.3 ± 177.7 mLs. Severe complications (CD 3 or 4) occurred in 9 (33%) patients; none required reoperation. No recurrences of ACPO were observed following surgery. Postoperative length of stay and total length of stay were 14.8 ± 10.9 and 24.2 ± 13.9 days, respectively. The 30-days mortality was 7.4% (n=2).

Conclusions/Discussion: Surgical treatment was effective for ACPO refractory to medical therapy or for patients who developed acute complications. Options included total or segmental colectomy, or diversion without resection. Postoperative complications were common, but patients did not require reoperation in this series. Prolonged post-operative hospital length of stay was observed, but early mortality was relatively low, suggesting that surgical treatment for ACPO in the modern era may be safer than previously reported.

Variable	N (%)	Variable	N (%)
Comorbidities		**Colonoscopic decompression**	
Heart disease	17 (63)	None	12 (44)
Cerebrovascular accident	10 (37)	Once	7 (26)
Lung disease	8 (30)	Twice	5 (19)
Active cancer	7 (26)	Three times	3 (11)
Chronic kidney disease	6 (22)		
Psychiatric disorder	3 (11)		
Liver disease	2 (7)		
Precipitating factor		**Surgery**	
Infection	9 (33)	TAC with EI	11 (41)
Surgery	8 (30)	Right colectomy with EI	6 (22)
Metabolic derangements	2 (7)	Transverse colon colostomies	5 (19)
Medication induced	2 (7)	Ileostomy v transverse colostomy	3 (11)
Trauma	1 (3)	TAC with IRA	1 (4)
Cerebrovascular accident	1 (3)	Hartmann	1 (4)
Unclear	4 (15)		
Neostigmine		**Access**	
None	19 (70)	Open	17 (63)
Once	3 (11)	Laparoscopic	4 (15)
Twice	3 (11)	Hand-assisted	3 (11)
Three times	1 (4)	Local access (trephine)	3 (11)
Four times	1 (4)		

*TAC: Total abdominal colectomy; EI: End-ileostomy; IRA: Ileo-rectal anastomosis

Table 1. Comorbidities and Treatments for ACPO, N=27

INTERNATIONAL ADAPTATION OF THE RESOURCE-STRATIFIED NCCN FRAMEWORK FOR RECTAL CANCER IN BOLIVIA.

eP310

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Purpose/Background: Cancer outcomes can be improved by up to 30% if accepted standards of care are practiced. Existing guidelines assume the accessibility of costly diagnostic and treatment resources that are often geographically or financially inaccessible in low resource settings. The present collaboration between the National Comprehensive Cancer Network (NCCN) and

PROMIS-Bolivia adapted the resource-stratified NCCN Framework for rectal cancer to resource and financial constraints across Bolivia to provide evidence-based guidelines for patients and health centers with basic, core, enhanced and maximal resources.

Methods/Interventions: A multidisciplinary panel of 15 Bolivian and international rectal cancer experts was recruited following national stakeholder analysis to ensure equal representation across subspecialties, health sectors and geographic regions. Experts included five surgical oncologists, five medical oncologists, four radiation oncologists, two gastroenterologists, and one pathologist representing 10 health centers spanning public, social security, and private health sectors. Each expert independently reviewed Spanish-translations of NCCN Framework for rectal cancer and proposed adaptations to accommodate local resource and access limitations. Proposed adaptations were summarized and reviewed by each panelist as well as NCCN in accordance with the formal NCCN international adaptations process. A national adaptation workshop was held April 2019 in La Paz, Bolivia. The NCCN rectal cancer panel chair led an expert panel review of proposed modifications and developed a consensus national adaptation for rectal cancer management specific to basic, core, enhanced, and maximal resource levels.

Results/Outcome(s): Consensus recommendations for the workup and management of rectal cancer at each resource level are summarized in Table 1, with each resource-specific recommendation expanding upon the preceding level. Moderate adaptations were made to the original NCCN Framework due to financial inaccessibility of specific chemotherapy, radiotherapy, and advanced imaging modalities (i.e., MRI, endorectal ultrasound, PET/CT) at basic, core and enhanced resource levels, respectively.

Conclusions/Discussion: International adaptations of the NCCN Framework can provide evidence-based cancer guidelines to maximize outcomes in settings with limited patient and health system resources. The NCCN Framework – Bolivia Adaptation represents the first country-specific, resource-stratified NCCN clinical practice guideline for the management of rectal cancer. Forthcoming implementation of these adapted guidelines will permit evaluation of their impact on clinical outcomes, financial toxicity and treatment abandonment among patients in low-resource settings.

Table 1. Diagnostic and Therapeutic Modalities Recommended by NCCN Framework – Bolivia Adaptation for Rectal Cancer Care by Resource Level

	Basic	Core	Enhanced	Maximal
Workup	Proctoscopy Biopsy XR Chest US Abdomen CT Pelvis CBC, BMP	+Colonoscopy +CT Abdomen +CEA + Biopsy of metastasis	+MR Pelvis, *if available* +MMR/MSI, *if available*	+MR Pelvis +MMR/MSI +Endorectal US +Stomal therapist +RAS/BRAF +Consider PET/CT
Surgery	Transanal excision, *if available* Transabdominal resection Palliative ostomy	+Metastasectomy +Palliative resection +Palliative bypass	Unchanged	+Endoscopic stent
Radiotherapy	None	Long-course RT, *if available*	+Long-course RT	+Short course RT
Chemotherapy	None	5-FU/leucovorin Capecitabine Oxaliplatin Irinotecan CAPEOX IROX	+mFOLFOX +FOLFIRI +FOLFOXIRI +Bevacizumab	+Panitumumab +Cetuximab +Ziv-aflibercept +Ramucirumab +Vemurafenib +Regorafenib +Pembrolizumab +Trifluridine +Tipiracil +Nivolumab +Ipilimumab

INCREASED USE OF A PET AFTER COLORECTAL SURGERY IS ASSOCIATED WITH IMPROVED OUTCOMES.

eP311

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Purpose/Background: Patient engagement technologies (PETs) guide patients through the perioperative period and may improve patient satisfaction and outcomes. Previous work from our group has demonstrated that use of these technologies varies significantly by patient-level factors such as race/ethnicity. However, the impact of disparate use of PETs on patient outcomes has yet to be characterized. We hypothesized that patients with less usage of a PET would have worse outcomes after elective colorectal surgery.

Methods/Interventions: Retrospective cohort study of patients undergoing elective colorectal surgery January 2018- June 2022 who enrolled in a PET at a single institution. Patients received educational content, healthcare reminders, patient reported outcome (PRO) surveys, and health checks preoperatively, in-hospital and for 30-days post-discharge. Outcomes were length of stay (LOS), readmissions, and complications within 30 days of index hospitalization. Data were compared using chi-squared, Kruskall Wallis rank sum test, and Spearman correlations. Adjusted analyses were performed using logistic and linear regression models.

Results/Outcome(s): Overall, 403 patients undergoing surgery were enrolled in the PET, and 359 (89.1%) activated the PET. Median age was 56.8 (43.9-67.2), 301 (74.7%) patients were white, 97 (24.1%) Black. 309 (76.7%) patients underwent partial colectomy, 63 (15.6%) abdominoperineal resection, 31 (7.7%) ostomy creation or reversal. Patients completed a median of 7 PRO (0-15.0) surveys, 2 (1.0-4.0) in-hospital health checks, and 1

(0-8.0) post-discharge health checks. Median LOS was 3 days (IQR 2.0-5.0), 57 (14.1%) patients were readmitted, and 56 (13.9%) of patients had a postoperative complication. Patients who completed no surveys had longer LOS than those who completed 2 or more (4 days vs. 3 days, p=0.001). Patients who were not readmitted completed significantly more total surveys (8 vs 3, p=0.026) and more post discharge health checks (1.5 vs 0, p=0.018) than patients that were readmitted. Similarly, patients without postoperative complications completed more total surveys (8 vs 2, p=0.002) and more post discharge health checks (2 vs 0, p<0.001) than patients with complications. On adjusted analysis, completion of more total surveys was associated with shorter LOS (MLE -0.3, 95%CI -0.45--0.15, p<0.001) and lower rates of readmission (OR 0.95, 95%CI 0.91-.0.99, p=0.015). Completion of more post discharge health checks was associated with lower rate of postoperative complications (OR 0.85, 95%CI 0.74-0.97, p=0.017).

Conclusions/Discussion: Patients with less usage of a PET had longer LOS, higher rates of readmission and postoperative complications after colorectal surgery. However, benefits of these technologies may not be experienced equally by all patients, which should be considered during implementation of interventions to improve surgical outcomes.

INTER-RATER RELIABILITY OF ACS-NSQIP COLORECTAL PROCEDURE CODING IN CANADA.

eP312

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Purpose/Background: To identify areas for improvement in the quality of care, the American College of Surgeons National Surgical Quality Improvement Project (ACS-NSQIP) collects risk-adjusted data on surgical cases and outcomes. Upon review of the Current Procedural Terminology (CPT) codes used by ACS-NSQIP, we noticed a lack of appropriate codes for several types of colorectal resection procedures. This can cause inconsistencies in code assignment, subsequently jeopardizing risk adjustment. This study aims to explore variations in coding colorectal resection procedures across Canada by surgical clinical reviewers (SCR) and the impact on risk adjustment.

Methods/Interventions: An electronic survey was distributed to SCRs in 6 Canadian provinces. The participants randomly received 1 of 3 groupings consisting of 3-4 simulated synoptic operative reports and were asked to assign the most appropriate codes. The operative reports showcased a variety of types of resections, surgical approaches, whether an anastomosis was performed, and whether diversion was performed, among other details. Frequencies of assigned codes for each operative report were determined. Percent agreement and free-marginal kappa correlation were calculated. The ACS-NSQIP risk calculator was used to show the difference in predicted morbidity and mortality between the two most frequently chosen codes for each case, demonstrating the impact on risk adjustment.

Results/Outcome(s): Responses were received from 44 of 156 (28.2%) survey recipients. SCRs reported utilizing a variety of resources to assist them with coding in standard practice (41.9% AMA materials, 46.5% materials from their institution, 2.3% from surgeon input, 54.5% other). There was a lot of variability in the codes chosen (Table 1), ranging from 3 to 6 different codes for any given case. Agreement ranged from as low as 6.7% to a maximum of 62.3%. Free-marginal kappa correlation ranged from the moderate agreement (0.53) to a high degree of disagreement (-0.17). When the two most frequently selected codes for any given case were tested against one another using the ACS-NSQIP risk calculator, the absolute difference in % predicted risk of serious complications ranged from as low as 0.2% for cases with high agreement to as high as 13.7% for cases with the low agreement. The absolute difference in % predicted 30-day mortality ranged from 0.2% to as high as 6.3%.

Conclusions/Discussion: This study demonstrated low inter-rater reliability and, in some cases, even a high rate of disagreement in the coding of ACS-NSQIP colorectal resection procedures in Canada among SCRs. This was shown to impact the ability to properly risk adjust such cases, as demonstrated by the ACS-NSQIP risk prediction tool. Creating additional codes to better characterize the range of colorectal surgical procedures and better descriptions of codes would likely help standardize the coding process and lead to more robust risk adjustment within the ACS-NSQIP.

Case	Description	n (total responses)	Chosen Codes	Count	Frequency (%)	Agreement (%)	Free-marginal kappa
1	Open right hemicolectomy, end ileostomy, stapled distal colon	6	44141	3	50.0	26.7	-0.10
			44160	2	33.3		
			44144	1	16.7		
2	Laparoscopic left hemicolectomy, primary anastamosis, converted to open	24	44140	14	58.3	43.1	0.24
			44204	8	33.3		
			44205	1	4.2		
			44145	1	4.2		
3	Laparoscopic sigmoid colectomy, end colostomy, mucous fistula	14	44206	6	42.9	27.5	0.09
			44144	5	35.7		
			44141	1	7.1		
			44208	1	7.1		
			44204	1	7.1		
4	Laparoscopic anterior resection, end colostomy, stapled off rectum	6	44206	4	66.7	40.0	0.10
			44205	1	16.7		
			44143	1	16.7		
5	Laparoscopic low anterior resection, primary anastamosis,diverting ileostomy	24	44207	10	41.7	32.6	0.19
			44208	10	41.7		
			44210	1	4.2		
			44146	1	4.2		
			45111	1	4.2		
			44143	1	4.2		
6	Open low anterior resection, primary anastamosis, diverting ileostomy	14	44146	6	42.9	33.0	0.11
			44145	6	42.9		
			45119	1	7.1		
			44208	1	7.1		
7	Laparoscopic low anterior resection, coloanal anastomosis, diverting ileostomy	6	44208	2	33.3	6.7	-0.17
			45397	1	16.7		
			45112	1	16.7		
			44204	1	16.7		
			45395	1	16.7		
8	Open abdominoperineal resection	24	45110	19	79.2	62.3	0.53
			44146	2	8.3		
			44145	1	4.2		
			45121	1	4.2		
			45112	1	4.2		
9	Open total abdominal proctocolectomy, ileal J pouch, divering ileostomy	14	44158	8	57.1	33.0	0.16
			44150	2	14.3		
			44157	2	14.3		
			44151	1	7.1		
			45119	1	7.1		
10	Laparoscopic total abdominal colectomy, ileorectal anastomosis	6	44210	4	66.7	40.0	0.10
			44157	1	16.7		
			44204	1	16.7		
11	Laparoscopic combined transabdominal and transanal low anterior resection, ppimary anastomosis, diverting ileostomy	14	44208	6	42.9	24.2	0.05
			44207	4	28.6		
			45397	2	14.3		
			45112	1	7.1		
			45395	1	7.1		

MORE THAN THE SUM OF ITS PARTS: THE BENEFITS OF MULTIDISCIPLINARY CONFERENCE EXTEND BEYOND PATIENT CARE.

eP313

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Purpose/Background: Multidisciplinary conferences (MDC) for rectal cancer yield more accurate clinical staging, individualization of multimodality treatment and coordinated surgical planning. While this confers a benefit for patients, the more subtle impact on clinicians and treatment teams has not been explored. Contextually, physicians' professional satisfaction is tied to feeling respected and appreciated in the workplace, and it is theorized that MDC fosters unique opportunities for academic advancement and professional relationship development. This study set out to determine what impact, if any, MDC had on clinicians' practices, relationships and careers.

Methods/Interventions: Participants included medical, radiation and surgical oncologists, radiologists, pathologists and physician trainees who participate in our local rectal cancer MDC. Semi-structured interviews were conducted, recorded and transcribed. Qualitative analysis using NVivo was completed, and major themes, minor themes and subthemes were coded and tabulated using a constant comparative method.

Results/Outcome(s): Twenty-one clinicians participated in the study representing all five disciplines from our local MDC. The major theme was benefits, discussed by all 21 participants (P) with a total of 438 references (R). Subthemes in this category were benefits to clinicians (21P, 310R), including academic opportunities (21P, 198R) and strengthening of interdisciplinary communication (20P, 103R), as well as benefits to patients (21P, 128R) including individualization of care (18P, 46R). Minor themes included challenges (21P, 99R), improvements (16P, 42R) and successes (21P, 65R). Subthemes in the challenges category included timing of meetings (10P, 15R) and workload (15P, 49R). Subthemes in the successes category included administrative support (7P, 11R), adequate representation from appropriate disciplines (13P, 18R), and accessibility with a virtual platform (17P, 26R).

Conclusions/Discussion: Multidisciplinary conference impacts participating clinicians in ways not previously understood. Benefits to clinicians include academic and educational opportunities as well as improvements in interdisciplinary communication. This contributes to clinician's ease-of-work and collegiality, which enhances professional satisfaction. These data demonstrate added value of MDC, underscoring its significance to our profession in a novel way.

ASSESSING VIEWS ON MYOELECTRIC ACTIVITY DATA FOR DISCHARGE READINESS AFTER COLORECTAL SURGERY.

eP314

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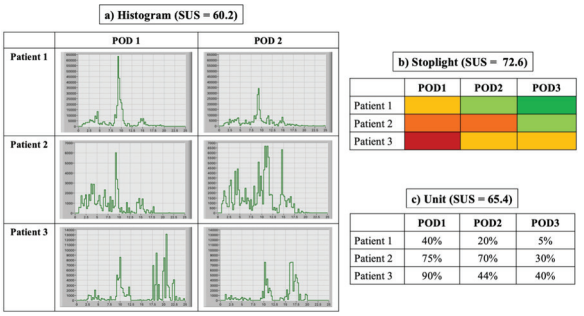
Purpose/Background: Return of bowel function after colorectal surgery is unpredictable and contributes to increased length of stay and postoperative readmissions. The purpose of this study was to determine how myoelectrical measurements obtained during inpatient surgical recovery might influence surgeon views on patients' medical readiness for discharge.

Methods/Interventions: We surveyed attending colorectal surgeons and residents to assess their preferences for use of a novel measure of return of bowel function. The survey incorporated myoelectric data from a colorectal surgery patient-facing study that recorded raw electrical signals attributed to gut neuromodulation using a noninvasive wireless patch system. Signal processing algorithms transformed the raw data into comparable activity levels for the stomach, small bowel, and colon. The survey participants were randomly presented with the clinical course of 6 patients (4 ostomy reversals, 2 colectomies) and asked to interpret each patient's medical readiness for discharge or NGT removal. After watching a training video and answering comprehension questions, the surgeons were shown the patients' myoelectric activity through a weighted histogram of frequencies for each post-op day. A slider scale ranging from 0-100 (0 = Less Confident, 50 = Neutral, 100 = More Confident) was used to assess changes in participant confidence regarding their decisions of medical readiness and willingness to discharge after studying the myoelectric activity. We then presented participants with 3 different data visualizations (Figure) of the myoelectricity and surveyed their preferences for use with a modified System Usability Scale.

Results/Outcome(s): 27 surgery residents (PGY3 = 19, PGY4 = 6, PGY5 = 1, 68% response rate) and 3 colorectal attending surgeons were surveyed. Participants using the myoelectric data reported significant increases in confidence regarding their assessment of medical readiness for discharge (mean = 56.6, $p<0.01$) but not in their willingness to discharge (mean = 52.7, $p = 0.08$). SUS scores were significantly different across the three interface designs ($p=0.04$). The "Stoplight" interface was rated as the most preferred (72.6), the "Unit" interface followed closely (65.4), and the "Histogram" format was the least preferred (60.2). 38% of providers described their ideal interface as a combination of the "Stoplight" and the "Histogram" formats, specifically for the color-codes to indicate standard of care while still having access to the full spectrum of myoelectric data.

Conclusions/Discussion: Gastrointestinal myoelectric data is a promising future tool to help increase confidence in surgeons' assessments of medical readiness for discharge after major abdominal surgery. We found that users prefer the myoelectric data presented in an interface that combines the original weighted-peak histograms with a color-coded metric simplifying recommendations for standard of care.



A) An example "Histogram" interface showcasing the 24-hour weighed peak histograms across 2 POD for 3 patients, with myoelectrical signal frequency plotted on the x axis and its relative intensity on the y axis. B) An example "Stoplight" interface with the color code ranging from dark green (<20% chance of ileus) to dark red (>80% chance of ileus) for each patient across 3 POD. C) An example "Unit" interface with each entry representing percent chance of ileus across 3 POD.

EFFECTS OF TRANSABDOMINAL PLANE BLOCK AND ELECTRICAL TWITCH OBTAINING INTRAMUSCULAR STIMULATION ON THE POSTOPERATIVE PAIN AFTER CYTOREDUCTIVE SURGERY FOLLOWED BY HYPERTHERMIC INTRAPERITONEAL CHEMOTHERAPY IN COLORECTAL CANCER PATIENTS WITH PERITONEAL METASTASES: A DOUBLE-BLIND RANDOMIZED CONTROLLED TRIAL.

eP315

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Purpose/Background: Cytoreductive surgery (CRS) followed by hyperthermic intraperitoneal chemotherapy (HIPEC) had been performed to treat colorectal cancer patients with peritoneal metastases. However, patients had been suffered from severe postoperative pain because of a long-length incision and radical procedures. To overcome severe postoperative pain, transversus abdominis plane block (TAP) and intramuscular electrical stimulation (IMS) are used to decrease postoperative pain after abdominal surgeries. Therefore, this study aimed to assess the efficacy of combined TAP and IMS to reduce postoperative pain in patients who underwent CRS followed by HIPEC compared with TAP and intravenous patient-controlled analgesia (PCA) as a double-blind randomized controlled trial.

Methods/Interventions: From April 2021 to May 2022, sixty-seven patients who underwent CRS followed by HIPEC were assigned into three groups: the control group (n=23); TAP group (n=23); TAP with IMS group (n=21). In the control group, patients were treated with intravenous PCA postoperatively. In the TAP group, patients were treated with and intravenous PCA and TAP. In the TAP with IMS group, patients were treated with intravenous PCA, TAP, and IMS after surgeries. Sample size was determined by α=0.05, β=0.8, effect size=30% and drop-out rate=20%. The primary outcome was to assess pain score using visual analogue scale at 0, 1, 2, 3, 4, 7, 14th days postoperatively. Secondary outcomes were to assess the gait speed, peak cough flow, the consumption of PCA, the use of opioids, and quality of life using a QoR-40 questionnaire were evaluated.

Results/Outcome(s): There were no differences for sex, age, body mass index, operation time, and intraoperative bleeding amount in all groups. The pain score using visual analog scale at the postoperative 1st day was lower in the TAP and IMS group compared to the control and TAP group (control vs. TAP vs. TAP with IMS, 76 vs. 60 vs. 45, $p < 0.001$, respectively). The gait speed at the postoperative 4th day was faster in the TAP and IMS group compared to the control and TAP group (p=0.010). The peak cough flow at the postoperative 4th day was faster in the TAP and IMS group compared to the control group and the TAP group ($p = 0.004$). The quality of life in the TAP with IMS group showed the highest value at postoperative 4^{th} day compared with control group and TAP group. (121 vs. 130 vs. 148, p=0.001)

Conclusions/Discussion: TAP combined with IMS showed more reduced pain scores and better gait speed with enhanced quality of life than TAP and intravenous PCA after CRS with HIPEC. It is expected that TAP combined with IMS can be useful to control postoperative pain and fast recovery after open abdominal surgical procedures.

COST-EFFICIENCY OF OUTPATIENT COLECTOMY IN A TERTIARY CENTER – A PROJECTED ECONOMIC EVALUATION.

eP316

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Purpose/Background: Short stay processes have been increasingly recognized as incentives to unburden chronically stressed health care systems worldwide. Enhanced recovery pathways (ERP) helped to decrease postoperative length of stay and day admission surgery (DAS) strategies

were implemented to save costs related to the preoperative day of surgery. Additionally, selected patients may be eligible to safely undergo outpatient colorectal resections, with a potential to suggest this strategy in up to 30% of selected patients. The present analysis aimed to analyze financial implications in a prospective payment system (PPS) associated with these different patient management strategies.

Methods/Interventions: Data derived from an anonymized and de-identified institutional dataset including patients undergoing left and right colonic resections between January 1, 2019 and December 31, 2020. Economic evaluations of the hypothetical outpatient and DAS groups were compared to the identical group of patients who underwent surgery in the actual inpatient setting. Costs, revenue and margin generated for the hospital were compared between the hypothetical DAS group, the hypothetical outpatient group and the actual inpatient group.

Results/Outcome(s): Out of 260 colectomy procedures, 135 (52%) were eligible for an outpatient strategy according to the institutional selection criteria. The virtual exercise in DAS resulted in losses of CHF 13 981. The costs related to the day before the intervention and thus saved within the hypothetical DAS strategy was valued at CHF 541.4. Although there were 3 more low outliers in the virtual DAS group compared to the actual inpatient group, the overall savings of CHF 72 548 limited the losses. The outpatient strategy allows to externalize costs to a smaller and less resource intense consuming structure. The revenue was CHF 5 964; however, if the same case was entirely handled in our institution (CHUV), it would have generated the same revenue but costs as high as CHF 6 363, resulting in a loss of CHF 675, corresponding to a cost coverage of 90% for this particular case.

Conclusions/Discussion: In a prospective payment system implemented to avoid bad incentives, the latter can unintentionally disadvantage best performing hospitals, especially those operating at maximum capacity. From a healthcare system point of view, outpatient colectomy is the best option with a drastic cost-sparing potential. In order to avoid significant losses for cost intensive hospitals like tertiary academic centers, the best option seems to be an outsourcing of the ambulatory strategy to a smaller, leaner and cost-efficient structure capable of covering at least 100% of the costs.

RELIABILITY AND VALIDITY OF THE TURKISH VERSION OF THE NEW CLEVELAND CLINIC COLORECTAL CANCER QUALITY OF LIFE QUESTIONNAIRE.

eP317

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Purpose/Background: Despite advances in surgical technique and medical treatment, colorectal cancer patients still experience a significant drop in quality of life. There are limited tools for addressing qOL, which necessitates objective measurements, in colorectal cancer patients. The only scale validated for the measurement of qOL in cancer patients in Turkish is SF-36[2], which has been used in many diseases but not colorectal cancer. Our study aims to translate and validate the Cleveland Clinic Colorectal Cancer Quality of Life Questionnaire (CCqOL) in Turkiye.

Methods/Interventions: Patients who underwent surgery for colorectal cancer between 2021-2022 in 6 centers were included in this prospective multicentric study. All patients completed the CCqOL questionnaire in 6 months after the surgery. These results were validated compared to SF 36. To assess reliability, Cronbach Alpha Coefficient for all items and test-retest reliability using the Split Half method (Spearman-Brown Correlation Coefficient) was calculated. Factor analysis was used to identify subscales of the Turkish version of The New Cleveland Clinic Colorectal Cancer Quality of Life Questionnaire.

Results/Outcome(s): Two hundred forty-four patients were included in this study and filled out the questionnaire. The Cronbach's alpha value is 0.78, indicating acceptable reliability of the questionnaire. The Spearman-Brown correlation coefficient for test-retest reliability was calculated as 0.745, which is quite acceptable. Kaiser Meyer Olkin's measure for sampling adequacy showed that enough patients were included in the study. According to factor analysis, nine subscales were found, which explains 68% of the variance

Conclusions/Discussion: The Turkish version of The New Cleveland Clinic Colorectal Cancer Quality of Life Questionnaire was shown to be a reliable and valid questionnaire in assessing the quality of life in colorectal cancer patients. This study will contribute to filling the gap in measuring the quality of life in these patients, which will help to improve the level of cancer care in Turkiye.

SHORT-TERM OUTCOMES FOLLOWING USE OF THE ANTERIOR COMPONENT SEPARATION TECHNIQUE FOR ABDOMINAL WALL CLOSURE AMONG PATIENTS UNDERGOING COLORECTAL SURGERY AT A TERTIARY GOVERNMENT HOSPITAL.

eP318

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Purpose/Background: Abdominal component separation (ACS) is one technique which has been used to reconstruct the abdominal wall and involves separation of select abdominal wall musculature from their insertions to allow medial advancement and achieve primary apposition at the midline that is free of tension. Although its initial use has mainly been for incisional hernias, ACS has also been increasingly applied to repair complex abdominal wall defects following colorectal surgery. The study aimed to analyze the demographics, clinical characteristics and perioperative outcomes of patients who underwent reconstruction of complex abdominal wall defects using the abdominal component separation (ACS) technique following colorectal surgery in the last seven years.

Methods/Interventions: This retrospective cross sectional study was conducted on adult patients who underwent concurrent colorectal surgery and anterior component separation from January 2015 to May 2022 at the Philippine General Hospital. A review of patient records was done in adherence to ethical standards. Patient demographics, operative parameters, and short-term outcomes were recorded.

Results/Outcome(s): Sixteen patients were included with a mean age of 52.4 years (Range 30-77 years). The Body Mass Index (BMI) was within normal in 50% (n=8.) Almost all the patients had undergone a prior laparotomy (n=15, 93.75%). Most of the surgeries were performed for a malignant colorectal condition (n=12, 75%). Defects ranged from 16–400cm^2, mostly located at the midline (n=9, 56%). Five cases required additional flaps for closure, attributed either to the defect size and location specially in areas where component separation is more limited. Complications include superficial surgical site infection (n=4), hematoma (n=2), seroma (n=1), and wound dehiscence (n=2). Two of these patients underwent reoperation at the OR for evacuation of hematoma. Flap necrosis and abdominal compartment syndrome was not noted in this study. None of the patients needed ICU admission, delayed extubation, or postoperative ventilatory support. Postoperatively, the patients stayed for 4 – 17 days, with an average LOS of 8.6 days. All patients were discharged improved, except for one patient who died of cardiogenic shock from acute myocardial infarction. This patient had comorbidities of hypertension and ischemic heart disease.

Conclusions/Discussion: This study demonstrates use anterior component separation for autologous reconstruction of complex, appropriately-sized abdominal wall defects from multiple etiologies. Adjunct flaps may be used to achieve reconstruction particularly in areas wherein the effectiveness of ACS is limited. While the study is able to describe immediate outcomes, long-term follow-up is recommended.

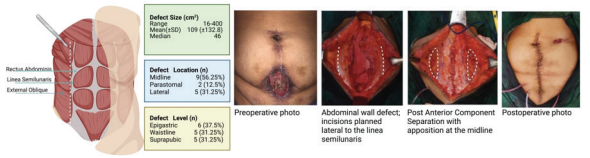

Figure 1. Schematic diagram of anterior component separation, defect size, level and location; intraoperative photos.

INFLUENCE OF COVID-19 PANDEMIC ON SURGERY PATTERN, POSTSURGICAL AND ONCOLOGIC OUTCEOMS OF COLORECTAL CANCER PATIENTS: NATIONAL MULTICENTER STUDY.

eP319

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Purpose/Background: Three years are filling up just by the spread of COVID-19. Since it is difficult to perform face-to-face treatment while maintaining social distancing, was delayed the diagnosis and treatment of diseases. We evaluated whether COVID-19 pandemic made changed in treatment pattern and post-surgical outcomes.

Methods/Interventions: The study period was set the same as March to September in 2018, 2019, and 2020. The period was set according to the step-by-step application of social distancing due to the COVID-19 pandemic in Korea. We divided 2018 and 2019 into the pre-COVID period and 2020 as the COVID period. We retrospectively analyzed colorectal cancer patients who had undergone surgical treatment at 8 medical centers in Korea. All patients who underwent any surgical procedures in the named periods were included while the pathology was proven to be primary colorectal adenocarcinoma. We compared the characteristics, clinical demographic data, surgical and pathologic data of patients. Postsurgical data were added for comparison in this study.

Results/Outcome(s): During the COVID period, more patients received neoadjuvant treatment (pre-COVID vs. COVID; 20.8% vs. 25.6%, p=0.001). Tumor-related complications such as perforation or obstruction were not different between two periods. During the pre-COVID period, the proportion of MIS surgery was 85.3% and the surgical method was changed in 1.4%. The minimally invasive surgery was less frequently performed in the COVID period. However, the R0 resection rate

was not compromised in the COVID period (47.9% vs. 50.5%, p=0.055). More patients received adjuvant orgran combined resection in COVID period (12.2% vs. 15 %. p=0.001) Pathologic stage distribution was not different between two periods. However, perineural invasion (29.7% vs. 34.6%, p<0.001) and lymphovascular invasion (32.4% vs. 34.5%, p=0.55) were higher in COVID period. The length of hospital stay and re-admission rate was not different between two period, however, post-surgical complications were significantly more in COVID period (17.2% vs. 21%, p<0.001).

Conclusions/Discussion: It has been confirmed that the COVID-19 pandemic was related with increased surgical aggressiveness and post-surgical complications colorectal cancer patients in Korea. Although pathologic stage was not up-shifting in pandemic period, other pathologic risk factors were increased and we have to evaluate oncologic outcomes with great care. Indeed, it is necessary to prepare for an era of unknown infectious disease to come, starting with COVID-19.

Patient characteristics, pathologic and surgical outcomes

	Pre-COVID n=5693	COVID n=2667	*P*-value
Age, mean ± SD, yrs	62.70 ± 12.3	62.96 ± 12.4	.068
Sex			.072
Male	3339 (58.7)	1619 (60.7)	
Female	2354 (41.3)	1047 (39.3)	
Location of tumor			<0.001
Colon	2343 (58.9)	952 (50.3)	
Rectum	1616 (40.6)	930 (49.1)	
Both	17 (0.4)	11 (0.6)	
Neoadjuvant treatment	1007 (20.8)	597 (26.5)	<0.001
Tumor related complications			
Perforation/Abscess	204/5124 (4.0)	97/2332 (4.2)	.717
Obstruction	576/5303 (10.9)	274/2450(11.2)	.673
Surgery & pathology			
Approach			.084
Open	838 (14.7)	431 (16.2)	
Mis	4852 (85.3)	2232 (83.8)	
Conversion	67/4949 (1.4)	36/2388 (1.5)	.600
Completeness			.055
R0 resection	1893 (47.9)	963 (50.5)	
R1 or R2 resection	2063 (52.1)	943 (49.5)	
Stomy	606/5677 (10.7)	263/2667(9.9)	.257
Resection of adjacent organs	605 (12.2)	335 (15.0)	.001
Brief stage			.035
(y)p Stage 0	165 (3.0)	103 (4.0)	
(y)p Stage I	1274 (23.1)	637 (24.4)	
(y)p Stage II	1894 (34.3)	842 (31.6)	
(y)p Stage III	1519 (27.5)	725 (27.8)	
(y)p Stage IV	662 (12.0)	318 (12.2)	
Harvested LN, mean ± SD	23.25 ± 13.3	23.25 ± 13.3	
Lymphovascular invasion			.055
No	3743 (67.6)	1720 (65.5)	
Yes	1791 (32.4)	906 (34.5)	
Perineural invasion			<.001
No	3882 (70.3)	1716 (65.4)	
Yes	1642 (29.7)	909 (34.6)	
Surgical outcome			
LOS, mean ± SD, days	8.69 ± 17.96 (n=5664)	7.78 ± 5.67 (n=2664)	.260
Complications			<0.001
No	4285 (82.8)	1983 (79.0)	
Yes	888 (17.2)	526 (21.0)	
Clavien-Dindo Classification			.322
Class I, II	601 (76.5)	338 (74.0)	
Class III, IV, V	185 (23.5)	119 (26.0)	
Readmission within 30days	150 (3.4)	53 (2.8)	.171

LN, lymph node; LOS, length of hospital stay

URETERAL CATHETERIZATION BY THE COLORECTAL SURGEON: FEASIBLE AND COMPARABLE TO UROLOGIST OUTCOMES.

eP320

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Purpose/Background: Ureteral catheterization is commonly performed by urologists during colorectal surgery to help avoid or detect ureteral injury. This practice is hindered by inconsistent access to urology specialists, and by the logistical inefficiencies inherent in cases that include multiple surgeons. We aim to assess outcomes of ureteral catheterization performed by a colorectal surgeon in comparison to urologists.

Methods/Interventions: This retrospective cohort compared 25 consecutive patients requiring ureteral catheterization for colorectal surgery performed by the colorectal surgeon to a convenience sample of the immediate 25 previous patients who underwent urologist-performed catheterization for surgeries by the same colorectal surgeon. The main outcome measures included time to complete cystoscopy and catheterization success rate, obtained via chart review. Adverse events such as ureteral injury, and post-operative acute kidney injury and urinary tract infection were also recorded.

Results/Outcome(s): A total of 50 patients were included in this study. The two samples were similar in terms of age and sex. 19/25 patients successfully underwent ureteral catheterization performed by the colorectal surgeon versus 24/25 performed by the urologist (p=0.0983). Mean cystoscopy time was 9.9±7.3 minutes for the colorectal surgeon versus 8.7±6.8 minutes (p=0.575). 5/6 of the unsuccessful cases were male. Reasons for failure included inability to pass cystoscope, sharp angulation and failure to visualize ureteral orifice. There was no incident of intraoperative ureter injury in either sample.

Conclusions/Discussion: Ureteral catheterization is a technique that can be learned and performed successfully by colorectal surgeons for their own procedures. The difference in procedural success rate in this series was not significant, and will likely improve with experience. Limitations include small sample size, and the potential confounding due to the procedural learning curve for the colorectal surgeon. Given the potential barriers to scheduling cases with a urologist, it is worth considering integrating this procedure into colorectal specialty training.

NATIONAL IMPROVEMENTS IN COLECTOMY OUTCOMES IN THE UNITED STATES.

eP321

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Purpose/Background: There has been tremendous effort to improve quality following colorectal surgery, including the proliferation of minimally invasive techniques, enhanced recovery protocols, and surgical site infection bundles. While these programs have been demonstrated to improve postoperative outcomes at the institutional level, it is unclear whether similar benefits are present on a national scale.

Methods/Interventions: American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) Targeted Colectomy data from 2012 to 2020 were used to identify patients undergoing minimally invasive (MIS) or open partial colectomy (CPT 41440/44204) or low anterior resection (CPT 44145/44207). Annual trends in 30-day postoperative outcomes including surgical site infection, venous thromboembolism, and length of stay were assessed using univariate and multivariable regression analyses adjusting for ACS NSQIP estimated probability of morbidity and mortality.

Results/Outcome(s): 261,301 patients, 135,876 (52.0%) female, with a median age of 62 (IQR 53-72) were included. Across all years, MIS partial colectomy was the most common procedure (36.7%), followed by MIS low anterior resection (26.7%), open partial colectomy (24.3%), and open low anterior resection (12.4%). MIS increased from 59.0% in 2012-2014 to 66.5% in 2018-2020 ($p<0.001$). During this same period, postoperative length of stay decreased from a median of 5 days (IQR 4-7) in 2012-2014 to 4 days (IQR 3-6) in 2018-2020 ($p<0.001$). Superficial surgical site infections decreased from 5.5% in 2012-2014 to 2.9% in 2018-2020 ($p<0.001$). Deep surgical site infections similarly decreased from 1.1% to 0.4% between these periods ($p<0.001$). Pulmonary embolism also decreased from 0.6% to 0.5% between periods ($p=0.02$). 30-day mortality was unchanged at 1.7% between 2012-2014 and 2018-2020 ($p=0.40$). After adjustment for ACS NSQIP estimated probability of morbidity and mortality, undergoing a colectomy in 2020 compared to 2012 was associated with a 14% decrease in postoperative length of stay ($p<0.001$; **Figure**).

Conclusions/Discussion: Between 2012 and 2020, significant improvements in postoperative outcomes after colectomy were observed in the United States. These results support that the widespread adoption of quality improvement efforts is having a positive impact in colorectal patient care on a national scale.

Adjusted regression analysis of postoperative length of stay between 2012 and 2020.

IMPACT OF POST-OPERATIVE TELEMEDICINE IN COLORECTAL SURGERY DURING COVID PANDEMIC.

eP322

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Purpose/Background: The objective of this study is to assess the implementation of telehealth and access to care in an academic colorectal surgery practice and to describe characteristics and outcomes in telemedicine participants compared to non-participants.

Methods/Interventions: We conducted a retrospective cohort study of ambulatory and hospitalized population > 18 years undergoing elective or urgent resections for both benign and malignant disease during the COVID epidemic (January 2020-May 2022) at a tertiary care center. We used chi-square and paired T-test to compare baseline characteristics and postoperative outcomes of telemedicine participants and non-participants. Telehealth was defined as both secure 2-way video and audio visits.

Results/Outcome(s): 323 patients met inclusion criteria: 25%(n=79) utilized telemedicine post-operatively, while 75%(n=244) did not. There was a significant difference in utilization based on proximity to the hospital ($p<0.01$), race ($p<0.01$), surgical history ($p=0.03$) and surgical approach ($p=0.04$). There was no difference based on gender ($p=0.12$), age ($p=0.16$), pathology ($p=0.51$) and acuity ($p=0.32$). Similarly, there was no difference in post-operative complications ($p=0.82$), readmissions ($p=0.88$) and reoperations ($p=0.42$) between telemedicine participants and non-participants.

Conclusions/Discussion: Telemedicine can be safely employed as an adjunct to post-operative surgical care without an increase in complications or readmissions. Advantages may include improved patient satisfaction and improved access to care for those without close geographic proximity to tertiary care centers, especially

when considering scheduling difficulties. There is also the opportunity to broaden the reach of telehealth services to marginalized populations.

RACIAL DISPARITIES IN MINIMALLY INVASIVE PROCTECTOMIES - A NSQIP STUDY.

eP323

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Purpose/Background: Racial disparities in access to optimal care and postoperative outcomes are widely reported. Robotic and laparoscopic proctectomy has been widely adopted. This study sought to determine any racial disparities in open versus minimally invasive proctectomies using a large national database.

Methods/Interventions: The American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) database was queried for proctectomies from 2016 to 2020. Data were evaluated for surgical approach, demographics, and comorbidity, and then compared by race. We sought to assess race as an independent risk factor in determining what type of surgical approach (robotic, laparoscopic, or open) patients received. Multivariable logistic regression models with backward elimination accounting for age, sex, race, BMI, hypertension, smoking, and diabetes were built to find predictors of laparoscopic/robotic/open surgeries. The findings are presented as odds ratio (OR) and 95% confidence interval (95%CI).

Results/Outcome(s): A total of 17217 patients (1105 Asian, 14962 White, 1150 African American/Black) were included. In regression models, with Asians as the reference category, the OR (95%CI) for laparoscopic proctectomy for White and African Americans were 0.74 (0.65-0.85) and 0.53 (0.45-0.64), respectively (P<0.001, P<0.001). Relative to Asians, the OR (95%CI) for robotic proctectomy for White and African Americans were 1.07 (0.93-1.25) and 0.70 (0.57-0.85), respectively (P=0.35, P<0.001). Finally, compared to Asians, the OR (95%CI) for open proctectomy for White and African Americans were 1.23 (1.09-1.39) and 2.31 (1.94-2.75), respectively (P<0.001, P<0.001).

Conclusions/Discussion: African Americans had the highest rate of open proctectomies (2.3 times greater than Asians) and the lowest rate of laparoscopic proctectomies compared to Asians and Whites. Asians had the highest rate of laparoscopic and robotic proctectomies performed. Race is an independent risk factor with regard to surgical approach to proctectomies.

	Open Proctectomy				Laparoscopic Proctectomy				Robotic Proctectomy			
Variables	Asian	White	AA*	*P*	Asian	White	AA*	*P*	Asian	White	AA*	*P*
Race Distributions	35.6	48.5	52.3		37.9	32.0	26.6		26.5	19.5	21.0	0.001
Continuous Variables (Mean)												
Age, Years	60.55	52.73	50.60	0.001	61.06	58.17	55.45	0.001	58.95	56.14	52.69	0.001
BMI, Kg/m^2	24.25	27.28	28.19	0.001	23.41	26.94	27.03	0.001	24.09	27.97	29.04	0.001
Mortality probability	0.005	0.0045	0.0046	0.708	0.018	0.013	0.015	0.156	0.003	0.004	0.0036	0.014
Morbidity probability	0.191	0.183	0.201	0.001	0.188	0.181	0.200	0.001	0.131	0.15	0.16	0.001
Categorical Variables (%)												
Males	49.6	43.9	47.5	0.024	61.8	50.9	51.6	0.001	62.5	57.8	58.7	0.299
Smoker	9.9	14.6	24.4	0.001	11.0	13.1	18.0	0.020	11.6	14.9	21.5	0.005
Diabetes	19.1	11.0	15.1	0.001	17.7	9.8	18.3	0.001	18.8	11.3	20.7	0.001
Hypertension	42.7	38.0	46.0	0.001	43.0	30.2	43.8	0.001	37.9	34.7	52.1	0.001
Dyspnea	-	0.5	-	0.099	-	0.2	-	0.574	0.4	0	0.5	0.036
COPD	1.3	5.3	3.0	0.001	0.7	2.9	1.0	0.005	1.0	2.5	0.8	0.075
CHF	0.8	0.6	0.8	0.817	-	0.3	-	0.345	0.3	0.4	-	0.569
Ascites	0.5	0.3	0.3	0.810	0.2	0.1	-	0.391	-	0.1	0.4	0.188
Renal Failure	0.3	0.2	1.3	0.001	-	0	-	0.859	-	0.1	-	0.833
Inpatient hospitalization	98.5	98.0	98.8	0.279	100.0	99.7	99.7	0.552	100.0	99.7	100.0	0.480
Ventilation	0.3	0.4	0.3	0.923	-	0	-	0.859	-	-	0.4	0.001

*AA: African American/Black

CHOLECYSTOCOLONIC FISTULA PRESENTING AS A HEPATIC FLEXURE TUMOR.

eP324

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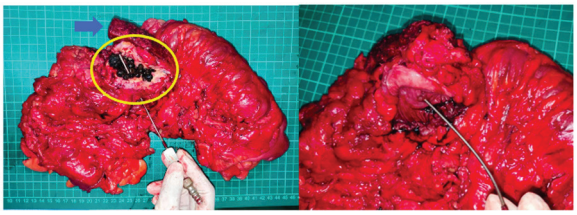
Purpose/Background: A cholecystocolonic fistula (CCF) is a rare surgical entity, often with an atypical presentation that may make interpretation of diagnostic examinations confusing. It is described as a formation of an abnormal connection between the gallbladder and the colon, commonly occurring at the hepatic flexure. It occurs in only approximately 1 in every 10,000 cholecystectomies. In this report, a 59-year old male with CCF from a hepatic flexure tumor is presented.

Methods/Interventions: The patient previously underwent an ERCP and bile duct stone extraction three months prior. The procedure prompted relief of symptoms but the patient eventually noted bowel changes and loss of appetite. An abdominal CT scan was done that showed a circumferential irregular colonic wall thickening in the hepatic flexure with luminal narrowing. This segment of bowel was intimately related to the thickened gallbladder with poorly-defined planes. No intraluminal stones and fistula were seen. With no clear plane of differentiation between the colon and gallbladder, a colonic primary with exophytic growth, or a gallbladder neoplasm with local invasion were considered. Colonoscopy showed a 2x2 cm nodular mass with mucosal infiltration. The biopsy results, however, were inconclusive. Tumor markers (CEA and CA19-9) were normal. The patient eventually underwent an abdominal exploration. Intraoperatively, the proximal transverse colon was noted to be firm and adherent to the gallbladder fossa covering the entire gallbladder. An extended right hemicolectomy, en bloc radical cholecystectomy was done.

Results/Outcome(s): The resected specimen showed a gallbladder that was converted into fibrotic tissue filled with subcentimeter pigment stones and was densely attached to the liver and the colon. There was a note of a connection from the colon into the gallbladder with no intraluminal tumor. The patient was discharged well and the final pathology showed xanthogranulomatous cholecystitis with adenomyomatosis. No malignant cells were

seen. The colonic segment showed chronic active colitis with reactive epithelial changes.

Conclusions/Discussion: A CCF is a rare type of biliary-enteric fistula. The commonly accepted theory of fistula formation is from an increase in pressure in the biliary tree from obstruction caused by the gallstones causing erosion into the gallbladder wall leading to gangrenous changes in the gallbladder and colon. The symptomatology of CCFs is varied and nonspecific. Even with advnaced imaging modalities, a definite preoperative diagnosis may still be difficult to arrive at. Despite its rare incidence, it remains a consideration for patients with a history of cholecystitis. Since many cases of CCFs are diagnosed intraoperatively, surgeons must be prepared for a potentially more extensive surgery to properly manage such cases. In the abscence of a definite histopathologic diagnosis, an oncologic resection is deemed most appropriate management.



(Left) Enbloc specimen showing colon adherent to the gallbladder (encircled in yellow) with thickened walls and full of subcentimeter pigmented stones. The resected liver segment is pointed to by a blue arrow. A probe is inserted through the fistula tract. (Right) The fistula opening on the side of the transverse colon

COLOSPLENIC FISTULA: A SCOPING REVIEW.

eP325

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Purpose/Background: A colosplenic fistula (CsF) is an extremely rare complication first described in a 1985 case report that remains relatively poorly understood due to its infrequent incidence. With only single-case reports of CsF reported worldwide, the diagnosis and management of patients with CsF are vague. Hence, we performed a review of CsF patients to summarize CsF etiology, clinical features, diagnosis, management, and prognosis to help clinicians gain a better understanding of this unusual complication and provide an aid if it were to be encountered.

Methods/Interventions: We conducted a systematic search of the literature for articles published from 1946 to June 2022 in Ovid MEDLINE, Ovid EMBASE, Scopus, Web of Science, and Wiley Cochrane Library. Additionally, four cases of CsF managed at our institution were reviewed.

Results/Outcome(s): The search strategy retrieved 141 references. A total of 30 patients with CsF were analyzed, including four cases at our institution and 26 single-case reports. Most patients were male (70%), with a median age of 56 years (Table 1). Etiology: Neoplastic disorders such as colonic lymphoma (23%), colon adenocarcinoma (17%), and Crohn's disease (13%) were the most common causes of CsF. Clinical Features: Most patients presented with complaints of recurring fever, leukocytosis, and left upper quadrant pain or discomfort. Diagnosis: The most widely-used and effective diagnostic imaging modality was computed tomography (CT) (87%). CT with intravenous (IV) contrast helped identify splenic lesions and colonic thickening, while enteral contrast was useful in identifying the fistula tract. Chest X-rays, plain abdominal films, and colonoscopy were not essential in diagnosing a CsF. Management: Almost all patients were treated with IV fluid and broad-spectrum antibiotics. A total of 26 (77%) patients underwent management with surgical intervention, most commonly with splenectomy (80%) and segmental resection (87%) of the affected colon. A total of six patients were initially managed non-operatively, two with percutaneous drainage and four with non-invasive medical management. However, three of these patients ultimately required surgery due to unresolved symptoms. Prognosis: Symptoms resolved with surgical intervention in 25 (83%) patients. Postoperative complications were relatively low (17%). One patient (3%) had postoperative mortality after segmental colectomy and the only reported attempt of partial splenectomy.

Conclusions/Discussion: Our review of 30 CsF cases worldwide is the largest in the literature. We concluded that CsF was predominantly a complication of neoplastic processes and Crohn's disease. CT was the most common imaging modality utilized and most helpful for diagnosis. CsF may be successfully and safely treated with splenectomy and resection of the affected colon with a low rate of postoperative complications. Our pooled analysis of available CsF cases may serve as an aid in the diagnosis and management of this rare entity.

Table 1. Summary of the colosplenic fistula scoping review.

Variable/Group	Patients (n=30)
Sex	
Male	21 (70%)
Age in years, median (range)	55 (2 - 84)
Etiology of fistula	
Neoplasia	15 (50%)
Crohn's Disease	4 (13%)
Infectious	4 (13%)
Trauma	1 (3%)
Other	6 (20%)
Comorbidities	
Yes	13 (43%)
Imaging	
CT	26 (87%)
US	3 (13%)
Initial management	
Surgery	23 (77%)
• Open	21 (70%)
• Open-Converted	1 (3%)
• Laparoscopic	1 (3%)
Medical (no procedure or surgery)	4 (13%)
Percutaneous Drainage	2 (7%)
No Intervention	1 (3%)
Complications	
Yes	5 (17%)
Follow-up	
Mortality	
• Related to Surgery	1 (3%)
• Unrelated to Surgery (progression of malignancy)	1 (3%)
Palliative care	3 (10%)

CT: computed tomography, US: ultrasound

Summary of the colosplenic fistula scoping review.

PERFORATED SYPHILITIC SIGMOIDITIS IN AN HIV + PATIENT AND UC: A CASE REPORT.

eP326

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Purpose/Background: Syphilis infection is known as "The Great Mimicker" because of the subtle and varied clinical presentation. Gastrointestinal (GI) syphilis is a rare manifestation. It can affect any part of the GI tract, but it is most commonly reported in the rectum. We report a case of sigmoid perforation secondary to syphilis in a patient with AIDS and UC. A 30-year-old male was admitted to the emergency department with a 48-hour history of intense abdominal pain in the lower left quadrant and fever. In addition, the patient had a past medical history of untreated ulcerative colitis (UC) and HIV (+), with the last known viral load undetectable. Upon arrival, the patient was tachycardic and hypotensive, with marked abdominal pain, peritoneal signs, and abdominal rigidity. He also presented generalized dermatosis characterized by elevated nodules of 3-5 mm with hematic crusts.

Methods/Interventions: An abdominal CT showed pneumoperitoneum, suggesting perforation. He was rushed to emergency laparotomy, which revealed abundant purulent fluid and thickened area on the anti-mesenteric margin of the sigmoid colon. A Hartmann's procedure and peritoneal lavage were performed.

Results/Outcome(s): The postoperative period was uneventful. A new viral load revealed 2,320 copies/ml and 162 CD4/mm3 and VDRL with 1:16 dilution. The patient was diagnosed with AIDS and secondary syphilis. He was treated with G benzathine penicillin, and his antiretroviral treatment was adjusted. The histopathological analysis showed the absence of UC findings. Instead, an unspecific endothelial microangiopathic proliferation with plasmocyte infiltration and multifocal lymphoid hyperplasia was observed- consistent with Syphilitic sigmoiditis.

Conclusions/Discussion: Gastrointestinal syphilis is rare. It is reported to most commonly affect the rectum. Risk factors for colonic syphilis include concurrent HIV infection and anoreceptive intercourse. The largest review of lower GI syphilis included 62 patients, most of whom were men who reported having sex with men, and more than half were coinfected with HIV. The most common symptom was hematochezia, followed by anal pain. There are no reports of perforation associated with syphilitic colitis. The histopathological findings are essential in diagnosing syphilitic colitis since there are many overlapping features with inflammatory bowel disease (IBD). A defining characteristic of syphilitic colitis is the presence of spirochetes in specific staining and microscopy techniques. Human intestinal spirochetosis is a rare infectious disease that might imitate inflammatory bowel pathology or rectal neoplasms. The heterogeneity of the possible clinical manifestations makes it a challenging disease to diagnose. It is worth mentioning that, in our patient, a significant overlap of possible culprits of intestinal perforation is present (IBD, AIDS, and syphilitic sigmoiditis). Nevertheless, the histopathological findings were consistent with syphilis.

THE CONTEMPORARY MANAGEMENT OF ACUTE SIGMOID VOLVULUS: A STATEWIDE PERSPECTIVE.

eP327

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Purpose/Background: Professional society guidelines recommend that patients with acute sigmoid volvulus (ASV) without emergent operative indications undergo endoscopic decompression followed by surgery during the same admission. However, a recent series from the United States reported that nearly 50% of patients receive endoscopic management alone. Therefore, we aimed to characterize the clinical management of ASV in a large contemporary cohort, emphasizing those who undergo endoscopy first.

Methods/Interventions: Adults with urgent or emergent hospitalizations for ASV who underwent upfront surgery or endoscopy between 2004-2018 were identified in New York's Statewide Planning and Research Cooperative System. A 12-month "lookback" in the claims data identified comorbidities and was used to exclude any episode of ASV in the year before the index admission. Management was classified as upfront surgery, semi-elective surgery (endoscopy followed by surgery in the same hospitalization), and endoscopy alone. Multivariable logistic regression identified factors associated with endoscopy alone and a prolonged time to semi-elective surgery (8+ days from the initial endoscopy).

Results/Outcome(s): Of 6531 adults with ASV, 22.6% had upfront surgery, 28.8% underwent semi-elective surgery, and 48.5% underwent endoscopy alone. Of the 5049 who underwent initial endoscopy, the median age was 76 [interquartile range=63-85], 59% were male, 18.8% were Black, 38% managed at an academic center, 3% received palliative care consultations, and 17.8% died within 90-days of endoscopy. Factors associated with increased odds of endoscopic management are in Figure 1. Of 1883 who underwent semi-elective surgery, 24.6% had surgery within 24 hours of the endoscopy, 65.6% 1-7 days later, and 9.8% had surgery 8+ days after endoscopy. Factors associated with surgery 8+ days after endoscopy, compared to within 7-days, were congestive heart failure (OR 1.86; 95% CI, 1.31-2.64), recent weight loss (OR 1.92; 95% CI, 1.26-2.94), and paralysis (OR 2.09; 95% CI, 1.27-3.44). Patients who underwent surgery 8+ days after endoscopy had significantly lower rates of home discharge (50.4% vs. 25.0%), higher rates of discharge to skilled nursing facilities (40.9% vs. 62.5%), and similar rates of 90-day readmissions (33.5% vs. 26.7%) and death (17.4% vs. 16.6%).

Conclusions/Discussion: Approximately half of the patients with ASV undergo endoscopy alone during their index admission. For those that opt for semi-elective surgery, the 90-day morbidity and mortality are high regardless of the timing, which suggests that comorbidity optimization and thorough patient counseling are imperative. Additional research is needed evaluating long-term outcomes following endoscopic decompression alone and semi-elective surgery to help guide clinical decision-making for this high-risk patient population.

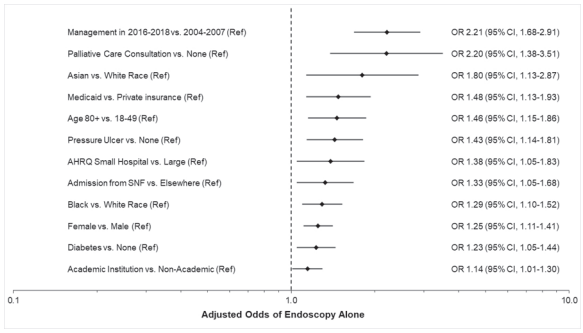

Figure 1: Adjusted Odds Ratio (OR) and 95% Confidence Interval (CI) of Factors associated with increased odds of endoscopic management alone Legend: This model adjusts for patient factors (age, sex, race, admission from skilled nursing facility, palliative care consultation, insurance type, hypertension, neurologic disease, diabetes, vascular disease, renal failure, weight loss, pressure ulcers, cardiac valvular disease, delirium, substance use, pulmonary circulatory disease), facility factors (academic hospital status, location [urban vs. rural], size of hospital), and time period.

PROGNOSTIC SIGNIFICANCE OF THE CONTROLLING NUTRITIONAL STATUS (CONUT) SCORE IN DIVERTICULAR DISEASE.

eP328

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Purpose/Background: The controlling nutritional status (CONUT) score has been shown to be a prognostic predictor in various infectious and inflammatory pathologies, including colorectal pathologies such as neoplasms or inflammatory bowel disease. In patients with diverticular disease (DD) is imperative to classify its severity to choose an accurate therapeutic option, impacting the morbidity and mortality of those who suffer from it. The objective of this study was to evaluate the prognostic significance of the CONUT score in severity and clinical outcomes in patients with DD.

Methods/Interventions: A retrospective, relational and analytical study was carried out, in which we included 111 patients diagnosed with DD attended consecutively in the Coloproctology Service at Hospital General de México "Dr. Eduardo Liceaga", in the period from January 2017 to December 2021. The diagnosis of DD was considered based on clinical and computed tomography (CT) image criteria. To evaluate the severity of DD, the Hinchey classification by CT was considered. The demographic, preoperative, operative, and postoperative clinical variables of each patient were collected. The risk of malnutrition was evaluated using the CONUT score at the time of hospital admission. The analysis of the data obtained was performed with the statistical package SPSS version 26. The p value was considered statistically significant when it was <0.05.

Results/Outcome(s): Results The demographic and clinical features of DD patients are described in Table 1. During the study period, DD represented 2.19% of the pathologies treated in our service (111/5290 patients). We found statistically significant differences between the CONUT score and the severity of DD determined by Hinchey classification (p=0.01), with a positive correlation between the risk of malnutrition (r=0.27; p=0.003). Through ROC analysis, we determined that a cut-off point of 3 points on the CONUT score predicts greater severity in DD with a sensitivity of 83%, specificity of

70%, and an under the curve area of 0.81 (CI95%: 0.67 -0.96; p=<0.001) [Figure 1]. We found no association between the CONUT scale score and the need for surgical treatment, postoperative complications or hospital stay (p=>0.05).

Conclusions/Discussion: Conclusions The CONUT score is a useful tool in patients with DD since, in addition to being a nutritional screening method, it can predict the severity of the disease.

Table 1. Demographic and clinical features of DD patients.

	N= 111
Gender – n (%)	
Male	65 (58.6)
Female	46 (41.4)
Age - years±SD	54±14.01
Minimum	22
Maximum	90
Comorbidities - n (%)	
Without comorbidities	74 (66.7)
DM + SAH	10 (09.0)
SAH	08 (07.2)
DM	06 (05.4)
SAH + Depression	01 (00.9)
RA	01 (00.9)
Depression	01 (00.9)
CHF	01 (00.9)
BPH	01 (00.9)
Hypothyroidism	01 (00.9)
Thyroid cancer	01 (00.9)
DM + RA	01 (00.9)
Asthma	01 (00.9)
Anxiety	01 (00.9)
Down's syndrome	01 (00.9)
DM + Bronchitis	01 (00.9)
Smoking – n (%)	39 (35.1)
Hinchey's grade – n (%)	
I	58 (52.3)
II	39 (35.1)
III	08 (07.2)
IV	06 (05.4)
Nutritional control scale CONUT	
Without risk	63 (56.8)
Mild	31 (27.9)
Moderate	12 (10.8)
Serious	05 (04.5)
Surgical treatment	
Yes	65 (58.6)
No	46 (41.4)
Surgical procedure – n (%)	
None	46 (41.4)
Sigmoidectomy + laparoscopic colorectal anastomosis	22 (19.8)
LAR + laparoscopic colorectal anastomosis	04 (03.6)
Sigmoidectomy + open colorectal anastomosis	09 (08.1)
Open Hartmann's procedure	22 (19.8)
LAR + open colorectal anastomosis	02 (01.8)
Left hemicolectomy + laparoscopic colorectal anastomosis	01 (00.9)
EL + pericolic abscess drainage	
Left hemicolectomy + colostomy + MF	02 (01.8)
EL + Intestinal resection + Entero-enteric anastomosis + sigmoidectomy + CRA	01 (00.9) 01 (00.9)
Laparoscopic Hartmann's procedure	01 (00.9)
Post-surgical complications – n (%)	
Anastomosis leak	02 (03.0)

SAH: Systemic arterial hypertension, DM: diabetes mellitus tipo 2, RA: rheumatoid arthritis, CHF: congestive heart failure, BPH: Benign prostatic hyperplasia. LAR: Low anterior resection, EL: Exploratory laparotomy, CRA:Colorecto anastomosis, MF: Mocous fistula.

ADULT RETROGRADE COLO-COLONIC INTUSSUSCEPTION RELATED TO DIVERTICULAR STRICTURE BUT WITH NO IDENTIFIABLE LEAD POINT: A PREVIOUSLY UNDESCRIBED COMBINATION OF RARE PATHOLOGY.

eP329

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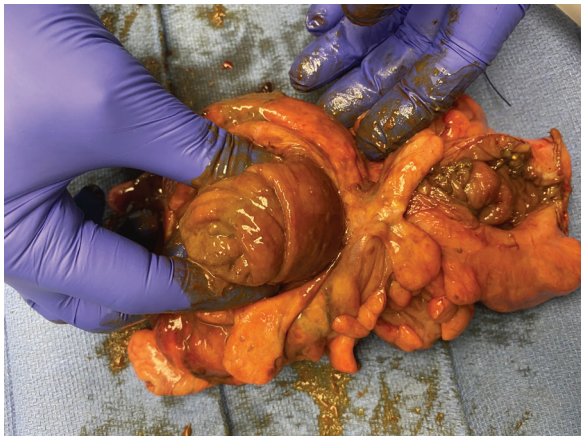
Purpose/Background: Intussusception in adults is rare, accounting for only 5% of cases. A recent systematic review of 40 case series involving 1229 patients revealed colonic type to be the least common at 19.9% following enteric and ileocolic types. Most colonic cases are associated with a benign or malignant mass (36.8 and 48.5%). Hong, K. (2019). Adult intussusception: a systematic review and meta-analysis. Intussusception related to diverticular disease is a rare phenomenon confined to case reports. Retrograde intussusception was defined by John Hunter in 1789 but not reported in the literature until 1918 by Balfor. A case series describes 11 cases of colonic intussuception in adults, only two of which lacked a lead point. JOSEPH, A. T. (1964). Retrograde Colonic Intussusception. Archives of Surgery, 89(6), 979.

Methods/Interventions: 53 year old transgender woman PMH DM with associated neuropathy, HTN, and no surgical history presenting with a year long history of chronic abdominal pain, a 30kg weight loss, and alternating bouts of diarrhea and constipation. Colonoscopy was attempted 8 months prior but was unsuccessful due to poor prep. The patient did not follow up for a repeat colonoscopy. She presented to the emergency department on this admission with severe abdominal pain, constipation, and feculent vomitus. Computed Tomography was suspicious for a 9x4cm soft tissue mass, circumferential soft tissue thickening, associated intussusception, and dilated colon proximally. Symptoms improved after nasogastric tube insertion and the patient continued to pass some flatus intermittently during this time. Colonoscopy identified an intussuscepted loop of bowel in the sigmoid that could not be successfully traversed secondary to a stenosis assumed to be a neoplastic process. Water soluble contrast enema revealed opacification up to the distal portion of the sigmoid with an abrupt irregular obstruction preventing passage of contrast. The patient was taken to the operating room. Diagnostic laparoscopy was performed first which ruled out any overt omental, liver, or peritoneal involvement of any malignant process. Conversion to open was ultimately necessary for better visualization. An end colostomy was performed as the bowel was edematous and chronically dilated. The left colon specimen was examined on the back table. It was longitudinally opened to reveal retrograde intussuception of a large segment of sigmoid across a stricture with entrapped mucosal folds. No palpable masses. Microscopic examination by pathology showed diverticular disease with mural hyperplasia at the stricture but no identifiable masses. Post operative course was uneventful and the patient was discharged able to tolerate a regular diet.

Results/Outcome(s): .

Conclusions/Discussion: This case documents a combination of rare pathologies that challenge the usual pattern of intussusception



C-REACTIVE PROTEIN/ALBUMIN RATIO AS A SEVERITY AND MORTALITY PREDICTOR IN DIVERTICULAR DISEASE.

eP330

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Purpose/Background: Diverticular disease (DD) is prevalent in developed countries and has a significant impact on patient health and healthcare costs. The C-reactive protein/albumin ratio (CAR) has been shown to be a prognostic and morbidity-mortality marker in multiple infectious and inflammatory diseases, however, CAR as a predictive marker in DD has not been studied. The aim is to evaluate the usefulness of CAR as a predictor of severity and mortality in patients with DD treated at a tertiary care hospital in Mexico.

Methods/Interventions: A cross-sectional, analytical study was carried out, in which we included 51 patients with DD diagnosis attended consecutively in the Coloproctology Service at Hospital General de México "Dr. Eduardo Liceaga". To make the diagnosis of DD, it was considered the clinical examination and the computed tomography imaging criteria. To evaluate the severity of DD, the Hinchey classification by tomography was considered. Demographic data, clinical examination, and laboratory blood test variables were collected for each patient, as well as complications and hospital mortality. CAR was determined by serum C-reactive protein (CRP) and serum albumin levels at the time of hospital admission. The analysis of the data obtained was performed with the statistical package SPSS version 26. The "p" value was considered statistically significant with <0.05.

Results/Outcome(s): The demographic and clinical features of DD patients included in our study are described in Table 1. We found a positive correlation between CRP and the severity of DD measured by Hinchey classification (r=0.44; p=0.001). This correlation was even stronger and more significant when CAR was taken into consideration (r=0.49; p=<0.001). Through a ROC analysis, a cut-off point for CAR of 28 points was determined to discriminate patients with greater severity measured by Hinchey with an AUC of 0.91 (CI95%: 0.83 - 1.0); p=<0.001), a sensitivity of 100% and a specificity of 70%, with a positive predictive value of 40% and a negative predictive value of 94%, with an accuracy of 73%. In the risk estimation, a CAR >28 was associated with an increased risk of presenting a Hinchey III-IV DD (OR: 8.7 [95% CI: 1.5 – 48.28]; p=<0.001). It is important to denote that CAR showed a positive correlation with mortality in patients with DD (r=0.32; p=0.02) and the two patients who died from the disease had a CAR estimated >28. We found no association between CAR and the presence of comorbidities, the need for surgical treatment, complications and hospital length stay in patients with DD.

Conclusions/Discussion: CAR represents a useful tool for the evaluation of the severity and mortality of patients with DD. Increased levels of CAR (>28) are associated with greater severity of the disease measured by Hinchey classification and higher mortality.

Table 1. Demographic and clinical features of DD patients.

Variable	*Diverticular disease patients N=51*
Gender– n (%)	
Male	32 (62.7)
Female	19 (37.3)
Age - years±SD	54.03 ±12.36
(minimum - maximum)	(22 – 78)
Comorbidities – n (%)	
Without comorbilities	32 (62.7)
DM2 + ASH	6 (11.8)
ASH	5 (9.8)
DM2	3 (5.9)
ASH + Depression	1 (2)
RA	1 (2)
BPH	1 (2)
Thyroid cancer	1 (2)
Down syndrome	1 (2)
Hinchey Classification– n (%)	
I	24 (47)
II	18 (35.3)
III	5 (9.8)
IV	4 (7.8)
Surgical treatment – n (%)	42 (82.9)
Complications after surgery – n (%)	
Present	38 (74.5)
Absent	

LAPAROSCOPIC VS. ROBOTIC COLECTOMY FOR LEFT-SIDED DIVERTICULITIS.

eP331

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Purpose/Background: Colectomy for diverticular disease can be challenging due to the inflammatory process involved, resulting in extensive adhesions, thickened mesentery, distorted pelvic anatomy, loss of surgical planes, and higher conversion rates. There is no clear consensus on the relative outcomes of robotic-assisted colectomy (RAC) compared to laparoscopic colectomy (LC). Some studies have found no difference in outcomes between the two surgical approaches and therefore argue that the higher operating costs of the former make its use economically inadvisable. On the other hand, other studies have found that RAC is associated with significantly shorter postoperative stays, faster bowel function recovery, and lower hospital readmission and reoperations rates. In this study, we aim to investigate RAC and LC-related outcomes in hopes of better understanding the role of the robotic-assisted approach in diverticular disease.

Methods/Interventions: A retrospective cohort analysis was performed of patients that underwent laparoscopic or robotic left-sided resection for diverticulitis from 2019 to 2022 at our institution. A Chi-square test was used to analyze categorical data, and a Mann-Whitney U test was used for the continuous variable comparisons.

Results/Outcome(s): A total of 105 patients diagnosed with diverticular disease who underwent laparoscopic or robotic left-sided colectomy were included in the study. We identified 72 laparoscopic and 33 robotic cases. The mean age was 60, and BMI was 30 kg/m2. Most of the cohort in both the laparoscopic and robotic groups were female, 61.1% and 63.6 %, respectively. There was no statistically significant difference between ASA scores or history of prior abdominal surgeries and the indication for intervention. OR time was statistically significant, with a mean of 269.8 ± 80.7 mins for robotic surgery compared to 203.5 ± 84.6 mins for the laparoscopic arm (p<0.001). There was no difference in intraoperative estimated blood loss, concomitant procedure, ostomy creation, conversion to open, time to return of bowel function, or length of stay. Also, the 30-day postoperative complications were not different when evaluating surgical site infections, wound dehiscence, anastomotic leakage, ileus, bleeding requiring transfusion, return to OR, Clavien-Dindo Classification, readmission, or mortality (Table 1).

Conclusions/Discussion: Both laparoscopic and robotic interventions are effective when used in the setting of diverticular disease. As previously reported in the literature, robotic surgery OR time was significantly higher compared to the laparoscopic approach. No statistically significant difference in 30-day morbidity or mortality was found between the two groups.

		LAPAROSCOPIC (%) (N=72)	ROBOTIC (%) (N=33)	*p*-VALUE
DEMOGRAPHICS	Age, mean ± SD	59.7 ± 11.3	60.8 ± 11.7	0.777
	Female Sex	44 (61.1%)	21 (63.6%)	0.805
	BMI	28.9 ± 5.4	30.5 ± 6.9	0.371
	ASA Score ≥ 3	50 (69.4%)	20 (60.6%)	0.372
	Prior Abdominal Surgery	51 (70.8%)	20 (62.5%)	0.399
PROCEDURE	Indication: Abscess	25 (35.2%)	14 (42.4%)	0.479
	Indication: Fistula	17 (23.6%)	10 (30.3%)	0.466
	Indication: Stricture or Obstruction	2 (2.8%)	3 (9.1%)	0.323
	Complicated Diverticulitis	34 (47.2%)	19 (57.6%)	0.325
	Partial colectomy with ostomy	5 (6.9%)	2 (6.1%)	0.866
	Concomitant procedures	26 (36.1%)	12 (36.4%)	0.980
	Splenic Flexure takedown	23 (31.9%)	8 (24.2%)	0.422
	Extensive Lysis of Adhesions	11 (15.3%)	7 (21.2%)	0.454
	Intraop Bleeding Requiring Transfusion	1 (1.4%)	0 (0.0%)	>0.999
	Conversion to Open	3 (4.2%)	1 (3.0%)	>0.999
	Estimated Blood Loss (EBL) mean ± SD	98.7 ± 199.1	102.1 ± 187	0.434
	OR Time (mins) mean ± SD	203.5 ± 84.6	269.8 ± 80.7	<0.001
POST-OP	Time to Return of Bowel Function (days) mean ± SD	2.4 ± 3.0	2.1 ± 1.3	0.588
	Length of Stay (LOS) (days) mean ± SD	4.3 ± 4.2	3.4 ± 2.4	0.199
	Prolonged Length of Stay	19 (26.4%)	6 (18.2%)	0.359
COMPLICATIONS	Anastomotic Leak	1 (1.4%)	0 (0.0%)	>0.999
	Surgical Site Infection (superficial, deep, organ/space)	3 (4.2%)	2 (6.3%)	0.642
	Wound Dehiscence Requiring OR	0 (0.0%)	0 (0.0%)	-
	Ileus	5 (6.9%)	1 (3.1%)	0.664
	Bleeding Requiring Transfusion	3 (4.2%)	4 (12.5%)	0.198
	Return to OR	2 (2.8%)	0 (0.0%)	>0.999
	Clavien-Dindo Classification			0.407
	0	57 (79.2%)	22 (68.8%)	
	1-2	7 (9.7%)	6 (18.8%)	
	3-5	8 (11.1%)	4 (12.5%)	
	Readmission within 30 days	8 (11.1%)	2 (6.3%)	0.720
	30-Day Mortality	0 (0.0%)	0 (0.0%)	-

OUTCOMES OF RESECTION VERSUS ADHESIOLYSIS IN THE MANAGEMENT OF SMALL BOWEL OBSTRUCTION.

eP332

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Purpose/Background: Surgical decision making in small bowel obstruction is challenging. We sought to evaluate differences between patients undergoing solely adhesiolysis versus small bowel resection to identify risk factors for perioperative morbidity and mortality.

Methods/Interventions: A multicenter retrospective review was conducted using a single hospital's national inpatient database, including adults who underwent surgery for small bowel obstruction of any etiology between January 2016 and December 2021. Patients undergoing solely adhesiolysis were compared with patients requiring bowel resection with or without lysis. Univariate and multivariate analyses were performed to identify independent predictors of perioperative morbidity.

Results/Outcome(s): Of the 6,280 patients, 56.7% underwent adhesiolysis only compared to 43.2% who had bowel resections. There were no significant differences in age, race, gender, or ethnicity between groups. Higher CCI was associated with the resection group. Indocyanine green (ICG) was used in <1% of cases. On univariate analysis, the lysis group had higher reoperation rates (54.8% vs 42.0%, p<0.001), and more additional procedures (48.2% vs 34.9%, p<0.001). The resection group had higher mortality (8.1% vs 4.7%, p<0.001), increased

need for percutaneous drain (3.3% vs 1.7%, p<0.001), more bleeding events (11.9% vs 7.0%, p<0.001), sepsis (13.0% vs 7.6%, p<0.001), and increased LOS (13.2 ± 12.4 vs 11.6 ±10.1, p<0.001). On multivariate analysis, lysis patients were 1.7x more likely to require reoperation (95% CI 1.6-1.9), but stayed an average of 1.1 days less than patients undergoing resection (p<0.001).

Conclusions/Discussion: Adhesiolysis alone has a higher risk of reoperation and need for additional procedures, but a shorter hospital length of stay and lower mortality than bowel resection in the treatment of small bowel obstruction. Adjuvants such as ICG for assessing bowel viability may lead to change in surgical decision making and warrant further investigation.

GOODSALL'S RULE OR THE MIDLINE RULE FOR PREDICTING THE PATH OF PERIANAL FISTULA IN-ANO? A THREE DIMENSIONAL ENDOANAL ULTRASOUND STUDY.

eP333

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Purpose/Background: Identification of the internal opening is an essential step in the management of perianal fistulae. The use of clinical criteria for assessing the course of fistula tracts has been poorly studied despite repeated use in surgical textbooks. The aim of this study was to assess the validity of Goodsall's Law and the Midline Rule in predicting the path of perianal fistula-in-ano and the location of the internal opening.

Methods/Interventions: An observational study including patients diagnosed with fistula-in-ano, in a tertiary hospial colorectal unit from January 2006 to December 2020 was performed. Location and distance from the anal verge of the external opening on physical examination and the location of the internal opening as predicted by Goodsall's and Midline rules was compared to the real location of the internal opening identifed during endoanal ultrasound examination.

Results/Outcome(s): Nine hundred and nine patients [657 (72.3%) males, mean age 50.78 (49.84–51.72) years] were included. Concordance between predicted internal opening site and the true internal opening diagnosed by three-dimensional endoanal ultrasound location was 0.601 (good match) for Goodsall's rule, and 0.416 (moderate match) for the Midline rule. Goodsall's rule proved to be more predictive in the anterior plane (p<0,001). Both rules were more likely to make a correct diagnosis in posterior fistulae located 4.5–7.5 mm from the anal verge

Conclusions/Discussion: Three dimensional endoanal ultrasound is an excellent technique for assessing the validity of the Midline and Goodsall's rules. Both rules are highly predictive of the course of fistula tracts located in the posterior plane. The course of fistulae in female patients with external openings located in the anterior plane and further from the anal verge are less predictable. These observations are important in areas where imaging techniques are not readily available.

CLOSED TRANSANAL INTERSPHINCTERIC FISTULOTOMY (CTIF)-A NEW PROCEDURE IN THE TREATMENT OF HIGH HORSESHOE ANAL FISTULA.

eP334

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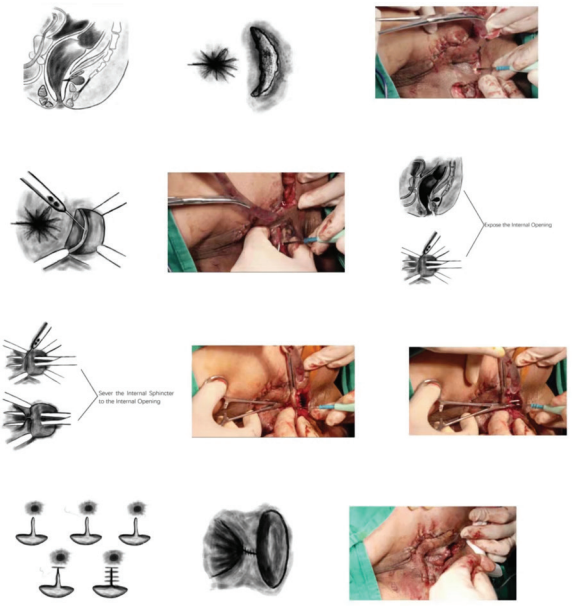
Purpose/Background: Anal fistula is not the most common anorectal problem but it is undoubtedly among the most dreaded because the two main problems associated with anal fistula management are recurrence and incontinence risk. Therefore, the anal fistula remains an enigma for surgeons even now. Latrogenic injury caused by primary operation leads to abnormal anatomical structure, which makes secondary operation more difficult. There are few reports on techniques for the treatment of high horseshoe anal fistula. The aim of this study was to introduce this new technique, and to evaluate its effectiveness and safety for high horseshoe anal fistula.

Methods/Interventions: We used data from a hospital's prospective database of a hospital-based cohort. Patients diagnosed with high horseshoe anal fistula were enrolled between July 2021 to April 2022. And all the patients underwent this new technique. The main outcomes were the 10-month cure rate, visual analog pain scale score and Wexner fecal incontinence scale score.

Results/Outcome(s): There were no serious complications and anal incontinence after operation. The average age was 38 years (17-70 years), 18 males (75%) and 6 females (25%). Two (8.3%) had one previous fistula repairs. The mean operation time was 26 minutes (16-40 minutes). The average day of hospitalization was 4.7 days (3-5 days). The average cure time was 5.6 weeks (4-8 weeks). The mean follow-up period was 8.3 months (3-10 months). The cure rate was 91.7% (2:22). Sex(Male/Female) 18/6 Age(Year) 38.92±11.11 High(m) 1.71±0.05 Weight(Kg) 70.25±11.71 BMI(kg/m2) 23.96±3.84 VAS score Preoperative 4.82±3.67 Comparison object P 1 day postoperative 5.67±2.00 <0.005 3 day postoperative 4.67±2.00 <0.005 5 day postoperative 4.29±1.55 <0.005 7 day postoperative 3.96±1.68 <0.005 14 day postoperative 3.29±1.37 <0.005 30 day postoperative 1.58±0.37 <0.005 Wexner score Preoperative 4.42±4.73 Comparison object P 1 day postoperative 1.83±0.76 <0.005 3 day postoperative 1.71±0.70 <0.005 5 day postoperative 1.33±0.57 <0.005 7 day postoperative 1.25±0.53 <0.005 14 day postoperative 1.13±0.70 <0.005 30 day postoperative 0.79±0.51 <0.005

Conclusions/Discussion: Closed Transanal Intersphincteric Fistulotomy is a safe and effective sphincter-preserving technique for the management of high horseshoe anal fistula, which is worthy of clinical promotion.



IS THERE A DIFFERENCE IN THE OUTCOMES OF SETON PLACEMENT FOR COMPLEX ANAL FISTULA IN PATIENTS WITH AND WITHOUT CROHN'S DISEASE?

eP335

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Purpose/Background: An anal fistula is considered complex when the track crosses more than 30% of the sphincter complex, is anterior in a female, is recurrent, has multiple tracks or the patient has preexisting incontinence or local irradiation. Successful management of the complex anal fistula is challenging, with initial treatment using a seton to facilitate drainage and prepare the track for future definitive surgery. The aim of this study was to compare outcomes of draining setons in the treatment of complex anal fistulas in patients with and without Crohn's disease (CD).

Methods/Interventions: Electronic medical records of CD and non-CD patients with a complex anal fistula undergoing initial seton placement by two board certified colorectal surgeons between 2013 to 2022 were queried. Seton placement technique involved using a Silastic vessel loop threaded through the fistula and tying it loosely back to itself. One-year outcomes included development of a recurrent abscess, novel fistula or reintervention for abscess or fistula. In addition, the ability of the seton to enable a definitive closure surgery for the fistula was compared between patient groups. Variate analysis was used to assess factors associated with one-year seton failure.

Results/Outcome(s): The study group of 99 patients included 73 (74%) CD and 26 non-CD (26%) patients (Table). CD patients were significantly younger and had a significantly higher incidence of a family history of IBD, anal canal ulceration, anal stenosis and multiple fistulas compared to non-CD patients. Multiple seton placement was also significantly more common in the CD patient group. There was no significant difference in the type of fistula between the CD and non-CD patient groups. Although there was no significant difference in abscess development, novel fistulas were significantly more common in the CD patient group compared to the non-CD patient group (p=0.002). Significantly more CD patients than non-CD patients required a new seton (p=0.008). One-year seton failure was significantly higher in the CD group (58%) versus the non-CD patient group (23%) (p=0.003). On multivariate analysis, one-year seton failure was significantly associated with CD (p=0.04), number of prior perianal surgeries (p=0.01) and steroid use at the time of operation (p=0.006). CD patients were significantly less likely to reach definitive fistula closure surgery within a year after seton drainage than non-CD patients (p=0.0002) and required twice the number of reoperations (p=0.02). The type of definitive surgery did not differ between the CD and non-CD patient groups.

Conclusions/Discussion: Novel fistula development, need for a new seton and one-year seton failure were significantly higher in CD patients. In addition, CD patients were less likely to undergo definitive fistula closure surgery. Outcomes of seton placement for complex anal fistula are significantly worse in CD patients.

Clinical Variables and Outcomes

Clinical Feature	Study Cohort (n=99)	CD (n=73)	Non-CD (n=26)	P-Value
Female gender	45 (45)	37 (51)	8 (31)	0.08
Age at surgery	37 (15)	34 (14)	47 (16)	0.0009
Body mass index	23.1 (4.7)	22.2 (4.5)	25.7 (4.5)	0.0005
Diabetes	2 (2)	0	2 (8)	0.07
Steroid use	6 (6)	6 (8)	0	0.3
Smoking history	18 (18)	16 (22)	2 (8)	0.11
Family history of IBD	24 (24)	22 (30)	2 (8)	0.02
Prior anorectal surgery	45 (45)	36 (49)	9 (35)	0.2
# Prior anorectal surgeries	1.1 (1.7)	1.3 (1.9)	0.7 (1.3)	0.08
Proctitis	14 (14)	13 (18)	1 (4)	0.11
Anal stenosis	19 (19)	18 (25)	1 (4)	0.02
Anal canal ulceration	18 (18)	18 (25)	0	0.003
Fistula characteristic				
Intersphincteric	9 (9)	6 (8)	3 (11)	0.6
Transphincteric	64 (65)	45 (62)	19 (73)	0.5
Suprasphincteric	1 (1)	1 (1)	0	0.8
Extrasphincteric	13 (13)	11 (15)	2 (8)	0.4
Vaginal involvement	12 (12)	10 (14)	2 (8)	0.6
Multiple fistulas	34 (34)	30 (41)	4 (15)	0.02
# Seton placed	1 (1-4)	1 (1-4)	1 (1-3)	0.04
Outcomes				
Overall seton failure	48 (48)	42 (58)	6 (23)	0.003
Abscess	15 (15)	12 (16)	3 (12)	0.08
Novel fistula	31 (31)	29 (40)	2 (8)	0.002
Both	2 (2)	1 (1)	1 (4)	0.4
Need for additional seton	32 (32)	29 (40)	3 (12)	0.008
Definitive closure surgery	38 (38)	20 (27)	18 (69)	0.0002
# Reoperations required	1 (1-12)	2 (1-12)	1 (1-6)	0.02

All values expressed as mean (SD), median (range) or n (%)
CD Crohn's disease; IBD inflammatory bowel disease

OUTCOME OF COLON CANCER IN THE ELDERLY – A PROPENSITY-SCORE MATCHED ANALYSIS FROM THE NATIONAL CANCER DATABASE.

eP336

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Purpose/Background: According to current screening guidelines for colon cancer, screening after the age of 75 years of age may be pursued at the discretion of physicians and patients. This practice is based on the knowledge that the increased comorbidities associated with aging may increase the risks of aggressive cancer treatments to potentially outweigh their benefits. However, there is a paucity of data comparing the outcomes of colon cancer treatment between elderly and younger patients.

Methods/Interventions: The National Cancer Database (NCDB) was queried for adults treated for stage I-III colon adenocarcinoma between2005-2019. Propensity-score matching was used to adjust for possible confounders including clinical stage, surgical approach, comorbidities, and sociodemographic factors. The cohort was divided into two equally matched groups: patients >/= or < 75 years. The primary outcome was overall[RMS1] [HN2] survival (OS).

Results/Outcome(s): 183,137 patients were included in this study. 66, 808 patients were included in the >75 years group. Prior to matching, older patients had more comorbidities, presented with cancers of more stage II cancers (stage I: 43% vs 47%; stage II: 37% vs 30%; and stage III: 20% vs 23%; p<0.001), and more often had an open approach (50% vs 43%, p<0.001). After matching, the median OS of patient >/= 75 years was significantly shorter than in patients <75 years (68 vs 131 months, respectively; p<0.001). Stratification of OS based on the pre-operative clinical staging reveled similar findings, with a significantly lower median OS in stage I (77 vs. at least 120 months), stage II (63.6, 95%CI 62-65.2 vs 127.1, 95% CI 124 – 130.8; p<0.001) and stage III (48.1, 95% CI 45.6-50.9 vs. 93, 95% CI 84.9 – 102.01;p<0.001).

Conclusions/Discussion: Overall survival was significantly shorter in the elderly patients suffering from colon cancer. Elderly patients were also more likely to present at a later stage and were less likely to undergo minimally invasive surgery.

GENETIC COUNSELING AND POSTOPERATIVE SURVEILLANCE IN PATIENTS WITH COLORECTAL CANCER.

eP337

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Purpose/Background: Routine immunohistochemistry screening (IHC) of mismatch repair genes (MMR) in colorectal cancer (CRC) specimens is now ubiquitous. Recently, the National Comprehensive Cancer Network (NCCN) published recommendations for more universal germline testing not limited to age or type of CRC. In a prior publication, we identified an inconsistent genetic counselling referral (GCR) pattern. As continued follow up, we investigated surveillance itineraries of CRC patients who met criteria for GCR.

Methods/Interventions: This was a retrospective chart review of patients diagnosed with CRC who underwent resection between January 1, 2016 to December 31, 2018 at a multihospital healthcare system. Patients were categorized according to IHC results and GCR completion. Those without germline testing were designated incomplete. Postresection surveillance, based on NCCN guidelines,[1] was then assessed for patients with MMR protein loss (dMMR) as well as patients who were without an IHC genetic abnormality but completed GCR based on age or family history. Upper endoscopy (UGI), thinprep pap smear (TPS), and urine cytology (UCy) were used to evaluate rates of Lynch Syndrome (LS) surveillance. dMMR was defined as MLH1/PMS2 absent without BRAF mutation or MHL1 promoter hypermethylation, MSH2/MSH6 absent, MSH6 only absent, or PMS2 only absent.

Results/Outcome(s): There were 49 patients identified with dMMR; 20 patients completed GCR (cGCR), 22 had incomplete GCR (iGCR), and 7 never received a GCR. Among the cGCR subset, 10(50%) were confirmed to have a germline mutation, 1(5%) developed urothelial carcinoma, and 19(95%) demonstrated regular postoperative surveillance of CEA, imaging, and colonoscopy. Seven(35%) completed an UGI, 1(5%) had UCy, and 2 with uterus intact had at least 1 TPS. Among the iGCR subset, 5(23%) demonstrated regular interval surveillance, 4(18%) had UGI, 2(9%) had UCy, and 1 with uterus intact had record of TPS. There was no interval development of LS associated cancers within the iGCR subset. In addition, 22 patients with normal IHC completed GCR. Within this subset, 9(41%) had a detected germline mutation (7 termed variant of unknown significance), 8(36%) underwent regular surveillance, 3(14%) had UGI, 2(9%) had UCy, and 5 with uterus intact had at least 1 TPS.

Conclusions/Discussion: We demonstrated that more than half of CRC patients with dMMR were lost to follow up with suboptimal GCR uptake and recalcitrant surveillance. Furthermore, despite being identified as increased risk for LS associated neoplasm, a hereditary

cancer surveillance program was not routinely instituted. Additionally, nearly half of patients with normal IHC were identified with a germline mutation. This study lends support to the NCCN recommendation for more universal genetic testing as well as underscores the need for improved genetic counselling uptake and implementation of high-risk surveillance programs.

IMPORTANCE OF LYMPH NODES IN RESECTABLE STAGE IV-A COLON ADENOCARCINOMA WITH LIVER METASTASIS.

eP338

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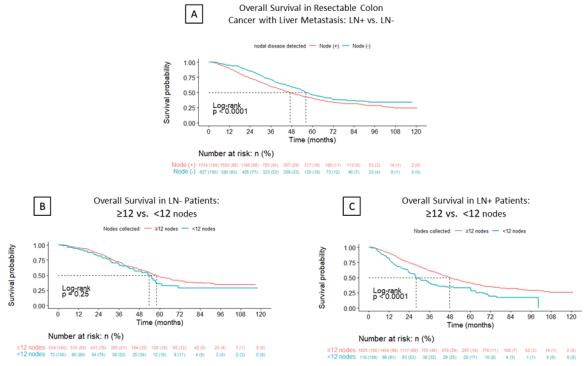
Purpose/Background: While ultimately staged and treated the same as patients with positive lymph nodes, patients with metastatic colon cancer to the liver with negative lymph nodes have intrigued clinicians and tumor biologists alike. This study aims to assess if there is any survival benefit of lymph node yield or nodal positivity in stage IV-A colon adenocarcinoma undergoing colectomy and liver metastectomy.

Methods/Interventions: Data from the National Cancer Database from 2010 to 2018 was used to identify patients with colon adenocarcinoma with liver metastasis (stage IV-A) who underwent primary tumor resection, liver metastectomy, and systemic therapy. Patients were categorized into cohorts as node-positive (LN+) and node-negative (LN-). Baseline characteristics were compared using univariate analysis. Kaplan-Meier analysis was used to compare overall survival (OS) between the two cohorts and within each cohort based on number of lymph nodes resected (<12, ≥12). Cox proportional hazard regression was used to obtain hazard ratios (HR) that adjusted for age, sex, race, ethnicity, Charleson comorbidity index (CCI), tumor location, surgical approach, systemic therapy sequence, T-stage, nodal positivity, tumor grade, and lymphovascular invasion (LVI). P-value is <0.05 for all values presented except when otherwise specified.

Results/Outcome(s): A total of 2583 patients were identified who had stage IV-A colon adenocarcinoma with surgical resection of primary malignancy and liver metastectomy. Of those, 1911 (74%) of patients were LN+ and 672 (26%) were LN-. When compared to LN+ patients, LN- patients had higher median OS (56.2 vs 47.2 months) and lower mortality risk (HR 0.79) (Fig 1A). Across all patients, lymph node yield ≥12 was associated with lower mortality risk (HR 0.70). Interestingly, in the cohort of LN- patients, median survival was not different between resection of <12 and ≥12 nodes (53.8 vs 58.1 months, p=0.25) (Fig 1B). The LN+ cohort had improved median survival with resection of ≥12 nodes (47.9 vs 28.1 months) (Fig. 1C). Systemic therapy both before and after surgery was associated with lower mortality risk (HR 0.73) compared to adjuvant therapy alone. Other factors with increased mortality risk included CCI of 1 or 2 compared to score of 0, right-sided cancer, T4 tumors compared to T3 tumors, and LVI.

Conclusions/Discussion: In patients with LN+ colon cancer with liver metastasis undergoing primary tumor resection and liver metastectomy, lymph node yield ≥12 is associated with improved OS. This highlights the crucial role of oncologic resections in improving prognosis of patients with metastatic disease. Meanwhile, in the LN- cohort, the absence of survival benefit with oncologic lymphadenectomy as well as the overall improved survival when compared to LN+ patients suggest a very different tumor biology (lymphatic vs. hematogenous patterns of spread) with a slightly more favorable disease course.



(A) Kaplan-Meier survival estimates of stage IV-A colon adenocarcinoma undergoing colectomy and liver metastectomy based on lymph node status (LN+ vs. LN-). Patients are further sub-grouped by number of lymph nodes resected (≥12, <12) in patients with (B) LN- disease and (C) LN+ disease

TEACHING TRAINEES TME: A PILOT STUDY ASSESSING THE FUNCTION OF A LAPAROSCOPIC BOX TRAINER MODEL FOR TOTAL MESORECTAL EXCISION.

eP339

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Purpose/Background: Rectal cancer is increasing in frequency, especially in younger patients. While nonoperative treatments have improved, surgery is still a mainstay of therapy. Critical to decreasing local recurrence rates and increasing disease-free and overall survival is the standardization and promotion of Total Mesorectal Excision (TME). However, there is significant variability in outcomes between surgeons. The quality of the TME dissection is one of the factors associated with those outcomes. Because of the importance of TME to patient

care, trainee experience with the essential steps of the operation may be limited. Simulation is common in surgical training to develop specific skills and familiarity with techniques; at the time of this study, there was no commercially available simulation for laparoscopic TME.

Methods/Interventions: We piloted amongst surgical trainees a box trainer model for TME. Senior general surgery residents and colorectal surgery fellows from 3 academic institutions in southern California were invited to participate in the simulation. Participants were given a pre-simulation questionnaire before being walked through a brief description of the procedure and the model. Their performance was rated by faculty who served as their assistant for the procedure. Participants then filled out a survey about their experience.

Results/Outcome(s): 29 trainees participated. Most were senior residents (PGY4 N=14, PGY5 N=12). Trainee experience with TME varied, but most had performed 5 or fewer (65%). There were statistically significant differences in the types of TME experience by institution; two institutions had higher rates performed with the robot than did the third, while there was a difference in exposure to laparoscopic TME between two of the institutions ($p<0.05$). Only 17% of TME specimens were graded as complete. Almost half of the dissections were evaluated as novice or unsatisfactory. Trainees had a good experience with the simulation. 96% found the model engaging, would recommend it, and felt it was better than other models. 83% were satisfied with the experience while 100% found it useful. 89% thought it was realistic. 64% would use it at least once a quarter if it were available to them.

Conclusions/Discussion: High-quality TME is an important part of the surgical care of rectal cancer. Residents have limited experience with TME during general surgery training. We found significant variability in exposure to minimally invasive TME between academic institutions in our region. Our novel box trainer model for TME was well-liked by trainees and felt to be useful. It improved resident

ELUCIDATING REASONS WHY SURGEONS SURGEONS PERFORM PEN COLONIC RESECTIONS.

eP340

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Purpose/Background: The current gold standard and recommendation from ASCRS guidelines are to perform colonic resections with a minimally invasive approach whenever feasible. However, a large volume of colonic resections are still performed through an open approach in Saskatchewan, Canada. The purpose of this retrospective cohort analysis was to determine reasons why these surgeries are still performed through an open approach, and whether it is related to patient-specific, pathology-specific, or institution-specific factors.

Methods/Interventions: We will review all patients in Saskatchewan, in the last 10 years, who underwent open colon resections (including but not limited to: hemicolectomies, anterior resections, and total colectomies) and laparoscopic colon resections for colon adenocarcinoma, appendiceal cancer, colon neuroendocrine tumors, inflammatory bowel disease, and non-resectable polyps. We will compare patient-specific factors (age, comorbidities, capability to withstand pneumoperitoneum), pathology of disease (non-resectable polyps, colon cancer, and inflammatory bowel disease), tumor-specific factors (initial presentation of the patient, TNM staging of cancer, and pathology of cancer), baseline imaging, and outcome (complications, length of survival, length of admission, and post-operative morbidity). Using this information, we will perform a comparative analysis of laparoscopic vs. open colonic resections to determine the factors which encourage surgeons to perform open colonic resections in Saskatchewan. Using a chi-squared analysis for categorical data and a student's t-test for continuous data, we will determine which pre-operative factors were significantly different between the two groups (laparoscopic vs open).

Results/Outcome(s): We have collected data on 500 patients from Saskatoon and Regina in 2019. Our final results will include patients from 2018-2009.

Conclusions/Discussion: Determining the reasons why surgeons preferentially perform open colon resections will provide us insight into why open colonic resections are still more frequently performed even though laparoscopic resections are now considered the standard of care.

A BIBLIOMETRIC ANALYSIS OF GENERAL SURGERY RESIDENTS PARTICIPATING IN THE COLORECTAL SURGERY FELLOWSHIP MATCH.

eP341

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Purpose/Background: Research productivity is a significant component of the fellowship application for colorectal surgery and is a criterion identified by program directors (PDs) as important in the general surgery fellowship match. Bibliometric methods have been established to standardize and quantify scholarly productivity. This study evaluates the research of surgery residents who successfully entered colorectal surgery fellowship.

Methods/Interventions: 2021-2022 colorectal surgery fellowships were identified on the American Society of Colon & Rectal Surgeons (ASCRS) website. Only programs that displayed colorectal fellows were selected for analysis. The names of all the fellows were entered into Scopus, Google Scholar, and ResearchGate to obtain bibliometric variables including number of total publications, number

of colorectal surgery publications, and number of citations. Factors associated with research output were analyzed with regression models.

Results/Outcome(s): 64% of colorectal surgery fellowships were academic training centers, 20% were university-affiliated training centers, and 16% were community training centers. New York has the most colorectal surgery fellowship programs (9 programs), while Pennsylvania (6 programs), Florida (5 programs), and Ohio (5 programs) follow with the next highest number. 55% of colorectal surgery fellowship websites displayed fellow names. Most fellowships only accept one general surgery resident per year (78% of programs). The average publications upon matriculation for colorectal surgery fellows was 4, with an average of 2 publications within colorectal surgery journals. On average, an incoming colorectal surgery fellow had 17 total citations. A larger number of fellows per year was observed to correlate with number of research articles ($p < 0.01$), number of colorectal surgery publications ($p < 0.05$), and number of citations ($p < 0.05$). Geographic region of fellowship did not correlate with research output. There was also no significant difference in research productivity among colorectal surgery fellows coming from academic versus community versus university-affiliated general surgery residencies.

Conclusions/Discussion: Though most colorectal surgery fellowships accept one fellow per year, fellowships with more fellows per year may encourage greater research productivity. Colorectal surgery publications account for about 50% of general surgery residents' research output prior to entering colorectal surgery fellowship. Geographic training region and general surgery residency type do not seem to influence scholarly activity.

NATIONAL TRENDS AND OUTCOMES OF 2- AND 3-STAGE RESTORATIVE PROCTOCOLECTOMY ILEAL POUCH ANAL ANASTOMOSIS (IPAA) PROCEDURES FOR ULCERATIVE COLITIS.

eP342

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Purpose/Background: Restorative total proctocolectomy with ileal-pouch anal anastomosis (IPAA) is the procedure of choice for chronic ulcerative colitis (UC) patients. The purpose of this study is to assess national-level operative trends and outcomes of UC patients undergoing total proctocolectomy with IPAA via a 2-stage approach (TPC-IPAA) or completion proctectomy with IPAA via a 3-stage approach (CP-IPAA).

Methods/Interventions: Adult UC patients who underwent TPC-IPAA or CP-IPAA were retrospectively analyzed from the National Surgical Quality and Improvement Program (2016-2020). Factors associated with 30-day overall and serious morbidity, the primary outcomes of interest, were explored using multivariable logistic regression.

Results/Outcome(s): A total of 1696 patients were identified, with 958 patients (56.5%) undergoing TPC-IPAA, and 738 patients (43.5%) undergoing CP-IPAA. A greater proportion of TPC-IPAA were performed each year with a gradual increase in CP-IPAA cases over the study period. Unadjusted analysis showed comparable rates of overall and serious morbidity between patients who underwent TPC-IPAA and CP-IPAA, though TPC-IPAA patients had higher rates of venous thromboembolism (3.6% vs. 1.2%, $p=0.002$) and lower rates of wound infection (2.8% vs. 8.7%, $p<0.001$) than CP-IPAA patients. Reoperation rates were also higher for those who underwent TPC-IPAA (6.2% vs. 3.9%, $p=0.040$). When stratified by operative approach, robotic TPC-IPAA had longer operative times but no differences in complications compared to laparoscopic and open approaches. Robotic CP-IPAA, however, had longer operative times, higher anastomotic leak rates, and longer hospital length of stay. Factors associated with increased odds of overall and serious morbidity included obesity for patients undergoing TPC-IPAA, and hypertension and steroid/immunosuppressive therapy use for patients undergoing CP-IPAA (Table).

Conclusions/Discussion: Obese patients should be informed of their increased morbidity risk and offered counseling on weight loss prior to undergoing surgery when feasible. Patients receiving steroid/immunosuppressive therapy within 30 days preoperatively should not undergo CP-IPAA or should delay surgery until they can be safely off those medications.

TABLE. Factors Associated with 30-day Overall and Serious Morbidity after Restorative Proctocolectomy with IPAA Procedures

	Overall Morbidity				Serious Morbidity			
Characteristic, n (%)	**TPC-IPAA** 199 (20.8)	***p***	**CP-IPAA** 180 (24.4)	***p***	**TPC-IPAA** 137 (14.3)	***p***	**CP-IPAA** 94 (12.7)	***p***
Age group, years								
<30	Reference		Reference		Reference		Reference	
30-39	0.99 (0.63-1.56)	0.958	0.58 (0.36-0.94)	**0.026**	1.11 (0.64-1.91)	0.711	0.60 (0.32-1.10)	0.097
40-49	0.66 (0.39-1.14)	0.138	0.87 (0.52-1.45)	0.590	0.88 (0.48-1.62)	0.678	0.84 (0.44-1.61)	0.598
50-59	1.18 (0.70-1.98)	0.531	0.60 (0.34-1.06)	0.078	1.34 (0.73-2.44)	0.348	0.64 (0.32-1.32)	0.228
≥60	1.17 (0.67-2.05)	0.589	0.30 (0.14-0.65)	**0.002**	1.24 (0.64-2.40)	0.524	0.15 (0.04-0.49)	**0.002**
Sex								
Male	Reference		Reference		Reference		Reference	
Female	1.02 (0.74-1.43)	0.885	1.33 (0.93-1.90)	0.115	1.00 (0.69-1.47)	0.986	1.00 (0.64-1.59)	0.985
Race								
White	Reference		Reference		Reference		Reference	
Black	1.72 (0.72-4.11)	0.223	2.38 (1.09-5.22)	**0.030**	1.22 (0.44-3.40)	0.701	1.15 (0.43-3.12)	0.780
Other	0.69 (0.26-1.83)	0.455	0.68 (0.22-2.08)	0.494	0.56 (0.17-1.89)	0.349	0.94 (0.26-3.35)	0.920
Unknown	1.75 (1.07-2.85)	**0.026**	1.22 (0.70-2.14)	0.477	1.10 (0.59-2.03)	0.765	0.43 (0.16-1.11)	0.083
ASA classification								
I-II	Reference		Reference		Reference		Reference	
III-IV	1.29 (0.91-1.83)	0.154	1.18 (0.80-1.73)	0.414	0.97 (0.65-1.47)	0.899	1.19 (0.72-1.95)	0.502
Obesity (BMI > 30)	1.63 (1.10-2.39)	**0.014**	1.36 (0.89-2.07)	0.152	1.80 (1.17-2.76)	**0.007**	0.89 (0.51-1.57)	0.695
Current Smoker	1.52 (0.79-2.89)	0.207	0.61 (0.24-1.54)	0.294	1.55 (0.76-3.15)	0.231	0.39 (0.09-1.66)	0.201
Diabetes	0.69 (0.30-1.60)	0.392	1.53 (0.69-3.37)	0.294	0.83 (0.33-2.06)	0.681	0.78 (0.27-2.29)	0.655
Hypertension	1.53 (0.91-2.56)	0.106	2.54 (1.37-4.71)	**0.003**	1.74 (0.99-3.06)	0.053	3.49 (1.65-7.37)	**0.001**
Steroid/Immunosuppressive Therapy	1.35 (0.97-1.88)	0.077	1.80 (1.11-2.92)	**0.018**	1.29 (0.88-1.89)	0.193	2.01 (1.12-3.61)	**0.019**
Weight loss >10% prior 6 months	1.22 (0.56-2.68)	0.619	1.61 (0.61-4.25)	0.341	1.24 (0.50-3.10)	0.643	0.96 (0.26-3.58)	0.949
Operative Approach								
Robotic	Reference		Reference		Reference		Reference	
Lap	1.31 (0.83-2.05)	0.243	0.95 (0.44-2.06)	0.892	1.08 (0.65-1.78)	0.771	0.69 (0.28-1.69)	0.413
Open (planned)	1.30 (0.77-2.18)	0.325	1.11 (0.57-2.17)	0.762	1.05 (0.59-1.90)	0.861	0.71 (0.33-1.54)	0.390

* Adjusted for age, sex, race, ASA classification, obesity, current smoker, diabetes, hypertension, steroid/immunosuppressive therapy, weight loss >10% in prior 6 months, and operative approach (robotic, laparoscopic, planned open)

EFFECT OF MEDICAID EXPANSION ON INFLAMMATORY BOWEL DISEASE ON HEALTHCARE UTILIZATION.

eP343

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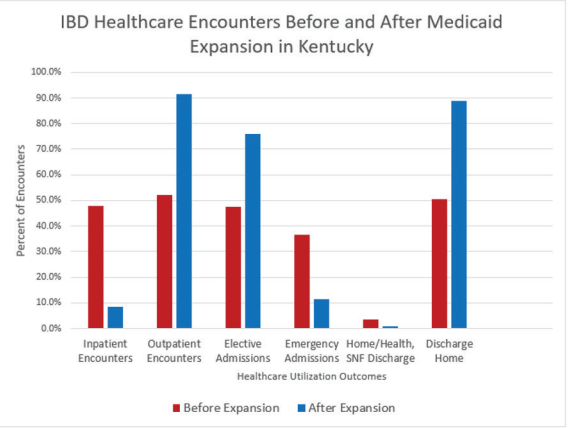
Purpose/Background: As an early adopter of Medicaid expansion legislature, Kentucky expanded the Medicaid program on January 1, 2014. Expansion resulted in a decreased uninsured rate from 14.3% to 6.4% among Kentuckians. Access to medical care for patients with chronic medical conditions, such as Inflammatory Bowel Disease (IBD), became available to 1.5 million additional Kentuckians after January 2014, including regions of central Appalachia where healthcare disparities are prevalent. We hypothesize Medicaid expansion adoption in Kentucky resulted in reduced emergency healthcare services, and increased elective healthcare services with a reduction in overall healthcare utilization by individuals in the adult IBD population.

Methods/Interventions: The Hospital Inpatient Discharge and Outpatient Services Database (HIDOSD) was queried to identify all encounters with an ICD9/10 code related to ulcerative colitis or Crohn's disease from 2009-2020 in Kentucky. Patient demographics, insurance, admission source, discharge destination, elective versus emergent admission, length of stay, and hospital charges were compared. Trends in healthcare utilization were assessed pre and post state wide Medicaid expansion adoption in January 2014. Quantitative and qualitative variables were compared using appropriate statistical methods for continuous and categorical variables.

Results/Outcome(s): 3386 pre-expansion and 24255 post expansion encounters for patients with IBD were collected. Overall, inpatient hospitalization rates dropped from 16.3% to 6.7% following Medicaid expansion, with a requisite increase in outpatient visits from 83.7% to 93.3%. Pre-expansion 47. 4% of patients were electively admitted, compared to 76.0% following expansion (p=0.001). Emergency visits decreased from 36.7% pre-expansion to 11.4% post expansion (p=0.001). Admission following a clinical referral similarly increased from 75.0% pre-expansion to 90.4% post expansion with a corresponding drop in emergency room admission from 13.1% to 0.4% (p=0.001). Median hospital costs ($7080 vs $4270, p=0.001) and median length of stay both had significant reduction following Medicaid expansion (4.0 vs 3.0, p=0.001).

Conclusions/Discussion: Medicaid expansion improved access to preventative care for individuals with IBD. In the IBD population, Medicaid expansion reduced overall healthcare utilization by reducing emergency care and increasing usage of elective care pathways.



OPEN VS LAPAROSCOPIC ILEOCECAL RESECTION IN CROHN'S DISEASE IN AN MIS ERA: FROM A LOW-TO-MIDDLE INCOME COUNTRY PERSPECTIVE.

eP344

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Purpose/Background: In a mini-invasive surgery (MIS) era, what place holds open surgery for ileocecal resection in Crohn's disease? Our study aims to compare open vs laparoscopic surgery from a low-to-middle income country perspective.

Methods/Interventions: This was a retrospective study conducted in a colorectal referral center in a low-to-middle income country from 2014 to 2020. We included all patients with Crohn's disease admitted in our department for ileocecal resection. We excluded all patients with missing data. Data was collected using chart review. Associations between postoperative complications and covariates were investigated using Pearson's Chi-square analysis, Fisher's exact test for qualitative variables, and t-test or Wilcoxon rank sum test for quantitative variables.

Results/Outcome(s): We included 83patients. The median age was 34(18-75)and54.2%(n=45)were female. Crohn's disease phenotype was24.1%(n=20)penetrating, 45.8%(n=38)structuring, and 30.1%(n=25)both penetrating/structuring. Open surgery was conducted in 46cases(55.4%), 30patients had laparoscopic ileocecal resection(36.1%), and 7(8.4%)had conversion. Immediate postoperative complications were reported in16.9%(n=14). The total hospital stay median was 6 days(4-31). When comparing open vs laparoscopic surgery, there was no significant difference in immediate postoperative complications(OR=0,424;95%CI[0.10-1.66];p=0.209, Fisher's=0.242). Length of stay was significantly different when comparing MIS vs non-MIS (ref(open),β=-2.51;SE=0.93;p=0.009). When analyzing association of covariates with postoperative complications, open surgery was associated with blood

transfusion during/after surgery(OR=22.9;95%CI[2.21-236];p=<0.001, Fisher's=0.005), laparoscopic surgery was not(OR=13;95%CI[0.57-295];p=0.051, Fisher's0.193).

Conclusions/Discussion: Laparoscopic surgery offers a lower risk of operative or postoperative bleeding and length of stay. However, in overall surgical outcomes, there was no significant difference when comparing open vs laparoscopic surgery. Therefore, when necessary open surgery may be a suitable option in specific cases, offering equally successful outcomes.

PRIMARY ANASTOMOSIS WITH OR WITHOUT DIVERSION IS SAFE IN NON-ELECTIVE RESECTION FOR DIVERTICULITIS.

eP345

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Purpose/Background: Diverticular disease is increasing in prevalence and Hinchey III/IV diverticulitis carries significant morbidity despite evolution of care. ASCRS guidelines were updated in 2014 and 2019 with recommendations for primary anastomosis (PA) with or without diversion (D). PA carries the same or lower risk of mortality and morbidity as HP and much lower risk of non-reversed ostomy than HP, yet its incidence is as low as 4%. The aim of this study is to evaluate incidence of HP, PA, PA+D for the treatment of diverticulitis over time, as well as risk of complications.

Methods/Interventions: Patients with diverticulitis who underwent resection between 2013-2020 were identified from the NSQIP database. 2013 was the year prior to initial ASCRS guidelines and thus reflective of historic pattern of care. Patients < 18 years-old or with IBD or malignancy were excluded. Patient demographic factors, co-morbidities, complications, operative factors, and length of stay were recorded. Type of operation was recorded by CPT code and patients divided into three cohorts, HP, PA, and PA+D, defined as loop ileostomy or loop colostomy.

Results/Outcome(s): There were 37,907 total surgeries for diverticulitis, of which 28.9% were HP, 64.8% PA, and 6.3% PA+D. Rates of the surgeries were consistent from 2013 to 2020, with rates of PA decreasing slightly (65/100 surgeries in 2013, 61/100 in 2020) and PA+D increasing slightly (5/100 surgeries in 100 to 8/100 in 2020). Patients receiving HP were more likely to be older and to have insulin-dependent diabetes, COPD, ascites, heart failure, and renal failure. Patients undergoing HP were less likely to receive bowel prep or be elective and more likely to be higher ASA class and dirty/infected wound class. PA had lower rates of re-operation (HP vs PA vs PA+D: 52 vs 34 vs 51%, p < 0.001) and re-admission (HP vs PA vs PA+D: 62 vs 53 vs 75%, p < 0.001). Complication rates differed by procedure type (HP vs PA vs PA+D: 55 vs 18 vs 39%). HP was associated with increased risk of ileus, infections, pneumonia, sepsis, MI, and kidney failure compared to PA and PA+D. PA+D was not associated with improved rates of anastomotic leak, ileus, infections, or dehiscence compared to PA. When analyzing only patients undergoing non-elective surgery, complication rates were still higher for HP (Table 1; HP vs PA vs PA+D 57 vs 36 vs 51%). HP appeared to have higher rates of ileus, superficial and deep wound infections, dehiscence, pneumonia, and sepsis, DVT, MI, and renal failure.

Conclusions/Discussion: Rates of PA decreased and PA+D increased only slightly between 2013 and 2020. Of patients undergoing non-elective surgery, HP was associated with increased rates of complications. PA+D was not associated with decreased risk of complications compared to PA. These findings suggest PA and PA+D in appropriate patients are safe in the management of diverticulitis, and diversion is of uncertain benefit in PA.

Table 1: Rates of post-operative complications for patients undergoing non-elective resection for diverticulitis

Complication	Hartmann Procedure	Primary Anastomosis	Primary Anastomosis + Diversion
n	5490	2814	973
Anastomotic Leak (%)	200 (2.1)	111 (4.0)	32 (3.3)
Ileus (%)	3014 (31.9)	486 (17.3)	253 (26.0)
Superficial Incisional Infection (%)	648 (6.8)	143 (5.1)	63 (6.5)
Deep Incisional Inf. (%)	146 (1.5)	21 (0.7)	5 (0.5)
Organ Space Inf. (%)	1246 (13.1)	236 (8.4)	125 (12.8)
Dehiscence (%)	286 (3.0)	44 (1.6)	18 (1.8)
Return to OR (%)	691 (7.3)	160 (5.7)	71 (7.3)
Pneumonia (%)	580 (6.1)	57 (2.0)	41 (4.2)
UTI (%)	194 (2.0)	76 (2.7)	21 (2.2)
Sepsis (%)	1879 (19.8)	305 (10.8)	153 (15.7)
Pulmonary Embolism (%)	118 (1.2)	27 (1.0)	13 (1.3)
DVT Requiring Therapy (%)	281 (3.0)	45 (1.6)	22 (2.3)
Myocardial Infarction (%)	152 (1.6)	25 (0.9)	6 (0.6)
Acute Renal Failure (%)	204 (2.1)	23 (0.8)	10 (1.0)

PRE- AND INTRA-OPERATIVE PREDICTIVE FACTORS FOR POST-OPERATIVE COMPLICATION SEVERITY IN HARTMANN REVERSAL SURGERY.

eP346

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Purpose/Background: There is a gap in the medical literature surrounding Hartmann Reversal (HR) procedures. The majority of the medical literature studied intra-operative factors and operative approach, without the consideration of concurrent operations, such as abdominal wall surgeries and small bowel resection. Furthermore, all of these studies utilized either single or multi-center data, not a national database. We propose that the use of data from a national database will illuminate pre- and intra-operative factors that will help predict post-operative complications.

Methods/Interventions: A retrospective analysis was conducted utilizing data from the National Surgical Quality Improvement Program (NSQIP) database from 2015 to 2020. Patients were selected by CTP code for HR (44626, 44625, 44227). Patients were then stratified

based on the Clavian-Dindo Scale (CD) as non-severe (≤ 2) and severe (≥ 3). Pre- and intra-operative categorical variables were compared using Chi-Square and Fischer's Exact test to assess for significance, which was set at <0.05. Continuous variables were converted to binary categorical variables based if they were higher or lower than the overall median. Significant variables were inserted into a multivariate logistic regression model to assess for relationships between them.

Results/Outcome(s): Our initial database had 5,914,528 patients. After filtering for patients with a primary CPT for HR and removing those with missing values, our final cohort was 9,069 patients. The majority of patients fell into the non-severe post-operative complication group (80%). Patients in the severe group were more likely to have a concurrent abdominal wall surgery (12% vs 7%, p<0.0001) and small bowel resection (23% vs 16%, p<0.0001). They were also more likely to have comorbidities, such as >10% weight loss in the last 6 months before surgery (8% vs 4%, p<0.0001) and a positive history of smoking (23% vs 19%, p<0.0001). The severe group were more likely to have a higher score on the modified frailty scale (11% vs 4%, p<0.0001). Splenic flexure takedown was not associated with an increase in post-operative complications (5% vs 5%, p=0.5763). In a multivariate regression model having a concurrent surgery, a higher score on the modified frailty scale, and a higher intra-operative procedure time were all associated with more severe post-operative complications (Table 1).

Conclusions/Discussion: When preforming a HR, surgeons need to be weary regarding patients with comorbidities and those who had a concurrent abdominal wall operation and small bowel resection. While a longer intra-operative time was associated with worse post-operative complications, it needs to be investigated more to see if it is a causative factor or a consequence of a more difficult operation.

Variable (Model=Severe)	OR	95% CI	p-value
Age (Ref=Young)	1.027	0.915 - 1.152	0.6524
Operation Time (Ref=Low)	1.535	1.37 - 1.72	<.0001
BMI (Ref=Normal)			
Underweight	0.869	0.761 - 0.993	0.039
Overweight	0.921	0.699 - 1.202	0.5525
Class I Obesity	0.912	0.78 - 1.064	0.2434
Class II Obesity	1.094	0.888 - 1.344	0.3939
Class III Obesity	0.934	0.706 - 1.224	0.6248
Other Surgeries (Ref=Surgery Not Done)			
Abdominal Wall Surgery	1.547	1.301 - 1.836	<.0001
Small Bowel Resection	1.247	1.087 - 1.428	0.0015
>10% body weight loss in last 6 months	1.662	1.327 - 2.073	<.0001
Bleeding Disorder	1.584	1.267 - 1.971	<.0001
Steroid Use for Chronic Condition	1.539	1.279 - 1.844	<.0001
History of Smoking	1.212	1.064 - 1.379	0.0036
Modified Frailty Index (Ref=0)			
1	1.284	1.142 - 1.443	<.0001
2+	2.562	2.069 - 3.167	<.0001
Pre-Op Labs (Ref=Low)			
Albumin	0.855	0.766 - 0.954	0.005
INR	1.163	1.045 - 1.296	0.0059

Multivariate Analysis of significant pre- and intra- operative factors' association with developing severe post-operative complications.

CHARACTERIZATION OF THE ILEORECTAL ANASTOMOSIS AND COMPARISON TO OTHER TYPES OF ANASTOMOTIC CONSTRUCTION.

eP347

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Purpose/Background: Introduction: Ileorectal anastomoses (IRA) are an infrequently studied anastomotic construction, as there are no distinct procedural codes to capture this specifically and they are less commonly performed relative to other types of construction. However, some evidence suggests that IRAs are fraught with higher leak rates, and anecdotally, we have experienced higher rates of ileus and longer lengths of stay. We aimed to characterize outcomes of patients undergoing IRA compared to other anastomoses.

Methods/Interventions: Methods: A retrospective cohort study of all adult patients undergoing a colectomy from 2006-2020 across the multiple hospitals within a healthcare system was performed. Patients were grouped according to the type of anastomosis (ileorectal-IRA, colorectal-CRA or Ileocolic-ICA). Patients who underwent an emergent procedure, required multiple anastomoses, or who had a diverting ostomy created were excluded. Clinical and demographic characteristics were collected, as well as use of perioperative use of alvimopam. The primary outcome measured was leak and secondary outcomes included length of stay, readmission rate, ileus, and time to return of bowel function. Multivariable logistic regression was performed.

Results/Outcome(s): Results: A total of 3,579 patients were identified; 126(3.5%) IRA, 2,144(59.9%) ICA and 1,310(36.6%) CRA. There were no significant differences between ages, BMI or race between the groups, however the IRA group had significantly higher rates of female patients and open procedures (Table). When compared to procedures involving ICA or CRA, there was a significant difference in the odds of readmission for patients with an IRA (OR=2.052, 95% CI [1.270, 3.315]). Significant differences were also found in odds of leak (OR=2.156[95% CI 1.065, 4.364], reoperation during index admission (OR=2.665[1.305, 5.443] and ileus (OR=3.234[1.663, 6.291]. There was no significant difference in overall mortality (OR=4.457, [0.511, 38.779]). Patients with an IRA demonstrated a higher rate of ileus, although this was not significant.

Conclusions/Discussion: Conclusion: This study suggests that ileorectal anastomoses carry a more significant risk in terms of post-operative outcomes when compared to other anastomoses. Although there was no significant difference in overall mortality, the increased rate of readmission and reoperations warrant further discussion with the patient regarding the risk of postoperative risks and expectations regarding recovery.

Table 1. Outcomes

	group CRA (N=1327)	ICA (N=2148)	IRA (N=125)	Total (N=3600)	P-value
LOS					<.0001[1]
Mean (SD)	4.7 (3.53)	5.5 (4.83)	6.5 (6.45)	5.2 (4.49)	
Median	3.5	4.3	4.3	4.2	
Range	0.3, 37.5	0.2, 65.1	1.1, 44.5	0.2, 65.1	
DEATH_INDEX, n (%)					0.2092[2]
N	1321 (99.5%)	2129 (99.1%)	125 (100.0%)	3575 (99.3%)	
Y	6 (0.5%)	19 (0.9%)	0 (0.0%)	25 (0.7%)	
DEATH_30D, n (%)					0.4841[2]
N	1323 (99.7%)	2136 (99.4%)	124 (99.2%)	3583 (99.5%)	
Y	4 (0.3%)	12 (0.6%)	1 (0.8%)	17 (0.5%)	
READMIT, n (%)					<.0001[2]
N	1198 (90.3%)	1854 (86.3%)	95 (76.0%)	3147 (87.4%)	
Y	129 (9.7%)	294 (13.7%)	30 (24.0%)	453 (12.6%)	
CT_EXAM, n (%)					0.0025[2]
N	1283 (96.7%)	2035 (94.7%)	114 (91.2%)	3432 (95.3%)	
Y	44 (3.3%)	113 (5.3%)	11 (8.8%)	168 (4.7%)	
CT_ABS_COLL, n (%)					0.0510[2]
N	1301 (98.0%)	2082 (96.9%)	119 (95.2%)	3502 (97.3%)	
Y	26 (2.0%)	66 (3.1%)	6 (4.8%)	98 (2.7%)	
REOP_INDEX, n (%)					0.0027[2]
N	1283 (96.7%)	2058 (95.8%)	113 (90.4%)	3454 (95.9%)	
Y	44 (3.3%)	90 (4.2%)	12 (9.6%)	146 (4.1%)	
REOP_30DAYS, n (%)					0.0002[2]
N	1259 (94.9%)	1957 (91.1%)	114 (91.2%)	3330 (92.5%)	
Y	68 (5.1%)	191 (8.9%)	11 (8.8%)	270 (7.5%)	
KUB_EXAM, n (%)					0.0106[2]
N	1090 (82.1%)	1829 (85.1%)	97 (77.6%)	3016 (83.8%)	
Y	237 (17.9%)	319 (14.9%)	28 (22.4%)	584 (16.2%)	
KUB_ILEUS, n (%)					0.0444[2]
N	1245 (93.8%)	2025 (94.3%)	111 (88.8%)	3381 (93.9%)	
Y	82 (6.2%)	123 (5.7%)	14 (11.2%)	219 (6.1%)	

[1]ANOVA F-test p-value; [2]Chi-Square p-value;

ROBOTIC COLECTOMY IS ASSOCIATED WITH SIGNFICANT IMPROVEMENT IN ONCOLOGIC OUTCOMES AS COMPARED TO LAPAROSCOPIC COLECTOMY.

eP348

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Purpose/Background: Robotic colectomy is associated with improved morbidity and mortality outcomes when compared to laparoscopic colectomy. In this study, we analyzed oncologic outcomes for robotic as compared to laparoscopic colectomy in colon cancer.

Methods/Interventions: We analyzed the American College of Surgeons National Surgical Quality Improvement Program (NSQIP) participant user files for all colon cancer cases from 1/2016 through 12/2020 performed with minimally invasive surgical techniques (robotic or laparoscopic). We calculated relative risks (RR) of oncologic outcomes by surgical technique through Poisson Regression models, after adjusting for age, BMI, ASA scores, mechanical and antibiotics bowel preparation, emergency surgery, race, gender, smoking status, hypertension and diabetes mellitus.

Results/Outcome(s): Outcomes: Analyzed outcomes included rates of chemotherapy initiation within 90 days of surgery, number of harvested lymph nodes, any occurrence of intraoperative or postoperative blood transfusion, and the need for any ostomy (ileostomy and/or colostomy). **Results**: During the study period, 44,745 patients underwent minimally invasive colectomy for colon cancer, including 39,614 in the laparoscopic cohort and 7,831 in the robotic cohort. After adjusting for confounders, robotic colectomy was associated with a significant increase in the likelihood for initiating chemotherapy within 90 days (RR: 1.98, 95%CI: {1.86-2.10}, p<0.001). We also observed a significant decrease in the need for intraperative or postoperative blood transfusion (RR: 0.64, 95%CI: {0.57-0.71}, p<0.001) and a significant decrease in the need for ostomy creation (RR: 0.26, 95%CI: {0.22-0.30}, p<0.001). There was no observed difference in number of lymph nodes harvested (Coef: 0.001, 95%CI: {-0.001-0.003}, p>0.05).

Conclusions/Discussion: Robotic colectomy for colon cancer was associated with significant improvement in the rate of chemotherapy initiation within 90 days of surgery, a significant decrease in blood transfusion rates, and a significant decrease in need for ostomy when compared to laparoscopic colectomy. Given the short-term oncologic improvements associated with robotic techniques, the potential value of robotics in long term cancer care should be investigated.

WHERE IS THE APPROPRIATE LOCATION FOR INFERIOR MESENTERIC VEIN (IMV) LIGATION FOR LAPAROSCOPIC COLORECTAL CANCER SURGERY?

eP349

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Purpose/Background: In colorectal cancer surgery, the inferior mesenteric artery (IMA) and vein (IMV) are usually ligated. There are many studies on the location of IMA ligation, but few studies on the proper location of IMV ligation. The purpose of this study is to analyze the appropriate IMV ligation for laparoscopic colorectal cancer surgery.

Methods/Interventions: Between Jan 2016 and Aug 2018, 223 patients who underwent laparoscopic curative resection for colorectal cancer after were retrieved from a retrospective database. The patients were divided into two groups (high ligation (n=138) vs. low ligation (n=83)). They were compared with respect to clinical and oncological outcomes.

Results/Outcome(s): With a median follow up of 49.4 months, total number of postoperative complications were no significantly different between the two groups (high ligation; 12.3% vs. low 12.0%, p=0.902). Major complications (including anastomosis site leakage, ischemia, stenosis) were no significantly different between the two groups (high ligation; 2.2% vs. low ligation; .8%, p=0.602). Mean hospital stay was 9.3 days (high ligation) vs. 9.1 days (low ligation) (p = 0.590). The 5-years disease free survival rate was 88.4% (high ligation) vs. 88.5% (low ligation) (p = 0.743). The 5-years overall survival rate was 92.7% (high ligation) vs. 88.5% (low ligation) (p = 0.562).

Conclusions/Discussion: Based on present data, the location of the IMV ligation does not seem to matter whether it is high or low when performing laparoscopic anterior and low anterior resection for colorectal cancer surgery.

COLON CANCER STAGE III B IN 23-YEAR-OLD GIRL WITH BOWEL OBSTRUCTION AND NO FAMILY HISTORY OF COLORECTAL CANCER.

eP350

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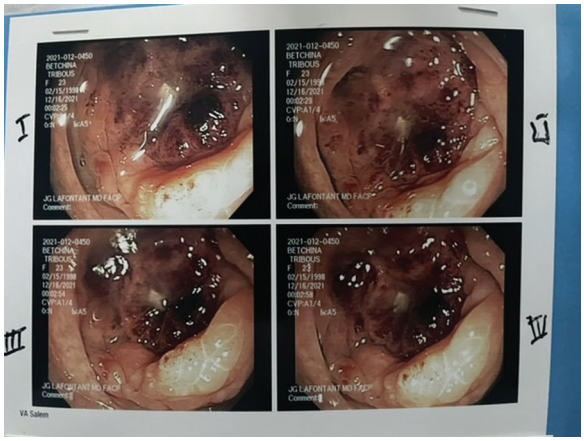
Purpose/Background: Colorectal cancer in young adult has been reported to rise in incidence since 1990. Mucinous colon cancer is a distinct form of colorectal cancer; most of these cases are located in the colon. His histopathological and clinical characteristicsdiffer from adenocarcinoma. The outcome of the treatment also differs from one another. Mucinous usually is diagnosed at an advanced stage of disease.

Methods/Interventions: Our case report concerns a 23 years old woman admitted in the surgery department of State university of Haiti hospital for a bowel obstruction syndrome. The diagnostic was made based on the clinical, radiological and histopathologicalassessments. A complete Surgical resection of the mass has been performed with the nodules. And she has been admitted in chemotherapy.

Results/Outcome(s): The pathological study returns with a 5 cm mucinous invasivecarcinoma with isolated cells, with lymph node metastases. Stage IIIB (PT4A N2a - AJCC2010 DUKES C.)Height months after surgery and adjuvant chemotherapy well conducted, she started having an abdominal distention. The abdominal CT scan shows an hepatic nodule, ascites, a complex mass of the right ovary, and a right hydronephrosis.

Conclusions/Discussion: Mucinous colon cancer is an aggressive malignant disease. The low reponse to surgical resection associated with chemotherapy, places this cancer as a complicated colon malignancy with an early recurrence, within 8 months after surgery and chemotherapy.



LOW RATES OF COLORECTAL CANCER SCREENING IN OUR PATIENTS' FIRST DEGREE RELATIVES: ARE WE FAILING THEM?

eP351

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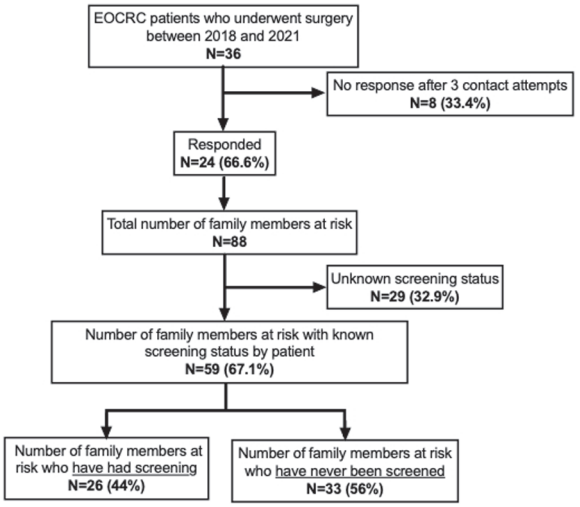
Purpose/Background: Early-onset colorectal cancer (EOCRC) has witnessed an increased incidence in recent years. The American College of Gastroenterology recommends screening for those with a first-degree relative (FDR) who had colorectal cancer starting at age 40, or 10 years before the youngest relative was diagnosed with CRC. Currently, there is no literature reporting the rate of screening in these individuals, and no protocols are in place to identify and target this population for screening awareness and compliance.

Methods/Interventions: A prospective, single-center study was performed. Patients with EOCRC, who had undergone surgery at our institution between January 2018- December 2021, were identified. A telephone survey was conducted where these patients were asked about their FDR's screening status and barriers to pursuing screening. The primary endpoint was to determine the rate of screening in FDR of our patients with EOCRC, that met screening criteria.

Results/Outcome(s): Thirty-six patients who met inclusion criteria were identified. The survey response rate was 66.6% (n=24). The median age at diagnosis of CRC for patients recruited was 43 years. A total number of 88 FDR resulted, with 67.1% (n=59) of these having a known screening status. Of the 59 FDR with known screening status, it was reported that only 44% (n=26) had actually undergone screening colonoscopy. African American patients were more likely to have a FDR with unknown or no screening status compared to their white counterparts (83.3% vs 50%). Lack of insurance coverage was the most common barrier noted (12.5%); whereas 54.1 % (n=13) reported no barriers to screening. FDR of patients with private insurance were more likely to have had screening than patients with Medicare/Medicaid (50% vs 33.4%). Similarly, patients with Stage I/II cancer were more likely to have a FDR undergoing screening than those with Stage III/IV cancer (42.9% vs 28.6%). When classified by zip code, patients within the Baltimore City County had the lowest rate of FDR with screening compared to other counties in Maryland (22.20%). Baltimore City County has the lowest Median Family Income compared to others in the study.

Conclusions/Discussion: Most first-degree relatives of patients diagnosed with EOCRC do not undergo CRC screening. Our study suggests that racial and socioeconomic disparities exist among FDR of EOCRC patients who should pursue CRC screening due to their high-risk status. This may be attributed to the lack of protocols or

guidelines for this population; as well as a lack of resources for African Americans and those with lower median incomes to pursue screening.



COLORECTAL SURGERY VIRTUAL EDUCATION SERIES: HOW A GLOBAL PANDEMIC CATALYZED THE EVOLUTION OF DIGITAL SURGICAL EDUCATION.

eP352

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Purpose/Background: The COVID-19 pandemic disrupted the world in 2020 and education for surgical trainees was deprioritized. In-person conferences were suspended, operations canceled, and clinics closed. While individual programs supplemented a lightened clinical workload with informal lectures, there was no centralized mechanism to fill the surgical education void faced by trainees.

Methods/Interventions: The Colorectal Surgery Virtual Education Series (CRS Virtual Ed) was created as an innovative teaching platform for colon and rectal surgery fellows. Emphasis was placed on cultivating an interactive, approachable, and safe learning environment. The weekly series provides free, live online educational content on comprehensive topics in colon and rectal surgery from leaders in the field. Most sessions involve lectures or case presentations with occasional journal club discussions, oral board prep scenarios, or pragmatic topics like "social media engagement" or "succeeding in fellowship." There is regular involvement of faculty from other disciplines (GI, radiology, and radiation oncology). The series is hosted on Zoom™ and was initially advertised to the founders' fellowship cohort via WhatsApp™. In 2021, a website, listserv, and Twitter account (@CRSVirtualEd) were created to increase engagement and visibility. In 2022, CRS Virtual Ed partnered with Behind the Knife to increase access to recorded content and with SurgeOn, a protected social media platform for surgeons, to facilitate live streaming content to a wider audience. Metrics from these platforms were obtained to evaluate trends in audience reach and engagement.

Results/Outcome(s): There were 12 participants in the first meeting. Average weekly participation grew to 55 over the first two years and then increased to 76 with the addition of live streaming to SurgeOn. Videos posted to the Behind the Knife YouTube™ channel average 216 views (range: 111-404). There has been over 1400% growth in Twitter followers from 63 when the account was created in April 2021 to 917 in October 2022. Average monthly tweet impressions have grown from 9,478 to 60,433. Tweet engagement rate is 3% and has remained stable. From 2020 to 2022, the CRS Virtual Ed listserv grew from 191 initial subscribers to 681. 70% of the subscribers reside within the United States and 30% of subscribers are international.

Conclusions/Discussion: What began as a method of education necessitated by the pandemic has evolved into a community force for remote virtual surgical education on a global scale. The CRS Virtual Ed series offers a free platform for all current and future colon and rectal surgery fellows to learn from experts in the field. Furthermore, platform expansion has fostered participation by faculty and international members of the colorectal community, creating a robust learning environment. Further research should be done to assess the educational effectiveness of this platform.

CANCER CLOCK: A COMPREHENSIVE MODEL TO UNDERSTAND COLORECTAL CANCER MANAGEMENT.

eP353

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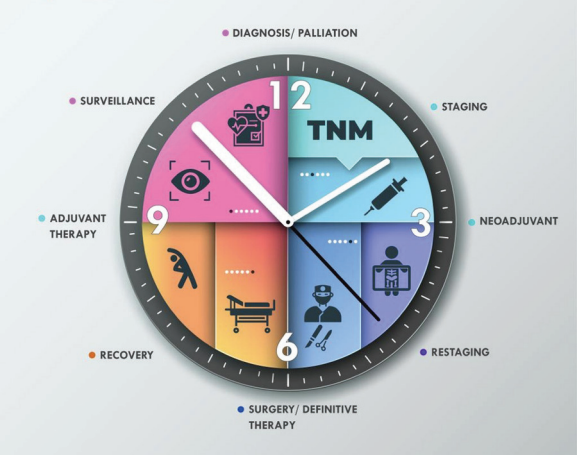
Purpose/Background: An incredible amount of resources have been utilized with groundbreaking research advancing new Colorectal cancer therapies, but few efforts in disseminating cancer education. We present an innovative, dynamic, yet simple educational model to better understand Colorectal cancer care, which will be useful for trainees and patients. We aim to improve the knowledge gap in cancer care with our model.

Methods/Interventions: A literature review was performed with PubMed for Cancer education. We did not find any graphic model that provides a broad and didactic overview of Colorectal cancer management. We created a model based on a clock that corroborates chronologically with cancer stages. The stages clocks through diagnosis, staging, neoadjuvant, re-staging,

surgery or definitive therapy, recovery, adjuvant therapy, surveillance, and palliation. A patient might not pass through all stages of the clock as there may be advances by skipping or intervention. For example, a patient can be diagnosed with metastatic rectal cancer and clock to palliation, while a patient with locally advanced rectal cancer might clock through diagnosis-staging-neoadjuvant-restaging-surgery-recovery- and -surveillance.

Results/Outcome(s): The Cancer Clock Model is a simple yet effective schematic tool for both surgical and non-medical personnel that deal with Colorectal cancer. It essentially fosters expectation and understanding to patients, family members, and health care trainees.

Conclusions/Discussion: An embracement of this simple model will encourage our colleagues to build on this to create and disseminate Colorectal cancer awareness. Such widespread dissemination will help garner support more than ever in our continued pursuit of new treatments for this dreaded disease process.



EMERGENCE OF DE NOVO ULCERATIVE COLITIS IN PATIENT RECEIVING ADJUVANT ENDOCRINE THERAPY FOR EARLY STAGE BREAST CANCER.

eP354

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Purpose/Background: The pathogenesis of inflammatory bowel disease (IBD) is only partially understood, however a developing body of research has implicated estrogen and estrogen modulation in colonocyte physiology and IBD. Specifically, combined oral contraceptive pills (OCPs) and hormone therapy for cancers have been shown to have effects on symptoms and disease severity of IBD. We submit a case report of de novo emergence of Ulcerative Colitis (UC) in a 38-year-old woman receiving adjuvant hormone therapy for early stage breast cancer.

Methods/Interventions: An otherwise healthy 38-year-old female without risk factors for autoimmune disorders or IBD suffered severe diarrhea while being treated with giredestrant and leuprorelin for breast cancer. After failing symptomatic management, a diagnostic colonoscopy and biopsy revealed erosions and distorted crypt architecture consistent with UC.

Results/Outcome(s): This is a patient who would not typically be considered at high for IBD relative to general population and who is not in the typical age for first diagnosis. Instead, this emergence of UC occurred while receiving adjuvant endocrine therapy with giredestrant for the treatment of breast cancer. The wealth of existing data implicating hormone modulation as a factor influencing IBD activity along with this case report of emergence of de novo UC in a patient receiving adjuvant endocrine therapy for breast cancer suggest that selective estrogen receptor degraders (SERDs) and uteinizing hormone releasing hormone (LHRH) agonist may affect the colonic epithelium through similar mechanisms.

Conclusions/Discussion: This case highlights the importance of estrogen homeostasis in the colon and its importance in the development and clinical course of IBD. This suggests that possible environmental and iatrogenic exposure to estrogen modulation could explain both the pathogenesis of IBD and the cyclic disease severity many women with IBD report. While appropriate cancer treatment should be a continued priority, further research regarding the role of estrogens in the colon could lead to the development of highly targeted immunotherapies for the treatment of IBD.

OUTCOMES AMONG MALNOURISHED PATIENTS WITH CROHN'S DISEASE UNDERGOING ELECTIVE ILEOCECECTOMY: A NATIONWIDE ANALYSIS.

eP355

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Purpose/Background: While pre-operative risk factors associated with post-operative outcomes have been attempted to be identified for Crohn's disease patients undergoing elective operations, the effect of nutritional status remains to be more clearly elucidated. This study aims to characterize the effect of malnutrition on post-operative outcomes and readmission patterns for patients with Crohn's disease undergoing elective ileocecectomy using a nationally representative cohort.

Methods/Interventions: The colectomy-targeted National Surgical Quality Improvement Program Database (2016-2020) was used to identify patients with Crohn's disease without systemic complications who underwent elective ileocecectomy. Malnourished status was defined as hypoalbuminemia < 3.5 g/dL, weight loss > 10% in 6 months, or body mass index <18.5 kg/m^2 prior to surgery. Patients who underwent emergency surgery were excluded.

Demographics, pre-operative factors, and post-operative outcomes were compared using standard statistical tests. The data was analyzed using the χ^2 and Kruskal-Wallis tests, presented as frequencies and percentages for categorical variables or median and interquartile range (IQR) for continuous variables.

Results/Outcome(s): There were 1,464 patients (56% female) identified, of which 1137 patients (88%) were well-nourished and 327 (22%) met criteria for malnourished state. Demographic variables including diabetes, hypertension, and steroid use did not significantly vary between cohorts. Post-operatively, malnourished patients more frequently suffered organ space surgical site infections (SSI) (9%) compared to the nourished group (4%, p<0.001). The malnourished group had a higher rate of bleeding requiring transfusion (9% vs. 3% nourished, p<0.001). This corresponded to a pre-operative hematocrit that differed significantly between malnourished (33% [30-38%]) and nourished cohorts (39% [36-42%], p <0.001). 30-day unplanned readmissions were higher in the malnourished group (14% vs. 9% nourished, p = 0.032) and index admission length of stay was significantly higher in the malnourished group (6 days [4-11 days]) versus the nourished group (4 days [3-6 days], p<0.001) (Table 1). Notably, other infectious complications (superficial and deep SSI and sepsis) were not significantly different. There was no significant difference in anastomotic leak or prolonged ileus and both cohorts had equivalent 30-day mortality.

Conclusions/Discussion: Poor nutritional status is associated with post-operative morbidity including organ space SSI and bleeding in patients with Crohn's disease undergoing elective ileocecectomy; malnutrition is associated with longer hospitalizations and more frequent readmissions. These findings highlight the importance of a detailed nutritional risk profile and a critical role for nutritional prehabilitation prior to elective surgery.

Table 1:

Variable	Nourished n=1137 (98%)	Malnourished n=327 (2%)	p-value
Female	646 (57)	180 (55)	0.613
Wound Classification			**<0.001**
Clean	8 (1)	0 (0)	
Clean / Contaminated	839 (74)	197 (60)	
Contaminated	234 (20)	91 (28)	
Dirty	56 (5)	39 (12)	
Superficial Incisional SSI	35 (3)	8 (2)	0.587
Deep Incisional SSI	4 (0)	0 (0)	0.581
Organ Space SSI	44 (4)	30 (9)	**<0.001**
Bleeding Transfusions	30 (3)	30 (9)	**<0.001**
Unplanned Readmission	106 (9)	45 (14)	**0.009**
Anastomotic Leak	33 (3)	11 (3)	0.667
Prolonged NPO/NGT	134 (12)	40 (12)	0.907
Pre-operative Hematocrit [1]	39 [36-42]	35 [30-38]	**<0.001**
Length of hospital stay [1]	4 [3-6]	6 [4-11]	**<0.001**

[1] Median [interquartile range]
Surgical Site Infection (SSI); Nil per os (NPO); Nasogastric tube (NGT)

Table 1

MALIGNANT TRANSFORMATION OF PERSISTENT PERINEAL SINUSES IN PATIENTS WITH CROHN'S DISEASE.

eP356

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Purpose/Background: Persistent perineal sinus (PPS) is widely recognized as a distressing and challenging clinical problem after proctectomy or pouch excision for Crohn's disease (CD). PPS has been defined as a perineal wound that remains unhealed for more than 6 months after surgery. The incidence of PPS in patients undergoing surgery for inflammatory bowel disease (IBD) ranges from 3% to 70% at 6 months and remains at up to 33% at 12 months. The association between CD and squamous cell carcinoma (SCC) has been established in anal fistulas in Crohn's disease; however, there is a scarcity of literature regarding SCC in PPS. This case study aims to highlight the risk of malignant transformation of PPS following proctectomy.

Methods/Interventions: 43-year-old male had a surgical history of total abdominal colectomy with J-pouch construction which was complicated by anal disease. This progressed despite multiple attempts with surgical and medical control, requiring intersphincteric proctectomy. 55-year-old male with a past medical history of CD status post intersphincteric proctectomy who had a complicated medical course of multiple perineal sinuses.

Results/Outcome(s): The two patients developed multiple perineal sinuses requiring multiple incision and drainage procedures despite undergoing proctectomy. Patients were found to have progression of their perianal disease despite biological and antibiotic therapy. Both patients experienced an interruption in care due to loss to follow-up. Although they were offered wide local excision with flap closure, both refused. All surgical specimens were negative for malignancy prior to a tissue diagnosis confirming invasive SCC. They failed Nigro protocol with the progression of pelvic disease complicated by enterocutaneous fistula. The patients enrolled in hospice because of their persistent disease and sepsis.

Conclusions/Discussion: The incidence of perineal sinuses in patients with CD is found in 20% to 25% of patients with CD limited to the ileum and in 60% when the rectum is involved. Chau et al in a retrospective study of 81 CD patients who underwent proctectomy, the cumulative probability of unhealed perineal wound at 6 and 12 months after surgery in patients with CD was 85% and 48%, compared to 21% and 13% in patients without CD. Additionally, both patients were treated with Infliximab. Anti-tumor necrotic factor t which can therapy result in a 30% increase in the risk of SCC, roughly translating to an annual number needed to harm of 1600. While the management of PPS is difficult, a guideline approach to the management of complex perineal sinus by downsizing

large defects with VAC therapy after wide local excision, followed by gracilis muscle flaps, is successful in about 80% of cases. In conclusion, this report outlines the importance of maintaining vigilance in Crohn's patients with chronic perineal sinus and exposure to anti-tumor necrosis factor therapy for malignant transformation.

SURGICAL MANAGEMENT OF RECTAL PROLAPSE. EXPERIENCE OF A SINGLE CENTER IN MEXICO IN THE LAST 5 YEARS.

eP357

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Purpose/Background: Rectal prolapse (RP) is a rare pathology, with an unclear pathophysiology; but that includes a pelvic floor disorder; It is also a disease with a great impact on the lifestyle of patients who suffer from it. It typically occurs in older adult women but can occur in men and women of all ages. The most frequent clinical manifestations include fecal incontinence, constipation, and foreign body sensation in the rectum. In this study we describe the demographic and clinical features, surgical treatment, and outcomes of patients with rectal prolapse in a tertiary care hospital in Mexico.

Methods/Interventions: A retrospective, relational, analytical study was carried out in which we included 47 patients with RP diagnosis treated consecutively in the Coloproctology Service at Hospital General de México "Dr. Eduardo Liceaga", in the period from January 2017 to December 2021. The clinical and demographic features of each patient (gender, age, comorbidities, smoking, constipation, fecal incontinence) were collected. The surgical procedure used to correct the RP, surgical reinterventions, and number of recurrences due to the pathology were documented. The degree of rectal prolapse was classified using the Oxford scale, and severity of fecal incontinence was measured using the Wexner scale. Statistical analysis was carried out using the statistical package SPSS version 26.

Results/Outcome(s): The demographic and clinical features of patients with RP are described in Table 1. In our hospital, RP represented 0.88% of hospitalizations in the study period (47/5290 hospitalizations). Of the total of patients included, only two required reinterventions in the same hospitalization and eleven (23.4%) had RP recurrence. We found no association or correlation between age, smoking or presence of comorbidities with the degree of RP. However, we identified a positive correlation with the degree of rectal prolapse and the presence of fecal incontinence ($r=0.32$, $p=0.02$) [Figure 1]. No association was found between age, smoking, presence of comorbidities or RP degree and RP recurrence, but there were differences between the surgical procedure performed and RP recurrence ($p=0.002$). The most frequently performed surgical procedure for RP correction was laparoscopic posterior rectopexy. The Delormes procedure was the most frequent surgical technique in the group of RP recurrences (54.2%) [Table 2].

Conclusions/Discussion: RP represented less than 1% of hospitalizations in our center in the last 5 years. This pathology is commonly associated with fecal incontinence and constipation. Fecal incontinence was correlated with the degree of RP. The most frequently performed surgical procedure for RP correction was laparoscopic posterior rectopexy. The recurrence after surgical treatment of the RP was 23.4%.

Table 1. Demographic and clinical features of patients with rectal prolapse.

Variable	N= 47
Gender – n (%)	
Female	40 (85.1)
Age – years±SD	62±20.04
Minimum - Maximum	19 - 93
Comorbidities – n (%)	
Without comorbidities	21 (44.7)
SAH	12 (25.5)
DM+ SAH	03 (06.4)
DM	02 (04.3)
Spinal cord injury	02 (04.3)
CKD	01 (02.1)
Overactive bladder	01 (02.1)
Anorectal malformation	01 (02.1)
Dementia	01 (02.1)
Sjögren's syndrome	01 (02.1)
Schizophrenia	01 (02.1)
Ehlers-Danlos disease	01 (02.1)
Smoking – n (%)	14 (29.8)
Rectal Prolapse Grade, Oxford Scale – n (%)	
I	01 (02.1)
II	03 (06.4)
III	10 (21.3)
IV	05 (10.6)
V	28 (59.6)
Constipation – n (%)	
Present	14 (29.8)
Absent	33 (70.2)
Fecal incontinence	
Present	39 (79.5)
Absent	10 (20.5)
Wexner Scale Score Fecal incontinence	09 (0-16)*
Surgical procedure – n (%)	
Posterior laparoscopic rectopexy	12 (25.5)
Ventral rectopexy	08 (17.0)
Delorme's procedure	07 (14.9)
Ventral laparoscopic rectopexy	06 (12.8)
Altemeier's procedure	03 (06.4)
Colporrectopexy	02 (04.3)
Posterior rectopexy	01 (02.1)
Mucosectomy	01 (02.1)

CASE REPORT - USE OF SACRAL NERVE STIMULATOR FOR POST-OPERATIVE FECAL INCONTINENCE AFTER RESTORATIVE PROCTOCOLECTOMY WITH ILEAL POUCH ANAL ANASTOMOSIS (IPAA).

eP358

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Purpose/Background: A 38 year-old female with a history of familial adenomatous polyposis developed fecal incontinence after a restorative total proctocolectomy with ileal pouch anal anastomosis (IPAA). A 2-stage Total Proctocolectomy with IPAA and diverting loop ileostomy was performed with subsequent ileostomy reversal 6 months later at the age of 16. She presented with

fecal incontinence 22 years postoperatively with a Fecal Incontinence Score Index (FISI) of 19/20. Notable history included one vaginal delivery as well as multiple examinations under anesthesia for fistula-in-ano. Her workup included anorectal manometry (ARM) and non-invasive anal sphincter electromyography (EMG). Longitudinal sphincter profile showed a decreased mean pressure at rest and decreased mean pressure at strain at 35 mmHg (normal >40 mmHg) and 70 mmHg (normal >100 mmHg) respectively. EMG was significant for normal short peak evaluation and ten second contraction tests. Defecation profile revealed a Def #2 pattern where strain was greater than rest.

Methods/Interventions: She had tried stool bulking agents with minimal success. With these findings the patient was offered a trial of Sacral Nerve Stimulation (SNS) in which she had a good response. A permanent generator was placed with significant improvement of symptoms.

Results/Outcome(s): Her postoperative FISI was 5/20 (2 months) and 6/20 (12 months).

Conclusions/Discussion: Sacral Nerve Stimulation is a good treatment alternative for patients who develop fecal incontinence after IPAA in which conservative measures have failed.

Fecal Incontinence Score Index (FISI)			
	Preoperative	Postoperative (2 months)	Postoperative (12 months)
Solid Incontinence	3	0	0
Liquid Incontinence	4	3	2
Gas Incontinence	4	2	0
Wearing Pads	4	0	3
Lifestyle Alterations	4	0	1
Total	19	5	6

SACRAL NERVE STIMULATION FOR FECAL INCONTINENCE: DOES PELVIC FLOOR TESTING MATTER?

eP359

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Purpose/Background: Fecal incontinence (FI) is a complicated and debilitating condition with up to 18% prevalence in the general population prevalence and up to 50% prevalence in institutionalized patients. Sacral nerve stimulation (SNS) has revolutionized the treatment of fecal incontinence since its inception. ASCRS clinical practice guidelines recommend SNS as first-line therapy for FI with and without sphincter defects. There are varying degrees of success of improvement, but there is no true physiological measure to predict patient outcomes. Pelvic floor physiology testing, including anorectal manometry (ARM) and electromyogram (EMG), can aid in defining the dysfunction and guide treatment. Decreased rectal sensation is frequently found in patients with FI. In this study, we provide our experience from a single institution practice with robust pelvic floor physiology testing. We hypothesize that patients with a normal rectal sensation threshold on preoperative anorectal manometry will have a greater degree of improvement of their Fecal Incontinence Score Index (FISI) compared to those with decreased baseline sensation.

Methods/Interventions: We performed a retrospective review of patients with FI from the Colon & Rectal Clinic of Orlando from 2006 - 2022. We reviewed 829 patients with a diagnosis of FI. Of those, 85 underwent a two-staged SNS implant for FI. Seventy-seven had documented FISI and manometry records. We performed univariate regression analysis to determine if different variables correlated with the degree of change of FISI scores pre and post-operatively. Variables of interest include age, sex, race, previous pelvic surgery, pudendal neuropathy, prior biofeedback, and rectal sensation threshold. A subgroup analysis was also performed for history of vaginal delivery in the female population.

Results/Outcome(s): Seventy-seven patients were analyzed. 85% (N=66) were female and 14.3% (N=11) were male. The average improvement of FISI scores for all comers was -6.8 (-7.9, -5.6) (p<0.001). On univariate regression analysis, our primary end-point of rectal sensation threshold was not statistically significant. Of the secondary endpoints, male sex was the only group that reached statistical significance (p=0.003). The subgroup analysis of the history of vaginal delivery did not reveal any statistical significance for the degree of change in the FISI score.

Conclusions/Discussion: Patients who underwent SNS had a statistically significant improvement in their subjective incontinence scores. From our analyses, only the male sex predicted a greater degree of improvement. We also did not find physiologic data points on ARM or EMG that showed correlation to changes in FISI. Despite these findings, pelvic floor physiology testing can still be useful for diagnosing and guiding treatment for patients with FI.

Factor	Category	Coefficient (95% CI)	p-value
Age	-	0.01 (-0.06, 0.09)	0.719
Sex	Female	*Ref*	
	Male	4.5 (1.55, 7.45)	**0.003**
Race	White	*Ref*	
	Black	-0.88 (-4.35, 2.6)	0.615
	Hispanic	2.48 (-0.67, 5.63)	0.121
Previous pelvic surgery	Yes	*Ref*	
	No	-0.21 (-2.78, 2.37)	0.874
Diabetes	Yes	Ref	
	No	1.49 (-1.81, 4.79)	0.371
Full pudendal neuropathy (>2.5 mSec)	Yes	Ref	
	No	1.86 (-2.47, 6.19)	0.376
Prior biofeedback	Yes	*Ref*	
	No	-0.4 (-2.84, 2.04)	0.743
Sensory threshold (continuous)	-	0.02 (-0.02, 0.06)	0.365
Sensory threshold >30 mL	<30	*Ref*	
	>30	0.6 (-2.2, 3.39)	0.671

SALVAGE ABDOMINOPERINEAL RESECTION FOR ANAL SQUAMOUS CELL CARCINOMA FOLLOWING DEFINITIVE CHEMORADIATION: TIME TO RE-EVALUATE THE TREATMENT PARADIGM?

eP360

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Purpose/Background: Definitive chemoradiation (CRT) is the primary treatment for localized anal squamous cell carcinoma (SCC). Rarely, disease may persist or recur loco-regionally following treatment, for which salvage abdominoperineal resection (APR) is recommended. Salvage APR has been associated with significant morbidity, high risk for positive margin resection (R1), and poor disease-free and overall survival compared to clinical complete responders following definitive CRT. In this patient series, factors associated with oncologic outcomes among salvage APR patients were examined.

Methods/Interventions: A retrospective single-institution review of anal SCC patients treated with definitive CRT, biopsy confirmed persistence or recurrence, undergoing salvage APR (or multi-visceral pelvic resection) was performed between 1996 - 2022. Positive resection margin was considered <=1mm. Main outcomes of interest were disease-free survival from the time of operation to recurrence or death, rates of positive margins, and overall survival

Results/Outcome(s): 34 patients with complete clinical data were identified. The mean age at salvage APR was 58 (range 33-83), 71% female, and 6% immunocompromised. 18 patients (53%) had persistent disease, leaving 16 patients (47%) with recurrent disease, though there were no significant differences between the two groups. Average number of weeks between completion of CRT and APR was 126 weeks. Of the salvage resections, 9 patients (27%) were multi-visceral, and 14 resections (41%) underwent perineal flap reconstruction. Grade of tumor differentiation was well- or moderate in 59%, the remaining 14 patients (41%) poorly differentiated. R0 resection occurred in 23 patients (68%), R1 in 10 patients (29%) and R2 in 1 patient (3%). Pathologic staging was Stage 1 (3 patients, 9%), Stage 2 (22 patients, 65%), and Stage 3 (9 patients, 27%). At an average follow-up of 34 months, 12 patients (35%) were alive. Median overall survival following salvage APR was 25 months (48%) while median disease-free survival was 10 months (29%). After adjusting for age, grade, margins, extended APR, and pathologic stage, the Cox proportional Hazard Ratio (4.2, 95% CI 1.31-13.53) for persistent vs recurrent disease was most significant (p=0.02).

Conclusions/Discussion: Although salvage APR remains the mainstay for anal SCC local failure following definitive CRT, our series showed a high rate of incomplete resection, despite substantial multi-visceral surgery, and frequent recurrence and mortality. Persistent disease compared to recurrent disease after CRT was particularly unfavorable for survival following salvage APR. The high rate of treatment failure following immediate salvage APR questions the guideline paradigm. Alternative approaches, including preoperative chemotherapy and/or immunotherapy before salvage APR, may improve outcomes for selected patients and warrant further study.

COLONOSCOPIES DURING THE COVID-19 PANDEMIC RECOVERY PERIOD: ARE WE CAUGHT UP ON COLORECTAL CANCER DETECTION AND PREVENTION? A SINGLE INSTITUTION EXPERIENCE.

eP361

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Purpose/Background: The COVID-19 pandemic resulted in a shutdown of endoscopy in many healthcare centers, followed by a ramp-up period. We recently published on the impact of the shutdown and ramp up periods (March-June 2020, and July-August 2020, respectively) and found a dramatic decrease in colonoscopies performed, cancers detected and adenoma removed. This follow-up study aims to assess the efficacy of the following colonoscopy recovery period (September-December 2020) on colorectal cancer (CRC) detection and screening.

Methods/Interventions: After institutional ethics board approval, the endoscopy database at an academic tertiary-care center in Montreal, Canada, was used to include all colonoscopies performed during the recovery period of the COVID-19 pandemic. We compared the recovery period (September-December 2020) to its equivalent in 2019 (pre-pandemic) to assess how close to pre-pandemic norms we were in terms of indications, CRC and adenoma detection rates, as well as the prioritization of urgent procedures. We also compared the entire pandemic year (March-December 2020) to the pre-pandemic year (March-December 2019) to assess if we have indeed made a recovery post-shutdown.

Results/Outcome(s): In the recovery period, 1968 colonoscopies were performed, compared to 2,481 in the same period in 2019, a 20.7% reduction. Urgent and inpatient colonoscopies increased (238 (12.2%) vs. 122 (5.1%), p=0.04) while surveillance and high-risk screening colonoscopies remained significantly lower (750 (38.6%) vs 1249 (52.7%), p<0.01). However, during the recovery period, cancer detection rates (47 (2.4%) vs 71 (2.9%), p=NS) and adenoma detection rates (633 (26.4%) vs 533 (27.4%), p=NS) were preserved. This resulted in a reduction in adenoma removal in 138 patients. Overall, for the entire pandemic year, 3,273 colonoscopies were performed,

compared to 6,324 in the pre-pandemic year, a 51.7% reduction. Overall, urgent and in-patient colonoscopies increased, while surveillance and high-risk screening colonoscopies remained significantly lower (1126 (34.4%) vs. 3118 (49.3%), p=0.03). Overall, this represents a reduction in adenoma removal in 860 patients and cancers undetected in 52 patients.

Conclusions/Discussion: The restriction of access to colonoscopy during the COVID-19 shutdown resulted in a significant reduction in screening and surveillance of high-risk patients, and CRCs diagnosed. Despite all efforts to ramp up and recover, colorectal cancer detection and prevention has not caught up to pre-pandemic levels. Clinicians and patients will face the oncologic ramifications of this for the coming years.

SURGICAL MANAGEMENT OF A MARJOLIN'S ULCER IN AN UNTREATED PILONIDAL CYST.

eP362

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Purpose/Background: Marjolin's ulcer arising from chronic or neglected primary pilonidal disease is a rare complication reported in approximately 0.1% of cases. These tumors are locally aggressive, have poor outcomes and are often resistant to chemoradiation. Marjolin's ulcer can be especially difficult to manage when they infiltrate the levator ani muscles and the bones of the pelvis.

Methods/Interventions: This is a case study of skin squamous cell carcinoma invading into the puborectalis muscle requiring APR.

Results/Outcome(s): A 56 year old male who presents with a large malodorous fungating buttock mass with chronic drainage from sacrococcygeal region. The patient underwent multiple drainage procedure without definite resection in the past. Biopsy confirmed well differentiated squamous cell carcinoma. Preoperative imaging revealed large soft tissue ulcerative lesion with involvement to posterior puborectalis muscle and intersphincteric space. The patient underwent an enbloc resection via an abdominoperineal resection, coccygectomy partial sacrectomy resulting a in a large wound measuring 1344cm^2 that was closed with a complex VRAM flap and split thickness skin graft. The patient received adjuvant radiation and is currently disease free.

Conclusions/Discussion: We recommend that all pilonidal lesions be sent for pathological examination and that early definite excision of all pilonidal disease be conducted as soon as the active infection process is managed.

PREDICTION OF PATHOLOGIC COMPLETE RESPONSE FOR RECTAL CANCER BASED ON PRE-TREATMENT FACTORS USING MACHINE LEARNING.

eP363

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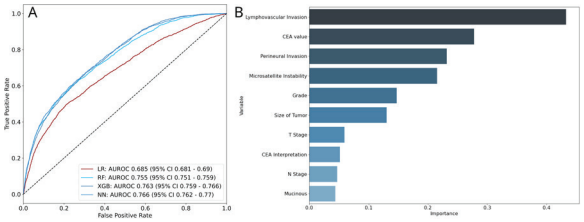
Purpose/Background: Non-operative management of locally advanced rectal cancer is an emerging treatment option. Despite its promise, predicting response to neo-adjuvant therapy remains a significant challenge, especially in the pre-treatment setting. Patients with pathologic complete response (pCR) after surgery in retrospective cohorts may have benefited from non-operative management, so predicting pCR in this group could give insights to support current treatment decision-making. We sought to create a more accurate pre-treatment model for pCR for rectal cancer using machine learning, which applies more complex modeling strategies that can identify combinatory and non-linear effects. Our ultimate goal is to produce a highly accurate, yet convenient clinical decision-support tool.

Methods/Interventions: We used the rectal cancer dataset of the National Cancer Database, including years 2010-2017, and split the cohort into training, validation, and test sets. We included adult patients with Stage II-III rectal cancer who underwent neoadjuvant chemoradiation followed by surgical resection. Our primary outcome was pCR, defined using pathologic staging. All pre-treatment factors were included in modeling, including patient, disease, and treatment facility characteristics with 38 variables included in total. Three machine learning-based models were developed, including random forest (RF), gradient boosting (XGB), and neural network (NN). These were compared with standard logistic regression (LR). Models were evaluated with area under the receiver operating characteristic curve (AUROC), sensitivity, and specificity. The contributions of each variable to model predictions were assessed using Shapley additive explanations.

Results/Outcome(s): The dataset included 56,093 patients, of whom 22.9% experienced pCR. The mean age was 60 years and 37% of patients were female. At diagnosis, 49% of patients had Stage 2 disease and 51% had Stage 3 disease. In the test set, NN showed the highest performance, with an AUROC of 0.766 (95% CI 0.762 - 0.770) compared with 0.685 (95% CI 0.681 - 0.690) for LR. RF and XGB performed similarly with scores of 0.755 (95% CI 0.751 - 0.759) and 0.763 (95% CI 0.759 - 0.766) respectively (Figure 1A). NN also outperformed LR in terms of sensitivity and specificity, with a sensitivity of 66% and specificity of 70%, compared with 57% and 70% for LR. The factors most highly associated with pCR included lymphovascular invasion, CEA, perineural

invasion, microsatellite instability, grade, size of tumor, and T stage (Figure 1B).

Conclusions/Discussion: Machine learning-based models were able to predict pCR for rectal cancer with good accuracy from pre-treatment variables alone. With further refinement and external validation, these models could be used to assist clinicians with prognosis for patients with locally advanced rectal cancer.



URGENT PELVIC EXENTERATION WITH LIVER RESECTION FOR PERFORATED RECTAL CANCER WITH ISOLATED LIVER METASTASIS.

eP364

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Purpose/Background: Pelvic exenteration is associated with significant post operative complications and pre-operative optimization of patients remains critical in the elective setting. Unfortunately, locally advanced rectal cancers may progress to perforation, abscess, and sepsis that require urgent surgical intervention prior to elective exenteration.

Methods/Interventions: We present a case study of a 67-year-old man with cT4bN1bM1 rectal cancer with isolated liver metastasis and invasion of the bladder who presented with perforation of his rectal cancer with sepsis and underwent urgent pelvic exenteration with resection of liver metastasis. He had completed chemoradiation and four cycles of FOLFOX with evidence of improvement in his isolated liver metastasis on MRI prior to presenting with acute perforation of the primary tumor. We elected to proceed with pelvic exenteration in order to obtain adequate source control of his pelvic sepsis. In anticipation of a prolonged recovery which could delay subsequent treatment, we decided to remove the liver lesion at that time to achieve an R0 resection.

Results/Outcome(s): The patient did well post operatively without any short-term post operative complications. He developed stoma prolapse and parastomal hernia requiring repair 10 months after his operation. Despite poor compliance with surveillance and patient's refusal of adjuvant chemotherapy, he remains disease free twenty months later.

Conclusions/Discussion: Although pelvic exenteration is usually done electively to allow pre-operative prehabilitation and nutritional optimization, urgent pelvic exenteration with simultaneous limited liver resection can be performed in the setting of perforation in highly selected cases.

SURGICAL FACTORS AFFECTING NODAL HARVEST IN RECTAL CANCER TME FOLLOWING TNT.

eP365

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Purpose/Background: Lymph node retrieval with proctectomy is an important prognostic and decision-making factor in the care of patients with rectal cancer. Prior studies have shown that longer specimen lengths were correlated with larger lymph node harvests, as well as the association between neoadjuvant chemoradiotherapy and smaller lymph node harvests. However, no study to date has examined the correlation between specimen length and lymph node harvest following total neoadjuvant therapy, which is quickly becoming the standard of care in non-metastatic rectal cancer.

Methods/Interventions: We identified all patients from our health center between 2019-2022 who underwent some form of proctectomy with total mesorectal excision (TME) for rectal cancer after having undergone total neoadjuvant therapy (TNT). We then selected an equal number of patients with rectal cancer who underwent TME without TNT. These patients were selected in reverse chronological order until we achieved a 1:1 ratio with our TNT patients. Patient, tumor, and operative characteristics were analyzed through a chart review process. Our primary objective was to determine if operative factors such as specimen length are associated with greater rate of successful nodal harvest (>12 nodes harvested) in patients who underwent TNT. Secondary objective was to determine if TNT contributed to lower nodal harvests.

Results/Outcome(s): We identified a total of 47 patients who underwent TME after TNT. 40 patients had at least 12 nodes identified in their pathology reports while 7 patients did not. There were no significant differences in age, BMI, ASA status, or gender breakdown between patients with adequate and inadequate nodal harvests. There were no significant differences in tumor differentiation, or tumor response to TNT between these 2 groups. While mean specimen length was shorter in patients with inadequate nodal harvests (19.97 cm vs. 25.67 cm, $p=0.12$), it did not reach statistical significance. High ligation of IMA, high ligation of IMV, and mobilization of the splenic flexure were not predictive of adequate nodal harvest. We also compiled a secondary control group composed of 47 patients who did not undergo TNT. 45 patients in this group had at least 12 nodes harvested. Specimen lengths were similar between patients who

underwent TNT and those who didnt (24.82 cm vs. 23.80 cm, p=0.37). Patients who underwent TNT were found to have fewer overall nodes harvested than those who did not undergo TNT (15.15 nodes vs. 23.74 nodes, p=0.0001).

Conclusions/Discussion: Adequate nodal harvest with TME following TNT is not conclusively associated with specimen length, high ligation of inferior mesenteric vessels, or mobilization of the splenic flexure. There is a clear association between TNT and smaller nodal harvests. The primary limitation of our study is that it is underpowered. Continuous accrual of data as more patients undergo the TNT approach may allow us to draw more definitive conclusions.

Operative Factors					
	Adequate Nodal Harvest (>12 nodes)	Inadequate Nodal Harvest (<12 nodes)	p-value	OR	95% CI
Specimen length (mean, cm)	25.67	19.97	0.12		
High ligation of IMA (%)	60	43		2	0.39-10.16
IMV ligation at origin (%)	45	43		1.09	0.22-5.52
Splenic flexure mobilization (%)	18	0		1.88	0.21-17.28

Operative factors among TNT patient with adequate and inadequate nodal harvests

WILL ADOPTING ROBOTIC RIGHT HEMICOLECTOMY WITH INTRACORPOREAL ANASTOMOSIS CHANGE MY OUTCOMES?

eP366

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Purpose/Background: The common technique for a laparoscopic right hemicolectomy involves laparoscopic mobilization with possible addition of laparoscopic ligation of the ileocolic pedicle, then extraction and an extracorporeal anastomosis. A permutation of this an intracorporeal anastomosis, in which the colon is then divided intracorporeally and a stapled isoperistaltic anastomosis is created with the common enterotomy closed laparoscopically. The robotic platform allows for more facile operation and ease of use allowing more surgeons to comfortably transition to Intracorporeal anastomosis. Unfortunately, studies so far have failed to demonstrate a significant difference in post-operative ileus, or length of stay in this patient population in comparison to traditional laparoscopic surgery with extracorporeal anastomosis. We have partially adopted this technique in our department starting in 2019, although many in our practice still perform the traditional laparoscopic surgery.

Methods/Interventions: We performed a retrospective observational study, focusing on a single surgeon performing both laparoscopic right hemicolectomy with extracorporeal anastomosis, and robotic right hemicolectomy with intracorporeal anastomosis from the years 2020 onward. Only elective surgeries for benign polyps or malignancies were included. Primary outcomes were hospital length of stay, time to flatus, and incidence of post-operative ileus. Secondary outcomes were operative time, estimated blood loss, post-operative transfusion requirement, anastomotic leak, deep space and superficial surgical site infection, readmissions, Pain levels post-operatively, incidence of deep vein thrombosis, as well as lymph node harvest from surgery.

Results/Outcome(s): A total of 65 patients met inclusion criteria, 29 of which underwent laparoscopic surgery, and 35 of which underwent robotic surgery. The median length of stay for robotic surgery and laparoscopic surgery was 62 and 67 hours respectively (p = .719). Average return of bowel function was similar in both groups (2.2 days). Three patients experienced significant post-operative bleeding (10%) in the laparoscopic group vs. one patient in the robotic group (2.8%) (p=.22). To note the mean duration of the robotic procedure was significantly longer than laparoscopic (134 vs. 241 minutes p<.005)

Conclusions/Discussion: Robotic right hemicolectomy did not confer a significant benefit in regards to length of stay in our patients and on average lasted 107 more minutes. Post-operative bleeding events seemed to be lower in the robotic group, however not significant. This can possibly be attributed to the advancement in stapler technology in comparison to traditional open GIA staples. In light of these findings, we question the added benefit of the robotic platform in the setting of an enhanced recovery pathway.

COUNTY-LEVEL DEPRIVATION AND COLORECTAL CANCER INCIDENCE AND MORTALITY IN MINNESOTA, 2014-2018.

eP367

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Purpose/Background: Socioeconomic status (SES) is a critical consideration for population health outcomes, including colorectal cancer (CRC). The literature is evolving on which variable, or combination of variables, accurately captures SES. Because of challenges in individual-level measurements, deprivation indices that represent a composite measure of SES at the community level are gaining popularity. Understanding accurate SES predictors for CRC detection, treatment, and outcomes could help health systems target efforts for improving equitable distribution of resources. While deprivation indices exist at small geographic levels, such as the neighborhood block, population rates of CRC incidence and mortality are only readily available at the larger county level. Whether an association exists between county-level deprivation and CRC incidence and mortality is currently unknown.

Methods/Interventions: We performed an ecologic cross-sectional study to assess the association of county-level deprivation with CRC incidence and mortality

in Minnesota from 2014-2018. Data were obtained from the Minnesota Department of Health and the Centers of Disease Control and Prevention Wide-ranging Online Data for Epidemiologic Research (WONDER). The Multidimensional Deprivation Index (MDI) uses US Census data and comprises variables in six domains: standard of living, education, health, economic security, housing quality, and neighborhood quality. It is available for all US counties for the year 2017 and presented as the percentage of the county population that is "deprived" based on thresholds in each domain. We performed negative binomial regression to model the association between MDI and CRC incidence and mortality after adjusting for country-level sex and age proportions. Incidence rate ratios and 95% confidence intervals are presented.

Results/Outcome(s): Between 2014 and 2018 there were 12,027 incident CRCs in Minnesota's 87 counties of which 5,724 were among women. Over the same time, 3,867 deaths occurred due to CRC. County-level CRC age-adjusted incidence ranged from 26.6 to 68.2 per 100,000 people. The county-level MDI, as calculated for the year 2017, varied from 2.87% to 14.17%. In adjusted models, there was no association between CRC incidence (IRR 1.02; 95% CI 0.99, 1.04) or mortality (IRR 1.03; 95%CI 0.98, 1.09). No association was observed in additional analyses stratified by sex.

Conclusions/Discussion: We found no association between county-level MDI and CRC incidence or mortality in this study. Given counties are large geographic areas with significant internal variation, deprivation indices at smaller geographic units may provide more detailed assessment. Availability of CRC outcome data at smaller geographic units would enable research to explore this in future studies.

THE BLACK PANTHER EFFECT: WAS THERE A DECREASE IN THE MEDIAN AGE FOR COLON CANCER SCREENING AFTER THE DEATH OF THE FAMOUS ACTOR?

eP368

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Purpose/Background: Early onset colorectal cancer (EOCRC), those diagnosed under 50 years of age, is on the rise. According to the Colon Cancer Coalition, about one out of every five cases of CRC occur in adults between the ages of 20 - 54. Those under the age of 55 are almost 60 percent more likely to receive a late-stage diagnosis than older Americans. Given this the U.S Preventive Services Task Force, formerly recommending that screening for CRC begin at the age of 50, now recommends screening at the age of 45 for people at average risk. Furthermore, given racial inequities faced by Black Americans regarding CRC, the American College of Physicians now advises Black patients to undergo their first screening at the age of 40. The death of the 43-year-old Black Panther actor Chadwick Boseman in August 2020 took the world by storm. Mr. Boseman was diagnosed with stage III disease several years prior in 2016. His death was particularly shocking as CRC is typically viewed as a disease of the elderly. Recent studies have shown that interest in CRC spiked in relation to Chadwick's death on August 28th, 2020, particularly among the black population. This study aims to evaluate the trend in the median age of those presenting for screening before the and after the death of Chadwick Boseman.

Methods/Interventions: This is a single institution retrospective review from August 2019 until July 2022 reviewing all colonoscopies performed. A total of 3702 charts will be reviewed, diagnostic and surveillance colonoscopies excluded. A total of 150 screening colonoscopies prior to Boseman's death and 297 after his death were evaluated for abstract purposes. Complete statistical analysis will include the entire 1 year before and 2 years after his death.

Results/Outcome(s): The median age in the pre-death group was 53 and in the post death group was 52 years old. The mean age for both groups was 54. Sixty-three percent of patients were female and 36% male. Racial demographics were as follows: white 53%, black 41%, and other 6%. Further data collection and statistical analysis is pending.

Conclusions/Discussion: In 2013, Angelina Jolie disclosed in the New York Times that she had undergone risk-reducing bilateral mastectomy (RRBM) after learning that she was a BRCA1 mutation carrier. Subsequent studies showed that following Angelina Jolie's mastectomy there was a statistically significant increase in the uptake of genetic testing and in RRBM among women. Our current study aimed to evaluate whether Chadwick Boseman's death yields similar results regarding colon cancer screening in young adults. Our initial numbers indication no difference but is underpowered. With the full statistical analysis of 1 year prior and 2 years after his death we hope to identify if the median age decreased. With EOCRC increasing, it will likely take public figures in addition to the full complement of the health care team to relay the importance.

EMERGENCY COLON SURGERY IN PATIENTS HOSPITALIZED FOR COVID-19. A NEW ENTITY?

eP369

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Purpose/Background: The COVID-19 pandemic has affected medicine in different fields; coloproctological surgery has not been exempt from this reality. Throughout

this period, at Clínica Alemana de Santiago, we have seen emergency colorectal surgery pathology in patients hospitalized for severe pneumonia due to COVID-19. Morbidity (58% serious complications) and associated perioperative mortality (16.7%) have been described in patients with emergency surgery with COVID-19. Objective: to describe our experience in the treatment of patients with Covid 19 who presented colon emergency surgeries.

Methods/Interventions: Methods: Prospective observational series, which includes all patients hospitalized for severe pneumonia due to COVID-19 and who underwent surgery for an emergency colon pathology without a specific diagnosis, between April 2019 and August 2021 at the German Clinic in Santiago. Results of diagnosis, surgery, complications, perioperative mortality and days of hospitalization are analyzed.

Results/Outcome(s): Results: A total of 7 patients (6 men) were included, all of whom underwent partial colectomy and end ileostomy. The average age was 58 years (36 to 76). Hospitalization days at the time of surgery averaged 24.1 days (7 to 70). The days of invasive mechanical ventilation was 37 days on average (14 to 73). The average hospital stay was 52.2 days (27 to 74 days). In 4 (57.1%) there was colon perforation (3 cecal and 1 sigmoid), 2 (28.5%) due to lower gastrointestinal bleeding and 1 (14.3%) due to mucormycosis of the transverse colon. 2 patients had postoperative complications (1 collection and 1 lower digestive bleeding), in none of them it was necessary to reoperate. There were no deaths.

Conclusions/Discussion: Conclusion: In our series of patients, morbidity and mortality was significantly lower than that described in the international literature. Although it is a "relatively low" number of patients, since international series describe series of up to 468 emergency surgeries with COVID-19; There are no enought publications that specifically describe the pathology of colon surgery, which gives value to our results in this study. All the patients, except two, which as a finding presented an adenocarcinoma in the transverse colon, were operated on for pathologies that did not present prior to hospitalization. Therefore, it seems important to continue studying the causal relationship between these emergency surgical pathologies in the colon and COVID-19, for which longer observation time and a larger number of patients are required. With what can clarify the pathophysiology of this phenomenon.

IMPACT OF COVID-19 ON MANAGEMENT OF DIVERTICULITIS IN AN EPICENTER OF COVID-19.

eP370

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Purpose/Background: The early 2020 lockdown of elective surgeries due to COVID-19 pandemic altered management of common surgical diseases including appendicitis, cholecystitis and diverticulitis. With resources redirected towards the COVID-19 pandemic, many hospitals managed these diseases nonoperatively. New York Presbyterian Queens (NYPQ) is a hospital located at a large epicenter of COVID-19 that modified treatment of common surgical diseases to focus efforts towards the pandemic. Our goal is to understand how the initial wave of the COVID-19 pandemic affected management and outcomes of diverticulitis.

Methods/Interventions: Patients admitted with acute diverticulitis between March and June of 2018 to 2021 were extracted from the NYPQ patient registry. Time periods were organized into "before pandemic" defined between 2018 and 2019, "during pandemic" in 2020, and "late pandemic" in 2021. Inclusion criteria were adult patients admitted for diverticulitis between 2018 and 2021. Demographics, Hinchey score, management, and post-discharge colonoscopy were collected. Bivariate analyses were performed using SAS Academic.

Results/Outcome(s): 107 patients admitted with acute diverticulitis were identified. 46 patients were admitted in 2018, 34 in 2019, 11 in 2020, and 16 in 2021. 49 patients (46%) were male. No difference in age, gender, or race was seen between the 3 periods ($p>0.05$). No difference in average Hinchey score was seen between the 3 periods ($p=0.43$). However, 0 (0%) patients in 2020 and 2021 presented as Hinchey 3 or higher, compared to 4 (9%) and 4 (12%) in 2018 and 2019, respectively. Between time periods, there was no difference in the proportion of patients undergoing operative intervention or IR ($p=0.83$, $p=0.94$). Higher rates of follow-up colonoscopy within a year of discharge were seen for patients admitted during the pandemic ($p=0.00024$, 19% [15/80] before, 55% [6/11] during, and 6% [1/15] late pandemic). There was no significant difference between rates of follow-up colonoscopy between patients under 45 years old (17% [4/24]) and patients 45 years or older (23% [18/80]). Rates of colonoscopies for patients under 45 years old were 13% [2/14] before, 67% [2/3] during, 0% [0/5] late pandemic and 45 years old or older were 21% [13/61], 50% [4/8], 9% [1/11]) ($p>0.05$).

Conclusions/Discussion: Despite fewer admissions observed in 2020, those that were treated appear to be more engaged and compliant in their care. This was evidenced by an increase of follow-up colonoscopies after admission for acute diverticulitis without an increase in

severity on presentation. This increase in engagement with healthcare services during the pandemic is also seen with increased rates of follow-up colonoscopy in not only patients 45 and older, but also in patients under 45 in 2020. These suggest that patients may have modified their health behaviors based on concerns that arose during the COVID-19 pandemic leading to increased participation in health care services.

TIME TRENDS AND PREDICTORS OF COST OF HOSPITALIZATION IN DIVERTICULITIS: A NATIONAL WIDE STUDY.

eP371

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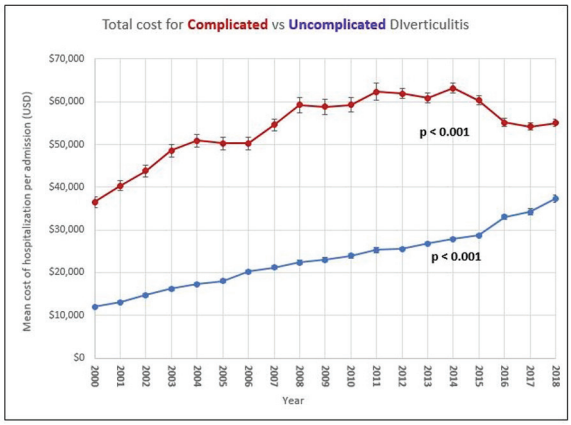
Purpose/Background: In the United States diverticulitis has become a major health burden and costs over $2.2 billion USD annually. There is a rising interest in possible interventions to decrease hospitalization costs. Therefore, in this study we aimed to analyze the predictors of cost of hospitalization in acute uncomplicated (AUD) and acute complicated (ACD) diverticulitis.

Methods/Interventions: Hospital admissions for a primary diagnosis of AUD and ACD (based on ICD-9/ICD-10 codes) were captured from 2000-2018 using The National Inpatient Sample (NIS). A chi-square test of independence was used to compare hospital costs, patient, and hospital characteristics between patients with ACD and AUD. Multiple linear regression was used to determine predictors of hospitalization costs.

Results/Outcome(s): Between 2000-2018, a total 138,092 and 464,936 admissions were for ACD and ACD, respectively. The mean total cost of hospitalization for ACD and AUD was 55,071.67 [95% CI 54,682.47, 55,460.87] and 21,785.87 [95% CI 21,693.17, 21,878.57] USD (p<0.001), respectively. Overall, there is a rising trend in cost of hospitalization in both ACD and AUD between years 2000 and 2018 (Image), with a more significant increase in AUD (p<0.001). The mean length of hospital-stay for AUD and ACD was 4.16 and 8.07 days, and 38.4% of admissions for ACD vs 6.7% for AUD required in-hospital procedures defined as surgical or percutaneous procedures (p<0.001). In addition to year of presentation (b=4375.70 [95%CI 4375.69, 4375.70] for ACD and b=1309.66 [95%CI 1309.65, 1309.66] for AUD), lowest income quartile (b=–4472.32 [95%CI –4472.30, –4472.33] for ACD and b=–2002.01 [95%CI –2002.00, –2002.02] for AUD), teaching hospital status (b=4375.70 [95%CI 4375.69, 4375.70] for ACD and b=2787.03 [95%CI 2787.03, 2787.04] for AUD), private hospital control (b=11495.26 [95%CI 11495.24, 11495.28] for ACD and b=3092.32 [95%CI 3092.31, 3092.33] for AUD), presence of comorbidities (b=34325.46 [95%CI 34325.44, 34325.48] for ACD and b=24747.81 [95%CI 24747.78, 24747.83] for AUD), immunosuppression (b=17577.77 [95%CI 17577.72, 17577.82] for ACD and b=8272.03 [95%CI 8272.01, 8272.05] for AUD), and requiring in-hospital procedures (b=33704.97 [95%CI 33704.96, 33704.99] for ACD and b=36059.01 [95%CI 36059.00, 36059.03] for AUD) were strongly associated with cost of hospitalization per admission (p<0.001).

Conclusions/Discussion: While cost of hospitalization in ACD and AUD continues to rise, more than 90% of admissions for AUD and more than 60% for ACD consist of non-procedural care and observation. Presence of comorbidities and need for in-hospital procedures had the highest association with cost of hospitalization. Therefore, future studies should focus on novel strategies to omit in-patient hospitalization for select patients with ACD and AUD through use of Hospital-at-Home and telehealth services with appropriate patient selection.



A CASE OF ENDOMETRIOSIS PRESENTING WITH ACUTE APPENDICITIS.

eP372

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Purpose/Background: Endometriosis is a relatively common condition in women of childbearing age. It's characterized by the implantation of endometrial tissue outside of the uterus. Extrapelvic endometriosis can manifest with symptoms that can mimic other conditions. It's important to include endometriosis in the differential diagnosis when dealing with female patients complaining of pain.

Methods/Interventions: A 21-year-old woman was diagnosed with acute appendicitis after experiencing abdominal pain for four days. Both CT and ultrasound findings were consistent with acute appendicitis. A laparoscopic appendectomy was performed.

Results/Outcome(s): Analysis of the specimen revealed endometrial tissue within the appendix.

Conclusions/Discussion: Appendicitis is a surgical emergency that occurs due to obstruction of the appendiceal

lumen leading to inflammation and/or infection. On the other hand, endometriosis is characterized by the implantation of endometrial tissue outside of the uterus. Endometriosis of the GI tract is uncommon, and endometriosis of the appendix is a rare finding with few cases reported in the literature. Acute appendiceal inflammation can result from complete or partial occlusion of the appendiceal lumen by the endometrioma. Preoperative diagnosis of appendiceal endometriosis is difficult; thus, it is often diagnosed pathologically after the removal of the appendix. It is important to consider appendiceal endometriosis in females of childbearing age presenting with classic clinical symptoms of appendicitis. These patients should follow up with their OB/GYNs to assess the extent of endometriosis.

INCISIONAL HERNIA AFTER OSTOMY TAKEDOWN - SURGEON PERSPECTIVES AND PREVENTION STRATEGIES.

eP373

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Purpose/Background: Temporary ostomies are a commonly used tool in the field of colon and rectal surgery. They allow for protection of an anastomosis, relief of a malignant obstruction, or diversion at times when an immediate anastomosis may not be feasible. While a necessary procedure, reversal of the ostomy is not without morbidity. The literature suggests that hernias develop at the former ostomy site in up to 50% of patients. We sought to understand what surgeons think their rate of hernia formation is, how they currently close ostomy sites, and how they monitor hernia occurrence.

Methods/Interventions: A survey was sent to 60 general and colon and rectal surgeons in Houston, TX. The questions sought to understand the surgeons' behaviors around ostomy takedown, and their perceptions of this problem. Data was collected on the surgeons' specialty training, years in practice, their techniques of closing the abdominal wall defect during ostomy reversal, their perception of hernia risk, and their average follow up. The survey was anonymous and distributed through an online platform.

Results/Outcome(s): 30 surgeons (50%) responded to the survey, with most being male (70%) and the majority in academic practice (90%). While most were in their first five years of practice (43.3%), there were varied levels of experience within the group, with 7 (23.3%) having more than ten years of experience. 11 respondents (37.9%) had formal fellowship training in colon and rectal surgery. The majority (63.3%) report closing the abdominal wall defect in 2 layers (fascia and skin). Only 3 surgeons reported closing the defect in more than 2 layers. Overwhelmingly, absorbable suture was preferred (93.3%), in either an interrupted or running fashion. When asked to estimate the incisional hernia rate nationally following ostomy closure, almost all (86.7%) of the surgeons reported it was 10% or more. 40% of surgeons believed this number was likely greater than 20%. However, when asked to estimate how many of their own patients would develop an incisional hernia, 19 surgeons (63.3%) reported it was less than 10%, even though, 80% of surgeons followed their patients for less than a year after ostomy takedown, with 50% of them following for less than 3 months.

Conclusions/Discussion: Surgeons underestimate the rate of hernia development following ostomy closure and consistently describe their own hernia rate as even lower. Additionally, most surgeons follow their patients for less than a year following ostomy reversal. Our survey highlights a bias in surgeon perception which underestimates the true hernia development rate.

THE RARE DEVELOPMENT AND TREATMENT OF A COLO-FALLOPIAN FISTULA FROM A COMPLICATION OF SIGMOID COLON DIVERTICULITIS: A FIRST CASE PRESENTATION.

eP374

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Purpose/Background: Background: Diverticulitis is a common in the western country that develops as small protrusions (diverticula) along any weak point in the GI tract with the majority occurring in the large intestine. These protrusions occur from dysfunction of motility of the GI tract, eventually leading to diverticulosis. Most patients with diverticular disease are asymptomatic, however, other complications can arise from patients that develop diverticulitis. This can include abscess formation as well as the development of fistulas with any adjacent viscera in the GI tract. It is vital to recognize and treat sigmoid fistulas quickly and promptly as they can lead to complicated recurrent infections and later sepsis. We present our case in recognizing and treating a patient with recurrent vaginal infections that was later diagnosed as a sigmoid colon diverticulitis complicated by a colo-fallopian fistula.

Methods/Interventions: Case Presentation: 65 yr old female with PMH of hyperlipidemia initially presented with recurrent E. coli vaginal infections. Cystoscopy was performed with bilateral ureteral lighted stents that showed no bladder lesions. Diagnostic laparoscopy was then performed which showed the sigmoid colon that was noted in the pelvic area with adhesions to the uterus and to the anterior abdominal wall. There were some dense adhesions to the right fallopian tubes suggestive of the location of the tubo-colic fistula. Adhesions were lysed with careful dissection for sigmoid mobilization utilizing robotic trochars between the sigmoid colon and the abdominal wall as wells as between the small bowel and bladder. Ureters were identified and protected. Rectum

and rectosigmoid junction were mobilized and transected. Adequate blood flow to the descending colon was checked to ensure vascularity. Descending colon and sigmoid colon as well as the distal rectum were brought out using a Pfannenstiel incision. the end-to-end anastomosis was created, and a leak test was performed in the pelvis which showed no anastomotic leak.

Results/Outcome(s): Results: Significant improvement was noted following the procedure. The patient was able to advance diet and was discharged the next day. Post op patient was seen, and no recurrent E. coli vaginal infections were seen.

Conclusions/Discussion: Conclusion: in this case, this patient had a complicated sigmoid colon diverticulitis and a colo-fallopian fistula. This patient was managed with minimally invasive surgical technique which proved to be safe and beneficial to the outcome of this patient. There is a plethora of sigmoid colon diverticulitis complications such as a colo-vesical fistula, colo-vaginal fistula, colo-prostatic fistula, colo-cutaneous fistula, and a colo-perineal fistula. However, this is the first reported case in the literature of a colo-fallopian fistula evidenced by recurrent vaginal infections.

SHORT-TERM OUTCOMES OF LAPAROSCOPIC COLORECTAL CANCER SURGERY USING A NEW ARTICULATION DEVICE, ARTISENTIAL: A MULTICENTER RETROSPECTIVE ANALYSIS USING A POOLED DATABASE.

eP375

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Purpose/Background: The articulating laparoscopic devices emulate the arm movement of surgical robots and may overcome the limitations of conventional straight surgical devices. Though initial experiences and case series of surgery using articulating devices have been reported, their safety and feasibility need more validation because most studies included a small number of patients and were conducted in a single institution. This multi-center retrospective analysis presents the short-term outcomes of the largest cohort to date of colorectal cancer patients who underwent laparoscopic colorectal cancer surgery using articulating devices.

Methods/Interventions: The patients with colorectal cancer who underwent laparoscopic surgery using ArtiSential by experienced surgeons in seven tertiary hospitals in South Korea between January 2021 and May 2022 were included. Intraoperative and short-term postoperative outcome data were analyzed.

Results/Outcome(s): A total of 495 patients were included, including 349 (70.5%) colon cancer and 146 (29.5%) rectal or rectosigmoid junction cancer. The median age was 65 and males were 277 (56.0%). Among the rectal cancer patients, 22 (24.7%) received neoadjuvant chemoradiotherapy. The most frequently performed surgical procedures were right hemicolectomy (158/495, 31.9%), followed by anterior resection (146/495, 29.5%), and low anterior resection (135/495, 27.3%). In 304 (61.4%) cases, articulating devices were used in the surgeon's both hands, and in 130 (26.3%) cases, they were only used in the surgeon's right hand. The most frequent combination was an articulating spatula in the right hand and an articulating grasper in the left hand. The median operating time was 149 minutes (interquartile range 123 – 187 min). There was no case of open conversion. The median day of the first bowel movement was postoperative day 2 (interquartile range 2 – 3). The median postoperative hospital stay was 6 (interquartile range 5 – 8). The incidence of anastomotic leakage that required surgical management was 5 (1.0%). The cases of perioperative bleeding that were managed by transfusion and surgery were 11 (2.2%) and 1 (0.2%), respectively. The number of patients with stage 0, I, II, III, and IV was 14 (2.8%), 128 (25.9%), 130 (26.3%), 185 (37.4%), and 38 (7.8%), respectively. The median number of harvested lymph nodes was 21 (interquartile range 15 – 31). All specimens of rectal cancer showed complete total or tumor-specific mesorectal excision quality (93/93, 100%).

Conclusions/Discussion: Laparoscopic colorectal cancer surgery using articulating devices is safe and feasible. A multi-center prospective clinical trial comparing articulating device-assisted surgery and robotic surgery is warranted.

Table 1. Perioperative outcomes and pathologic characteristics

		Total (N = 495)	Colon (N = 349)	Rectum or Rectosigmoid junction (N = 146)
Intraoperative	EBL, mL	50.0 (30.0 – 100.0)	50.0 (30.0 – 100.0)	50.0 (50.0 – 150.0)
	Op time	149 (123 – 187)	145 (120 – 181)	164 (135 – 212)
	Transfusion	4 (1.4)	1 (0.2)	3 (3.2)
	Open conversion	0	0	0
Pathology	TNM stage			
	0	14 (2.9)	12 (3.0)	2 (2.2)
	I	128 (26.2)	96 (24.2)	32 (34.4)
	II	130 (26.6)	111 (28.0)	19 (20.4)
	III	179 (36.6)	151 (38.1)	28 (30.1)
	IV	38 (7.8)	26 (6.6)	12 (12.9)
	Harvested LN	21 (15 – 31)	22 (16 – 33)	16 (12 – 24)
Postoperative	First bowel movement, day	2 (2 – 3)	2 (2 – 3)	2 (2 – 3)
	Hospital stays, day	7 (6 – 9)	7 (6 – 8)	8 (6 – 10)
	Ileus	39 (7.9)	30 (7.5)	9 (9.7)
	Anastomotic leak (Grade B)	3 (0.6)	1 (0.1)	2 (2.2)
	Anastomotic leak (Grade C)	5 (1.0)	0	5 (5.4)
	Bleeding (transfusion)	11 (2.2)	11 (2.7)	0

APPLICATION OF ADHESION BARRIER ON TEMPORARY LOOP ILEOSTOMY SIGNIFICANTLY REDUCED PARASTOMAL ADHESION FORMATION AND OPERATION TIME AT ILEOSTOMY CLOSURE.

eP376

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Purpose/Background: The use of adhesion barriers was well known to reduce postoperative adhesion formation. In this study, we assessed the efficacy of sodium hyaluronate and carboxymethyl cellulose (Seprafilm) on the ileal mesentery during temporary loop ileostomy formation in patients with rectal cancer who underwent curative resection. We evaluated the degree of parastomal adhesion formation and operation time at ileostomy closure.

Methods/Interventions: We retrospectively reviewed the electric medical records of consecutive patients with rectal cancer who underwent ileostomy closure from January 2020 to July 2022 in a single institution. Patients were grouped according to the use of Seprafilm during loop ileostomy formation. Operation time were separated into the dissection/anastomosis time and closure time. Parastomal adhesion formation were recorded as none, mild, moderate, and severe.

Results/Outcome(s): Among the overall 310 patients, 132 (42.6%) were grouped as Seprafilm group. The baseline demographic characteristics including age, sex, body mass index, were not different between the groups. In terms of type of initial rectal cancer surgery, the proportion of minimally invasive surgery were greater in Seprafilm group (92.4% vs. 83.1%, P = 0.025). The incidence of the moderate to severe parastomal adhesion formation were 20.5% vs. 44.4% in Seprafilm and No-Seprafilm group, respectively. The dissection/anastomosis time were significantly shorter in Seprafilm group (33.5 min vs. 48.0 min, P < 0.0001). The overall operation time was 58.5 min and 69.0 min in Seprafilm and No-Seprafilm group, respectively. The closure time were not shown statistically significant difference between the groups. In multivariable regression analysis, none-to-mild parastomal adhesion formation and the use of Seprafilm were significantly associated with dissection/anastomosis time.

Conclusions/Discussion: When Seprafilm applied to ileal mesentery during loop ileostomy formation, it significantly reduced parastomal adhesion formation and operation time, especially dissection/anastomosis time. Therefore, Seprafilm may decrease surgical difficulties for ileostomy closure.

Table 1. Baseline characteristics

	Seprafilm (N=132)	No-Seprafilm (N=178)	*P* value
Age			0.319
≥ 60	71 (39.9)	61 (46.2)	
< 60	107 (60.1)	71 (53.8)	
Sex			0.281
Female	61 (34.3)	54 (40.9)	
Male	117 (65.7)	78 (59.1)	
BMI			0.520
≥ 24 kg/m^2	61 (46.2)	90 (50.6)	
< 24 kg/m^2	71 (53.8)	88 (49.4)	
Type of surgery			0.025
MIS	122 (92.4)	148 (83.1)	
Open	10 (7.6)	30 (16.9)	
Initial surgery			0.545
AR/LAR	72 (54.5)	94 (52.8)	
ISR	51 (38.6)	76 (42.7)	
Transanal excision	3 (2.3)	1 (0.6)	
TPC/IPAA	6 (4.5)	7 (3.9)	

BMI, body mass index; MIS, minimally invasive surgery; AR, anterior resection; LAR, low anterior resection; ISR, intersphincteric resection; TPC/IPAA, total proctocolectomy with ileal pouch anal anastomosis

Table 2. Operative characteristics of ileostomy closure

	Seprafilm (N=132)	No-Seprafilm (N=178)	*P* value
EBL	20 (10-30)	20 (10-30)	0.998
Operation time			
Total	59 (45 - 80)	69 (56 - 94)	< 0.0001
Dissection/anastomosis	34 (26 - 56)	48 (38 - 70)	< 0.0001
Closure	21 (15 - 27)	19 (15 - 25)	0.253
Parastomal adhesion			< 0.001
None/Mild	105 (79.5)	99 (55.6)	
Moderate/Severe	27 (20.5)	79 (44.4)	
Intraperitoneal adhesion			0.139
None/Mild	114 (86.4)	141 (79.2)	
Moderate/Severe	18 (13.6)	37 (20.8)	

EBL, estimated blood loss

Table 3. Multivariable regression analysis for procedure time of dissection and anastomosis

	Risk ratio	95% CI	*P* value
BMI ≥ 24 kg/m^2	2.939	-4.402 – 10.281	0.433
MIS	0.086	-11.080 – 10.281	0.988
None/Mild parastomal adhesion	-17.80	-25.760 – -9.843	< 0.0001
Seprafilm group	-11.23	-18.8654 – -3.600	0.004

BMI, body mass index; MIS, minimally invasive surgery; CI, confidence interval

STAPLED EXTRACORPOREAL ILEOCOLIC ANASTOMOSIS USING THE "BARCELONA" TECHNIQUE FOR LAPAROSCOPIC RIGHT HEMICOLECTOMY; A SINGLE SURGEON'S EXPERIENCE.

eP377

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Purpose/Background: We report our experience with the Barcelona technique to create an extracorporeal stapled ileocolic anastomosis during laparoscopic right hemicolectomy (LRHC). This technique has been routinely used for ileostomy reversal, but its utility in colon operations has not been described to date in the United States. We describe our experience with the Barcelona technique in creating extracorporeal ileocolic anastomosis for both benign and malignant conditions.

Methods/Interventions: The operation is begun laparoscopically. The ileocolic pedicle is identified, and the ileocolic artery is divided. The right colon is mobilized up to the hepatic flexure with the medial-to-lateral approach and the right branch of the middle colic artery is divided. We then perform the Barcelona technique as follows: the proximal and distal resection margins of the right colon and terminal ileum are extra-corporealized via a small midline laparotomy and approximated, an enterotomy is

made in each limb, a stapled common channel is created, and the same stapler is used to create a side-to-side, functional end-to-end anastomosis and amputate the specimen. We use two 75 mm blue loads with one linear cutting stapler to create this anastomosis. We report the characteristics and outcomes of a single surgeon's series of 14 patients who underwent LRHC and Barcelona ileocolic anastomosis between 2021-2022.

Results/Outcome(s): 14 patients underwent LRHC with extracorporeal ileocolic anastomosis using the Barcelona technique. 13 cases were due to right-sided colon cancer and one was due to a benign stricture. The average age was 68 years. Average BMI was 24.7. For the oncologic resections, there were adequate margins and the average number of lymph nodes harvested were 21. Average operative time was 156 minutes. There were no anastomotic leaks. One patient had prolonged ileus resolved with bowel rest. There were no short- or long-term complications requiring invasive intervention.

Conclusions/Discussion: We found that the Barcelona technique is a safe, cost-effective method to perform ileocolic anastomosis during LRHC without added complication or compromise in oncologic outcomes. All ileocolic anastomoses performed in our patient series were successfully completed with two firings from a single linear stapler. Although the Barcelona technique is our anastomotic technique of choice for LRHC, its use should take into consideration key factors such as the mobility of the mesentery, ability to obtain adequate oncologic margins, and body mass index.

IMPLEMENTATION OF A STRUCTURED ROBOTIC COLORECTAL CURRICULUM FOR GENERAL SURGERY RESIDENTS.

eP378

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Purpose/Background: The rate of robotic colorectal surgery has almost quadrupled at our institution over the past four years. Accordingly, there is increasing demand for earlier colorectal robotic training for general surgery residents, both at the bedside and on the console. As such, we implemented a robotic colorectal surgery curriculum to increase resident proficiency on the robotic platform and to graduate residents with an equivalency certificate in robotic surgery.

Methods/Interventions: Our curriculum was introduced in 2019 and consists of didactics, virtual and tissue simulations, and clinical case performance. Of 70 modules on the SimNow® platform, 13 are mapped to the colorectal rotation. Simulation and clinical objectives for common robotic colorectal operations are specified for both junior residents (post-graduate years 1-2) and senior residents (post-graduate years 3-5). The robotic colorectal surgical experience was characterized by comparing robotic to non-robotic operations, differences in robotic operations across post-graduate year (PGY) on the colorectal service, and percentage of graduates achieving an equivalency certificate. Robotic operations are tracked using ACGME case log annotation. Equivalency Certificate of da Vinci® Robotic Surgical Training is provided to all residents meeting criteria by graduation.

Results/Outcome(s): Between years 2017 and 2021, 24 residents logged 681 major large bowel operations on the colorectal service (PGY 1 mean = 7.6 +/- 4.56, PGY 4 mean = 29.7 +/- 14.4, PGY 5 mean = 29.8 +/- 14.8). Robotics made up 24% of PGY 1 (49% laparoscopic, 27% open), 35% of PGY 4 (35% laparoscopic, 29% open) and 41% of PGY 5 (44% laparoscopic, 15% open) colorectal operations. Robotic bedside experience is primarily during PGY 1 and 2, while most PGY 4 and 5 robotic operations are on the console (Figure 1). Robotic certification was achieved by 50% of graduates in 2019, 80% in 2020, and 100% in 2021 and 2022.

Conclusions/Discussion: Our structured robotic colorectal curriculum for general surgery residents has facilitated early bedside robotic training for junior residents and console experience for senior residents without diminishing exposure to open and laparoscopic colorectal operations. Since implementation, there has been an increase in robotic certification for our graduates. We plan to continue our examination of this curriculum by following trends of robotic console experience as our current junior residents progress through the robotic colorectal curriculum.

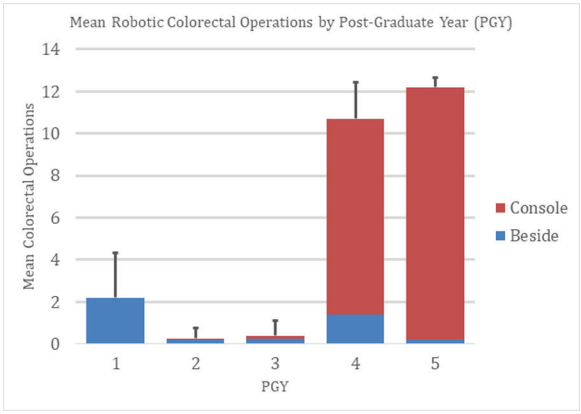

Figure 1

RADIOLOGIST INTER-RATER RELIABILITY FOR SIGMOID VOLVULUS ON CT SCANS.

eP379

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Purpose/Background: Up-to-date defines a delay in intervention for sigmoid volvulus as a wait period longer than 48 hours. Delays in care lead to increases in complication rates, readmission, and reintervention. Our institution often diagnoses sigmoid volvulus with computerized tomography (CT) scan, making the radiologist read highly important. We aimed to determine interrater reliability on patients seen at our institution.

Methods/Interventions: There were 68 cases of sigmoid volvulus between 2007 and April 2022. 27 of these were in unique patients diagnosed by CT. Two independent radiologists reviewed the 27 images without knowledge of each other's, or the original reader's, reports. Radiology categorization of the reading fell into three categories: Volvulus, Inconclusive, and No Volvulus.

Results/Outcome(s): Radiologists disagreed on twelve patients. The interrater reliability was 55.56% (κ =.33, 95% CI: [.05, .62]). Two patients had interventions outside the defined 48-hour window. One of these two underwent surgical intervention, however no evidence of volvulus was found in the OR.

Conclusions/Discussion: The importance of an accurate radiologist read cannot be overstated. While imaging remains a key diagnostic tool in deciding if patients should undergo surgical correction of their volvulus, we suggest that additional training for recognition of sigmoid volvulus improve reliability.

GIANT GALLSTONE: A RARE CASE OF CONCOMITANT CHOLECYSTOCOLONIC AND COLOCUTANEOUS FISTULAS.

eP380

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Purpose/Background: Cholecystoenteric fistulas are a rare complication of gallstone disease seen in ~0.1% of cholecystectomy procedures which are associated with high morbidity and mortality [2, 5, 7]. Fistulous communications from the gallbladder are commonly identified in the duodenum (75-80%), followed by the colon (10-25%), and then stomach (5%) [10]. Cholecystocolonic fistula typically form as a result of an aberrant connection between the gallbladder and the right colon [3]. Due to the rarity of this condition and variable presentations, there are diagnostic and treatment challenges. Delayed operations to manage these fistula are controversial. There is no consensus on the efficacy of minimally invasive surgical approaches. We report a rare case of cholecystocolonic fistula with the transverse colon leading to gallstone impaction into and subsequent perforation of the sigmoid colon that presented as a colocutaneous fistula who was managed successfully with a delayed single-stage robotic approach.

Methods/Interventions: A previously healthy 74-year-old woman presented with a two-week history of progressively worsening abdominal pain and physical exam findings consistent with suprapubic abdominal wall abscess. After initial evaluation, a cholecystocolonic fistula as well as large gallstone within the sigmoid colon causing a contained perforation and colocutaneous fistula was discovered on contrast computed tomography (CT) imaging. She underwent incision and drainage of the abscess and failed flexible sigmoidoscopy to attempt gallstone retrieval. She was discharged with oral antibiotics with plans for delayed surgical management once infection and inflammation had subsided. Two months later, she underwent an elective robotic repair of the cholecystocolonic and colocutaneous fistulas. The patient's postoperative course was uneventful and she was discharged to home on postoperative day three.

Results/Outcome(s): Robotic approach allowed for excellent visualization as well as concomitant repair of both fistulas. The patient's postoperative course was uneventful and she was discharged to home on postoperative day three. In short-term follow-up, the patient had resolution of symptoms and no signs of recurrence.

Conclusions/Discussion: Complicated cholecystocolonic fistulas are extremely rare, with most reported cases presenting with sigmoid obstruction [8, 9]. We describe the first report of a patient with cholecystocolonic fistula who presented with a colocutaneous abscess resulting from contained perforation of the sigmoid colon. Delayed operative interventions should be considered to allow infection and inflammation to subside and allow for a minimally invasive approach. We present a patient who underwent successful delayed management of complicated gallbladder disease with concomitant cholecystocolonic and colocutaneous fistulas using a single-stage robotic approach.

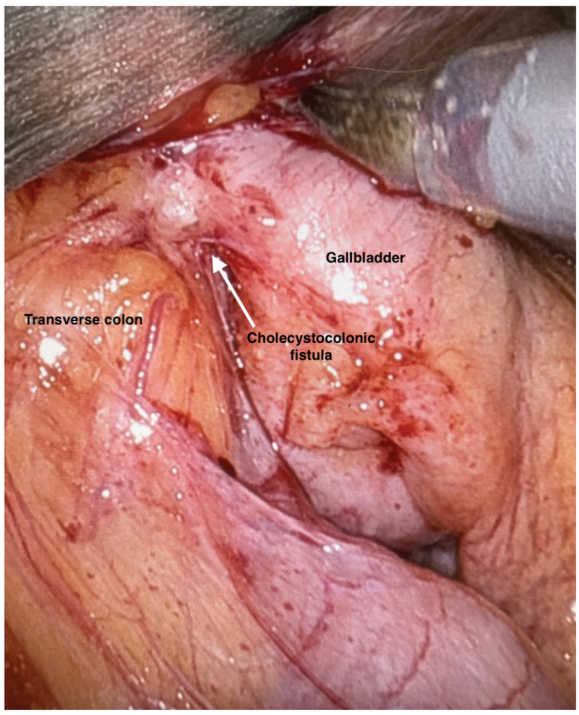

Figure 7. Intraoperative view of the cholecystocolonic fistula

CLINICAL UTILITY OF ROUTINE ABDOMINAL DRAINS FOLLOWING SUBTOTAL COLECTOMY IN PATIENTS WITH ULCERATIVE COLITIS.

eP381

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Purpose/Background: Rectal stump leak is a rare but morbid complication after subtotal colectomy (STC) for ulcerative colitis (UC). It is many surgeons' preference to routinely place an abdominal or pelvic drain to capture rectal stump leaks post-operatively given the level of inflammation, increased use of immunosuppressive medications and malnutrition plaguing patients with UC. However, abdominal drains are not without morbidity themselves. They may not be routinely necessary in this population. We hypothesize that abdominal drains placed after STC for UC do not consistently detect rectal stump leaks and other early post-operative complications.

Methods/Interventions: We performed a retrospective chart review of an institutional prospective IBD database to identify all UC patients undergoing STC from 2017 to 2022. Patients undergoing ileorectal or ileoanal anastomosis at first the operation and patients undergoing concurrent abdominal operations (e.g., liver resection) were excluded. Operative reports were reviewed to collect drain data. Patient demographics, perioperative factors and post-operative complications were collected.

Results/Outcome(s): 346 UC patients underwent STC during the 5-year time period. Ninety six percent (n=332) of patients had an abdominopelvic drain placed during STC and 4% (n=14) did not. STC was performed emergently in 57 patients (16%) and electively or semi-electively in 289 (84%) of patients. Indication for STC was medically refractory disease in 92% of patients. All drains were removed prior to index discharge. Rectal stump leak was diagnosed in 4 patients (0.9%). Rectal stump leak patients presented with pelvic abscess or peritonitis. Mean time to diagnosis of leak was 9.8 days (range 7 to 12 days). All four patients had drains placed at initial surgery, however the drains were removed prior to hospital discharge and not present at time of leak. There were 6 patients (1.7%) who had post operative bleeding requiring blood transfusion. All 6 cases of bleeding were from endoluminal bleeding (either rectal stump or ileostomy). There were 0 patients with abdominal bleeding, and 0 instances where abdominal drains were used to diagnose bleeding. There were 2 patients (0.6%) identified with post operative chylous leak. The abdominal drains diagnosed the leak in both patients by exhibiting milky fluid. The chyle leaks did not require intervention apart from low fat diet.

Conclusions/Discussion: This 5-year review of UC patients undergoing STC found that a vast majority of patients had an abdominal drain placed during the index operation. These drains did not aid in the diagnosis of rectal stump leak as they were removed prior to patients presenting with leak. Our findings challenge the routine placement of abdominal drains during subtotal colectomies for ulcerative colitis as they may not help in the diagnosis of post-operative complications.

CROHN'S DISEASE IN CHILDHOOD. CASE REPORT.

eP382

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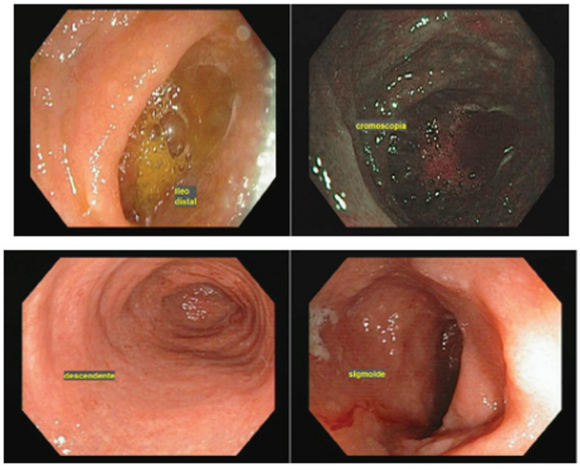
Purpose/Background: Chron's disease is a chronic transmural granulomatous inflammatory disordes, a type of inflammatory bowel disease that may occur in any part of the gastrointestinal tract, including the mouth. The incidence of the childhood-onset disease is estimated to be 0.1-11.2 cases per 100.000 individuals per year and and an aetiopathogenesis role of immunological, genetic, environmental, psychosocial and dietary factors has been suggested. Purpose: To report a case of chron's disease in childhood with symptoms that started at 18 months of age.

Methods/Interventions: Female patient, 10 years old, diagnosed at age of 4 with Crohn's disease. The mother reports that at 18 months of age she started to have peripheral arthritis and was treated with methotrexate with partial improvement. After one year she presented recurrent episodes of diarrhea and a diagnostic hypothesis was made of a side effect of methotrexate, which was descontinued. Ath 4 years of age, she presented a new

episode of arthritis associated with diarrhea and underwent a colonoscopy that showed granulomatous ileitis with a biopsy compatible with crohn's disease.

Results/Outcome(s): Adalimumab was started and methrotexate reintroduced. The patient presented remission of symptoms for 3 years, and at 7 years of age, she presented diarrhea, anemia and signs of malnutrition. The patient underwent a colonoscopy that showed granulomatous ileocolitis (Figure 1) and a biopsy of the terminal ileum showed erosive ileitis with microgranulomas and a right colon with exuberant granulation tissue and mixed inflammatory infiltrate. Left colon with erosive colitis and foci of cryptitis and apoptosis. The patient also had a positive asca and fecal calprotectin above 1800. she was hospitalized and administered intravenous corticosteroids and infliximab was started, with improvement in symptoms. The patient is currently in clinical remission using infliximab.

Conclusions/Discussion: At the present, the exact cause of IBD is not known. The most commonly accepted hypothesis for the pathogenesis of IBD is that inflammation develops in the gut following interactions between the intestinal microbiota and host immune mechanisms in an individual with underlyng genetic risk factors, with environmenta infuences also playing an important role. Extra-intestinal manifestations of IBD can be present at diagnosis or develop subsequently, in up to 30% of individuals. Biological therapies have clear roles in the induction of remission in severe disease and in the subsequent maintenance of disease with ongoing dosing. The efficacy and safety of both infliximab and adalimumab has been considered in children and adolescents. Many of these are biological therapies that are able to considered consequent to improved understanding of the complex inflammatory events in IBD.



RISK OF RECTAL NEOPLASM IN PATIENTS WITH RECTAL STUMP OR ILEORECTAL ANASTOMOSIS FOR ULCERATIVE COLITIS: A SYSTEMATIC REVIEW.

eP383

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Purpose/Background: Patients with Ulcerative Colitis who undergo colectomy continue to experience a higher risk of rectal cancer (RC) in either the residual rectal stump (RRS) or with ileorectal anastomosis (IRA). Previous studies have reported that the incidence of rectal cancer is approximately 2.2% and 3.25% respectively in these groups. A recent retrospective study (July 2021) involving over 400 000 patients analysing the effect of biologics reported a reduced risk of cancer with the use of biologics; an odds ratio of 0.78. This systematic review aims to evaluate the risk of rectal cancer in patients who have undergone colectomy with RRS or IRA and establish if this risk is reduced with the use of biologics.

Methods/Interventions: A systematic review was performed with searches undertaken on: Medline, Web of Science, EMCARE, CINAHL, Cochrane Library and Trip Databases. Two authors independently screened the articles to identify the relevant articles. Studies were included if outcomes were reported separately for UC in IRA and RRS; no date restrictions were applied. The following terms were used: (rectal neoplasm* OR rectum neoplasm* OR rectal tumour* OR rectal tumor* OR rectal cancer* OR "cancer of the rectum") AND "ulcerative colitis" AND (colectomy OR "rectal stump" OR "pouch-anal anastomosis")

Results/Outcome(s): A total of 890 articles were screened following the removal of duplicates for which 35 were included in this study for both RRS(n=10) and IRA (25). They mostly consisted of retrospective cohort studies (n=30; prospective n=5) in which patients were followed up with surveillance in the form of endoscopies. This produced a pooled total population of 5767 (IRA, n=3154), the mean patients per study was 165 with a range of 7-1607. This population ranged from all studies varying from earliest 1940 to the latest 2019. Not all studies included a mean follow up since colectomy was performed. Rectal Neoplasms were detected in 151 of these patients producing a pooled risk of 2.62% (95% Confidence Interval (CI), 1.90-4.32). The risk was higher in IRA (3.55% (n=122, CI 1.79-5.05) versus 1.49% in RRS (n=39, CI 0.90-3.77)). No studies analysed or reported the association with the use of biologics vs the risk factor in neoplastic development in patients who underwent colectomy.

Conclusions/Discussion: This systematic review suggests that the risk of rectal cancer is 2.62% in patients with Ulcerative Colitis following colectomy with RRS or IRA. Future studies need to assess the effect of biologics

on the development of neoplasm in colectomy patients and develop endoscopic surveillance schedules that address varying risk.

EXAMIANTION UNDER ANAESTHESIA FOR THE INVESTIGATION OF HIGH GRADE INTERNAL RECTAL PROLAPSE - THE OVERLOOKED INVESTIGATION.

eP384

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Purpose/Background: The accurate diagnosis of high grade internal rectal prolapse (HGIRP) can be challenging. Many sources describe a defacating protocogram (DPG) as the 'gold standard' investigation for the diagnosis of HGIRP. An alternative method for the diagnosis includes an examination under anaesthesia (EUA). EUA involves the examination of an anaesthetised patient in the operating theatre. No data has validated the role of EUA for the investigation of HGIRP. Our philosophy, and reflected practice, is that if a DPG that does not demonstrate HGIRP then this does not necessarily exclude the diagnosis of HGIRP. If there is sufficient clinical concern for HGIRP, despite a negative DPG, an EUA is undertaken. The aim of this study is to assess whether an EUA demonstrates different findings to the DPG and if it changes clinical management.

Methods/Interventions: A retrospective review of patients seen between May 2014 and June 2022 in Queen Elizabeth II Hospital, a busy quaternary pelvic floor unit in Brisbane, Australia was performed. Patients who had an EUA of the rectum for investigation of symptoms consistent with a suspected HGIRP were identified from the pelvic floor database. An individual review of these patient's medical records was then undertaken to review their presentation, previous investigations and findings of the EUA.

Results/Outcome(s): Forty patients were identified. Thirty-eight were female and there was a median age of 66. At their initial pelvic floor clinic appointment, 34 (85%) were thought to have internal rectal prolapse on DRE. On presentation, patients had a median Faecal Incontinence Severity Score (FISI) of 15 (range 4-50), a median Obstructed Defecation Score (ODS) of 11 (range 0-22) and a median Constipation Scoring System (CSS) of 12 (range 0-23). At EUA, 30 patients (75%) had a HGIRP. Of the 30 patients with HGIRP at EUA, 19 had a previous DPG performed. Fifteen (79%) of these DPGs showed no evidence of HGIRP. Of these 15 patients with HGIRP on EUA with a 'negative' DPG for HGIRP all went on to have surgical management of their HGIRP.

Conclusions/Discussion: Half of the patients in this series with a HGIRP at EUA (15 patients) had previously had a DPG which did not demonstrate a HGIRP. This supports that if there is a clinical suspicion of HGIRP, despite a negative DPG, patients should proceed to an EUA. This was a clinically significant result for these patients, because all of these patients then proceeded to operative intervention. HGIRP can be difficult to diagnose. When clinically suspected, a negative DPG should not exclude the diagnosis of HGIRP. A multi-modal approach to diagnosis is essential as no single test can be consistently relied upon. EUA may be helpful in cases of diagnostic uncertainty and should not be overlooked as a key investigation in the diagnosis of HGIRP.

UTILIZING REMOTE, VIDEO-BASED PELVIC FLOOR PHYSICAL THERAPY FOR RECTAL CANCER PATIENTS: A FEASIBILITY TRIAL PROTOCOL.

eP385

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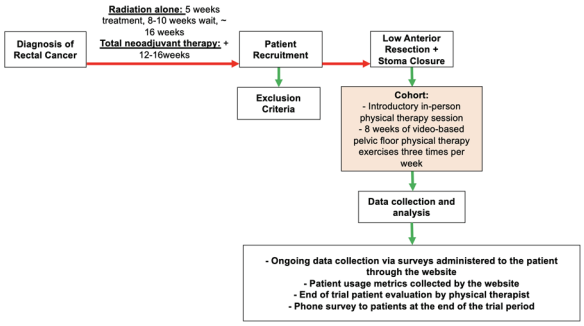
Purpose/Background: Low anterior resection syndrome (LARS) can greatly afflict patients' quality of life after undergoing treatment for rectal cancer. Post-operative pelvic floor physical therapy (PFPT) is one treatment methodology employed that has shown promising results to improve LARS symptoms. However, at present patient access to PFPT is limited by geographic, scheduling, and travel restraints. Remote PFPT could help patients access vital physical therapy and improve their quality of life, and remote physical therapy has been shown to be a feasible alternative to in-person therapy for patients with other malignancies and chronic illness. The feasibility of remote, video-based PFPT has not been studied. This trial will seek to understand the feasibility of remote, video-based PFPT for post-treatment rectal cancer patients.

Methods/Interventions: Rectal cancer patients planned for surgery (low anterior resection +/- protective ileostomy) will be recruited to the study pre-operatively, with planned program start following the two-week post-operative visit. We have created a graded intensity PFPT exercise web application designed by PFPT specialists at our institution. There will be one cohort with 10 patients. Patients will meet with a therapist at the start of the program for instruction in the exercises and to distribute equipment (exercise bands). Exercise instructional videos will be hosted on a secure server at our institution with access links sent via the electronic medical record (EMR) portal (EPIC MyChart) and may be viewed on any computer or mobile device. Patients will follow the exercise program for eight weeks. The website will collect usage data from each patient. Patients will complete pre-trial, weekly, and exit surveys through the website that will assess patient satisfaction as well as other metrics. An exit evaluation

performed by a pelvic floor physical therapist will score how well patients are able to complete the exercises.

Results/Outcome(s): The primary outcome will be feasibility as measured by patient retention, video usage and completion, adverse events, usability (system usability scale), and patient satisfaction. The secondary outcomes will be quality of life measures, low anterior resection score, neuropathy score, and the extent that patients are able to correctly perform the PFPT exercises at the end of the trial as evaluated by trained pelvic floor physical therapists.

Conclusions/Discussion: This feasibility project will be the first step towards understanding the utility of remote PFPT on postoperative rectal cancer patients, the majority of whom suffer from LARS in the immediate postoperative period. The path forward will be a clinical trial to evaluate the effectiveness of remote PFPT in treating LARS and a feasibility trial to understand the potential of remote PFPT prehabiliation on the mitigation of the development of LARS.



DOES OBESITY IMPACT THE RESULTS OF SACRAL NERVE STIMULATION FOR FECAL INCONTINENCE?

eP386

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Purpose/Background: Obesity negatively impacts the results of dietary measures and sphincter repair in the management of fecal incontinence (FI). However, the results of sacral nerve stimulation (SNS) in obese patients suffering from FI have never been specifically studied. The aim of this study was to compare the functional results of SNS between obese and non-obese patients treated for FI in a large prospective cohort.

Methods/Interventions: The data of all patients implanted with permanent SNS for FI in fours centers were prospectively collected. The severity of FI was evaluated by the Cleveland Clinic Score (CCS). Quality of life was evaluated by the French version of the ASCRS quality of life questionnaire (FIQL). Patients completed questionnaires at baseline, 6 months, 1 year postoperatively and then once a year. Morbidity rates, CCS and FIQL score were compared between obese (BMI ≥ 30 kg/m^2) and non-obese patients (BMI < 30 kg/m^2). Generator lifespan was calculated according the Kaplan-Meier method.

Results/Outcome(s): A total of 613 patients were implanted with permanent SNS (599 females, mean age = 61±13 years), including 125 (20%) obese patients. Obese patients presented more frequently with diabetes than non-obese patients (24% vs 4%; p<0,0001). However, the rate of infection of the device did not significantly differ between groups (5% vs 3% ; p=0,43). The rate of revision due to loss of efficacy was significantly lower in obese patients (2% vs 10% ; p=0,005) but definitive explant rate (17% vs 19% ; p=0,68) and generator lifespan were similar between groups. CCS and FIQL scores significantly improved from baseline to either 1-3 years and 4-5 years in both groups, without any difference between obese and non-obese patients at each time point.

Conclusions/Discussion: SNS achieves similar functional and quality of life results in obese patients compared to non-obese patients, with the same safety results. These data encourage to emphasize SNS rather than other surgical alternatives impacted by BMI in the treatment of FI in obese patients.

IMPACT OF QUALITY METRICS AND MARKET FACTORS ON PROCTECTOMY PRICING: A NATIONAL ANALYSIS OF LEAPFROG HOSPITALS.

eP387

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Purpose/Background: Hospital charges for complex operations like proctectomy are historically varied and opaque. The Centers for Medicare and Medicaid Services (CMS) price transparency rule aims to facilitate cost-conscious decision-making. Novel data platforms provide insight into negotiated payer-specific prices. We hypothesized that high volume centers have greater price transparency and lower prices for proctectomy.

Methods/Interventions: The Leapfrog Hospital Survey was used to identify participant hospitals. Proctectomy was defined by current procedural terminology (CPT) codes for total abdominal colectomy, abdominoperineal and low anterior resection, and pelvic exenteration. Pricing and financial performance were derived from the Turquoise Health Research Dataset and CMS Medicare Cost Reports. Herfindahl-Hirschman Index (HHI) estimated monopolization in each hospital referral region. Modified Poisson regression evaluated associations between operational characteristics, quality indicators, and price disclosure. Two-part models queried average marginal effects of hospital factors on proctectomy prices.

Results/Outcome(s): Of 946 Leapfrog Hospitals, 538 (56.87%) disclosed proctectomy prices. Disclosing hospitals were more likely to exceed 20 operations annually (25.7% vs. 18.8%, p=0.01) and achieve the two highest Leapfrog ratings for proctectomy (30.4% vs. 22.6%, p=0.01). Disclosing hospitals had higher net margins (1.20% vs. -4.90%, p<0.01) and charge-to-cost ratios (6.26 vs. 4.83, p<0.01). In multivariate analysis, location in a populous metro, for-profit and government status, teaching affiliation, net margin, and bed size predicted disclosure (Table 1). Market monopolization predicted lower transparency, but also decreased Medicare prices by $4174 (95% CI $1846 - $6503, p<0.001) in moderately monopolized and $3901 (95% CI $1375 - $6426, p<0.01) in highly monopolized markets. For-profit ownership decreased proctectomy prices an average $6558 (95% CI $4163 - $8953, p<0.001) and $2956 (95% CI $1407 - $4505, p<0.001) under private and Medicare insurance, respectively. For every ten hospital beds added, private insurer prices increased an average $122 (95% CI $45 - $200, p<0.01). Multivariate analyses did not show significant impacts of procedure volume or Leapfrog ratings on proctectomy prices or their disclosure.

Conclusions/Discussion: A national analysis of Leapfrog hospitals demonstrated high rates of price non-disclosure for proctectomy. Price transparency was driven by higher net margins, bedsize, metro area, teaching affiliation, and hospital ownership. Hospital competition and non-profit status, rather than surgery at high-volume centers of excellence, correlated with higher prices. Our findings suggest proctectomy pricing remains uncoupled from markers of quality. Market forces appear to be a major driver in price transparency and should be considered in policies incentivizing disclosure and cost-reduction.

Table 1. Multivariable linear mixed-effects regression assessing predictors of Proctectomy price disclosure.

Parameter	Coefficient (95% CI)	P value
Non-profit ownership	Reference	
For-profit ownership	1.39 (1.22 - 1.59)	<0.001
Government ownership	1.33 (1.14 - 1.57)	<0.001
Percent hospital margin	1.01 (1.00 - 1.01)	<0.001
Teaching hospital status	1.20 (1.06 - 1.36)	<0.01
GPCI – Physician Work	0.96 (0.90 - 1.03)	0.27
Limited or some achievement	Reference	
Considerable or highest achievement	1.09 (0.85 - 1.38)	0.51
Fewer than 20 proctectomies per year	Reference	
20 or more proctectomies per year	1.03 (0.80 - 1.33)	0.82
Total number of beds (every 10)	1.00 (1.00 - 1.01)	0.01
Metro population below 1 million	Reference	
Metro population above 1 million	1.178 (1.02 - 1.36)	0.02
Low market concentration (HHI < 1500)	Reference	
Moderate market concentration (HHI 1500 - 2500)	0.80 (0.67 - 0.96)	0.02
High market concentration (HHI ≥ 2500)	0.83 (0.67 - 1.03)	0.10
Constant	17.12 (0.02 - 12662.22)	0.40

GPCI: Geographic Practice Cost Index, HHI: Herfindahl-Hirschman Index

THE IMPACT OF PROLONGED OPERATIVE TIME ASSOCIATED WITH MINIMALLY INVASIVE COLORECTAL SURGERY: A REPORT FROM THE SURGICAL CARE OUTCOMES ASSESSMENT PROGRAM.

eP388

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Purpose/Background: Prolonged operative time in colorectal surgery is associated with worse surgical outcomes. In contrast, laparoscopic and robotic (minimally invasive) operations have improved outcomes despite longer operative times, making the impact of prolonging these operations less clear. In addition, the definition of "prolonged" operative time has not been consistently defined. The goal of our study was to first define prolonged operative time across several colorectal operations and surgical approaches. We then used this definition to evaluate the impact of prolonged operative time on short-term surgical outcomes.

Methods/Interventions: A cohort of six common, elective colorectal operations was created from sites participating in the Surgical Care Outcomes Assessment Program. Prolonged operative time was defined as the 75th quartile of operative times for each operation and surgical approach (open, laparoscopic, or robotic). Outcomes were length of stay (LOS), discharge home, and combined adverse events (CAE). Both linear and logistic regression models were used to account for factors that could impact both operative time and length of stay across the strata of open and minimally invasive approaches.

Results/Outcome(s): From 2011-2019, 23,098 elective colorectal operations were included from 42 hospitals. These operative times were stratified by operation and surgical approach to define prolonged operative time (Figure 1). Prolonged operative time was associated with longer median length of stay (7 vs. 5 days open, 5 vs. 4 days laparoscopic, 4 vs. 3 days robotic), more frequent complications (42% vs. 28% open, 24% vs. 17% laparoscopic, and 27% vs. 13% robotic), but similar discharge to home (86% vs. 87% open, 94% vs. 94% laparoscopic, and 93% vs. 96% robotic). After adjustment, each additional hour of operative time was associated with 0.65 (0.57, 0.72) days longer length of stay for open operations compared to 0.39 (0.35, 0.44) days longer for minimally invasive operations.

Conclusions/Discussion: Prolonged operative time is associated with longer length of stay and higher probability of complications, but this detrimental effect is diminished with minimally invasive approaches. Though our study has multiple limitations including unadjusted surgeon bias and learning curves, our findings support the use of minimally invasive approaches, even in prolonged colorectal operations.

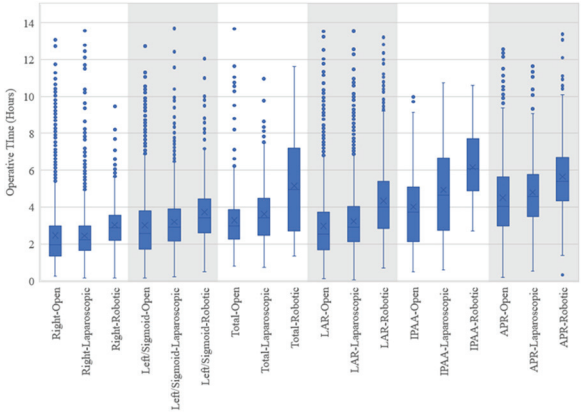

Figure 1. Operative time distributions by operationa nd operative approach

EVALUATING CLINICAL PRACTICE GUIDELINES FOR THE MANAGEMENT OF RECTAL CANCER: DID THEY GET IT RIGHT?

eP389

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Purpose/Background: The management of rectal cancer has undergone profound changes in recent years, highlighting the importance of multidisciplinary care. With the increasing complexity of oncologic management, Clinical Practice Guidelines (CPGs) are crucial in assisting healthcare providers with delivering high-quality, evidence-based patient care. Despite their significance, CPGs vary widely in quality, content, and structure. The Reporting Items for practice Guidelines in HealThcare (RIGHT) checklist was created in 2017 to improve the reporting process of CPGs. In this study, we utilized the RIGHT checklist to assess the reporting quality of four frequently referenced CPGs addressing the management of rectal cancer.

Methods/Interventions: Four specialty-specific CPGs (ASCRS, American Society of Colon and Rectal Surgeons; ESMO, European Society of Medical Oncology; NICE, National Institute for Health and Care Excellence; NCCN, National Comprehensive Cancer Network) for the management of rectal cancer published between January 2017 and September 2022 were identified. Each CPG was quantitatively assessed using the validated 22-item RIGHT checklist tool across 7 domains. Three authors independently reviewed and scored each CPG individually. Disagreements were resolved with discussion and each CPG then received a final score based on author consensus. Additionally, qualitative analysis was performed to capture contrasting attributes and themes across the guidelines.

Results/Outcome(s): The RIGHT checklist items fulfilled by each CPG ranged from 13 to 17 (out of 22). Each guideline was structurally disparate and demonstrated significant variation across the checklist domains. Each CPG had unique categories of weakness (Figure 1). ASCRS was lacking in Basic Information (1 out of 4 items), ESMO in Evidence (1 out of 3), NCCN in Recommendations (1 out of 3), and NICE in Review and Quality Assurance (0 out of 2). Common themes that emerged through qualitative analysis included a paucity of discussion pertaining to the financial impact of rectal cancer management as well as lack of transparency regarding the processes used to gather, evaluate, and display evidence for management recommendations.

Conclusions/Discussion: While no CPG assessed in this study fulfilled all RIGHT checklist criteria, each demonstrated areas for improvement in different domains. This variation implies that individual components are already present in contemporary CPGs, and that careful implementation of the components of the RIGHT checklist would allow experts to create a guideline adhering to high quality reporting standards. Despite the wide variation in the structure of each CPG included in this study, the ability to effectively convey recommendations was maintained. Utilizing a tool such as the RIGHT checklist in creating a guideline helps developers report their work to clinicians in a safe, transparent, and efficient manner.

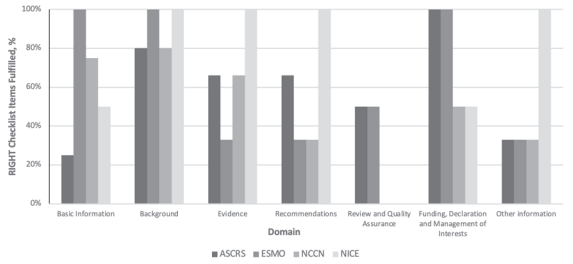

Figure 1. Comparison of the reporting quality of rectal cancer clinical practice guidelines using the RIGHT checklist.
Abbreviations: ASCRS, American Society of Colon and Rectal Surgeons; ESMO, European Society of Medical Oncology; NICE, National Institute for Health and Care Excellence; NCCN, National Comprehensive Cancer Network; RIGHT, Reporting Items for practice Guidelines in HealThcare.

RARE INSTANCE OF REFRACTORY RECTO-SEMINAL VESICLE FISTULA AFTER LAR: CASE REPORT AND MANAGEMENT.

eP390

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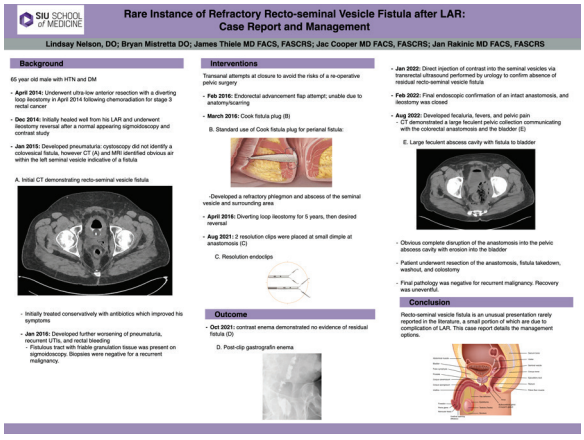
Purpose/Background: A 65 year old male with HTN and DM underwent an ultralow anterior resection with a diverting loop ileostomy in April 2014 after chemoradiation for stage 3 rectal cancer. He developed a long-term refractory seminal vesicle fistula requiring complex interventions as late as 2022. This report details the management as a discussion of the options for treating this rare and difficult problem. Patient initially healed well from LAR and underwent ileostomy reversal in Dec 2014 after a normal appearing sigmoidoscopy and contrast study. 1 month later, he developed pneumaturia. Cystoscopy did not identify a colovesical fistula, however CT and MRI identified obvious air within the left seminal vesicle

indicative of a fistula. He was initially treated conservatively with antibiotics which improved his symptoms. However, several months later, he developed further worsening of pneumaturia, recurrent UTIs, and rectal bleeding. Fistulous tract with friable granulation tissue was present on sigmoidoscopy. Biopsies were negative for a recurrent malignancy.

Methods/Interventions: Transanal approaches were initially considered to avoid the risks of a re-operative pelvic surgery. Endorectal advancement flap was preferred but was impossible due to the patient's anatomy and scar tissue. A Cook fistula plug was inserted into the obvious fistula opening and secured in place. Patient then developed a refractory phlegmon and abscess of the seminal vesicle and surrounding area. Diverting loop ileostomy was performed in 2016 to manage this. He remained diverted for 5 years. In Sept 2021, he desired reversal thus underwent flexible sigmoidoscopy with note of only a small dimple at the anterior anastomosis: 2 resolution clips were placed.

Results/Outcome(s): One month later, contrast enema demonstrated no evidence of residual fistula. This was confirmed with direct injection of contrast into the seminal vesicles via transrectal ultrasound. In Feb 2022, after final endoscopic confirmation of an intact anastomosis, the ileostomy was taken down. He was asymptomatic until Aug 2022 when he developed profound fecaluria, fevers, and pelvic pain. CT demonstrated a large feculent pelvic collection communicating with the colorectal anastomosis and the bladder. He was taken to the operating room for resection of his anastomosis, fistula takedown, washout, and colostomy. There was obvious complete disruption of the anastomosis into the pelvic abscess cavity with erosion into the bladder. Final pathology was negative for recurrent malignancy. Recovery was uneventful.

Conclusions/Discussion: Recto-seminal vesicle fistula is an unusual presentation rarely reported in the literature, a small portion of which are complication of LAR. This case details the management options when these fistulas are refractory to conservative treatment.



EVALUATION OF THE EFFECT OF SPHINCTER PRESERVING SURGERY FOR RECTAL CANCERS ON ANORECTAL FUNCTION USING ANORECTAL MANOMETRY.

eP391

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Purpose/Background: The indications of sphincter preserving surgery for lower rectal cancers have been expanding owing to the development of surgical techniques and preoperative treatments. However, preserving the anorectal function is still challenging and some patients suffer from symptoms including fecal urgency, frequent bowel movements, bowel fragmentation and incontinence, which seriously impairs the postoperative quality of life (QOL) and mental status.

Methods/Interventions: To improve the postoperative QOL, it is important to predict the risk of postoperative anorectal dysfunction. For this purpose, we retrospectively evaluated the perioperative anorectal functions and QOL of rectal cancer patients who underwent sphincter preserving surgery between October 2021 and September 2022. Anorectal functions were assessed by anorectal manometry and questionnaires with Wexner score and Modified Fecal Incontinence Quality of Life Scale preoperatively and 3-6 months after surgery.

Results/Outcome(s): Fifteen rectal cancer patients (13 men, median age 70 years, range 44-82) were included in this retrospective cohort study. Four and eleven tumors were located in Ra and Rb region, respectively. The median distance between the tumor and anal verge (AV) was 50 (30-80) mm. Laparoscopic and robotic surgeries were performed in 2 and 13 cases, respectively. Lower anterior resection (LAR) and intersphincteric resection (ISR) were performed in 14 and 1 case respectively. All of 9 patients treated with neoadjuvant chemoradiotherapy, underwent LAR with diverting ileostomy. The median anastomotic height was 25 (5-40) mm from AV. The mean pre- and postoperative length of functional anal canal was 48 and 44 mm, the mean resting pressure was 76 and 64 mmHg, and the mean squeezing pressure was 309 and 243 mmHg, respectively. The postoperative resting and squeezing pressures showed correlations with the anastomotic height, and the degree of correlation was more significant in resting pressure. Postoperative QOL was impaired, especially in patients with anastomosis in less than 50% of the length of the anal canal.

Conclusions/Discussion: We demonstrated that the postoperative resting and squeezing pressures correlated with the anastomotic height. Although the postoperative QOL relating to the anorectal function in patients with ileostomy was difficult to evaluate, there was a tendency that QOL in patients with anastomosis in less than 50% of the preoperative length of the anal canal was impaired. As anorectal manometry is a noninvasive and feasible

procedure, it could be an effective tool to predict the postoperative QOL following sphincter preserving surgery based on the location of tumors and the measurements by anorectal manometry. We are currently accumulating cases and extending the observation period to investigate the long-term effect of sphincter preserving surgery on anorectal function and QOL.

TRANSANAL MINIMALLY INVASIVE SURGERY (TAMIS) VERSUS TRANSANAL ENDOSCOPIC MICROSURGERY (TEM) FOR RECTAL CANCER: A SYSTEMATIC REVIEW AND META-ANALYSIS OF THE LITERATURE.

eP392

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Purpose/Background: Few studies have compared the outcomes of TEM versus the flexible TAMIS for local excision of early rectal cancer. We systematically searched the literature to compare intraoperative, postoperative, and oncologic outcomes of these platforms.

Methods/Interventions: A random-effect meta-analysis was performed and statistical heterogeneity was assessed using the I2 statistics. An open-source, cross-platform software for advanced meta-analysis openMeta [Analyst] (V12.11.14) was used. PubMed and Scopus databases were systematically searched until August 2022 according to PRISMA guidelines. Differences were expressed as odds ratio and 95% confidence interval for categorical variables and weighted mean difference for continuous variables. All studies comparing TAMIS versus TEM treatment in rectal cancer patients in terms of intraoperative, short-term postoperative, and oncological outcomes were included. Studies including patients <18 years, reviews, duplicate or animal studies, non-comparative studies, or non-English text were excluded. Main outcome measures were intraoperative and short-term postoperative outcomes and specimen quality.

Results/Outcome(s): 7 studies published between 2015-2022 were identified, incorporating a total of 931 patients (423 females); 402 underwent TAMIS and 529 underwent TEM. Median age and BMI were similar. The two techniques did not differ in terms of blood loss (Weighted Mean Difference (WMD):1.13,95% CI: -16.8 – 19.1;p=0.9), operative time (WMD:11.1, 95% CI: -2.6 – 25;p=0.11), % of defect closure (OR:0.7, 95% CI: 0.06 – 8.22;p=0.78), or incidence of peritoneal violation (OR:0.41, 95% CI: 0.12 – 1.43;p=0.16). Overall short-term postoperative complications were reported in 14.7% of the TEM and 12.7% of the TAMIS groups (OR:1.3, 95% CI: 0.88 – 1.99, p=0.17). There were no significant differences regarding minor (OR:1.42, 95% CI: 0.89 – 2.26, p=0.13) or major postoperative short-term complications (OR:1.17, 95% CI: 0.49 – 2.8, p=0.71). Patients in the TEM group were 3-times more likely to be re-admitted within 30 days compared to the TAMIS group (OR: 3.1, 95% CI: 1.07-9.4, p=0.03). Rates of positive resection margins were similar (TEM: 7.6% vs TAMIS: 9.34%, OR:0.81, 95% CI: 0.42 – 1.55, p=0.53) as was specimen fragmentation (TEM: 3.3% vs TAMIS: 4.4%, OR:0.74, 95% CI: 0.33 – 1.64, p=0.46). Three studies reported oncological outcomes after a median follow-up of 14 months (range, 6-36); local recurrence rates were similar (TEM: 3.2% vs TAMIS:3.9%, OR:0.8, 95% CI: 0.33 – 1.94, p=0.63). 5.5% of the TEM patients and 6.2% of the TAMIS patients underwent salvage surgery (OR:0.8, 95% CI: 0.4-1.8, p=0.7).

Conclusions/Discussion: TAMIS and TEM seem to have similar operative and short-term postoperative outcomes, except for a lower readmission rate after TAMIS. Specimen quality did not differ between the two techniques.

METACHRONOUS TUMOR OF THE TRANSVERSE COLON AS THE CAUSE OF INTESTINAL OCCLUSION IN A PATIENT WITH PROSTATE CANCER, CASE REPORT.

eP393

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Purpose/Background: Multiple primary neoplasms (MPN) are defined as ≥2 malignant neoplasms of the same or different organ with different histological characteristics, regarding metastasis. They are synchronous if tumors are diagnosed within 6 months and metachronous if they are diagnosed >6 months. Standing as 18% of all cancers in the U.S. MPNs in patients with prostate cancer are rare, in incidence is 1.14% to 8.7%. (2) While the incidence of association of prostate cancer with colorectal cancer is 0.3%. In a systematic review and meta-analysis of 21 studies by Wallis et al, radiation therapy was found to increase the risk of developing NPM of the bladder, colon, and rectum. However, Fan et al found that the risk in patients with radiotherapy increases in bladder and colon cancer, but not for tumors in the rectum. Objective: To present the case of a patient with a history of prostate cancer who presented intestinal occlusion secondary to a metachronous tumor of the transverse colon.

Methods/Interventions: A review of literature involving the subject and a clinical case was carried out.

Results/Outcome(s): Results: A male of the eighth decade of life, history of systemic arterial hypertension of 5 years of evolution with adequate management. Open transurethral resection of the prostate secondary to a moderately differentiated prostatic adenocarcinoma, Gleason 7 (3+4). He was admitted into a third-level

hospital with 8 days in evolution characterized by diffuse abdominal pain of moderate intensity without any irradiation, progressive distension, nausea that causes 4 episodes of gastrobiliar vomit, and the inability to evacuate, which is why he self-medicates without improvement. Laboratories with leukocytes of 9540, neutrophils 84%, lymphocytes 10%, hemoglobin 16 gr/dL, hematocrit 47.2%, platelets 176000. Simple and contrasted CT scan of the abdomen and pelvis is performed where it is seen with centralized small intestine loops and enlarged with a diameter of up to 55mm, cecum and ascending colon dilated up to 90mm, forming multiple levels. Surgical exploration is decided with the following findings; the spontaneous exit of 100 milliliters of ascites fluid, a sample is taken for cytological study. Loops of the small intestine, cecum, and ascending colon with significant enlargement and slight changes of ischemia, stenosis at the level of the hepatic angle of the colon of 100% of the lumen, firm adherences to gerota fascia, and perforation. Transverse colon, descending and sigmoid were collapsed. The result of pathological anatomy of the surgical piece was a positive result for moderately differentiated, infiltrating, ulcerated and perforated adenocarcinoma.

Conclusions/Discussion: The incidence of patients with metachronous tumors of the prostate and colon is low, the treatment should be individualized, according to the location and stage of the tumors.

PRESERVING THE DISCHARGE DISPOSITION OF ELDERLY PATIENTS WITH COLON CANCER – THE ADVANTAGES OF MINIMALLY INVASIVE SURGERY.

eP394

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Purpose/Background: Older adults with cancer are at an increased risk of post-operative morbidity. Minimally invasive surgery (MIS) has allowed for the reduced risk of postoperative complications in all patients, with direct implications on recovery. The preservation of independence is a major treatment goal of elderly patients, potentially enhanced by MIS techniques. The objective of this study was to investigate the impact of MIS techniques on the preservation of elderly patient independence.

Methods/Interventions: This was a retrospective cohort study using data extracted from the ACS NSQIP Geriatric Surgery Project database and merged with the ACS NSQIP colectomy-specific database. All elderly patients (>65 years) who underwent a colectomy for colon cancer and who had geriatric-specific variables recorded as part of the ACS NSQIP Geriatric pilot project between 2014 and 2018 (inclusive) were included. Patients who underwent colectomies for non-cancer indications and those passed away prior to discharge were excluded. The main outcome was loss of independence (LOI), defined as either of change in functional status, mobility aid use, or change in discharge disposition. General demographics, comorbidities, operative variables and geriatric specific variables were included in our assessment. LOI was assessed using logistic regression and presented for each surgical approach (open, MIS, and MIS converted to open).

Results/Outcome(s): A total of 661 elderly patients who underwent a colectomy for colon cancer between 2014 and 2018 were included. Most patients were Non-Hispanic White (64.0%), from home (77.91%), did not use a mobility aid (62.03%), did not have a previous history of falls (63.99%), were deemed functionally independent (76.55%), and did not have cognitive impairment (74.28%) prior to their procedure. Among the 661 patients, 208 (31.47%) had a change in functional baseline, 265 (40.09%) had a change in mobility aid use, and 145 (21.94%) had a change in discharge disposition. This represents 363 (54.92%) individuals. Those who underwent a minimally invasive surgery had a trend towards a lower odds of sustaining a loss of independence compared to those who underwent open colectomy (OR=0.64, [95%CI 0.37-1.09], p= 0.09). When loss of independence was evaluated by each definition separately, MIS strategies were protective against the change in discharge disposition was evaluated (OR=0.43, 95%CI 0.22-0.84, p= 0.01).

Conclusions/Discussion: Over half of elderly surgical patients with colon cancer will have a post-operative

change in their independence. MIS strategies decrease the likelihood of a change in discharge disposition, with a trend towards improving any change in loss of independence. As MIS strategies become more prominent, the encouraging minimal impact on elderly patient independence may further enthuse surgeons to provide curative intent treatment for our elderly patients.

SIMULTANEOUS RESECTION OF COLORECTAL CANCER AND SYNCHRONOUS COLORECTAL LIVER METASTASIS: A RISK STRATIFIED ANALYSIS OF THE NSQIP DATABASE.

eP395

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Purpose/Background: Over 25% of patients diagnosed with colorectal cancer (CRC) will develop colorectal liver metastases (CRLM) at some point during their disease. Controversy exists over the management of CRC primary tumors and synchronous CRLM. This study aims to investigate the safety of a simultaneous surgical approach in CRLM patients, using risk stratification by procedure risk and by procedure approach (open vs. minimally invasive surgery [MIS]).

Methods/Interventions: Using the ACS-NSQIP database (2016-2020), adult patients with CRC who underwent simultaneous colon and liver resections were identified. Patients were categorized into an isolated resection or a simultaneous resection group. Further stratifications were made based on the procedure risk and surgical approach (open vs. MIS) of the colon and/or hepatic procedure. Procedure risk was defined by calculating the 30-day overall morbidity for each isolated colon or hepatic procedure from the NSQIP database and using a 30% morbidity rate as inclusion in the high-risk group for open procedures and 28% in the MIS group. Primary outcome was 30-day overall morbidity. Secondary outcomes were 30-day serious morbidity, mortality, readmission, reoperation, length of stay, and operative time.

Results/Outcome(s): A total of 65,417 adult patients were identified, with 1550 (2.4%) undergoing simultaneous resections. 1207 (78%) of these patients underwent a low-risk colorectal resection with a low-risk hepatic resection, with fewer undergoing a high-risk colorectal resection with a high-risk liver resection (n=18, 1.1%). The majority of patients had open simultaneous resections (n=1239, 80%). On multivariable analysis, there was no significant difference in overall morbidity between patients who had a simultaneous open high-risk colorectal procedure with a low-risk hepatic procedure compared to patients that had an isolated open high-risk colorectal procedure (OR 1.19; 95% CI, 0.94-1.50; p=0.148). All other investigated combinations of simultaneous procedures had a statistically significant higher rates of morbidity than the isolated procedure group (Figure 1).

Conclusions/Discussion: Simultaneous resection of colorectal primary and synchronous colorectal liver metastases is associated with an increased risk of overall morbidity in most circumstances compared to isolated resection in a risk-stratified analysis, although rates of readmission and reoperation are not increased. Patient selection based on the procedure combination in simultaneous resections may help minimize morbidity and guide physician patient conversations regarding expected postoperative outcomes.

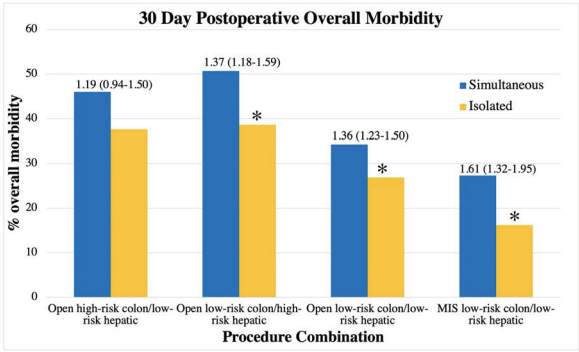

Figure 1. 30-Day Postoperative Overall Morbidity of Simultaneous Resections compared to Isolated Resections using Multivariable Modified Poisson Regression. *Denotes statistical significant difference at p <0.05 in multivariable modified Poisson Regression controlling for age, sex, race, ASA class, functional status, obesity, smoking status, COPD, CHF, and preoperative chemo. Adjusted OR and 95% CI are shown above each set of comparisons. In all cases compared to isolated colon resection except in low-risk colorectal/high-risk hepatic group the comparison is to high-risk isolated hepatic.

A RARE CASE OF RECTAL ROSAI-DORFMAN DISEASE.

eP396

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Purpose/Background: Rosai-Dorfman disease (RDD) is a rare disease characterized by over proliferation of histiocytes. Classically, RDD presents with massive bilateral cervical lymphadenopathy, but extranodal sites can be involved in about 40% of patients. While case reports describe a wide heterogeneity of clinical presentations, gastrointestinal involvement in RDD occurs in less than 1% of published literature.

Methods/Interventions: We present a case of a 59-year-old man with a several-year history of mild diarrhea who was found to have an extraluminal rectal mass on routine surveillance colonoscopy. PET/CT showed hypermetabolic activity of the distal sigmoid, rectum, anal canal, mesorectal fat, and bilateral iliac nodes. Multiple attempts at biopsy, endoscopically and percutaneously, were inconclusive and demonstrated only hyperplastic colonic tissue

with glandular changes. Lymph node aspiration demonstrated normal lymphoid tissue negative for malignancy. Patient subsequently underwent laparoscopic low anterior resection with diverting loop ileostomy.

Results/Outcome(s): Post operative course was uneventful and was discharged on post operative date five. Pathology demonstrated colonic wall harboring dense and extensive nodular infiltrate including large atypical histiocytic cells consistent with Rosai-Dorfman disease.

Conclusions/Discussion: RDD can present similarly to a lymphoma and appears hypermetabolic on Positron Emission Tomography (PET). There is no uniform evidence-based approach to the treatment of RDD. Most cases can be observed or treated with local therapies. Patients with nodal or cutaneous disease may have spontaneous remissions, but this is less common for extranodal disease. Unifocal disease can be often be cured with surgery and debulking may play in role for palliation in multifocal disease. Medical options for the management of RDD include steroids, chemotherapy, immunomodulators, and radiation. Although rare, RDD should remain on the differential for PET avid extraluminal colorectal lesions.

SURGICAL MANAGEMENT OF A GIANT RETRORECTAL EPIDERMOID CYST.

eP397

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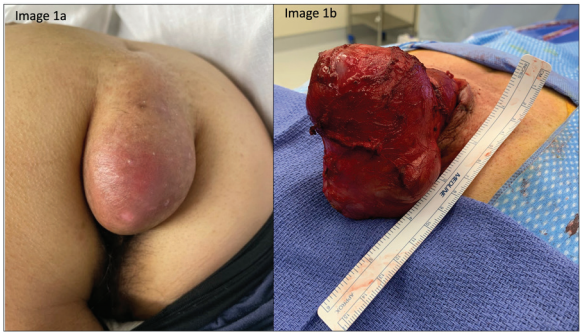
Purpose/Background: Retrorectal tumors are rare lesions but they include a wide range of histological differentiation. Patients might have a wide range of clinical presentations and diagnosis and surgical management might be challenging.

Methods/Interventions: We report a case of giant retrorectal epidermoid cyst in a young female patient in her 20's and discuss the operative approach taken to treat this rare entity.

Results/Outcome(s): This is a 28 year-old female with past medical history significant for hepatitis B virus (on antiviral) who presented with rectal mass. She reports that discomfort with sitting started 4 months ago and she noticed this mass approximately 2 months prior to presentation (Image 1a). Patient denied drainage, bleeding, pain with defecation or change in bowel habits. An MRI of the abdomen pelvis was done and revealed a large fluid density retrorectal mass protruding through the median gluteal fold measuring approximately 7.5 x 5.4 x 9.9 cm in size. Patient was taken to the operating room and a vertical incision was made from below the coccyx to just external to the posterior aspect of the anal sphincter complex. The anococcygeal ligament was encountered superiorly and divided which then gave exposure to the retrorectal space. With the aid of a finger in the anorectal canal, the mass was located and meticulously dissected off of the posterior distal rectal wall using sharp and blunt dissection. The large multiloculated mass was completely separated from the rectal wall and coccyx and removed (Image 1b). The wound was closed in layers with 2-0 Vicryl to the deepest layer adjacent to the rectum, 3-0 Vicryl deep dermal sutures and 4-0 Vicryl vertical mattress sutures to the skin. Patient tolerated the procedure well and wound healed with no complications. Pathology revealed a giant retrorectal epidermoid cyst.

Conclusions/Discussion: Surgical management of retrorectal tumor is mandatory and it is recommended as first line-therapy. Anterior (transabdominal) approach might be used for tumors located above S3 or when there is a concern for pelvic wall involvement however most retrorectal tumors treated via posterior (perineal) approach with decreased morbidity with this approach. Resection or elevation of the coccyx might be needed to achieve better exposure however is not mandatory unless there is no tumor invasion. Long-term results depend on the type of tumor and margin negativity during the initial surgery. Although many authors have reported that benign retrorectal tumors have 100% overall survival rates with no recurrences the patients should be followed-up for potential risk of local recurrence.



RECTAL GIST: AN UNEXPECTED DIAGNOSIS.

eP398

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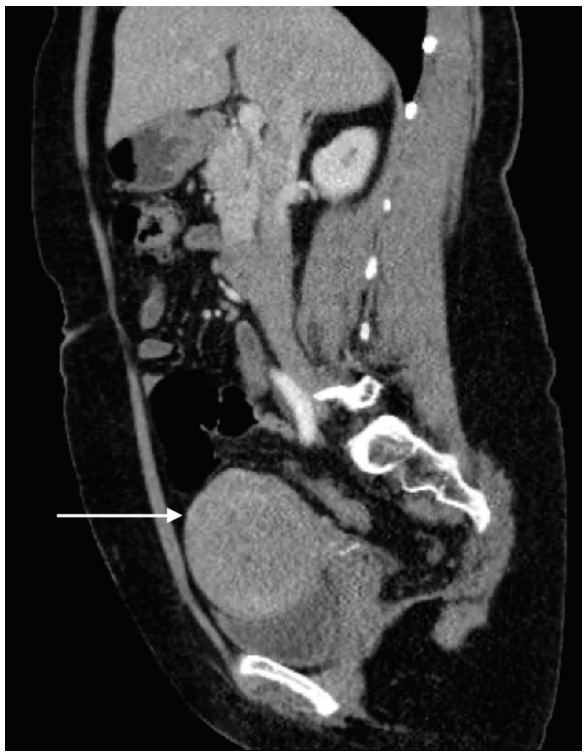
Purpose/Background: Gastrointestinal stromal tumors (GISTs) are connective tissue tumors commonly seen in the stomach, but can also occur in the small intestine, esophagus, colon, rectum, and mesentery. GISTs have a spindle-cell histology, similar to that of leiomyomas, and often present with vague symptoms.

Methods/Interventions: A 49-year-old woman was found to have uterine fibroids during an evaluation for abnormal uterine bleeding. A large rectal mass was also palpated during the bimanual exam. Her elective hysterectomy was postponed, and she was referred to general surgery clinic. A rectal exam under anesthesia demonstrated a nonobstructive anterior mass approximately 4-5

centimeters from the anal verge that was bulging into the rectum. The rectal mucosa did not show any obvious lesions, and biopsy revealed benign colonic mucosa without malignancy. She proceeded with her hysterectomy. The mass was palpated in the rectovaginal septum and was not continuous with the uterus or cervix. General Surgery was consulted intra-operatively, and the decision was made to complete the hysterectomy and proceed with diagnostic workup afterward. A pelvic MRI showed a well-circumscribed hypoenhancing mass originating from the posterior vaginal wall; it was favored to be benign or low-grade given its characteristics. The patient returned for excision of the mass. Several solid multi-lobulated masses were enucleated from the rectovaginal septal space. A specimen was sent to pathology as a frozen section intra-operatively; the tissue architecture was reported as consistent with uterine leiomyoma. Meanwhile, a 1-mm lesion was taken as a posterior and inferior margin. It involved the rectum, and a rectorrhaphy was performed.

Results/Outcome(s): The final pathology report identified the masses as a 10-cm GIST. The most posterior margin best demonstrated the GIST arising from the muscularis propria of the rectum. This was high grade, with high mitotic rate >15 per 5mm^2 and multiple positive margins. The patient was referred to Medical Oncology and was started on Gleevec therapy. Her case has been discussed at tumor board; adjuvant radiation was not advised due to lack of clear-cut data. She was presented with the option of surgical resection, which would involve a permanent ostomy; she declined. Repeat imaging has shown no obvious distant metastases or residual rectovaginal region mass.

Conclusions/Discussion: The simultaneous presence of uterine leiomyoma and rectal GIST – both of which can have similar gross and microscopic appearances – draws attention to this case. Recognizing that patients can have two simultaneous medical problems is critical in preventing a missed diagnosis and delay in care. Surgical exploration and resection ultimately led to our patient's timely diagnosis and treatment for rectal GIST.



PREDICTING LOW ANTERIOR RESECTION SYNDROME USING PRE-TREATED BOWEL DYSFUNCTION VS. THE POLARS SCORE.

eP399

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Purpose/Background: Restorative proctectomy for rectal cancer can be associated with significant bowel dysfunction(BD) and impairments in quality of life. As a result, some patients may prefer to opt for permanent colostomy if major BD is anticipated. We sought to compare a novel approach of predicting BD using pretreatment Low Anterior Resection Syndrome(LARS) category to the POLARS tool[JFFJD1], a previously published nomogram used to predict BD after rectal cancer surgery.

Methods/Interventions: Patients undergoing treatment for rectal cancer with restorative proctectomy at a single university affiliated colorectal referral center were included if they completed a pre-treatment LARS questionnaire and were >6 months from surgery or ileostomy reversal. Patients were excluded if they had metastatic disease. Patients were then grouped according to BD severity after surgery measured with the LARS score, a 5-item weighted questionnaire that categorizes patients as no, minor or major LARS. Patient, tumor and treatment factors were recorded. Pretreatment bowel dysfunction was measured at initial visit with a colorectal surgeon using the LARS score. Predicted LARS category was determined retrospectively using the online POLARS tool. Pre-treatment and

POLARS generated LARS categories were compared to post-operative LARS using Pearson's Chi-Square(Table). Mean pre-treatment LARS and predicted POLARS scores were compared between groups using ANOVA.

Results/Outcome(s): A total of 85 patients (34 no, 25 minor and 26 major LARS) were included. Overall, there was no difference in mean age, sex, comorbidity, or neoadjuvant therapy between the groups. Patients with major LARS had lower tumors than those with no or minor LARS (P=0.04). Overall, mean pre-treatment LARS scores were significantly different between post-treatment LARS groups whereas, mean predicted POLARS scores were not different between post-treatment LARS cetegories(Table). Further, pre-treatment LARS categories were not different from post-treatment categories whereas, predicted POLARS categories were significantly different than post-treatment LARS categories(Table). Notably, the POLARS score significantly underestimated the proportion of patients who did not develop LARS (P<0.001). The proportion of patients that did not have pretreatment LARS was similar to the proportion that did not develop LARS following treatment (P=0.1498).

Conclusions/Discussion: Pretreatment LARS category appears to be a more reliable predictor of postoperative LARS category than currently available measures. Patients who develop LARS have, on average, higher pretreatment LARS scores than those who do not. No difference was observed in mean POLARS score between patients with LARS and without LARS. Pre-treatment LARS also more accurately identifies patients who will not develop LARS following treatment. Accurate prediction of BD severity can help guide patients in the shared decision-making process.

Table:

	No LARS (n=34)	Minor LARS (n=25)	Major LARS (n=26)	P-Value
Pretreatment LARS categories	43 (50.6%)	27 (31.8%)	15 (17.6%)	0.130
Mean pretreatment LARS score	11.9(SD11.8)	19.4(SD12.8)	19.4 (SD14.0)	0.035*
POLARS categories	6 (7.0%)	61 (71.8%)	18 (21.2%)	<0.001*
Mean POLARS score	25.9(SD4.1)	25.8(SD4.5)	27.5(SD5.3)	0.290

*=P<0.05

QUALITY OF RECTAL FUNCTION AFTER TOTAL NEOADJUVANT THERAPY AND LIMITED TRANSANAL LOCAL EXCISION FOR LOCALLY ADVANCED RECTAL CANCER.

eP400

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Purpose/Background: Total Mesorectal Excision (TME) is the standard surgical treatment for locally advanced Rectal Cancer (LARC), however it is often associated with significant deterioration of rectal function. Therefore, organ preservation strategy that avoids TME for a selected group of patients with tumors that respond favorably to neoadjuvant nonsurgical treatment is being actively investigated in several centers. Transanal Local Excision (LE) is one method of organ preservation approach.

Methods/Interventions: We initiated a phase II clinical trial to investigate the safety of organ preservation approach in LARC patients who respond completely to 6 cycles of FOLFOX chemotherapy followed by a course of concurrent chemoradiotherapy. Limited Local Excision of the residual mucosal abnormality, with no margin of surrounding normal tissue was performed. We view the role of LE in this setting as simply a biopsy to confirm histologically the absence of any residual cancer without any therapeutic role.

Results/Outcome(s): Table 1 shows the results of the quality of life (QOL) and LARS score at 1 year after Transanal Local Excision

Conclusions/Discussion: Limited local excision following total neoadjuvant therapy for locally advanced rectal cancer, contrary to some published reports, does not have to be associated with poor rectal function. Our study is limited by its small size.

OVER THE LAST FOUR WEEKS	Response	# of Patients
How many bowel movements did you generally have in 24 hours?	4-5 Bowel Movements	0/6
Do certain solid foods increase the number of bowel movements in a day	Always/Most of the time	0/6
Do certain liquids that you drink increase the number of bowel movements in a day?	Always/Most of the time	0/6
Do you feel like you have totally emptied your bowels after a bowel movement?	Rarely/Never	0/6
Do you get to the toilet on time?	Rarely/Never	0/6
Do you have another bowel movement within 15 minutes of your last bowel movement?	Always/Most of the time	1/6
Do you know the difference between having to pass gas (air) and needing to have a bowel movement?	Rarely/Never	0/6
Do you use medicines to decrease the number of bowel movements (drugs like Imodium, Lomotil)?	Always/Most of the time	0/6
Have you had diarrhea(no form, watery stool)?	Always/Most of the time	0/6
Have you had loose stool (slight formed, but mushy)?	Always/Most of the time	0/6
Have you been able to wait 15 minutes to get to the toilet when you feel like you are going to have a bowel movement?	Rarely/Never	0/6
Have you been able to control the passage of gas (air)?	Rarely/Never	0/6
Have you limited the types of solid food you eat to control your bowel movements?	Always/Most of the time	0/6
Have you limited the types of liquids to drink to control your bowel movements?	Always/Most of the time	0/6
Have you had soilage (leakage of stool) off your undergarments during the day?	Always/Most of the time	0/6
Have you used a tissue, napkin, and/or pad in your undergarments during the day in case of stool leakage?	Always/Most of the time	0/6
Have you had soilage (leakage of stool) of her undergarments when you go to bed?	Always/Most of the time	0/6
Have you had to alter your activities because of your bowel function?	Always/Most of the time	0/6
Compared to 4 weeks ago, how would you rate your bowel function?	Somewhat/Much worse	0/6
Number of patients reporting Major LARS Score	Major LARS	0/6

LARS: Low Anterior Resection Syndrome

Table 1: QOL and LARS at 1 year following Transanal Local Excision

ENDORECTAL ULTRASOUND VERSUS MAGNETIC RESONANCE IMAGING IN LOCAL STAGING OF RECTAL CANCER: A SINGLE CENTER EXPERIENCE.

eP401

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Purpose/Background: Accurate local staging is a crucial step in the management of rectal cancer. Multiple modalities, including endorectal ultrasound (EUS) and magnetic resonance imaging (MRI), are used to obtain local staging. Multiple studies have been performed to determine the advantages and disadvantages of one modality over the other. The purpose of this study is to provide a single center experience in local staging of rectal cancer with EUS and MRI and compare the findings with final pathology.

Methods/Interventions: A retrospective chart review was performed for patients diagnosed with rectal cancer between January 2015 and September 2022. Inclusion criteria included patients who underwent both EUS and MRI for local staging. Patients were divided between those who proceeded with upfront surgery versus neoadjuvant therapy followed by surgery. Pathology from both sets of patients was reviewed to obtain a final pathologic stage. The primary outcome measure was the comparison of congruence in pathologic staging between EUS and MRI. Secondary outcome measures included the comparison of congruence in the pathologic tumor (T) class and nodal (N) class between EUS and MRI. The 8th edition of the American Joint Committee on Cancer was used to determine staging criteria. The primary and secondary outcomes were statistically evaluated with Kendall rank correlation analysis as well as Bland-Altman analysis.

Results/Outcome(s): 72 patients met the inclusion criteria. 20 patients underwent upfront surgery. There were differences in sex ($p = 0.022$), pathologic stage ($p = 0.003$), and pathologic T class ($p = 0.001$) between the two groups. There was no difference in ages ($p = 0.840$). Upfront surgery patients had statistical significance in correlation in EUS and pathologic stage ($\tau = 0.49$, $p = 0.019$) and EUS and pathologic T class ($\tau = 0.57$, $p = 0.007$). Neoadjuvant therapy patients had statistical significance in correlation in EUS and pathologic stage ($\tau = 0.31$, $p = 0.012$), MRI and pathologic stage ($\tau = 0.36$, $p = 0.003$), EUS and pathologic T class ($\tau = 0.28$, $p = 0.021$), EUS and pathologic N class ($\tau = 0.27$, $p = 0.041$), MRI and pathologic T class ($\tau = 0.39$, $p = 0.001$), and MRI and pathologic N class ($\tau = 0.32$, $p = 0.013$). Upfront surgery patients on Bland-Altman analysis showed low but similar bias between EUS and MRI in stage (EUS: 0.4 vs. MRI: 0.3), in T class (EUS: 0.25 vs. MRI: 0.25), and in N class (EUS: 0.1 vs. MRI: 0.1). Neoadjuvant surgery patients showed higher but similar bias between EUS and MRI in stage (EUS: 0.85 vs. MRI: 0.75), T class (EUS: 1.06 vs. MRI: 0.87), and N class (EUS: 0.10 vs. MRI: 0.23).

Conclusions/Discussion: Both EUS and MRI show a good congruence with final pathology in patients who underwent upfront surgery versus those who underwent neoadjuvant therapy followed by surgery. Further studies are needed if there are differences in modalities in earlier stage cancers.

	Neoadjuvant		
	Yes (N=52)	No (N=20)	p-value
Age	61 (48-69)	57 (50.8-67.2)	0.840
Sex			**0.022**
Female	11 (21.2%)	10 (50.0%)	
Male	41 (78.8%)	10 (50.0%)	
Pathology - Stage			**0.003**
0	15 (28.8%)	0 (0.0%)	
1	14 (26.9%)	13 (65.0%)	
2	7 (13.5%)	3 (15.0%)	
3	16 (30.8%)	4 (20.0%)	
Pathology - T			**0.001**
0	18 (34.6%)	0 (0.0%)	
1	3 (5.8%)	3 (15.0%)	
2	11 (21.2%)	12 (60.0%)	
3	14 (26.9%)	5 (25.0%)	
4	6 (11.5%)	0 (0.0%)	
Pathology - N			0.538
0	36 (69.2%)	16 (80.0%)	
1	12 (23.1%)	4 (20.0%)	
2	4 (7.7%)	0 (0.0%)	
EUS - Stage			0.197
1	8 (15.4%)	7 (35.0%)	
2	20 (38.5%)	7 (35.0%)	
3	24 (46.2%)	6 (30.0%)	
EUS - T			0.076
1	3 (5.8%)	3 (15.0%)	
2	8 (15.4%)	7 (35.0%)	
3	37 (71.2%)	10 (50.0%)	
4	4 (7.7%)	0 (0.0%)	
EUS - N			0.479
0	28 (53.8%)	14 (70.0%)	
1	23 (44.2%)	6 (30.0%)	
2	1 (1.9%)	0 (0.0%)	
MRI - Stage			0.153
1	15 (28.8%)	8 (40.0%)	
2	11 (21.2%)	7 (35.0%)	
3	26 (50.0%)	5 (25.0%)	
MRI - T			0.352
0	2 (3.8%)	1 (5.0%)	
1	2 (3.8%)	1 (5.0%)	
2	18 (34.6%)	8 (40.0%)	
3	22 (42.3%)	10 (50.0%)	
4	8 (15.4%)	0 (0.0%)	
MRI - N			0.189
0	26 (50.0%)	15 (75.0%)	
1	20 (38.5%)	4 (20.0%)	
2	6 (11.5%)	1 (5.0%)	

Patient breakdown based on neoadjuvant or non-neoadjuvant status.

INCIDENCE OF INCISIONAL HERNIA AT THE SITE OF A PREVIOUS OSTOMY: A SYSTEMATIC REVIEW.

eP402

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Purpose/Background: A temporary ostomy is a commonly performed procedure in the field of Colon and Rectal Surgery. Once the stoma is taken down these patients are then susceptible to an incisional hernia at the site of the prior ostomy. The goal of this systematic review is to summarize the existing data to better quantify the estimated risk to patients after having an ostomy reversal.

Methods/Interventions: A search of PubMed was used to identify studies which investigated the rate of ostomy site incisional hernias. Studies were limited to those which looked at ostomy site incisional hernia rate as a primary outcome and those that studied only adult patients. Single case reports and invited commentaries were excluded. The review was carried out according to PRISMA guidelines.

Results/Outcome(s): Initial search for MeSH terms "Ileostomy or Colostomy or Ostomy or Surgical stoma or Enterostomy" garnered over 54,000 articles. The addition of the MeSH term "Hernia (not parastomal or paraesophageal or diaphragmatic)" reduced the article count to 483. The addition of "Closure or Reversal or Takedown" produced 106 articles, 100 of which were published in English. Abstracts of these 100 papers were then reviewed, filtering out articles that studied pediatric patients, were invited commentaries, or those which did not study incisional hernia at prior ostomy sites as a primary end point. The remaining 32 manuscripts included 9 systematic reviews or meta-analyses. These were similar to our study, with minor differences. Their references were searched, and 6 papers were added to our review. The reviews were then excluded, leaving 29 manuscripts. Of the 29 studies included in our review, only three were prospective trials. There were 7 manuscripts which separately reported rates of hernia formation following ileostomy and colostomy reversals. The rate of hernia at prior colostomy sites, ranging from 9.6 to 40%, was higher than that of ileostomy sites, which ranged from 0 to 33%. One third of the articles reviewed made no mention of how the fascia was closed following ostomy reversal. The reporting of follow-up after ostomy reversal was heterogeneous, and ranged from 0 to 144 months. As most of the studies were retrospective, the reported hernia rate was usually based on a combination of physical exam and available imaging, with a wide variety of criteria used. The three prospective trials all followed patients for at least 12 months, and while all three used clinical exam as their preferred method of detection, two of them also used routine CT scans in their diagnostic algorithm.

Conclusions/Discussion: Incisional hernia at the prior ostomy site is a significant morbidity for many patients with prospective trials estimating a 20 – 23% incidence. However, studies to date provide little evidence of the effect of closure technique, as this is often not reported. Further study into techniques to reduce hernia development is warranted.

DIVERTICULITIS OF THE APPENDIX.

eP403

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Purpose/Background: Diverticular disease of the appendix (DDA) is rarely identified on preoperative imaging, and the majority of reported cases are diagnosed histopathologically. Patients can present with symptoms mimicking acute appendicitis and subsequently they are being treated for acute appendicitis. Although surgical resection of the appendix is the appropriate treatment for DDA, patients who choose nonsurgical management might have a delay their definitive treatment. This case serves to illustrate DDA as a source of recurrent appendicitis in a patient who was initially treated with antibiotics.

Methods/Interventions: This is a 45-year old female with past medical history of fibromyalgia, anxiety, and depression who presented with persistent nausea, emesis and right lower quadrant pain after being treated with antibiotics for acute appendicitis. She initially presented to the emergency department and got diagnosed with acute appendicitis, subsequently wanted to be treated with antibiotics. After she tolerated diet and her pain improved, she was discharged home. However she presented 3 weeks later to the emergency room and was diagnosed with recurrent appendicitis based on history, physical exam and blood work.

Results/Outcome(s): Patient was taken to the operating room for laparoscopic appendectomy. Appendix was found to be short with a thick base (Image). Induration was appreciated with the graspers along the retrocecal area with dense fibrotic changes in the posterior peritoneum in the right lower quadrant, and no obvious abscesses were identified. Mesoappendix was divided with ligasure device and the base of the appendix was then doubly ligated with 2-0 Vicryl Endoloops. Patient tolerated the procedure well and discharged home on postoperative day 1. Pathology report revealed acute diverticulitis of the tip of the appendix.

Conclusions/Discussion: DDA represents a rare subtype of acute appendicitis and holds a greater risk of perforation and high association with malignancy. The majority of cases are identified intraoperatively or postoperatively. If identified preoperatively or incidentally, resection should be considered even if asymptomatic. Failure of early identification, and antibiotic treatment for appendicitis carry high risk for recurrence.

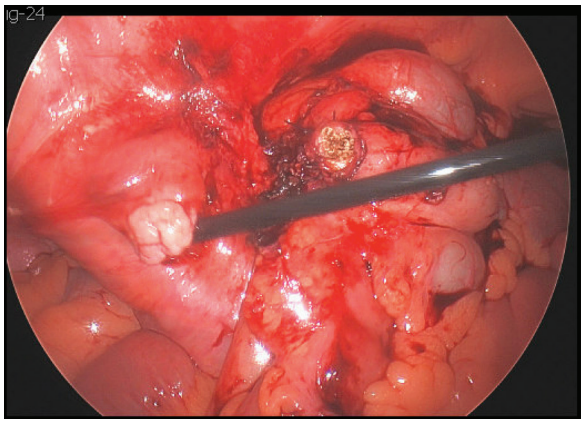

Image: Intraoperative image of the appendix.

SUPERIORITY OF INTERSPHINCTERIC FISTULOTOMY TO LIGATION OF INTERSPHINCTERIC FISTULA TRACT (LIFT) PROCEDURE FOR TRANSSPHINCTERIC FISTULA-IN-ANO.

eP404

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Purpose/Background: **BACKGROUND:** The incidence of fistula-in-ano ranges from 15-38% and is found more commonly in young adult males. For simple fistulae, fistulotomy alone is adequate treatment. For transsphincteric fistula, a two-staged approach is administered, involving an initial seton placement, followed by a sphincter-sparing procedure, such as LIFT, endoanal advancement flap, fibrin glue, or fistula plug. The healing rate for such procedures is not optimal. **OBJECTIVE:** The purpose of this study is to describes a novel, single-staged procedure for managing transsphincteric fistula with or without associated anorectal abscess, and to demonstrate its advantages compared to LIFT.

Methods/Interventions: **DESIGN:** Retrospective study. **SETTINGS:** Academic teaching hospital. **PATIENTS:** A total of 50 patients with transsphincteric fistula were included, 26 of whom were managed with intersphincteric fistulotomy and 24 were managed with the LIFT procedure.

Results/Outcome(s): **MAIN OUTCOME MEASURES:** The primary outcome measures were recurrent fistulas and fecal continence. **RESULTS:** All 24 patients receiving the LIFT procedure required initial draining seton placement. 20.8% (5/24) patients presented with recurrent fistulas post-operatively with a follow up range of 14-36 months. There were no patients with fecal incontinence. For the patients receiving intersphincteric fistulotomy, 26.9% (7/26) had an associated abscess during the operation. No patients presented with post-operative fistula recurrence or fecal incontinence; median follow up of 8 months. These results were statistically significant in comparison with the LIFT group.

Conclusions/Discussion: **LIMITATIONS:** Single center retrospective study with small sample sizes. **CONCLUSIONS:** Intersphincteric fistulotomy is a novel, single-stage procedure for treating patients with transsphincteric fistula-in-ano with or without associated abscess resulting in successful healing with no fistula recurrence or fecal incontinence. This procedure is safe, effective, and simpler compared to the LIFT. Additionally, intersphincteric fistulotomy is an outpatient procedure and does not require a pre-op seton. Larger studies may be considered for this procedure to become the definitive treatment for transsphincteric fistulas.

UNCONVENTIONAL FLUORESCENCE-ENHANCED GUIDED ROBOTIC COLORECTAL SURGERY.

eP405

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Purpose/Background: Indocyanine green (ICG) fluorescence-enhanced imaging is a surgical tool with increasing applications in colorectal surgery. To date, the most studied applications of this dye include the verification of the colic perfusion before transection and creation of the anastomosis (Jafari MD et al. Perfusion assessment in laparoscopic left-sided/anterior resection (PILLAR II): a multi-institutional study. J Am Coll Surg 2015; 220: 82–92) and the mapping of abdominal lymph nodes for targeted identification of potentially metastatic ones. The use of ICG has spread over time in various surgical disciplines (Keller DS et al. Indocyanine green fluorescence imaging in colorectal surgery: overview, applications, and future directions. Lancet Gastroenterol Hepatol. 2017; 2(10):757-766.)

Methods/Interventions: After intravenous injection, ICG is visualised as fluorescent green when excited by light in the near-infrared spectrum through an appropriate camera. In our practice while performing robotic colorectal procedures we normally inject 0,1-0,3 mg/Kg of ICG around 20-60 seconds before starting the dissection. We have used a combination of standard and near-infrared cameras to identify different structures based on the intensity and timing of their fluorescence. With well-vascularized structures and organs reaching high concentrations very rapidly and other tissues (e.g. adipose tissue, ureter) requiring longer concentration times, we were able to identify a less common but just as useful application of this dye. If necessary a second intravenous injection of ICG was performed.

Results/Outcome(s): During right robotic colectomy ICG can help identify the right dissection plane through

the visualization of the duodenum and the pancreas (well vascularized-organs) as fluorescent green organs. We also achieve a clear visualization of the origin of the ileocolic vessels using ICG for a better dissection and to conduct a thorough lymphadenectomy. During medial-to-lateral dissection even ureter can be identified belatedly as an uncoloured gray straight structure. While performing left robotic colectomies or anterior resection the dye can help to better assess the pancreatic plane and the left flexure.

Conclusions/Discussion: Intraoperative ICG fluorescence-enhanced imaging is a simple and safe (Hellan M et al. The influence of fluorescence imaging on the location of bowel transection during robotic left-sided colorectal surgery. Surg Endosc 2014; 28: 1695–702) method that can help to better identify different abdominal organs thanks to the variation in brightness of different structures through time. This allows for an easier recognition of the correct dissection plane, thus minimizing the risk of accidental injuries. The technical details regarding dose and timing of ICG administration have not yet been standardised but its use continues to increase improving the accuracy and outcomes of colo-rectal robotic procedures.

SPLENIC FLEXURE ADENOCARCINOMA: A NATIONAL ANALYSIS OF SURGICAL APPROACHES AND OUTCOMES.

eP406

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Purpose/Background: Splenic flexure (SF) tumors are relatively uncommon, accounting for ~5% of all colon cancers. While it is well established that surgery is the mainstay of management, significant debate remains regarding the optimal extent of resection. These tumors straddle the left and right mesenteric vascular territories with lymphatic drainage in a watershed area, and current guidelines recommend either segmental colectomy (SC) or extended colectomy (EC). This study aimed to analyze surgical management of SF adenocarcinoma in the United States, hypothesizing that the two approaches have similar oncologic outcomes.

Methods/Interventions: Adults with SF adenocarcinoma were identified in the Surveillance, Epidemiology, and End Results database (2004-2019). Exclusion criteria were distant metastasis, tumor in situ, or radiation therapy. Surgical approaches were grouped as segmental (partial/segmental colectomy) or extended (left/right hemicolectomy with portion of transverse colon, and subtotal/total colectomy). Lymph node ratio (LNR) was calculated as the number of positive lymph nodes (LN) over total LN examined. Multivariable logistic and Cox proportional hazard regressions were performed to identify factors associated with EC, and 5-year overall (OS) and disease-specific survival (DSS).

Results/Outcome(s): Of 5,238 patients, 55% (n=2,856) underwent EC. Compared to SC, EC patients were younger at the time of diagnosis (median age: 66 vs. 67 years, p<0.001), and more likely to have advanced T stage or receive chemotherapy. In multivariable analysis, younger age and stage II (OR 1.53, 95%CI 1.28-1.82, p<0.001), but not stage III disease (OR 1.31, 95%CI 0.83-2.07, p=0.24), remained independently associated with EC. Although fewer LN were examined in SC (median: 14 vs. 16 in EC, p<0.001), the total number of positive LN and LNR were similar between the cohorts. Surgical approach was not significantly associated with increased positive LN yield in adjusted analyses (any positive LN: OR 1.08, 95%CI 0.96-1.21, p=0.19; number of positive LN: incidence rate ratio 1.00, 95%CI 0.89-1.12, p=0.99). Five-year OS and DSS were 73% and 84% for SC, and 72% and 83% for EC (p=0.44 and 0.54; figure 1). After adjustment for available confounders, SC and EC had comparable 5-year OS and DSS.

Conclusions/Discussion: In this population-based study, we observed similar rates of SC and EC for SF colon cancer across the US, with EC more commonly performed in younger patients and those with stage II but not stage III disease, indicating a lack of stage migration due to increased LN examined. In fact, EC was not associated with better oncologic outcomes, including positive LN yield, LNR, OS, or DSS. These equivalent outcomes support current practice involving either approach, which should be tailored to patient-related factors and preferences, while considering technical aspects and quality of life.

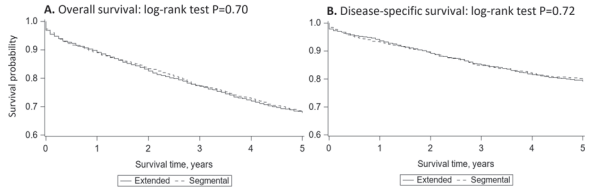

Figure 1. 5-year (A) overall and (B) disease-specific survival by extended vs. segmental colectomy of splenic flexure colon adenocarcinoma.

PREOPERATIVE NEUTROPHIL-TO-LYMPHOCYTE RATIO IS A PREDICTOR OF RECURRENCE IN PATIENTS WITH STAGE II COLON CANCER.

eP407

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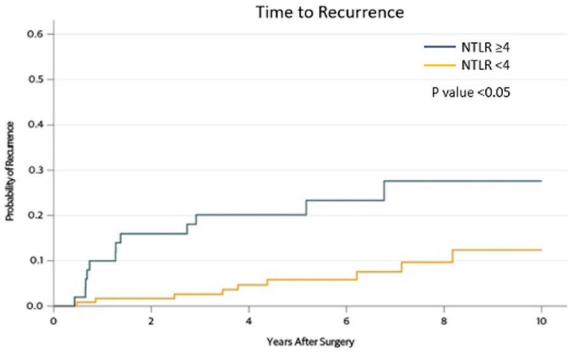
Purpose/Background: Colectomy with regional lymphadenectomy is standard treatment for colon cancer. However, the use of adjuvant therapy in stage II colon cancer is less clearly defined, as studies have found

survival benefits in only patients with high-risk features. Neutrophil-to-lymphocyte ratio (NTLR) has emerged as a simple and inexpensive marker that has been reported to be a predictor of survival for numerous cancers. The purpose of this study is to determine if NTLR is associated with cancer recurrence and survival in patients with stage II colon cancer who underwentwent curative surgical resection.

Methods/Interventions: Cancer registry and medical records were retrospectively reviewed for adult surgical patients with stage II colon cancer from 2007-2019. Patients with inadequate staging, appendiceal or rectal cancer, carcinoid tumors, <3 years follow-up, and early postoperative death were excluded. In prior studies, a preoperative NTLR=4 was determined to be the best cutoff value based on receiver operator characteristic (ROC) analysis. Univariate analysis with Kaplan-Meier estimates and multivariate Cox proportional hazards models were performed.

Results/Outcome(s): A total 175 patients (median age 70, 47% male) underwent resection. Twenty one patients (12%) recurred with a median time to recurrence of 2.5 years. For NTLR≥4 and NTLR<4, median recurrence was 1.3 years and 3.8 years, respectively (P=0.08). NTLR≥4 was associated with an increase in disease recurrence (P<0.05). Demographics, comorbidities, steroid use, emergency surgery, tumor grade, T-classification, lymph nodes examined, and adjuvant chemotherapy were not associated with recurrence. Cox proportional hazards analysis identified that NTLR was associated with lower rates of disease free survival (HR 1.021, 95% CI 1.004-1.038; P<0.05) and higher rates of recurrence (HR 1.026, 95% CI 1.007- 1.046; P<0.05).

Conclusions/Discussion: NTLR≥4 was associated with higher recurrence rates in patients with stage II colon cancer following surgical resection. Preoperative NTLR measurement is a simple, inexpensive and readily available biomarker for identifying patients at higher risk for recurrence. Pending further studies, NTLR may have value as an additional marker to identify stage II colon cancer patients who could benefit from adjuvant chemotherapy.



TRANS-ANAL COCCYGECTOMY AND STAPLED MARSUPIALIZATION FOR PERIRECTAL ABSCESS CAUSING COCCYGEAL OSTEOMYELITIS.

eP408

L. Kang, T. Ma
Akron, OH

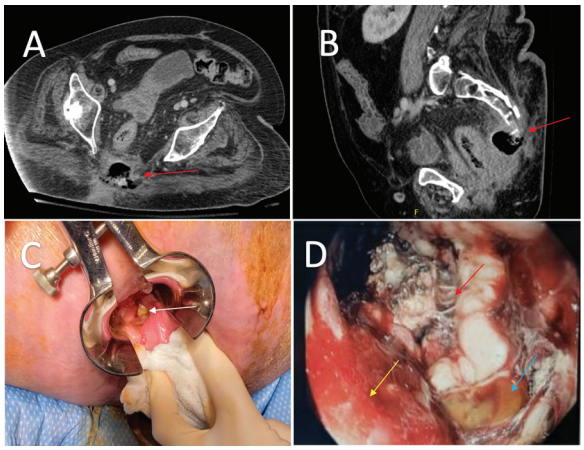
Purpose/Background: We present a case of a 67-year-old male with a history of paraplegia from a motor vehicle accident who presented with sacral pain and rectal bleeding. He underwent pelvic MRI which demonstrated early coccygeal osteomyelitis and a perirectal abscess with a sinus tract to the coccyx. Given recent coronary stenting and medical co-morbidities, he was treated with 6-weeks of intravenous antibiotics. Three months later, he presented with fevers and foul-smelling drainage per rectum. CT of the pelvis demonstrated a 6 cm posterior rectal abscess and erosion of the tip of the coccyx which communicated with the abscess cavity. Due to concern for pelvic sepsis, he was taken to the operating room for single-site diverting loop ileostomy creation and debridement of the perirectal abscess and coccyx through the anal canal with marsupialization of the perirectal abscess cavity. We also describe a novel technique of trans-anal coccygectomy for coccygeal osteomyelitis.

Methods/Interventions: The patient was positioned in the lithotomy position. A laparoscopic single-site diverting loop ileostomy was performed. We then proceeded with a rectal exam. Upon digital examination, we palpated a separate lumen that communicated with a posterior rectal abscess cavity in continuity with the coccyx. The coccyx was felt to be mobile and disintegrated. We used two loads of a 60 mm laparoscopic stapler to marsupialize the abscess cavity to facilitate the drainage and exposure of the cavity. We then excised the coccyx through this opening using a combination of blunt dissection and electrocautery. Flexible sigmoidoscopy was performed which demonstrated that the abscess cavity was confined to the posterior rectal space. A large Malecot drain was placed within the abscess cavity.

Results/Outcome(s): Post-operatively, the patient developed an ileus which resolved with two days of nasogastric decompression. Clostridium perfringens and Bacteroides fragilis were cultured from the coccygectomy specimen and was treated with a 6-week course of piperacillin-tazobactam. The rectal tube was left in place for the duration of his hospital stay, for 16 days.

Conclusions/Discussion: We describe the novel technique of trans-anal approach to coccygectomy, which is traditionally performed through an incision above the sacro-coccygeal joint. Fecal diversion was necessary in order to prevent fecal contamination of the exposed bone. Endoscopic stapled marsupialization has been performed for select cases of chronic presacral sinuses due to leak following low anterior resection, successfully preserving

the anastomosis. Our case is the first reported case in literature in which it was performed for a perirectal abscess, which has developed a well-epithelialized sinus tract and mature cavity. Our minimally invasive approach to the treatment of a complicated perirectal abscess and coccygeal osteomyelitis benefited the patient by sparing a large open wound.



A & B: Axial and sagittal CT abdomen/pelvis demonstrating a perirectal abscess and bone erosion of the tip of the coccyx (red arrows)
C: Intra-operative photograph showing an opening at the low rectum communicating with the perirectal abscess cavity with the tip of the coccyx in view (white arrow) D: Intra-operative flexible sigmoidoscopy in the distal rectum showing the true lumen (yellow arrow), staple line (red arrow), and marsupialized abscess cavity and coccyx (blue arrow)

LONG-TERM OUTCOMES OF SACROCOCCYGEAL PILONIDAL DISEASE TREATMENT BY LASER ABLATION: A SINGLE INSTITUTE PROSPECTIVE STUDY.

eP409

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Purpose/Background: The treatment of sacrococcygeal pilonidal disease (SPD) is still challenging. Although there are many non-surgical and surgical methods, no consensus has been reached on the best treatment. The purpose of this study was to evaluate the efficacy of laser ablation using 1,470nm ring diode laser fiber in the treatment of SPD.

Methods/Interventions: In September 2022, we retrospectively studied the data of our 48 patients operated with this technique between March 2019 and September 2022. All patients were treated with laser ablation using 1,470nm ring diode laser fiber. The healing rate and recurrence rate, demographic and surgical data, postoperative pain, complications (wound infection, wound bleeding), the time of returning to normal work and life, and the time of wound healing were recorded. Postoperative pain was measured based on the visual analog scale (VAS) score.

Results/Outcome(s): Among the 48 patients, 41 males and 7 females, with a mean age of 27.7 years (range 14–42) the healing rate was 100% and the average healing time was 28.3±5.5 days. The recurrence rate was 2.9%. One patient relapsed 3 months after operation. The patient underwent laser ablation again and the sinus tract was closed. The VAS score on the day of operation was 0 (0,2). The VAS score on the first, third, and seventh day after the operation was 0 (0,2), 0 (0,1), and 0 (0,1), respectively. There was no wound infection or bleeding after the operation. The mean time to normal work/life was 7.1±3.2 days.

Conclusions/Discussion: Laser ablation using 1,470nm ring diode laser fiber is effective in SPD treatment. It is associated with small wounds and mild postoperative pain. It is a simple, safe, and minimally invasive technique, and its clinical application for acute and chronic SPD in the absence of abscess is promising.

LOOSE-SETON TREATMENT FOR HIGHLY COMPLEX ANAL FISTULA—A MODIFIED SPHINCTER-CONSERVING TREATMENT.

eP410

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Purpose/Background: The difficulty in the treatment of complex anal fistula is to both eradicate the disease and achieve the minimum damage and change in anatomy. Based on large MRI samples, It has been confirmed that most anal fistulas, especially the posterior complex fistula, have abscess in Deep Posterior Inter-sphincteric Space(DPIS). The purpose of this study is to advocate a modified loose-seton treatment for highly complex anal fistula based on the above theory.

Methods/Interventions: A total of 25 patients with highly complex cryptoglandular anal fistulas received the treatment. All surgical procedures were performed by the same surgeon, who is experienced in coloproctological surgery, assisted by a skilled collaborative team. MRI-based types of selected perianal fistulas were high trans-sphincteric fistulas(14cases), supra-sphincteric fistulas(10cases) and extra-sphincteric fistula(1case). Opened the side tract which was outside the external sphincter. If high ischiorectal extension existed,even the tract into the Deep Postanal Space(DPAS), it would have opened and drained adequately. Then a partial internal sphincter was divided until the inter-sphincteric plane. The incision should be extended upward to DPIS level while the infection involving DPIS. Assessed the amount of involved sphincter and laid open the skin, subcutaneous tissue and subcutaneous external anal sphincter covering the tract. A rubber band was passed around the external sphincter and tied loosely.

Results/Outcome(s): Of the 25 patients, there were 16 men and 9 women. The mean age was 47.12±13.02 years.

The follow-up time was 47(15,53) months. There were 18 cases involving DPIS and (or) DPAS. The remaining 7 patients had anterior fistula. After removing seton, primary healing occurred in 21 of 25 patients (84%). The median seton removal time was 14 days (12,17). The primary healing of high trans-sphincteric fistula was 90% (12/14). The primary healing of supra-sphincteric fistula was 90% (9/10). In patients with horseshoe fistula and anterior fistula, the former primary healing rate was 83% (10/12) and the latter was 71% (5/7). All six patients who had a posterior fistula recovered. The failure rate was 16% (4/25). Two recurrence cases occurred in horseshoe fistula. No patients experienced problems controlling solid stool. One patient complained of frenquent gas and liquid stool incontinence. Symptom disappeared after biofeedback treatment. Mucous discharge was noted occasionally in three patients.

Conclusions/Discussion: The key to improving the success rate of highly complex anal fistula surgery lies in removing the infection in DPAS and DPIS, especially the latter. Partial external sphincter prevention with loose-seton technique can be utilized successfully and prevents anal function. It can be used by any surgeon who has a basic knowledge of anorectal anatomy.

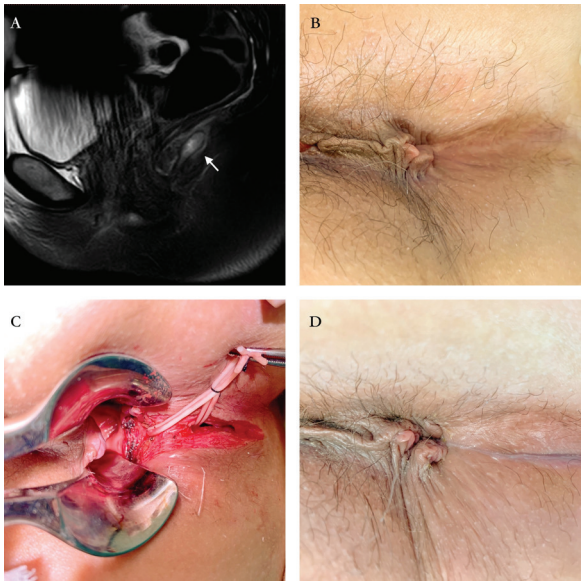

Fig1.A: Sagittal MRI image of supra-sphincteric fistula (a 39-year-old female patient). An inflammatory granulomatous tract into the DPIS (white arrow). B: Preoperative C: Postoperative D: Wound healing

CASE SERIES OF COLORECTAL ADENOCARCINOMA WITH ASSOCIATED FISTULA-IN-ANO IN A TERTIARY GOVERNMENT TRAINING HOSPITAL.

eP411

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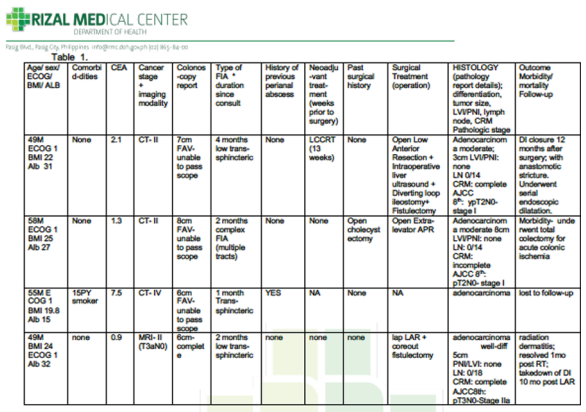
Pasig, Philippines

Purpose/Background: Colorectal adenocarcinoma associated with fistula-in-ano, is infrequently reported in literature, and work-up and surgical management. It is a challenging diagnostic and surgical dilemma as the fistula biopsy and technique has not yet been established. Implantation of cancer in fistula-in-ano (FIA) was described by Guiss as early as 1954.

Methods/Interventions: Data were obtained using the annual reports from the Department of Surgery at Rizal Medical Center, Pasig City, Philippines. Medical records of patients presenting with colorectal adenocarcinom associated with fistula-in-ano as a diagnosis from January 2013 to December 2020 were identified from the database and retrieved. A chart review of these patients was carried out, including official reports of the physical examination, surgical memorandum, colonoscopy reports, laboratory reports, biopsy result, outpatient follow-up documnetation, and imaging from the radiology department (CT scan and MRI results). Patient data were then collated, tabulated, and reviewed by the authors.

Results/Outcome(s): In our case series, 3 of the 4 patients underwent curative resection and none of them were associated with IBD, had no previous surgery relating to colorectal cancer or perianal abscess, and were all male. They were relatively young with the age range of 49-58 years. All patients complained of anal symptoms within the year of the diagnosis of the rectal cancer but was not their main reason of consult. None of our patients showed evidence of drop metastasis towards the fistula-in-ano on final histopathology. These patients were followed-up until 10-16 months and none shows disease recurrence or metastasis.

Conclusions/Discussion: Colorectal adenocarcinoma with associated fistula-in-ano is rare and presents a difficult disease management strategy outside of a multidisciplinary team approach. Reports of drop metastasis of rectal cancer with implantation towards a more distal fistula-in-ano, do occur and are confined to case reports and case series also due to its rarity of diagnosis. Future clinical questions focus on removing the primary cancer and metastasis separately or to carry out an en-bloc resection of the primary lesion and the suspected metastasis. Other issues surround this is if there is a non-yielding biopsy result of the FIA. We recommend a collaborated data gathering across different institutions in doing a retrospective pooled data analysis towards the outcomes of management.



RIZAL MEDICAL CENTER
DEPARTMENT OF HEALTH

Table 1.

Age/ sex/ ECOG/ BMI/ ALB	Comorbidities	CEA	Cancer stage + imaging modality	Colonoscopy report	Type of FIA * duration since consult	History of previous perianal abscess	Neoadjuvant treatment (weeks prior to surgery)	Past surgical history	Surgical Treatment (operation)	HISTOLOGY (pathology report details); differentiation, tumor size, LVI/PNI, lymph node, CRM Pathologic stage	Outcome Morbidity/ mortality Follow-up
49M ECOG 1 BMI 22 Alb 31	None	2.1	CT- II	7cm FAV-unable to pass scope	4 months low transsphincteric	None	LCCRT (13 weeks)	None	Open Low Anterior Resection + Intraoperative liver ultrasound + Diverting loop ileostomy+ Fistulectomy	Adenocarcinoma moderate; 3cm LVI/PNI: none LN 0/14 CRM: complete AJCC 8th: ypT2N0-stage I	DI closure 12 months after surgery; with anastomotic stricture. Underwent serial endoscopic dilatation.
58M ECOG 1 BMI 25 Alb 27	None	1.3	CT- II	8cm FAV-unable to pass scope	2 months complex FIA (multiple tracts)	None	None	Open cholecystectomy	Open Extralevator APR	Adenocarcinoma moderate 8cm LVI/PNI: none LN: 0/14 CRM: incomplete AJCC 8th: pT2N0- stage I	Morbidity- underwent total colectomy for acute colonic ischemia
55M E COG 1 BMI 19.8 Alb 15	15PY smoker	7.5	CT- IV	6cm FAV-unable to pass scope	1 month Transsphincteric	YES	NA	None	NA	adenocarcinoma	lost to follow-up
49M BMI 24 ECOG 1 Alb 32	none	0.9	MRI- II (T3aN0)	6cm-complete	2 months low transsphincteric	none	none	none	lap LAR + coreout fistulectomy	adenocarcinoma well-diff 5cm PNI/LVI: none LN: 0/18 CRM: complete AJCC8th: pT3N0-Stage IIa	radiation dermatitis; resolved 1mo post RT; takedown of DI 10 mo post LAR

ESCHERICHIA COLI AND ENTEROCOCCUS FAECALIS BACTEREMIA ARE ASSOCIATED WITH INCREASED RECURRENCE RATES AFTER COLORECTAL CANCER SURGERY.

eP412

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Purpose/Background: Escherichia coli (EC), and Enterococcus Faecalis (EF) have been proven to be associated with the occurrence of colorectal cancer (CRC). However, the relationship between tumor recurrence and bacteremia is not well established. We conducted a study to investigate the relationship between the bacteremia of any one of these two strains (B2) and the recurrence of colorectal cancer after surgery.

Methods/Interventions: This is a retrospective study, all colorectal cancer patients who had received blood culture examination after primary tumor resection were collected during 2010-2019. A total of 546 stage 1-3 colorectal cancer patients were included, 80 patients in the B2 group and 466 patients with negative blood cultures (BN).

Results/Outcome(s): The recurrence rate was higher in the B2 group than BN group (41.2% vs 22.5%, p<0.001). After multivariable analysis, independent risk factors for recurrence were B2 (OR: 2.23, CI: 1.25-4.00), age <65 years (OR: 1.78, CI: 1.11-2.87), and stage III cancer (OR: 2.93, CI: 1.31-6.57). Furthermore, after using stratification by age, the younger group (<65 years old) was more likely to increase recurrence with B2 (OR: 5.40, CI: 2.11-13.84) than the older group (>65 years old) (OR: 1.06, CI: 0.45-2.53)

Conclusions/Discussion: Escherichia coli and Enterococcus Faecalis Bacteremia are significantly associated with colorectal cancer recurrence after primary tumor surgery in stage I-III patients, especially in the younger population (<65 years old). Therefore, we should pay more attention to the possibility of recurrence and adjust the post-operative follow-up if the younger patients had B2 bacteremia after colorectal surgery.

Table 3

Table 3. Factors associated with relapse among colon cancer patients stratified by age at diagnosis using logistic regression analysis

	Age at diagnosis < 65 years (n=225) [a] Multivariable model				Age at diagnosis ≥ 65 years (n=239) [b] Multivariable model			
Independent variable	OR	95% CI		p-value	OR	95% CI		p-value
B2 vs Negative	**5.40**	**2.11**	**13.84**	**0.000**	1.06	0.45	2.53	0.891
Female vs Male	1.93	0.93	3.97	0.076	0.96	0.43	2.13	0.911
Obese vs Non-obese	0.58	0.24	1.38	0.217	0.58	0.20	1.66	0.307
Smoke (Yes vs No)	0.69	0.27	1.79	0.447	1.79	0.69	4.70	0.234
Drink (Yes vs No)	0.71	0.24	2.07	0.533	1.21	0.45	3.27	0.708
Tumor location								
Right (reference)	1.00				1.00			
Left	2.38	0.94	6.03	0.067	0.74	0.34	1.64	0.462
Rectum	1.35	0.49	3.68	0.563	0.40	0.12	1.26	0.118
Stage								
Stage 1 (reference)	1.00				1.00			
Stage 2	0.91	0.27	3.03	0.871	1.61	0.55	4.73	0.391
Stage 3	2.13	0.64	7.14	0.221	**4.14**	**1.27**	**13.48**	**0.019**
Chemotherapy (Yes vs No)	**3.13**	**1.09**	**8.98**	**0.034**	0.86	0.35	2.10	0.743
Radiotherapy (Yes vs No)	1.54	0.49	4.84	0.461	**4.69**	**1.17**	**18.80**	**0.029**

OR, odds ratio; 95% CI, 95% confidence interval
[a] Forty-three patients were not included due to missing value of BMI, smoke or drink behaviors
[b] Thirty-night patients were not included due to missing value of BMI, smoke or drink behaviors

RADIOGRAPHIC FACTORS ASSOCIATED WITH LYMPH NODE METASTASES IN RIGHT-SIDED COLON CANCER.

eP413

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[1]*Chicago, IL;* [2]*New Hyde Park, NY;* [3]*Manhasset, NY*

Purpose/Background: Nodal staging in colon cancer by pathologic determination of positive lymph nodes has significant impact on treatment. Previous work has tried to use tumor features present on imaging to guide neoadjuvant treatment, but because of poor radiographic staging of locoregional disease, segmental colectomy and standard lymph node resection remains the initial treatment for the majority of patients. This study attempted to describe features of lymph nodes on imaging that correlated with the presence of lymph node metastases in right-sided colon cancer.

Methods/Interventions: A retrospective review was completed for all patients with right-sided colon cancer who underwent colectomy from 2015 through 2020 at North Shore University Hospital or Long Island Jewish Medical Center. Patients under age 18 or who did not have invasive adenocarcinoma on final pathology were excluded. Body radiologists performed a blinded review of CT scans performed within 90 days prior to colectomy to identify abnormal findings. Variables of interest included patient age, sex, tumor location, tumor size, TNM stage on final pathology, enlarged lymph nodes, pericolonic lymph node clustering, internal heterogeneity, lobulation and irregular borders, central necrosis, and pericolonic inflammation. Univariate and multivariate regression were performed to assess the relationship between patient variables, disease variables, radiographic abnormalities, and presence of nodal metastases in pathologic specimens. Variables found to be significantly associated with lymph

node metastases in univariate analyses were included in the multivariate regression.

Results/Outcome(s): The final cohort included 218 patients. The patient cohort was 44.5% male, had a mean age 72.6 ± 12.5, and mean BMI of 27.2. Sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and area under the curve (AUC) for each radiographic finding are presented in Table 1. Age, number of enlarged lymph nodes, pericolonic lymph node clustering, internal heterogeneity, irregular borders/lobulated lymph nodes, and pericolonic inflammation were significantly predictive of lymph node metastases in univariate analysis and were included in the multivariate regression. However, in the multivariate model only lymph nodes with internal heterogeneity (OR 4.809, $p < 0.01$) were significantly predictive of lymph node metastases.

Conclusions/Discussion: Previous efforts to radiographically identify colon cancer patients appropriate for neoadjuvant treatment found inconsistency in tumor staging, however this analysis suggests that lymph node abnormalities, specifically internal heterogeneity, may predict lymph node stage. Knowledge of the nodal staging preoperatively may change initial management and yield survival benefit similar to what is seen in other cancer types.

Table 1. Accuracy of specific radiographic findings at predicting lymph node metastases in right-sided colon cancer

Radiographic finding	Sensitivity	Specificity	PPV	NPV	AUC
Lymph node characteristics					
Enlarged (>0.5 mm)	61.70%	70.8	55.6	75.8	0.663
Internal heterogeneity	38.3%	93.4%	77.5%	71.9%	0.659
Irregular borders/lobulated	58.0%	73.0%	56.0%	74.6%	0.655
Central necrosis	3.7%	100.0%	100.0%	63.7%	0.519
Calcifications	1.2%	100.0%	100.0%	63.1%	0.506
Pericolonic clustering	48.10%	83.90%	63.90%	73.20%	0.66
Pericolonic inflammation	51.9%	78.1%	58.3%	73.3%	0.65

TRANSANAL REPAIR OF ANASTOMOTIC LEAKAGE AFTER LOW ANTERIOR RESECTION.

eP414

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Purpose/Background: The purpose of this study was to report the efficacy of transanal surgery to treat anastomotic leakage after low anterior resection for rectal cancer by following a protocol of early detection and sepsis control followed by transanal repair. The primary endpoint was healing of the anastomosis and secondary endpoints were length of stay and 100-day mortality.

Methods/Interventions: This prospective single centre cohort included all patients treated with low anterior resection for rectal cancer at a Norwegian university hospital from January 2018 to June 2022. If early signs of anastomotic leakage were observed, the anastomosis was examined by computer tomography with rectal contrast and flexible endoscopy. Anastomotic leakage was deemed eligible for repair if involving less than half of the circumference and there was no ischemia or retraction of the colon. Depending on size of the defect, the cavity behind the anastomotic defect was cleaned by a simple catheter which was placed through the defect for intermittent irrigation, or by an endosponge. A diverting stoma was created and a transabdominal pelvic drain was inserted if not in place after initial surgery. Then the anastomosis was examined every 3-4 days. If the leakage was still eligible, the sepsis was under control, and the cavity behind the defect was clean, the defect was sutured using Transanal Minimally Invasive Surgery (TAMIS) or open transanal technique, depending on the level on the anastomosis. Computer tomography with rectal contrast and rigid proctoscopy was performed after 3 months to ensure successful healing before the diverting stomas were taken down, and at 12 months.

Results/Outcome(s): There were 171 low anterior resections, 42% women and 58% men and mean age was 67 years. Neoadjuvant radiotherapy was given to 58 patients (34%). An anastomotic leak was diagnosed in 18 patients (10.5%), and eight of these (44%) were repaired transanally, three were treated only by antibiotics, five underwent abdominoperineal resection, and two had a Hartmann's procedure. At three months the anastomosis had healed in 7 of 8 patients who were treated transanally, and one patient healed after 6 months. One patient required dilatation for stenosis. At 12 months a presacral sinus appeared after closure of the diverting stoma in one patient, resulting in a healed anastomosis in 7 of 8 patients. Median length of stay was 18.5 days for those treated by transanal repair, compared to 15 days for the remaining patients with anastomotic leakage. There was no 100-day mortality in any patient with anastomotic leakage.

Conclusions/Discussion: Eight out of 18 anastomotic leakages were eligible for transanal repair and seven of these were successful, with no mortality and acceptable increase in length of stay. This organ-sparing approach to treat anastomotic leakage seems promising.

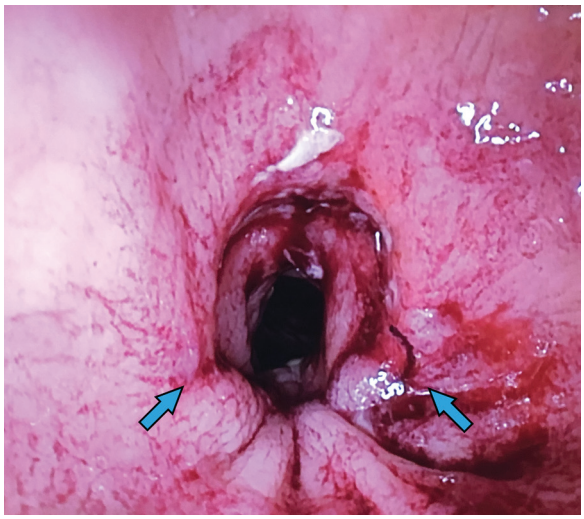

Fig 1. Posterior defect sutured by TAMIS 11th postoperative day

UNDERSTANDING SURGEON AND NURSE PERSPECTIVES ON THE USE OF PATIENT-GENERATED DATA IN THE MANAGEMENT OF LOW ANTERIOR RESECTION SYNDROME.

eP415

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Purpose/Background: The management of low anterior resection syndrome (LARS) requires patient engagement and self-management. Patient-generated LARS data is currently being used in the management of rectal cancer survivors with LARS, however, healthcare practitioners' (HCPs) perspectives and experiences remain largely unexplored. The aim of this study was to explore surgeon and nurse perspectives on the use of patient-generated LARS data.

Methods/Interventions: After institutional ethics board approval, we utilized snowball sampling to recruit international LARS experts, including surgeons and nurses, with knowledge and expertise in LARS (LARS Data Visualization Collaborative). We conducted semi-structured interviews to understand the use of patient-generated data (PGD) in managing LARS. We used grounded theory to thematically analyze the transcribed interviews using the MAXQDA software.

Results/Outcome(s): Our sample included 14 HCPs, including eight colorectal surgeons and six nurses. Saturation was achieved after 5 interviews. Four themes emerged from analysis: data collection, data review, data utility, and future directions for developing a clinical tool to enhance the use of PGD for LARS patients. In terms of data collection, most LARS experts ask patients to collect various types of PGD related to LARS, which is collected by different means. There is no agreed upon duration of data collection for LARS patients, but most HCPs feel that the first several months are the most important time for patients to collect data. For data review, we found that both surgeons and nurses review PGD, typically during clinical encounters alongside patients. Most HCPs find it difficult to interpret PGD and identified time constraints, legibility, and completeness as the most common barriers to reviewing data in clinic. HCPs feel that data collection helps engage patients in their care through self-reflection and self-management. It also helps HCPs identify trends, understand symptoms and their impact, and guide treatment. Most LARS experts feel that a clinical tool in the form of an online app or website to support data collection and enhance data visualization would be useful. This should include various types of LARS data and data visualizations that are easy to interpret and understand. Patient buy-in and compliance were highlighted as important considerations. Finally, some HCPs see promise in leveraging patient-generated LARS data to inform the creation of automated treatment algorithms for LARS patients.

Conclusions/Discussion: This study highlights many gaps in the processes of PGD collection and review in the management of LARS. A clinical tool including various data collection templates and data visualization prototypes could help to address these gaps. Future research will focus on incorporating the patient perspective.

Table 1. Thematic analysis based on interviews with international LARS experts (LARS Data Visualization Collaborative), including Liliana Bordeianou, Marylise Boutros, Peter Christensen, Julie Cornish, Alessandra Gasior, Anu Ghuman, Syed Husain, Celia Keane, Gitte Kjær Sørensen, Natalie Leon, Margit Majgaard, Melanie Mills, Julie Savard, and Lieba Savitt.

Theme	Code
Data collection	HCPs ask patients to collect various types of LARS data
	Patients use different mediums to collect data
	Most HCPs feel that the first several months are the most important time for patients to collect data
Data review	Both surgeons and nurses are involved in reviewing PGD
	Surgeons and nurses primarily review PGD with patients during clinical encounters
	HCPs find it difficult to interpret PGD
	HCPs identified time constraints, legibility, and completeness as the most common barriers to reviewing PGD in clinic
	PGD is not routinely stored in medical health records
Data utility	HCPs feel that data collection helps engage patients in their care
	PGD can demonstrate trends in patient health status
	PGD can help the HCPs understand what symptoms patients are experiencing
	PGD can help HCPs understand the impact of symptoms on quality of life
	PGD can help guide treatment
	PGD is being used for patient care and research purposes
Future directions for developing a clinical tool to enhance the use of PGD	Most HCPs believe that the optimal clinical tool to facilitate data collection and review would be in an electronic format
	HCPs feel that a combination of different types of LARS data should be collected
	PGD visualizations should be easy to interpret
	PGD visualizations should capture time and make it easy to identify trends
	HCPs feel that patient buy-in and compliance are important considerations
	HCPs see promise in leveraging patient data to inform automated treatment algorithms

HCP: healthcare practitioner, LARS: low anterior resection syndrome, PGD: patient-generated data.

CHEMORADIATION CONFERS A SURVIVAL ADVANTAGE FOR PATIENTS UNDERGOING LOCAL EXCISION FOR T1 RECTAL ADENOCARCINOMA WITH UNFAVORABLE HISTOPATHOLOGY.

eP416

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Purpose/Background: Management of patients with clinical T1N0 rectal adenocarcinoma typically includes either total mesorectal excision (TME) or transanal excision with subsequent close observation. For patients with unfavorable histopathology following local excision, such as lymphovascular invasion (LVI) or poor

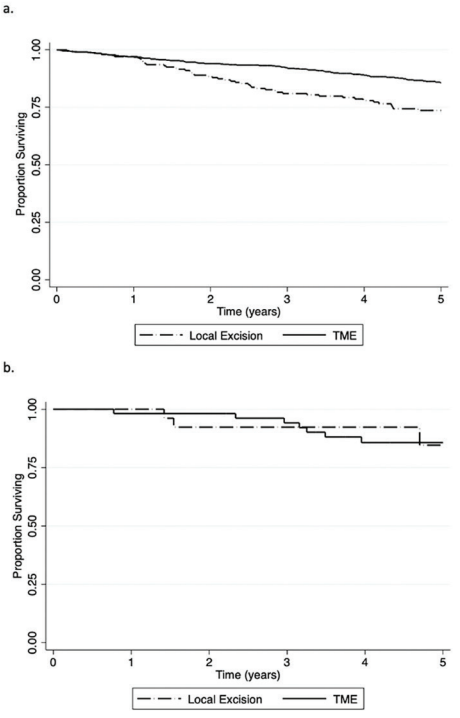
differentiation, optimal management remains undefined, and the options include observation or adjuvant chemoradiation (chemoXRT). We sought to determine long term survival outcomes of T1 rectal adenocarcinoma patients with poor histopathology who received local excision compared to TME.

Methods/Interventions: Patients with pathologic T1 and clinical N0M0 rectal adenocarcinoma who underwent surgical excision in the form of local excision or TME were identified from the National Cancer Database (2004-2019). Patients with positive margins, unknown LVI status and unknown lymph node sampling were excluded. Unfavorable histopathology (UH) was defined as the presence of LVI or poor differentiation. Treatment of patients with UH was compared to those with favorable histopathology (FH) using chi-square analyses. Five-year overall survival (OS) for patients who had UH and local excision or TME with and without chemoXRT was estimated using Kaplan-Meier (KM) and cox proportional hazards modeling.

Results/Outcome(s): Of the 5,414 patients identified, the median age was 62 (53-71), 59% were male (n=3,227), most were White (90.8%, n=4,692), and the minority of patients had UH (15.4%, n=832). While most patients underwent TME (76.6%, n=4,139), there was no difference in rates of local excision between patients with FH (23.3%) and UH (24.4%, p=0.46). Of the patients with UH who underwent local excision (n=203), 12.8% (n=26) received adjuvant chemoXRT. While on KM analysis patients with FH who underwent TME had an improved 5-year OS compared to those who received local excision (89.1% TME vs. 84.3% local, p<0.001), this finding did not persist on multivariate cox analysis (Hazard ratio [HR] 0.85, p=0.20). For patients with UH, performance of TME demonstrated a survival advantage on both KM (87.4% TME vs. 76.4% local, p<0.001) and cox analyses (HR 0.56, p=0.035). However, on KM analysis, TME did not carry a survival advantage for patients with UH who received adjuvant chemoXRT (86.2% TME vs. 87.1% local, p=0.94), and this persisted with cox modeling (HR 1.19, p=0.26).

Conclusions/Discussion: For T1N0 rectal cancers with UH, TME demonstrates a survival advantage over local excision alone. However, survival is equivalent between patients who undergo TME compared to local excision with adjuvant therapy. This suggests that TME can be safely avoided for select patients with T1N0 rectal cancer with UH. Adjuvant therapy should be strongly considered in this population.

Figure 1. Kaplan-Meier curves demonstrating 5-year overall survival for patients with poor histopathology who receive a) local excision or total mesorectal excision (TME) and b) local excision or TME in addition to adjuvant chemoradiation



DILIP'S SCHEMATIC DIAGRAM OF THE ANORECTUM WITH MANAGEMENT PROTOCOLS FOR FISTULA-IN-ANO.

eP417

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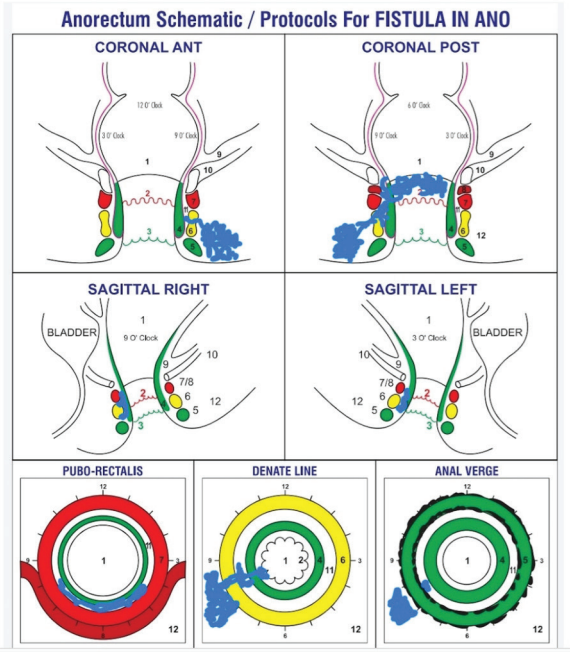
Purpose/Background: Presently only two drawings - one coronal and the other axial are used and have their own limitations. In the coronal, it is not clear whether the lesion is anterior or posterior, and in the axial, the level is not defined. The present work proposes documentation with more sections and color coding for the sphincters which will give more information and guidance as well for the management of various fistulas.

Methods/Interventions: 83 patients of Fistula-in-Ano were subjected to the study from January 2020 to September 2022. The first diagram was drawn based on the clinical examination. If MRI was done, then the radiologist was requested to draw it. Thirdly, operative findings were drawn and compared with the pre-operative clinical findings. In case of any gross discrepancy with the MRI, the operative diagram was sent to the radiologist for his review.

Results/Outcome(s): MRI was done in 54% of cases. It was observed that MRI proved to be useful in 30% of cases for searching the high and discrete collections which were not anticipated in the clinical examination. MRI reported absent internal openings in 18%, all of which were defined

during surgery. 26% of operative findings did not correlate with the pre-operative clinical findings in the diagram.

Conclusions/Discussion: This new documentation gives a piece of better information. It aids the surgeon in better understanding the case and will make the management more effective and safe through the guidance given in color coding. The diagram is self-explanatory: Correlating to the traffic signal, when the fistula tract lies in the green zone, there is no risk of incontinence. If it falls in the yellow zone, one has to be cautious. The red zone indicates it is a complex one and liable for incontinence. It is very simple to decide - if the lesion is seen in the red zone in MRI, novice surgeon should avoid it. For every zone, treatment options are suggested. It was observed that positive MRI findings were helpful to search for the discrete abscess cavities and high supra or trans levator extensions, but negative MRI findings were not pertinent. In all the patients where the internal opening was not seen in MRI, it was found in surgery. A review of the pre-operative drawings with actual operative findings improve the clinical acumen, and decision-making over the period.



1. Internal op at 8 O'clock in dentate line 2. Ascending up in Supra sphincteric space on Rt side 3. Crossing high up at the level of puborectalis sling from Rt to Lt (10 to 2) posteriorly. (Red) 4. Becomes trans sphincteric between the Sup and the Deep components of the Ext sphinct on Rt side (Yellow) 5. Collects in IA fossa to rupture out making ext op at 8 O'clock, 4 cm away from the anus posterolaterally in the right buttock (Green) Management 1. Green zone - Safe (IA fossa). Excision of the ext op, deroofing and liberal drainage. 2. Yellow zone - Be Cautious (Sup/ Deep ext sphinct) Curettage and placing Seton 3. Red zone - Risky (Suprasphincteric collection). Only meticulous careful drainage with placement of the Foley's catheter for few days.

SUPRAANAL HEMORRHOIDECTOMY: A ANODERM-PROTECTING SURGERY METHOD.

eP418

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Purpose/Background: Deciding on the proper surgery method for advanced hemorrhoids is still hard, even though there are new pathophysiological insights and new therapy options. Especially the therapy of prolapsing hemorrhoids with anoderm is still challenging using anatomy-protecting surgery methods, such as stapler hemorrhoidectomy (HP) or transanal open hemorrhoidectomy (TOH). The supraanal hemorrhoidectomy proposes an anoderm-protecting alternative.

Methods/Interventions: Between October 2018 and October 2021, 46 patients (30 men, 16 women, age 52 ± 15 years, median follow-up 1,9 ± 0,8 years) with prolapsing hemorrhoids after different HP-surgeries (26 patients with stapler and 20 patients with TOH) underwent supraanal hemorrhoidectomy. In lithotomy position, a cuneiform resection of the submucosal hemorrhoids was performed parallel to and approx. 5 mm above the linea dentata. The defect was provided with 2-0 vicryl running stitches without haemostasis.

Results/Outcome(s): 36 patients were symptom free right after surgery. In 6 patients, a perianal thrombosis was detected postoperative. In 7 patients, there was a wound dehiscence postoperative which were treated conservatively. All patients were free of complaints during follow-up. There were no cases of postoperative bleedings or pruritus

Conclusions/Discussion: The supraanal hemorrhoidectomy is a technically easy and cost-effective method, which is done in a short period of time under sight of the situs at all times. To confirm these first positive results, there is a need of further studies with larger patient cohorts.

LEVATOR PLATE SAGGING.

eP419

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Purpose/Background: The descending perineum syndrome (also known as levator plate sagging) refers to a condition, where the perineum balloons several centimeters below the bony outlet of the pelvis. This condition can be treated by several operative treatments including retrorectal levatorplasty, post-anal repair, retro-anal levator plate myorrhaphy. In this study, pretreated patients underwent Rehn Delorme surgery in order to improve their condition.

Methods/Interventions: Between 2016 and 2021, 29 patients were seen in total. 21 patients severe psychological problems and all had defecation difficulties. All patients

were treated conservatively first. 11 patients (3 male, 8 female, age between 19 and 70 years) had underwent transanal mucosa resection Rehn-Delorme for treating levator plate sagging after different previous surgeries.

Results/Outcome(s): The surgery was successful in all patients: there were no cases of postoperative bleeding or infection. After surgery, 7 patients needed further enemas. In 4 patients, symptoms were reduced right after surgery. During median follow-up time of 10 months, symptoms were reduced in all patients.

Conclusions/Discussion: Even though there are this many different treatment options, including Parks surgery, in the past few years, some patients presented with an almost circular levator weakness and prolapse of the rectum with severe difficulties in defecation. These patients will be even more difficult to be treated, also because the pathophysiology and pathogenesis is not clear yet. A lot of patients have had difficulties from young age and are very complex to treat. Therefore, we need a discussion about this new condition in terms of treatment. Rehn Delorme surgery might be a promising therapeutic approach in young patients following conservative treatment.

MODIFIED POPS SURGERY SHOWS GOOD RESULTS IN SHORT TIME FOLLOW UP IN PATIENTS WITH RECTAL PROLAPSE.

eP420

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Purpose/Background: Rectal prolapse is mostly common in patients over 50 years old, especially in women with simultaneous pelvic floor conditions. There are several abdominal and perineal surgical approaches including POPS (pelvic organs prolapse suspension) by Longo. In this modified version, the mesh is not fixated at the vagina but ventral of the rectum in order to elevate the rectum and eradicate the rectal prolapse.

Methods/Interventions: Between October 2016 and October 2021, 54 patients (11 male, 43 female, age 68 (43-87) years, median follow up 13.8 months) underwent modified POPS operation. Most patients underwent previous surgeries, including hysterectomy, STARR surgery and perineal prolapse resection.

Results/Outcome(s): The surgery was successful in all patients: there were no cases of postoperative bleeding or infection. 26 patients (48.1%) were symptom free after surgery, 20 patients (37%) had distinct improvement. 8 patients (14.8%) only experienced a minor improvement. During follow-up, 42 patients (77.7%) reported a sustainable improvement of symptoms.

Conclusions/Discussion: The ventral rectopexy with modified POPS surgery seems to be safe and successful in this patient cohort. It might be a more protecting surgical method compared to other methods used at the moment. There is a need for longer follow-up times and larger patient cohorts in order to prove these results.

MONKEYPOX VIRUS AND INFECTIOUS PROCTITIS.

eP421

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Purpose/Background: Monkeypox has re-emerged worldwide with evidence of person-to-person transmission becoming a public health concern. Monkeypox is a zoonotic infection caused by the monkeypox virus, a double stranded DNA virus of the genus Orthopoxvirus of the family Poxviridae. The diagnosis is made with viral DNA polymerase chain reaction (PCR) since immunohistochemistry cannot differentiate monkeypox from other orthopoxviruses. The literature supports that cases are associated with sexual contact, particularly receptive anal intercourse. Typical presentation includes fever, chills, headache, respiratory symptoms, myalgias, skin rash, and lymphadenopathy.

Methods/Interventions: The patient is a 35-year-old male with one week of anal pain associated with tenesmus, sore throat, fever, and chills. On exam he was clinically stable with a leukocytosis of 14. An exam under anesthesia revealed a friable, inflamed anal canal with multiple umbilicated pustular lesions and exudate. Edema extended to the distal rectum. A flexible sigmoidoscopy revealed proctitis with a small ulcer in the proximal rectum. Multiple biopsies were taken and the exudate was sent for culture analysis.

Results/Outcome(s): The anal canal culture revealed moderate growth Enterococcus faecium, light growth mixed anaerobes, scant Escherichia coli and Candida lusitaniae. The anterior anal canal biopsy revealed squamous mucosa with necrosis and extensive acute inflammation consistent with an abscess. The rectal biopsies revealed active proctitis with prominent lymphoplasmacytic infiltrate. Testing was negative for Chlamydia trachomatis, Neisseria gonorrhoeae, hepatitis, human immunodeficiency virus, and syphilis. Monkeypox virus DNA qualitative PCR was detected. The patient underwent close follow-up. On subsequent examination he had tender inguinal lymphadenopathy and vesicular lesions at varying stages of healing. Currently, there is no definitive cure. Treatment is focused on symptomatic improvement, decreasing complications, and preventing transmission.

Conclusions/Discussion: Monkeypox virus with predominantly anal involvement is seen with increased frequency and should be considered in the differential diagnosis especially for those in higher risk groups including patients who practice receptive anal intercourse.

RECTAL INJURY IN UROLOGIC SURGERY.

eP422

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Purpose/Background: Rectal Injury (RI) is a feared complication of prostate surgery. RI has been described in the context of prostatectomy but remains underreported in cystectomy. The aims of this study were to report the incidence of RI in this urologic cohort, identify potential risk factors and to explore the multidisciplinary relationships in caring for patients with rectal injury.

Methods/Interventions: Data for Cystectomy and Prostatectomy cases from January 2019 through December 2021 in the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) registry were analyzed. Morbidity, mortality, and length of stay (LOS) comparisons were made between the rectal injury and no injury groups for both cystectomy and prostatectomy. Logistic regression was conducted to evaluate for effects of age, surgical approach, body mass index (BMI), and race on the incidence of rectal injury.

Results/Outcome(s): Of 23,038 patients that underwent prostatectomy, 76 (0.3%) suffered RI. Of 8,935 cystectomy patients, 116 (1.3%) suffered RI. The median length of stay increased in prostatectomy patients with rectal injuries from 1 to 3 days as compared to patients without rectal injury ($p < 0.0001$) The same was true for cystectomy patients, where median LOS increased from 6 to 7 days in those with RI compared to those without RI ($p = 0.003$). Of 76 patients with RI, 5 (6.6%) underwent intraoperative diversion in the prostatectomy group, while 23 (19.8%) of 116 underwent intraoperative diversion in the cystectomy group. In logistic regression modeling, surgical approach demonstrated a protective effect on RI when controlling for BMI, age, and race (OR Laparoscopic vs Open 0.42, Robotic vs Open 0.22; $p = 0.0002$) for the cystectomy group. Results differed between cystectomy and prostatectomy groups. Minority (non-white) status was the only variable to reach significance within the regression model, demonstrating increased risk for rectal injury (OR 1.76; $p=0.027$).

Conclusions/Discussion: We report here the most recent data on rectal injury in prostate and bladder surgery, including the incidence of injury requiring fecal diversion. Consistent risk factors for RI between the prostatectomy and cystectomy group could not be identified, perhaps owing to the overall low event rate of RI. This may otherwise suggest a relatively small contribution of these patient demographics to overall risk for rectal injury relative to intraoperative circumstances.

ANORECTAL MONKEYPOX: PHYSYCAL AND ENDOSCOPIC FINDINGS.

eP423

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Purpose/Background: In July 2022, the World Health Organization declared the monkeypox outbreak a public health emergency of international concern. There are currently nearly 28,000 cases in the US. Although the cutaneous form is easily recognized by most clinicians, the anorectal presentation remains unknown to many colorectal surgeons, which can delay adequate patient care and facilitate the spread of disease among the surgeons themselves and other healthcare professionals. Therefore the purpose of this case study is to report a case of anorectal smallpox, describing the physical examination and endoscopic findings.

Methods/Interventions: We describe a case of 35 year old male, presenting at the emergency department complaining of progresive and severe anorectal pain and mucous discharge over the past 4 days. He had no comorbidities The symptoms stared after he had umprotects anal sex intercourse with another man. General physical examination was unremarkable. Pain killer medications were prescribed, blood tests, pelvic MRI and colorectal surgeon consultation were ordered.

Results/Outcome(s): Blood tests revealed a white blood cell count of 14,000 × 109/L, and the C-reactive Protein Test was 42 mg/dL. Pelvic MRI demonstrated edema of the distal rectal mucosa and excluded the presence of any abscess. Screening for HIV, hepatitis B and C and syphilis was negative. Anorectal examination showed vesicles and pustules with umbilication. Flexible sigmoidoscopy showed severe distal rectal proctitis characterized by mucosal swelling and friability, associated with purulent secretion. Rectal and perianal lesions were swabbed and the sample sent for real-time polymerase chain reaction (PCR), which confirmed the diagnosis of monkeypox. The patient was hospitalized for pain control and was discharged 4 days

later with recommendation of contact isolation until resolution of all lesions and symptoms.

Conclusions/Discussion: Anorectal Monkeypox is a new condition that is becoming more frequent in emergency departments. Knowing the physical and endoscopic findings is crucial for colorectal surgeons. Our case report can help facilitate immediate patient diagnosis and prevent accidental contamination of colorectal surgeons.

INTRABDOMINAL BLEEDING AFTER DOPPLER GUIDED HEMORRHOIDAL ARTERY LIGATION WITH RECTO-ANAL REPAIR.

eP424

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Purpose/Background: Doppler-guided hemorrhoidal artery ligation with recto-anal repair (DGHAL-RAR) is a minimally invasive techniques used to treat hemorrhoidal disease. Reports of complications following this procedure are very rare in the literature, however, herein we report a case of serious intrabdominal bleeding following DGHAL-RAR without rectal bleeding.

Methods/Interventions: Case presentation: A 35-year-old male presented with acute abdominal pain associated with distension and signs of an acute abdomen that had developed following an elective doppler-guided hemorrhoidal artery ligation with recto-anal repair (DGHAL-RAR) procedure for third-degree hemorrhoids two days previously. The procedure had been performed without any intraoperative complications. An initial proctoscopy examination showed no evidence of active bleeding. Laboratory investigation revealed a very low level of hemoglobin. A computerized tomography scan (CT) of the abdomen and pelvis revealed peritoneal fluid collection extending into the pelvis, and a thickening of the rectal wall without extravasation of the contrast medium.

Results/Outcome(s): The patient's clinical condition indicated the need for an emergency laparoscopic exploratory procedure with high suspicion of intrabdominal hemorrhage. A huge hematoma was found occupying the rectovesical pouch, with a seromuscular tear on the anterior rectal wall without evidence of active bleeding or bowel perforation. Hematoma evacuation and primary repair of the rectal layer tear were performed without bowel resection.

Conclusions/Discussion: The reported case shows that diagnosis of intrabdominal hemorrhage following DGHAL-RAR is challenging, and multimodal investigations and high clinical awareness is needed. This case is the first such case to be reported as intraperitoneal hematoma following the DGHAL-RAR technique managed without bowel resection or stoma diversion. Awareness of this serious complication after this surgical technique for hemorrhoidal disease is vital to guide subsequent investigations and prevent inappropriate treatment or unnecessary surgical interventions.

HEMORRHOIDECTOMY: DOES AGE MAKE A DIFFERENCE?

eP425

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Purpose/Background: Symptomatic hemorrhoids constitute a large portion of office visits. Treatment of hemorrhoids often involves a combination of dietary changes, medical management, office-based procedures, and surgery. While management of grade I and IV hemorrhoids generally involve medical and surgical intervention, respectively, grade II and III hemorrhoids often require a multimodal approach with an end result that may culminate in surgical resection. While the decision to proceed with hemorrhoidectomy is multifactorial, age and overall medical condition around the time of diagnosis can often impact the decision. The objective of this study was to evaluate patients with a diagnosis of symptomatic grade II or grade III hemorrhoids and to determine progression to hemorrhoidectomy based on age and the time interval between diagnosis and surgical intervention.

Methods/Interventions: A retrospective cohort study was undertaken by reviewing a single institutional database. Patients age 18-75 with grade II or grade III internal hemorrhoids between 2015 and 2020 were included within the study. Patients with thrombosed hemorrhoids or surgical contraindications to hemorrhoidectomy were excluded. Patient baseline demographics, treatment choices, and time to hemorrhoidectomy (if applicable) were stratified

and analyzed based on hemorrhoid grade (grade II and III) and age groupings that were pre-determined by the authors (18-30, 31-50 and 51-75).

Results/Outcome(s): A total of 961 patients met inclusion criteria for Grade II (n=442) and III (n=519) hemorrhoids. Irrespective of age, patients with Grade III vs Grade II hemorrhoids were more likely to choose hemorrhoidectomy as the initial treatment management (27.6% vs 4.1%). Irrespective of hemorrhoid grade, patients in age groups 18-30 and 30-50 were more likely to choose hemorrhoidectomy as the initial treatment management compared to patients ages 51-75 years old (23.5% and 22% vs 12.8%). In patients who were initially treated with medical management or office based procedures and then progressed to hemorrhoidectomy, no significant differences in length of time to hemorrhoidectomy were noted based on hemorrhoid grade or age, with the median time to surgery of the sample being 67 days.

Conclusions/Discussion: Treatment choice for Grades II and III hemorrhoids will remain a combination of surgeon and patient preference. While a variety of factors can be attributed to why patient's choose medical management over hemorrhoidectomy, age and lifestyle likely drives the decision-making process. Our study shows that the younger population will seek hemorrhoidectomy first over the older population especially in more advanced hemorrhoidal disease.

Table 1a. Intervention Choice and Progression Stratified by Hemorrhoid Grade

	Entire Sample (n=961[a])	Grade II Hemorrhoid (n=442)	Grade III Hemorrhoid (n=519)	p-value
First Treatment Choice *n(%)*				<.001[c]
Medical Management	481 (50.1)	266 (60.2)	215 (41.4)	
Office-based procedure	319 (33.2)	158 (35.7)	161 (31.0)	
Hemorrhoidectomy	161 (16.8)	18 (4.1)	143 (27.6)	
Most invasive treatment *n(%)*				<.001[c]
Medical Management	323 (33.6)	207 (46.8)	116 (22.4)	
Office-based procedure	361 (37.6)	194 (43.9)	167 (32.2)	
Hemorrhoidectomy	277 (28.8)	41 (9.3)	236 (45.5)	
Days from Initial Choice to Surgery *median (IQR) (n=116[b])*	67.0 (29.3, 187.5)	67.0 (27.0, 275.0)	67.0 (30.5, 186.0)	.619[c]

a. Chi-square test
b. 116 patients in the sample were included in this analysis. Patients were excluded if their initial choice of treatment was surgery or if they never progressed to having surgery. 23 patients with Grade II and 93 patients with Grade III.
c. Mann-Whitney U test was utilized. The data failed key assumption of an independent samples t-test leading to the use of the Mann-Whitney U test.

Table 1b. Intervention Choice and Progression Stratified by Age Group

	Entire Sample (n=961[a])	18-30 Years Old (n=68)	31-50 Years Old (n=332)	51-75 Years Old (n=561)	p-value
First Treatment Choice *n(%)*					<.001[c]
Medical Management	481 (50.1)	36 (52.9)	165 (49.7)	280 (49.9)	
Office-based procedure	319 (33.2)	16 (23.5)	94 (28.3)	209 (37.3)	
Hemorrhoidectomy	161 (16.8)	16 (23.5)	73 (22.0)	72 (12.8)	
Most invasive treatment *n(%)*					<.001[c]
Medical Management	323 (33.6)	27 (39.7)	101 (30.4)	195 (34.8)	
Office-based procedure	361 (37.6)	21 (30.9)	102 (30.7)	238 (42.4)	
Hemorrhoidectomy	277 (28.8)	20 (29.4)	129 (38.9)	128 (22.8)	
Days from Initial Choice to Surgery *median (IQR) (n=116[b])*	67.0 (29.3, 187.5)	50.5 (13.0, 81.3)	64.5 (28.3, 181.5)	69.5 (30.3, 305.5)	.585[c]

a. Chi-square test
b. 116 patients in the sample were included in this analysis. Patients were excluded if their initial choice of treatment was surgery or if they never progressed to having surgery. 4 patients with aged 18-30, 56 aged 31-50, and 56 aged 51-75.
c. Kruskal-Wallis H test was utilized. The data failed key assumption of the one-way ANOVA test leading to the use of the Kruskal-Wallis H test.

Intervention choice stratified by age and grade

CHARACTERIZATION OF CRYPTOGLANDULAR FISTULA MICROBIOME USING A NOVEL TECHNIQUE.

eP426

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Chicago, IL

Purpose/Background: Bacterial infection within the inter-sphincteric space is thought to be central to anal fistula formation, as suggested by Park's cryptoglandular hypothesis. However, it has been difficult to isolate the microorganisms in fistula specimens using conventional culturing techniques. We describe a novel technique to obtain fistula biopsy samples to characterize the cryptoglandular fistula microbiome using 16S ribosomal RNA (rRNA) gene amplicon sequencing. We also aim to correlate the microbiome with clinical outcomes.

Methods/Interventions: Fistula specimens were collected from the fistula tract close to the internal fistula opening using a pediatric cystoscope between December 2021 and June 2022. Six patients were treated with fistulotomy, while one of each was managed with rectal advancement flap, ligation of inter-sphincteric fistula tract procedure, and a combination of Video-Assisted Anal Fistula Treatment and fibrin glue. Patients were classified as either having resolving or persistent fistula disease at the 3-month postoperative visit. Extracted genomic DNA was PCR amplified using domain-level primers, followed by deep sequencing to interrogate fistula microbial community structure. Differences in microbial community structure between groups were explored through comparison of alpha diversity, beta diversity, and taxon-by-taxon differential abundance analysis.

Results/Outcome(s): At follow-up, 6 had resolved fistula and 3 had persistent fistula. The mean age (40 years) and BMI (30) were similar between the groups. The most common phylum across all samples was Firmicutes. A trending difference in alpha diversity (Shannon index) was observed between resolved/persistent fistulas, with higher diversity observed in the resolving fistula group ($p=0.26$). Beta diversity analysis (PERMANOVA) did not identify significant community-level differences between groups. Despite substantial within-group variation, persistent fistula patients had higher relative abundance of putatively pathogenic bacteria from the phylum Fusobacteria (logFC value= 9.2) at all taxonomic levels ($p<0.05$), including the genus Fusobacterium (logFC value= 5.7). Similarly, the relative abundance of bacteria from the class Verrucomicrobiae, essentially Akkermansia muciniphila, was higher in the persistent fistula group (logFC value= 6.0, $p=0.04$). Conversely, patients with resolving fistula had higher relative abundance of the bacteria from the phylum Firmicutes, and class Negativicutes (logFC value= 3.9, $p=0.04$).

Conclusions/Discussion: To our knowledge, this is the first study to describe the cryptoglandular fistula microbiome. Persistent and resolving cryptoglandular fistula appear to differ in their microbial community structures. Additional patients are being enrolled to further characterize the microbiome and investigate the possible relationship between the microbiome and fistula treatment outcomes.

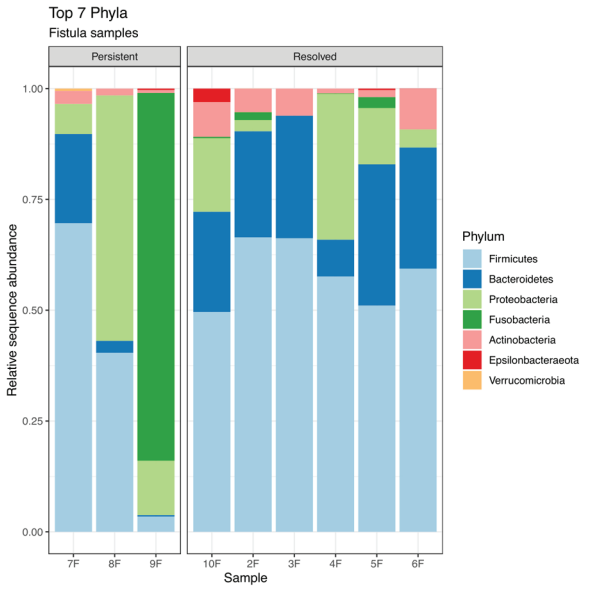

Figure: Top 7 Phyla represented in cryptoglandular fistula tracts.

FISTULECTOMY AS SURGICAL OPTION FOR PATIENTS WITH MULTIPLE ANAL FISTULA.

eP427

M. Rosado Martinez
Monterrey, Mexico

Purpose/Background: Patients with multiple fistula are difficult to treat given the amount of reoccurrence of the disease. Surgical intervention is by far the most common treatment option for these patients but the outcome depends on the surgical technique used to treat the fistula, and because of this many patients undergo several surgical procedures with a high rate of reoccurrence. We propose to use fistulectomy as a one-time surgical intervention on this type of patients.

Methods/Interventions: For this study, out of the 120 patients that we diagnose annually with anal fistula only 13 were diagnosed with multiple fistulae. We followed these 13 patients after fistulectomy (single surgical intervention) for 18 months. In order to determine the outcome of the surgery we used the healing time and Wexner score as outcome measure. All patients were diagnosed by clinical observation and endoanal ultrasound as the only imaging diagnostic tool.

Results/Outcome(s): All 13 patients were male and diagnosed with at least 2 fistula. The median age was 41 years old (31-58.5 IQR). The wound healing time had a mean of 2.4 months (1.44 SD) and the Wexner score mean was 1.3 (1.3 SD). Of all 13 patients only 23% had Type 2 Diabetes Mellitus or high blood pressure. It is very interesting that all our patients were male, this is a striking result for us because all published data reported a 2:1 ratio of male:female incidence. After 18 months, all patients reported a full recovery and none of them had reoccurrence of the fistula and only presented minimum incontinence per the Wexner score. The healing period was also very short regardless of the length, type or localization of the fistula.

Conclusions/Discussion: With these results we want to demonstrate that fistulectomy can be the best treatment option in this type of patients because it seems to solve not only the reoccurrence of the disease but also eliminates the need for several surgical interventions. We also would like to highlight the fact that the endoanal ultrasound can be a very useful and cheap tool to diagnose this pathology.

						Anal fistula				
Patients	Age	Gender	DM	HBP	Smoking	Quantity	Classification (Parks)	Follow up (years)	Wound healing (months)	Wexner score
1	28	M	No	No	No	2	Trans sphincteric	1.5	2	0
2	52	M	No	No	No	2	Trans sphincteric	1.5	1.5	2
3	55	M	No	Yes	No	2	Trans sphincteric	2	1.5	0
4	32	M	No	No	No	3	Inter sphincteric	1	1	1
5	72	M	Yes	Yes	No	2	Trans sphincteric	1	4	2
6	54	M	Yes	Yes	No	2	Trans sphincteric	1.5	2	1
7	27	M	No	No	No	2	Trans sphincteric	2	1	1
8	31	M	No	No	No	2	Trans sphincteric	1	5	2
9	40	M	No	No	No	2	Trans sphincteric	1	1.5	0
10	41	M	No	No	No	2	Trans sphincteric	0.5	1.5	0
11	68	M	No	No	No	2	Trans sphincteric	2	2	1
12	31	M	No	No	No	2	Trans sphincteric	0.5	5	2
13	62	M	Yes	No	No	2	Horse shoe	1	3.5	5

PERIANAL ABSCESS AFTER INCISION: SHOULD AN ANTIBIOTIC BE ADMINISTERED?

eP428

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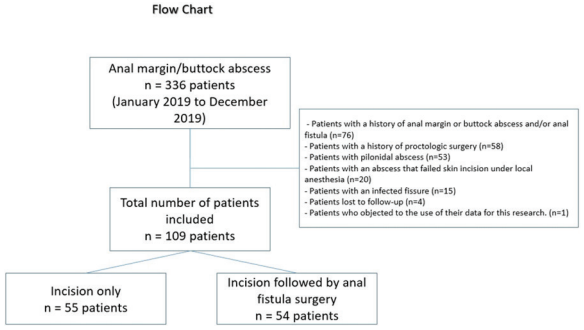
Paris, France

Purpose/Background: The French school assumes that any perianal abscess is related to a fistula and therefore requires its treatment at the risk of recurrence of the abscess. The Anglo-Saxon school, on the other hand, advocates simple incision in case of a first abscess on the grounds that more than 60% of them will not recur. In addition, predictive factors for abscess recurrence have been reported such as age more than 40 years, female gender, high BMI, corticosteroids, Crohn's disease (CD). Conversely, antibiotic (AB) therapy associated with incision was considered "protective". The objective of this study was to evaluate our experience in our department.

Methods/Interventions: We have listed all patients who consulted in 2019 for a first perianal abscess. Patients with a previous perianal abscess, a history of proctological surgery, a pilonidal abscess, an infected fissure and those with a failed incision under local anesthesia were not included. Other patients were treated by incision under local anesthesia, possibly combined with AB therapy with amoxicillin/clavulanic acid for 5 days. When there were obvious signs of fistula (internal orifice, subcutaneous cord...), they were immediately scheduled for surgery. The primary objective was to evaluate the rate of patients requiring surgical management of fistula and/or whose abscess recurred. The secondary objective was to identify factors predictive of surgery and/or recurrence. The study was approved by the hospital ethics committee.

Results/Outcome(s): During the study period, 336 patients consulted for an abscess, of whom 109 (74% men), with a mean age of 43 years (+/- 13), were included. Of these patients, 55 had incision alone and 54 patients had anal fistula surgery after incision (Figure). The mean follow-up of the 55 patients who had incision alone was 29.7 months +/- 5.4. Ten of these patients had abscess recurrence (18%) while the rest (82%) did not recur. Comparing the 45 patients who did not recur to the 64 patients who had undergone fistula surgery or had recurrence, univariate logistic regression analysis showed that smoking (OR 3.13; 95% CI, 1.07 - 9.20; p=0.03) and no AB therapy after incision (OR 0.44; 95% CI, 0.20 - 0.98; p=0.04) were predictive of recurrence. In contrast, gender, age, BMI, diabetes, CD, HIV infection, prior NSAID use and abscess location were not predictive. Multivariate analysis was not performed because of insufficient numbers for some variables.

Conclusions/Discussion: This study showed that 41% of patients who had a first perianal abscess incised under local anesthesia did not recur during a mean follow-up of approximately 30 months. In addition, the administration of AB therapy after incision was predictive of non-recurrence. Before concluding that AB treatment should be offered after incision of a perianal abscess, randomized trials should confirm this recommendation and also specify the molecule to be used and its duration of administration.



DILIP'S 'CRUCIATE INTERSPHINCTERIC DRAINAGE' (CID) - A NEW CONCEPT FOR THE MANAGEMENT OF FISTULA-IN-ANO.

eP429

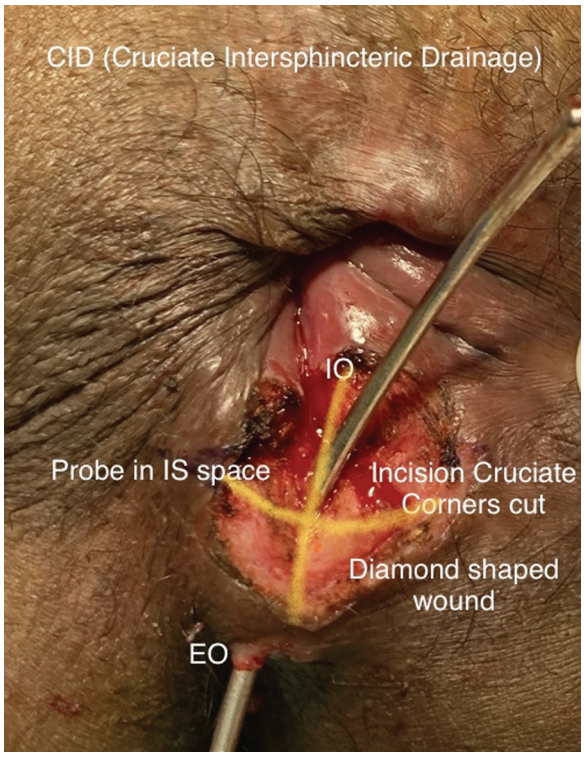
D. Pathak
Jabalpur, India

Purpose/Background: Fistula-in-Ano is managed by various methods, the less invasive methods cause recurrences, and more invasive increase the risk of incontinence, morbidity, and delayed healing. A new method: Cruciate Intersphincteric Drainage (CID), deals with the root cause of the fistula. It involves medial fistulotomy plus opening up the inter-sphincteric space by cruciate incision and deroofing it. It reduces the chances of recurrence and incontinence.

Methods/Interventions: The external and internal openings are defined. The cruciate incision is placing two incisions (of 1.25 cm each), crossing at the inter-sphincteric groove. One limb is radial, from the internal opening, extending towards the ischio-anal fossa, crossing the inter-sphincteric groove and extending over the fibers of the sub-cutaneous component of the external sphincter. The other limb crosses above at right angles in the inter-sphincteric groove, parallel to the anal opening. The corners of this crossover are cut to a diamond-shaped wound in the inter-sphincteric plane. Inter-sphincteric space is well opened, and the collection is drained. The distal component of the tract is dealt variably from laser to VAAFT to coring. A diverting Seton is placed between external opening and the opened-up inter-sphincteric plane. Routine post-operative care without packing. Seton is removed on day 10. Follow up after 5 days and every 10 days.

Results/Outcome(s): 176 cases were operated from December 2018 to August 2022 and graded according to the St James University grading: Grade 1 - 18 %, Grade 2 - 24%, Grade 3 - 22 %, Grade 4 - 32%, Grade 5 - 04%. Healing time - 70 % of cases within 3 months. Follow up for 6 months and longest was 4.5 yrs. 20% of patients were lost to follow-up. Recurrence - 80% within one year, rest up to 3 yrs. Times - once in 12 pts (6.8%), twice in 5 pts (2.8%), and thrice in 3 pts of 176. (1.7%). Incontinence in none.

Conclusions/Discussion: The gold standard is fistulotomy, but if the EO is far away from the anus, cutting across the whole length is unnecessary. Hence, fistulotomy is proposed from the IO to the subcut ES only. As fistula is a chronic abscess, deroofing of the cavity is ideal. I combined both - medial fistulotomy and deroofing by cruciate incision and cutting the corners. For the high IS extension, gentle curettage is done and foley's catheter placed for 10 days. Most of the recurrences belonged to this category. 12 patients (7%) had recurrence once, 5 patients (2.8%) had twice and 3 (1.7%) of them had the recurrence for the third time. All the recurrences were also operated with CID. They healed eventually. CID is effective to disconnect the internal opening, hence can be an adjuvant for VAAFT or laser ablation. Since it doesn't touch the superifical and deep external sphincter, continence is not affected.



CID is basically a medial fistulotomy and deroofing of the inter sphincteric space for free drainage, by cruciate incision and cutting the corners of flap. In above pic there was no collection in the IS space hence cavity is not seen.

DILIP'S CLINICAL CLASSIFICATION OF FISTULA IN ANO AND ANORECTAL ABSCESSES.

eP430

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Jabalpur, India

Purpose/Background: Fistula in ano is a morbid condition and is difficult to treat. The challenge in the treatment is to understand the difference between a simple and complex fistula. Simple fistulae can be dealt by a novice. Complex fistula needs management by an expert. There is no clinical classification that will guide juniors in the selection of cases. All the existing classifications precisely define only the anatomy and the predictions of outcomes. This new classification is purely clinical which will also guide the selection of cases that need further investigations like MRI and expert management. The fistula in ano is mostly the sequel of cryptoglandular abscesses. This classification also includes abscesses as the management of fistula and crptoglandular abscesses go together. It is necessary to also understand the gravity and proper management of anorectal abscesses to prevent fistula formation in the future.

Methods/Interventions: 106 patients were subjected to the clinical classification from January 2021 to September 2022. This classification was co-related with MRI and the operative findings. The observation was made of the severity predicted in clinical classification vs the MRI and operative findings

Results/Outcome(s): The clinical classification and MRI and operative findings were co-related. The percentage of co-relation was observed in about 90% of the cases. In very few cases there were unexpected MRI or operative findings.

Conclusions/Discussion: This new classification was found to be valid in more than 90% of the cases. All patients could not get MRI done but their operative findings were correlated with the clinical classification and found to be quite useful. It will be benefited in the following: 1. Assessment of the gravity of the disease 2. Need for an MRI 3. Management by a novice surgeon or referral to an expert 4. Prediction of the long-term output and recurrences.

Dilip's clinical classification of fistula in ano and Anorectal abscesses

Dilip's clinical classification of fistula in ano / Anorectal abscesses		
Pathak classification Type 1 to Type 5.	St James Univ class	Operative findings / procedure recommended
Type 1 - EO and IO both seen		
Type 1-A (EO within 2 cms of the anal verge)	Grade 1	Simple fistula Adv Fistulotomy
Type 1-B (EO beyond 2 cms of the anal verge, tract not palpable, multiple, horseshoe)	Grade 3 Grade 4	Complex fistula Drainage, Seton and sphincter sparing procedures for all complex ones,
Type 2-A (Can find the IO)	Grade 1 / Grade 2 /3	Can be simple or complex. Deal as above
Type 2- B (Cannot find the IO)	Grade 4 / Grade 5	Mostly complex. Deal as above
Type 3 - Only IO seen		
Type 3-A (IO at the dentate line)	Grade 2 Grade 3 Grade 4	IO opened wide with drainage of the IS space If complex, deal as above
Type 3-B (IO above the dentate line)	Grade 4 Grade 5	All complex Deal as above
Type 4 - No opening (abscess)		
Type 4 - A (Swelling palpable)	Grade 1 Grade 2	Sup Perianal/ IA abscesses with IS ext, deal IO to prevent fistula. Drain nearest to the anal verge.
Type 4 - B Swelling not palpable	Grade 5	Always high Suprasphincteric or Trans levator extensions. Only drainage.
Type 5 - Recurrent		
Type 5-A (Recurrent crypto glandular)	All grades	Dealt accordingly
Type 5 - B (Secondary to IBD, Tuberculosis and malignancies	All grades	Medication, Seton and minimal intervention. May need a divert colostomy.
Abbreviations : External opening (EO),Internal opening (IO),External sphincter (ES),Intersphincteric space (IS)		

Dilip's clinical classification of Fistula in Ano and Anorectal abscesses will help to categorise the patients between a simple and the complex fistulas. It will also guide for the need of MRI and expert management

DILIP'S TRANS MUCOSAL INTERNAL SPHINCTEROTOMY (TMIS) - A SIMPLIFIED WAY OF LATERAL INTERNAL SPHINCTEROTOMY TO TREAT FISSURE IN ANO.

eP431

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Jabalpur, India

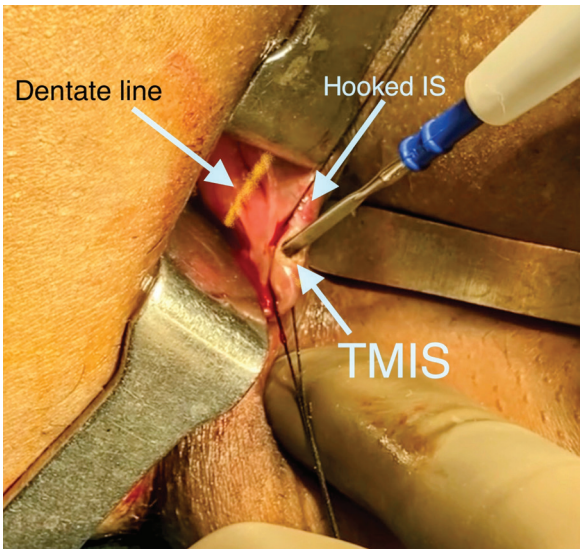
Purpose/Background: A fissure in ano is a very painful condition and can be treated with different modalities. Lateral internal sphincterotomy (LIS) remains the gold standard, but it is not so easy to perform for an

inexperienced surgeon due to the lurking fear of injury to the external sphincter. Hence, anal dilatation continues as a treatment of choice for fissure in ano. TMIS is an attempt to simplify LIS.

Methods/Interventions: Under the saddle block, the patient is placed in the lithotomy position. The internal anal sphincter is made prominent by a simple technique. The anus is gently retracted anteriorly and posteriorly. The mucosa is rolled out by insinuation of a 1.5 cm wide spatula in the intersphincteric groove, which also retracts the subcutaneous external sphincter. This bundle of the internal anal sphincter is hooked below the dentate line with two stay sutures. Internal sphincter fibers can now be divided with monopolar cautery by 3 mm puncture with to and fro fan-like movements. This small puncture does not need closure.

Results/Outcome(s): The study was carried out on 124 patients between December 2020 and February 2022. The median duration of symptoms was 110 days. All patients had taken medical therapy previously. The median operative time was 7 minutes. Only three patients (2.5%) had surgical site infections. All patients had complete healing at follow-up at a median of 9 weeks. Only four patients (3%) had incontinence to flatus. Two patients (1.6%) had a recurrence of fissure after long-term follow-up at six months. The other patients remained asymptomatic.

Conclusions/Discussion: The conventional LIS has the following issues - Incision if radial, is big and needs closure. The incision in the inter-sphincteric (IS) groove is a blind approach and the groove not palpable in obese patients. Closed LIS is predisposed to hematoma, infection, and sometimes to a painful nodule. Injury to the mucosa, even thermal, makes it liable for fistula formation. The incision is cutaneous hence painful. TMIS is very simple, not a blind approach, and easy to master. As the target (internal sphincter) is just below the anal mucosa, no dissection is required. A 3mm puncture does not need closure and being in the insensitive area (mucosa), is not associated with pain. The risk of perianal abscess, anal tag, or fistula formation is minimal in TMIS (none in our patients).



In Dilip's TIMS, int sphinct is made prominent by gentle retraction and insinuation of the spatula in the intersphincterc plane. This also retracts the ext sphinct. The int sphinct bundle is seen and felt as well. Int sphinct is hooked below dentate line by two stay sutures. Desired amount of intsphincterotomy is done under full control, through a small mucosal puncture of 3 mms by monopolar cautery tip. It doesn't need any closure. It receeds back into the anal canal. No external wound is seen at the end.

SIGMOID COLON ENDOLUMINAL STENTING IN THE SETTING OF OBSTRUCTING METASTATIC LUNG CANCER.

eP432

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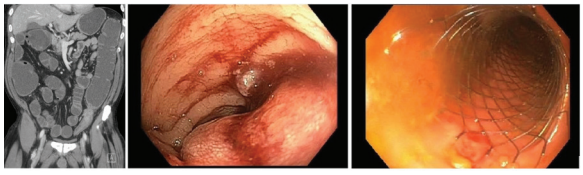
Purpose/Background: Indications for endoluminal stenting in the setting of large bowel obstruction continue to evolve. We describe successful stenting in the setting of large bowel obstruction without a histologic diagnosis of a colonic primary. Figure 1: Coronal computed tomography demonstrating large bowel obstruction, endoluminal imaging from first colonoscopy, post stenting.

Methods/Interventions: A 63-year-old male presented with left lower abdominal pain and anemia. Colonoscopy was remarkable for narrowing at the sigmoid colon with inflamed and polypoid appearing mucosa and no malignancy on biopsy. A computed tomography scan demonstrated narrowing of the sigmoid colon and a large right upper lobe lung mass. Biopsies of the lung confirmed a primary squamous cell carcinoma of the lung. He was discussed at a multidisciplinary tumor board and the decision was made to proceed with treatment of his lung primary before treatment of a possible second colonic primary tumor. He presented to the Emergency Department 3-months after his initial colonoscopy and 3-weeks after completion of neoadjuvant treatment for his lung primary with a large bowel obstruction. An endoluminal stent was successfully positioned and he underwent

bowel preparation and ultimately robotic sigmoid resection with primary anastomosis. During the dissection, it was clear the sigmoid colon mass was invading into the left pelvic sidewall superior and lateral to the iliac vessels. A margin of normal-appearing tissue was resected enbloc with the mass. Clips were placed intra-operatively for future assistance if there was residual cancer at the margin requiring radiotherapy. Pathology confirmed microscopic positive margins. He completed radiotherapy to the clipped area. Repeat imaging is currently pending.

Results/Outcome(s): Histopathologic analysis of the specimen was consistent with metastatic squamous cancer consistent with a lung primary.

Conclusions/Discussion: While endoluminal stenting is a useful tool for patients with obstructing sigmoid and rectal primary tumors its utility in other etiologies of obstruction is less well accepted. This case demonstrates success of this technique from an extraluminal mass effect. The case is unusual in that multiple endoscopic biopsies of his sigmoid narrowing failed to demonstrate dysplasia, but with the working diagnosis of synchronous colon and lung malignancy a stent was deemed appropriate when he ultimately presented obstructed. This management allowed the patient to recover from his chemoradiotherapy for management of his lung primary. He subsequently was able to tolerate a high protein diet to improve his nutritional parameters in anticipation of surgery, tolerate a bowel preparation, and undergo robotic sigmoid colon resection with primary anastomosis. Surgeons can consider use of endoluminal stenting for large bowel obstruction in the absence of histologically confirmed colonic malignancy, but where clinical suspicion remains high.



DON'T GET BEHIND: ADENOMA DETECTION RATES IN 40-45 YEAR OLDS UNDERGOING SCREENING COLONOSCOPIES.

ePoster 433

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Purpose/Background: Many studies have demonstrated that screening programs are an effective method in reducing the incidence and mortality of colorectal cancer. Although colorectal cancer is most frequently diagnosed among 65-74 year olds, estimates show that 10.5% of new colorectal cancer cases occur in those younger than 50 years of age. In May of 2021, the US Preventative Services Task Force lowered the initial screening age for colon cancer in people of average risk to begin at 45 years old. The adenoma detection rate (ADR) is the proportion of screening colonoscopies performed by a physician that detects at least one histologically confirmed adenoma or adenocarcinoma. The nationally recognized minimum thresholds are 25% overall; 30% in men and 20% in women. Little is known regarding the ADR in ages 45-49. We aim to determine the ADR in patients ages 45-49 undergoing screening colonoscopies and compare this to the national recommended minimums to assure adequate colonoscopy quality in this age group.

Methods/Interventions: This is a retrospective observational study utilizing the electronic health records in a single institution. Patients between the ages of 45-49 who were seen between 1/1/2022 and 6/20/2022 for a screening colonoscopy were included. To determine Adenoma detection rate (ADR) and 95% confidence intervals, a frequency table was created. Multiple analyses were run using logistic regression with the dichotomous adenoma variable as the outcome. Odds ratios were calculated.

Results/Outcome(s): Our study included 299 patients. 113 were found to have at least one histologically confirmed adenoma or adenocarcinoma. The calculated ADR was 37.79%; for males 41.84% and 34.18% for females. ADR by race was 37.1% for white patients [31.08-43.11%] and 48% for black patients [28.42-67.58%]. Patients with normal BMI had a ADR of 46.64% [32.09-61.24%], the overweight BMI rate was 34.07% [24.33-43.08%], obese BMI rate was 37.89% [30.39-45.38%]. Smoking status revealed ADR of 27.78% in current everyday smokers [13.15-42.41%], 31.25% in current some day smokers [8.54-53.96%], 38.64% in former smokers [28.46-48.81%] and 40.25% in never smokers [32.63-47.87%]. There were no statically significant demographic factors in our patient population that predicted a higher chance of having an adenoma discovered on colonoscopy.

Conclusions/Discussion: The ADR in our study was above the established minimum threshold for people ages 50-75. Therefore, colonoscopy remains an excellent screening tool for early detection of colorectal cancer and the ADR for ages 50-75 can be applied to the 45-49 age group. We may consider raising the expected ADR in this age group with additional data.

Gender	ADR	95% CI
Male N=141	41.84%	(33.70%, 49.99 %)
Female N=158	34.18%	(26.78%, 41.57%)
Mixed N=229	37.79%	(32.27%, 43.55%)
ASA rating	ADR	95% CI
ASA 1 N=20	40%	(19.12%, 63.95%)
ASA 2 N=209	38.28%	(31.69%, 44.87%)
ASA 3 N=69	36.23%	(24.89%, 47.57%)
Smoking status	ADR	95% CI
Former Smoker N=88	38.64%	(28.46%, 48.81 %)
Current Some Day Smoker N=16	31.25%	(8.54%, 53.96%)
Current Everyday Smoker N=36	27.78%	(13.15%, 42.41%)
Never Smoker N=159	40.25%	(32.63%, 47.87%)
Race	ADR	95% CI
White N=248	37.10%	(31.08%, 43.11 %)
Black N=25	48.00%	(28.42%, 67.58%)
Asian N=3	66.67%	(13.32%, 100%)
American Indian or Alaska Native N=2	100%	(100%, 100%)
BMI	ADR	95% CI
18.5 - <25 N=45	46.67%	(32.09%, 61.24%)
25 - <30 N=91	34.07%	(24.33%, 43.80%)
>30 N=161	37.89%	(30.39%, 45.38%)

Table 1: Adenoma Detection Rates in various populations

DEEP LEARNING MODEL FOR THE PREDICTION OF MISMATCH REPAIR-DEFICIENCY FROM RADIOLOGIC IMAGES IN COLORECTAL CANCER.

eP434

J. Guo, Q. Qin
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Purpose/Background: Mismatch repair (MMR) status in colorectal cancer is crucial for the response of immunotherapy and prognosis. In clinical practice, immunohistochemical test is universally applied to identify MMR-deficient patients. Here we investigate the potential of a deep learning-based system for automated MMR prediction directly from computed tomography (CT) images.

Methods/Interventions: Deep neural networks were developed using 144851 contrast-enhanced CT images from 700 patients (530 with MMR-proficiency and 170 with MMR-deficiency) who had biopsy or resection for colorectal cancer at the Sixth Affiliated Hospital of Sun Yat-sen University between 2010 and 2016. We built models using the algorithm of VGGNet-19, residual neural network (ResNet), and transformer structure, respectively. We internally validated the models on a holdout test set of 62079 images from 300 patients (227 with MMR-proficiency and 73 with MMR-deficiency). Performance was primarily evaluated using the sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and area under the receiver operating characteristic curve (AUROC).

Results/Outcome(s): The ResNet model achieved an AUROC of 0.943 (95% CI 0.926-0.960), sensitivity of 0.865 (95% CI 0.840-0.887), specificity of 0.963 (95% CI 0.933-0.982), PPV of 0.987 (95% CI 0.976-0.993), and NPV of 0.695 (95% CI 0.657-0.730) on the holdout test set. The AUROC for VGGNet-19 model and Transformer-based model was 0.567 (95% CI 0.532-0.603) and 0.607 (95% CI 0.574-0.641), respectively.

Conclusions/Discussion: Our ResNet model showed good performance in the prediction of MMR status from CT images. This deep neural network may contribute to the automated screening of patients for confirmatory testing.

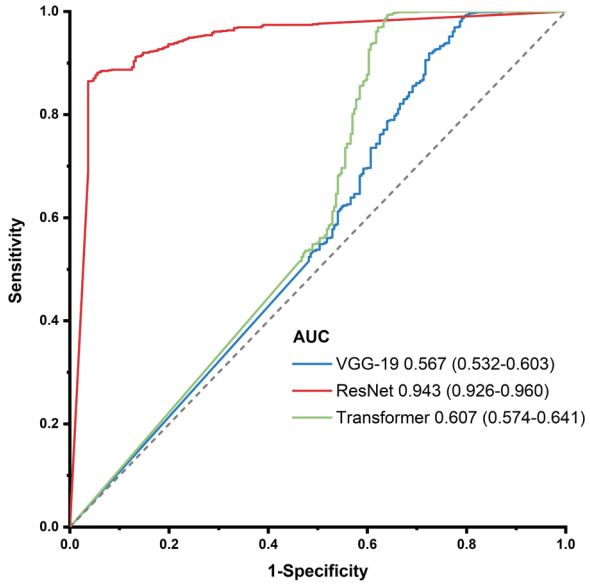

Figure 1.Comparison of three deep learning models

DEEP LEARNING ASSISTED COMPUTED TOMOGRAPHY IMAGE DATA ANALYSIS FOR DIAGNOSIS OF COLORECTAL CANCER.

eP435

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Taoyuan, Taiwan

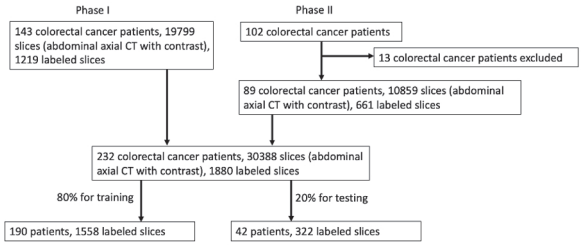
Purpose/Background: Abdominal computed tomography (CT) is a frequently used imaging modality for evaluation for gastrointestinal disease, and the detection of colorectal cancer (CRC) is often apparent on CT prior to more invasive colonoscopy in recent years. Despite the continuous advancement of CT scanners and imaging techniques, the clinicians and radiologists are still faced with many challenges when interpreting colorectal disease on CT. Missed incidental colon cancers on CT are an emerging problem for both clinicians and radiologists. Consequently, there arises need for automatically localizing the lesion in CT images of unprepared bowel consisting of several similar intensity masses.

Methods/Interventions: The CT data used in this study were collected from 2018 January to 2021 December, downloaded from the picture archiving and communications

system (PACS) in Chang Gung Memorial Hospital. There was total 232 diagnosed colorectal patients' CT slices included in the study. The radiologist and colorectal surgeon labeled the cancer on the slices, and total 1880 slices were annotated. We used approximately 80% data for training (190 patients, 1558 labeled slices) for training and 20% data (42 patients, 322 labeled slices) for testing. After data processing, we used four popular detection models (MobileNetv1, Inception-v2, Yolo-v3, and RetinaNet) and compare their performance.

Results/Outcome(s): In the phase I slice-wise testing, 143 patients with 1219 CT slices with colorectal cancer were enrolled and annotated. RetinaNet showed best performance with 94% recall and 97% F-score when compared with the other two models (MobileNetv1 and Inception-v2). In the phase II slice-wise testing, 89 patients with 661 CT slices with colorectal cancer were enrolled and annotated. From the outputs, it was observed that RetinaNet performed slightly better than Yolo-v3 with F-score of 0.97 (0.005). In patient-wise testing, 42 patients with 322 labeled slices were enrolled to test the detection performance using RetinaNet, which achieved 59.00.31% in recall, 92.70.04% in accuracy and 46.20.26% in F score.

Conclusions/Discussion: This study was focused on development and evaluation of deep-learning based model for localization of CRC in CT scan images. We used different popular object localization models and RetinaNet exhibited a Specificity of 94% when 5-fold cross validation-based random slice-wise testing performed. In patient-slice testing, RetinaNet showed a valuable result in CT reading for CRC diagnosis. If we can add more information and training the model, the performance may improve and help in clinical usage for colorectal cancer diagnosis.



Flow chart of patients and CT slices enrolled

EFFICACY OF AFLIBERCEPT IN COMBINATION WITH FLUOROURACIL, LEUCOVORIN, AND IRINOTECAN IN PATIENTS WITH METASTATIC COLORECTAL CANCER PREVIOUSLY TREATED WITH AN OXALIPLATIN-BASED REGIMEN IN INITIAL EXPERIENCE.

eP436

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Purpose/Background: In VELOUR trial, aflibercept in combination with infusional fluorouracil, leucovorin, and irinotecan (FOLFIRI) conferred a statistically significant survival benefit over FOLFIRI combined with placebo in patients with metastatic colorectal cancer (mCRC) previously treated with infusional fluorouracil, leucovorin, and oxaliplatin (FOLFOX). Aflibercept plus FOLFIRI combination therapy were approved for mCRC as second-line treatment in 2017. We reported our initial experience with 24 patients treated with aflibercept and FOLFIRI in mCRC patients and analyzed the progression free survival, overall survival and adverse effect of these patients.

Methods/Interventions: This was a retrospective study between September 2018 and January 2022 in single institution in Korea. Aflibercept was administered at a dose of 4 mg/kg as an intravenous infusion over 1 hour on day 1 every 2 weeks immediately after the FOLFIRI regimen.

Results/Outcome(s): Twenty-four mCRC patients were analyzed (male : 58.3%; median age : 63.5 years). Patients received a median of 7.5 cycles overall (17.95weeks), and the median follow-up time was 12.5 months. All patients had previously received either bevacizumab with FOLFOX (70.8%) or cetuximab with FOLFOX (29.2%). Progression free survival (PFS) was 6.13 months (95% CI, 4.67 to 7.57), similar with those of VELOUR study, and overall survival (OS) was 24.99 months (95% CI, 17.21 to 32.76), higher than those of VELOUR study. A total of 26 treatment-related adverse effects occurred in 19 patients. A total of 11 grade ≥ 3 treatment-related adverse effects occurred in 10 patients; proteinuria (16.7%), pneumonia (16.7%), venous thromboembolic event (12.5%).

Conclusions/Discussion: The addition of aflibercept to FOLFIRI showed a good PFS and OS and tolerable toxicity in patients with mCRC. Yet this study was a small, retrospective study performed in a single institute. Further multi-center study with long-term follow up data is needed.

Table 1. Summary of treatment-related adverse effects

	All Grades	Grade 3
neutropenia	4 (16.7)	0
proteinuria	8 (33.3)	4 (16.7)
stomatitis	3 (12.5)	0
colitis	1 (4.2)	0
hypertension	3 (12.5)	0
pneumonia	4 (16.7)	4 (16.7)
thromboembolism	3 (12.5)	3 (12.5)

Data presented as number of patients (%)

THE PSYCHOSOCIAL IMPACTS OF COLORECTAL CANCER AMONG YOUNGER ADULTS.

eP437

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Purpose/Background: By 2030, younger adults (aged 50 years and younger) will account for > 30% of all colorectal cancers (CRC) in the U.S. In parallel to this rapidly changing demographic, there will be an increasing number of CRC survivors, many with persistent and burdensome symptoms impacting quality of life. Although substantial efforts have been made to improve oncologic outcomes following CRC treatment, far less attention has been aimed at the growing population of younger adults who have the potential to live with treatment-related effects for longer periods of time. In this context, we sought to investigate the impact of diagnosis and treatment of CRC among younger adults.

Methods/Interventions: This qualitative study was designed to explore the physical and psychosocial impacts of colorectal cancer among younger adults during and following treatment. We used convenience sampling to recruit 22 patients who underwent CRC surgery at the University of Michigan. Most participants had a diagnosis of rectal cancer (68%). Gender identity was nearly even with 55% (n=12) identifying as female and 45% (n=11) identifying as male. Participants had a median age of 42 years (range: 22-50). Most participants identified as white and non-Latinx (68%). Transcripts were analyzed iteratively using descriptive content analysis.

Results/Outcome(s): Data indicated that although participants experienced ongoing physical symptoms, these were often an anticipated aspect of their recovery process. For many, the more profound burden was related to psychosocial stressors, including emotional health, financial security, and family planning. As one participant articulated, "I barely had any money so do I risk putting this money up to freeze something that I don't even know if I am going to be here or not? Or do I feed my family? At that time, I felt like it was an easy decision, now it is like I don't know." Participants described a need for more in-depth support to address the unique psychosocial stressors that extend beyond the typical timeframe of offered support.

Conclusions/Discussion: Younger adults with CRC report burdens related to emotional health, financial security, and family planning. In-depth understanding of the implications of CRC diagnosis and treatment will better inform both decision-making and survivorship among younger adults. Further, these findings may also be applied broadly to other cancers affecting younger adults with similarly impactful symptoms and treatment-related side effects.

Table 1: Quotes from interviews with participants

Emotional Health
"It was kind of like a "screw it" attitude, so if I wasn't having chemo on a Thursday, that meant that I was going to the bar, and I was getting really drunk. I was going to have fun. I was going to drive 90 miles on the highway because if I am going to die, then forget it, I am going to drive really fast on the highway. It was reckless, it was scary and those are things that I also didn't want my parents to know or people that loved me. But I was mad, and I was going to be reckless, and I thought that it meant to live, I guess." (396)
Financial Security
"He put me on restrictions, because I'm a corrections officer. And so he put me on restrictions. We have a whole floor of COVID inmates, and he's like you can't go by them. He's like you're still at risk. so he restricted me from going by them, and they said they can't accommodate that. So I no longer have a job, but I'm working on that." (608)
Family Planning
"I feel really bad about not having another baby. We went to see the reproductive health doctor directly after that and they suggested to us to fertilize my eggs. So, we did that. Originally, we wanted to freeze, at least two years ago, the eggs for the future. But there is only one fertilized egg in the end. So, it is a little bit disappointing, but it is better than nothing. So, I was also told that even though I have the fertilized egg, I cannot carry a baby in the future because of the damaged liner. So, I was truly feeling really bad about that. I was still hoping that maybe after all of the therapy is done, I still want to see a doctor to see whether it is still possible for me to carry a baby. I still have that hope, but that part maybe be fewer apart, but I do not have a period anymore. So, maybe it is hard, yeah." (653)

Quotes from interviews with participants

FACTORS ASSOCIATED WITH DELAYS IN DEFINITIVE RESECTION FOR COLON CANCER.

eP438

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Washington, DC

Purpose/Background: Previous studies have shown that a timing of 3-6 weeks between diagnosis of colon cancer and definitive resection is associated with improved patient outcomes. Factors that impact the time between diagnosis and oncologic resection may be patient-specific or institutional-based. It is important to identify which populations are most vulnerable to delays in care to target interventions most effectively. Our objective was to identify factors that were associated with delays in definitive surgery for colon cancer.

Methods/Interventions: A retrospective review of the National Cancer Database (NCDB) was conducted including patients that underwent definitive surgical resection for colon cancer between 2012-2016. Patients were divided into two cohorts based on the length of time between tissue diagnosis of cancer and surgical intervention (3-6 weeks and > 6 weeks). Patients with stage IV disease or missing data on surgical timing were excluded. Demographic, socioeconomic, and baseline medical characteristics (Charlson-Deyo-Comorbidity-Index),

hospital-specific variables, and 30- and 90-day mortality were analyzed via chi-squared analysis and unpaired t-test. A p-value of < 0.05 considered statistically significant.

Results/Outcome(s): From 2012-2016, 28,670 cases met inclusion criteria. Of this total, 10,455 (36.5%) cases were performed greater than 6 weeks after diagnosis and 18,215 (63.5%) cases were completed between 3 to 6 weeks after diagnosis. As compared to the 3-6 week group, patients in the >6 week cohort were more likely to identify as African American (14.6% vs. 10.1%; p<0.001), have a higher comorbidity burden via Charlson-Deyo score ≥ 2 (11.8% vs. 9.3%; p<0.001), were more likely to be uninsured (2.6% vs. 1.8%; p<0.001), and have a household income <$38,000 (4.0% vs. 2.6%; p<0.001). There was a higher proportion of patients in the >6 week cohort that received treatment at a National Cancer Institute-designated facility (38.8% vs. 29.6%; p < 0.001). Patients in the >6 week cohort also had significantly higher 30-day (6.5 vs. 5.7%; p=0.006) and 90-day mortality (12.2% vs. 9.3%; p<0.001).

Conclusions/Discussion: Key demographic and socioeconomic differences in patients with delayed surgical care after diagnosis of colon cancer exist when compared to those who undergo timely resection. This suggests inequalities in healthcare access in these populations. Interventions to streamline care of colon cancer should be targeted towards these vulnerable groups in order to ameliorate outcomes disparities. Future studies should explore the impact of expedited surgical intervention on outcomes in these populations.

SINGLE-INCISION ROBOTIC COLECTOMY WITH DA VINCI SP SURGICAL SYSTEM VERSUS CONVENTIONAL MULTIPORT LAPAROSCOPIC COLECTOMY FOR COLON CANCER: COMPARISON OF SHORT-TERM OUTCOME.

eP439

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Purpose/Background: The da Vinci SP (dVSP) surgical system allows its instruments to have flexible movement through single port and limitless quadrant abdominal surgery under single docking state, which makes to perform robotic colectomy easier. In this study, we compared the short-term outcome of single-incision robotic colectomy using dVSP with conventional laparoscopic multiport surgery to verify its efficacy and safety for colon cancer surgery.

Methods/Interventions: The medical records of 237 patients underwent colonic resection for colon cancer by a single surgeon were reviewed retrospectively. Patients with metastatic disease and synchronous malignancy were excluded and who were performed open, emergency, palliative resection, and simultaneous surgery for other disease were also excluded. Patients were categorized to two groups of single-incision robotic surgery (RS group) and multiport laparoscopic surgery (LS group). Patients' preoperative characteristics, intraoperative details, pathologic results, and postoperative course were compared between two groups.

Results/Outcome(s): Of 237 patients, 140 patients were included in the analysis. All procedures were performed by single-incision robotic or multiport laparoscopic surgery for 43 and 97 patients, respectively. Patients in RS group showed lower age, female predominance, and better ASA grade. There was not significant difference in BMI and distribution of tumor location. Performed procedures were right/left hemicolectomy, transverse colectomy, and anterior/low anterior resection and their distribution was not significantly different. Total operation time was longer in RS group but estimated blood loss was not different between two groups. Intraoperative transfusion and conversion to open surgery were present only in LS group. On the pathologic data, pathologic stage and histologic grade were higher in LS group. There were no differences in the number of harvested lymph nodes and specimen length. On univariate analysis for postoperative outcomes, complication rate was not significantly different but major complications were only detected in LS group although it was limited in case number. Additionally, RS group showed faster first flatus passing and lower opioid analgesics requirement. Assessing the basic inflammatory/immune markers, RS group showed less CRP elevation and albumin depletion. However, on multivariate analysis to adjust the deviated patients' underlying characteristics, there was no significant difference in the postoperative outcomes.

Conclusions/Discussion: In the present study, single-incision robotic colectomy with dVSP showed comparable postoperative outcomes with conventional multiport laparoscopic surgery for colon cancer. Further analysis with larger and balanced cohort is required to confirm the efficacy and safety of single-incision robotic colectomy with dVSP.

DISTANCE TO AMBULATORY ENDOSCOPY CENTERS AND ACUTE CARE CENTERS AMPLIFIES RACIAL INEQUITIES IN COLORECTAL CANCER MORTALITY IN WASHINGTON STATE.

eP440

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Spokane, WA

Purpose/Background: Race and access to care have long been associated with poorer health outcomes. This study evaluates the relationship between race, access to

endoscopy centers and acute care centers (ACCs), and colorectal cancer (CRC) mortality in Washington state (WA).

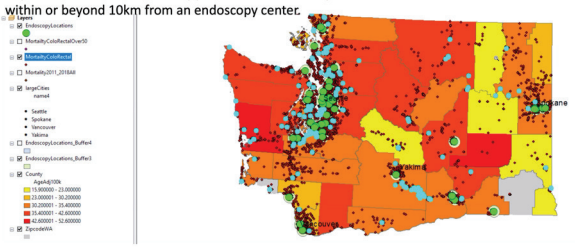
Methods/Interventions: Utilizing the WA Department of Health (DOH) database, we discovered locations of ambulatory surgical centers that provide endoscopy services. We overlayed those locations with place of residence at time of death from CRC from DOH data (2011-2018), using geospatial epidemiology software [ArcMap]. "Range" was defined as residence within 10km from endoscopy center. CRC mortality data was compared between white and nonwhite individuals within and outside of the range. We then repeated this same process for ACCs in WA state.

Results/Outcome(s): There were 7,629 deaths among patients >40y from CRC during the study period (6783 vs. 840 deaths, white vs. nonwhite, respectively). Median age at death was 73y vs. 67.5y for white vs. nonwhite, respectively ($p<0.001$). Reviewing our endoscopy data first, the median age at death for white individuals was 74y vs. 72y (residence within 10km of an endoscopy location vs. outside range, $p=0.289$). Comparison of CRC mortality among non-whites within range vs. nonwhites outside of range was 74y vs. 66y ($p<0.001$). When we repeated the process to evaluate the impact of distance from acute care centers, we saw similar results. Median age of death for white individuals within 10 km range was 74 vs. 66 for nonwhites residing further than 10 km from an ACC ($p<0.001$). To help visualize where distance from endoscopy center or ACC had the biggest impact on age of death, we created two maps [Figure 2 and 3]. We noted differences were most prominent in the Yakima and Everett areas. A closer view of the Yakima-area hotspot is illustrated in Figure 2. Yakima-area is home to a large population of indigenous peoples and migrant farm workers.

Conclusions/Discussion: Results suggest that geographic access to endoscopy services and ACCs disproportionately impacts nonwhites in Washington. These data help identify communities which may benefit from improved access to alternative colorectal cancer screening methods such as stool-based tools or telehealth. Our team's next steps will focus on the Yakima and Everett hotspots of CRC mortality.

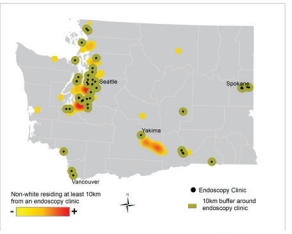
RACIAL DISPARITIES IN CRC DEATH

Figure 1: Ambulatory endoscopy center locations (green circles) and colorectal cancer-related (CRC) deaths in Washington state. Blue circles represent deaths of nonwhite individuals residing beyond 10km from an endoscopy center. Red circles represent deaths of white individuals within or beyond 10km from an endoscopy center.



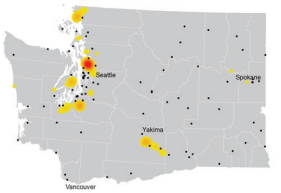
DISTANCE FROM AMBULATORY ENDOSCOPY CENTER

Figure 2: Location and density of deaths of nonwhite individuals >40y who reside more than 10km from an ambulatory endoscopy center ("range" in abstract = "buffer" in figure legend). Southeast WA demonstrates a hotspot of racial disparities in CRC mortality.



DISTANCE FROM ACUTE CARE SURGERY CENTER

Figure 3: Location and density of deaths of nonwhite individuals >40y who reside more than 10km from an acute care center. Yakima and Everett areas are hotspots for racial disparities in CRC mortality.



LARGE CELL NEUROENDOCRINE CARCINOMA IN ASCENDING COLON PRESENTED WITH BOWL OBSTRUCTION: A CASE REPORT.

eP441

S. Huang, M. Lee
Kaohsiung, Taiwan

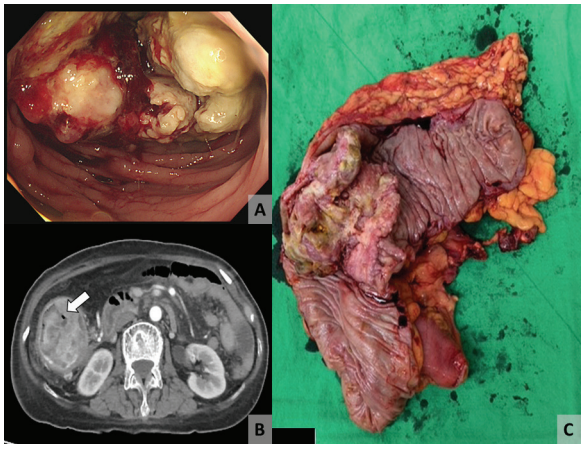
Purpose/Background: A large cell neuroendocrine carcinoma (LCNEC) located in colon is extremely rare with only less than 200 cases previously reported in the literatures worldwide. The prognosis of LCNEC is generally poorer than that of adenocarcinoma. Most patients have an advanced metastatic disease on first presentation and even with radical surgery, the 5-year survival was still only up to 61% in the previous literature. Here we present a case of LCNEC in the unusual location of ascending colon with bowel obstruction.

Methods/Interventions: A 73-year-old woman was transferred from local hospital to our medical center due to an ascending colon tumor noted on computed tomography causing bowel obstruction. The patient denied history of any systemic diseases and previous surgery. She complained of right lower quadrant abdominal pain two hours after having dinner and denied symptoms of nausea and vomiting initially. Abdominal CT showed an ascending colon tumor causing bowel obstruction. No distant metastatic lesions were found. We then performed surgery of laparoscopic right hemicolectomy with primary anastomosis, and the final pathological diagnosis was

poorly-differentiated large cell neuroendocrine carcinoma with lymph node metastasis, staging pT3N1a.

Results/Outcome(s): After surgery, the patient refused to receive adjuvant chemotherapy. She was followed up at our outpatient department, and neither recurrence or new metastasis was detected via colonoscopy and abdominal CT six months after surgery.

Conclusions/Discussion: Poorly differentiated LCNEC is extremely rare in colon and bears a much worse prognosis compared to adenocarcinoma. The definitive treatment of LCNEC differs from that of adenocarcinoma and has not been established. Clinical manifestations, colonoscopic appearance and radiological features of an LCNEC could all mimic an adenocarcinoma. A correct diagnosis is hardly possible without a pathological examination.



A: colonoscopic appearance of the tumor; B: preoperative abdominal computed tomography; C: surgical specimen of right hemi-colon

THE IMPACT OF GEOGRAPHICAL DISTANCE ON DISPARITIES RELATED TO RECEIPT OF CHEMOTHERAPY IN PATIENTS WITH SURGICALLY RESECTED COLON CANCER: A NATIONAL CANCER DATABASE ANALYSIS.

eP442

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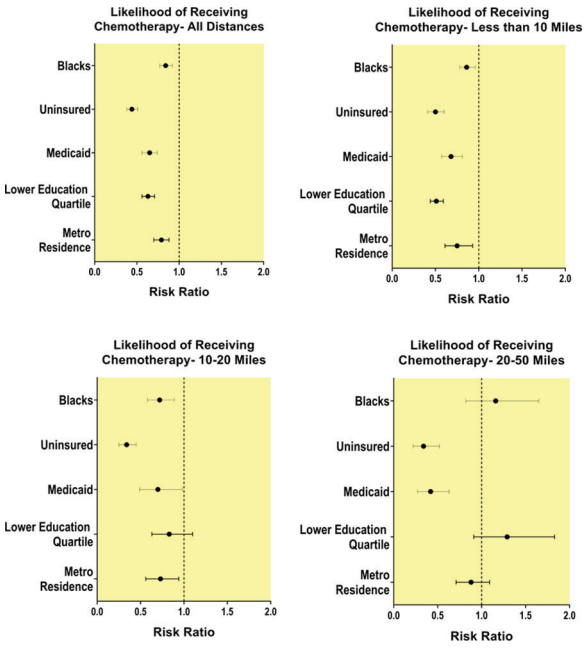
[1]*Albany, NY;* [2]*Richmond, VA;* [3]*Weston, FL*

Purpose/Background: Travel distance to healthcare facilities can present obstacles to receiving appropriate cancer treatment. Despite the evidence-based recommendation for chemotherapy, a significant number of patients never receive or even refuse chemotherapy. We hypothesize that geographical distance adversely affects adherence to receiving chemotherapy in patients with stages 2-4 colon cancer who undergo surgical resection.

Methods/Interventions: Patients between the ages of 18-90 with stages 2-4 colon cancer who were recommended to receive either neoadjuvant or adjuvant chemotherapy were analyzed from the NCDB from 2012 to 2018. Patients were stratified according to the distance in miles to facility where cancer was diagnosed (<10, >10-20, >20-50, >50-100, or >100-250). A multinomial logistic regression was then used to evaluate age, gender, race and ethnicity, cancer stage, insurance status, income level, treating facility type, high school diploma status, and urban/rural status. A sub-analysis was performed in each distance subcategory.

Results/Outcome(s): We identified 264,480 patients with stages 2-4 colon cancer requiring surgical intervention and chemotherapy. Patients were less likely to receive recommended chemotherapy who lived closest to the diagnostic facility (<10 miles) compared to patients living 10-20 miles (RR=1.21, $p < 0.0001$), 20-50 miles (RR=1.58, $p < 0.001$), or 100-250 miles (RR=1.35, $p < 0.001$). Those who were Black (RR=0.84, $p < 0.0001$), uninsured (RR=0.44, $p < 0.001$) Medicaid status (RR=0.65, $p < 0.001$), living in a metro region (RR=0.79, $p < 0.0001$), and patients living in zip codes with higher rates without a high school degree (RR=0.63, $p < 0.0001$) were less likely to receive chemotherapy. As distance increased, disparities associated with race, education, and living in a metro region disappeared, while disparities related to being uninsured or having Medicaid status persisted.

Conclusions/Discussion: Patients living closer to the diagnostic facility along with other factors such as race, insurance status, education level, and residing in a metro region were all found to affect receipt of chemotherapy after multinomial adjustment. Race, education, and metro region disparities were mitigated at increasing distance from diagnosing facility. Identifying socioeconomic factors that place patients at risk of not receiving chemotherapy is important for improving oncologic outcomes. Further study is warranted to best counsel patients and improve compliance with evidence-based recommended chemotherapy.



PERIOPERATIVE DEXAMETHASONE FOR PATIENTS UNDERGOING COLORECTAL SURGERY: A SYSTEMATIC REVIEW AND META-ANALYSIS.

eP443

T. McKechnie, S. Ichhpuniani, G. Elder, A. Chen, K. Logie, A. Doumouras, D. Hong, C. Eskicioglu
Hamilton, ON, Canada

Purpose/Background: Despite a broadening array of anesthetic medications and the advent of minimally invasive procedures, rates of postoperative nausea and vomiting (PONV) remain substantial. In colorectal surgery, these risks are heightened as the nature of the operations predisposes patients to postoperative ileus (POI). Dexamethasone is a glucocorticoid that is often administered intraoperatively as prophylaxis for PONV. It has been studied with several randomized controlled trials (RCTs) in the context of colorectal surgery. No study to date has aggregated these data. As such, this systematic review and meta-analysis aims to assess the postoperative impacts of dexamethasone use in colorectal surgery.

Methods/Interventions: This systematic review was completed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. A search in MEDLINE, Embase, and CENTRAL from database inception to June 2022 was performed. Articles were eligible for inclusion if they were RCTs, cohort studies, or case-control studies that compared perioperative intravenous dexamethasone to a control group in patients undergoing elective colorectal surgery in terms of postoperative morbidity. The primary outcomes were POI and PONV. Secondary outcomes included postoperative infectious morbidity and return of bowel function. A pair-wise meta-analysis was performed using an inverse variance random effects model. The GRADE approach was conducted to assess quality of evidence.

Results/Outcome(s): After reviewing 3,476 relevant citations, seven peer-reviewed articles (five RCTs, 2 retrospective cohorts) met inclusion criteria. Overall, 1,568 patients were in the perioperative dexamethasone group (mean age: 59.0, 46.4% female) and 1,459 patients were in the control group (mean age: 59.0, 46.2% female). The most common operation amongst the studies that reported specific operations was proctectomy (29.2%) and 44.8% of operations were performed laparoscopically. Patients receiving perioperative dexamethasone experienced significantly less POI based on moderate quality evidence (three studies, OR 0.46, 95%CI 0.28-0.74, p<0.01). There was no difference between groups in terms of PONV based on moderate quality evidence (four studies, OR 0.90, 95%CI 0.64-1.27, p=0.55). Similarly, there was no significant difference in the rate of 30-day postoperative infectious complications based on low quality evidence (seven studies, OR 0.74, 95%CI 0.55-1.01, p=0.06).

Conclusions/Discussion: This review presents moderate quality evidence that perioperative intravenous dexamethasone may reduce POI following elective colorectal surgery. There was no significant observed effect on PONV nor postoperative infectious complications. Overall, perioperative dexamethasone should remain a part of colorectal ERAS programs moving forward. Further prospective comparative study is required to confirm the effects on POI and infectious complications.

DOES OPERATING VOLUME ON-CALL VARY BY SURGEON? ANALYSIS OF ON-CALL CASES IN AN ACADEMIC COLORECTAL PRACTICE.

eP444

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Rochester, MN

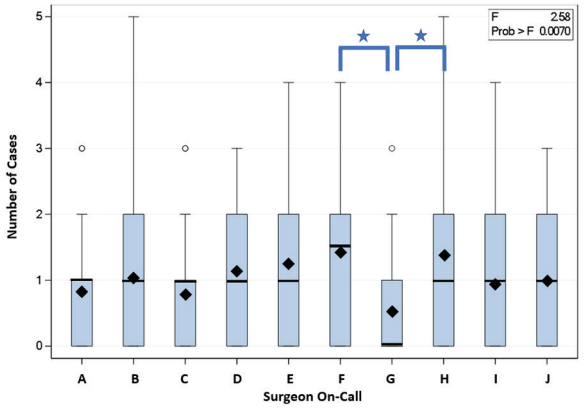
Purpose/Background: Certain surgeons have reputations as being busier on-call than others. Whether these reputations are warranted or simply a reflection of the human tendency to better recall strongly negative events is unknown in colorectal surgery. Therefore, we aimed to determine 1) what call looks like in a modern academic colorectal surgery practice where a separate acute care practice and practice agreement exists and 2) whether the number of on-call cases performed varied across colorectal surgeons.

Methods/Interventions: The on-call schedule for a colorectal practice at an academic medical center was cross-referenced with operative case logs from January 1 through December 31, 2021 to identify all on-call cases performed by surgeons who took a minimum of twenty 24-hour call shifts. Cases were classified as either during "normal hours" (case start between 07:00 and 17:00 on Monday to Friday) or "after hours" (case start after 17:00 on Monday-Friday or any holiday or weekend case). Where the consult originated from, operation type, indication for surgery, and operative approach was also determined. Average cases per call per surgeon were calculated and then compared using an ANOVA test. This was followed by post hoc pairwise comparisons using Tukey's Honestly Significant Difference test.

Results/Outcome(s): 366 on-call cases were performed across 355 call days by 10 surgeons. Of these cases, 58% (n=214) occurred during "normal hours." Of "after hours" cases (n=152), 33% (n=50) were on weekdays and the remainder were on weekends or holidays (n=102, 67%). The median age of patients operated on-call was 57 years (interquartile range [IQR], 42-69) and 58% were male. Most patients operated on call were admitted from the emergency department (n=216, 59%) followed by patients on non-colorectal inpatient services (n=85, 23%) and the colorectal inpatient service (n=42, 11%). Indication for surgery varied widely with perianal abscesses (n=105, 29%) and bowel obstruction (n=98, 27%) the leading

reasons. Operations performed also varied widely with exam under anesthesia (n=143, 39%) and bowel resection the most common (n=120, 33%). Of non-EUA cases, 72% were performed open. Ten surgeons took at least 20 calls, and average cases per call ranged from 0.5 to 1.4 with 1.0 the overall average (p=0.007). Analyzing individual surgeon pairs, differences existed between the two busiest on-call surgeons and the least busy on-call surgeon (both $p < 0.05$) (FIGURE).

Conclusions/Discussion: On average, one on-call case was performed per day, and nearly 40% of on-call colorectal cases occurred "after hours" at a hospital with a separate acute care practice. Surgeon on-call volume was largely similar aside from the busiest and least busy on-call surgeons. These data can help inform the scheduling of elective cases on call days, and they provide objective data of on-call responsibilities for aspiring colorectal surgeons.



Box and whisker plot of call cases per day by surgeon with the diamond representing the mean number of cases and thick black line representing the median. The box shows the interquartile range. Star is $p < 0.05$.

RESIDENT VERSUS ATTENDING OPERATIVE DICTATIONS IN COLORECTAL SURGERY: A PROCEDURAL BILLING ANALYSIS.

eP445

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Columbus, OH

Purpose/Background: Operative notes are a crucial component of patient medical records, communicating details of patient care and steps of a performed procedure. Additionally, dictation for surgical trainees assists in their preparation for the American Board of Surgery Certifying Exam. However, learning opportunities may conflict with accurate procedural coding and billing. In an effort to improve billing accuracy, our general surgery department implemented a policy in June 2021 requiring attendings to dictate operative reports. In this study, we evaluate relative colorectal procedural billing before and after this change.

Methods/Interventions: Colorectal procedures performed between July 1, 2020 to June 30, 2022 were identified from institutional billing data, using colorectal-relevant current procedural terminology (CPT) codes. Surgeon, case CPTs, and relative value units (RVUs) were extracted. Surgeons not present for the entire two-year period and cases requiring more than one surgeon were excluded. Descriptive statistics and Kolmogorov-Smirnov (KS) non-parametric tests were performed to compare RVU distributions relative to the policy change.

Results/Outcome(s): A total of 2487 colorectal procedures were performed during the two-year duration, with similar case distribution before (50.7%) and after (49.3%) the policy change. There was a small but significant increase in RVU distribution for overall case distribution post-policy (KS 0.09, $p<0.001$) and anorectal cases including examination under anesthesia (KS 0.134, $p=0.029$), treatment of fissures (KS 0.260, $p=0.028$), and treatment of abscesses and fistulas (KS 0.164, $p=0.003$). However, there were no significant differences in RVU distributions for transanal tumor excision, pilonidal cyst removal, hemorrhoidectomy, ileocecectomy, partial colectomy, total abdominal colectomy, total proctocolectomy, proctectomy, abdominoperineal resection, ileoanal pouch creation, ostomy revision or reversal, appendectomy, proctopexy, or Altemeier procedure ($p>0.05$). Ileocecectomy and partial colectomy were aggregated, and stratification based on diagnostic indication yielded no differences in RVU distribution ($p>0.05$).

Conclusions/Discussion: Attending-dictated operative reports resulted in a small but significant overall increase in RVU distribution in colorectal surgery. However, residents can, and should, be entrusted with operative dictation in colorectal surgery, particularly in abdominal cases where educational benefit is high and no significant RVU differences are noted. Interestingly, a small but statistically significant increase in RVU distribution was seen for anorectal cases favoring dictation by attending surgeons. Attending review of anorectal notes and their complexity thereby provides an opportunity to increase revenue and further educate residents in colorectal surgery.

OUTCOMES OF PATIENTS PRESENTING WITH PNEUMATOSIS INTESTINALIS AND/OR PORT VENOUS GAS ON COMPUTED TOMOGRAPHY: A STUDY OF FACTORS ASSOCIATED WITH SURVIVAL AND SURGICAL INTERVENTION.

eP446

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Purpose/Background: Pneumatosis intestinalis (PI) and portal venous gas (PVG) traditionally portend poor prognosis. However, contemporary studies of patient outcomes are lacking, and it is unclear what factors influence

mortality and surgical intervention. This study investigated the incidence of, and outcomes following, PI and/or PVG.

Methods/Interventions: A retrospective study of patients diagnosed with PI and/or PVG on computed tomography (CT) at a quaternary centre (2013–2021) was performed. Data relating to clinical presentation (including quick sequential organ failure assessment [qSOFA] score), co-morbidities (Charlson Comorbidity Index), biochemical data (including peak lactate level), and radiological findings, were obtained. Outcome measures were inpatient mortality and predominant management. Factors associated with these were assessed by logistic regression.

Results/Outcome(s): From 16,428 CT scans, 107 (0.65%) demonstrated PI and/or PVG (mean 65.2yrs [SD15.2]; 60 [56%] male). Overall, 37 patients (35%) had both PI and PVG. 33 deaths (31%) were recorded. 54 patients (51%) underwent surgery. Death was associated with qSOFA score (qSOFA 1: OR5.71, 95%CI 1.31–24.87; qSOFA 2: OR10.00, 95%CI 1.94–51.54), CCI 5 (OR2.86, 95%CI 1.19–6.84), peak lactate 2.6mmol/L (OR14.53, 95%CI 4.39–48.14), and concomitant PI and PVG (OR8.25, 95%CI 3.04–22.38). The presence of free fluid (OR3.23, 95%CI 1.44–7.28) or perforated viscus (OR5.10, 95%CI 1.05–24.85) were the only predictors for surgery.

Conclusions/Discussion: PI and/or PVG are rare diagnoses in our cohort, being reported in less than 1% of abdomino-pelvic CT scans performed during the period. Despite traditionally portending a poor prognosis, mortality was recorded in only one-third. There were clear indicators of mortality viz. sepsis severity, comorbidities, and concomitant PI and PVG. Factors predicting surgery warrant further investigation.

Table 3 Univariate predictors of mortality during index presentation for patients with CT evidence of pneumatosis intestinalis and portal venous gas. CI confidence interval, CCI Charlson Comorbidity Index, qSOFA quick sequential organ failure assessment, OR odds ratio. Bolded numbers indicate significant *p* values

Group	Death *n* (%)	Survived *n* (%)	OR (95% CI)*	*p*-value
Sex				
Female	15 (31.9)	32 (68.1)	Reference	
Male	18 (30.0)	42 (70.0)	0.91 (0.40 – 2.09)	0.831
Age				
< 65 years	12 (24.5)	37 (75.7)	Reference	
≥ 65 years	21 (36.2)	37 (63.8)	1.75 (0.75 – 4.07)	0.193
Tenderness				
Non-tender	28 (33.3)	56 (66.7)	Reference	
Tender	5 (21.7)	18 (78.3)	1.80 (0.61 – 5.35)	0.290
Peritonism				
No peritonism	28 (29.8)	66 (70.2)	Reference	
Localised peritonism	0 (0.0)	5 (100.0)	0.00 (0.00 – 0.00)	0.999
Generalised peritonism	5 (62.5)	3 (37.5)	3.93 (0.88 – 17.57)	0.073
qSOFA score				
0	3 (9.1)	30 (90.9)	Reference	
1	8 (36.4)	14 (63.6)	5.71 (1.31 – 24.87)	0.020
2	6 (50.0)	6 (50.0)	10.00 (1.94 – 51.54)	0.006
3	2 (100.0)	0 (0.0)	N/A	0.999
CCI				
< 5	10 (19.6)	41 (80.4)	Reference	

PERSPECTIVES ON STANDARDIZED LETTERS OF RECOMMENDATION TO SUPPORT CANDIDATES APPLYING TO COLORECTAL SURGERY RESIDENCY PROGRAMS: A STEP TOWARDS HOLISTIC REVIEW?

eP447

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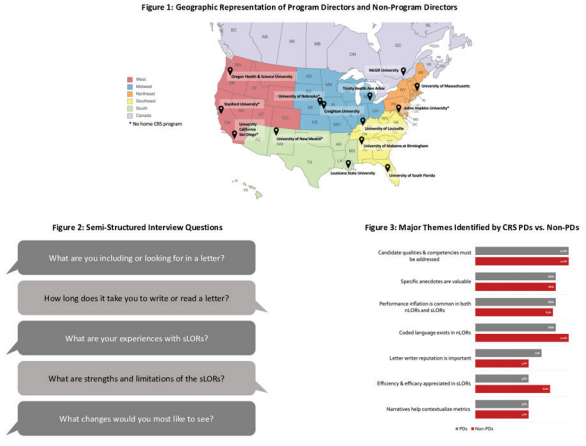
Purpose/Background: Leaders of the Association of Program Directors in Colon and Rectal Surgery (APDCRS) were early adopters of a national mandate by the Coalition for Physician Accountability (COPA) to transition from narrative letters of recommendation (nLORs) to standardized letters of recommendation (sLORs) for candidate recruitment. Letter writers supporting applicants to colorectal surgery (CRS) residency programs now use sLORs. This new approach may reduce factors that often disadvantage underrepresented applicants. Our study seeks to explore letter readers' and writers' perspectives to gain insights about sLORs and how they affect goals of holistic review and selection.

Methods/Interventions: Semi-structured video interviews (validated via our prior study with general surgery program directors and faculty) collected perspectives on sLOR utility in candidate selection from CRS program directors (PDs) and non-program directors (non-PDs). Using a list of North American accredited CRS training

programs, six regions were defined for geographic representation [Figure 1]. Participants were chosen from each region. Opinions were captured from letter readers and writers regarding the strengths and limitations of sLORs [Figure 2]. Audio transcripts from these conversations were independently coded via qualitative analysis software by two researchers using common themes consolidation.

Results/Outcome(s): We completed 14 interviews (PDs = 7; non-PDs = 7). Pre-interview demographic surveys revealed that participants served many years in medical education (mean = 17, range = 6 to 32, SD = 7.8). Participants write a variable number of letters of recommendation per year (mean = 9, range = 1 to 20, SD = 7.0). More PDs had experience with sLORs than non-PDs, though the trend was not statistically significant (86% vs. 57%, p = 0.24). Conversations revealed that while nLORs are more detailed and tailored, they are inefficient, vary in quality, and can introduce coded language, implicit bias, and performance inflation. Discussion about sLORs revealed that they are more objective, efficient, and provide holistic review. However, they are not universally accepted, can lack detail, and do not eliminate the issue of performance inflation. Regardless of the type of letter (nLOR or sLOR), emphasis and value was placed on candidate qualities and competencies, specific anecdotes, reputation of the letter writer, and narratives to contextualize metrics [Figure 3].

Conclusions/Discussion: This study will inform sLOR development, improvement, and implementation in medical education for holistic review. Small steps like these may bring training programs closer to true holistic review, thereby achieving DEI goals in candidate selection. The APDCRS can correlate this change (nLOR to sLOR) with recruited candidates' demographic data to track if this change has made an impact.



ASCRS Figures 1-3

INTEGRATED PELVIC FLOOR AND BENIGN ANORECTAL CURRICULUM FOR FELLOWS IN FEMALE PELVIC MEDICINE & RECONSTRUCTIVE SURGERY, GASTROENTEROLOGY, AND COLON AND RECTAL SURGERY.

eP449

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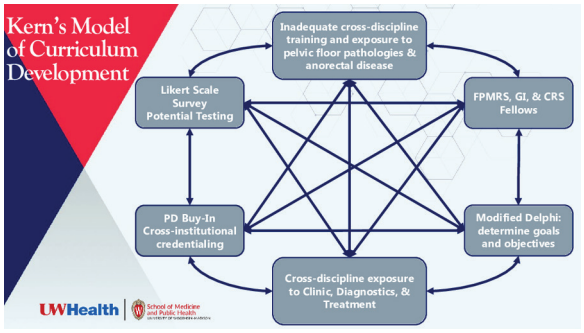
Purpose/Background: Pelvic floor disorders and anorectal pathologies encompass a variety of pathologies and incorporate complex anatomical and physiologic relationships. Pelvic Floor Centers across the country utilize the expertise of fellowship trained doctors in the fields of Female Pelvic Medicine and Reconstructive Surgery (FPMRS), Gastroenterology (GI), and Colon and Rectal Surgery (CRS). However, despite the entwined relationship in practice, there is negligible overlap in training. Thus, trainees learn in silos, limiting their understanding of other specialties' approaches, expertise, or treatments. The optimal learning strategy would expose fellows to other disciplines in clinic, pre-operative diagnostics, and surgical and procedural techniques from specialties outside their field. The goal of this educational research endeavor is to determine the specific goals and objectives of integrating portions of these fellowships as well as the optimal educational strategy for delivering this content and teaching these methods in order to enhance the didactic, clinical, and operative experience of GI, FPMRS, and CRS fellows.

Methods/Interventions: Following Kern's model for curriculum development (Figure 1), faculty for the FPMRS, GI, and CRS fellowships at a single institution determined that fellows were not receiving adequate cross-discipline training and exposure. The trainees (learners) were isolated to their respective faculties' practices and operative cases; as such, learners were not seeing the breadth of pathology and operative techniques needed to provide optimal care for the pelvic floor and anorectal conditions. Using a modified Delphi technique, teaching faculty will be asked to identify various pathologies, conditions, and common operations to which fellows of the opposite discipline should be exposed. Once a consensus is reached, each fellow will have various options for engaging in clinic, diagnostic work-up, didactic sessions, and assisting in the operating room/endoscopy suite. Using a Likert Scale, fellows will score their experiences for each modality as to how it improved their general knowledge of pelvic floor disorders, potential interventions, and understanding of common operations.

Results/Outcome(s): Currently, the faculty are determining the Goals & Objectives for this specific integrated curriculum. Each fellow will generate a score for each discipline (clinic, didactic, operating room) based on these objectives.

Conclusions/Discussion: Pelvic floor and anorectal disorders are a complex set of conditions; however, the content is taught in silos and experiences across disciplines are limited. This curriculum will allow for interdisciplinary instruction to improve education of FPMRS, GI, and CRS fellows. Ultimately, this curriculum would be packaged to enhance education to fellowships even when only a subset of these three fellowships exists.



WHY TRAINEES PURSUE COLON AND RECTAL SURGERY RESIDENCY: MENTORSHIP MATTERS MOST.

eP450

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Purpose/Background: The pursuance of colorectal surgery (CRS) residency training has become increasingly competitive with significantly more applicants than positions available. Little research has examined what draws trainees to the subspecialty. We aimed to investigate what attracts applicants to CRS; and do these factors differ by future practice plans or gender.

Methods/Interventions: An electronic survey was distributed to 150 CRS applicants (96% of total applicant pool). Survey items assessed experiences associated with CRS during residency (yes/no), the influence these experiences had on applicants, and additional factors for pursuing CRS training (Likert scales; 1 strongly disagree to 5 strongly agree). Welch's ANOVA with Games-Howell multiple comparison method was used to compare responses between different plans for practice and One-way ANOVA was used to compare responses by gender.

Results/Outcome(s): A total of 93 applicants responded (62% response rate; 54.4% Male). While applicants had a range of experiences, a CRS mentor in medical school (M=4.67/5, SD=.64) or residency (M=4.58/5, SD=.86) and rotating on a CRS service in medical school (4.48/5, SD=.80) or residency (4.51/5, SD=.98) were ranked most influential. Most residents decide to pursue CRS training prior to (68.8%) or during (21.5%) their PGY-4 year. Applicants were likely to agree that the opportunity to become board certified and the flexibility of CRS practice were strong influences on their decision to pursue CRS residency (Table 1). There were no significant differences between male and female applicants regarding these factors. Following training, most participants intend to work at an academic medical center (57%), as opposed to a community-based program/private practice (25.8%) or independent academic medical center (17.2%). Of note, those who intend to practice at a community-based program/private practice, compared to an academic medical center, believe work/life balance is better for CRS compared other specialties ($p<.05$).

Conclusions/Discussion: Mentorship, CRS rotations, the opportunity to become board certified, and flexibility of the specialty all strongly influence trainees to pursue CRS residency. The influence of mentorship or CRS rotations may be greatest earlier in residency as most applicants decided on CRS residency prior to their PGY-4 year.

Table 1: Factors Influencing the Decision to Pursue CRS Residency Training

	Mean	SD
Opportunity to obtain board certification in CRS	4.89	0.345
Become content expert in CRS	4.84	0.398
Opportunity to be dual board certified	4.63	0.656
Tailor practice more than general surgeons	4.46	0.685
Better work life balance than general surgeons	4.27	0.782
Better work life balance than other surgical specialties	3.89	0.890
One year of subspecialty training	3.88	0.998
Better salary than general surgeons	3.60	0.823
Avoid taking general surgery call	3.54	1.017
More career opportunities than other surgical specialties	3.33	0.993
Practice both general and colon and rectal surgery	3.32	1.095
Better salary than other surgical specialties	2.98	0.766

Factors Influencing the Decision to Pursue CRS Residency Training

COLON AND RECTAL SURGERY PROGRAM DIRECTOR OPINIONS OF RESIDENCY APPLICATIONS.

eP451

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Purpose/Background: Applicants apply for colon and rectal surgery residency training through the Electronic Residency Application Service (ERAS). The application includes a tremendous amount of information, all of which may not be useful to Program Directors (PDs). This study aimed to evaluate PD perspectives on what information is useful when deciding on applicants to invite for interviews.

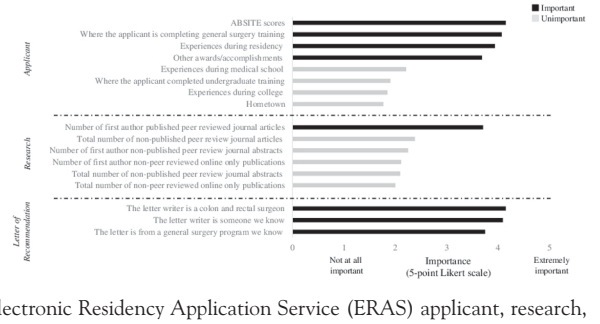
Methods/Interventions: PDs were invited to participate in a survey evaluating their perspective on ERAS applications. PDs judged all ERAS applicant, research publication, and letter of recommendation (LOR) factors on their importance (5-point Likert scale) in the candidate evaluation process and whether or not they used select components of the application (i.e. test scores) (yes/no). Free-text questions queried PDs on additional information regarding how they currently utilized the

ERAS application and how it can be improved. These statements were analyzed in an iterative fashion to identify overarching themes.

Results/Outcome(s): Fifty-two PDs (69% Male) responded (80% response rate). Of 44 unique ERAS applicant, research, and LOR factors, only 8 items were judged on average to be considered "important" (Mean Likert scale > 3.6/5) and 9 items were judged on average "not important" (Mean Likert scale < 2.4/5) (Figure 1). Only 30.8% PDs use USMLE and 17.3% use COMLEX scores to determine who to offer an interview to. Whereas, the majority (94.2%) use ABSITE scores, with free responses indicating most programs have a cutoff below which they are unlikely to offer an interview. Most PDs (78.9%) strongly agree or somewhat agree that it should be mandatory that all publications listed in ERAS have a hyperlink method to verify accuracy. Open-ended responses indicated that colorectal related and quality journal outlets are important factors when judging scholarly activity. The majority (84.6%) of PDs indicated that they agree or strongly agree the APDCRS resident assessment application standardized form is an "important component of the ERAS application." Critiques of the form generally indicated that its usefulness can be dependent on the program that the applicant is coming from and the evaluator: "Small programs say all their applicants are top tier. Larger, more competitive programs tend to discriminate more." Free response questions generally indicated the need for a more concise application: "I do think the application could be more concise, there is a lot of extra data that we don't need in the ERAS form and it is difficult to sort through, taking more time than needed."

Conclusions/Discussion: The ERAS application may present unnecessary material which can cause an information overload and time constraint on those responsible for attempting to evaluate candidates. Future research should consider applicant perspectives and pilot different application designs and approaches.

Figure 1. Electronic Residency Application Service (ERAS) applicant, research, and letter of recommendation factors program directors indicated as important (Mean > 3.6/5.0) or unimportant (Mean < 2.4/5.0).



Electronic Residency Application Service (ERAS) applicant, research, and letter of recommendation factors program directors indicated as important (Mean < 3.6/5.0) or unimportant (Mean < 2.4/5.0).

RETURN TO OSTOMY FOR LOW ANTERIOR RESECTION SYNDROME.

eP452

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Purpose/Background: Low anterior resection (LAR) can result in severe bowel dysfunction. LAR syndrome (LARS), includes urgency, frequency, clustering, diarrhea and incontinence. Several studies report the high incidence (56-65%) of a permanent colostomy or ileostomy in patients after LAR. The reasons for conversion to permanent stoma are various, but anastomotic leakage appears to be the most prevalent. Data is lacking regarding patients who choose to return to ostomy for LARS alone. Our primary objective is to identify the proportion of patients who have ostomy creation for LARS after initial closure.

Methods/Interventions: We included patients who are 18 and older who underwent LAR 2011-2020 in a University-affiliated hospital reviewed retrospectively. Demographics, operative and perioperative variables were collected for all patients. LARS was determined based off the low anterior resection syndrome score (Emmertsen and Laurberg). Categorical variables were assessed with Chi-square. Association between permanent ostomy, LARS and factors assessed by univariate analysis. Statistical analyses using SAS software v9.4 (SAS Institute Inc., Cary, NC, USA). P>0.05 was considered statistically significant.

Results/Outcome(s): A total of 162 patients who underwent LAR, 99 (61.1%) had LAR without diverting ostomy and 63 (38.9%) had diverting ileostomy. Mean age was 61.4 ± 12.6 and 43.6% were female. 61 (37.7%) of all LAR patients had LARS symptoms. Of the 63 who had initial diversion, 49 (77.8%) had their ileostomy subsequently closed. A total of 3 patient (6.1%) had a return to ostomy: 2 (4.1%) for LARS and 1 (2.0%) for leak. Odds ratio to have a permanent ostomy was 5.49 (p = 0.026) for LARS symptoms compared to those without LARS. Odds ratio 4.78 (p=0.0129) for anastomotic leak compared to those without leak.

Conclusions/Discussion: Of patients who underwent LAR with diversion and subsequent closure, only 4.1% returned to ostomy for LARS symptoms, suggesting a high percentage of patients who prefer to manage their LARS symptoms non operatively rather than return to ostomy. This study offers an additional point of education for our patients when counseling them them about the risks of low anterior resection, the possibility for LARS, and possible return to ostomy.

TRENDS AND DISTRIBUTION OF ILEAL POUCH ANAL ANASTOMOSIS (IPAA); IS THE HOLY GRAIL OF COLON AND RECTAL SURGERY TRAINING GETTING HARD TO FIND?

eP453

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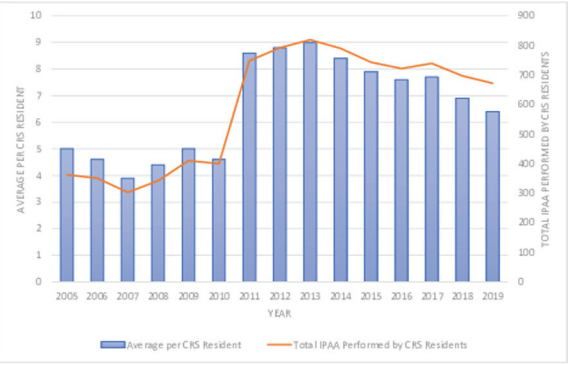
Purpose/Background: A decrease in the number of ileal pouch anal anastomosis (IPAA) procedures could have significant implications for both colon and rectal surgery (CRS) residents and training programs. There has been concern that the frequency of these procedures has been decreasing over the past decade, however the evidence to support that is limited. The aim of our study was to evaluate the number of IPAA performed among general surgery and CRS residents and examine the distribution of IPAA on a national level.

Methods/Interventions: The ACGME Case Log National Data Reports were collected for CRS and general surgery trainees from 2005 to 2019. The number of IPAA performed each year was recorded to identify any significant trends. The Nationwide Inpatient Sample (NIS) database was used to identify patients undergoing IPAA from 2005 to 2019. All patients were included regardless of the underlying diagnosis and results were reported using nationally representative weighted estimates. Univariate and trends analyses were performed to compare the number of IPAA performed over time and in urban-teaching, urban non-teaching, and rural hospitals during the study period.

Results/Outcome(s): Among CRS trainees ACGME data revealed a significant increase both in the mean number of IPAA per resident and the total number of IPAA across all CRS training programs from 2005 to 2013, followed by a decline in both metrics after 2013 (figure 1). Despite the decrease, the mean number of IPAA per resident has remained >6 between 2011 and 2019. A similar trend was observed among general surgery residents. A total of 48,532 patients who underwent IPAA were identified in the NIS database. There was a significant increase in the number of IPAA performed from 2005 to 2014 on a national level ($p<0.001$), but there was no statistically significant change in the number of IPAA performed from 2016 to 2019 ($p=0.45$). There was no difference in IPAA trends based on hospital region ($p=0.95$). However, there was a decrease in the proportion of patients undergoing IPAA in rural and urban non-teaching hospitals from 1.98% to 1.6% and 25.6% to 4.3% respectively and an increase in IPAA performed in urban teaching hospitals from 72.4% to 94.1% ($p<0.001$).

Conclusions/Discussion: Despite the increase in the proportion of IPAA performed at urban academic centers over the last few years, there has been a slow but steady decrease in the total number of IPAA performed by surgery trainees. The reasons behind this remain unclear. Nevertheless, the mean number of IPAA performed by colon and rectal surgery residents remains above the minimum requirement set by the ACGME. Further studies are needed to evaluate alternative effective ways to train residents to perform these complex operations.

Figure 1: Average number of IPAA performed by colon and rectal surgery residents (blue bars) and total number of IPAA performed per year by all CRS residents in the US from 2005 to 2019 (orange line).



Average number of IPAA performed by colon and rectal surgery residents and total number of IPAA performed per year by all CRS residents in the US from 2005 to 2019.

READABILITY OF PATIENT EDUCATION MATERIALS ON COLON AND RECTAL PROCEDURES AND OPERATIONS.

eP454

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Purpose/Background: Informed consent is critical to the ethical principle of patient autonomy. To supplement the informed consent process, many surgical societies and national organizations have provided online or printable patient education materials (PEM) that can be distributed perioperatively. To ensure PEM are accessible, the Joint Commission (JACHO) recommends that PEM be written at a fifth-grade reading level, and the National Institutes of Health (NIH) recommend that PEM be written at an eighth-grade reading level. This project aims to assess the readability of PEM on colorectal procedures and surgeries, hypothesizing that these remain above the recommended reading levels.

Methods/Interventions: English language patient education materials and brochures were identified online from the American Society of Colon and Rectal Surgeons (ASCRS), the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES), the American College of Surgeons (ACS), the National Institutes of Health (NIH), and UptoDate. We also included colorectal procedures and operation-specific PEM from our institution. These

were assessed in Microsoft Word for Mac 2016 to determine the Flesch Reading Ease (FRE) and Flesch-Kincaid Grade Level (FKGL) scores for each PEM. Descriptive statistics were calculated from the data.

Results/Outcome(s): A total of sixteen PEM were identified. These covered common colorectal surgeries, procedures, and perioperative care topics. FRE scores ranged from 21.9 to 68.7 with an average score of 41.3, corresponding with FKGL scores of 7 to 15, with an average score of 11.6 or a 12th-grade reading level [Table 1]. Only two of the PEM evaluated were under the recommended 8th-grade reading level, and none were under the recommended 5th-grade reading level. The PEM closest to the recommended reading level were "Taking Care of Your Ileostomy" and "Your Guide to Colon Surgery" from our institution, scoring at a 7th-grade reading level. Despite having been evaluated by our institutional health literacy office, both of our PEM were still at a 7th-grade reading level based on the FKGL scores.

Conclusions/Discussion: Online and institutional patient education brochures assessed in this project were all well above the recommended reading level for PEM by JACHO. Although these materials are beneficial for enhancing the informed consent process, surgeons must be mindful that due to the readability of these materials they may not be accessible to all patients. Patient education materials and brochures do not replace the discussion and conversation that are essential to the process of informed consent.

Table 1. Colorectal Surgeries and Procedures PEM with Calculated Readability Scores

Organization	Patient Educational Material (PEM)	Flesch Reading Ease	Flesch-Kincaid Grade Level (thgrade)
ASCRS	*Enhanced Recovery After Surgery*	28.1	14
	Minimally Invasive Surgery	21.9	14
	Minimally Invasive Surgery Expanded Version	24.6	15
	Laparoscopic Surgery – What is it?	26.5	13
	Ostomy Expanded Version	48.9	11
	Colonoscopy	30	14
	Tips for Postoperative Follow Up	46.2	11
NIH	*Ostomy Surgery of the Bowel*	47.8	10
ACS	*Colectomy*	41.8	12
	Colonoscopy	41.1	13
SAGES	*Colon Resection Surgery*	42.5	11
	Colonoscopy	44.6	11
UptoDate®	*Colonoscopy*	44.5	11
	Flexible Sigmoidoscopy	38.2	13
UNM	*Your Guide to Colon Surgery*	65.2	7
	Taking Care of Your Ileostomy	68.7	7

READABILITY OF AMERICAN SOCIETY OF COLON AND RECTAL SURGEONS PATIENT INFORMATION DOCUMENTS.

eP455

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Purpose/Background: Information and education are the cornerstone of patient autonomy and shared surgical decision making. To share information surgeons utilize multi-modal communication including patient information brochures published by the specialty's respective professional society. However, the literature offered may be at inappropriate reading levels for the average patient. The average Medicare beneficiary reads at the 5th grade level and the average United States (US) Resident reads at an 8th grade level. Per recommendations from the American Medical Association and National Institutes of Health patient education material should not exceed the 6th grade reading level.

Methods/Interventions: We aimed to examine the American Society of Colorectal Surgeons (ASCRS) patient information literature. English-language patient education articles were collected from the ASCRS patient information section and evaluated for readability using two validated readability scoring systems, the Flesch-Kincaid Grade-Level (FKGL) and Flesch Reading Ease (FRE). FKGL rates text on US grade level. FRE is a 0-100 score corresponding to the readability of a text with scores between 90-100 being considered readable by a 5th grader.

Results/Outcome(s): 56 patient education articles were scored, of which no article was below an 8th grade reading level or scored above 60 on the FRE. Mean and median FRE scores were 39.6 and 40.7, respectively, with a range of 5.9 to 60.7. The average and median FKGL was 12.2 and 12.1, respectively, with a range of 8.4 to 23.7.

Conclusions/Discussion: Refinement of ASCRS patient education literature would likely expand usability and allow opportunity for better disease understanding, shared decision making, and informed consent.

DOES THE USE OF ENHANCED RECOVERY AFTER SURGERY DECREASE LENGTH OF STAY IN INFLAMMATORY BOWEL DISEASE PATIENTS UNDERGOING SURGERY: A SYSTEMATIC REVIEW OF META-ANALYSIS.

eP456

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Purpose/Background: While enhanced recovery after surgery (ERAS) has been shown to improve outcomes in patients with colorectal cancer, there is limited data evaluating the effect of ERAS on patients with IBD and these studies suggest that ERAS is not as effective in patients with inflammatory bowel disease (IBD) compared to those with colorectal cancer. The purpose of our systematic review was to evaluate the effect of ERAS on length of stay (LOS) in patients with IBD.

Methods/Interventions: A systematic search was carried out using MEDLINE, Embase, CINAHL, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews (CDSR) and Google Scholar to identify all studies published up to November 5, 2021 that assessed ERAS vs conventional care (pre-ERAS) in IBD patients.

Results/Outcome(s): Our search yielded 541 studies and, after removal of duplicates, title, abstract and full text screening, 6 studies met inclusion criteria (1 RCT and 5 cohort studies). On meta-analysis, length of stay was significantly decreased with implementation of ERAS (mean difference 1.83 days, 95% CI 1.15 to 2.50, p<0.00001). Secondary outcomes, including 30 day return to the OR (OR 0.59, 95% CI 0.30-1.17, p=0.13) and re-admission (OR 0.73, 95% CI 0.51-1.05, p=0.09) showed no clear evidence of benefit with ERAS. Similarly, meta-analysis showed no clear evidence of benefit in rates of post-operative ileus (OR 1.07, 95% CI 0.46-2.53, p=0.87), anastomotic leak (OR 0.37, 95% CI 0.08-1.80, p=0.22), surgical site infection (OR 0.52, 95% CI 0.19-1.42, p=0.20) and urinary tract infection (OR 0.51, 95% CI 0.05-4.85, p=0.56) in the ERAS groups. ERAS protocol compliance was high (>70%) across all studies, with the most variability seen in the opioid sparing pain regimens.

Conclusions/Discussion: This systematic review and meta-analysis demonstrates that LOS is decreased by 1.83 days with the implementation of ERAS in the IBD patient population, without any clear evidence of benefit in rates of post-operative complications, mortality, re-admissions or return to OR. This reduction in LOS is comparable, although less pronounced, to that seen in all colorectal surgical patients who undergo ERAS when compared with conventional perioperative patient management (mean difference 2.94 days; 95% CI 2.19 to 3.69). There are special implications to consider when designing and implementing enhanced recovery protocols in the IBD patient population, such as pre-operative malnutrition, chronic pain, and increased rates of post-operative ileus. This suggests that our ERAS protocols need to be tailored to this specific patient population to achieve similar benefits as for patients with colorectal cancer.

Author	Length Of Stay days (mean +/- SD)		Readmission within 30 days n (%)		Ileus n (%)		Anastomotic leak n (%)		Surgical site infection n (%)	
	Pre-ERAS	ERAS	Pre-ERAS	ERAS	Pre-ERAS	ERAS	Pre-ERAS	ERAS	Pre-ERAS	ERAS
Spinelli	6.8 +/- 3.1	5.3 +/- 1.6	1/70 (1.4%)	0/20 (0%)	4/70 (5.7%)	1/20 (5%)	1/70 (1.4%)	0/20 (0%)	4/70 (5.7%)	1/20 (5%)
Zhu	9.94 +/- 3.33	5.19 +/- 1.28	0/16 (0%)	0/16 (0%)	0/16 (0%)	2/16 (12.5%)	0/16 (0%)	0/16 (0%)	2/16 (12.5%)	0/16 (0%)
D'Andrea	7.8 +/- 5.6	6.7 +/- 5.1	25/224 (11.1%)	21/236 (8.9%)	45/224 (20.1%)	21/236 (8.9%)	10/224 (4.5%)	0/236 (0%)	33/224 (14.7%)	13/236 (5.5%)
Liska	6.67 +/- 4.46	4.83 +/- 2.98	65/425 (15.3%)	25/246 (10.2%)	70/425 (16.5%)	47/246 (19.1%)	3/425 (0.7%)	2/246 (0.8%)	49/425 (11.5%)	38/246 (15.4%)
Mineccia	8.33 +/-2.29	6.5 +/- 2.68	2/47 (4.3%)	2/47 (4.3%)	NR	NR	NR	NR	NR	NR
Croasdale	4.61 +/- 1.42	3.4 +/- 3.31	3/38 (7.9%)	6/53 (11.3%)	3/38 (7.9%)	11/53 (20.8%)	3/38 (7.9%)	1/53 (1.9%)	6/38 (15.8%)	2/53 (3.8%)

Table: Results of individual studies- hospital outcomes and post-operative complications

MANAGEMENT OF SMALL BOWEL OBSTRUCTION SECONDARY TO MESH MIGRATION FOLLOWING PARASTOMAL HERNIA REPAIR IN CROHN'S DISEASE: A CASE REPORT.

eP457

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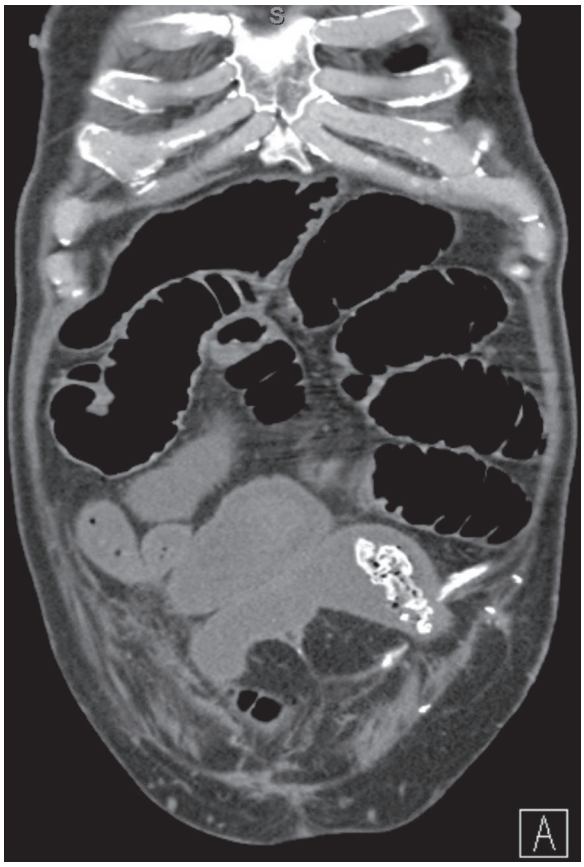
Purpose/Background: Mesh migration is a known, yet uncommon, complication of hernia repair that has been described following inguinal, incisional/ventral, and umbilical hernia repairs. Intraluminal mesh migration is even more rare and may present with a variety of symptoms including abdominal pain, bleeding, and obstruction, among others. We present the case of 60-year-old male who presented with small bowel obstruction due to intraluminal mesh migration from prior parastomal hernia repair.

Methods/Interventions: A 60-year-old male with a history of inflammatory bowel disease and complex surgical history presented with nausea, vomiting, and decreased ileostomy output. He had initially been diagnosed with ulcerative colitis and underwent total proctocolectomy with ileal pouch anal-anastomosis approximately 40 years prior to presentation. He later developed fistulizing disease from pouch to perineum and was subsequently diagnosed with Crohn's disease. He underwent pouch excision with end ileostomy creation, which was complicated by recurrent obstructing parastomal hernias requiring six hernia repairs and eventual re-siting of ileostomy. He experienced intermittent bowel obstructions which were managed conservatively. On the day of presentation, he had noted a foreign object protruding from his ostomy, which he removed and discovered to be a piece of mesh. On examination, he was grossly distended and focally tender around the ileostomy, with a visible piece of protruding mesh that was found to be firmly adherent. Ostomy digitized with palpation of a firm lesion below the fascia. A CT scan revealed intraluminal mesh and an additional mesh with keyhole repair of parastomal hernia. He was admitted for NGT decompression and rehydration.

Results/Outcome(s): An ileoscopy was performed. A segmental area in distal ileum was moderately erythematous and friable. Terminal ileum contained the mesh foreign body, which functioned as a valve, causing the obstruction. Removal of hernia mesh was accomplished endoscopically to avoid an extensive surgery. The mesh was adhered to the terminal ileum at the site of erosion. Using biopsy forceps and gentle traction, the mesh was detached from the bowel wall. Care was taken to avoid perforation. A Roth net was then used to remove the mesh from the terminal ileum. Post-procedurally, the patient had return of full bowel function with subsequent NGT removal, diet advancement, and discharge. He was seen in the office after discharge at which time he reported complete resolution of his obstructive symptoms.

Conclusions/Discussion: This case demonstrates an uncommon complication of parastomal hernia repair with successful endoscopic removal of intraluminal hernia mesh.



Representative CT image showing obstructing intraluminal mesh.

TRENDS IN OPERATIVE INDICATIONS FOR SURGICAL MANAGEMENT OF ULCERATIVE COLITIS: A RETROSPECTIVE REVIEW OF A LARGE COLORECTAL PRACTICE.

eP458

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Purpose/Background: Ulcerative colitis (UC), an immune mediated chronic inflammatory disease of unknown etiology affecting the colon and rectum, continues to be a disease of surgical significance. Despite many advances in medical therapies and significantly improved rates of response to medical therapies, surgery continues to be a mainstay in treatment. Surgical management has evolved in the past several decades. Traditional indications included severe UC, refractory chronic disease (despite maximal medical therapy), dysfunctional colon, dysplasia or malignancy. During the biologic era, there has been a trend toward a decrease in colectomy rates, as well as a shift in indication for proctocolectomy in UC.

Methods/Interventions: A retrospective case series of 78 surgeries performed by multiple providers at a single institution in the setting of ulcerative colitis from 2004-2022 was reviewed. We sought to evaluate trends in demographics, as well as trends in management and indication for proctocolectomy in the biologic era. Primary endpoints examined were effect of biologic therapy on surgical indication and rates of malignancy or dysplasia.

Results/Outcome(s): In an evaluation of 78 procedures over 18 years, 46 (59%) of patients underwent operation for refractory disease, 24 (30.8%) for emergent indications, and 8 (10.3%) for dysplasia or malignancy. Operations performed included restorative proctocolectomy with ileal pouch anal anastomosis, 57 (73.1%), total proctocolectomy with end ileostomy, 20 (25.6%), and total abdominal colectomy with ileorectal anastomosis, 1 (1.3%). Of the 78 patients, 38 (48.7%) were on biologics at the time of surgery. In the group of patients on biologic therapy, 27 (71.1%) underwent surgery for refractory colitis, 4 (10.5%) for emergent indications, and 7 (18.4%) for dysplasia or malignancy. In the group of patients not on biologic therapy, 19 (47.5%) underwent surgery for refractory colitis, 20 (50%) for emergent indications, and 1 (2.5%) for dysplasia or malignancy. A significant association was found between biologic use and operation for dysplasia or malignancy ($P=0.027$). No statistically significant association ($P > 0.05$) was found between biologic use and operation for dysplasia or malignancy with age, sex, race, BMI, steroid use, or procedure performed.

Conclusions/Discussion: Biologic therapy has drastically improved rates of control of disease in UC. This improved clinical control with the widespread use of biologics, effective treat to target strategies, and multidisciplinary approach has led to an overall reduced colectomy rate and shift in indication. In our review, a significant association was found between biologic use and operation for dysplasia or malignancy. Because of this, careful surveillance will be of extreme importance as the population of patients with prolonged clinical control continues to grow.

Variables by malignancy or dysplasia	Malignancy or dysplasia Yes (N=8)	No (N=70)	p-value
Age	52 (11.6)	45 (16.5)	0.182
Sex			0.285
Female	2 (25.0%)	33 (47.1%)	
Male	6 (75.0%)	37 (52.9%)	
Race			0.388
Asian	1 (12.5%)	2 (2.9%)	
Caucasian	5 (62.5%)	53 (75.7%)	
Hispanic	2 (25.0%)	13 (18.6%)	
Other	0 (0.0%)	2 (2.9%)	
BMI	24 (3.14)	25 (5.13)	0.554
Biologic use			**0.027**
Yes	7 (87.5%)	31 (44.3%)	
No	1 (12.5%)	39 (55.7%)	
Steroid use			0.206
Yes	4 (50.0%)	45 (64.3%)	
No	4 (50.0%)	15 (21.4%)	
Missing	0 (0.0%)	10 (14.3%)	
Procedure			0.697
Total Proctocolectomy	1 (12.5%)	19 (27.1%)	
IPAA	7 (87.5%)	50 (71.4%)	
TAC w IRA	0 (0.0%)	1 (1.4%)	
Emergent case			0.195
Yes	0 (0.0%)	16 (22.9%)	
No	8 (100.0%)	54 (77.1%)	
Pouch failure			0.654
Yes	0 (0.0%)	4 (5.7%)	
No	7 (87.5%)	45 (64.3%)	
N/A	1 (12.5%)	19 (27.1%)	
Missing	0 (0.0%)	2 (2.9%)	

OUTCOMES AFTER RIGHT-SIDED COLON SURGERY IN CROHN'S DISEASE VERSUS CANCER.

eP460

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Purpose/Background: Surgery for Crohn's disease (CD) is generally considered to have more complications than for other conditions, likely due to the underlying inflammatory disease process, immunosuppression, and malnutrition. Prior studies studying differences in outcomes between CD and non-CD patients suffer from small cohort size and lack of homogeneity for type of resection and perioperative care. We sought to study the outcomes of right-sided colonic resection in CD and cancer patients at a high-volume tertiary center utilizing a standardized perioperative protocol.

Methods/Interventions: This is a retrospective observational study of outcomes for all CD or cancer patients undergoing ileocolic resection or right hemicolectomy with ileocolic anastomosis at a single institution from 2013-2022. Patients were excluded if they underwent another procedure simultaneously (e.g., sigmoid resection, enterocutaneous fistula takedown). Data were analyzed using Wilcoxon rank-sum and chi-squared tests for univariate analyses, and logistic and linear regressions for multivariate analyses.

Results/Outcome(s): 146 CD and 595 cancer patients were included. CD patients were significantly younger (34.5 [IQR 25-51] vs 72 [62-81] years, p<0.0001) with lower body mass index (BMI) (23.2 [20.5-26.6] vs 26.3 [22.9-29.7] kg/m2, p<0.0001) and less likely to have comorbidities, including diabetes (0.7 vs 25%, p<0.0001), hypertension (12 vs 63%, p<0.0001), stroke (0.7 vs 6.6%, p=0.01), hypercoagulability (4 vs 12%, p=0.01), chronic obstructive pulmonary disease (0.6 vs 6%, P=0.015), and cardiac problems (p<0.05). CD patients also were less likely to have a smoking history (20 vs 31%, p=0.007) or prior abdominal surgery (30 vs 44%, p=0.002), but more likely to be on steroids (9 vs 2%, p<0.0001). Both groups had similar laparoscopic approach, conversion, intraoperative complication rate, and blood loss (Table 1). CD patients were less likely to have clean or clean-contaminated wounds (55 vs 78%, p<0.0001), and more likely to have drains (8 vs 2.5%, p=0.0002). Despite the preoperative and intraoperative differences, both CD and cancer patients had similar lengths of stay (LOS) (5.1 [3-6] vs 5.4 [3-6] days, p=0.67), readmission, reoperation, and mortality rates. None of the surgical outcomes differed significantly between the two groups, including surgical site infection, abscess, organ failure, transfusion requirement, or venous thromboembolism (Table 1). On multivariate analysis, CD diagnosis was not associated with reoperation, readmission, mortality, or LOS while controlling for age, BMI, comorbidities, and intraoperative characteristics.

Conclusions/Discussion: With the use of standardized perioperative protocols, surgery for CD at a high-volume tertiary center with expertise in CD can be performed with comparable results to other indications such as cancer.

Table 1. Intraoperative and Postoperative Outcomes

	CD (n=146)	Cancer (n=595)	P
Laparoscopic	116 (79.5%)	494 (83.0%)	0.62
Conversion to Open	13 (11.2% of lap)	77 (15.6% of lap)	0.72
Intraoperative Complications	17 (11.6%)	65 (10.9%)	0.92
EBL (median, IQR), mL	50 [10-100]	50 [10-100]	0.36
Wound class (clean or clean-contaminated) ***	80 (54.8%)	462 (77.6%)	<0.0001
Drain**	12 (8.2%)	15 (2.5%)	0.0002
LOS (median, IQR)	4 [3-6]	4 [3-6]	0.67
Readmission	13 (8.9%)	63 (10.6%)	0.96
Reoperation	2 (1.4%)	18 (3.0%)	0.41
Mortality	1 (0.7%)	6 (1.0%)	1
Abscess	6 (4.1%)	14 (2.4%)	0.37
Arrhythmia	1 (0.7%)	26 (4.4%)	0.06
Myocardial infarction	0 (0%)	1 (0.2%)	1
Pneumonia	0 (0%)	15 (2.5%)	0.11
Renal complication	0 (0%)	8 (1.3%)	0.34
Liver complication	0 (0%)	2 (0.3%)	1
Neurologic complication	0 (0%)	13 (2.2%)	0.15
Leak	1 (0.7%)	10 (1.7%)	0.61
C. difficile infection	1 (0.7%)	11 (1.8%)	0.53
Ostomy complications	2 (1.4%)	1 (0.2%)	0.19
Dehydration	1 (0.7%)	7 (1.2%)	0.95
Fascial dehiscence	0 (0%)	6 (1.0%)	0.48
Ileus	16 (11.0%)	75 (12.6%)	0.69
Sepsis	1 (0.7%)	16 (2.7%)	0.26
Obstruction	3 (2.1%)	4 (0.7%)	0.28
Superficial SSI	3 (2.1%)	14 (2.4%)	1
Deep SSI	1 (0.7%)	5 (0.8%)	1
Organ SSI	3 (2.1%)	7 (1.2%)	0.67
Other SSI	0 (0%)	2 (0.3%)	1
Transfusion	23 (15.8%)	89 (15.0%)	0.91
Urinary Retention	2 (1.4%)	25 (4.2%)	0.16
UTI	0 (0%)	17 (2.9%)	0.08
VTE	2 (1.4%)	12 (2.0%)	0.86

Table 1. Intraoperative and Postoperative Outcomes for Crohn's Disease versus Cancer Patients after Right-Sided Colonic Surgery

MODERN DAY CONTINENT ILEOSTOMY SURGERY: REVISION FOR POUCH RETENTION.

eP461

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Purpose/Background: Continent Ileostomy (CI) may improve quality of life after proctocolectomy but often requires revisional procedures. We describe recent outcomes of CI revision by experienced surgeons at 2 quaternary referral centers since 2016.

Methods/Interventions: Patients were identified from respective institutional databases. Patients were included if they sought evaluation for an existing CI or CI creation/revision. Revisional operative characteristics were identified. Patient charts were abstracted for demographics, clinical information, and perioperative variables.

Results/Outcome(s): We identified 150 patients with CI in place. 116 (77%) patients underwent an operation (creation: 31(27%), revision: 85(73%)). The remaining 34 sought surveillance. More patients were female (67%), median age was 60 years, and median distance to referral center was 470 miles. Of those undergoing revision, 67(79%) underwent major operations, 7(8%) underwent minor operations, and 11(13%) underwent CI excision. Patients underwent a median of 3 total revisions and 2 major revisions. Major revisions included nipple valve revision (n=13;19.5%), nipple valve revision with 180-degree pouch rotation (n=32;48%), neo-CI creation (n=9;13%), and adhesiolysis (n=13;19.5%). Reasons for revisions included incontinence (n=24; 36%), difficulty intubating (n=18;27%), slipped valve not specified (n=5;7%), obstruction (n=10; 15%), fistula (n=7; 10%), infection (n=3, 4%). In patients who underwent CI revision, there were no 30- or 90-day mortalities, thromboembolic events, anastomotic leaks, or deep space infections. The most frequent complication was ileus (n=10;15%) followed by superficial surgical site infection (n=5;7%). The most frequent CI-specific complications were fistula (n=3;4%), valve stricture (n=2;3%) and pouchitis (n=2;3%).

Conclusions/Discussion: This descriptive study is inherently limited by its retrospective nature and the quality of available patient data. Modern CI surgery is primarily comprised of revisional operations that afford pouch retention rather than excision. Given the complexity and nuance of these procedures, revision occurs primarily at CI referral centers. Surgeons should understand the natural history of CI revisions and refer patients to experienced centers.

ASSESSING REACH DURING ILEAL POUCH SURGERY: ARE LAPAROSCOPIC AND OPEN MEASUREMENTS EQUIVALENT?

eP462

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Purpose/Background: As a tension-free anastomosis during ileal pouch-anal anastomosis (IPAA) is critical, intraoperative maneuvers should have the pouch apex extend 4 fingerbreadths below the pubic symphysis. Laparoscopic IPAA creates a pouch via an ileostomy site and is associated with faster postoperative recovery. However, the absence of an abdominal incision prevents traditional assessment of the relationship between the pouch apex and pubic symphysis. The aim of this study is to compare pouch lengths taken from an ileostomy site and Pfannenstiel in patients undergoing laparoscopic assisted IPAA.

Methods/Interventions: Ulcerative colitis patients undergoing laparoscopic assisted 3-stage IPAA were prospectively evaluated. Laparoscopic mobilization of the small bowel mesentery was performed through the ileostomy site. All pouches were created in an extracorporeal fashion. Pouch length was assessed at 3 points: 1) via ileostomy site after stoma mobilization; 2) via ileostomy site after laparoscopic mobilization of the small bowel mesentery; 3) via Pfannenstiel. Lengths between the pouch apex and pubic symphysis were tabulated, with negative values reflecting the pouch apex lying superior to the top of the pubic symphysis and positive values inferior. To define a clinically significant metric, we calculated marginal length difference, defined as patients with < 2 cm difference in length measurement after small mesentery mobilization and after Pfannenstiel (Table, Measurements 2 and 3). Continuous variables were compared with regression. Categorical variables were compared with chi-squared analysis. Data presented as mean (SD).

Results/Outcome(s): 25 patients had a mean age of 35 (16) years and included 13 (52%) males. Mean body mass index (BMI) was 22.6 (3.8). Following stoma takedown, mean initial length was - 0.2 cm (2.9) (Table). After mesenteric mobilization, mean length was 2.7 (2.2) cm, an increase of 2.9 cm from initial measurement. Mean length was 5.9 (2.3) cm when measured via Pfannenstiel incision, an increase of 3.2 cm from stoma site measurement. No preoperative clinical features, including height, weight, gender, age or BMI was associated with the increase in length. Although length following stoma mobilization was associated with length after Pfannenstiel (R^2 = 0.44; p < 0.01), other intraoperative features such as stoma wall thickness or pubis length were not. Marginal length difference was observed in 8 (32%) patients and was associated with a shorter final length relative to the pubic symphysis (5.0cm vs. 6.9cms; p=0.04). No features predicted this phenomenon.

Conclusions/Discussion: Assessment of the pouch length through an ileostomy site during laparoscopic IPAA underestimates actual pouch apex length by 3.2 cm. These data suggest that the apex of an ileal pouch during laparoscopic IPAA need only reach the pubic symphysis and not extend 4 cm below.

Table: Intraoperative Length Summaries			
Measurement	Length between Pouch Apex and Pubic Symphysis (cm)	Mean Increase in Length (cm)	Measurement Location
1: Stoma Takedown	-0.2 ± 2.9	-	Ileostomy
2: Small Bowel Mesentery Mobilization	+2.7 ± 2.2	+2.9	Ileostomy
3: Pfannenstiel	+5.9 ± 2.3	+3.2	Pfannenstiel

Table: Intraoperative Length Measurements

LONG-TERM OUTCOMES AFTER REDO ILEORECTAL ANASTOMOSIS FOR CROHN'S COLITIS: HOW DO REDOS DO?

eP463

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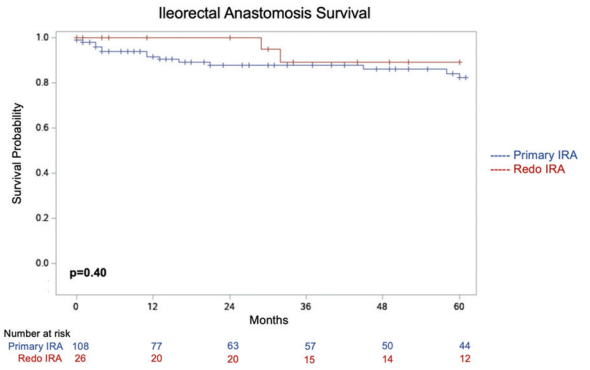
Purpose/Background: Surgical management of Crohn's colitis (CC) in patients with rectal sparing can include total abdominal colectomy with ileorectal anastomosis (IRA). Although IRA provides the advantage of intestinal continuity, patients may develop disease recurrence at the anastomosis. The incidence of anastomotic recurrence and complications after redo IRA for CC has not been reported. We aim to evaluate postoperative outcomes and long-term anastomotic survival in patients with CC undergoing primary and redo IRA. We hypothesized that redo IRA results in long-term anastomotic survival for the majority of patients.

Methods/Interventions: Our prospectively maintained colorectal surgery registry was queried for patients with CC who underwent primary or redo IRA between 2002-2021. Our primary outcome was long-term IRA survival, with failure defined as surgical recurrence necessitating IRA takedown with redo IRA, completion proctectomy-end ileostomy, or no reversal of a diverting loop ileostomy (DLI) when utilized. Secondary endpoints were short-term (30-day) postoperative outcomes. Differences between the groups were evaluated using univariate and Kaplan-Meier survival analyses. All comparisons are reported as primary vs redo IRAs, respectively.

Results/Outcome(s): A total of 121 patients were included: 98 (81%) primary and 23 (19%) redo IRAs. Mean age of the entire cohort was 44 years (SD 14.4) and 53.7% were female. With exception of lower BMI (mean 25.8 vs 22.2, p=0.02) in the redo group, there were no significant preoperative differences between the groups, including use of pre-operative steroids (30.8% vs 40.9%, p=0.46). There were no significant differences in surgical approach (51.0% vs 78.3% open, p=0.06), utilization of DLI (53.1% vs 56.5%, p=0.82), and rate of handsewn anastomosis (13.3% vs 30.4%, p=0.06). While there was higher incidence of organ/space surgical site infection (SSI) in the redo IRA group (6.1% vs 21.7%, p=0.03), there were no differences in length of stay (mean 6.1 vs 8.1 days, p=0.24), readmission (20.4% vs 26.1%, p=0.58), anastomotic leak (4.1% vs 8.7%, p=0.32), and time to DLI reversal (3.9 vs 3.9 months, p=0.91). Regarding long-term anastomotic survival, no significant difference in IRA failure was observed (16.3% vs 26.1%, p=0.40, Figure). Only 2 (8.7%) redo IRA patients had a permanent ileostomy at time of last follow-up.

Conclusions/Discussion: We present the largest published series evaluating outcomes after redo IRA for Crohn's disease. Although we observed a greater incidence of organ/space SSI after redo compared to primary IRA, there were no significant differences in overall complication, anastomotic leak, readmission, and long-term anastomotic survival. Our findings suggest that redo IRA can be a safe surgical option to offer patients with recurrent Crohn's disease after IRA.



Kaplan Meier curve of IRA survival with the number at risk at 1-year intervals

SOCIAL VULNERABILITY IN PATIENT UNDERGOING SURGERY FOR INFLAMMATORY BOWEL DISEASE: A LOSING COMBINATION.

eP464

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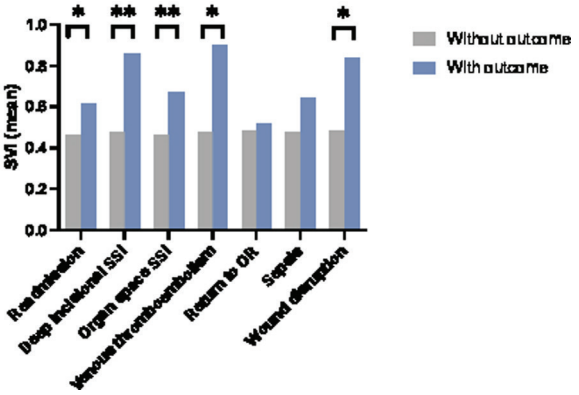
Purpose/Background: The Social Vulnerability Index (SVI) was developed by the Centers for Disease Control (CDC) to assess the resilience of communities to threats to public health and may help to identify patients that are at risk for poor health outcomes. The SVI is a composite metric of 15 variables, grouped into 4 subthemes: socioeconomic status, household composition and disability, minority status and language, and housing type and transportation. Patients with inflammatory bowel disease (IBD) require multidisciplinary, resource-intensive care

in the perioperative period, and those with high SVI may be at risk for poor outcomes following surgery. The goal of this study was to assess the relationship between SVI and outcomes in patients undergoing surgery for IBD.

Methods/Interventions: A database was created of all patients who underwent a colorectal resection for management of IBD between 2020 -2021within a multi-hospital healthcare system. Patient demographics, operative details, and post-operative complications were collected using National Surgical Quality Improvement Program (NSQIP) data and chart review. Post-operative outcomes were merged with procedural data and SVI by census-tract using the United States census geocoder tool. Cases were then stratified based on their outcome and analyzed using unpaired t-test.

Results/Outcome(s): A total of 108 colorectal resections (61 Crohn's Disease, 43 ulcerative colitis, 4 indeterminate) were performed for 93 patients. Colon resections included partial colectomy (n=11), total colectomy (n=29), proctocolectomy (n-7), proctectomy (n=13), ileocolic resection (n=34), pouch excision (n=3), and ileal pouch anal anastomosis (n=17). Sixty-three patients (58%) required an ostomy. Patients who were readmitted within 30 days (p=0.014) or had a serious complication ($p < 0.0001$) including venous thromboembolism (p=0.016), wound disruption (p=0.043), or organ space surgical site infection (p=0.006) all had significantly higher levels of social vulnerability. Higher vulnerability scores were not associated with need for diversion in patients with Crohn's Disease(p=0.190). Of the 4 subthemes of social vulnerability, housing/transportation and socioeconomic status were more significantly associated with serious complications than minority status or language. When stratified by insurance type and race, higher social vulnerability was associated with serious complications in patients with private insurance (p=0.002) and white race (p<.001), but not in other groups.

Conclusions/Discussion: Socially vulnerable patients are at an increased risk of developing adverse postoperative complications following surgery for IBD. This provides an opportunity to develop targeted interventions for patients at increased risk and should be considered in risk-adjustment models for reimbursement and quality ranking.



THE EFFECT OF SURGICAL APPROACH FOR ILEAL POUCH ANAL ANASTOMOSIS ON POUCH-RELATED OUTCOMES.

eP465

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[1]*New York, NY;* [2]*Orange, CA*

Purpose/Background: Total proctocolectomy with ileal pouch-anal anastomosis (IPAA) is the most common procedure for patients with ulcerative colitis requiring surgical intervention. There is limited data available on the utility of minimally invasive surgery to limit pouch-related complications associated with IPAA. The purpose of this study is to determine if there are differences in pouch-related outcomes between three surgical approaches: robotic, laparoscopic and open.

Methods/Interventions: A retrospective review of patients undergoing IPAA was conducted at two independent academic institutions from 2008-2021. Subjects were categorized based on surgical approach for proctectomy: open, laparoscopic and robotic. Demographics and clinical characteristics between the three groups were compared using ANOVA, Kruskal-Wallis or chi-square tests, as appropriate. Multivariable regression analysis was performed to determine adjusted odds ratios for pouchitis, cuffitis and pouch failure between the three groups. Data analysis was performed using R Version 4.1.2 (The R Foundation for Statistical Computing).

Results/Outcome(s): 130 patients were included in the study. 17% (22/130) underwent robotic IPAA, 42% (54/130) underwent laparoscopic, and 42% (54/130) underwent open surgery. 95% (123/130) of patients had a preoperative diagnosis of Ulcerative Colitis. Length of stay was shorter in the robotic group compared to the laparoscopic group (5.4 days vs 6.9 days p-value=0.026) and open group (5.4 vs 8.5, p-value=0.010). Time to ostomy closure time was also significantly shorter in the robotic group compared to the laparoscopic group (83 days vs 120 days, p-value=0.019) and open group (83 vs 121 days, p-value=0.005). There was no difference in readmission rates (p-value=0.39) or 30-day complications (p-value=0.051) between the three groups. The open group was more likely to have cuffitis and pouchitis than minimally invasive approaches, although statistical significance was reached only for cuffitis (OR: 5.276; 95% CI: 1.197, 28.03; p-value: 0.035). The rate of pouch failure was similar between all three groups [11% (6/54) vs 7.4% (4/54) vs 9.1% (2/22), p=0.92].

Conclusions/Discussion: We found a shorter length of stay, shorter time to ostomy closure, and lower likelihood of cuffitis in patients undergoing minimally invasive surgery. As the use of minimally invasive surgery continues to increase for the treatment of inflammatory bowel

disease, the impact of surgical approach on the rate of pouch related complications needs to be further studied.

THREE-STAGE VERSUS MODIFIED TWO-STAGE ILEAL POUCH ANAL ANASTOMOSIS FOR ULCERATIVE COLITIS: A PATIENT-CENTERED TREATMENT TRADE-OFF STUDY.

eP466

M. Yang, M. Brar, E. Kennedy, A. De Buck Van Overstraeten
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Purpose/Background: There is ongoing debate as to whether an ileal pouch anal anastomosis needs diversion at the time of construction. Stomas are associated with complications including dehydration, difficult stoma care, and small bowel obstruction - all potentially resulting in hospital readmission. This treatment trade-off study aims to investigate patient preferences by measuring the absolute risk of anastomotic leak and pouch failure that they are willing to take to avoid a diverting ileostomy.

Methods/Interventions: Ulcerative colitis (UC) patients with or without previous pouch surgery from Mount Sinai Hospital in Toronto were identified. Eligible patients subsequently underwent a standardized interview using the threshold technique to measure the absolute increased risk for anastomotic leak and pouch failure that they would accept to avoid an ileostomy at the time of pouch creation. An online anonymous survey was used to collect patient demographics.

Results/Outcome(s): Thirty-two surgery patients with UC average aged 38.7 ± 15.3 and 20 non-surgery UC patients aged 39.5 ± 11.9 participated in this study. Overall, patients were willing to accept an absolute increased risk of 5% (IQR 4.5-15%) in anastomotic leak to avoid a diverting ileostomy. Similarly, patients were willing to accept an absolute increased risk of 5% for pouch failure (IQR 2.5-10%) to avoid an ileostomy. Younger patients aged 21-29 had lower tolerance for pouch failure and would only accept an absolute risk increase of 2% vs. 5% for patients older than 30 ($P = 0.01$).

Conclusions/Discussion: In general, patients were willing to accept a 5% increased anastomotic leak rate or pouch failure rate to avoid an ileostomy at the time of pouch surgery. This information can help guide surgeons when deciding between three-stage vs. modified two-stage surgery.

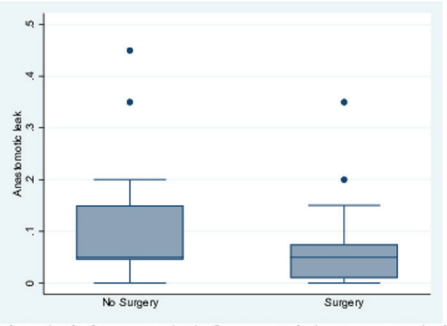

Figure 1. Absolute increased risk of anastomotic leak patients reported to be acceptable to avoid an ileostomy at pouch creation

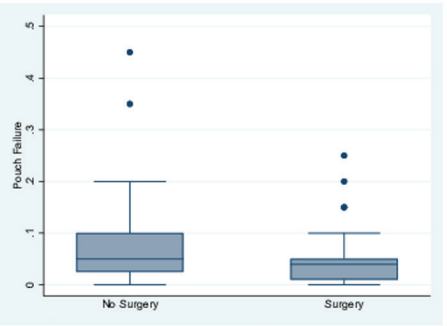

Figure 2. Absolute increased risk of pouch failure patients reported to be acceptable to avoid an ileostomy at pouch creation

LAPAROSCOPIC VERSUS TRANSANAL ILEAL-POUCH ANAL ANASTOMOSIS FOR ULCERATIVE COLITIS: A PATIENT CENTERED TREATMENT TRADE-OFF STUDY.

eP467

M. Yang, M. Brar, E. Kennedy, A. De Buck Van Overstraeten
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Purpose/Background: Transanal ileal pouch anal anastomosis (IPAA) for the treatment of ulcerative colitis (UC) is a relatively new technique aiming to minimize surgical trauma on the patient while providing better access to the pelvis. Currently, the impact of transanal access on pouch function is being investigated. This treatment trade-off study aims to investigate patient preferences by measuring the absolute risk of decreased pouch function patients are willing to take to undergo transanal surgery.

Methods/Interventions: Ulcerative colitis patients with or without previous pouch surgery from Mount Sinai Hospital in Toronto were identified. Patients' demographics and clinical data were collected by online survey. Eligible patients subsequently underwent a standardized interview using the threshold technique to measure the absolute increase in bowel frequency, bowel urgency, and fecal incontinence that they would accept to undergo transanal surgery as opposed to traditional laparoscopic surgery.

Results/Outcome(s): Thirty-two surgery patients with UC average aged 38.7 ± 15.3 and 20 non-surgery UC

patients aged 39.5 ± 11.9 participated in this study. Patients were willing to accept an absolute increase of two bowel movements per day and one episode of fecal incontinence per month to undergo transanal IPAA. They were also willing to accept 10 minutes of worsening bowel urgency (ie. decrease 10 minutes of "holding time") for transanal surgery. Younger patients aged 21-29 had a lower tolerance threshold for bowel urgency and would only accept an absolute decrease of 5 minutes vs. 10 minutes in older patients (P = 0.02).

Conclusions/Discussion: Patients were willing to accept decreased functional outcome to undergo less invasive transanal pouch surgery. Studies evaluating long-term functional outcomes after transanal pouch surgery needs to continue to help patients make educated surgical decisions.

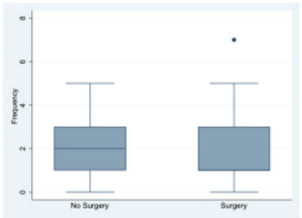

Figure 1. Median threshold scores for bowel frequency

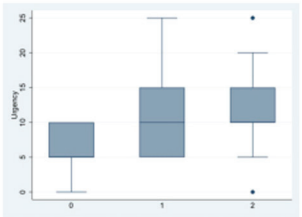

Figure 2. Median threshold scores for bowel urgency divided by age tertiles. 0 – 20-29 years of age, 1 – 30-49 years of age, 2 – 50-74 years of age

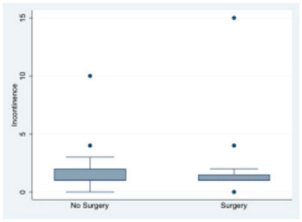

Figure 3. Median threshold scores for fecal incontinence (including liquid and solid incontinence)

A RARE CASE OF COLONIC LYMPHANGIOMATOSIS.

eP468

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Purpose/Background: Lymphangiomatosis is a benign lymphatic malformation characterized by multiple enlarged thin walled lymphatic channels that appear as a collection of cysts. It most commonly affects the bone and lungs. In the abdomen it is most commonly found in the mesentery, omentum, and mesocolon. It rarely presents in the colon. When found in the colon, they are usually solitary lesions and rarely present as multiple lymphangiomas in the colon. The condition of multiple lymphangiomas in the colon is referred to as colonic lymphangiomatosis. They are often asymptomatic, however symptoms may include pain, bleeding, or intussusception.

Methods/Interventions: A 51 year old female presented for routine colonoscopy. Of note she had a family history of colorectal cancer in her father and paternal grandfather. Colonoscopy was significant for polypoid lesions blanketing the splenic flexure with colitis (Figure 1). This focal segment of polyps was not amenable to endoscopic excision. Biopsies were obtained in this splenic flexure and pathology revealed hyperplastic polyp. Due to her significant family history of colorectal cancer and the numerous polypoid appearance at the splenic flexure with inability to remove them endoscopically, the decision was made to undergo left hemicolectomy.

Results/Outcome(s): Patient underwent robotic left hemicolectomy which was uncomplicated. Pathology revealed lymphangiomatosis and hyperplastic polyps without malignancy.

Conclusions/Discussion: There is no definitive treatment for colonic lymphangiomatosis as it is a rare and benign condition. Some case reports also describe spontaneous resolution of these lesions. Although traditionally treated with surgical resection, asymptomatic lymphangiomas do not require resection. Resection may be required in cases with abdominal pain, bleeding, intussusception, or protein losing enteropathy.

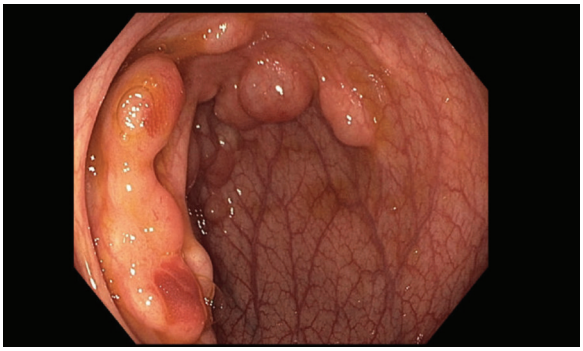

Figure 1: Colonoscopy demonstrating appearance of multiple polypoid lesions.

A CASE REPORT OF BENIGN CALCIFYING PSEUDOTUMOR PRESENTING AS CECAL MASS AND LITERATURE REVIEW.

eP469

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Detroit, MI

Purpose/Background: Colonoscopy is the gold standard when it comes to screening for colonic masses. Masses from multiple etiologies can be evaluated, each of which can present variably. Stromal lesions can be difficult to

elucidate on an endoscopic exam, and biopsies may not provide a definitive diagnosis. A rare presentation of a colonic mass is benign calcifying pseudotumor, which is of mesenchymal origin. The incidence of benign calcifying pseudotumor is not well understood since it is an uncommon entity that presents in multiple different areas of the body but has recently been thought to occur more commonly in the gastrointestinal tract. This case highlights the difficulty in establishing a diagnosis before surgical resection.

Methods/Interventions: Review of patient EMR. Literature Review via PubMed

Results/Outcome(s): 53-year-old man who underwent a screening colonoscopy was found to have a 2cm firm submucosal nodule in the cecum and had a biopsy performed. Pathology found normal colonic mucosa without evidence of dysplasia. Given the concern for sampling error during the biopsy, the patient underwent CT enterography and PET Cu-G4 DOTATATE scan to better characterize the lesion. Cross-sectional imaging confirmed the presence of the mass but could not diagnose the etiology of the mass. DOTATATE scan did confirm the mass was not consistent with a neuroendocrine tumor. To help better determine the etiology of the mass, the patient underwent a repeat colonoscopy which rediscovered a 2cm mass in the cecum, and tunnel biopsies were performed. Pathology of these samples found normal colonic mucosa with smooth muscle which suggested possible submucosal leiomyoma. At this point, the patient was referred to Colorectal Surgery and offered surgical resection. Given the concern for undiagnosed malignancy, a robot-assisted right hemicolectomy was performed. The patient tolerated the procedure well and was discharged on postoperative day 2. Final pathology confirmed a 3cm benign calcifying pseudotumor, stained positive for IgG4.

Conclusions/Discussion: There is a paucity of literature regarding benign calcifying pseudotumors, especially those found in the colon. The pathophysiology of benign calcifying pseudotumor is not established. However, these tumors commonly stain positive for IgG4. IgG4-related diseases often give rise to inflammatory mass lesions which are benign. This pathway is seen in benign pancreatic tumors, a similar pathway in the colon is not established. There are several stromal tumors with a similar appearance that make establishing a clear diagnosis extremely difficult. This may lead to increased imaging, procedures, and overall costs. Further reporting is required of these rare lesions to better understand their incidence and clinical implication such as growth rate and rate of reoccurrence.

INTRAOPERATIVE USE OF OXYGEN SATURATION ENDOSCOPIC IMAGING TO ASSESS COLORECTAL ANASTOMOSES.

eP470

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Purpose/Background: Breakdown of an intestinal anastomosis can be catastrophic. Adequate perfusion is paramount when creating a colorectal anastomosis. Indocyanine green (ICG) fluorescence imaging has been used to assess perfusion at the anastomosis, but requires intravenous (IV) injection of ICG which may affect patients adversely. Furthermore, assessment of perfusion is qualitative, and ultimately subject to operator interpretation & timing of ICG injection. Oxygen Saturation Endoscopic Imaging (OXEI) uses multispectral illuminations and the different absorption properties of oxy- and deoxy-hemoglobin to provide numerical tissue oxygen saturation (StO2) measurements. OXEI can superimpose a StO2 "map" onto the endoscopic image in real time (without any need for IV contrast) and thereby augment traditional flexible endoscopic evaluation of an anastomosis with a quantitative assessment of its perfusion. We present an observational case series in which OXEI was used to assess intraluminal, perianastomotic StO2 after intestinal anastomosis creation.

Methods/Interventions: The FUJIFILM Eluxeo Vision system with the EC-740T/L colonoscope was used to evaluate intraoperative StO2 measurements in 12 consecutive patients undergoing elective left-sided colorectal resection. During leak test and endoscopic evaluation of the anastomosis, StO2 measurements were obtained in four locations: distal base, distal staple line, proximal staple line, and proximal base. Calibrations were conducted at the proximal and distal bases. Retrospective chart review was employed to gather demographic data and investigate clinical outcomes.

Results/Outcome(s): Average age of the study population was 60.2 (range 38-80) years. Average ASA class was 2.8 (range 2-4). 58.3% (n=7) were male. Procedures included the following: 4 sigmoid resections for diverticulitis, 4 low anterior resections for rectal cancer, 3 sigmoid colectomies for colon cancer, and 1 proctectomy with ileal pouch-anal anastomosis for ulcerative colitis. The average StO2 measurements were as follows: 53.0% (SD=19.0%) at the distal base, 37.7% (SD=22.2%) at the distal staple line, 45.6% (SD=17.6%) at the proximal staple line, and 58.2% (SD=14.2%) at the proximal base. None of the patients were observed to have a positive air-leak test, anastomotic bleeding, or significant ischemia based on white light endoscopy. At an average follow-up of 5.3 (range 2-13) weeks, 0 patients had clinical evidence of anastomotic breakdown.

Conclusions/Discussion: In addition to providing traditional endoscopic evaluation, the OXEI platform

allowed for real-time assessment of mucosal perfusion at the anastomosis during left-sided colorectal resection. Further studies are warranted to evaluate whether StO2 measurements can be used to influence intraoperative decision-making and predict postoperative outcomes.

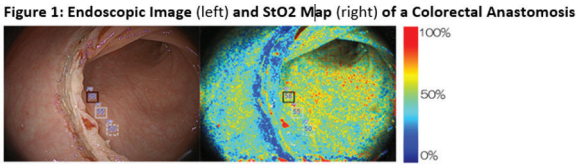

Figure 1: Endoscopic Image (left) and StO2 Map (right) of a Colorectal Anastomosis

IS COMPLICATED APPENDICITIS ASSOCIATED WITH AN INCREASED RISK OF APPENDICEAL MALIGNANCY?

eP471

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Purpose/Background: Previous studies have demonstrated an incidence of appendiceal neoplasm in up to 20% in patients with complicated appendicitis (CA, defined as perforation or abscess), leading many to recommend routine interval appendectomy after non-operative management of CA. These findings have not been reproduced in larger, population-based studies. The purpose of this study was to determine the incidence of appendiceal tumors following complicated appendicitis.

Methods/Interventions: The NSQIP appendectomy procedure-targeted database was queried between 2016 and 2020 to identify patients who received appendectomy for appendicitis. Patients were stratified by age, disease severity (simple vs complicated), and "tumor/malignancy involving the appendix." Exclusion criteria included presence of concurrent procedures and disseminated cancer of non-GI origin. Categorical variables were assessed using Chi-Square tests or Fisher's Exact tests when expected cell sizes were low). Continuous variables were assessed with independent samples t-tests. Variables which had a p-value less than 0.05 in the univariable analysis were included in a logistic regression model. Odds ratios are presented with 95% Confidence Intervals (CI). All analyses were performed using SAS software version 9.4 (SAS Institute Inc., Cary, NC).

Results/Outcome(s): A total of 64,903 patients were included in the final analysis, of which 15,628 (24.1%) were complicated. Appendiceal tumor/malignancy was found in 1,122 patients (1.7%). The incidence of tumor/malignancy (T/M) was 1.3% for complicated appendicitis and 1.9% for simple appendicitis (p<.0001). Median age was higher for patients with T/M (55 years old vs 37 years old, p<0.001). Median white blood cell count was lower for T/M (8.3 vs 12.5, p<0.001). On univariate analysis, significant preoperative predictors of tumor/malignancy included female sex (2% vs 1.5%), diabetes (3.4% vs 1.6%), dependent functional status (4.3% vs 1.7%), COPD (3.7% vs 1.7%), CHF (4.8% vs 1.7%), hypertension (3.5% vs 1.4%), chronic steroid use (4.2% vs 1.7%), weight loss (5.8% vs 1.7%), and presence of ascites (9.3% vs 1.7%). On logistic regression analysis, older age and lower WBC were predictive of T/M (p<0.001). For patients >30 years as well as for patients >50 years old, complicated appendicitis was not associated with a higher risk of T/M (OR 0.87 and 0.67, respectively).

Conclusions/Discussion: Complicated appendicitis is not associated with a higher risk of tumor/malignancy, regardless of age. Our study was limited by the category of "tumor/malignancy" in NSQIP without the ability to determine specific appendiceal pathology, as well as the inability to differentiate patients undergoing interval appendectomy from upfront appendectomy.

DOES INSUFFLATION TYPE EFFECT ADENOMA DETECTION RATE?

eP472

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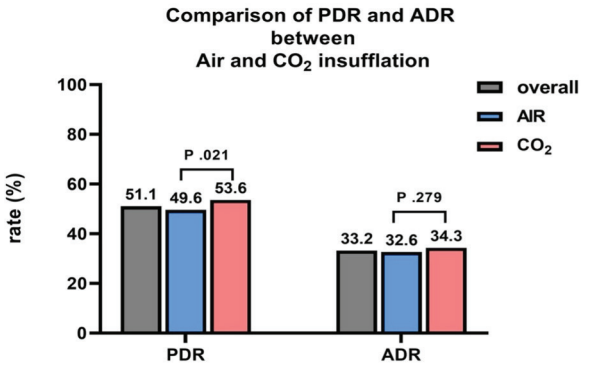
Purpose/Background: Colonoscopy is an essential screening tool for early detection and prevention of colorectal cancer. Adenoma detection rate (ADR) is widely considered the most important quality metric for colonoscopy. Numerous studies have shown that the use of carbon dioxide (CO2) insufflation during colonoscopy leads to less post procedural abdominal pain and bloating when compared to traditional air insufflation. The goal of our study was to investigate if the type of insufflation used during routine screening colonoscopy in average risk patients influences ADR.

Methods/Interventions: This is a retrospective, single institution study. We queried our electronic medical record for all patients that underwent routine screening colonoscopy from January 2017 through December 2017 and July 2020 through June 2021. The 2017 patients all underwent colonoscopy with air insufflation, as CO2 insufflation was not yet available in our endoscopy department. In the '20-'21 group all endoscopist except one, whose data was excluded from our analysis, exclusively used CO2 insufflation. Patients were excluded if they had a history of colon cancer, colon polyps, inflammatory bowel disease, prior colon surgery, age < 45, or family history of colon cancer. Data collected included demographics, polyps removed, polyp location, number and type of adenomas detected, cecal intubation rates, and endoscopist's specialty. Our statistical analysis compared the CO2

vs. air insufflation group with P-value <0.05 considered statistically significant.

Results/Outcome(s): There were a total of 2245 patients in the air insufflation group vs. 1281 patients in the CO2 insufflation group during this time period. The mean (SD) age of the study population was 59.4 (8.1). There was no statistically significant difference between the two groups in regard to age or sex. The CO2 group had a slightly higher average BMI 29.4 (6.8) compared to 28.9 (6.4), P=.007. The overall polyp detection rate (PDR) was 51.1%. There was a higher PDR in the CO2 insufflation group (53.6% vs 49.6%, P=.021). We found no statistically significant difference in ADR between the two groups, with the ADR of the air group at 32.6% and CO group 34.3% (P=.271). No difference was noted in cecal intubation rates (98.8% - Air vs 99.3% - CO2, P=.189).

Conclusions/Discussion: Colonoscopy remains the gold standard screening method for colorectal cancer with adenoma detection rate an important quality indicator. We found no difference in ADR based on type of insufflation used with both groups' ADR within the range of current practice guidelines.



IS HIGH-RESOLUTION ANOSCOPY NECESSARY FOR THE DETECTION OF ANAL DYSPLASIA? RESULTS OF A PROSPECTIVE CASE CONTROL STUDY.

eP473

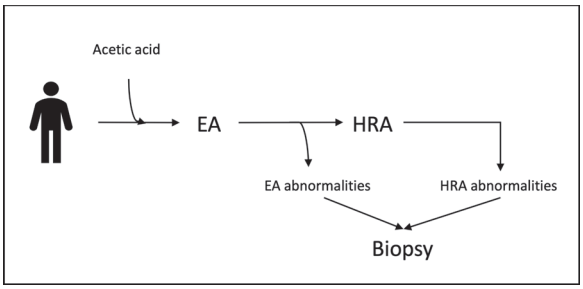
J. Chen, R. Aoun, B. Krasnick, S. Husain
Columbus, OH

Purpose/Background: Anal cancer rates, particularly in the HIV+ and LGBTQ community, continue to rise in the United States at rates similar to breast and prostate cancer. The recently published Anal Cancer-HSIL Outcomes Research (ANCHOR) trial highlighted the importance of screening for pre-malignant anal lesions in high-risk populations. However, consensus on the best screening and diagnostic technique remains controversial. The objective of this study was to compare Enhanced Anoscopy (EA) and High Resolution Anoscopy (HRA) in detecting anal dysplasia.

Methods/Interventions: Patients age 18+ who presented with abnormal anal pap smears between 2017-2022 were included. Each patient underwent EA (anal canal staining with acetic acid and Lugol solution) followed by HRA using a standard colposcope with magnification. Anal canal abnormalities identified with each visualization technique were recorded. Suspicious lesions identified with either technique were biopsied and correlated with final pathology. In this manner, each case acted as their own control. Performance differences were calculated using Wald's *z*-test.

Results/Outcome(s): A total of 33 patients underwent EA followed by HRA leading to 106 biopsies, of which 84 (75.6%) were seen with EA, 81 (73.0%) with HRA, and 59 (55.7%) with both techniques. Approximately half of all biopsies returned with dysplasia (52.4% seen with EA vs 51.9% with HRA). There was no significant difference in the ability to visualize high-grade squamous intraepithelial lesions (HSIL) amongst all dysplastic lesions (70.5% EA vs 81.0% HRA, p=0.116). EA had a sensitivity and specificity of 79.5% and 20.9% in detecting HSIL with an accuracy of 42.5% whereas HRA had a sensitivity and specificity of 87.2% and 29.9% with 50.9% accuracy. Seeing a lesion under both EA and HRA led to a sensitivity of 66.7%, however specificity was 50.7% and accuracy was 56.6%.

Conclusions/Discussion: EA can adequately detect HSIL amongst dysplastic lesions without the need for a colposcope, suggesting the acceptability of EA as a technique for anal cancer screening when colposcopy or other magnification devices may not be available. However, the addition of HRA increases specificity and accuracy. Similarly, the addition of careful inspection of the anal canal prior to magnification leads to improved overall accuracy.



EVALUATING PRACTICE PARAMETERS FOR HIGH-RESOLUTION ANOSCOPY FOR ANAL DYSPLASIA: A PROPENSITY MATCH ANALYSIS.

eP474

J. Chen, R. Aoun, B. Krasnick, S. Husain
Columbus, OH

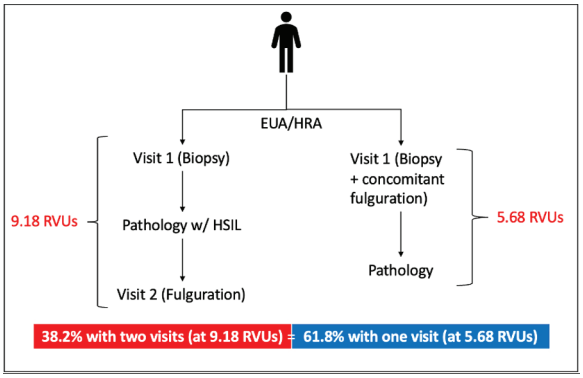
Purpose/Background: High Resolution Anoscopy (HRA) was recently shown to decrease anal cancer incidence in high-risk populations. However, two current areas

of controversy include: 1) timing of fulguration relative to biopsies and 2) the need for anesthesia. Concomitant fulguration during the index visit is favorable for patient convenience and cost, but the two-stage approach allows for histologic confirmation of high-grade squamous intraepithelial lesions (HSILs), thereby preventing unnecessary fulguration of benign lesions. Similarly, anesthesia can improve visualization but is less cost-effective. This study evaluates 1) the feasibility of performing fulguration immediately after biopsy in a single encounter and 2) outpatient HRA.

Methods/Interventions: A retrospective review of patients age 18+ with abnormal anal pap smears between 2017-2022 was performed. All anal anomalies seen under Exam Under Anesthesia (EUA) and/or HRA were fulgurated during the same encounter immediately after biopsies were obtained. The two-stage approach increases costs by 61.6%. As such, a threshold of 38.2% of lesions returning as HSIL would justify concomitant fulguration. Patients were then stratified based on operative location and propensity score matching (PSM) was performed on patient age, sex assigned at birth, smoking status, history of anal dysplasia, and history of HIV.

Results/Outcome(s): HRA was performed on 86 patients (N) leading to a total of 212 biopsies (n). Most patients were men (68.6%), 24.4% were current smokers, and 18.6% had a history of anal dysplasia. HIV was detected in 61.6%, of whom viral loads were detectable in 11.3% and CD4<250 in 3.8%. **Concomitant Fulguration with Biopsy** Over half of the patients (N=51, 59.3%) had biopsies with HSIL. HSIL was detected in 35.8% of all biopsies (n=76), whereas LSIL was seen in 28.3% (n=60) and benign in 35.8% (n=76). In HIV+ patients, however, HSIL was detected in 42.9% of biopsies (n=60), LSIL in 27.9% (n=39), and benign in 29.3% (n=41). **Anesthesia Versus Outpatient** Nearly half of patients (n=48, 44.8%) underwent HRA under anesthesia in the operating room (OR) whereas the remainder (n=39, 55.2%) were in the office. HRA under anesthesia led to 125 biopsies (average 3.21 biopsies/patient) whereas 95 biopsies were from the office (average 1.98 biopsies/patient). Following propensity score matching, there was no difference in the detection of HSIL based on procedure location (PSM 0.054, p=0.355). However, biopsies that were performed in the OR were more likely to return as benign (PSM -0.283, p<0.001).

Conclusions/Discussion: Concomitant fulguration after biopsy is more cost-effective in patients presenting with abnormal anal pap smears (especially once poor follow-up, facility fees, transport, work absence are taken into consideration), particularly in patients living with HIV. Similarly, HRA can be performed in the outpatient office setting without compromising exam or biopsy quality.



CASE REPORT: RECTAL NEUROENDOCRINE TUMOR: A RARE CLINICAL ENTITY.

eP475

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Taguig City, Philippines

Purpose/Background: Rectal Neuroendocrine tumor (NET) is a rare clinical tumor with no current consensus on the management. The incidence rate during screening colonoscopy of Colorectal NET is 0.17%. According to studies, Rectal NET in the United States is more common in women. Other risk factors investigated are alcohol, low HDL cholesterol, and young age <50 years old. They are diagnosed in routine colonoscopy and are asymptomatic but when they are symptomatic they present with diarrhea, abdominal pain, weight loss and bleeding.

Methods/Interventions: This is a report of a 51-year-old female presenting with a 2 month history of hematochezia. Physical exam revealed a firm, circumferential mass 7 centimeters from anal verge. On colonoscopy, up to the terminal ileum was visualized and noted an ulcerated rectal mass 6 to 10 centimeter from anal verge occupying half of the lumen. Biopsy revealed a Well Differentiated Neuroendocrine Tumor WHO Grade 2, with partial ulceration of the overyling colonic mucosa, mitotic count ½ square millimeters, with no definite lymphovascular invasion. Immunohistochemical staining was positive for Chromogranin, Synaptophysin, ki-67 5.4%. Lower abdominal MRI revealed intraluminal lobulated mass showing restricted diffusion and enhancement in the mid to lower rectum. The distance of lowest tumor margin is about 5.3cm from anal verge and about 2cm from ano-rectal junction. The mass measures about 5cm in length. There is no anal canal involvement. No enlarge lymph nodes. The patient agreed and underwent exploratory laparotomy, low anterior resection with total mesenteric excision, diverting ileostomy.

Results/Outcome(s): The decision to choose a therapeutic intervention for rectal NETs depends on the location, size, and ability to obtain adequate

oncologic resection. On histopathology, it revealed a Well Differentiated Neuroendocrine Tumor, Grade 2, 5.2 centimeter in size, mitotic rate 1 per 2 square millimeter. Lymphovascular invasion and perineural invasion identified. Proximal, distal and mesenteric margins, Negative for tumor. One (1) out of twenty (20) lymph nodes, Positive for metastasis. Ki67: 19.16%. The pathologic stage for this case is Stage IIIB (T3N1M0). No adjuvant chemotherapy is recommended for a Stage IIIB, WHO grade 2. The planned surveillance for a grade 2 Stage IIIB is an annual endoscopic ultrasound, colonoscopy, MRI up to 10 years. Complete surgical resection confers an excellent prognosis. The 5 year overall survival for Rectal NET is 88-98%.

Conclusions/Discussion: There is an increasing incidence of Rectal NETs on routine colonoscopy. A multidisciplinary approach is recommended to maximize completeness of resection and to assess the impact of long term outcomes in patients. Surgeons should be aware of this rare clinical disease and assess which therapeutic option to consider depending on the clinical profile as they have excellent prognosis with optimal management.

PELVIC EXENTERATION IN A TRANSGENDER FEMALE WITH INVASIVE SQUAMOUS CELL CARCINOMA OF THE NEOVAGINA.

eP476

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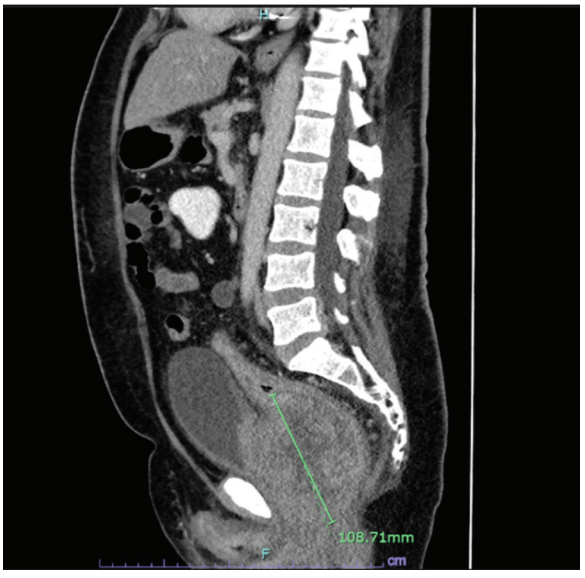
Valhalla, NY

Purpose/Background: Invasive squamous cell cancer (SCC) of the neovagina in transgender patients following gender reconstruction surgery is rare, with only a few reported cases. We present the case of a fifty-six-year-old HIV and HPV-positive transgender female who presented with an obstructing rectal mass found to be invasive SCC originating from neovagina. With the infrequency with which it is encountered, cancer of the neovagina can go undiagnosed and eventually present as a locally advanced disease.

Methods/Interventions: A fifty-six-year-old transgender female presented with two months history of constipation, bloating, and most recently rectal pain and bleeding. Her past medical history is significant for HIV on HAART therapy, HPV infection, and Non-Hodgkin lymphoma now in remission after CHOP therapy. She underwent gender affirmation surgery twenty-two years prior. On admission, she was reporting constipation and her last bowel movement was two weeks ago. She had a near-obstructing friable mass in the distal rectum on rectal exam. During her workup, a partially circumferential, ulcerating mass was seen on colonoscopy, and on endorectal ultrasound, the mass was invading the bladder and adjacent perirectal space staged as cT4bN2. Cross-sectional imaging revealed a large 10cm mass in the pelvis, extending from the anterior rectal wall to the posterior bladder wall. She underwent diverting ileostomy during the initial admission due to obstructing symptoms. Exam under anesthesia demonstrates the entire neovagina is a necrotic tumor and biopsy demonstrated HPV-associated squamous cell carcinoma. While no operative records were available, the physical exam was consistent with penile inversion vaginoplasty where the functional neovagina was reconstructed from scrotal skin.

Results/Outcome(s): The patient eventually underwent a pelvic exenteration: en-bloc multi-visceral resection of the bladder, urethra, prostate, neovagina, sigmoid colon, rectum, and anus with ileal-conduit urinary diversion, end colostomy, and complex perineal closure with myocutaneous flap. Pathological examination of the specimen revealed specimen-confined HPV-associated keratinizing SCC of the neovagina.

Conclusions/Discussion: This case report highlights an unusual presentation of invasive squamous cell carcinoma arising from a neovagina years after otherwise successful gender-affirmation surgery. HPV-associated SCC involving the neovagina in transgender patients is rare and may present as locally advanced disease. The high prevalence of sexually transmitted infections in transgender women, specifically HIV and HPV, has been widely reported and HPV is associated with about 90% of anal cancers. HPV-positive transgender females are at an increased risk for both anal cancer and cancer of the penile and scrotal skin. Thus, combined surveillance for both anal and penile carcinoma in this high-risk population is required.



RADIATION THERAPY FOR THE TREATMENT OF PERIANAL BASAL CELL CARCINOMA.

eP477

M. Gutman[1], T. Luan[1], L. Rivera[1], H. Bahna[2], J. Ray[2]
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Purpose/Background: It is estimated that 5.4 million non-melanotic skin cancers (NMSC) are diagnosed in the US yearly. About 80% of NMSC diagnosed yearly are basal cell carcinoma (BCC). Risk factors for BCC include UV light exposure, having light-colored skin, older age, radiation exposure, long-term/severe skin inflammation/injury, immunosuppression/immunocompromised status. Treatment options include surgery, radiation therapy, chemotherapy, immunotherapy, and cryotherapy. Radiation therapy is often used in areas that may be difficult to excise surgically or as an adjunct to surgical excision. Recurrence rates are estimated to be anywhere from 5-15% depending on the treatment modality. Recurrence can depend on size of tumor, with larger tumors more likely recurring.

Methods/Interventions: N/A

Results/Outcome(s): A 62-year-old male with no reported medical history presents with an enlarging anal mass for 1 year with associated bleeding and drainage. On initial exam, a large, ulcerated, and raised perianal mass with bleeding and friability was seen. Colonoscopy redemonstrated an 8-cm perianal mass extending from the anal verge with biopsy revealing basal cell carcinoma supported by immunohistochemistry. PET-CT revealed an ovoid FDG-avid soft tissue density in the subcutaneous tissues of the midline gluteal region. MRI demonstrated the mass extending from the anorectal junction to the perineum into the upper gluteal cleft without suspicious pelvic adenopathy. After discussion at a multidisciplinary tumor board, the decision was made to proceed with radiation therapy in attempt to reduce the size of the mass and necessity for an extensive, challenging surgical resection. The patient underwent radiation therapy for 6 weeks and a total of 6000cGy with significant improvement in size and associated symptoms at 1-week and 2-months post-radiation.

Conclusions/Discussion: Despite basal cell carcinoma being the most common skin cancer, it is rarely seen in non-sun-exposed areas of the skin and exceedingly rare in the perianal region. There are no proven theories for the underlying etiology of BCC in non-sun-exposed areas, however immunocompromise/immunosuppression have been proposed as significant risk factors in addition to viral infections such as HPV. Surgical excision has been proven to be a safe and effective treatment for BCC, however not every BCC is amenable to surgical excision. Radiation therapy is an accepted alternative or adjunct therapy to surgery for patients who are poor surgical candidates and/or have tumors located in areas where surgical excision may produce life-altering changes or significant cosmetic defects. Perianal BCC has been seen in the literature with several complex surgical excisions documented including bilateral perianal V-Y flaps. The proximity of the tumor in our patient to the anal-sphincter complex made radiation therapy a more feasible option upfront for a patient who was interested in the least invasive treatment option for his tumor.

Perianal basal cell carcinoma

THE IMPACT OF THE COVID-19 PANDEMIC ON COLONOSCOPY FOR COLORECTAL CANCER SCREENING.

eP478

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Philadelphia, PA

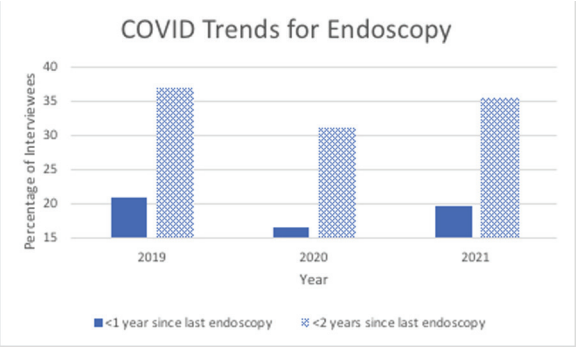
Purpose/Background: Colorectal cancer (CRC) is the second leading cause of cancer deaths yet is preventable and curable if identified early through regular screening. The COVID-19 pandemic caused significant issues with access to health care which is hypothesized to have impacted the rates of CRC screening. Our aim was to elucidate trends in CRC screening with colonoscopy/sigmoidoscopy (endoscopy) and the impact of the COVID-19 pandemic on screening practices.

Methods/Interventions: The 2019-2021 data was queried from the publicly available, annually published Behavior Risk Factor Surveillance System (BRFSS), an annual interview with over 400,000 US adults. Overall trends were observed, and linear regression analyses were performed to analyze trends in percentage of interviewees who underwent endoscopy for CRC screening in 2019, 2020 and 2021. These analyses were performed for those who underwent endoscopy within 1 year and within 2 years. 2 years was chosen as the cutoff as this was the amount of data available since the pandemic began. 2019 is considered pre-pandemic, 2020 mid-pandemic, and 2021 post-pandemic.

Results/Outcome(s): Compared to pre-pandemic rates, there was a 4.38% decrease (20.90% to 16.52%) in endoscopy rates during the pandemic and a 1.33% decrease

(20.90% to 19.57%) in endoscopy rates after the pandemic for those who underwent endoscopy for CRC screening with in the last 1 year. Similarly, compared to pre-pandemic rates, there was a 5.73% decrease (36.87% to 31.14%) in endoscopy rates during the pandemic and a 1.38% decrease (36.87% to 35.49%) in endoscopy rates after the pandemic for those who underwent endoscopy for CRC screening with in the last 2 years.

Conclusions/Discussion: Initially, rates of CRC screening with endoscopy decreased during the pandemic. Thankfully, they have recovered to pre-pandemic levels. Understanding trends in CRC screening with endoscopy relating to the COVID-19 pandemic will assist in better addressing evolving health maintenance needs of patients to provide appropriate screening tests in a post-pandemic setting.



PERCUTANEOUS ENDOSCOPIC CECOSTOMY: A NOVEL PROCEDURE FOR ACUTE COLONIC PSEUDO-OBSTRUCTION.

eP479

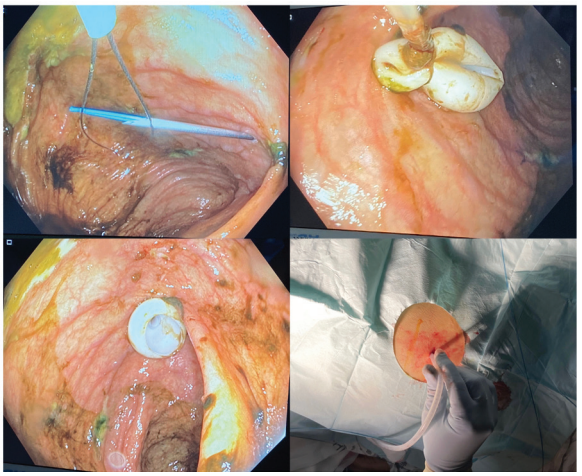
K. Donovan, J. Singh
Valhalla, NY

Purpose/Background: Background: Ogilvie syndrome is characterized by acute colonic distension in the absence of mechanical obstruction. Patients are often elderly with multiple comorbidities. Prolonged severe distension may result in ischemia and perforation of the colon with need for subtotal colectomy. Percutaneous endoscopic cecostomy is a minimally invasive alternative, providing decompression of the colon and a route for antegrade colonic enemas. Case presentation: A 74-year-old female chronic nursing home resident with multiple medical comorbidities was admitted for deep vein thrombosis of the lower extremity after hip replacement surgery. She developed emesis with abdominal pain and distention. A CT scan of abdomen displayed diffusely dilated colon with cecum measuring 11.3 cm in maximum dimension and fecal load in rectum. Despite initial improvement from laxatives, she developed increasing abdominal pain with rising leukocytosis. She was taken to the operating room due to persistent cecal dilation and concern for bowel ischemia with impending perforation. Stool burden in the sigmoid and rectum was lavaged colonoscopically. Patchy ischemia was observed in the cecum with no evidence of perforation or bleeding. There was distention observed throughout the colon but no signs of obstructing masses or lesions. A cecostomy tube was placed using similar steps as the "pull" technique for percutaneous endoscopic gastrostomy tube placement.

Methods/Interventions: Endoscopic transillumination on abdominal wall through cecum is performed with colonoscope. Insertion site chosen after one-to-one indentation of anterior wall of cecum with a finger over the abdominal wall. String is introduced into cecum via needle through abdominal wall, then grasped by endoscopic snare forceps and pulled antegrade from colon to anus. External end of feeding tube is tied to string, and tube threaded into the cecum to exit via the abdominal wall. Feeding tube secured to abdominal wall with stitch after ensuring cecum approximated to peritoneum. Tube placed to gravity for 48 hours. Patient kept on therapeutic anticoagulation. Tube flushed with saline every 6 hours to prevent obstruction. Repeat abdominal X-ray on postoperative day 2 indicated improvement of cecal and rectosigmoid distention. Abdominal pain and distention resolved.

Results/Outcome(s): Tube flushed with saline every 6 hours to prevent obstruction. Repeat abdominal X-ray on postoperative day 2 indicated improvement of cecal and rectosigmoid distention. Abdominal pain and distention resolved.

Conclusions/Discussion: This case illustrates successful placement of percutaneous cecostomy tube which aided resolution of acute colonic pseudo-obstruction, obviating need for colectomy due to ischemia or perforation. Antegrade colonic enemas could be used for fecal disimpaction in the future to prevent the risk of bowel perforation.



TREATMENT TRENDS AND DEMOGRAPHIC FACTORS THAT IMPACT MANAGEMENT OF STAGE II AND III RECTAL CANCER: A RETROSPECTIVE ANALYSIS USING THE NATIONAL CANCER DATABASE.

eP480

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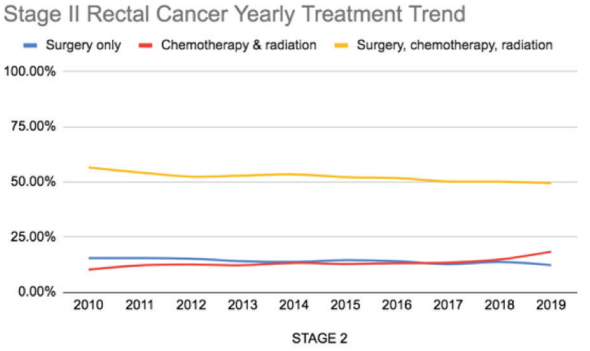
Columbia, SC

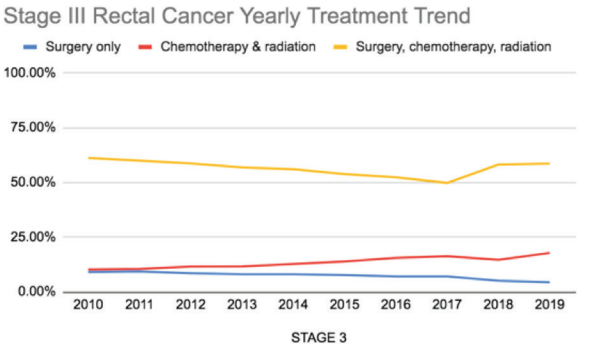
Purpose/Background: The management of stage II and stage III rectal cancer has shifted towards more frequent utilization of neoadjuvant therapy with chemoradiation, at times even obviating the need for surgical intervention. The aim of this study was to assess the treatment trends over time and the demographic factors that impact management of patients with stage II and stage III rectal cancer.

Methods/Interventions: Using the National Cancer Database, 103,456 total patients with stage II (n=44,039) and stage III (n=59,417) rectal cancer were identified between 2010 and 2019. We queried the database for treatment modality, demographic factors, and socioeconomic factors. We evaluated overall trends in utilization of surgery only, chemotherapy and radiation, or a combination of all three therapies. Further subgroup analysis was performed to evaluate the impact of age, gender, race, insurance, and Charlson comorbidity scores on treatment modality. The data was evaluated using Mann Kendall trend analysis and chi-squared tests where appropriate.

Results/Outcome(s): Overall from 2010 to 2019, the treatment trend for rectal cancer showed increasing use of chemotherapy and radiation for both stage II (10.2% to 18.3% with $p<0.05$) and stage III (10.2% to 17.8% with $p<0.05$) disease. Management with surgery only has decreased significantly for both stage II (15.4% to 12.2% with $p<0.05$) and stage III (9.0% to 4.4% with $p<0.05$) rectal cancer. There is a decreasing trend of combination therapy with surgery, chemotherapy, and radiation with advancing age for both stage II and III rectal cancer ($p<0.05$). There was no significant impact in the treatment trends of rectal cancers with regards to sex or race. Those insured with Medicare were found to have higher rates of surgery only across all insurance modalities ($p<0.05$); while, private insurance had a higher percentage use of combination therapy with surgery, chemotherapy, and radiation compared with the other insurances ($p<0.05$). Increasing Charlson comorbidity index inversely correlated with use of combination therapy with surgery, chemotherapy, and radiation for stage II and stage III rectal cancer ($p<0.05$). These high comorbidity patients were more commonly treated with either surgery only or chemotherapy and radiation.

Conclusions/Discussion: The treatment trend for stage II and stage III rectal cancer over the last decade has evolved, with overall increasing use of chemotherapy and radiation and decreasing use of surgery only modalities. Our review of the National Cancer Database showed statistically significant trends in overall management and for age, insurance and comorbidity score factors for stage II and III rectal cancer.





DISPARITY IN THE MANAGEMENT OF LOCALLY ADVANCED RECTAL CANCER IS IMPACTED BY REGION OF THE COUNTRY AND FACILITY TYPE.

eP481

W. Luo, C. Agala, P. Shetty, M. Kapadia, J. Stem, J. Guillem
Chapel Hill, NC

Purpose/Background: Surgical margins following rectal cancer resection impact oncologic outcomes and may reflect adequacy of care. We previously demonstrated that non-Hispanic Black patients were more likely to have positive margins following resection of locally advanced rectal cancer than non-Hispanic White patients. We now examine how the region of the country and facility type where care is rendered impact this disparity.

Methods/Interventions: We queried the National Cancer Database for patients diagnosed with TNM stage II-III rectal cancer between 2004-2018 who underwent resection and excluded patients with missing data for race/ethnicity and radiation therapy/surgery status, and/or who had local excision only. Using logistic regression, we applied inverse probability of treatment weighting (IPTW) to compare odds of margin positivity between non-Hispanic White, non-Hispanic Black, Hispanic and other non-Hispanic patients. The selection model included

age, sex, Charlson-Deyo Score, pathologic stage, pathologic grade, time from diagnosis to resection, surgery type, sequence of radiation and surgery, insurance type, level of education, and distance between patient and facility. We then used interaction terms in logistic regression models to assess differences in margins positivity within and across regions (Northeast, West, Midwest, and South) and facility types (Academic/Research, Community Cancer Program, and Integrated Network Cancer Programs).

Results/Outcome(s): Of 67,023 patients included in the study, 40% (N=25,418) were female. Mean age of participants was 62 years (SD:13 years). 80% of the patients identified as non-Hispanic White, 8% as non-Hispanic Black, 6% as Hispanic and 5% as non-Hispanic Other. After IPTW adjustment, patients from the Northeast had lower odds of positive margins than those from the South (OR:0.92, 95% CI:0.85-0.99, p=0.03). Receipt of care from academic/research centers was also associated with lower odds of positive margins than community cancer centers (OR:0.90, 95% CI:0.84-0.95, p=0.0005). Within the South, non-Hispanic Black patients were more likely to have positive margins than non-Hispanic White (p=0.02) and non-Hispanic Other (p=0.01). Similarly, in the Northeast, non-Hispanic Black patients had higher rates of positive margins than non-Hispanic Whites (p=0.01) and non-Hispanic Others (p=0.02). Among academic/research centers, non-Hispanic Black patients were more likely to have positive margins than Hispanic (p=0.03) and non-Hispanic Other patients (p=0.006).

Conclusions/Discussion: Our study demonstrates disparity in rectal cancer management across regions of the country and facility type with non-Hispanic Black patients most heavily impacted, even within academic centers. Our work supports further research examining etiologies for disparity and quality improvement opportunities for rectal cancer management in all groups but especially in Black patients.

EARLY RESULTS OF THE IMPACT ON SHORT-TERM OUTCOMES IN RECTAL CANCER PATIENTS WITH THE ESTABLISHMENT OF THE NATIONAL ACCREDITATION PROGRAM FOR RECTAL CANCER AT AN ACADEMIC COMMUNITY HOSPITAL.

eP482

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[1]Dover, DE; [2]Philadelphia, PA

Purpose/Background: The National Accreditation Program for Rectal Cancer was established in 2017 to improve care through standardization and a multidisciplinary approach. To date, there is very little data on the impact of a Rectal Cancer Program on patient outcomes. We evaluated the impact on short-term outcomes at Bayhealth Medical Center.

Methods/Interventions: A retrospective chart review of patients diagnosed with rectal cancer who underwent definitive oncologic resection at our institution between January 2017 and October 2022 was performed. Thirty-eight patients were identified and divided into two groups, 20 before and 18 after establishment of the program. Patient demographics, process changes in rectal cancer evaluation, completion rates of chemoradiation, and surgical results were reviewed. Student's t tests and chi squared were used to evaluate differences between the groups.

Results/Outcome(s): Patient demographics were similar between the two groups. There was a significant increase in the percentage of patients discussed at multi-disciplinary tumor board after program implementation (p=0.048). There was also a tendency for greater appropriate genetic counseling referral (p=0.065). Improvements in pathologic evaluation were evident, with greater lymph nodes identified (p=0.028), and a greater percentage of patients undergoing thorough evaluation of completeness of TME (p=0.000). There was no change in operative mortality, 30-day readmissions, or positive circumferential margins. There was a significant reduction in the rates of permanent colostomy (p= <0.0001), although there was a greater percentage of patients with proximal rectal cancer (p=0.057) in the study group.

Conclusions/Discussion: Patients undergoing treatment for rectal cancer at a community hospital can benefit from establishment of a Rectal Cancer Program. In our study, improvements in preoperative evaluation, lymph node yield, evaluation of TME completeness, and colostomy rates were evident. Longer-term studies and data from high-volume centers are needed to effectively evaluate impacts on patient outcomes.

Outcomes Following Implementation of the National Accreditation Program for Rectal Cancer

	Demographics					Process		Surgical Results						
Program Implementation	Number of Patients	Age	BMI	% Male	ASA	Tumorboard Discussion	Appropriate Genetic Counseling Referral	Proximal Tumor Location	Permanent Stoma	Number of Lymph Nodes Identified	Complete TME Evaluation Recorded	Positive Margins	30-Day Readmission	Mortality
Pre	20	64.8 ± 8.6	27.3 ± 6.0	40%	2.8 ±0.6	50%	55%	5%	80%	35.2 ± 8.0	30%	15%	30%	0%
Post	18	60.6 ±13.7	27.8 ± 4.8	33%	2.84 ± 0.7	83%	100%	33%	33%	24.8 ± 8.8	83%	0%	17%	0%
P Value		0.250	0.784	0.829	0.868	0.048	0.065	0.057	<0.0001	0.028	0.000	0.485	0.551	

PILOT STUDY OF PHYSICAL ACTIVITY INTERVENTION TO MANAGE BOWEL DYSFUNCTION IN RECTAL CANCER SURVIVORS: PRELIMINARY FINDINGS.

eP483

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Philadelphia, PA

Purpose/Background: Many patients with rectal cancer develop post-surgical bowel dysfunction, termed low anterior resection syndrome (LARS). These constellation of symptoms can be disruptive to patients' daily routines and negatively impact their quality of life (QOL). Our group found that some patients use physical activity (PA)

to mitigate their LARS. This prompted us to develop a physical activity intervention for this patient population that is delivered via telehealth. We present preliminary findings from a pilot study examining the feasibility and acceptability of this intervention.

Methods/Interventions: Patients with stage 1-3 rectal cancer and an anastomosis were contacted by phone for recruitment to the study. Interested potential participants had their LARS score determined by a team member to confirm eligibility for the study. LARS scores of 21-42 met inclusion criteria. A study team member received intensive training to be the health coach. The health coach meets weekly via virtual platform with each participant for 12 weeks to discuss bowel habits and exercise behaviors, and determine physical activity goals for the coming weeks. Prior to starting the coaching sessions, participants complete LARS, International Physical Activity Questionnaire, Memorial Sloan Kettering Bowel Function Instrument, and City of Hope Quality of Life – Colorectal Cancer surveys. Following the intervention, they complete the mentioned surveys, then again at 6 months with an exit interview conducted by the University of Pennsylvania Mixed Methods Research Lab.

Results/Outcome(s): To date, we attempted to contact 36 potential participants for this study; 17 were reached and 16 expressed interest in participating. One person could not participate due to logistical and scheduling concerns, and three did not meet LARS score criteria. We are awaiting consents from six people. There are seven patients accrued to this study, with one who dropped out for unknown reasons prior to initiating the intervention. The median age of this cohort is 55 years. All members are White, 4 of them are women, and one is part of the LGBTQ+ population. Two participants completed the 12-week pilot and exit interview. All active participants remain engaged and willing to reschedule coaching sessions should unforeseen conflicts arise. Study comments by active participants to the health coach are positive, with emphasis on the mental and emotional benefits of the coaching sessions. Participants stress the importance of talking to someone who is empathetic, has the appropriate medical knowledge, and has access to their care teams.

Conclusions/Discussion: Our pilot is demonstrating feasibility and acceptability of a PA intervention for rectal cancer survivors with bowel dysfunction. It is imperative to include disparity populations to ensure they may also benefit from such a program. Based on current findings, a larger prospective trial may be possible.

A RETROSPECTIVE REVIEW OF 100 ABDOMINOPERINEAL RESECTIONS WITH AT LEAST FIVE-YEAR FOLLOW-UP PERFORMED IN THE PRIVATE PRACTICE SETTING SERVING A TRISTATE POPULATION.

eP484

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Shreveport, LA

Purpose/Background: There is an abundance of literature describing abdominoperineal resection (APR) outcomes performed in high volume urban Colorectal Centers, however, the data describing outcomes in a predominantly rural population is lacking. Our goal is to critically review patient charts within our private practice serving the tristate area of Louisiana, Texas and Arkansas with at least five years follow up. We wish to describe the population we treat and also to examine our complication rates as well as malignancy recurrence rates.

Methods/Interventions: Using our own clinic electronic medical record, charts were identified utilizing CPT codes. The time period of May 3, 2011 to November 15, 2016 was selected to obtain five year follow up. Inclusion data was all patients to have undergone an APR. Charts were discarded due to incomplete records or incorrect CPT codes. The charts were then retrospectively reviewed.

Results/Outcome(s): One hundred charts were included. Demographics of our population were 55% male, 45% female. Eighty-three percent of patients described themselves as White or Caucasian, while 17% identified as Black. Twenty-two percent of those included were diabetics and 34% were considered to be Class I Obese or heavier (BMI 30-34.9). Fifty-five percent were former or current smokers. Indications for APR was overwhelmingly for rectal cancer with 76%. Other indications included anal cancer, Irritable Bowel Disease, and other. Ninety-seven percent of these APR's were closed primarily with only two utilizing mycocutaneous flaps and one with a local advancement flap. In the 81 included APR's for cancer, we had positive margins in nine cases (8 positive radial margins, 1 positive distal margin, and no positive proximal margins). We identified 11 recurrences with nine found distally (liver/lung), and two local recurrences. Overall complication rate was found to be 51%, the vast majority of these being superficially perineal related (n=30). Other complications included perineal hernia (n=5), pelvic abscess (n=4), abdominal wall related (n=5), ureteral injury (n=2), among others. Eleven percent of our patients required a return to the operating room for varying reasons relating to their underlying malignancy and to complications from the initial operation.

Conclusions/Discussion: To our knowledge this is the first retrospective review examining strictly Abdominoperineal Resections performed in a predominantly rural population. Our overall complication rate of

51% is similar to the total complication rate identified by Tooley et. al. of 50.1% found in open APRs. We had an 13.5% (n=11) recurrence rate which is comparable to a previously published cohort from a single institution. With further evaluation of our results, we hope to identify the patients most at risk for poor outcomes and make changes to optimize results.

RISK FACTORS FOR NEGATIVE OUTCOMES AFTER PROCTECTOMY IN GERIATRIC PATIENTS WITH RECTAL CANCER.

eP485

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Purpose/Background: Guidelines for rectal cancer management do not consider the singularity of the elderly and frail patients. This population is heterogenous, and its outcomes depend on multiple factors such as cognitive, functional, nutritional and medical status. Better clinical tools must be developed to guide clinical decision making by healthcare teams and patients. The objective of this study is to assess the risk factors associated with the occurrence of severe postoperative complications after proctectomy for rectal cancer in the elderly.

Methods/Interventions: Patients aged 70 and older with a confirmed diagnosis of rectal cancer between 2017 and 2021 were identified in our institution using the Quebec SARDO database. Those undergoing proctectomy with curative intent were included in the study. Medical records were reviewed for demographic characteristics, comorbidities, geriatric risk factors, treatment regimen and perioperative outcomes, including early and late complications. Complications were classified based on the Clavien-Dindo score, and were considered as severe if graded 3 or more. Comorbidity scores, such as Charlson Comorbidity Index, 5-items Frailty Index (5-iFI), delirium score and geriatric score, including main geriatric risk factors, were calculated based on the available information.

Results/Outcome(s): Eighty-six patients were included in the study. History of previous abdominal surgery and local tumor extension at presentation were significantly associated with severe complications after surgery (OR= 3.62, P = .019; P = .03). A preoperative delirium score of 1 or more was highly associated with a poor surgical outcome (OR= 6.23, P = .001) and patients with multiple geriatric risk factors tended to have a greater rate of severe complications (P = .055). This study showed no difference between the group that had a colorectal anastomosis and the one that had a permanent stoma.

Conclusions/Discussion: Previous abdominal surgery, local tumor extension at presentation and the presence of geriatric comorbidities, mostly delirium, were identified as risk factors of severe complications after protectomy with curative intent for rectal cancer in older patients. Age, medical comorbidities and the creation of a colorectal anastomosis were not specifically associated with poor outcomes. More studies are needed to develop a clinical score to assist with patient selection before curative proctectomy for rectal cancer in the elderly.

A NOVEL DATABASE FOR THE ORGANIZATION AND ANALYSIS OF NAPRC-ASSOCIATED PATIENT DATA.

eP486

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Purpose/Background: Rectal cancer affects more than 40,000 patients in the United States each year. For many years, outcomes for patients diagnosed with rectal cancer in the US lagged behind those treated in Europe. So, the National Accreditation Program for Rectal Cancer (NAPRC) was formed to address these differences. Additionally, cancer registries and databases can provide a critical framework for cancer research and for improving cancer-related care. The rigorous and specific standards set by the NAPRC, as well as the vast amount of data required for accreditation, present a significant challenge for hospital programs and cancer centers. To achieve NAPRC accreditation, a cancer program must demonstrate high-quality cancer care and comply with established Commission on Cancer and NAPRC standards. Maintaining patient care information that can be easily accessed and evaluated is a crucial part of a program's development and quality commitment.

Methods/Interventions: Utilizing Research Electronic Data Capture (REDCap), our team built a database of patients with rectal cancer treated at our single, large volume, NAPRC-accredited center. Advanced algorithmic features of field validation and branching logic for optimal data quality, custom reporting for real-time program compliance updates, and data-based triggers for time-sensitive clinical deadlines were all used to build our project. Information on 267 rectal cancer patients seen over the past 4 years was loaded into 3 separate data collection instruments within REDCap. When it became available, date of initial visit, date of surgery, surgeon, pathologist, and select other relevant information, was entered.

Results/Outcome(s): The five required NAPRC compliance deadline dates are calculated, reported, and selectively sent as alerts to providers to ensure compliance. Real-time summary reports on the status of various data points, including pathologic evaluation, CT and MRI scans, CEA level, and surgical /pathologic reports are also generated to act as reminders to complete if needed. In addition to day-to-day patient care information, this database creates outputs on a program's performance relative to the required compliance standards listed in

the 2020 Patient Care chapter of the American College of Surgeons Optimal Resources for Rectal Cancer Care Manual, including compliance information about staging, operative/photo/pathology reports, and deadlines over any specified time period. This data, essential for both local program quality control and for national accreditation, is readily accessible and accurate.

Conclusions/Discussion: To our knowledge, this is the first database specifically geared towards simplifying the NAPRC accreditation process and therefore allow more institutions to provide high quality rectal cancer care to patients.

INITIAL OUTCOMES OF LATERAL PELVIC LYMPH NODE DISSECTION AFTER NEOADJUVANT CHEMORADIATION IN LOCALLY-ADVANCED RECTAL CANCER: A PHILIPPINE TERTIARY HOSPITAL EXPERIENCE.

eP487

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Purpose/Background: Locally-advanced rectal cancer (LARC) presents with metastasis to the lateral pelvic lymph nodes 15 to 20% of the time, which poses an increased risk for recurrence and decreased overall survival. The addition of lateral pelvic lymph node dissection (LPLND) to total mesorectal excision (TME) after neoadjuvant chemoradiotherapy (CRT) has shown improvement in outcomes. Since 2018, the Division of Colorectal Surgery of the Philippine General Hospital (PGH) adapted LPLND in its practice and remains the only hospital in the country to do so. This is a review of our experience from 2018 to 2022.

Methods/Interventions: A retrospective observational study was conducted on all LARC cases in PGH who underwent LPLND for rectal cancer. Patients whose lateral pelvic lymph nodes had a short-axis diameter of at least 7 mm and 4 mm on pre- and post-treatment imaging, respectively, underwent LPLND. The medical records were retrieved from the hospital's digital records system and the patients were individually contacted for follow-up. The postoperative course of each patient was reviewed, and the following data were documented: recurrence rates and disease-related mortality rates.

Results/Outcome(s): Twenty-two cases of LARC underwent LPLND over a period of 5 years. Majority were stage IIIB (72.72%) at the time of surgery, while the rest were stage IIIC or IV (resectable metastasis). Sixteen cases received conventional long-course chemoradiotherapy (LCCRT) while six had total neoadjuvant therapy (TNT), following the RAPIDO protocol. On histopathology, those who had LCCRT had higher rates of lateral pelvic lymph node positivity (31.25%), versus TNT (0%). During the median follow-up of 15.93 months (range: 5.23-42.10), recurrence rates of 18 patients followed-up were: 25% for LCCRT (2 central and 1 lateral compartment recurrence), and 16.67% for RAPIDO (1 central compartment recurrence). Three cases progressed to stage IV disease in the LCCRT group after an average of 16.67 months after surgery, and one case in the RAPIDO group 11 months after surgery. The cancer-specific mortality rates were: 8.33% for LCCRT and 16.67% for RAPIDO (Table 1).

Conclusions/Discussion: Neoadjuvant treatment may affect tumor metastasis to the lateral pelvic lymph nodes and performing LPLND may further decrease the risk of recurrence in these patients. It is noteworthy that all specimens from the RAPIDO group had negative tumor on histopathology and this observation supports the benefit of giving TNT to control metastasis to the pelvic nodes. Although the population in the study is limited, the results and outcomes presented here show potential, and longer follow-up and more patient recruitment are necessary to validate our initial findings.

	Age/ Sex	Stage	LPLND Specimen Tumor Positivity	Adjuvant Treatment	Outcomes
LCCRT					
	50/F	IIIB	Negative	Adjuvant chemotherapy	Local recurrence (central compartment)
					Progressed to stage IV (bone & lung)
					Died 23 months after surgery
	74/F	IIIB	Negative	Adjuvant chemotherapy	Local recurrence (central compartment)
					Progressed to stage IV (bone & lung)
					For 2nd line chemotherapy
	28/F	IIIC	Positive	None (no consent)	Local recurrence (lateral compartment)
					Progressed to stage IV (paraaortic, pelvic & retroperitoneal lymphadenopathy)
					No consent for adjuvant chemotherapy
	54/F	IIIB	Positive	Adjuvant chemotherapy	No recurrence
	35/F	IIIB	Negative	Adjuvant chemotherapy	No recurrence
	63/M	IIIB	Negative	Adjuvant chemotherapy	No recurrence
	56/M	IIIB	Negative	Adjuvant chemotherapy	No recurrence
	39/M	IIIB	Negative	Adjuvant chemotherapy	No recurrence
	60/F	IIIC	Positive	Adjuvant chemotherapy	No recurrence
	48/M	IIIB	Negative	None (no consent)	No recurrence
	64/M	IIIB	Negative	None (no consent)	No recurrence
	60/F	IIIB	Positive	None (no consent)	No recurrence
	74/F	IIIB	Negative	Unknown	Lost to follow up
	58/M	IIIB	Positive	Unknown	Lost to follow up
	61/M	IV (liver)	Negative	Unknown	Lost to follow up
	49/M	IV (lung)	Negative	Unknown	Lost to follow up
TNT: RAPIDO					
	52/M	IIIB	Negative	N/A	Died 5 months after surgery due to pulmonary tuberculosis
	54/F	IV (lung)	Negative	N/A	Local recurrence (central compartment) and progression of lung metastasis
					Died 8 months after surgery
	36/F	IIIB	Negative	N/A	No recurrence
	33/M	IIIB	Negative	N/A	No recurrence
	31/F	IIIB	Negative	N/A	No recurrence
	43/F	IIIC	Negative	N/A	No recurrence

LPLND: Lateral pelvic lymph node dissection
LCCRT: Long course chemoradiotherapy
TNT: RAPIDO: Total neoadjuvant therapy following the RAPIDO protocol

Table 1. Initial outcomes of lateral pelvic lymph node dissection in locally-advanced rectal cancer in PGH from 2018 to 2022.

CAN CCRT/RT ACHIEVE FAVORABLE ONCOLOGIC OUTCOME IN RECTAL CANCER PATIENTS WITH HIGH-RISK FEATURE AFTER LOCAL EXCISION?

eP488

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Purpose/Background: Rectal cancer is one of the most common types of cancers in humans for which radical resection is the standard treatment for rectal cancer. However, radical surgery, such as low anterior resection (LAR) and abdominoperineal resection, is associated with significant morbidities such as anastomosis site leakage, sexual dysfunction, and urinary dysfunction. In addition, some patients require permanent colostomy after APR, leading to poor quality of life. Therefore, local excision has been used as an alternative surgical option in early rectal cancer. The oncologic outcome of concurrent chemoradiotherapy (CCRT) after local excision in patients with high-risk early rectal cancer as compared with radical operation has not been reported. The aim of this study is to compare the oncologic outcome between radical operation and adjuvant CCRT after local excision for high-risk early rectal cancer.

Methods/Interventions: From January 2005 to December 2015, 266 patients diagnosed with early rectal cancer and treated with local excision who showed high-risk characteristics were retrospectively analyzed. Exclusion criteria were as follows: recurrent disease, palliative surgery, preoperative chemoradiation therapy, familial cancer, or lack of follow-up data. The high-risk group included tumor size ≥3 cm, positive resection margin, and unfavorable tumor characteristics such as lymphovascular invasion, poor differentiation, mucinous adenocarcinoma, signet ring cell type, deeper than SM1, and pathologic T2 rectal cancer. Propensity score matching was applied in a ratio of 1:4, comparing the CCRT/radiotherapy (n = 34) and radical operation (n = 91) groups. Univariate and multivariate analyses were performed to identify prognostic factors for survival.

Results/Outcome(s): The median follow-up period was 112 months. The 5-year disease-free survival rate and the 5-year overall survival of the radical operation group were significantly higher than those of the CCRT/RT group after propensity score matching (96.7% vs. 70.6%, $p < 0.001$; 100% vs. 91.2%, $p = 0.005$, respectively). In a multivariate analysis, salvage therapy type and preoperative carcinoembryonic antigen (CEA) were prognostic factors for 5-year disease-free survival ($p < 0.001$ and $p = 0.021$, respectively). The type of salvage therapy, the preoperative CEA, and the pT were prognostic factors for 5-year overall survival ($p = 0.009$, $p = 0.024$, and $p = 0.046$, respectively).

Conclusions/Discussion: Patients who undergo radical operation after local excision with a high-risk early rectal cancer had better survival than those treated with adjuvant CCRT/RT. Therefore, radical surgery may be recommended to high-risk early rectal cancer patients who have undergone local excision for more favorable oncologic outcomes.

PROGNOSTIC FACTORS FOR SURVIVAL IN PATIENTS WITH GOOD RESPONSE TO NEOADJUVANT CHEMORADIOTHERAPY FOR LOCALLY ADVANCED RECTAL CANCER.

eP489

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Purpose/Background: Approximately 30%–50% patients undergoing chemoradiotherapy for locally advanced rectal cancer show favorable responses and oncological outcomes. Owing to the low recurrence rate in patients showing good response to chemoradiotherapy, limited studies have evaluated the prognostic factors for survival. Therefore, this study aimed to evaluate the prognostic factors associated with survival among patients with rectal cancer who showed pathological complete response or yield pathological stage I after neoadjuvant chemoradiotherapy with total mesorectal excision.

Methods/Interventions: Data on patients diagnosed with locally advanced rectal cancer who underwent neoadjuvant chemoradiotherapy with total mesorectal excision between January 2008 and April 2017 were retrospectively reviewed. Among the 1394 patients, 474 (34.2%) patients who showed pathological complete response or yield pathological stage I after treatment were enrolled. The prognostic factors for disease-free survival and overall survival were analyzed.

Results/Outcome(s): Among the patients diagnosed with good response, 161 (34%) patients showed pathological complete response. The prognostic factors for disease-free survival were circumferential resection margin ($p = 0.011$) and adjuvant chemotherapy ($p = 0.022$), while those for overall survival were clinical lymph node stage ($p = 0.035$) and adjuvant chemotherapy ($p = 0.015$).

Conclusions/Discussion: Circumferential resection margin, clinical N stage, and adjuvant chemotherapy were prognostic factors for survival in patients with rectal cancer showing good response to neoadjuvant chemoradiotherapy. Therefore, patients with positive circumferential margin and clinical N stage might need intensive follow-up for favorable oncologic outcome and adjuvant chemotherapy would be recommended in patients with good response despite a favorable response to neoadjuvant chemoradiotherapy.

POST-CHEMORADIATION MRI CIRCUMFERENTIAL RESECTION MARGIN PREDICTS TREATMENT FAILURE AFTER MULTI-DISCIPLINARY DIRECTED SPHINCTER PRESERVATION IN LOW RECTAL CANCER.

eP490

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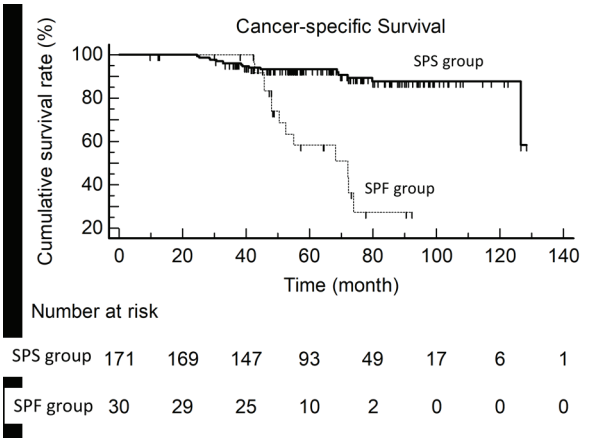
Purpose/Background: Sphincter preservation is a cornerstone of successful functional outcomes in rectal cancer surgery, and magnetic resonance imaging (MRI) has become a standard tool for preoperative diagnosis through multidisciplinary managements. This study aims to review the MRI features of patients with low rectal cancer undergoing preoperative chemoradiotherapy (CRT) and investigate the risk factors and oncologic outcomes of sphincter preservation success (SPS) or failure (SPF).

Methods/Interventions: Patients who underwent standard CRT and radical surgery for low rectal cancer in tertiary referral hospital (Severance Hospital, Seoul, Korea) between January 2000 and December 2011 were retrospectively reviewed. Histologically confirmed rectal adenocarcinoma located within 7 cm of the anal verge in MRI were included. Synchronous or metachronous cancer, metastatic cancer, transanal excision, emergency surgery, palliative surgery, and sphincter defunctioning surgeries such as abdominoperineal excision or Hartman's operation were excluded. SPF was defined as any one of the following: positive pathologic circumferential resection margin, local recurrence, failure to repair ileostomy, or permanent stoma formation due to anastomotic complications. MRI-assessed T (mrT) stage was reclassified into six stages according to the depth of invasion. The tumor location was quartered into the anterior, lateral, and posterior. MRI low pelvic line (mrLPL) was drawn 1 cm above the level of the anorectal junction on the coronal image to correlate with the upper end of the intersphincteric plane. Definite invasion of MRI circumferential resection margin (mrCRM) was defined as direct invasion or thickening of the mesorectal fascia.

Results/Outcome(s): Among the 191 enrolled patients, 161 and 30 patients were in the SPS and SPF groups, respectively. There were no significant differences between two groups in clinicohistologic characteristics other than age, ypT stage, and lymphovascular invasion. Most MRI features including mrT stage, regional and pelvic lymph nodes, extramural vessel invasion, tumor locations, and mrLPL were not significantly different. However the SPF group showed a higher mrCRM positive rate than the SPS group before and after CRT (before CRT:33.3% vs. 16.1%, P=0.027; after CRT:23.3% vs. 6.2%, P=0.002). Multivariate analysis showed that only mrCRM after CRT was associated with SPF (hazard ratio=4.596, P=0.005). The SPF group showed worse 5-year cancer-specific survival than the SPS group (51% vs. 92.7%, P<0.001).

Conclusions/Discussion: MRI-based assessment of circumferential resection margin of tumor after CRT plays a crucial role in predicting the success and feasibility of sphincter preservation as well as oncological outcomes in patients with low rectal cancer.



Kaplan-Meier survival graph showing rectal cancer-specific survival for the sphincter preservation success (SPS) group and sphincter preservation failure (SPF) group.

RADICAL RECTAL CANCER RESECTION WITH CONCOMITANT LATERAL LYMPH NODE DISSECTION: AN EARLY SINGLE-INSTITUTION EXPERIENCE.

eP491

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Purpose/Background: Lateral lymph node dissection (LLND) with radical surgery following neoadjuvant chemoradiation therapy is being more widely used across North America for the treatment of advanced rectal cancer with lateral lymph nodes involvement.

Methods/Interventions: This is a retrospective study of 17 consecutive patients who underwent radical resection of their rectal cancer with concomitant LLND between 2017 and 2021. The primary endpoint was to establish the rate of lateral lymph node positivity. The secondary endpoint was patient morbidity associated with LLND.

Results/Outcome(s): Most patients were male (15, 88.2%), with an average age of 61.4 ± 10.4 years. Most patients had clinical stage IIIC disease (7, 41.2%), followed by stage IIIB (5, 29.5%). Twelve patients (70.6%) had only one suspicious lateral lymph node on pelvic magnetic resonance imaging. All patients underwent neoadjuvant treatment consisting of either chemoradiotherapy (13), total neoadjuvant therapy with chemoradiotherapy (3) or radiotherapy alone (1). Average size of enlarged lateral

lymph node prior to neoadjuvant treatment was 12.4 mm, downsizing to 8.7 mm after neoadjuvant therapy. LLND was mostly performed robotically (11, 64.7%). Most LLNs were along the internal iliac artery (7, 41.2%). The median number of LLN per specimen was 6. Six patients (35.3%) had positive lateral lymph nodes. Four patients (23.5%) reported self-limiting lower extremity paresthesia, one of which had an associated lymphocele that resolved on repeat imaging. No genitourinary dysfunction was noted. Median follow-up time was 15 months with 3 (17.7%) recurrences, all of which were distant.

Conclusions/Discussion: In this series, close to a third of patients had positive lateral lymph nodes after neoadjuvant treatment. In experienced hands, LLND is safe. Optimal selection criteria for this procedure are yet to be determined and oncologic benefit remains debated.

EFFICACY AND SAFETY OF SHAOBEI INJECTION ON PATIENTS WITH GRADE I-III INTERNAL HEMORRHOIDS: A POLYCENTRIC AND SINGLE ARM STUDY.

eP492

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Purpose/Background: This study aimed to determine a cohort of patients with symptomatic hemorrhoidal disease (HD) treated with Shaobei injection. Sclerotherapy was selected for non-surgical treatment in this population owing to its proven effects on hemorrhoidal symptoms in a large number of patients. However, its clinical application is limited by the adverse reactions caused by injection drugs. This clinical trial was designed to establish the clinical effectiveness and safety of Shaobei injection on grade I-III internal hemorrhoids of large-scale patients of multicenter.

Methods/Interventions: This trial was a large, open-label, multicentre, single-arm trial done in adult participants (aged 18 years or older) referred to the hospital for non-surgical treatment for grade I-III hemorrhoids. Participants received Shaobei injection. The primary outcome was efficacy, the secondary outcome was safety. The observation indexes included recovery of anal function, hemorrhoid recurrence, and adverse events.

Results/Outcome(s): From July 15, 2019, to Dec 10, 2020, of 283 patients screened, 275 patients with grade I-III hemorrhoids were enrolled. Of these participants, 273 had primary outcome data. At 4 weeks post-treatment, the cure rate was 72.5% (66.8%, 77.7%), the effective rate in 4 weeks ± 2 days was 100% (98.7%, 100%). At 1 year post-treatment, 234 patients were followed up by telephone through symptom inquiry, 25 (10.6%)of 234 patients had hemorrhoid recurrence. Seven patients experienced adverse events (TRAEs), all of which were moderate and manageable. One patient (0.4%) presented with anal discomfort, which may be related to drugs. No adverse events resulted in abscission, and no level 4 TRAE or new safety signals were identified.

Conclusions/Discussion: Shaobei injection had satisfied clinical efficacy and high safety in the treatment of grade I-III hemorrhoids. These results would provide a theoretical basis for clinical injection therapy for hemorrhoids.

A COMPARATIVE STUDY BETWEEN TRANSANAL AND TRANSABDOMINAL APPROACHES IN TREATMENT OF COMPLETE RECTAL PROLAPSE.

eP493

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Purpose/Background: There is a wide variety of surgical methods to treat rectal prolapse; however, to date, no clear agreement exists regarding the most effective surgical method. This study was designed to compare the results according to the surgical approach for complete rectal prolapse in women.

Methods/Interventions: This study was conducted from March 2016 to February 2021 on female patients with rectal prolapse who underwent surgery. First, all patients were classified into mucosal and full layer groups to confirm the difference in results between the two groups. Then, only full layer prolapse patients were divided into transanal and abdominal approaches to compare parameters and functional outcomes in each group.

Results/Outcome(s): A total of 180 patients were included, with an average age of 71.7 years and 102 complete prolapses. The full layer group was found to have more abdominal access, longer operating time, and higher recurrence rates compared to the mucosal layer group. ($p<0.001$) When targeting only the full layer patients, there were 65 patients with the transanal and 37 with the abdominal (laparoscopic) approaches. The abdominal approach group had a longer operating time and hospital stay ($p<0.001$, respectively) and lower recurrence rate than the transanal group (transanal vs. abdominal, 38% vs. 10.8%, $p=0.003$), while the Wexner constipation and incontinence scores showed improved results in both groups.

Conclusions/Discussion: Although operating time and hospitalization period were shorter in the transanal group, laparoscopic abdominal surgery is a procedure that can reduce the recurrent rate for complete rectal prolapse.

Table 1. Comparison between mucosal and full layer prolapse

	Mucosal layer (n=78)	Full layer (n=102)	p value
Age, years (SD)	70.8 (1.2)	72.4 (1.2)	0.351
ASA, n (%)			0.331
I	10 (12.8)	6 (5.9)	
II	51 (65.4)	69 (35.3)	
III	17 (21.8)	27 (26.5)	
BMI, mean (SD)	23.3 (3.6)	23.3 (4.1)	0.926
Past medical history, n (%)	62 (79.5)	82 (80.4)	0.474
Past abdominal surgery, n (%)	24 (30.1)	34 (33.3)	0.957
Past anal surgery, n (%)	25 (32.1)	32 (31.4)	0.703
Smoking, n (%)	1 (1.3)	2 (2)	0.699
Alcohol, n (%)	3 (3.8)	6 (5.9)	0.496
Operative methods, n (%)			<0.001
Transanal approach			
Delorme's procedure	67 (85.9)	34 (33.3)	
Altemeier's procedure	1 (1.3)	31 (30.4)	
Stapled transanal rectal resection (STARR)	9 (11.5)	0	
Abdominal approach			
Laparoscopic ventral rectopexy	1 (1.3)	35 (34.3)	
Laparoscopic resection rectopexy	0	2 (2)	
Operative time, min (SD)	56.7 (1.7)	72.3 (2.5)	<0.001
Median follow-up period, month (range)	16.4 (2-60)	13 (1-46)	0.169
Recurrence, n (%)	3 (3.8)	29 (28.4)	<0.001

ASA, American Society of Anesthesiologists physical status; BMI, body mass index; SD, standard deviation

STUDY ON THE INFLUENCE OF PERIANAL ANATOMY ON ANAL FISTULA RECURRENCE AFTER SURGERY, AND A NOMOGRAM FOR PREDICTING THE RECURRENCE.

eP494

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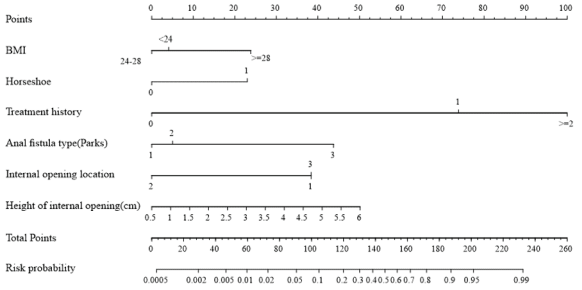
Purpose/Background: The aim of our study was to analyze the risk factors for anal fistula recurrence (AFR) after surgery, especially the influence of perianal anatomy on it, and construct the nomograph model for risk prediction.

Methods/Interventions: We performed a retrospective analysis of 562 patients with anal fistula who underwent fistulectomy between March 2019 and September 2021. A one-way analysis of variance was used, followed by screening the independent variables with P<0.10, and a multifactor logistic regression was performed using the forward stepwise method. Internal opening location was defined as follows : posterior (5 to 7 o'clock), anterior(11 to 1 o'clock), lateral (2 to 4 o'clock, 8 to 10 o'clock).

Results/Outcome(s): Among 562 cases, the ratio of male to female was 8.1:1.0, Postoperative recurrence rate was 15.8%(89/562). Horseshoe fistula accounts for 17.2% (97/562). Posterior internal opening accounted for 63.8% (359/562), while this percentage was 75.2% (73/97) in horseshoe fistula cases, which was significantly higher than 61.5% (286/465) in non-horseshoe fistula cases (P < 0.05). Multivariate logistic regression analysis showed that obesity (BMI ≥ 28, OR = 2.858, 95% CI: 1.100-7.426), Internal opening location (OR = 2.858, 95% CI: 1.100-7.426), supra-sphincteric fistula (OR = 10.256, 95% CI: 2.456-42.822), horseshoe (OR = 3.399, 95% CI: 1.374-8.406), one treatment history (OR = 50.832, 95% CI: 19.725-130.998), More than one treatment history (OR = 204.016, 95% CI: 58.386-712.881), height of internal opening (OR = 1.624, 95% CI: 1.158-2.278) were independent risk factors for anal fistula recurrence (P < 0.05). A nomogram was developed. Hosmer–Lemeshow test showed that the classification model was well calibrated (P = 0.815).

Conclusions/Discussion: Several patient and fistula-related factors are significantly associated with postoperative AFR, and the nomogram model can visually display these results. These findings strengthen clinical awareness of early warning to identify patients with high-risk disease recurrence for AFR.



Nomograph model for risk prediction of AFR.
Anal fistula type(Parks): 1 inter-sphincteric fistula; 2 trans-sphincteric fistula; 3 supra-sphincteric fistula.
Internal opening location: 1 anterior(11 to 1 o' clock); 2 lateral(2 to 4 o' clock, 8 to 10 o' clock); 3 posterior(5 to 7 o' clock).

RETROSPECTIVE ANALYSIS OF THE ANAL TONOMETRY FINDINGS IN PRE VS POST OPERATIVE PATIENTS OF LASER SPHINCTEROTOMY (LS).

eP495

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Jaipur, India

Purpose/Background: A chronic anal fissure can be identified by the presence of hypertrophied anal papilla, visible internal sphincter fibres at the base of the fissure, a sentinel polyp at the distal end or a fibroepithelial polyp at the apex. Elevated sphincter pressures cause ischemia of the anal lining and is responsible for the pain of anal fissures and their failure to heal. The present paper evaluates the improvement in anal tonometry findings, post procedure, corelating with resumption of normal anal tone, and thus healing of fissures in patients of chronic anal fissures with anal hypertonia who underwent laser sphincterotomy.

Methods/Interventions: 187 operated patients (89 males and 98 females) of anal fissure by laser sphincterotomy were examined retrospectively. The patients with chronic anal fissure and severe anal spasm with VAS scores 8-10 were selected. Anal tonometery was performed using the Anal tonometer which recorded the Anal resting pressure[ARD], AMV(maximum contraction)AV (average) and AMD(post contraction relaxation) Data onTonometery findings preoperative, and on each follow up visit was noted. data on duration of procedure, 6 months follow-up data of post-operative complications, resolution or persistency were collected. Follow up was scheduled in outpatient clinic at 1 week, 3 week, 2 months, 3 months

and 6 months post-operatively. The preoperative average readings of patients with spasm in males were 120-140 mmHg and in females it was recorded to be 110- 125 mmHg

Results/Outcome(s): The results showed that patients had reduced healing time, early resumption of lifestyle activity with no scars following minimally invasive (LS) when compared to conservative surgical procedures The anal tonometry findings showed significant improvement post operatively. The readings became near normal by end of 2nd month postoperatively. Post-operative events as mild bleeding, pain and pruritis at the follow-up period, with 2 cases developing Intersphincteric abscess detected by end of 1st week.

Conclusions/Discussion: The pathophysiology of chronic Anal fissre is the ischemia [secondary to muscle spasm], of anal muscle in the region of fissure leading to non healing of fissure and pain experienced by the patient. anal tonometery is performed using the anal tonometer which has a air filled balloon which when inserted inside anus gives the anal resting pressures as well as pressure on contracting the anal muscle and post contration pressure. Anal resting pressures are high in patients of chronic anal fissure[CAF], the anal contraction pressures on the other hand are low in such patients. Tonometeric Measurement of post LS procedure depicts improvement in anal pressures evident by 1st week of surgery. reaching near normal by 2nd month postoperative. This significant improvement in tonometeric readings is evident in the patients good and early recovery and resumption of normal lifestyle activity.

Table 2: Pre-operative and post-operative tonometric readings (in mm Hg) in males

Parameter	Pre-operative	1 week	3 week	2 months	3 months
ARD	120-140	100-105	80-90	60-70	Normal
AMD	90-100	80-85	100-105	110-125	Normal
APD	100-110	95-100	75-90	60-65	Normal
AV	80	80	100	120	Normal

Table 3: Pre-operative and post-operative tonometric readings (in mm Hg) in females

Parameter	Pre-operative	1 week	3 week	2 months	3 months
ARD	110-125	90-100	70-80	60-70	Normal
AMD	60-70	60-75	80-95	90-100	Normal
APD	90-100	85-90	65-75	60-65	Normal
AV	60	70	85	95	Normal

Preoperative and postoperative Anal Tonometry findings in Males and females of chronic Anal fissure with Anal Hypertonia

INTERSPHINCTERIC SPACE: DOES IT HOLD THE KEY TO THE GATEWAY OF TREATMENT OF COMPLEX FISTULA IN ANO: ANALYSIS INTO INSIGHT.

eP496

J. Maheshwari
Jaipur, India

Purpose/Background: Evaluating, classifying and planning surgical approach in a minimal invasive way are the goals of treatment strategy in complex fistula patients. We analyse retrospectively 68 patients of complex fistula in ano[in the year 2020-2021] treated by Trans anal opening of intersphincteric space [TAOIS] as a minimal invasive, sphincter sparing approach.

Methods/Interventions: 68 patients evaluated, classified, and after preoperative anal tonometery to determine anal muscle tone, were operated. External (EO) and Internal opening(IO) of the fistula tracts defined. The Trans anal opening [TAOIS] of intersphincteric space(IS) performed using curved Radiofrequecy probe, through the (IO), anteriorly in anterior fistulas and posteriorly in posterior fistulas. Intersphincteric spread in some fistulas could be defined and thorough currettage of space performed. High rectal extensions and rectal perforations could be identified and treated as well, using curettage and laser to ablate. The (EO)of the fistula patients were thoughly curettaged, irrigated clean with saline, cored out, or ablated using Radiofrequency or Laser. Postoperatively patients early lifestyle resumption was remarkable. wound healing monitored in postoperative visits, weekly, in first 2 weeks, in 10 days for following 1 month and then in 15 days, until complete healing. few cases required curettage of intersphincteric space by 6 weeks postoperatively Anal Tonometery was performed at 1 month, 3 month, 6 month postoperatively, along with physiotherapy. MRI was performed in all the cases after wound healing.

Results/Outcome(s): Patients recoverd uneventfully, with minor pain on the vas scale 2-4, minor intermittent bleeding and discharge per anum. TAIOS, is a minimal invasive treatment approach to complex fistula in ano patients.

Conclusions/Discussion: Complex Anal fistulas can be [high horseshoe] intersphincteric, Transphincterc[-high, horseshoe, J shaped, multiple EO, IO], extrasphincteric, and suprasphincteric. treatment strategy involves dealing with (EO), dealing with tract, and most important dealing with (IO) the recurrence and treatment failures usually happen because of not identifying [IO], or failure of treatment strategy on (IO), for e.g suture blow out, or advancement flap failures. the cryptoglandular theory states that the abscess originates in (IS), sometimes it traverses in the (IS) and in these cases mere treating the (IO) will not suffice as infection can again arise in the IS space and lead to failure of surgical procedure and recurrence of fistula. TAOIS involves internal sphincterotomy, from the IO till

the IS space, the advantage is it being minimal invasive, gives proper drainage of IS plane, high IS tracts which are not apparent even on MRI can be identified and tackled, horseshoeing in the IS plane can be tackled, and chances of anal incontinence are avoided as it does not involve extensive cutting of external anal sphincter.

PERIANAL ABSCESS AND FISTULA: CHARACTERIZING A SIMPLE PROBLEM WITH COMPLEX OUTCOMES IN MODERN ERA.

eP497

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Purpose/Background: Perianal abscess is an anorectal pathology for which the data on its incidence and prevalence has not been recently analyzed. Anecdotally, providers often quote the rate of conversion from abscess to a fistula to be about 50%. However, the literature shows a wider range of 30-50%. Our aim was to analyze the overall incidence and epidemiology of perianal abscesses and characterize the rate of fistula development and type of surgical intervention.

Methods/Interventions: A retrospective observational study was conducted using TriNetX, a global federated health research network with access to electronic medical records (EMRs) from 70 participating health care organizations, from January 2015 to October 2022. All statistical analyses were completed on the TriNetX online platform. ICD-10 codes for perianal abscess and fistulas were used. We only included patients who had the diagnosis of abscess with no fistula at presentation. For cohort of perianal abscess, we followed the cohort of perianal abscess with added ICD-10 codes of fistula from the day of diagnosis onwards. We used the following CPT codes to determine specific surgical intervention: 46288, 46020, 46030, 46045, 46280, 46706, 46707, 46040, 45990.

Results/Outcome(s): From 2015-2022, the overall incidence was 126 per 100,000 individuals in all participating centers using the TriNetX database. Baseline characteristics of these patients include mean age at index to be 46.2 years with males (66%) being more frequently diagnosed than females (34%). In the perianal abscess cohort, patients with abscess were more frequently of White race (61%) followed by Black/African American race (21%). Major comorbidities seen in correlation were nicotine dependence (23%), overweight and obesity and diabetes mellitus (both at 21%). The incidence of patients who developed fistula following abscess were 15.6%. More males (68%) were diagnosed with a fistula with individuals from Non-Hispanic or Latino descent having the highest rate (67%). With respect to comorbidities, noninfective enteritis and colitis (24%) followed by overweight/obesity (23%) were found to be most associated with the risk of developing a fistula. Nearly half of these patients had to proceed with a surgical intervention for perianal fistula (47.1%). The most common surgical intervention was placement of seton (43%) followed by surgical treatment including fistulectomy/fistulotomy (26%).

Conclusions/Discussion: The incidence of perianal abscess 126 per 100,000 individuals in the modern era. Less than 20% patients go on to develop a fistulous disease. Certain co-morbidities, especially having history of colitis, carry a higher risk of this complication and should be considered in counseling these patients.

DEMOGRAPHICS	PERIANAL ABSCESS	ABSCESS + FISTULA	ABSCESS+FISTULA+SURGICAL INTERVENTION
Age at index	46.2 years	44.8 years	43.7 years
Gender			
Male	66	68	68
Female	34	32	32
Race/Ethnicity			
White	61	65	66
Black/African American	21	15	16
Asian	3	4	5
Hispanic/Latino	8	8	9
Not Hispanic or Latino	63	67	70
American Indian/Alaska	1	0	1
Native Hawaiian/Pacific Islander	0	0	1
Unknown Race	15	15	14
Unknown Ethnicity	29	25	21
Co-morbidities			
Diabetes Mellitus	21	15	13
Overweight/Obesity	21	23	27
Nicotine Dependence	23	20	22
Non-infective enteritis/colitis	16	24	27
Other Immunodeficiencies	2	3	3

Epidemiology of patient population across the cohorts

BENEFITS OF HPV VACCINATION BEYOND CDC RECOMMENDED AGE REMAINS UNCLEAR IN THE PREVENTION OF ANAL DYSPLASIA IN MEN.

eP498

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Purpose/Background: HPV vaccination is recommended ideally before exposure, with catch-up vaccination for men only recommended as recently as 2011. A recent, follow-up study shows that early or catch-up vaccination in men younger than 27 years old have a lower incidence of HPV related anal lesions even at 10 years. Positive HIV status is associated with greater risk of anal dysplasia. With HPV vaccination only conditionally recommended for those beyond 27 years of age, it remains unclear if late vaccination confers any benefits. This study aims identify association between HPV vaccination and HIV status with risk of anal dysplasia in men vaccinated after 27 years old.

Methods/Interventions: A prospectively collected database of patients evaluated for anal dysplasia by two colorectal surgeons at a single institution between 9/2018 and 8/2022 was reviewed. Information on age, sex, HPV vaccination status, HIV status, anal pap smear result, and biopsy results were collected. Only men who were at least 27 years old in 2011 were included. Chi-square statistical

analysis of anal dysplasia rates was performed comparing associations with vaccination and HIV status.

Results/Outcome(s): 740 unique patients were seen for anal pap smear. 412 men met inclusion criteria. The median age at time of anal pap smear is 50 years (34 to 79). The HPV vaccination status was known for 382 patients and HIV status for 391 patients. Only 18 men (4.7%) of known vaccination status were vaccinated. 259 men (66.2%) were HIV+, of which only 12 (4.8%) were vaccinated. Compared to the unvaccinated group, vaccinated men were more likely to have abnormal anal pap smears (83.3% vs 68.6%, p=0.35) and abnormal biopsy results (AIN 1-3) (85.7% vs 70.8%, p=0.26). HIV+ men were significantly more likely to have abnormal anal pap smears, 72.6% vs 62.1%, p= 0.03. This group also had more abnormal biopsy results 34.3% vs 29%, p = 0.08. Comparing vaccinated and unvaccinated HIV+ men, anal dysplasia rates did not significantly differ, p=0.10.

Conclusions/Discussion: Only a small percentage of men, 4.7%, are vaccinated against HPV beyond recommended age, which is a limitation of this study. We showed that vaccination status and HIV+ status were not associated with greater dysplasia rates with statistical significance. However, men with HIV+ status were significantly to have abnormal pap smears. It remains to be seen if HPV vaccination after the recommended age of 27 provides any benefit, particularly in HIV+ men who are at greater risk of anal dysplasia and anal cancer. More studies are needed to determine benefits in HPV vaccinations in men beyond recommended age.

AUGMENTED SURGICAL REPAIR OF COMPLEX ANAL FISTULA USING AUTOLOGOUS PLATELET-RICH PLASMA AND ACELLULAR BIOLOGIC MATRIX– A PILOT STUDY.

eP499

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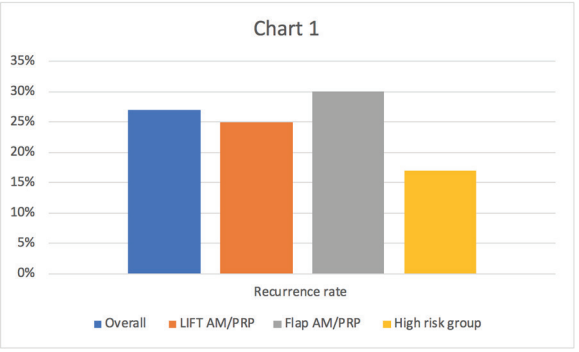
Purpose/Background: Treating complex anal fistulas remains a blight for the colorectal surgery community. Even when performed by seasoned surgeons, sphincter-sparing operations entail a roughly 25-30% risk of fistula recurrence. Various biologic agents have been investigated for their ability to augment soft tissue wound healing. The bioactive factors and provisional matrix provided by platelet-rich plasma (PRP) along with its autologous nature and anti-inflammatory, anti-bacterial properties make it an attractive candidate. Biologic acellular matrices (AM) act as a scaffold for recruited cells to build upon and have been commercially available for decades. Our study is the first to investigate the combination of PRP and AM to augment surgical treatment of complex fistulas. The purpose of this pilot study is to investigate the safety and feasibility of this technique before an upcoming randomized clinical trial.

Methods/Interventions: We performed a retrospective review of patients who underwent complex anal fistula repair by ligation of intersphincteric fistula tract (LIFT) or advancement flap augmented by autologous PRP and AM. Patients received ACell MicromatrixÒmixed with 5-8cc of autologous PRP obtained using an Arthrex AngelÒkit. Half of the mixture was reconstituted and injected at the internal closure site, tissue bed of a flap, and along the fistula tract just outside the wall, while the other half was mixed at a 1cc:100g ratio to make a paste used to fill the fistula lumen. The primary endpoint was safety, with avoidance of adverse events (AE), and secondary endpoint was fistula recurrence. Patients were followed at regular intervals and clinical exam including anoscopy. Patients with a recurrent fistula, blind-ending sinus, multiple branching tracts, history of preceding horseshoe abscess, or any fistula associated with immunosuppression were classified as high-risk. Institutional review board approval was obtained.

Results/Outcome(s): In total, 11 patients received augmented repair by a single surgeon with an average follow-up of 542 (+221) days. Six cases were considered high risk. No treatment-specific AE occurred. Three patients suffered recurrence (2 LIFT, 1 flap)- 2/5 average risk patients and only 1/6 high risk patients. Clinicians anecdotally noted shorter times to external healing and drainage cessation, and less postoperative pain and narcotic use compared to historical controls without biologic agents, but these were not defined outcome endpoints.

Conclusions/Discussion: This pilot study demonstrates a new technique of concurrently applying PRP and AM to augment complex fistula repair. Although successful repair may be increased in high-risk patients, any clinical conclusions are limited by the small number of patients. However, it appears to be a safe approach. Adequately powered, forthcoming pragmatic studies are required to define the clinical effectiveness of this new technique.



IS LASER AN EFFECTIVE TOOL TO TREAT HIGH INTERSPHINCTERIC COMPONENTS OF COMPLEX FISTULAS?

eP500

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Purpose/Background: High Intersphincteric Tracts can be present in high complex, intersphincteric [IS] or complex transphincteric[TS] fistulas. The tracts can be seen traversing up the intersphincteric plane while performing the Trans anal opening of IS[TAOIS] plane in complex fistulas, they can end blind or a rectal perforation can be traced up. The tracts can be very thin. Treating these thin tracts can be a challenge and if untreated they can be a cause of recurrence of fistula. Diode 1470nm laser fistula fibre comes in 2 diameters, and is a very effective tool to treat such high [IS] tracts.

Methods/Interventions: 12 patientsof high complex fistula [8TS,4 IS] were operated [2020-2021].After identifying the internal opening in each case of anterior or posterior fistula, TAOIS was performed. As the IS plane opened, the high extensions could be visible and traced upward. In 2 patients there were 2 high IS tracts. None of the patients had visible Intersphincteric high extensions apparent on MRI. The tracts were curettaged carefully and then treated with1470 diode laser, using round tip fistula fibre on CW settings. In some cases the tracts were excised using bare fibre of Laser. in cases with rectal perforation, figure of eight was taken at the site with 2-0 polyglycolic. The transphincteric tracts and external openings of fistula were also treated with laser fibre. The patients discharged in 1 or 2 days. Followed up weekly for 1st 2 weeks then fortnightly for 3 months postoperatively. on complete clinical healing, Mri was prescribed as a standard.

Results/Outcome(s): The recovery was uneventful in all the patients. The pain score ranged from 2 -4 on VAS scale, reaching 0 by end of 6 week postoperatively. Mild bleeding, discharge per anum reduced with wound healing, and itching during final stages of wound healing were common post operative symptoms. Physiotherapy with Anal Tonometry was performed at 1, 3, and 6 month postoperatively which showed improvement in parametres

Conclusions/Discussion: Mentioned by Eisenhammer in 1958, the IS space has a significance in pathogenesis and management of Anal fistula. The intersphincteric component is present in most complex fistulas. drainage of the IS space with identification and treatment of superior extensions of tracts in the IS plane is crucial to prevent recurrence in complex fistula. Diode 1470 Laser is a new novel tool to treat higher extensions of IS tracts, the tracts can be curettaged and then treated using the round tip fistula fibre, which comes in 2 diametres, for use as per the diameter of the tracts. The very thin intersphincteric superior extensions can be finely cored and dissected up using the bare fibre which gives a very neat dissection. To conclude, Laser enables fine meticulous dissection or ablation, of the higher IS tracts in a minimal invasive way, thus minimising recurrences, minimising damage to anal sphincter complex, and early postoperative recovery in high complex anal fistulas.

LASERS: CAN IT BE A GOLD STANDARD FOR TREATMENT OF GRADE 2 AND 3 HEMORRHOIDS.

eP501

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Purpose/Background: Hemorrhoids are the most common anorectal complaint, and approximately 10-20% of patients with symptomatic hemorrhoids require surgery. A surgical procedure which has less postoperative pain, less bleedimg and less chances of recurrences along with being minimal invasive is looked upon to by patients. Laser procedure of Hemorrhoids is a new novel technique which has all the advantages of minimal invasive procedure. we analyse 57 patients who undewent laser produre for hemorrhoids [2016-2021]

Methods/Interventions: Preoperative workup of patients included routine blood investigations, chest Xray, ultrasonography abdomen, and colonoscopy. The patients were operated under epidural anaesthesia. The Hemorrhoidal arterial ligation [HAL] was performed for each hemorrhoidal mass prior to performing laser procedure. The conical tip fibre of 1470 diode laser was used. The fibre was made to enter the submucosal plane of the hemorrhoid mass through the mucocutaneous junction. the tip of the fibre was rotated while delivering laser energy in the submucosal plane, so as to avoid stickinf of the tip. each hemorrhoid mass was deliverd 150 to maximum of 250 joules of energy. Ice was placed in the anal canal post procedure. Additional procedures like excision of external hemorrhoids, fissurectomy, laser sphincterotomy were also performed in some cases. The patients were discharged on the next day of surgery on a regular diet. They were prescribed Micronised purified flavonoid fraction[MPFF], antibiotics, analgesics and stool softners. for the first postoperative week, followed by continuation of MPFFfor another week and stool softners upto 3 months.. postoperative follow up visits were at 1, 3 weeks, and then monthly upto 3 months.

Results/Outcome(s): The most common postoperative symtoms were mild pain[VSA 0-2], mild bleeding, discharge and itching. the patients resumed their lifestyle early, and returned to workplace in a week after the procedure.

Conclusions/Discussion: Proper classification of hemorrhoidal disease is a must before planning the treatment strategy. for a hemorrhoidal disease, of grade 2 and 3, invoving less than 50 percent of rectal mucosa, Lasers can

be the be the best minimal invasive approach. in conclusion Laser procedure for grade 2 and 3 hemorrhoids can be considered as the gold standard of treatment.

DOES SOCIOECONOMIC STATUS INFLUENCE OUTCOMES OF PERIANAL ABSCESS?

eP502

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Purpose/Background: Initial care of perianal abscess is often provided in the emergency setting. Decreased access to follow-up care among socioeconomically vulnerable patients may be associated with adverse outcomes, yet little is known about the demographics of patients with perianal abscess. We present the first study to examine the association between demographic, socioeconomic, and comorbidity and outcomes of perianal abscess.

Methods/Interventions: A retrospective review of patients undergoing emergency drainage of perianal abscess at a tertiary referral center, January 2020-June 2022, was performed. Patients with inflammatory bowel disease or anorectal malignancy were excluded. Access to care was determined by insurance status, which was classified as well-insured (employer-sponsored, union-sponsored, non-group, or Medicare plans) or under-insured (Medicaid, essential plans, or no insurance). Correlation was determined with Pearson Chi-squared, Fisher exact or Wilcoxon rank sum tests, as appropriate.

Results/Outcome(s): 159 patients underwent emergency drainage of perianal abscess during the study period. Median age was 39 years (interquartile range, 30-52); 122 patients (77%) were male, and 87 (55%) were under-insured. Under-insured patients were more likely to self-identify as non-white (82%), Hispanic (63%), and tobacco users (32%). Only 62% of the study population attended outpatient follow-up. Those who attended follow-up were more likely to be well-insured (71% vs 54%, p=0.03). 61 (38%) patients re-presented to the emergency department with persistent or recurrent symptoms. Under-insured patients were more likely to return to the emergency department (46% vs 29%, p<0.05). Of 98 patients seen in follow-up, 44 patients (45%) developed an anal fistula; median time to fistula diagnosis was 25 days (interquartile range, 0-51). Rates of fistula formation did not vary significantly with BMI, tobacco use, diabetes, other comorbidity, or insurance status (all p≥0.05). 33 patients underwent fistula repair with median time to healing of 142 days; rates of fistula repair and time to recovery did not vary with insurance status.

Conclusions/Discussion: We find that 45% of patients undergoing perianal abscess drainage develop an anal fistula. Under-insured patients with perianal sepsis are at equal risk for fistula formation as their better-insured counterparts, but they are more likely to be lost to follow-up and experience higher rates of emergency department recidivism. This has important implications for quality of life, functional outcome, and cost of care. Future efforts should target patient and system factors to reduce inequities in care.

Demographics, Comorbidities, and Follow-up by Insurance Status

Characteristic	Overall, N = 159[1]	Under-insured, N = 87[1]	Well-insured, N = 72[1]	p-value[2]
Age	39 (30-52)	35 (30-46)	46 (33-62)	<0.001
Male	122 (77%)	73 (84%)	49 (68%)	0.02
Race				0.02
Asian	3 (2.0%)	0 (0%)	3 (4.4%)	
Black	39 (26%)	25 (30%)	14 (21%)	
Other	71 (47%)	43 (52%)	28 (41%)	
White	38 (25%)	15 (18%)	23 (34%)	
Ethnicity				0.08
Hispanic	87 (56%)	54 (63%)	33 (49%)	
Non-Hispanic	67 (44%)	32 (37%)	35 (51%)	
Type II Diabetes	27 (17%)	7 (8.0%)	20 (28%)	<0.001
Active Tobacco Use	39 (25%)	28 (32%)	11 (15%)	0.01
Clinic Follow-up	98 (62%)	47 (54%)	51 (71%)	0.03
Emergency Department Recidivism	61 (38%)	40 (46%)	21 (29%)	0.03

[1] Median (interquartile range); n (%)
[2] Wilcoxon rank sum test; Pearson's Chi-squared test; Fisher's exact test (significance was set at p<0.05)

MODIFIED MARTIUS-LIFT: AN EFFECTIVE SURGICAL OPTION IN RECURRENT RECTO-VAGINAL FISTULAS.

eP503

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Purpose/Background: Recto-vaginal (RV) fistulas remain an entity within the spectrum of benign anorectal diseases that carries significant morbidity in terms of quality of life. The aim of this single-center retrospective case series is to explore the efficacy of an additional surgical option for recurrent recto-vaginal fistulas: a combined Modified Martius Flap and Ligation of Intersphincteric Fistula Tract (LIFT) technique.

Methods/Interventions: A chart review spanning 2010-2022 was conducted to identify all rectovaginal fistulas that were treated with the combined Modified Martius-LIFT technique at the Centre Hospitalier de l'Université de Montréal (CHUM). All adult patients with RV fistulas were included, regardless of fistula etiology. The primary outcome was defined as the cure of RV fistula, while the secondary outcome was defined as time to recurrence.

Results/Outcome(s): Between 2010-2022, 489 cases of perianal and recto-vaginal fistulas were initially identified, of which 19 cases of recto-vaginal fistulas were included in this study. Average age was 45 ± 11.3 years, with 84% (16) of patients having had prior RV fistula repair attempts. Eleven patients (58%) were active smokers, and five (26%) had medical history of Inflammatory Bowel Disease (IBD). Ten (52.6%) developed fistulas in a post-partum context. Only two patients (10.5%) had stomas prior to their Modified Martius-LIFT procedure. Overall, 14 patients

(74%) experienced a cure of their RV fistula. Median follow-up time was 8.8 months [4.6-25]. Of the 5 patients who recurred, median time to recurrence was 3.1 months [2.1-4.5]. This study is limited by its retrospective, single-center nature and its limited number of patients.

Conclusions/Discussion: This retrospective case series demonstrates that a Modified Martius-LIFT technique is an effective surgical option to be considered, particularly in recurrent RV fistula cases. These findings could serve as guidance towards a future prospective study comparing this combined technique with current traditional surgical options.

LACK OF REPORTING AND REPRESENTATION OF RACIALLY AND ETHNICALLY DIVERSE PARTICIPANTS IN US-BASED COLORECTAL SURGERY TRIALS.

eP504

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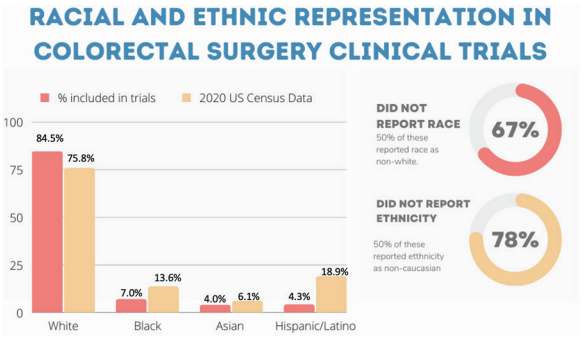
Purpose/Background: Despite the established National Institute of Health Revitalization Act (1993) which aims to include ethnic and racial minority representation in surgical trials (STs), racial and ethnic enrollment disparities persist. In colorectal surgery, retrospective studies have found worse outcomes for racial/ethnic minorities undergoing colorectal cancer management, our goal is to assess enrollment and representation of non-White participants in STs

Methods/Interventions: With the help of an expert librarian search terms were created to identify STs. Inclusion criteria included: Trials performed in the United States between January 1st 2000 and May 30th, 2022, colorectal cancer diagnosis, with a surgical intervention, technique, or postoperative outcome. Trials evaluating chemotherapy, radiotherapy or other medical interventions were excluded. Search was performed using MEDLINE (Ovid), Embase, Web of Science, and Cochrane Central. Primary outcome was rate of race and ethnicity reporting in STs. Pooled proportion analysis and meta-regression was performed to identify proportion of patients by race and ethnicity included in STs, and association of year of publication and funding source.

Results/Outcome(s): We screened 10,673 unique publications, of which 80 were examined in full-text. 18 studies met our inclusion criteria. 66.7% (12) of trials did not report race, 16.7% (3) reported race as proportion of White participants only, and 16.7% (3) reported three or more races. There was no description of ethnicity in 78% (14) of trials, with 11% (2) describing "non-Caucasian" as ethnicity, and 11% (2) describing only Hispanic ethnicity. Pooled proportion of black participants in STs was 7%, compared to a US population proportion of 13.6%, Asian participants had a pooled proportion of 4.6%, in contrast to a US population proportion of 6.1%, Hispanic patients had a pooled proportion of 4.1%, and represent 18.9% of the US population. Publication year was not associated with increased odds of race reporting in STs (OR 0.94, p=0.378), and government funding source was associated with 10% less chances of race reporting (OR 0.90, p=0.016)

Conclusions/Discussion: Both race and ethnicity are severely underreported in colorectal surgical trials. When reported, the number of participants recruited for trials are not a representation of the diversity in race and ethnicity the US has in its population. The inadequate representation in clinical trials has the potential of prolonging the already known outcome disparities of minority patients in colorectal cancer management.



ARE THERE ANY SURVIVAL DIFFERENCES BETWEEN SYNCHRONOUS AND METACHRONOUS LIVER METASTATIC COLON CANCER- A 7-YEAR COHORT OF NATIONAL HEALTH INSURANCE RESEARCH DATABASE.

eP505

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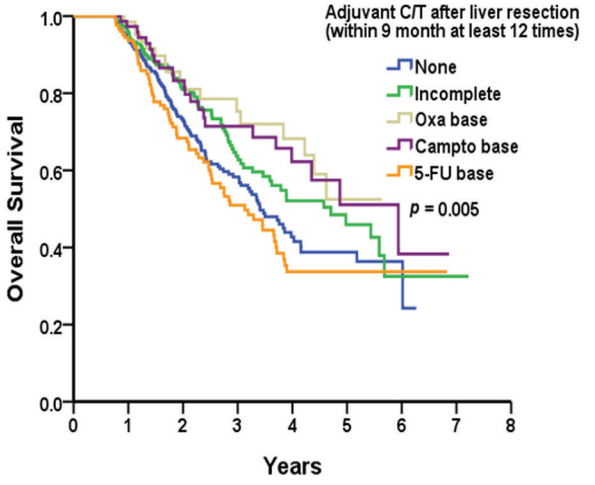
Purpose/Background: Colorectal cancer is the third most common malignancies worldwide. Among patients who first diagnosed colorectal cancer, up to 25% patient had metastatic disease. Liver first approach, new concepts of treatment for colorectal cancer liver metastasis (CRLM) had emerge since 2000. Whether synchronous or metachronous CRLM had better survival benefits was still in debate and lack of large number cases study. Our purpose is to investigate survival, patient characteristics and different of treatment between synchronous CRLM and metachronous CRLM in Taiwan population

Methods/Interventions: We analyzed data retrospectively on National Health Insurance research database between January 2003 to December 2010. All patient with CRLM with liver and colon resection were identified. Synchronous liver CRLM were defined any CRLM identified within 6 months after colorectal cancer detected.

Clinical variables were compared between the patient groups, and survival outcomes were characterized.

Results/Outcome(s): There were 1935 patients notified in synchronous CRLM and 648 patients notified in metachronous CRLM group. Five year survival rate of synchornous liver metastasis was 31.4%, comparing with metachronous CRLM, 39.3% ($p<0.05$). Neoadjuvant regimens were also differed in both groups ($p<0.001$). In multivariable analysis, age, synchronous CRLM, and adjuvant chemotherapy may have significant risk on patient survival and oxaiplatin based chemotherapy was superior then irinotican based chemotherpy. With Kaplan-Meier method, it was also obvious to note liver resection will increase survival benefits comparing to no liver resection in CRLM patients.

Conclusions/Discussion: Patients with synchronous colorectal liver metastases had significant lower 5-year overall and disease-free survival, comparing to patients with metachronous liver metastases. Further factors as resection strategies and neoadjuvant therapy regimens should be evaluated in the future.



Oxaliplatin based chemtherapy had better survival benifit than irinotican based chemotherapy in both synchronous CRLM and metachronous CRLM

SATISFACTION FOR REGIONAL POSTOPERATIVE REFERRAL PATIENTS WITH COLORECTAL CANCER FOLLOWING ENHANCED RECOVERY AFTER SURGERY: A CROSS-SECTIONAL STUDY.

eP506

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Purpose/Background: To investigate the status quo of satisfaction for regional postoperative referral patients with colorectal cancer (CRC) following Enhanced Recovery After Surgery and to explore its influencing factors.

Methods/Interventions: A cross-sectional survey was conducted at some hospitals in Chengdu, China. Self-designed general information and satisfaction questionnaire were delivered to 214 regional postoperative referral patients with CRC following Enhanced Recovery After Surgery. The questionnaire consisted of four dimensions: referral process, diagnostic and treatment services, the environment of hospitals and the convenience of medical treatment, overall satisfaction, and 1 open-ended question. We used the Mann-Whitney U test and the Kruskal-Wallis H test to perform a one-factor analysis of the factors affecting the satisfaction of each dimension, and the correlation of overall satisfaction to each satisfaction dimension was analyzed using Spearman Correlation Analysis.

Results/Outcome(s): 214 regional postoperative referral patients with CRC following Enhanced Recovery After Surgery were included in this cross-sectional study. The overall satisfaction score of this survey was (3.390 ± 0.715), with the highest score of diagnosis and treatment services (3.270 ± 0.853) and the lowest score of the environment of hospitals and the convenience of medical treatment (3.050 ± 0.860). The Spearman correlation analysis showed that the environment of hospitals and the convenience of medical treatment ($r=0.642$, $P<0.001$) were associated with overall satisfaction significantly. The rank sum test and Mann-whitney U analysis showed that the overall satisfaction of referral patients was affected by patients' gender ($P= 0.815$), age ($P= 0.291$), marital status ($P=0.263$), educational level ($P= 0.199$), occupation ($P=0.479$) and payment form of medical expenses ($P=0.124$). And the rank sum test and Mann-whitney U analysis showed that the influence of gender ($P=0.023$) on referral process satisfaction and the effect of education ($P=0.033$) on referral service satisfaction were significant.

Conclusions/Discussion: We found that the satisfaction of CRC referral patients needs to be improved. The environment of hospitals and the convenience of medical treatment had the greatest impact on overall satisfaction, which may be related to the increased need for a good inpatient environment and amenities for patients in the postoperative recovery period. Our study suggested that female patients generally more satisfied with the referral process than males. At the same time, the educational level had the most significant impact on the satisfaction of treatment services. Medical personnel should pay more attention to assessing patients' educational levels during the treatment process and provide answers to patients' questions in line with their educational level.

Table 1.

	n (%)	Referral process	Diagnosis and treatment services	The environment of hospitals and the convenience of medical treatment	Overall satisfaction
Gender					
Female	126(58.88)	3.150	3.240	3.025	3.400
Male	88(41.12)	3.350	3.320	3.084	3.360
Z		-2.276	-1.050	-0.318	-0.233
P		0.023	0.294	0.750	0.815
Marital status					
Married	196(91.59)	3.230	3.266	3.045	3.400
Other	18(8.41)	3.280	3.349	3.100	3.280
Z		-0.380	-0.012	-0.204	-1.120
P		0.704	0.990	0.838	0.263
Educational level					
Upper secondary education or above	91(42.52)	3.220	3.182	2.947	3.330
Junior high education or below	123(57.48)	3.240	3.340	3.125	3.430
Z		-0.796	-2.133	-1.367	-1.039
P		0.426	0.033	0.171	0.199
Occupation					
Retired	78(36.40)	3.180	3.050	3.000	3.350
Unemployed	38(17.80)	3.290	3.520	3.220	3.470
Peasantry	28(13.10)	3.250	3.410	3.180	3.500
other	26(12.10)	3.310	3.270	3.000	3.310
Civil servant	12(5.60)	3.250	3.320	2.970	3.330
Professional and technical personnel	7(3.30)	2.710	2.880	2.460	3.000
Office clerk	7(3.30)	3.860	3.690	3.490	3.710
Worker	9(4.20)	2.890	3.570	2.600	3.220
Individual operation	5(2.30)	3.200	3.310	3.040	3.600
Enterprise management	4(1.90)	3.750	3.430	3.350	3.390

OUTCOMES OF COLORECTAL ROBOTIC SURGERY IN NEWLY ESTABLISHED ROBOTIC SURGERY CENTER: A CASE SERIES.

eP507

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Purpose/Background: The adoption of robotic surgery in the Middle East has been slow, and there is very limited data regarding outcomes in newly established programs. Our aim is to report our experience and outcomes of robotic colorectal surgery performed by fellowship-trained robotic colorectal surgeons.

Methods/Interventions: This is a retrospective case series of 34 patients collected from Jaber Al Ahmad hospital surgical department in the State of Kuwait from 11/2021 till 08/2022. The data was collected using patients' electronic medical records. Primary outcomes were postoperative morbidity and mortality, conversion to open, and length of hospital stay.

Results/Outcome(s): The most common indications for surgery were rectal adenocarcinoma (n=13, 38.2%), colon adenocarcinoma (n=12, 35.3%), and complicated diverticulitis (n=4, 11.8%). Other indications were rectal prolapse (n=3, 8.8%), ulcerative colitis (n=1, 2.9%), and colonic inertia (n=1, 2.9%). The most common operations were low anterior resection (n=18, 52.9%), abdominoperineal resection (n=5, 14.7%), partial colectomy (n=8, 23.5%), and rectopexy (n=3, 8.8%). Eleven patients (32.4%) had a postoperative complication within 30 days of surgery. All complications were defined according to the Clavien-Dindo classification. Most of the complications were mild to moderate (Grades I-II). The most common postoperative complications were intra-abdominal and rectus sheath hematoma (n=4, 10.8%) and acute kidney injury (n=4, 10.8%). Two patients had an intra-abdominal abscess (Grade II), while one patient had an anastomotic leak requiring reoperation (Grade IV). Other complications include pulmonary embolism (Grade II) (n=1, 2.7%) and local ischemia in the loop ileostomy requiring local revision (Grade IIIb) (n=1, 2.7%). The mean length of stay in the hospital was eight days. There were no conversions to open surgery, and there was no reported mortality within 30 days of surgery.

Conclusions/Discussion: In newly established relatively small programs, robotic colorectal surgery performed by fellowship-trained surgeons can result in comparable outcomes to other well-established larger robotic programs or other programs utilizing alternative minimally invasive techniques.

COMPARISON OF HEALTHCARE EXPENDITURES FOR MINIMALLY INVASIVE VS. OPEN COLECTOMY IN COLON CANCER.

eP508

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Purpose/Background: Most studies comparing surgical platforms focus on short-term outcomes. In this study, we compare the expanding societal penetration of minimally invasive surgery with open colectomy by assessing payer and patient expenditures for up to one year for patients undergoing surgery for colon cancer.

Methods/Interventions: We analyzed the IBM MarketScan Database for patients who underwent a left or right colectomy for colon cancer between 2013 and 2020. Outcomes included perioperative complications and total healthcare expenditures up to 1-year following colectomy. We compared results for patients with open colectomy (OS) to those with minimally invasive (MIS) operations. Subgroup analyses were performed for adjuvant chemotherapy (AC+) versus no adjuvant chemotherapy (AC-) groups and for laparoscopic (LS) versus robotic (RS) approaches.

Results/Outcome(s): Of 7,063 patients, 4417 cases did not receive adjuvant chemotherapy (OS: 20.1%, LS: 67.1%, RS: 12.7%) and 2646 cases had adjuvant chemotherapy (OS: 28.4%, LS: 58.7%, RS: 12.9%) after discharge. MIS colectomy was associated with lower mean expenditure at index surgery as well as at post-discharge

periods for AC- patients (index surgery: $34,588 vs $36,975; 365-day post-discharge $20,051 vs $24,309) and for AC+ patients (index surgery: $37,884 vs $42,160; 365-day post-discharge $103,341vs $135,113; p<0.001 for all comparisons). LS had similar index surgery expenditures but significantly higher expenditures at post-discharge 30-days (AC- : $2,834 vs $2276, p=0.005; AC+: $9,100 vs $7,698, p=0.020) than RS. The overall complication rate was significantly lower in the MIS group than in the open group for AC- patients (20.5% vs. 31.2%) and AC+ patients (22.6% vs. 39.1%, both p<0.001).

Conclusions/Discussion: MIS colectomy is associated with lower mean healthcare expenditures compared to the open approach for colon cancer at the index operation and at 365-days post-discharge. Healthcare expenditures for LS were higher than for RS at 30 days. The complication rate was lower in the MIS group than in the open group.

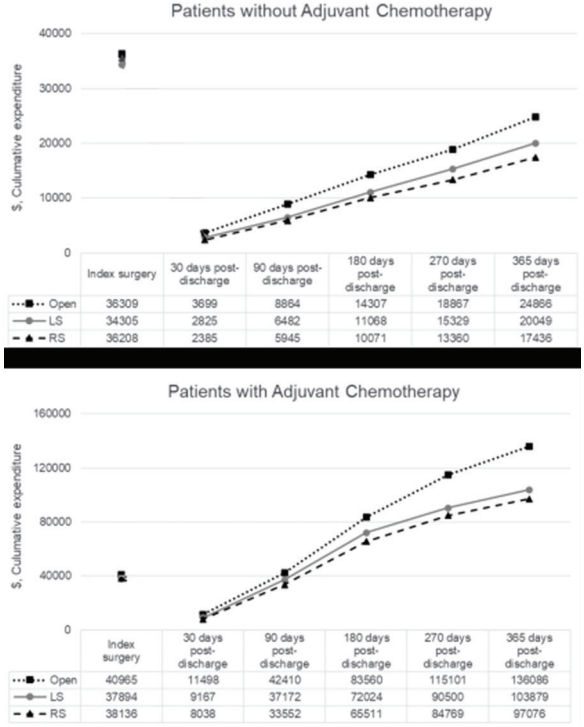

Figure. Time series graphics for the unadjusted expenditures. Health care expenditure was calculated by adding hospital and physician payments during the inpatient stay (index surgery) and all health services related costs within the 1-year after discharge, including inpatient, outpatient, and prescription drug services cumulatively. LS, laparoscopic surgery; RS, robotic surgery.

IMMEDIATE POSTOPERATIVE INTRAPERITONEAL DRAIN CEA LEVEL CAN AID IN RECURRENCE PREDICTION IN RECTAL CANCER.

eP509

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Purpose/Background: As prevalence of colorectal cancer increases, the emphasis on modalities for disease screening and recurrence surveillance rises. During patients' follow-up, serum CEA level is checked periodically, but its low sensitivity has always been an issue. We aimed to explore how checking CEA level in intraperitoneal drain postoperatively can support in recurrence screening

Methods/Interventions: Retrospective review of consecutive patients undergoing colorectal cancer operation at a single center, by a single surgeon between 2014/07-2018/11 was conducted. Primary colon or rectal cancer patients who had curative resection were included. Palliative resection, patients who did not have bowel resection, and those who did not have intraperitoneal drain insertion were excluded. Total of 354 cases were included in the analysis

Results/Outcome(s): Patients' general characteristics (i.e. age, gender, BMI) did not show significant differences. Median level of serum CEA (sCEA) was 2.63ng/mL preoperatively and 1.27ng/mL on postoperative day 7. For peritoneal CEA (pCEA) level, results were 6.88ng/mL, 4.41ng/mL, and 2.17ng/mL for postoperative 0, 1, 5 day (POD0, 1, 5), respectively. On this study, sensitivity and specificity of preoperative sCEA for recurrence was both 62.0% at cutoff of 3.3ng/mL (AUC 0.66, p <0.001). Results were comparable for pCEA, and especially for immediate postopearative day pCEA (POD0 pCEA), which showed 61% of sensitivity and 60% of specificity at cutoff of 8.71ng/mL (AUC 0.63, p=0.001). At cutoff of 5ng/mL, patients with elevated POD0 pCEA had higher T stage (p<0.001), larger tumor size (p<0.001), longer proximal (p=0.001) and distal margin (p<0.00 1), more harvested LNs (p=0.005) and higher number of recurrences (p=0.002). Number of recurrences was higher for all postoperative 0, 1, 5 days (p=0.002, 0.002, and 0.044 respectively). When adjusted for clinical or pathological features known to be associated with higher risk of recurrence, POD0 pCEA elevation had higher risk (HR=1.91, p=0.045). Separate analysis was done according to tumor location (colon or rectum), and it revealed POD0 pCEA elevation to be associated with increased risk for recurrence for rectal cancer patients (HR 3.81, p=0.016), but not for colon cancer patients. Moreover, sCEA elevation did not have statistically significant association with recurrence risk Similar to previous studies, 5-year disease free survival and overall survival

were not different between normal and elevated pCEA groups, but neither did normal and elevated sCEA groups

Conclusions/Discussion: As insertion of intraperitoneal drain is mostly routinely-done after colorectal cancer operations, checking peritoneal CEA level can be done readily and the results, from our study results, can aid as a reference in recurrence risk stratification along with serum CEA level for rectal cancer patients under cancer survivorship

Risk of recurrence in rectal cancer

	univariate			multivariate		
	HR	CI	P	HR	CI	P
Age > 50	0.61	0.27-1.35	0.218			
Gender	0.98	0.45-2.14	0.954			
MIS op	0.23	0.10-0.57	0.002	0.22	0.08-0.56	0.002
Tumor size	1.19	0.49-2.92	0.705			
pT 3 or 4	2.89	1.29-6.43	0.010	0.80	0.29-2.26	0.679
pN	4.16	1.90-9.11	<0.001	3.96	1.70-9.21	0.001
*Pre-op complication	1.51	0.20-11.10	0.688			
Pre-CEA	3.19	1.50-6.79	0.003	1.89	0.71-5.01	0.201
POD7-CEA	1.02	0.43-2.41	0.972			
HV POD0	4.19	1.44-12.22	0.009	3.81	1.29-11.25	0.016
HV POD1	2.65	1.19-5.91	0.017	0.81	0.25-2.63	0.723
HV POD5	2.78	1.22-6.34	0.015	1.57	0.63-3.95	0.335

*pre-op complication: includes perforation, obstruction requiring stent insertion

Table. cox regression analysis for recurrence risk for rectal cancer patients

COLORECTAL SARCOMATOID CARCINOMA: MAYO CLINIC EXPERIENCE.

eP510

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Purpose/Background: Primary colorectal sarcomatoid carcinomas are rare neoplasms, representing less than 0.1% of all colorectal malignancies. Survival tends to be poor, and no treatment guidelines have been established. The aim of our study is to describe the presentation, management, and outcomes of primary colorectal sarcomatoid carcinomas.

Methods/Interventions: A retrospective database review was performed using the Mayo Clinic cancer registry from 1992 - 2022. Pathology reports were screened to identify pathological diagnosis of primary colorectal sarcomatoid carcinomas. Patients were excluded if the sarcomatoid carcinoma was primary elsewhere and metastatic to the colon and/or rectum.

Results/Outcome(s): Six patients (3 female) were diagnosed with primary colorectal sarcomatoid carcinoma. Mean age of diagnosis was 60 years (range, 49 - 72). The mean time between onset of symptoms and diagnosis was 2.7 months (range, 0.5 - 6). Hematochezia was the presenting symptom in 83% (n=5) and the mean tumor size at diagnosis was 4.8 cm (range, 2.8 - 7.0). Four (66%) neoplasms were in the rectum, one in the sigmoid colon, and one in the transverse colon. At the time of diagnosis none had distant metastasis. One patient received neoadjuvant radiotherapy, and none received neoadjuvant chemotherapy. Endoscopic resection was performed in three and the others underwent surgical resection (extended right hemicolectomy, sigmoid colectomy, and low anterior resection). Other than the radial margin of the sigmoidectomy, margins were negative in five (83%). Two patients were found to have positive regional lymph nodes. Postoperatively, one patient received adjuvant chemoradiotherapy (endoscopic resection with 1 positive lymph node), one received chemotherapy (sigmoidectomy with 25 of 44 positive lymph nodes), one refused further therapy (extended right hemicolectomy), and three were offered surveillance alone (two endoscopic and one low anterior resection). Mean follow-up was 25.4 months (range, 3 - 60), during which four patients (66%) experienced metastatic recurrence and expired, one died secondary to unrelated comorbidities, and one endoscopic rectal resection (alive at the time of this study) developed local recurrence requiring re-excision with a transanal approach. The mean survival among those with colonic and rectal sarcomatoid carcinoma was 7 (range, 3 - 11) and 39 months (range, 9 - 60), respectively.

Conclusions/Discussion: This is the largest reported single-institution series of primary colorectal sarcomatoid carcinoma. Our experience revealed an aggressive tumor biology with high rates of recurrence following endoscopic excision and surgical resection. New avenues of treatment need to be explored.

CLINICOPATHOLOGIC CHARACTERISTICS AND PROGNOSIS OF SYNCHRONOUS AND METACHRONOUS COLORECTAL CANCER: A RETROSPECTIVE COHORT STUDY.

eP511

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Purpose/Background: As a specific and rare type of colorectal cancer (CRC), evidence about synchronous CRC (SCRC) and metachronous CRC (MCRC) are controversial. This study aimed to investigate the clinicopathologic characteristics and prognosis between SCRC and MCRC.

Methods/Interventions: Patients who underwent surgery for SCRC and MCRC at colorectal surgery department of Shanghai Changhai hospital between January 2000 and December 2021 were included. Perioperative indicators were comprehensively compared and included in survival analyses.

Results/Outcome(s): A total of 563 patients with SCRC (n = 372) and MCRC (n = 191) were included. Patients with SCRC were more likely to have long onset time, multiple polyps, positive CEA, advanced TNM stage, large tumor, perineural invasion (PNI), p53 positive

expression, mismatch repair proficient (pMMR) and postoperative chemoradiotherapy (CRT). Compared with MCRC, patients with SCRC showed worse 5-year overall survival (OS) (68.6%±3.0% vs 81.9%±3.5%, P=0.018) and 5-year disease-free survival (DFS) (61.2%±3.1% vs 71.0%±3.9%, P=0.022). In the subgroup analysis, separate segmental resection was an independent risk factor for long-term outcomes of bilateral SCRC.

Conclusions/Discussion: The clinicopathologic and molecular features exhibited differences between SCRC and MCRC. Patients with SCRC show a worse prognosis than those with MCRC. Bilateral SCRC required extended resection for a better long-term outcome.

DEVELOPMENT OF NOVEL PROGNOSTIC SCORE BASED ON THE INDICATORS REFLECTING THE TUMOR GLANDULAR DIFFERENTIATION AND MICROENVIRONMENT FOR PATIENTS WITH COLORECTAL CANCER.

eP512

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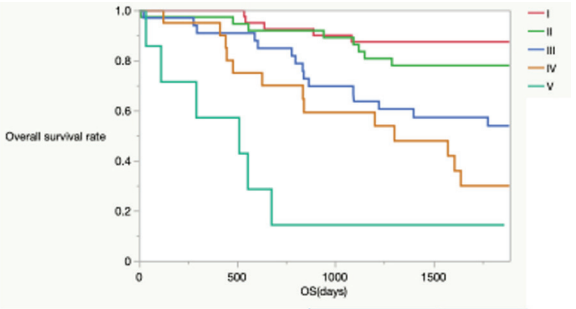
Purpose/Background: The establishment of prognostic stratification in patients with colorectal cancer (CRC) is a very important issue in the field of oncology. Several prognostic indicators and nomograms have been proposed. It has been well recognized that a tumor microenvironment plays important roles in tumor invasion and metastasis. Desmoplastic reaction (DR) is an established histopathological prognostic indicator for resected specimens from patients with CRC. Accordingly, the aim of the present study was to analyze the prognostic significance of combined histopathological indicators reflecting both tumor glandular differentiation (HGD) and microenvironment.

Methods/Interventions: Patient selection We selected consecutive patients with CRC who underwent surgical resection at the Department of Surgery of Kansai Medical University Hospital between January 2016 and December 2019. Accordingly, 137 patients with CRC were included in this study. **Score each histological evaluation and create a prognostic scale** (i) HGD grading score was further divided into three score groups (0 points: HGD2, 1 point: HGD3-4, and 2 points: HGD5-6) for reclassification. (ii) Tumor budding (TB) was scored 0-2 points for grade TB1-3, respectively. (iii)The relationship between pT and DR grade was scored as follows: pT1,2:0 points, pT3,4 and DR grade as mature and intermediate type:1 point, and pT3,4 and DR immature type:2 points. (iv) Lymph node metastasis was scored as pN0:0 points; pN1abc, 1 point; and p N2ab, 2 points. (v) In addition to histological evaluation, the standard value of carcinoembryonic antigen (CEA), which is commonly used as the grade of malignancy, is set at 5.0 mg/mL, and any value higher than 5.0 is scored as 1 point. The sum of (i)–(v) (0-9 points) was grouped into prognostic scale I:0-2 points, II:3-4 points, III:5-6 points, IV:7-8 points, and V:9 points, and prognostic curves for 5-year overall survival (5yOS) were generated using the Kaplan-Meier method.

Results/Outcome(s): Continuous variables are presented as median [range]. n=137 cases, age 73 [40-89], sex male:female=75:62, pStage I:II:IIIAB:IIIC:IV=31:40:33:8:25, and tumor localization on the right side:left side=76:61. Histological factors included: (i) HGD: 2:3-4:5-6=10:96:31, (ii) TB (points) 0:1:2=66:24:47, (iii) pT1-2:pT3-4 and (mature or intermediate):pT3-4 and immature=33:48:56, (iv) pN is 0:1abc:2ab=76:41:20, (v) CEA level of 4.25[1–2944]ng/mL, and 60 patients had a CEA of 5.0 ng/mL or higher. The prognostic scale was I:II:III:IV:V=40:37:33:20:7, 5yOS was 61.2 months, and the prognostic curve is shown in Fig.

Conclusions/Discussion: This study is the first to report a prognostic scale that combines histopathologic indices reflecting both HGD and tumor microenvironment plays. The scale correlated with grade in all stages of conventional TNM classification, suggesting new possibilities for prognostic prediction.



	p-value
Log-rank test	<.0001*
Wilcoxon	<.0001*

USING PATIENT NAVIGATION TO INCREASE COLORECTAL CANCER SCREENING QUALITY AND ADHERENCE.

eP513

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Purpose/Background: Colorectal cancer (CRC) is the fourth most common cancer among men and women in the United States (US) and is the fourth leading cause of cancer-related death. CRC screening is a key factor in reducing incidence and mortality. Despite decreasing incidence of CRC nationally and in the District of Columbia, DC continues to have one of the highest incidence rates in the US. The Centers for Disease Control and Prevention

estimate that 68.8% of adults in the US are up-to-date on screening. In contrast, certain areas of Washington, DC have reported screening rates of 42%. In 2017, Medstar Colorectal Cancer Screening Program (MCCSP) was created to reduce barriers to CRC screening, diagnosis and treatment amongst the high-risk, unscreened population in Washington, DC. From 2017-2020 a total of 272 patients were screened. To improve referral and screening rates, MCCSP partnered with primary care providers at Medstar Health and two Federally Qualified Health Centers. Studies show that patients are more likely to undergo screening if recommended by a primary care provider. MCCSP expanded the nurse navigation program to help enroll patients, schedule appointments and identify barriers that would prevent patients from completing screening. This study looks at MCCSP screening completion rates after partnering with Medstar Primary Care, Federally Qualified Health Centers and expanding the nurse navigation program.

Methods/Interventions: To facilitate recruitment and screening completion rates, MCCSP partnered with Medstar Primary Care Partners and Federally Qualified Health Centers. The nurse navigation program expanded using interventions based on the New Hampshire Colorectal Cancer Screening Program.

Results/Outcome(s): Since January 2021, 549 screenings have been completed through the expanded MCCSP. This includes 485 colonoscopies, 1 virtual colonoscopy, 19 FIT tests, and 44 Cologuard tests. Of the patients screened, 239 were referred by Medstar Primary Care Partners, 276 from Federally Qualified Health Centers, 13 from community events, and 21 from other referral sources. Of the 485 colonoscopies completed, 6 cancers were identified and 5 patients were found to have dysplasia. A total of 298 patients had colon polyps and 506 high-risk polyps identified.

Conclusions/Discussion: MCCSP was designed to improve CRC screening in a high-risk population that may have otherwise not been screened. Majority of referrals came from Federally Qualified Health Centers and newly partnered with Medstar Primary Care. With expansion of both referral source and the nurse navigation program, MCCSP screened 549 high-risk patients, identified 6 cancers and 506 high-risk polyps. In comparison to 2017-2020, screening rates doubled following the expansion of the program. While progress has been made, many individuals have been referred but have not completed screening. Future research will look to identify key barriers that prevent patients from undergoing screening

STAPLED ILEOCOLIC ANASTOMOSIS IN COLON CANCER: DOES SIZE MATTER?

eP514

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Purpose/Background: Stapled antiperistaltic ileocolic anastomosis is commonly performed to restore gastrointestinal continuity after minimally invasive or open right colectomy. The size and height of staplers used for stapled ileocolic anastomosis vary; there is no consensus on the specifics of the stapler. This study aimed to assess if the different sizes of staplers used in stapled ileocolic anastomosis impact postoperative outcomes.

Methods/Interventions: This was a retrospective cohort study of an IRB- approved database of all patients who underwent a laparoscopic right colectomy for colon cancer with an extracorporeal antiperistaltic stapled ileocolic anastomosis, from January 2011 to August 2021. Main outcome measures were hort-term (< 30 days) postoperative morbidity (ileus, anastomotic leak, surgical site infections, bowel obstruction, bleeding) and mortality.

Results/Outcome(s): The study included 270 patients (136 males) with a mean age of 68.7 years. Linear cutting stapler 75 mm length was used in 49 (18.1%) patients, 80 mm length in 97 (35.9%) patients, and 100 mm length in 124 (45.9%) patients. Blue cartridge (stapler height: 3.5mm) was used in 64.5% of the study population and green cartridge (4.8mm) in 7%. Apical enterotomy closure was performed by linear stapler in 54% of the patients and linear cutting stapler in 46%. In 26.3% of the study population overrun suturing on the apical staple line was used. The incidence of overall postoperative complications was 28.9%, while the anastomotic leak rate was 2.6% respectively. The use of a 100-mm linear cutting stapler was independently associated with a lower risk of complications (OR: 0.3, $p=0.019$). Stapler height and the closure technique of apical enterotomy did not affect the postoperative complication rate.

Conclusions/Discussion: The size of the linear stapler proved to impact short-term complications after right colectomy as the use of a 100-mm long stapler was associated with a lower risk for postoperative complications as compared to shorter staplers.

INCREASED BODY MASS INDEX IS ASSOCIATED WITH A LINEAR INCREASE IN THE N2 STAGE IN PATIENTS UNDERGOING RIGHT HEMICOLECTOMY.

eP515

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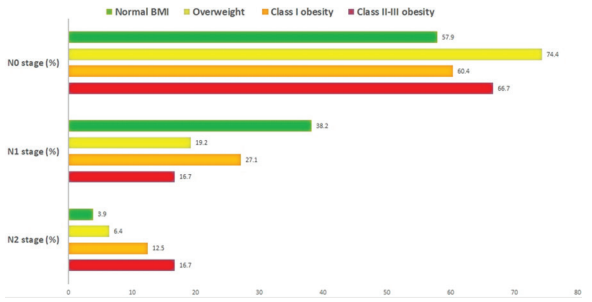
Purpose/Background: Right hemicolectomy can be technically challenging in patients with an increased body mass index (BMI). Obesity has been linked to increased postoperative morbidities, longer operation time, and a higher rate of conversion to open surgery. The present study aimed to provide a detailed analysis of the outcome of right hemicolectomy stratified by the BMI of patients.

Methods/Interventions: In this retrospective cohort study, all consecutive patients who underwent right hemicolectomy for cancer or irretrievable polyps between 2011 and 2021 were included. Patients were divided according to their BMI into five groups: normal BMI (18-24.9 kg/m^2, overweight (25 to <30 kg/m^2), class I obesity (30 to <35 kg/m^2), class II obesity (35 to <40 kg/m^2), and class III obesity (≥40 kg/m^2). The BMI groups were compared for baseline characteristics and outcomes. Main outcome measures were operation time, hospital stay, complications, reoperation, number of harvested and positive lymph nodes, resection status, and tumor recurrence.

Results/Outcome(s): 270 patients (50% male) with a mean age of 68.7±13.5 years and a mean BMI of 26.9±4.94 kg/m^2 were included. 28.5% of patients had normal BMI, 47% were overweight, 17.8% had class I obesity, and 6.7% had class II-III obesity. Patients with II-III obesity were significantly younger than patients with normal BMI (64.9 versus 70.8 years, p=0.011). There were more male patients with class I and II-III obesity than patients with normal BMI (52.1% versus 33.8%, p=0.004). Half of the patients with class I and class II-III obesity had diabetes mellitus, compared to 27.3% of patients with normal BMI. Patients with class II-III obesity were more likely to have the vascular division done by a stapler than patients with normal BMI, overweight, and class I obesity (11.8% vs 0 vs 0.8 vs 0, p=0.043). The mean operation time in patients with class II-III and class I obesity was significantly longer than in patients with normal BMI (197.1 and 160 vs 143.3 minutes, p=0.004). 16.7% of patients with class II-III obesity had pathologic N2 stage compared to 12.5% of patients with class I obesity, 6.4% of overweight patients, and 3.9% of patients with normal BMI (p=0.024). There were no significant differences among the BMI groups in the approach and type of surgery, estimated blood loss, hospital stay, complications, mortality, reoperation, tumor recurrence, number of harvested and positive lymph nodes, and R0 status.

Conclusions/Discussion: Patients with an increased BMI were younger, tend to be more often male, and had diabetes more often than did patients with normal BMI or who were overweight. Increased BMI was associated with a longer operation time and more N2 stage, yet was associated with a similar hospital stay, complication rate, harvested lymph nodes, and oncologic outcomes to patients with lower BMI.



LOCAL VERSUS ANATOMICAL RESECTION OF STAGE I-III RECTAL CANCER IN OCTOGENARIANS: AN EXTRACT MATCHED ANALYSIS OF THE NATIONAL CANCER DATABASE.

eP516

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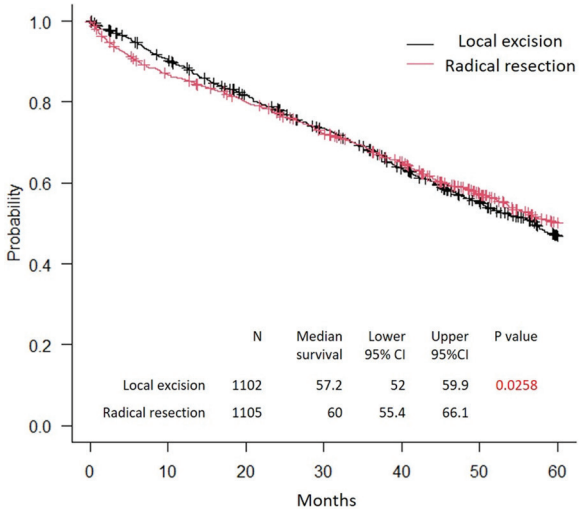
Purpose/Background: Treatment of elderly cancer patients is challenging as they can be over-treated with respect to their frailty state or undertreated due to their advanced age. Moreover, maintaining quality of life is essential for this population. This study aimed to assess the impact of the extent of rectal cancer resection on overall survival (OS) of octogenarian patients.

Methods/Interventions: This retrospective cohort study included all octogenarian patients with stage I-III rectal cancer using the National Cancer Database (NCDB) (2004-2019). Patients were subdivided into two groups: radical resection (RR) and local excision (LE). The two groups were matched using exact matched analysis for clinical T and N stage, tumor size, and neoadjuvant treatment. Main outcome measures were OS, 30-day-unplanned readmissions, and short-term mortality.

Results/Outcome(s): Overall, 9634 patients were included in this study (LE=2710 and RR= 6924). The RR group included more male patients, larger tumors, more positive lymph nodes, and more patients who received neoadjuvant radiotherapy (p<0.001 for all). After matching, 1106 patients were included in each group with a median follow-up of 49.9 and 51.7 months for the RR and LE groups, respectively. Although patients in the RR group were younger and had a higher rate of negative surgical margins (p<0.001), the OS benefit of RR was <3 months (**Figure**). Patients who had LE had a shorter hospital stay (1 vs.7 days;p<0.001), lower 30-day mortality (4.3% vs 8.1%; OR: 0.39; 95%CI: 0.23- 0.68;p=0.008),

lower 90-day mortality (1.7% vs 4%, OR: 0.47, 95%CI: 0.32- 0.68;p=0.0001), and lower 30-day readmission (3.5% vs 6.8%, OR: 0.49, 95%CI: 0.33- 0.74;p=0.0006).

Conclusions/Discussion: RR of rectal cancer in octogenarian patients had a modest survival benefit. LE had lower odds of readmission and short-term mortality, compared to radical resection.



ASSOCIATION BETWEEN PATIENT ACTIVATION AND POST-OPERATIVE OUTCOMES IN RECTAL CANCER SURVIVORS.

eP517

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Purpose/Background: Patient activation (PA), a modifiable behavioral concept referring to a patient's confidence/motivation to participate in healthcare, is poorly understood in cancer patients. The purpose of this study is to determine associations between PA of rectal cancer survivors and post-operative outcomes.

Methods/Interventions: This is an IRB-approved single-institution cross-sectional study of adult rectal cancer survivors operated on between 2018-2021. Exclusion criteria include inability to consent or speak/understand English or French, and cases of recurrent cancer. The main exposure is PA as determined by the Patient Activation Measure-13 (PAM-13), a 13-item questionnaire which assigns 1 of 4 possible scores, further categorized into "high" PA (PAM 3-4) or "low" (PAM 1-2). Covariates are demographic factors (age, sex, BMI, income, education, GP access) and clinical characteristics (Charlson Comorbidity Index, TNM & clinical staging, surgical factors, and neoadjuvant/adjuvant therapy). Primary outcome is unplanned healthcare use up to 30-days post-hospital discharge, defined as ED visits, readmissions, and unplanned surgical/oncology/nurse clinic visits. Secondary outcomes are Clavien-Dindo graded post-op complications, duration of hospital stay & ileostomy diversion, anastomotic leak, and patient-reported quality of life using the EuroQol-5 Dimension (EQ5D) questionnaire. Descriptive statistics, Fisher-exact/t-tests, and simple regression are used to compare high PA to low PA.

Results/Outcome(s): Of 167 patients contacted, 81 were recruited with mean age 61±12 years, BMI 27±6, and CCI 3.9±1.3. 48 (59%) were male, median pre-op clinical stage was 3 (39, 48%), and 52 (64%) received neoadjuvant treatment. Majority (58, 72%) had greater than high school education, were employed (41, 51%), and had household income >$35,000 (52, 64%). 31 were classified into low PA and 50 into high PA, with no significant differences in clinical or demographic covariates between the two. In the primary outcome, there was significantly more (p=0.049; OR=5.76, 95% CI=[1.08, 30.6]) outpatient clinic use in the low PA group (5/31, 19%) as compared to high PA (2/50, 4%), but no difference in overall unplanned healthcare use. Aggregate patient-reported quality of life was lower (p=0.015) for low PA (mean EQ-VAS: 68.2) versus high PA (80.2), with differences arising in the EQ5D anxiety/depression dimension.

Conclusions/Discussion: Patients with low PA had more unplanned outpatient clinic use and lower patient-reported quality of life. Efforts to increase PA in rectal cancers may improve their survivorship care.

Table 1. Post-Operative Clinical and Patient-Reported Outcomes

Variable[1]	Total N=81	PAM		p-value
		Low (Level 1-2) N=31	High (Level 3-4) N=50	
Length of stay, days	10.6 ± 11.8 7 [5-12]	11.4 ± 15.4 8 [5-12]	10.3 ± 9.13 7 [5-12]	0.6968
Adjuvant chemotherapy (%)	34 (42.0)	15 (48.4)	19 (38.0)	0.367
Duration of ileostomy, days[2]	344.5 ± 120.6 329.5 [147.0-327.0]	345 ± 120 222.0 [155.0-314.0]	344 ± 123 329.5 [147.5-327.0]	0.9744
Unplanned healthcare use ≤30 days post-discharge (%)				
Any	22 (27.2)	11 (35.5)	11 (22.0)	0.2057
Emergency department	16 (19.8)	7 (22.6)	9 (18.0)	0.7749
Readmission	8 (9.9)	2 (6.5)	6 (12.0)	0.7039
Outpatient clinic visit	8 (9.9)	6 (19.4)	2 (4.0)	0.04907
Post-operative complications, Clavien-Dindo grade (%)				
None	44 (54.3)	20 (64.5)	24 (48.0)	0.361
I	20 (24.7)	8 (25.8)	12 (24.0)	
II	9 (11.1)	1 (3.2)	8 (16.0)	
IIIa	5 (6.2)	2 (6.5)	3 (6.0)	
IIIb	2 (2.5)	0 (0.0)	2 (4.0)	
IV	1 (1.2)	0 (0.0)	1 (2.0)	
Anastomotic leak (%)	6 (7.4)	3 (9.7)	3 (6.0)	0.67
EQ5D-5L VAS[3]	76.4 ± 17.4 80 [70-85]	69.5 ± 21.6 75 [64-85]	80.4 ± 13.6 84 [75-89]	0.01372
EQ5D-5L Mobility				
1	66 (81.5)	23 (74.2)	43 (86.0)	0.2714
2	12 (14.8)	7 (22.6)	5 (10.0)	
3	3 (3.7)	1 (3.2)	2 (4.0)	
4	0 (0)	0 (0)	0 (0)	
5	0 (0)	0 (0)	0 (0)	
EQ5D-5L Self-care				
1	76 (93.8)	29 (93.5)	47 (94.0)	0.5537
2	4 (4.9)	1 (3.22)	3 (6.0)	
3	1 (1.23)	1 (3.22)	0 (0)	
4	0 (0)	0 (0)	0 (0)	
5	0 (0)	0 (0)	0 (0)	
EQ5D-5L Usual activities				
1	60 (74.1)	20 (64.5)	40 (80.0)	0.2949
2	14 (17.3)	7 (22.6)	7 (14.0)	
3	7 (8.64)	4 (12.9)	3 (6.0)	
4	0 (0)	0 (0)	0 (0)	
5	0 (0)	0 (0)	0 (0)	
EQ5D-5L Pain / Discomfort				
1	40 (49.4)	14 (45.2)	26 (52.0)	0.6799
2	33 (40.7)	13 (41.9)	20 (40.0)	
3	7 (8.6)	3 (9.7)	4 (8.0)	
4	1 (1.23)	1 (3.22)	0 (0)	
5	0 (0)	0 (0)	0 (0)	
EQ5D-5L Anxiety / Depression				
1	48 (59.3)	15 (48.4)	33 (66.0)	0.0004
2	24 (29.6)	7 (22.6)	17 (34.0)	
3	8 (9.9)	8 (25.8)	0 (0)	
4	0 (0)	0 (0)	0 (0)	
5	1 (1.23)	1 (3.22)	0 (0)	

[1]Where appropriate, results given as mean ± standard deviation and median [interquartile range], or count with proportion.

[2]For subset of patients who received a diverting loop ileostomy and were subsequently reversed, N=64 (total), N=12 (low PA) and N=52 (high PA).

[3]VAS: visual analog scale, scored from 0 to 100, where higher represents a better patient-reported health state.

PARTICIPATION IN THE NATIONAL ACCREDITATION PROGRAM FOR RECTAL CANCER IMPROVES CLINICAL OUTCOMES AS MEASURED BY A MORE COMPLEX COMPOSITE SCORE IN LOCALLY ADVANCED RECTAL CANCER PATIENTS.

eP518

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Purpose/Background: The National Accreditation Program for Rectal Cancer (NAPRC) was designed to standardize processes and improve outcomes for patients with rectal cancer. Previous authors used a composite score including total mesorectal excision (TME) grade and margin status as a care quality measure. This study aims to evaluate the impact of NAPRC standards implementation on rectal cancer outcomes, using a modified composite score that includes lymph nodes (LN) harvested.

Methods/Interventions: Single institution retrospective review of a prospectively maintained NAPRC database was performed. All patients with low or middle locally advanced rectal cancer (stages II and III) at the initial stage and who underwent curative proctectomy: (i.e., low anterior resection (LAR), abdominoperineal resection (APR), transanal total mesorectal excision (TaTME)) were included. Stage IV patients and synchronous tumors were excluded. We studied patients from January 2016 until 2018 (pre-NAPRC population) and from 2019 to 2021 (NAPRC group). Univariate analysis of individual surgical quality measures and a composite score including quality of TME, circumferential radial margin (CRM) > 1 mm, distal margin (DM) > 1 mm, and ≥ 12 LN harvested was performed.

Results/Outcome(s): Of the 1176 patients with rectal cancer identified from our institutional database between January 2016 and December 2021, 54% of them were female, mean age of 62.1 years old. We included 457 patients undergoing curative proctectomy (LAR, APR, TaTME). One hundred ninety-six (42.9%) patients were pre-NAPRC and 261 (57.1%) were post-NAPRC. Patient demographics and clinical stage at presentation were similar between the two study periods. Pre and post-NAPRC, rates of sphincter preservation, creation of an ostomy, and neoadjuvant therapy were similar. The majority of patients in each cohort underwent LAR (77% vs.78.5%, p=0.487). Pathologic complete response was documented in 9.1% and 10.7% (p=0.48). Mean LN harvest was 21 vs. 22 with 14.3% vs. 12.2% harvesting < 12 LN (p=0.377). Incomplete TME grade (18.9% vs. 12.2%, p=0.12), and positive DM (12.2 vs. 8.4%, p=0.57) had no significant statistical difference. As compared to pre-NAPRC, post-NAPRC patients had lower rates of positive CRM (19.8% vs. 10.7% p=0.029). The composite score (CRM, TME grade, and DM) was achieved in 133 (67.8%) pre-NAPRC patients and 201 (77%) NAPRC patients (p=0.218). **A complete composite score** (CRM, TME grade, DM, and LN harvested) was achieved in 59.6% of the pre-NAPRC group and 69.7% of the NAPRC patients. (p=0.037). **Table 1**

Conclusions/Discussion: Using a more comprehensive composite scoring system, this study clearly demonstrates that the adoption of NAPRC standards in a high-volume rectal cancer center improved surgical outcomes in patients with locally advanced rectal cancer. NAPRC accreditation should be more widely adopted.

Variables	Pre-NAPRC	NAPRC	P (<0.005)
Type of Surgery	LAR 151 (77%) APR 29 (14.8%) TaTME 16 (8.2%)	LAR 205 (78.5%) APR 37(14.2%) TaTME 19 (7.3%)	0.694
LN retrieved	21.1	22	0.571
Patients with less than 12 LN	28 (14.3%)	32 (12.2%)	0.377
LN involvement	68 (34.6%)	112(42.9%)	0.217
Stoma	106 (54%)	145 (55.5%)	0.360
Pathological complete response	18 (9.1%)	28 (10.7%)	0.483
CRM +	39 (19.8%)	28 (10.7%)	**0.029**
Distal Margin +	24 (12.2%)	22 (8.4%)	0.571
Incomplete Mesorectal grade	37 (18.9%)	32 (12.2%)	0.122
Composite score (CRM, TME Grade and DM)	133 (67.8%)	201 (77%)	0.218
New Composite score (CRM, TME grade, DM, and LN retrieved)	115 (59.6%)	182 (69.7%)	**0.037**
Total	**196**	**261**	

Table 1. Difference in surgical outcomes between Pre-NAPRC and NAPRC groups.

EXAMINING THE POST-TREATMENT SURVEILLANCE RATES FOR PATIENTS TREATED FOR RECTAL CANCER AT AN URBAN SAFETY-NET HOSPITAL.

eP519

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Purpose/Background: Regular surveillance impacts overall survival in patients with rectal cancer. There is a paucity of data examining the compliance with post-operative surveillance recommendations in rectal cancer patients in urban low-income area hospitals. We aimed to audit the post-treatment surveillance rates for patients treated at an urban safety-net hospital.

Methods/Interventions: A single-institution retrospective cohort study was conducted including patients with Stage I-III rectal cancer who received definitive

surgical therapy between May 2019 and June 2022. Outcome measures included compliance with National Comprehensive Cancer Network post-treatment screening guidelines. Surveillance events comprised of clinic visits, computed tomography (CT) scans, Carcinoembryonic Antigen (CEA) levels, and colonoscopies. Events were defined as missed if not completed with 60 days of the upper limit of recommended interval. Descriptive demographic, socioeconomic, baseline medical characteristics, operative, and surveillance event variables were collected. Patients were then divided into two cohorts based on the median number of surveillance events missed and the variables analyzed via chi-squared analysis and unpaired t-tests.

Results/Outcome(s): 41 patients were eligible and included. Among all patients, 51% were male, median age was 65 years, and 54% had stage III disease. Neoadjuvant therapy was offered to 66% of all patients, and adjuvant therapy to 31% of patients. A robotic low anterior resection was performed in 73% of patients, and 15% underwent an abdominoperineal resection. A stoma was created in 28% of patients. Out of a total of 207 expected surveillance events, 76 (37%) were missed. Missed clinic, CEA, CT scan, and colonoscopy event rates were 25%, 48%, 38%, and 45%, respectively. The median overall missed event rate was 15%, with 17 patients missing more than 15% of surveillance events. Patients with more than a 15% missed event rate were more likely to reside outside of the metropolitan area around the hospital (94% vs. 63%; p=0.02), have preoperative imaging completed at an outside facility (82% vs. 46%, p=0.018), and not require adjuvant treatment (92% vs. 53%, p=0.017).

Conclusions/Discussion: In an urban safety-net setting, missed surveillance events are prevalent and are higher among patients who reside outside of the hospital's immediate metropolitan area, have fragmented elements of care, and do not require adjuvant treatment. Further studies examining barriers to accessing in this population are warranted.

PELVIC RECURRENCE OF RECTAL CANCER 5-YEARS AFTER SURGERY.

eP520

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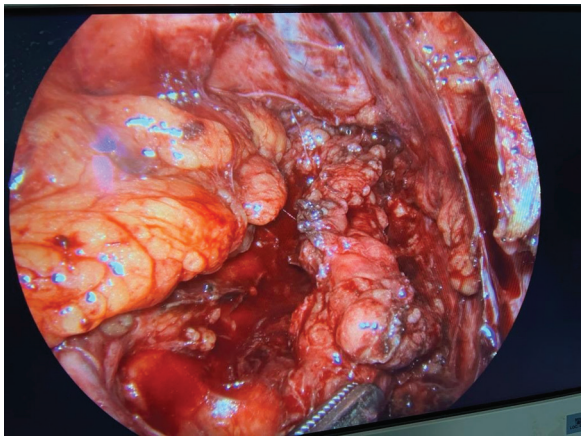
Purpose/Background: To present the case of a patient followed at the Coloproctology Service of the Hospital Federal de Ipanema RJ/MS due to low rectal cancer, who presented pelvic recurrence 5 years after surgery.

Methods/Interventions: The data of physical examination, colonoscopy and imaging findings and the management we chose for treatment will be presented.

Results/Outcome(s): A 42-year-old female patient, first seen at the Coloproctology Service in 2017 with a hardened vegetating touchable lesion, in left lateral wall of the rectum. Colonoscopy identified a vegetating lesion 5 cm from the anal border, occupying 80% of the intestinal lumen. Histopathological report of the biopsy identified mucinous adenocarcinoma. Chest, abdominal and pelvic CT showed no evidence of disease dissemination. MRI of the pelvis identified alteration in the segment of the rectum, conditioning luminal narrowing of this segment, distant about 80 mm from the anal margin, with lymph nodes in the perirectal fat pad in correspondence and without lymphadenomegaly in the retroperitoneum. indicated neoadjuvant chemotherapy (QT) and radiotherapy (RT). After the end of treatment, the patient returns with imaging studies that have not identified metastatic lesions. She underwent laparotomic surgery for anterior resection of rectum and mesorectum with ultra-low anastomosis and ileostomy protection. The analysis of the specimen confirmed ulcerated adenocarcinoma with mucinous areas, residual configuring a 2.7 x 2.0 cm lesion that infiltrates to fat tissue; presence of neural permeation and of vascular neoplastic emboli; free surgical limits; presence of metastasis to 6 of 8 lymph nodes isolated from the fat tissue (staging: pT3 pN2a). She was referred to adjuvant therapy. Followed by CT scan, colonoscopy, physical examination, CEA dosage and periodic physical examination after treatment that did not indicate recurrence of the disease for one year. In July 2020, CEA increased beyond the reference limit for the first time (CEA = 34.14) and remained high in subsequent dosages. MRI of the same year with appearance of an oval image, at the expense of necrotic/fibrotic components, peripherally capturing paramagnetic contrast medium, measuring approximately 4.8 x 3.5 x 6.5 cm, occupying the pararectal fat compartment and the right vesico-vaginal fat compartment, in close contact with the right posterolateral aspect of the vagina, with associated changes in signal intensity of presacral fat. Patient underwent lymphadenectomy of the right obturator chain and removal of pararectal tissue in 2022 by laparoscopy. Analysis of the lesion showed moderately differentiated adenocarcinoma, compromising fibro-adipose tissue and neoplasm-free lymph nodes. Currently, patient awaits for initiation of new chemotherapy cycle.

Conclusions/Discussion: The case described exposes a late pelvic recurrence in a patient undergoing neoadjuvant and adjuvant therapy. The condition is difficult to manage and the best treatment is debatable.



MIXED ADENO-NEUROENDOCRINE NEOPLASMS: TWO CASES, ONE INSTITUTION.

eP521

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Purpose/Background: Background: Epithelial tumors with neuroendocrine and non-endocrine components constitute the rare yet aggressive entity of neoplasms of the gastro-entero-pancreatic tract. These tumors were first named "mixed adeno-neuroendocrine carcinomas" (MANECs) by the World Health Organization in 2010 and in 2017 renamed "mixed neuroendocrine non-neuroendocrine neoplasms" (MiNENs). New nomenclature now includes non-glandular variants (e.g. squamous), and the term "carcinoma" has been replaced by "neoplasm" to account for low-grade malignancies.

Methods/Interventions: Methods: Combined adenocarcinoma and neuroendocrine carcinoma neoplasms are a rare occurrence within the gastrointestinal tract. In this report, we describe two separate cases of mixed rectal adeno-neuroendocrine carcinomas and their treatment.

Results/Outcome(s): Results: A 47-year-old female with a history of uterine fibroids and hyperlipidemia presented to the gastrointestinal service with new complaints of blood per rectum and abdominal cramping relieved with defecation. Polyps on colonoscopy measured 10-15mm and a 3cm ulcerated mass in the proximal rectum was noted. Colonoscopic pathology revealed an adenomatous colonic mucosa with high-grade dysplasia and foci suspicious for carcinoma. PET/CT demonstrated hypermetabolic activity within the high rectal neoplasm, right ovarian involvement, and two liver nodules. Official diagnosis was clinical stage 4 adenocarcinoma. She completed eight rounds of FOLFOX chemotherapy and underwent a diagnostic laparoscopy converted to exploratory laparoscopy with total abdominal hysterectomy, bilateral salpingo-oopherectomy, low anterior resection and hepatic lobectomies of segments 5 and 6. Pathology from the recto-sigmoid junction and liver lesions demonstrated high grade neuroendocrine carcinoma with mucin pools suggestive of treated adenocarcinoma. A 69-year-old male with a history of hypertension and diverticulitis presented to his primary care physician for an annual physical and was noted to have a PSA level of 146 ng/ml. MRI of the pelvis noted T3N+ rectal cancer in the mid-rectum approximately 4.6cm in length without sphincter involvement. He underwent a robotic-assisted low anterior resection with laparoscopic assistance and liver biopsy. Staging revealed stage 4 adenocarcinoma of the prostate and stage 4 adenocarcinoma with focal neuroendocrine involvement of the rectum including 4/14 positive lymph nodes and liver metastasis. He subsequently began androgen deprivation therapy with a four-month course of FOLFOX chemotherapy. Pathology confirmed a mixed adeno-neuroendocrine neoplasm.

Conclusions/Discussion: Conclusion: Given the rarity of diagnosis and inconsistencies in both nomenclature and treatment recommendations in the literature, mixed adeno-neuroendocrine carcinoma epidemiology and prognosis are not yet fully understood. Future prospective trials with a focus in management of MiNENs will offer valuable insight into these rare mixed carcinomas.

TEXTBOOK OUTCOMES IN RECTAL CANCER: AN ANALYSIS OF THE US RECTAL CANCER CONSORTIUM.

eP522

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Purpose/Background: Surgical resection is a keystone in the treatment of rectal cancer, but can be associated with debilitating postoperative complications. Although short-term postoperative outcomes are frequently used to guide quality improvement initiatives, composite outcomes after rectal surgery remain relatively underutilized. A textbook outcome (TO) is one such composite metric of short-term postoperative outcomes, signifying an optimal postoperative course. We sought to assess the frequency and associated factors of a TO in patients who underwent rectal cancer surgery. We hypothesized that several, actionable factors will be associated with a TO that can guide perioperative care.

Methods/Interventions: Patients who underwent surgery for non-metastatic rectal cancer between 2007-2018 were retrospectively identified from the US Rectal Cancer Consortium database, which is a multi-institutional database comprised of six high-volume centers. A TO was defined as the absence of any postoperative complications, extended length of stay (LOS) (>75th percentile), 90-day readmission, and 90-day mortality. Multivariate logistic regression was utilized to identify factors associated with the achievement of a TO.

Results/Outcome(s): Among 1,224 patients who underwent surgery for rectal cancer, TO was achieved by 44.6% (n=546) of patients. Notably, the rate of TO achievement increased over time (2007–2013: n=215, 37.0% vs. 2014–2018: n=331, 51.4%) (p<0.001). When assessing individual TO component failures, the development of postoperative complications was the most common component failure (49.4%), followed by 90-day readmission (23.4%), extended LOS (21.3%), and 90-day mortality (0.6%). On multivariate analyses, age > 70 years, ASA class > 2, operative time > 3.5 hours, and perioperative pRBC transfusion were associated with reduced odds of achieving a TO. Conversely, following the postoperative Enhanced Recovery After Surgery (ERAS) pathway was associated with 110% higher odds of achieving a TO. Of note, clinicopathologic and operative characteristics such as the American Joint Committee on Cancer (AJCC) 8th Edition pathologic stage, operative approach (open vs. laparoscopic/robotic), and type of operation (LAR vs. APR) did not impact the odds of TO achievement (**Table**).

Conclusions/Discussion: Despite demonstrable improvement in recent years, short-term outcomes after rectal cancer surgery remain suboptimal, with less than half of the patients able to achieve a TO. Strategies aimed at preoperative and postoperative patient optimization, such as the use of the ERAS pathway, are essential to facilitate the achievement of TO in patients undergoing rectal cancer surgery.

Table: Multivariate logistic regression analysis for the entire cohort

Category	Comparison	Reference	OR (95% CI)	p-value
Age	> 70 years	≤ 70 years	**0.61 (0.37-0.99)**	**0.046***
Gender	Male	Female	0.95 (0.68-1.33)	0.780
Race	Non-White	White	0.67 (0.38-1.16)	0.149
ASA-PS	> 2	≤ 2	**0.63 (0.45-0.87)**	**0.005***
Diabetes	Yes	No	0.63 (0.45-1.02)	0.062
AJCC 8th Edition Stage	II/III	0/I	0.86 (0.62-1.20)	0.379
Neoadjuvant Chemotherapy/Radiotherapy	Yes	No	0.82 (0.55-1.21)	0.310
Operative Approach	Laparoscopic/Robotic	Open	1.01 (0.67-1.52)	0.961
	Other		1.20 (0.80-1.80)	0.387
Operative Time	> 3.5 hours	≤ 3.5 hours	**0.51 (0.36-0.71)**	**<0.001***
Perioperative pRBC Transfusion	Yes	No	**0.16 (0.09-0.31)**	**<0.001***
Postoperative ERAS pathway	Yes	No	**2.10 (1.49-2.97)**	**<0.001***

Variables significant on bivariate analysis were added to the multivariate analysis. **ASA-PS** American Society of Anesthesiologists-Physical Status, **AJCC** American Joint Committee on Cancer, **pRBC** packed red blood cells, **ERAS** Enhanced Recovery After Surgery.

ROBOTIC RECTAL CANCER SURGERY - DOES BMI AFFECT OUTCOMES?

eP523

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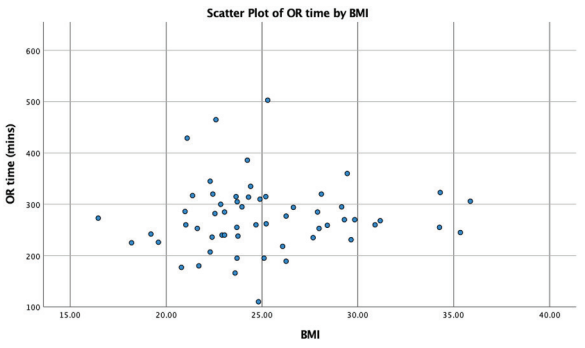
Purpose/Background: The robotic surgical platform has become increasingly utilized in colon and rectal surgery. There is evidence that robotic low anterior resection (LAR) vs laparoscopic LAR results in no difference in OR time, lymph node harvest, or days to return of bowel function (ROBF). Additionally, there is a perception that the robot can be particularly useful in rectal surgery in obese male patients given the small pelvis and expected additional visceral and subcutaneous fat. It has previously been shown that robotic rectal surgery in obese patients results in shorter length of stay (LOS) and lower rate of 30-day readmission with no difference in conversion to open or incidence of complications when compared to the laparoscopic approach. We sought to determine whether patient body mass index (BMI) correlates with operative difficulty as defined by operative time, LOS, and estimated blood loss (EBL), specifically in the case of robotic LAR for rectal cancer.

Methods/Interventions: We analyzed a series of cases of robotic LAR at one hospital from August 2018 to September 2022. EBL and LOS were positively skewed. Pearson's or Spearman correlation compared continuous variables as appropriate. Two-tailed p-value < 0.05 was considered significant. Previous literature of similar patient populations was determined to be inadequate for appropriate post-hoc power calculation.

Results/Outcome(s): Of 58 patients included, the mean age was 64.1 ± 12.8 years and the mean BMI 25.1 ± 4.1 (range 16.46 - 30.11). The procedure mean time was 4.6 ± 1.1 hours and EBL 33.9 ± 67.8 mL. Mean length of stay was 3.6 ± 1.8 days. BMI and procedure time were not significantly associated (p = 0.715). In addition there was no correlation between BMI and EBL (p = 0.397) or LOS (p = 0.893).

Conclusions/Discussion: In our cohort of robotic LARs for rectal cancer, BMI did not correlate with OR time, suggesting that extremes of body habitus did not significantly affect operative difficulty. We suggest that the robotic platform be considered technically feasible for all patients, regardless of BMI.



THE IMPACT OF BMI ON TME QUALITY IN ROBOTIC LARS.

eP524

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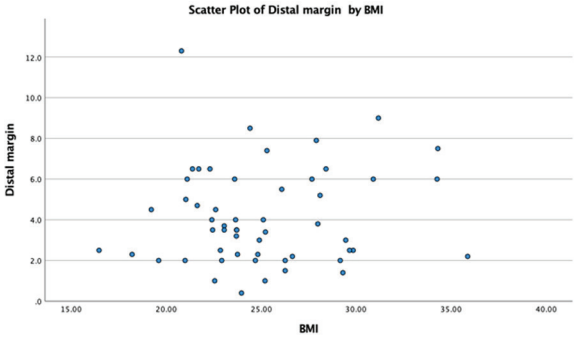
Purpose/Background: Incomplete total mesorectal excision (TME) for rectal cancer is an established risk factor for increased recurrence and decreased survival. The current literature is mixed on the impact of BMI and TME quality in laparoscopic and open cases. The effect of robotic surgery in patients with increased BMI on TME quality has not been evaluated. We hypothesized that the

improved mechanics of operating in the pelvis robotically may mitigate the impact of BMI on TME quality, and that BMI will not correlate with TME quality for robotic low anterior resections (LARs).

Methods/Interventions: A retrospective review of all patients undergoing robotic LARs for rectal cancer between August 2018 and September 2022 was performed. TME quality was assessed based on margin status (positive or negative), distal margin (DM, cm), circumferential resection margin (CRM, cm), and overall integrity (complete vs. Incomplete TME). EBL, LOS, DM and CRM were positively skewed. Pearson's or Spearman correlation compared continuous variables as appropriate. T-test was used to compare means for the positive or negative margin groups. Two-tailed p-value < 0.05 was considered significant. Previous literature of similar patient populations was determined to be inadequate for appropriate post-hoc power calculation.

Results/Outcome(s): Of 58 patients included, 26 received preoperative radiation, and the mean tumor height was 10.4 ± 3.8 cm. The mean age was 64.1 ± 12.8 years and the mean BMI 25.1 ± 4.1 (range 16.46 - 30.11). The procedure mean time was 4.6 ± 1.1 hours and EBL 33.9 ± 67.8 mL. Mean length of stay was 3.6 ± 1.8 days. DM data were not available for 4 patients (n = 54) and CRM for 11 patients (n = 47). Mean DM was 4.1 ± 2.4 cm and CRM was 1.9 ± 1.6 cm. All patients had a complete TME. Only two patients had a positive or indeterminate margin (1 with positive CRM and perineural invasion, BMI 23.7; 1 with CRM unable to be determined, BMI 26.26), which did not correlate with BMI (p = 0.806). BMI was not correlated with DM (p = 0.948) or CRM (p = 0.617).

Conclusions/Discussion: In our cohort of patients undergoing LARs for rectal cancer, BMI was not correlated with TME quality as assessed by margin status, distal margin, circumferential resection margin and overall integrity, suggesting that the robotic platform be considered suitable for all patients regardless of BMI.



UNUSUAL PRESENTATION OF PERFORATED RECTAL CANCER CAUSING COCCYGEAL EROSION WITH NECROTIZING FASCIITIS.

eP525

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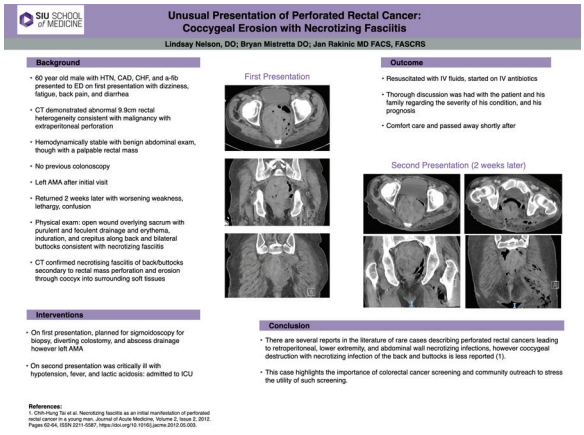
Purpose/Background: We present a case of a perforated rectal cancer which caused erosion through the coccyx to the dorsal skin with extensive necrotizing fasciitis of the back and bilateral gluteal areas. This is a very unusual complication of locally advanced rectal cancer.

Methods/Interventions: A 60 year old male with HTN, CAD, CHF, and atrial fibrillation presented to the ED with dizziness, fatigue, back pain, and diarrhea. CT scan at that time demonstrated a 9.9 cm rectal heterogeneity consistent with malignancy with extraperitoneal perforation. Patient had never had a previous colonoscopy. He was hemodynamically stable. Abdominal exam was benign, and a fixed rectal mass was palpable. The patient was presented a plan for sigmoidoscopy for tissue diagnosis, IR drainage of abscess cavity, and fecal diversion with colostomy. However, the patient left the ED against medical advice before management could be instituted. Two weeks later, he returned to ED with progressive weakness, confusion, and lethargy. Exam showed a new open wound in the sacral region draining malodorous purulent and feculent material. There was associated erythema, induration, and crepitus of the back and bilateral gluteal regions consistent with necrotizing fasciitis. CT imaging was consistent with erosion of the rectal mass through the coccyx into the soft tissues causing extensive soft tissue necrotic infection. At this time the patient was critically ill with hypotension, fever, bacteremia, and lactic acidosis. He was admitted to the ICU, resuscitated with IV fluids, and started on broad spectrum IV antibiotics. A thorough discussion was had with the patient and his family regarding the severity of his condition, and his prognosis.

Results/Outcome(s): The patient ultimately elected for comfort care and passed away shortly thereafter.

Conclusions/Discussion: This case describes an unusual presentation of a locally advanced perforated rectal cancer that eroded through the coccyx into the adjacent soft tissue causing widespread necrotizing fasciitis and sepsis, without peritonitis. There are several reports in the literature of rare cases describing perforated rectal cancers leading to retroperitoneal, lower extremity, and abdominal wall necrotizing infections, however coccygeal destruction with necrotizing infection of the back and buttocks is less commonly reported (1). This case also highlights the importance of colorectal cancer screening and community outreach to stress the importance of colorectal cancer screening. **References:** 1. Chih-Hung Tai et al. Necrotizing fasciitis as an initial manifestation of perforated rectal cancer in a young man. Journal of Acute

Medicine, Volume 2, Issue 2, 2012. Pages 62-64, ISSN 2211-5587, https://doi.org/10.1016/j.jacme.2012.05.003.



ACCURACY OF PREOPERATIVE MRI I STAGING OF RECTAL ADENOCARCINOMA, SINGLE CENTER RETROSPECTIVE ANALYSIS.

eP526

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York, PA

Purpose/Background: MRI is the current gold-standard imaging modality for clinical staging of rectal cancer. MRI can identify high-risk features and classify sub-groups of locally advanced rectal cancer to guide clinician management and assess for response to therapy. Wellspan York Hospital multidisciplinary rectal cancer consensus guideline was developed by the colorectal surgery group in 2018 with establishment of rectal MRI protocol. Single center retrospective analysis was performed to evaluate the rate of discordance between preoperative MRI staging and pathological staging.

Methods/Interventions: Patients from the oncology department registry who underwent intervention by the colorectal surgery group between 2018 to 2021 were extracted for analysis. Inclusion criteria were rectal adenocarcinoma with location of tumor confirmed by colonoscopy or rectal MRI and diagnosed by biopsy, availability of pre-operative MRI, availability of pathology result from surgical intervention. Patients who received neoadjuvant therapy prior to surgical resection were excluded if no post-treatment MRI are available to control for the effects of chemoradiation. Patients undergoing systemic therapy for concurrent cancer were excluded.

Results/Outcome(s): Between 2018 to 2021, 47 patients met our inclusion criteria. Of those, 13 patients were excluded due to poor MRI image quality due to artifact, non-adherence to rectal MRI protocol, or lack of post-neoadjuvant therapy restaging MRI. For T staging, 14/34 patients had concordant results when compared with surgical pathology (41%). 20/34 patients demonstrated discordance between pre-operative MRI and surgical pathology. Of those 20 patients, 16 were over-staged and 4 were under-staged. For local regional nodal invasion, additional 10/34 patients were excluded due to lack of nodal status on MRI report or received TAMIS without adequate pathology for nodal staging. 17/24 patients were correctly staged (78%), 7/24 patients had discordant results where 3 were over-staged and 4 were under-staged. There was a significant difference when comparing tumor staging vs nodal staging rate of concordance, (41.2% vs 70.8%, p=0.027). Over-staging was also significantly different, (47.1% vs 12.5%, p=0.006) however, there was no difference in under-staging (11.8% vs 16.7%, p=0.598).

Conclusions/Discussion: Results of this study suggest a considerable rate of discordance between pre-operative MRI imaging and histopathology, specifically for T-staging. Limitations in this study are the number of patients excluded due to nonadherence to rectal MRI imaging protocol, presumed inter-observer variation among radiologists and pathologists, as well as the retrospective nature of study. While our rate of concordance was in line with published data for nodal staging, additional work is necessary to delineate areas of improvement in our practice.

SURVIVAL OUTCOMES AMONG PATIENTS WITH SYNCHRONOUS METASTATIC RECTAL CANCER TO THE LIVER UNDERGOING SURGERY IN THE ERA OF TOTAL NEOADJUVANT THERAPY.

eP527

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Purpose/Background: Overall survival (OS) in patients with metastatic rectal cancer is dependent on the extent and site of metastases with 5-year OS ranging from 24-58% in patients with resectable hepatic metastasis. The aim of this study was to evaluate pathologic complete response (pCR) rates and long-term outcomes in patients with isolated synchronous metastatic rectal cancer to the liver in the era of total neoadjuvant therapy (TNT).

Methods/Interventions: Patients with synchronous stage 4 rectal cancer isolated to the liver at the University of Colorado (2011-2021) were identified. A complete response (CR) was defined as a pCR of both the rectum and liver. Patient demographics, tumor characteristics, progression-free survival (PFS), and OS were assessed.

Results/Outcome(s): We identified 47 patients who underwent surgical resection with curative intent to both the primary and metastases. The median age was 55 years, 31% (n=66) were male, median CEA level was 14.5 ng/mL, and the median distance from the anal verge was 7 (IQR 4-9.1) cm. Baseline ECOG performance status was >=1 in 40% (n=19) of patients. Clinical T-stage was T1 in 1 (2%) patient, T2 in 2 (4%) patients, T3 in 20 (43%)

patients, T4 in 4 (9%) patients, and unknown in 20 (44%) patients. Clinical N-stage was node negative in 7 (15%) patients, node-positive in 21 (45%), and unknown in 19 (40%). A TNT approach was utilized in 60% (n=28) of patients, systemic chemotherapy only in 23% (n=11), chemoradiation only in 9% (n=4), and 9% (n=4) received no neoadjuvant therapy. Among the 28 patients receiving TNT, 75% (n=21) received induction chemotherapy followed by chemoradiation, 18% (n=5) received induction chemotherapy followed by short-course radiation, and 7% (n=2) received short-course radiation followed by consolidative chemotherapy. A low anterior resection and abdominoperineal resection was performed on the primary in 85% (n=40) and 15% (n=7) of patients, respectively. Liver resection included wedge resection (n=11, 23%), segmentectomy (n=17, 36%), and hepatectomy (n=19, 41%). Surgical approach was liver-first in 51% (n=24) of patients, simultaneous in 34% (n=16), and rectum-first in 15% (n=7). Overall, a CR was observed in 12% (n=5) of patients: 4 (80%) received TNT and 1 (20%) received systemic chemotherapy only. Among patients receiving TNT, the CR rate was 14% (n=4/28). Median follow up time was 41 (IQR 21-62) months. Among all patients, PFS and OS were 96% and 100% at 1-year, 30% and 87% at 3-years, and 11% and 64% at 5-years. Among patients with a CR, only 1 (20%) had disease recurrence at 32 months and all (100%) are alive at a median follow up time of 36 months.

Conclusions/Discussion: A TNT approach in the management of synchronous stage 4 rectal cancer isolated to the liver was associated with a CR rate of 14% and excellent PFS and OS.

OUTCOMES AFTER SOLID-ORGAN TRANSPLANTATION IN COLORECTAL CANCER SURVIVORS ARE COMPARABLE TO OTHER PRE-TRANSPLANT ABDOMINAL MALIGNANCIES.

ePP528

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Purpose/Background: Colorectal cancer (CRC) rates continue to rise, and survivorship is improving. Simultaneously, the number of patients requiring a solid-organ transplant is increasing. As a result, there is a growing population of CRC survivors who require transplantation. Prior research suggesting poor outcomes discourages transplants in CRC patients compared to Non-Colorectal Abdominal Malignancies (NCAM). It is unknown if transplant outcomes differ between CRC survivors and other pre-transplant NCAM. We aim to compare outcomes in patients with pre-transplant CRC to those with other NCAM.

Methods/Interventions: Utilizing a retrospective cohort design, we queried a transplant research repository and electronic medical records from 1999-2018 to capture all patients with a pre-transplant malignancy prior to abdominal solid organ transplant (kidney, liver, simultaneous kidney-pancreas). Patients surviving CRC were compared to those with NCAM with respect to graft survival, overall survival, and cancer-related cause of death. Pearson's X2 test was used for categorical variables while Student's t-test was used for continuous variables. Survival rates were compared using log-rank test between CRC and NCAM.

Results/Outcome(s): Of the 670 patients identified, 293 had NCAM, and 23 had CRC. The median follow-up time for all patients was 7.5 years. There were no differences between the NCAM and CRC groups in sex (71.1% male vs 73.9%, p=0.968), age at transplant (57.7 vs. 61.7, p=0.12), or BMI (27.8 vs 28.5, p=0.593). The distribution of transplant organ and the breakdown of pre-transplant malignancies are shown in Table 1. Cancer-related cause of death was not statistically different between the CRC and NCAM patients (8.7% of v 6.7%, p=0.63). Of the 2 malignancy attributable deaths in the pre-transplant CRC group, only 1 was due to CRC recurrence. Graft survival was not significantly different between NCAM and CRC (median survival 12.4 vs. 13.9 years, p=0.55). For both NCAM and CRC patients, median overall survival was 13.9 years, and log-rank comparison was not significantly different (p=0.99).

Conclusions/Discussion: In this single institution study, there was no difference in cancer-related death, graft-survival, or overall survival in transplant recipients after CRC compared to NCAM. This data supports the consensus expert opinion statement published in 2020 that we should be more critical of outdated guidelines that discourage transplantation after CRC. Our study suggests that transplantation success, risk of cancer recurrence, and overall survival of transplant patients is not negatively affected by pre-transplant CRC compared to other abdominal malignancies.

		NCAM (n= 239)	CRC (n= 23)	p-value
SEX (%)	F	69 (28.9)	6 (26.1)	0.97
	M	170 (71.1)	17 (73.9)	
Age at Transplant (SD)		57.66 (12.23)	61.71 (7.46)	0.12
Mean BMI (SD)		27.83 (5.56)	28.48 (5.67)	0.595
Transplanted Organ	Kidney	207 (86.6)	21 (91.3)	0.696
	Liver	26 (10.9)	2 (8.7)	
	SPK	6 (2.5)	0 (0.0)	
Pretransplant Malignancy (%)	Cervical	23 (9.6)	0 (0.0)	<0.001
	Colorectal	0 (0.0)	23 (100.0)	
	Hepatic	22 (9.2)	0 (0.0)	
	Non-Colon GI (Gastric, GIST, Appendiceal, etc.)	5 (2.1)	0 (0.0)	
	Ovarian	4 (1.7)	0 (0.0)	
	Prostate	64 (26.8)	0 (0.0)	
	Renal	82 (34.3)	0 (0.0)	
	Testicular	14 (5.9)	0 (0.0)	
	Urothelial (Bladder, ureteral)	15 (6.3)	0 (0.0)	
	Uterine	10 (4.2)	0 (0.0)	
Median Follow-Up (Years)		7.48	7.94	0.69
Rate of Cancer Related Cause of Death		6.7% (16)	8.7% (2)	0.63
Median Graft Survival (Years)		12.4	13.9	0.55
Median Overall Survival (Years)		13.9	13.9	0.99

Table 1: Comparisons and outcomes between patients with non-colorectal abdominal malignancies (NCAM) or colorectal cancer (CRC) pre-transplant. [SD= Standard Deviation, SPK= Simultaneous kidney-pancreas]

COMPARISON OF CONVENTIONAL RESECTION TO D3 LYMPHADENECTOMY IN RIGHT-SIDED COLON CANCER.

eP529

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Purpose/Background: The current available evidence on the benefits of extended lymphadenectomy in management of right-sided colon cancer is inconsistent and limited. While D3 lymphadenectomy has been routinely adopted in several east Asian countries, it is not recommended by ASCRS or NCCN guidelines. We aim to compare oncologic and pathologic outcomes of this approach to conventional resection in two populations.

Methods/Interventions: Patients with non-metastatic right-sided colon cancer who underwent conventional right hemicolectomy at a single US institution and right hemicolectomy with extended lymphadenectomy at a single Japanese institution between January 2010 and December 2019 were selected for comparison. The primary outcome investigated was disease free survival, using Kaplan-Meier analysis and a Cox proportional hazards model. Secondary outcomes investigated were overall survival using the above methods, and postoperative complications using chi-squared analysis.

Results/Outcome(s): The conventional resection (D2) group consisted of 332 patients (55% female, mean age 70 years). The extended lymphadenectomy (D3) group consisted of 344 patients (51% female, mean age 70 years). The two groups did not differ in composition by age or sex. However, the D2 group underwent significantly more laparotomies (88 vs. 41, p<.001) and had a significantly higher proportion of poorly differentiated or mucinous tumor histology (101 vs. 35, p<.001). There was no difference in proportion of patients who received adjuvant chemotherapy between groups. D3 dissection resulted in significantly greater lymph node yield (M=31 +/- 13.8 vs. M=26 +/- 11.6, p<.001). Kaplan-Meier survival analysis suggested greater disease-free and overall survival among the D3 group. However, when applying a Cox proportional hazards model accounting for covariates including age, race, pathologic characteristics, and adjuvant chemotherapy, there was no significant difference in disease-free survival or overall survival between the two groups. The D2 and D3 groups had similar incidence of recurrence regardless of stage (13.6% and 12.2%, respectively). There were no differences between groups in postoperative complications such as anastomotic leak, ileus, venous thrombosis, or 30-day mortality. There was a significantly higher incidence of 30-day readmission in the D2 group (31 vs. 0 occurrences, p<.001) and 30-day reoperation in the D3 group (15 vs. 4 occurrences, p=.01).

Conclusions/Discussion: Long-term oncologic outcomes are comparable between conventional resection and extended lymphadenectomy in these two cohorts, despite risk factors such as higher tumor grade present in the conventional resection group. Further investigation with a randomized controlled trial and long-term follow up is needed to establish whether one surgical approach has a clear benefit.

Table 1. Summary of patient characteristics and outcomes by dissection group.

	Level of Dissection		
	D2	D3	*p* value
Age	70.8	70.6	0.46
Sex			0.21
Female	184 (55.4%)	174 (50.6%)	
Male	148 (44.6%)	170 (49.4%)	
Operative Approach			< .01
Laparoscopic	244 (73.5%)	303 (88.1%)	
Open	88 (26.5%)	41 (11.9%)	
Location of tumor			
Cecum	126 (38.0%)	82 (23.8%)	< .01
Ascending colon	151 (45.5%)	195(56.7%)	< .01
Hepatic flexure	30 (9.0%)	10 (2.9%)	< .01
Proximal transverse colon	25 (7.5%)	57 (16.6%)	< .01
Tumor grade			
Well/moderately differentiated	230 (69.3%)	305 (88.7%)	< .01
Poorly differentiated/Mucinous	101 (30.4%)	35 (10.2%)	< .01
Other	1 (0.3%)	4 (1.2%)	0.19
Postoperative Complications			
Anastomotic leak	2 (0.6%)	4 (1.2%)	0.44
Ileus	28 (8.4%)	26 (7.6%)	0.68
Deep venous thrombosis	-	2 (0.6%)	0.16
30-day mortality	2 (0.6%)	-	0.15
30-day readmission	31 (9.3%)	-	< .01
30-day reoperation	4 (1.2%)	15 (4.4%)	0.01
AJCC pathologic stage			
Stage 0	2 (0.6%)	12 (3.5%)	0.01
Recurrence	-	-	-
Stage I	80 (24.1%)	113 (32.8%)	0.01
Recurrence	2 (2.5%)	2 (1.8%)	0.73
Local	-	-	
Distant	2 (100%)	2 (100%)	
Stage II	142 (42.8%)	102 (29.7%)	< .01
Adj. chemotherapy	20 (14.1%)	25 (24.5%)	0.04
Recurrence	17 (12.0%)	11 (10.8%)	0.96
Local	4 (23.5%)	1 (9.1%)	
Distant	13 (76.5%)	10 (90.9%)	
Stage III	108 (32.5%)	117 (34.0%)	0.68
Adj. chemotherapy	73 (67.6%)	76 (65.0%)	0.68
Recurrence	26 (24.1%)	26 (22.2%)	0.98
Local		6 (23.1%)	
Distant	26 (100%)	20 (76.9%)	

COMPARISON OF LYMPH NODE HARVEST BETWEEN LAPAROSCOPIC AND ROBOTIC COLECTOMY.

eP530

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Purpose/Background: Lymphadenectomy is crucial in prognosis and survival. Current guidelines recommend at least 12 lymph nodes to be harvested for an oncological resection. Laparoscopic surgery is becoming gold standard for colonic resections. Robotic surgery is a growing field that is becoming important in colon resections due to the advantages that it bestows.

Methods/Interventions: Conducted a retrospective study of colorectal cancer patients who underwent surgical resection at the Medstar Health Baltimore system. Between July 2017 and June 2020, a total of 134 patients underwent colorectal and anal cancer surgical resection either robotic or laparoscopic. Comparison of lymph node retrieval was the primary objective

Results/Outcome(s): Between July 2017 and June 2020, 134 colon and anorectal resections due to cancer were performed at Medstar Baltimore system. 45 were laparoscopic and 89 robotic. Analyzing all colectomies laparoscopic vs robotic there were no statistical difference in the number of lymph nodes in the lymphadenectomy of colonic, rectal or anorectal resection. (Laparoscopic 16.11+-7.28 vs Robotic 16.62 +-6.98. t Stat -0.39. p:0.34) There was no big difference in gender over all (65 males vs 69 females)

Conclusions/Discussion: Lymphadenectomy in colon resections has a close association with survival, current international guidelines recommend removal of at least 12 lymph nodes in an oncological resection, robotic surgery is an emergent field that brings the same outcomes as laparoscopic surgery and some advantages in deep rectal cancer resections. There are not big trials to compare robotic vs laparoscopic surgery this is a field of further investigation.

Lymph node harvesting comparison Laparoscopic vs Robotic colectomy.

		No Pt	Total nodes	Positive nodes
Lap	R hemi	10	17.8 +- 5.3	1.9 +- 3.9
	Left hemi	2	18.5 +- 21.2	1.5 +- 2.1
	APR	1	1	0
	LAR	1	26	0

		No Pt	Total nodes	Positive nodes
Robotic	R hemi	17	17.4 +- 5.9	1.7 +- 3.2
	Left hemi	5	13.4 +- 2.07	0.2 +- 0.44
	APR	5	17.8 +- 7.3	0.4 +- 0.54
	LAR	25	17 +- 9.6	0.84 +- 1.4

INCREASING UTILIZATION OF ROBOTICS IN COLORECTAL CANCER IN OBESE PATIENTS: A NATIONAL DATABASE STUDY.

eP531

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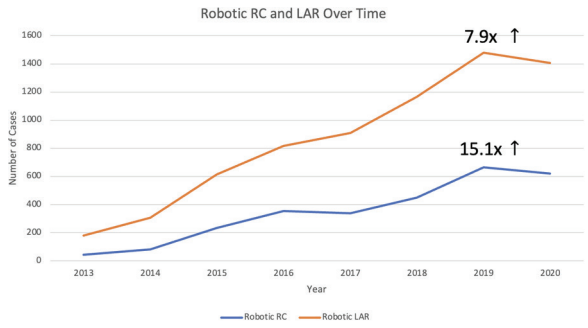
Purpose/Background: To investigate national trends in robotic colorectal surgery utilization and operative times.

Methods/Interventions: We performed a query of the prospectively maintained NSQIP database, looking at the two most commonly performed robotic colorectal procedures over the years 2013-2020: right colectomies (RCs) and low anterior resections (LARs). Only patients operated on for oncologic indications were included. We hypothesized that the proportion of minimally invasive operations done robotically would increase at a more rapid pace over time than those done laparoscopically, and as cumulative experience grows, operative time would decrease for robotic operations. To compare the trend in number of procedures done over time, the Cochran-Armitage Trend test was used. For operative times a linear model was used to assess for changes over the time-period of the study. SAS was used for all statistical analysis.

Results/Outcome(s): From 2013 to 2020 there were 2780 robotic RCs performed versus 21,214 laparoscopic RCs. Over the same time-period there were 6,877 robotic LARs performed versus 20,073 laparoscopic LARs. Over this period the number of robotic RCs performed increased 15.1 fold, while there was only a 2.4 fold increase for laparoscopic RCs ($p<0.0001$, Figure). For robotic LARs there was a 7.9 fold increase in cases completed, while there

was only a 2.2 fold increase in the number of laparoscopic LARs (p<0.0001, Figure). In addition, robotic operations tended to be performed on patients of greater BMI as compared to laparoscopic operations. For RCs, 10.7% of patients with a BMI<25 were operated on with a robotic technique, 11.6% of those with a BMI of 25-29.9, 13.3% of those with BMI 30-39.9, and 16.4% of patients with BMI >40. For LARs, 25.2% of patients with BMI<25 were operated on with a robotic technique, 26.2% of those with a BMI of 25-29.9, 28.2% of those with BMI 30-39.9, and 28.2% of patients with BMI >40. As expected, operative times were increased for robotic procedures. Interestingly, from 2013 to 2020 there was no significant change seen in laparoscopic (231 to 229 minutes) or robotic LAR (278 to 287 minutes) operative times, or laparoscopic RC operative time (142 to 154 minutes), but there was a significantly increased time seen for that of robotic RCs over time (181 to 211 minutes, linear model p<0.0001).

Conclusions/Discussion: Since the NSQIP database began collecting robotic colectomy data in 2013, the rate of adoption of robotic surgery for colorectal cancer is rapidly outpacing the growth of laparoscopy. This is presumably due to increased robotic training and the influx of new practitioners performing robotic operations year to year. The increase in robotics is highest for obese patients, perhaps suggesting a perceived niche for robotics in obesity. A deeper analysis is needed to determine if this trend will impact outcomes.



Increasing utilization of robotic right colectomy (RC) and low anterior resection (LAR) over time.

NATIONWIDE OUTCOMES AFTER NEOADJUVANT CHEMOTHERAPY FOR LOCALLY ADVANCED SIGMOID COLON CANCER - A PROPENSITY SCORE-MATCHED ANALYSIS.

eP532

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Purpose/Background: The rationale for neoadjuvant chemotherapy (NAC) for locally advanced sigmoid colon cancer includes tumor size reduction, pathologic downstaging on final pathology, organ preservation, and an optimized approach at achieving microscopically negative margins (R0 resection). In the management of locally advanced sigmoid colonic carcinoma, NAC remains to be further characterized with significant variation in its utilization. We sought to evaluate the characteristics of patients who received NAC and their survival outcomes using a national cancer database.

Methods/Interventions: The National Cancer Database was queried from 2004-2017 for patients with clinical T3 or T4, N0-2, M0 sigmoid colon cancer who underwent surgical resection. Patients who received neoadjuvant radiation or had metastatic disease were excluded. A propensity score-matched analysis (PSMA) was performed utilizing 9 covariates, adjusted for socioeconomic and demographic factors, comparing patients who did or did not receive NAC. Binary logistic regression was used to evaluate predictors of NAC utilization and cox regression analysis was used to evaluate predictors of overall survival.

Results/Outcome(s): We identified 23,597 patients of whom 364 (1.5%) received NAC. A greater number of patients received NAC at academic (41%, p<0.001) and high-volume centers (27%, p<0.001) as compared to other center types (Table 1). Patients with Medicare/Medicaid (39%) and private insurance (52%) were more likely to receive NAC (p<0.001). Pre-PSMA, Kaplan-Meier survival curves demonstrated better survival advantage for NAC patients (p=0.02). PSMA demonstrated patients >75 years old were more likely to receive NAC (OR 0.61; 95% CI 0.36, 0.98, p = 0.046), and comprehensive community cancer programs (CCCP) were less likely to provide NAC (OR 0.64; 95% CI 0.47, 0.88, p=0.006). There was no difference in survival (p=0.20), R0 (p=0.09), or 30-day readmission rates (p=0.30) in the NAC cohort compared to the non-NAC cohort. Survival rates for patients receiving NAC at 1, 5, and 10 years were 96%, 69%, and 57%, respectively; there was no survival difference when compared to surgery-first patients after PSMA (p=0.33). Notably, patients CCCPs were less likely to recieve R0 resections as compared to academic centers (OR 0.4; 95% CI 0.23, 0.70, p=0.002). Patients over the age of >65 years old, those receiving care at low-volume centers, and those without private insurance had increased risk of mortality (p<0.001).

Conclusions/Discussion: Treatment at centers offering multi-disciplinary care with NAC prior to surgical resection was associated with better outcomes. Favorable factors include academic and high-volume centers, and patients with private or government-sponsored insurance. Overall risk of mortality was higher in patients who were older, without private insurance, and who treated at low-volume centers.

Table 1.

Characteristic	Overall, N = 23,597[1]	Neoadjuvant, N = 364[1]	No Neoadjuvant, N = 23,233[1]	p-value[2]
Age (groups)				**<0.001**
<50	3,121 (13%)	88 (24%)	3,033 (13%)	
>80	4,317 (18%)	11 (3%)	4,306 (19%)	
65-50	7,625 (33%)	149 (41%)	7,476 (32%)	
65-79	8,534 (36%)	116 (32%)	8,418 (36%)	
Insurance				**<0.001**
Medicare/Medicaid	13,082 (55%)	141 (39%)	12,941 (56%)	
Not Insured	1,083 (5%)	25 (7%)	1,058 (5%)	
Other	565 (2%)	10 (2%)	555 (3%)	
Private Insurance	8,867 (38%)	188 (52%)	8,679 (37%)	
Facility Type				**<0.001**
Academic	5,756 (25%)	141 (41%)	5,615 (24%)	
CCCP	10,133 (44%)	115 (33%)	10,018 (45%)	
Community	2,668 (12%)	32 (9%)	2,636 (12%)	
INCP	4,297 (19%)	58 (17%)	4,239 (19%)	
Unknown	743	18	725	
Hospital Volume (quartiles)				**<0.001**
High (>Q4)	4,509 (19%)	99 (27%)	4,410 (19%)	
Low (<Q2)	6,735 (29%)	85 (23%)	6,650 (29%)	
Moderate (Q2-Q4)	12,353 (52%)	180 (50%)	12,173 (52%)	

[1]Median (IQR); n (%)

[2]Wilcoxon rank sum test; Pearson's Chi-squared test; Fisher's exact test

GAS GANGRENE FROM CLOSTRIDIUM SEPTICUM LEADS TO DISCOVERY OF COLON ADENOCARCINOMA - A CASE REPORT AND LITERATURE REVIEW.

eP533

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Purpose/Background: The authors seek to present an interesting case of a patint with an occult colorectal adenocarcinoma who presented to the Emergency Department of a urban hospital within the New York City metropolitan area with a case of necrotizing fasciits of her lower extremity. After surgical debridement, her blood and opertive cultures grew Clostridium septicum. In conjunction with anemia and a positive hemoccult stool test in the post opertive period, it was determined that the patient should undergo colonoscopy. This revealed a partially obstructing adenocarcinoma in the descending colon. The authors seek to highlight the established, albeit not widely known link between C. septicum and colon cancer. By highlighting this case, we hope that other patients with this rare species of bacterial infection can be recognized, leading to earlier diagnosis and better oncologic outcomes of their colon malignancy.

Methods/Interventions: This is a case report and literature review regarding Clostridium septicum necrotizing fasciitis and its association with colon cancer. The patient in question presented to the emergency department with signs and symptoms of a necrotizing soft tissue infection. She was brought to the OR for wide debridement. In the post operative peroid, her colon malignancy was discovered in part due to the presence of C. Septicum in her blood and operative tissue cultures. She then underwent an oncologic resection with laproscopic hemicolectomy at a later date.

Results/Outcome(s): The patient in our case had a colon cancer discovered due to her presentation to the hospital with necrotizing fasciitis. Once properly diagnosed she underwent a laparoscopic left hemicolectomy 2 months after her initial presentation. Final pathology resulted in a T3N0 adenocarcinoma. Without her developing this rare infection, her malignancy would have continued to go undiscovered, potentially leading to a more advanced case and a poorer outcome.

Conclusions/Discussion: Clostridium septicum is a rare cause of necrotizing fasciitis. Unlike the more common Clostridium perfringens, C. septicum myonecrosis is not associated with traumatic injury, which can delay recognition and treatment of this lethal infection. When it is encountered it is paramount to investigate the presence of an underlying malignancy. The acute management of C. septicum myonecrosis does not differ from other causes of necrotizing fasciitis in that prompt recognition, early and aggressive surgical debridement, and antibiotic therapy remain the cornerstone of treatment. In this patient, C. septicum's timely infection allowed for rapid diagnosis of an occult colonic adenocarcinoma, which ultimately resulted in the curative resection of an otherwise unsuspected colon cancer.

Radiograph of the left lower extremity demonstrating subcutaneous gas (arrow) along the left medial thigh.

PATIENT OUTCOMES AFTER COLECTOMY FOR COLORECTAL CANCER. SINGLE CENTER SIX YEARS RETROSPECTIVE STUDY IN THE DOMINICAN REPUBLIC.

eP534

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Purpose/Background: The third most prevalent malignancy is colorectal cancer(CRC); its burden is also increasing in low- and middle-income countries, likely due to western lifestyles. The Dominican Republic is part of the countries in this spectrum. However, there is a lack of CRC studies and its publication. You can't improve what you don't measure; hence, we present the first-ever documented study of CRC outcomes after colectomy in the Dominican Republic.

Methods/Interventions: Retrospective review of patient records in a single institution from 2016 to 2022 that were treated for colorectal cancer with colectomy in the Dominican Republic. A total of 102 patients were included. Demographic variables and risk factors that affect patient outcomes were collected. Variables of interest compromised intraoperative complications, postoperative complications, and short-term (30-day) mortality. Complication rates between right-sided and left-sided colectomies were compared

Results/Outcome(s): The mean patient age was 65 years +/- 14.29 with the youngest being 29 years old and the oldest 94; 49% of the patients were male. Risk factors: 22.5% of the patients were >75 years of age. ASA score >3 was present in 75.5% o the patients; 31.4% had diabetes. Only 6.9% had prior MI and 2% had vascular disease, 2% had chronic lung disease. 3% had renal insufficiency. 98% of cases of colectomy were elective. The sigmoid colon was the most common location for CRC with 39.6% followed by the right colon with 38.6%. Transverse and left colon account for 5.9% and 5% respectively. The most common procedure was left hemicolectomy with 46.5% of the population, followed by right hemicolectomy with 46.5%, Hartmann's procedure was done in 8.9% of the cases. The Most common TNM staging was Stage 3 with 52.9% of the cases followed by Stage 4 with 13.7%. Outcomes: 8.8% of patients had intra-op complications; one had a urethral injury, and 8.8% of patients had bleeding. Post-op complications were present in 3.9% of the patients. 2% had wound dehiscence and 2% needed reoperation. 13.7% of the patient had medical complications. Mortality was 2%. Complication rates did not show any statistical significance between right and left-sided colectomies.

Conclusions/Discussion: Half of the patients arrived with lymph node spread. The most common site was the sigmoid colon, the location with more pronounced symptoms. Short-term mortality and surgical and medical post-op complications were comparable to other studies. The size of the population in six years review reflects the need for patient conscientization. Although outcomes were similar compared to other publications, further investigations with long-term follow-up and more extensive characterization of the patient disease are required. Screening strategies must improve to decrease the likelihood of patients presenting with advanced disease.

POSTOPERATIVE SURROGATE AFTER SAME DAY DISCHARGE FOR COLORECTAL SURGERY - TELEPHONE ASSISTED VISITS VERSUS MOBILE APPLICATION.

eP535

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Purpose/Background: Purpose: To investigate whether there is a difference in emergency department visits, readmission, and number of phone calls between those followed by postoperative telephone assisted visits versus an electronic patient platform (mobile application). **Background**: Same day discharge after colectomy can be performed safely in certain patient groups. Postoperative follow up to both monitor the return of bowel function and to watch for development of complications can be performed by classic in office visits, telephone assisted visits (TAV), or with emerging electronic applications. In the post-COVID era, a shift towards decreasing in-person appointments and increase in telemedicine has led to interest in electronic patient platforms.

Methods/Interventions: Methods: Adult patients undergoing colectomy with same day discharge from December 2019 -current at MultiCare were divided into two groups for postoperative follow up. The number of generated phone calls, MyChart messages, emergency room/urgent care visits, and readmissions were recorded and compared.

Results/Outcome(s): A total of 90 (N=90) patients undergoing same day procedures were evaluated. 43 (48%) patients were followed with a mobile application. 47 (52%) patients were followed with postoperative TAV. Those followed with the mobile app resulted in more patient calls, more emergency department/urgent care visits, more MyChart messages, and more readmissions. There was no difference between the groups with regard to patient satisfaction score.

Conclusions/Discussion: Although an electronic platform would appear to be less work-intensive, the lack of customization and loss of human interpretation can lead to more generated phone calls and visits. Further studies are needed to evaluate the best surrogate postoperative follow up after same day colectomy along with the feasibility and ease of patient cooperation.

PROCEDURE-SPECIFIC RISKS OF MINIMALLY INVASIVE SIMULTANEOUS COLORECTAL LIVER METASTASES RESECTIONS.

eP536

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Purpose/Background: Minimally invasive surgery (MIS) is widely utilized in colorectal procedures. This approach offers the benefit of smaller incisions, decreased postoperative pain, and shorter length of stay (LOS), with no difference in oncologic outcomes or mortality rates. Recently, minimally invasive liver surgery (MILS) has shown similar benefits. Though there have been case reports and small institutional studies on MIS simultaneous colorectal and liver surgery for colorectal liver metastases, none have used a national database. The aim of this study was to report on procedure-specific outcomes of simultaneous MIS colorectal and liver surgery from the ACS-NSQIP database.

Methods/Interventions: Adult patients with colorectal cancer who underwent simultaneous colorectal and liver resections between 2016-2020 were identified from the colectomy, proctectomy, and hepatectomy-targeted ACS-NSQIP files. Further stratifications were made based on operative approach (laparoscopic, robotic, open). Primary outcome was 30-day postoperative morbidity. Secondary outcomes were procedure-specific 30-day complications including ileus, anastomotic leak, liver failure, bile leak, and need for a hepatic invasive procedure. Colorectal-specific outcomes were available for patients retrieved from the colectomy/proctectomy files (41%) while hepatectomy-specific outcomes were available for patients retrieved from the hepatectomy file (59%).

Results/Outcome(s): A total of 1,550 patients were identified who underwent simultaneous resection. Of these patients, 311 (20%) underwent resection by an MIS approach, either an attempted laparoscopic (n=241, 78%) or robotic approach (n=70, 23%). A planned open approach was utilized in 1239 (80%) patients. Patients who underwent robotic surgery were younger (51.5 vs. 62.0, p<0.001), had lower ASA class (p=0.042), and more frequently had received preoperative chemotherapy (71.9% vs. 55.9%, p=0.008) than patients who underwent laparoscopic surgery. The conversion to open rate was 9% for robotic cases and 22% for laparoscopic cases. Rates of 30-day postoperative overall morbidity (robotic: 26.6% vs. laparoscopic 27.1%, p=0.930), serious morbidity (7.8% vs. 15.4%, p=0.124), readmission (8.4% vs. 9.6%, p=0.963), reoperation (3.1% vs 4.3%, p=0.999), mortality (0% vs. 3.1%, p=0.575), and LOS (5 days vs. 5 days, p=0.957) did not differ between the two MIS groups. Furthermore, patients who underwent robotic resections had lower rates of ileus compared to both laparoscopic and open groups. There was no difference in the rate of anastomotic leak or hepatic complications between the two MIS groups (Table 1).

Conclusions/Discussion: As MILS becomes more common, patients may increasingly be offered a robotic approach to simultaneous colon and liver resections. This is the first study to report on NSQIP data on combined robotic resections and indicates that they can be done without any added colon or liver specific procedure risk.

TABLE 1. 30-Day Procedure-Specific Postoperative Complications from Procedure-Targeted NSQIP Files for Simultaneous Resections

	Colectomy/proctectomy-targeted NSQIP module			Hepatectomy-targeted NSQIP module				
Outcome (%)	Open 462 (37.3)	Robotic 50 (78.1)	Lap 104 (55.3)	Open 777 (62.7)	Robotic 14 (21.9)	Lap 84 (44.7)	*p* (open v robotic v lap)	*p* (robotic v lap)
Ileus[1]	114 (24.7)	5 (10.0)	20 (19.2)	-	-	-	**0.042**	0.146
Anastomotic leak[1]	17 (3.7)	2 (4.0)	4 (3.9)	-	-	-	0.936	0.999
Postop liver failure[2]	-	-	-	40 (5.2)	0 (0)	1 (1.2)	0.283	0.999
Postop bile leak[2]	-	-	-	44 (5.7)	0 (0)	1 (1.2)	0.183	0.999
Hepatic invasive procedure[2]	-	-	-	115 (14.9)	0 (0)	9 (10.7)	0.213	0.350

[1]Colectomy/proctectomy-specific outcomes available for patients with colectomy/proctectomy resection listed as a primary procedure in the NSQIP colectomy/proctectomy- targeted files only (n= 41%).
[2]Hepatectomy-specific outcomes available for patients with hepatic resection listed as a primary procedure in the NSQIP hepatectomy-targeted files only (n=59%).

A 15-YEAR EXPERIENCE OF RIGHT HEMICOLECTOMY IN AUSTRALIA AND NEW ZEALAND -WHAT CONTRIBUTES TO ANASTOMOTIC LEAK?

eP537

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Purpose/Background: Surgery remains the mainstay of management for colon cancers. Anastomotic leak (AL) is a serious complication of colectomy and is responsible for significant morbidity and mortality. Rates of, and risk factors associated with, AL following right hemicolectomy remain poorly documented across Australia and New Zealand. The Bowel Cancer Outcomes Registry (BCOR) is a prospectively collected clinical quality registry established in 2007 by the Colorectal Surgical Society of Australia and New Zealand (CSSANZ). This study examines the Bowel Cancer Outcomes Registry (BCOR) to address this deficiency in the literature.

Methods/Interventions: A retrospective cohort study was undertaken of consecutive BCOR-registered patients who underwent right hemicolectomy (2007-2021). The primary outcome measure was the incidence of AL in patients who underwent right hemicolectomy with a primary anastomosis. Secondary outcome measures were an analysis of risk factors for AL, specifically the role of anastomotic technique, comparing clinicopathological variables of patients who had a primary anastomosis versus a non-restorative resection and the trend of the AL leak rate over time. Factors associated with AL and a primary anastomosis were determined by logistic regression. Trends of AL rates were assessed by linear regression.

Results/Outcome(s): A total of 13,512 patients underwent right hemicolectomy during the study period (45.2% male, mean 72.5 years, SD 12.1). 258 (2.0%) patients had AL. On multivariate analysis, male gender (OR 1.33;

95%CI 1.03-1.71) and emergency surgery (OR 1.41; 95%CI 1.04-1.92) were associated with AL. Private health insurance status (OR 0.66; 95%CI 0.50-0.88) and minimally invasive surgery (OR 0.61; 95%CI 0.47-0.79) were protective for AL. Anastomotic technique (handsewn vs stapled) was not associated with AL (p=0.84). Patients with higher ASA status (OR 0.47; 95%CI 0.39-0.58), advanced disease stage (OR 0.56; 95%0.50-0.63), and emergency surgery (OR 0.16; 95%CI 0.13-0.20 were less likely to have a primary anastomosis. There was no association between AL rate and year of surgery (p=0.521).

Conclusions/Discussion: This study examines the 15-year experience of AL in patient treated by right hemicolectomy for colon cancer in Australia and New Zealand. Registry-recorded AL rates are consistent with published literature and were stable throughout the study period. Gender, emergency surgery, insurance status, and minimally invasive surgery were significantly associated with incidence of AL. Anastomotic technique was not associated with AL incidence. Ultimately, a consensus definition of AL must be implemented in addition to a more comprehensive documentation of the many additional patient, clinical and institutional factors that contribute to AL. Knowledge of these variables is of critical importance in identifying patients at risk of AL and in the overall tailored management of patients who develop an AL.

TREATMENT NAïVE MICROSATELLITE INSTABILITY-HIGH COLON CANCER WITH ACELLULAR MUCIN LYMPH NODE DEPOSITS: A CASE STUDY.

eP538

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Purpose/Background: We present an interesting case of treatment naïve microsatellite instability-high (MSI-H) right colon cancer with acellular mucin lymph node deposits.

Methods/Interventions: The patient is a 65 year old female with an ascending colon moderately differentiated adenocarcinoma arising from a 2.5 cm ulcerated sessile polyp. She underwent a right colectomy with stapled ileocolic anastomosis. Her postoperative course was uncomplicated, and she was discharged on postoperative day three.

Results/Outcome(s): The pathology showed a 1.3 cm right colon moderately differentiated, invasive adenocarcinoma with mucinous component invading into the submucosa. The margins were widely negative, but there was lymphovascular and perineural invasion. Seventeen lymph nodes were harvested without evidence of metastatic disease; however, two were found to have acellular mucin present. Her final pathologic stage was I (T1N0M0). Further testing on the tumor demonstrated loss of expression of the mismatch repair proteins MLH1 and PMS2 due to MLH1 promoter hypermethylation. Given the high risk features of lymphovascular and perineural invasion, along with presence of acellular mucin, adjuvant chemotherapy was discussed and offered, but ultimately declined by the patient.

Conclusions/Discussion: The existing literature on acellular mucin lymph node deposits in colorectal cancer specimens is limited. Additionally, there is a disagreement between European and non-European pathologists as to whether acellular mucin lymph node deposits should be considered as nodal metastases in treatment naive patients. The current American Joint Committee on Cancer Staging Manual 8th edition states that acellular mucin does not constitute nodal metastasis. With regard to adjuvant chemotherapy for MSI-H stage III colon cancer, there is some literature stating a benefit when 5-fluorouracil is used in combination with oxaliplatin, but no benefit with 5-fluorouracil alone. Avenues for further research should focus on the prognostic importance of mucin deposits in colonic mesenteric lymph nodes in treatment naïve patients, particularly with MSI-H tumors to help guide adjuvant therapy.

LAPAROSCOPIC COLORECTAL CANCER SURGERY FOR LIVER CIRRHOSIS PATIENTS AND OPEN CONVERSION RATE.

eP539

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Purpose/Background: Liver cirrhosis (LC) refers the end stage of damage to hepatocytes and patients with decompensated LC present severe complications such as large ascites from portal hypertension, hepatorenal syndrome, and hepatic encephalopathy, which are well known to be a higher risk of morbidity and mortality following surgery. The laparoscopic surgery has been established as a standard procedure for colorectal cancer, but the safety and efficacy in these cirrhotic patients has not been verified yet. We analyze whether laparoscopic colorectal cancer surgery can be safely performed in cirrhotic patients and investigate the conversion rate to open surgery.

Methods/Interventions: This is a retrospective study for prospectively collected data of patients who underwent colorectal resection from January 2004 to December 2021 at a tertiary hospital in Korea. We compared the clinical characteristics, operative outcomes, surgical pathology and long-term survival outcomes between open and laparoscopic surgery group in LC patients.

Results/Outcome(s): During the study periods, 98 open and 51 laparoscopic surgeries had been performed in cirrhotic patients with colorectal cancer. Body mass index was higher in the laparoscopic group than in the open group (22.7±3.4 vs. 24.3±3.2 kg/m2, p=0.007), but there were no significant differences in age, sex, American Society of Anesthesiologists classification, and Child-Turcotte-Pugh Classification of LC. The preoperative carcinoembryonic antigen level was higher in the open group (3.6 vs. 2.2 ng/ml, p=0.009). Operative time was significantly longer in the laparoscopic group (131.5 vs. 177.0 min, p<0.001). Four of 55 (7.3%) cases in the laparoscopic group were converted to open surgery. Reasons for conversion were variceal bleeding in all 4 cases. According to the Child-Turcotte-Pugh class, the conversion rate was 2.1% in A and 42.9% in class B, respectively (p=0.005). The tumor size was significantly larger in the open group (4.3±1.9 vs. 3.2±1.9 cm, p=0.004). T and N stages were higher (p=0.007 and 0.005, respectively) and positive perineural invasion were more in the open group (p=0.040). Postoperative morbidity and mortality were not significantly different between the two groups. The length of hospital stay was shorter in the laparoscopic group (7.5 vs. 5.0 days, p=0.042). The 5-year overall survival rate were 49.1% in the open group vs. 88.4% in the laparoscopic group (p<0.001) and the 5-year disease free survival were 51.7% in the open group vs. 93.0% in the laparoscopic group (p<0.001).

Conclusions/Discussion: Although there were some differences in clinical or tumor characteristics, the post-operative outcomes were not inferior with laparoscopic surgery than with open surgery in cirrhotic patients. LC class B has a higher potential for conversion to open surgery than class A. Therefore, we might safely perform the laparoscopic colorectal surgery with more cautious selection of the patients.

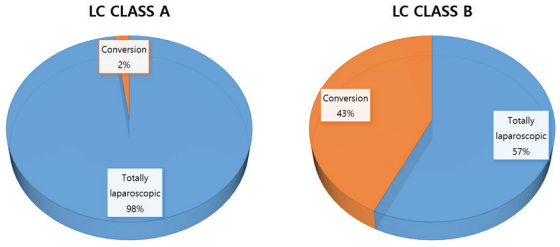

Figure 1. Open conversion rate of laparoscopic colorectal cancer surgery in LC class A and B

EFFECT OF COVID-19 ON ERAS COMPLIANCE AND OUTCOMES FOR ELECTIVE COLORECTAL SURGERY.

eP540

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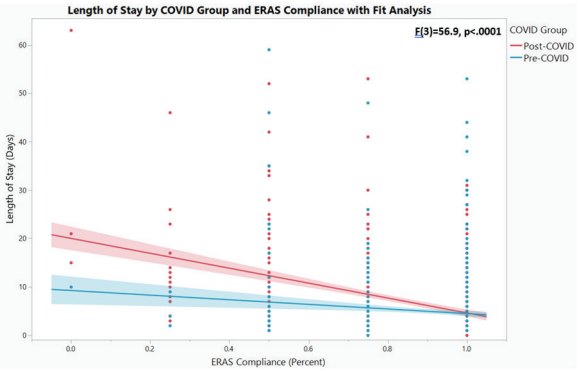
Purpose/Background: The coronavirus pandemic (COVID-19) continues to create supply-chain and staffing shortages that affect healthcare delivery. The Enhanced Recovery After Surgery (ERAS) program is a resource-intensive activity. We hypothesize that COVID-19 has caused decreased compliance and worse perioperative outcomes as a result.

Methods/Interventions: A single-center retrospective analysis was performed utilizing the NSQIP-ISCR (Improving Surgical Care and Recovery) database for all elective colorectal surgery cases between January 2017 –May 2022. Patients were stratified into pre-COVID (before 3/1/20) and post-COVID (3/1/20 and after) groups. Primary outcomes were compliance with ERAS components and hospital length of stay. A multivariate interaction linear regression was used to evaluate factors associated with extended length of stay.

Results/Outcome(s): 1,239 patients (704 pre-COVID, 535 post-COVID) were identified. There were no significant differences in age, sex, BMI, or comorbidities (DM, COPD, HTN) between the two groups. In the post-COVID group there were significantly fewer patients who received preadmission counseling (83.2% vs 93.9%, p<0.0001), preoperative VTE prophylaxis (79.5 vs. 84.5%, p=0.0065), preoperative carbohydrate drink (62.5% vs 75.3%, p<0.0001), and pre-operative multimodal pain control (96.6% vs 99.0%, p=0.0039). Preoperative regional pain control and pre-admission opioid use were not significantly different. The post-COVID cohort was significantly more likely to have longer length of stay (7.1 vs 4.9, p<0.0001), develop sepsis (4.5% vs. 2.8%, p=0.029), pulmonary embolism (3.5% vs 0.0%, p=0.001), and acute kidney injury (4.1% vs. 0.0%, p=0.000). 30-day mortality was significantly higher in the post-COVID group (p=0.013) but it was not an independent predictor in multivariate analysis (p=0.2278). There was no statistical difference in 30-day readmission rates (p=0.92). Multivariate regression of length of stay revealed a significant relationship with COVID grouping (p<.0005), ERAS percent compliance score (p<.0001) and their interaction (p<.0001) (Figure 1). In the post-COVID cohort, poor compliance with ERAS components had a greater effect on increased length of stay compared to the pre-COVID cohort (p=0.0026). With increased compliance, length of stay approached pre-COVID values (p=0.4842). This interaction remained significant after adjusting for age, sex, race, ASA status, functional dependence, and length of surgery (p<.0001).

Conclusions/Discussion: There is a significant decrease in compliance with ERAS components in the post-COVID era. Compliance with ERAS components has a greater effect on decreasing the length of stay in the post-COVID era. Identifying strategies to improving ERAS compliance is important to improving outcomes for current colorectal patients.

Figure 1.



Multivariate Interaction Regression Model of Length of Stay by COVID Group and ERAS Percent Compliance

DOES LIVING IN A FOOD DESERT INCREASE RISK FOR ANASTOMOTIC LEAK RATE AFTER ELECTIVE COLECTOMY?

eP541

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Purpose/Background: Anastomotic leak after colon anastomosis is associated with increased morbidity, mortality, and cost. Modifiable risks factors may include pre-operative nutrition. Animal studies have demonstrated benefit from plant-based diet to improve microbiome and decrease leak risk. Small studies have demonstrated increased wound complications and readmissions for surgical patients who live in food deserts (FD), regions of the country with limited access to healthy food. We hypothesized that patients living in a FD would have higher rates of anastomotic leak compared to patients who do not live in a FD.

Methods/Interventions: The cohort consisted of patients in the Michigan Surgical Quality Collaborative database who underwent elective laparoscopic or open partial colectomy with anastomosis from 08/01/2017 to 08/01/2022. FD status was identified using the USDA Food Access Research Atlas low income / low access (LILA) census tracts. The low access threshold used was 0.5 miles in urban areas and 10 miles in rural areas. Bivariate and multivariate analysis was performed to evaluate the association between LILA status and anastomotic leak.

Results/Outcome(s): The cohort consisted of 7639 colectomy patients of whom 1703 (22.3%) lived in a LILA tract. LILA patients were more likely to be male, non-white, have non-commercial insurance, ASA 3-5 status, non-independent, diabetes, hypertension, COPD, be a smoker, on dialysis, obese and undergo open surgery. There was a significant difference in anastomotic leak rate [39 (2.3%) vs 72 (1.2%) p<0.01], readmission [179 (10.5%) vs 484 (8.2%) p<0.01], and post op complication [292 (17.1%) vs 789 (13.3%) p<0.01] (Table 1). For patients in LA tracts [n=3087 (40.4%)] there was a lower mortality [19 (0.6%) vs 52 (1.1%) p=0.02]. For patients in LI tracts [n=2431 (31.8%)] there were increased readmissions [245 (10.1%) vs 418 (8.0%) p<0.01] and post op complications [394 (16.2%) vs 687 (13.2%) p<0.01]. On multivariate analysis LILA status was independently associated with anastomotic leak risk (OR=1.83 95% CI [1.21-2.78]). Other risk factors were COPD (OR=1.91 95% CI [1.10-3.34]), and dialysis (OR=5.58 95% CI [1.61-19.27]). There was decreased risk for overweight patients (OR=0.5 95% CI [0.29-0.87]) and with MIS approaches (OR=0.46 95% CI [0.31-0.68]).

Conclusions/Discussion: Patients living in a FD have a significantly greater risk of anastomotic leak after elective colectomy. These findings are consistent with existing literature in thoracic and vascular surgery and suggest that access to nutritious food is a pre-operative risk factor in colorectal surgery. Further work will need to be done to determine if a targeted prehabilitation program providing nutritious food can mitigate this risk.

Baseline Characteristics		LILA status No n=5936 (77.7)	Yes n=1703 (22.3)	P value
Gender	Female	3127 (52.7)	952 (55.9)	0.0188
Race	Non-White	749 (12.6)	585 (34.4)	<0.0001
Age	<45	481 (8.1)	149 (8.7)	0.6330
	45-64	2301 (38.8)	665 (39.0)	
	65+	3154 (53.1)	889 (52.2)	
Insurance Status	Non-Commercial	3681 (62.0)	1252 (73.5)	<0.0001
ASA	3 or 4 or 5	3507 (59.1)	1185 (69.6)	<0.0001
	1 or 2	2429 (40.9)	518 (30.4)	
Functional Status	Independent	5861 (98.7)	1660 (97.5)	0.0002
	Not Independent	75 (1.3)	43 (2.5)	
Pre-Op Steroids		423 (7.1)	99 (5.8)	0.0584
Ascites		25 (0.4)	6 (0.4)	0.6936
Pre-Op Sepsis		18 (0.3)	6 (0.4)	0.7497
Ventilator		3 (0.1)	0 (0.0)	0.3535
Disseminated Cancer		284 (4.8)	81 (4.8)	0.9618
Diabetes		1067 (18.0)	433 (25.4)	<0.0001
Hypertension		3231 (54.4)	1035 (60.8)	<0.0001
CHF		29 (0.5)	10 (0.6)	0.6146
Smoker		989 (16.7)	407 (23.9)	<0.0001
COPD		438 (7.4)	172 (10.1)	0.0003
Dialysis		22 (0.4)	19 (1.1)	0.0002
BMI	Underweight	139 (2.3)	45 (2.6)	0.0207
	Normal	1428 (24.1)	392 (23.0)	
	Overweight	1976 (33.3)	514 (30.2)	
	Obesity	2393 (40.3)	752 (44.2)	
Surgical Approach	Open	1873 (31.6)	595 (34.9)	0.0085
	MIS	4063 (68.4)	1108 (65.1)	
Outcomes				
Anastomotic Leak		72 (1.2)	39 (2.3)	0.0011
Readmission		484 (8.2)	179 (10.5)	0.0023
Post-op Complication		789 (13.3)	292 (17.1)	0.0001
Mortality		49 (0.8)	22 (1.3)	0.0771

Table 1. Baseline characteristics and outcomes for patients undergoing elective colectomy who live in low income and low access (LILA) census tracts.

DIVERSITY WITHIN SPEAKERS AT THE ANNUAL AMERICAN SOCIETY OF COLON AND RECTAL SCIENTIFIC MEETING.

eP542

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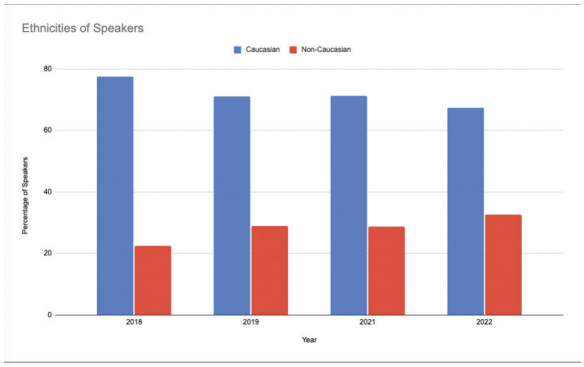
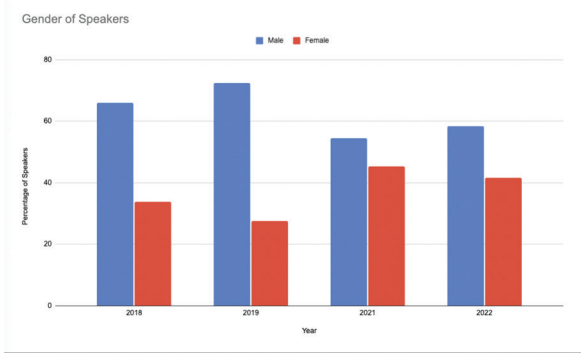
Purpose/Background: Ethnic and gender disparities have been observed and well documented in academic medicine and have led to a call to increase diversity across the discipline, including the field of surgery. This has become increasingly relevant over the past several years with the current social justice climate. In response, many national societies, including the American Society of Colon and Rectal Surgeons (ASCRS), have implemented Diversity, Equity, and Inclusion (DEI) committees to work on initiatives which promote equity and increase participation by URM members. This study aims to evaluate the racial and gender diversity amongst speaker selections at the annual ASCRS scientific meeting for the past 5 years.

Methods/Interventions: Data was collected from the ASCRS annual scientific meeting program guide for 2018, 2019, 2021 and 2022. There was no data collected for 2020 as the conference was cancelled due to the COVID-19 pandemic. Individuals who spoke or presented during these years were identified. Information on ethnicity and gender was recorded from the home institution's website and biographies.

Results/Outcome(s): A total of 857 speakers presented between 2018-2022. There were 174, 218, 174, and 291 speakers in 2018, 2019, 2021 and 2022 respectively. There was an average of 31% repeat speakers from year to year (SD 1.4%). In total, 71% (610, SD 4.25%) of speakers were Caucasian and 29% (247, SD 4.25%) were non-Caucasian. The percentage of Caucasian speakers was 78%, 71%, 71% and 67% for 2018, 2019, 2021 and 2022 respectively. For those same years, the percentage of non-Caucasian speakers was 22%, 29%, 29% and 33% for 2018, 2019, 2021 and 2022 respectively. In total, 62% (538, SD 7.97%) of speakers were male and 37% (319, SD 7.72%) were female. The percentage of male speakers was 66%, 72%, 55% and 58% for 2018, 2019, 2021 and 2022 respectively, and the percentage of female speakers was 34%, 28%, 45% and 42%. When comparing 2018 to 2022, there was an 11% increase in non-Caucasian speakers observed over the 5-year period. Between the years 2019 and 2021, there was an 18% increase in female speakers.

Conclusions/Discussion: Increasing diversity in ethnicity and gender among speakers selected for the ASCRS annual scientific meeting over the past 5 years has been observed. However, this increase has been minimal, particularly for non-Caucasian presenters, and the majority of speakers still remain Caucasian males. This finding suggests that despite efforts made, disparities continue to persist. Further investigation into the speaker selection process for the annual ASCRS scientific meeting and implementation of strategies to improve disparities is warranted.





RISK-ADJUSTED CUMULATIVE SUM UTILIZATION TO ANALYZE SURGEON, DIVISIONAL, AND INSTITUTIONAL PERFORMANCE IN REAL TIME.

eP543

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Purpose/Background: Few objective, real-time measurements of surgeon performance exist. Most performance metrics are delivered on a quarterly or annual basis at the institutional level. In contrast, risk-adjusted cumulative sum (RA-CUSUM) can track surgeon-level outcomes on a continuous basis. The objective of this study was to implement RA-CUSUM to monitor outcomes following colorectal operations and identify clinically relevant performance variations.

Methods/Interventions: The National Surgical Quality Improvement Program (NSQIP) was queried to obtain patient-level data for 1612 consecutive colorectal operations at a high-volume center from 2011-2020. For each case, expected risks of morbidity, mortality, reoperation, readmission, and anticipated prolonged length of stay (LOS) were estimated using the NSQIP risk calculator. RA-CUSUM curves were generated to signal observed-to-expected odds ratios (OR) of 1.5 (poor performance) and 0.5 (exceptional performance). Control limits were set based on a false positive rate of 5% ($\alpha = 0.05$).

Results/Outcome(s): The cohort included data on seven surgeons: Surgeon A = 861 cases; Surgeon B = 28; Surgeon C = 24; Surgeon D = 131; Surgeon E = 208; Surgeon F = 106; Surgeon G = 54. Institutional observed vs expected outcomes were: morbidity 12.5% (vs 15.0%), mortality 2.5% (vs 2.0%), prolonged LOS 19.7% (vs 19.1%), reoperation 11.1% (vs 11.3%), and 30-day readmission 6.1% (vs 4.8%). RA-CUSUM identified within- and between-surgeon performance variations across all metrics. Representative surgeon-level morbidity RA-CUSUM curves are shown in Figure 1. Surgeon A delivered lower-than-expected morbidity (OR<0.5) consistently following a brief early period of higher-than-expected morbidity (OR>1.5), suggesting a rapid learning process. In contrast, Surgeon F remained within the expected morbidity rate for the duration of the study period.

Conclusions/Discussion: RA-CUSUM adjusts for patient-level risk factors to provide real-time data on surgeon-specific outcomes. This approach enables prompt identification of performance outliers and can contribute to quality assurance, root-cause analysis, and incentivization not only at the surgeon level, but at divisional and institutional levels as well.

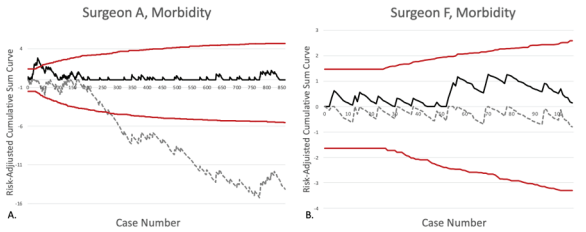

Figure 1. RA-CUSUM curves for surgical morbidity. Red lines represent expected performance. The solid black line crossing the top red line represents worse than expected performance (Figure 1A, OR >1.5). The gray, dashed line crossing the lower red line represents better than expected performance (Figure 1A, OR <0.5). Curves within the red lines represent performance within the expected range (Figure 1B).

ERAS MITIGATES WEEKEND EFFECT ON LENGTH OF STAY FOLLOWING ELECTIVE COLECTOMY.

eP544

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Purpose/Background: Studies have shown higher morbidity, including longer length of stay (LOS), following elective colectomies performed later in the week. However, few studies examined this weekend phenomenon after an enhanced recovery after surgery (ERAS) protocol was established and implemented in hospitals country-wide. The goal of this project was to determine if there still was a weekend effect at our single-center institution and to study other factors that could predict LOS after ERAS implementation.

Methods/Interventions: We performed a retrospective study on all elective colorectal surgeries at a single institution in New York City between January 1st, 2015 and December 31st, 2020. ERAS protocol at this institution was implemented in the spring of 2017. We compared LOS by day of the week of surgery, and the effect of ERAS on

LOS, using univariable and multivariable analysis. Python programming was used for statistical analysis.

Results/Outcome(s): 605 patients were included in the study. 41 cases were done on Mondays, 197 on Tuesdays, 45 on Wednesdays, 187 on Thursdays, and 135 on Fridays. The day of the week significantly affected LOS on univariable analysis (p-value=0.03). The median length of stay was four days. Surgery done on Wednesday was associated with the longest LOS of five days. Median LOS for Monday and Tuesday was three days. Median LOS for Thursday and Friday was four days. After controlling for age, race, comorbidities, complications, and lab values, having surgery later in the week (i.e., Wednesday, Thursday, or Friday) was found to be significantly associated with a longer LOS compared to earlier in the week (i.e., Monday or Tuesday). Having operations done later in the week increased mean LOS by 1.1 days. Patients were then analyzed based on whether they underwent the ERAS protocol (Figure 1). The median length of stay was three days for those who underwent ERAS and four days for those who did not. For patients who underwent ERAS, there was no statistically significant difference in LOS (p-value=0.06) when operated on early in the week versus later. For those who did not undergo ERAS, Monday and Tuesday were significantly associated with decreased length of stay (p-value=0.00006).

Conclusions/Discussion: To our knowledge, this is the first study to demonstrate that ERAS can mitigate the weekend effect on length of stay. At our institution, longer LOS later in the week may reflect a more complex discharge that covering weekend teams are hesitant to rush. ERAS protocols may provide more structure to the hospital stay and allow patients to reach recovery milestones earlier, facilitating discharge even by covering teams. More studies are needed to better understand the mechanism by which ERAS affects LOS and mitigates the weekend effect.

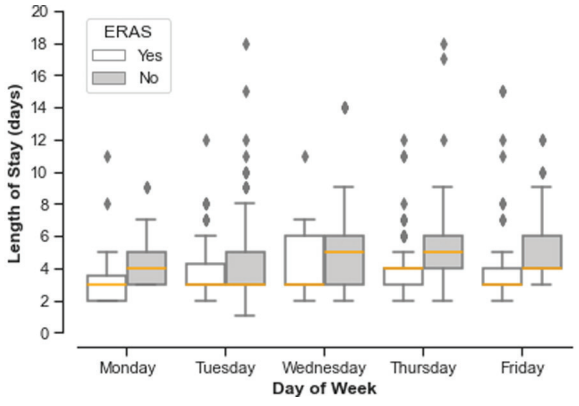

Figure 1. Length of stay as a function of day of week and ERAS status. Boxes represent interquartile range (IQR). Yellow line represents the median. Whiskers represent +/- 1.5 x IQR.

DETERMINING COSTS OF ANASTOMOTIC LEAKS: CONSIDERATIONS IN POST-OPERATIVE MANAGEMENT.

eP545

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Purpose/Background: Anastomotic leaks following colorectal resections frequently result in increased resource utilization and healthcare costs. Various treatment interventions exist, ranging from non-interventional treatments to reoperation, pending patient needs. This study aims to assess costs associated with anastomotic leaks in the perioperative period to help guide interventional decision-making.

Methods/Interventions: Institutional data using the American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) database was queried for all patients undergoing colorectal resections from 2013-2019. This was merged with our hospital financial database to assess direct costs of care for the index hospital stay as well as subsequent patient encounters at 30 days post-discharge. Data was then analyzed using multivariate analysis to determine the index hospital costs (IHC) and 30-days post-discharge direct costs (PDDC) associated with anastomotic leaks and related interventions.

Results/Outcome(s): A total of 2233 patients underwent colorectal resections during the study period, of which 123 had anastomotic leaks. 7 underwent no treatment, 18 underwent noninterventional treatment, 35 underwent interventional treatment, including advanced endoscopic and interventional radiologic procedures, and 63 underwent reoperation. Leaks without treatment and without interventional treatment were not independent predictors of higher IHC or PDDC (Table). Anastomotic leaks treated with reoperation were found to be 17% more costly than those without leaks for the index hospital stay and 66% more costly at 30-days post-discharge. Leaks treated with reintervention were not found to be significantly more costly at the index hospital stay but did independently predict significantly higher healthcare costs at 30 days post-discharge (OR 2.71, CI 1.68-4.38, p<0.001).

Conclusions/Discussion: Anastomotic leaks, though a dreaded complication, do not always confer increased hospital costs depending on their severity. Leaks treated with interventional means initially do not predict higher healthcare costs, but ultimately can predict higher costs, indicating increased healthcare utilization. Further investigation is needed to address costs of advanced procedural interventions versus early reoperations.

Anastomotic Leaks						
	Index Stay			30d Post-Discharge		
Variable	Cost (SD)	Odds Ratio (CI)	p-value	Cost (SD)	Odds Ratio (CI)	p-value
No treatment/ intervention	27283 (23264)	0.90 (0.68-1.20)	0.489	5770 (4447)	2.27 (0.85-6.08)	0.102
Non-interventional treatment	39311 (33848)	1.02 (0.85-1.22)	0.841	2656 (4439)	1.44 (0.65-3.22)	0.371
Interventional treatment	44316 (33891)	1.05 (0.91-1.20)	0.503	12627 (12755)	2.71 (1.68-4.38)	<0.001
Reoperation	83344 (82075)	1.17 (1.04-1.32)	0.01	20340 (33018)	1.66 (1.06-2.60)	0.026

UNIVERSAL PREOPERATIVE GLYCEMIC MANAGEMENT IN A TERTIARY REFERRAL CENTER. IMPLICATIONS FOR SURGICAL SITE INFECTION REDUCTION.

eP546

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Purpose/Background: Perioperative hyperglycemia has been associated with surgical septic complications. Perioperative Point of Care (POC) glucose as part of an SSI bundle in Enhanced Recovery After Surgery (ERAS) patients is standard of care at our institution. This intervention is not routinely extended to non-ERAS patients and non-colorectal surgery disciplines. The aim of this study was to assess the current state of unexpected preoperative hyperglycemia in consecutive surgical patients at a tertiary referral center and its impact on septic complications.

Methods/Interventions: This is a prospectively collected review of all patients undergoing consecutive elective operations at our institution from April 2022 to July 2022. Preoperative POC glucose was measured and a blood glucose level ≧ 140 mg/dL was defined as hyperglycemic. Administration of insulin was defined as insulin given preoperatively, intraoperatively, or within 24 hours after surgery. Medical records were reviewed for endpoints of septic complications within 30 days of surgery (SSI, pneumonia, and UTI). Patients with ≦30 days follow-up or with an infection present at the time of surgery were excluded.

Results/Outcome(s): During the study period, 1262 patients were analyzed. A total of 724 patients had POC glucose recorded, for a compliance of 57.4%. Of those, 144 (19.9%) were hyperglycemic. Twenty-five patients were excluded due to no follow-up or infection present at the time of surgery. Of the remaining 119 hyperglycemic patients, 86 had diabetes (72.3%) and 33 were non-diabetic (27.7%). Fifty-two (43.7%) were appropriately treated with insulin in the perioperative period. Septic events within 30 days of surgery occurred in 28 patients (23.5%). Of the hyperglycemic non-diabetics, undiagnosed prediabetes (HgbA1c 5.7-6.4) and diabetes (HgbA1c 6.5-9.0) were present in 15.1% and 9.1% respectively. Of the total diabetics who had hyperglycemia, poorly controlled diabetes (HgbA1c >9) was present in 15.1%. Of the total diabetics who had a hyperglycemic event, 24 (27.9%) had an infection compared to 4 (12.1%) of nondiabetics with infection (OR 2.8, p=0.09). Of those hyperglycemic patients treated with insulin, 16 (30.8%) developed an infection compared to 12 (17.9%) not treated with insulin who developed an infection (OR 2.0, p=0.13).

Conclusions/Discussion: In our consecutive series, preoperative hyperglycemia was common (19.9%), with almost a third of cases in non-diabetics, which is consistent with available literature. Less than half of the hyperglycemic patients received appropriate treatment with insulin and less than one third of patients with a septic complication received appropriate treatment with insulin. This population represents an area of focus for quality improvement within our institution and furthers the need for more systematized quality control interventions like SSI bundles as part of an ERAS program across surgical disciplines.

Table 1. Bivariate analysis between perioperative insulin treatment/diabetes status and septic events

	Septic events in hyperglycemic patients w/in 30 days of operation			
	Yes (n=28)	No (n=91)	P value	Odds Ratio
Treated w/ insulin			p=.13[1]	OR =2.0[1]
Yes	16(30.8%)	36(69.2%)		
No	12(17.9%)	55(82.1%)		
Diabetes			p=0.09[1]	OR=2.8[1]
Yes	24(27.9%)	62(72.1%)		
No	4(12.1%)	29(87.9%)		
Fischer's Exact Test for Count Data				

Table 1. Bivariate analysis between perioperative insulin treatment/diabetes status and septic events

USING PRE-OPERATIVE C-REACTIVE PROTEIN LEVELS TO PREDICT ANASTOMOTIC LEAKS AND OTHER COMPLICATIONS AFTER ELECTIVE COLORECTAL SURGERY: A SYSTEMATIC REVIEW AND META-ANALYSIS.

eP547

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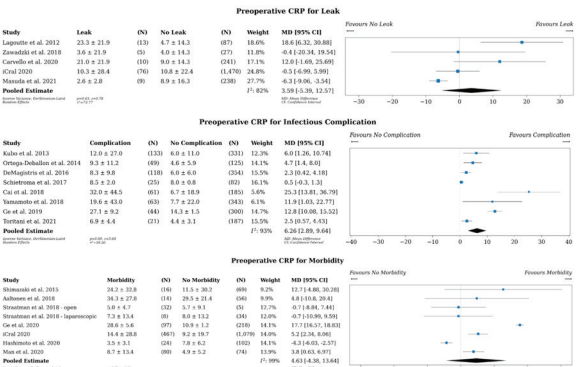
Purpose/Background: Post-operative anastomotic leak (AL) remains a serious complication for patients undergoing elective colorectal surgery. While post-operative monitoring of C-reactive protein (CRP) is used routinely in clinical practice as an early indicator of potential leak, pre-operative CRP remains to be established as a potential predictor of AL and other infectious complications. This systematic review and meta-analysis aims to examine the association between pre-operative CRP levels and AL and other short term post-operative complications, to determine if pre-operative CRP could aid surgeons in pre-operative patient counselling and operative decision-making.

Methods/Interventions: MEDLINE, EMBASE, Web of Science, PubMed, Cochrane Library and CINAHL databases were searched up to October 2021. Studies were included if pre-operative CRP levels were measured prior to elective colorectal surgery involving anastomotic reconstruction, for benign and malignant disease and if short term post-operative outcomes were reported. Quality of included studies was assessed using MINORS criteria. A pairwise meta-analysis was performed using an inverse variance random effects model for all meta-analyzed outcomes, to determine if patients with or without complications and AL differed in their pre-operative CRP levels.

Results/Outcome(s): From 1555 citations, 19 studies evaluating 5426 patients were included, grouped and analyzed based on reported post-operative outcomes. Patients experiencing postoperative infectious complications had significantly greater preoperative CRP values (N=8 studies, n=2421 patients, MD 6.26, 95%CI[2.89-9.64], p<0.01, I^2=93%). There was no association between preoperative CRP values and the occurrence of AL (N=5, n=2176, MD 3.59, [-5.39-12.57], p=0.43, I^2=82%) and with overall post-operative morbidity (N=7, n=2375, MD 4.63, [-4.38-13.64], p=0.31, I^2=99%) after elective colorectal surgery. Sensitivity analyses according to disease type (i.e. inflammatory bowel disease vs. non-inflammatory bowel disease) and risk of bias did not significantly change the results.

Conclusions/Discussion: Higher pre-operative CRP levels are associated with increased rates of overall infectious complications, but not with AL alone or with overall morbidity in patients undergoing elective colorectal surgery, for both benign and malignant indications. This suggests that pre-operative CRP could be a useful tool to predict and counsel patient pre-operatively about post-operative infective complications, but not AL specifically.



IDENTIFYING HEALTH LITERACY-SENSITIVE COMPONENTS OF ERPS IN COLORECTAL PATIENTS.

eP548

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Purpose/Background: Low health literacy (HL) is a significant contributor to surgical disparities and drives increased healthcare costs and poor outcomes. Enhanced recovery programs (ERPs) are standardized multicomponent perioperative care pathways that have demonstrated great potential in addressing surgical disparities. However, low HL surgical patients still suffer disparities despite being under an ERP. A major need therefore exists to adapt ERPs to low HL populations to improve outcomes for this disparity group. It is known that the efficacy of ERP is dependent on fidelity (adherence to the individual components of ERPs). Our goal is to identify the key components of ERPs that are HL-sensitive and can be targeted to improve surgical outcomes. We hypothesize that low HL patients will have the lowest fidelity for ERP components that require the most patient engagement.

Methods/Interventions: We performed a retrospective cohort study of all patients undergoing elective colorectal surgery at our institution from September 2021 to July 2022. Data was acquired from our institution's enhanced recovery database and linked to patient HL data using BRIEF (n=193), a validated HL screening tool. We compared participants based on HL level determined by BRIEF scores: adequate (17 to 20), marginal (13 to 16) and inadequate (4 to 12). Summary statistics were calculated and compared by literacy categories using one-way ANOVA for continuous measures and Chi-square tests for factors.

Results/Outcome(s): Of the 193 patients, 170 (88.1%) had adequate HL, 17 (8.8%) had marginal HL and 6 (3.1%) had inadequate HL. The overall ERP adherence rate (defined as adherence to >70% of the individual components) for inadequate HL was 48.3%, which was lower than adequate HL (54.7%) or marginal HL (55.3%), though not significant (p=0.54). The only ERP component that varied significantly by HL was postoperative multimodal analgesia use with adherence for adequate and marginal HL of 91.7% and 100%, respectively, compared to 66.7% for those with inadequate HL (p=0.05). Though not statistically significant, similar estimates of lower adherence among the low HL group were also seen with preoperative education (90.1% adequate vs. 88.2% marginal vs. 66.7% low HL, p=0.27) and early post-operative mobilization (39.8% adequate vs. 23.5% marginal vs. 16.7% low HL, p=0.27). The mean length of stay (LOS) was 6.1 days for patients with adequate HL, and longer for those with marginal and inadequate HL (9.4 and 11.8 days, respectively, p=0.01).

Conclusions/Discussion: Patients with low HL under ERPs have significantly lower adherence to postoperative multimodal analgesia use, and early results suggest lower adherence to preoperative education and early mobilization. They also experience overall longer LOS. Additional studies will aim to identify disparities in outcomes associated with poor adherence to these components more fully accounting for demographic and clinical characteristics.

THE EFFECT OF CLOSING TRAY USE IN THE URGENT AND EMERGENT COLORECTAL SURGICAL SETTING ON SURGICAL SITE INFECTION.

eP549

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Wilmington, NC

Purpose/Background: Colorectal surgery is known to have a higher rate of surgical site infections (SSI) than other surgical specialties. SSIs carry a large burden affecting patient morbidity and healthcare costs. Closing tray protocols as a part of bundled care play a part in SSI reduction. This study aims to determine whether using a closing tray in the urgent and emergent colorectal surgery setting also decreases the rate of SSIs.

Methods/Interventions: Surgical outcomes data from a single institution were prospectively collected over the course of one year (March 2021 to March 2022) after implementation of a closing tray protocol (CTP) utilized at the time of fascial closure in bowel surgery cases. SSI data was compiled, and outcomes documented. Elective, trauma, gynecologic, pediatric, and foregut cases were excluded.

Results/Outcome(s): There were 145 total urgent/emergent colorectal surgery cases (CRS) performed over the one-year period by 18 different colorectal and acute care surgeons. Twelve (8.3%) of these cases resulted in SSIs: 5 (3.4%) superficial incisional infections and 7 (4.8%) deep organ space infections. Interestingly 8 (5.5%) of these 12 cases were known to have infection present at the time of surgery with pelvic or pericolonic abscess noted in all 8 cases. For the 12 SSIs, wound classification ranged from 2 clean contaminated, 6 contaminated to 4 dirty/infected. The CTP was utilized in 10 of the 12 SSI cases, and not utilized in 2 contaminated cases. The CTP was not used in 41 (28.3%) of the 145 cases. The rate of SSI when the CTP was used was 8.8% compared to a rate of 4.6% when the CTP was not used. This was not statistically significant ($p= 0.51$). As infections present at the time of surgery are a likely confounding factor, these were excluded and data were re-examined. The CTP was used in all 4 (3.8%) cases that developed SSI, whereas the CTP was not used in 28 (26.6%) of 105 cases. The rate of SSI when the CTP was used was 4.9% compared to a rate of 0% when the CTP was not used, again this was not statistically significant ($p=0.57$).

Conclusions/Discussion: In the urgent and emergent colorectal surgery setting at our institution, a CTP did not significantly decrease the rate of SSIs. This may in part be due to the fact that in 36 (24.8%) of the 145 cases, infection and contamination were already present in the abdominal cavity. SSI rates are multifactorial, and it is difficult to determine the effect of just one approach to SSI reduction. These data are limited by small sample size and further study is needed to evaluate the role of CTP in the urgent setting.

FACTORS ASSOCIATED WITH POOR ADHERENCE TO EXTENDED VENOUS THROMBOEMBOLISM PROPHYLAXIS GUIDELINES FOR PATIENTS UNDERGOING MAJOR CANCER SURGERY.

eP550

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Purpose/Background: Venous thromboembolism (VTE) including pulmonary embolism (PE) and deep vein thrombosis (DVT) are highly morbid, costly, and relatively common complications after major cancer surgery. 30-day extended VTE prophylaxis with low molecular weight heparin (LMWH) is a safe and effective intervention recommended for patients undergoing major cancer surgery by most relevant society guidelines including the American Society of Colon and Rectal Surgeons. Despite established society guidelines, utilization of extended VTE prophylaxis remains low across multiple disciplines. In preparation for a multi-specialty improvement program, we explored factors associated with receipt of an outpatient prescription for LMWH within 30 days of major cancer surgery.

Methods/Interventions: We identified all patients who underwent major gastrointestinal (colorectal, esophagus, pancreaticobiliary, stomach), urologic (bladder), and gynecologic (uterus, ovary) surgery for a corresponding cancer diagnosis at a tertiary care hospital between 2014-2021. Patients with a history of end-stage renal disease or on therapeutic anticoagulation prior to surgery were excluded. The primary outcome was receipt of an outpatient LMWH prescription within 30 days of surgery (if discharged). Multivariable logistic regression modeling was used to identify variables associated with patients who received guideline-concordant care with LMWH for the entire study population and for colorectal patients alone.

Results/Outcome(s): 3872 patients were included and 886 (22.9%) received LMWH. On bivariate analysis, receipt of LMWH differed by age, poverty status, insurance provider, use of minimally invasive approach

(MIS), and organ system. Patients with bladder (48.9%), stomach (41.3%), and pancreaticobiliary cancer (25.1%) were more likely to receive LMWH than patients with colorectal (22.6%), gynecologic (19.6%), or esophageal cancer (1.2%). Among the 1031 colorectal patients, receipt of LMWH prescription differed by age, obesity, and abdominal vs pelvic operations (19.2%, 29.2% respectively). Results of multivariable regression are shown in the table. In the overall group, Black race and poverty were independently associated with non-receipt of LMWH. Among colorectal patients, those traveling >50 miles were less likely to receive LMWH.

Conclusions/Discussion: At an institutional level, social and structural determinants of health (race, poverty, travel distance) were associated with provider compliance to guideline-concordant care with LMWH. Adherence to guidelines in colorectal surgery was higher in patients undergoing pelvic operations and open surgery. Data are in line with other statewide series but speak to the need for ongoing quality improvement efforts with particular attention to healthcare disparities.

Table. Results of multivariable logistic regression modeling factors associated with guideline-concordant receipt of outpatient LMWH for eligible patients

	Odds Ratio (95% Confidence Interval)	
	All Specialties (n = 3872)	**Colorectal (n = 1031)**
DEMOGRAPHICS		
Age		
18 - 40	Reference	Reference
41 - 60	1.408 (0.928 – 2.130)	**3.435 (1.182 – 9.978)**
61 - 74	1.454 (0.942 – 2.243)	2.781 (0.926 – 8.354)
75+	1.343 (0.828 – 2.177)	1.982 (0.611 – 6.433)
Male (vs Female)	0.969 (0.795 – 1.179)	1.062 (0.782 – 1.442)
Race		
Black	Reference	Reference
White	**1.268 (1.045 – 1.538)**	1.348 (0.934 – 1.945)
Other	**1.740 (1.105 – 2.727)**	1.823 (0.671 – 3.925)
Poverty (vs No Poverty)	**0.771 (0.640 – 0.929)**	0.731 (0.512 – 1.043)
Travel Distance >50 Miles	0.887 (0.725 – 1.038)	**0.700 (0.503 – 0.974)**
Insurance		
Commercial	Reference	Reference
Medicare	1.015 (0.810 – 1.271)	0.917 (0.601 – 1.399)
Medicaid	0.888 (0.638 – 1.236)	0.790 (0.413 – 1.513)
Other	**0.592 (0.423 – 0.829)**	0.725 (0.391 – 1.347)
COMORBID CONDITIONS		
Obesity	1.074 (0.904 – 1.275)	1.325 (0.981 – 1.827)
CHF	0.844 (0.612 – 1.163)	0.955 (0.525 – 1.737)
COPD	**0.780 (0.618 – 0.985)**	0.892 (0.584 – 1.362)
Coronary Disease	0.949 (0.648 – 1.389)	1.104 (0.529 – 2.304)
Hypertension	1.050 (0.878 – 1.254)	1.105 (0.777 – 1.572)
Diabetes Mellitus	1.089 (0.879 – 1.299)	1.195 (0.810 – 1.761)
SURGICAL FACTORS		
Open Approach (vs MIS)	**3.565 (2.899 – 4.383)**	**1.660 (1.195 – 2.305)**
Organ		
Ovary/Uterus	Reference	
Bladder	**2.111 (1.520 – 2.932)**	
Colorectal	1.147 (0.913 – 1.441)	
Esophagus	**0.034 (0.011 – 0.110)**	
Pancreaticobiliary	0.813 (0.634 – 1.042)	
Stomach	**1.774 (1.107 – 2.841)**	
Abdominal (vs Pelvic)		**0.528 (0.382 – 0.728)**

AUC = 0.7105 for all specialties and 0.8448 for colorectal alone

RISK FACTORS FOR POST-OPERATIVE VTE FOLLOWING COLORECTAL SURGERY: IS CAPRINI SCORE ENOUGH?

eP551

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Purpose/Background: Despite years of significant efforts at prevention of venous thromboembolism (VTE), this entity still represents a great burden to the US healthcare system. Post operative colorectal VTE rates are estimated to be within 1-3%, with increased risk in this group attributed to factors like patient positioning, disease process (inflammatory bowel disease [IBD], cancer) and pelvic dissection. Often, surgeons utilize risk assessment models, like the modified Caprini score, to determine need for VTE prophylaxis. Several studies have identified risk factors currently not assessed in the Caprini risk model, including preoperative serum albumin level, perioperative blood transfusion, emergency surgery and preoperative steroid use. The aim of this study was to assess for these additional risk factors in our patient population.

Methods/Interventions: This was a retrospective, multicenter analysis of all colorectal surgeries performed across 9 Medstar Health centers from January 2021 – December 2021. The primary endpoint was VTE rate within 30 days post operatively. Secondary endpoints included Caprini scores, urgent/emergent surgery, preoperative serum albumin levels, preoperative steroid use and perioperative blood transfusion.

Results/Outcome(s): A total of 858 patients underwent colorectal surgery during the study period. Of these, 15 patients had postoperative VTE events, for an overall incidence rate of 1.75%. PE was present in 53% of patients, DVT in 34%, and both DVT/PE in 13%. Mean age was 68 years, mean surgery time was 230 minutes and mean LOS was 34.3 days. Main comorbidities included HTN (40%) and DM (33%). Most common indication for surgery was cancer (53%). No patient had diagnosis of IBD. Most common procedures performed were low anterior resection (27%) and right colectomy (27%). All events ocurred in an inpatient setting, a mean of 9.9 days following surgery. Of the 15 VTE cases, 53% underwent urgent/emergent surgery and 60% had perioperative blood transfusions. Twelve patients had a known preoperative serum albumin level, with 66% being less than 3.5 g/dL. For Caprini score, 60% of patients had a moderate risk score and 30% high risk score. Fourteen patients were on VTE prophylaxis. No patient had preoperative steroid use. Overall, patients with non-cancer-related diagnoses were more likely to have low-moderate Caprini score (47% vs 27%), preoperative albumin level < 3.5 (42% vs 25%), urgent/emergent cases (40% vs 13%), but less blood transfusions (27% vs 33%) than patients with cancer.

Conclusions/Discussion: Additional risk factors such as urgent/emergent surgery, preoperative serum albumin levels, and perioperative blood transfusions are present in over half of our post operative colorectal patients with VTE. Therefore, consideration of these factors, in addition to Caprini score, could help guide pre- and postoperative VTE screening and long term prophylaxis, especially in patients with non-cancer-related diagnoses.

COMPARING POSTOPERATIVE ANEMIA IN INTRACORPOREAL VS EXTRACORPOREAL ANASTOMOSIS IN MINIMALLY INVASIVE RIGHT COLECTOMY.

eP552

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Purpose/Background: Right hemicolectomy is one of the most common major abdominal procedures performed in the United States. There have been numerous studies comparing the efficacy of intracorporeal anastomoses (ICA) vs extracorporeal anastomoses (ECA) with distinct advantages to an ICA approach, including faster postoperative recovery and smaller incision burden. However, the data does suggest a potential increased bleeding risk from an ICA approach. The aim of this study was to evaluate the bleeding risk of IC versus EC anastomosis using data from a single academic center. We hypothesize that IC patients will have a greater hematocrit decrease postoperatively.

Methods/Interventions: This is a retrospective single-center study. Adult patients undergoing minimally invasive right hemicolectomy from 2019-2022 were included. Patients were grouped based on anastomotic technique (ICA vs ECA). Preoperative and postoperative hematocrit was determined from chart review. The primary outcome was hematocrit decrease postoperatively. Differences were tested by independent t-test, with $p < .05$ indicating significance.

Results/Outcome(s): 72 patients were included. 33 (45.8%) patients underwent ICA and 39 (54.2%) underwent ECA. There was no statistically significant difference in preoperative hematocrit between patients undergoing ICA and ECA (mean(standard deviation), 41.3(5.8) versus 39.3(6.1) mg/dL; p=0.17). There was no statistically significant difference in the postoperative decrease in hematocrit between patients undergoing ICA and ECA (6.7(4.2) versus 4.9(3.4) mg/dL; p=0.052).

Conclusions/Discussion: Compared to ECA patients, ICA patients did not have a statistically significantly greater decrease in hematocrit postoperatively. ICA has already been shown to improve postoperative recovery and cosmetic outcomes. Despite conflicting data regarding bleeding risk, ICA does not pose a greater risk for bleeding and can be considered equivalent to ECA in this regard.

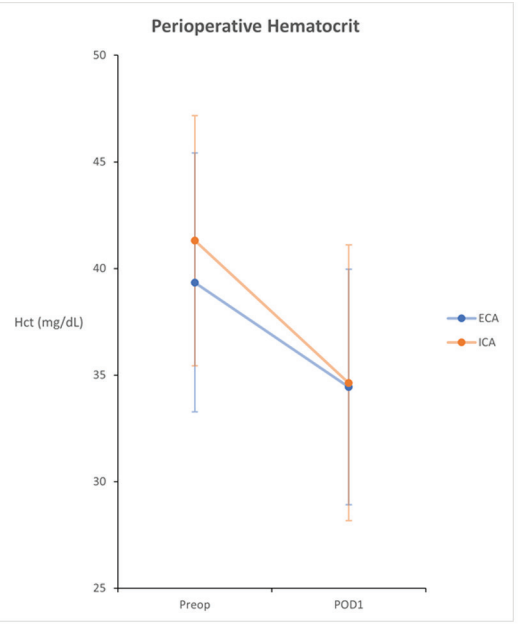

Figure: Comparison of mean hematocrit (with 95% CI) in the pre and postoperative period

THE READABILITY, UNDERSTANDABILITY, AND SUITABILITY OF ONLINE RESOURCES FOR OSTOMY CARE MOSES CG, FICARINO HM, WOOD LN, CHU DI, HOLLIS RH.

eP553

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Purpose/Background: Patients with a new ostomy face significant self-care challenges after leaving the hospital and frequently turn to the internet as a source of information. Whether these resources are written at the appropriate level with essential content for the average patient is unknown. Our objective was to evaluate the content, readability, understandability, and suitability of online resources for ostomy care.

Methods/Interventions: Ostomy care websites designed for patients were identified by querying three online search engines using the search term "ostomy care." The top 60 search results were evaluated as candidate websites. Exclusion criteria included websites that were intended for healthcare professionals, password protected, blogs, Non-English language, fee-associated, or irrelevant to ostomy care. Content areas were established following assessment of all websites by two reviewers. Readability of each website was determined using the Flesch-Kincaid readability test and the Simple Measure of Gobbledygook (SMOG) index. Understandability was measured using the Patient Education Materials Assessment Tool (PEMAT), and suitability was determined using the Suitability

Assessment of Materials (SAM). Chi-Squared and rank sum tests were used to compare these measures across website type and by number of content areas.

Results/Outcome(s): Overall, 23 websites met inclusion criteria. Of these websites, 34.8% were private, 26.1% were academic, and 21.7% were nonprofit. A total of 19 content areas were determined including themes related to pouching, bathing, physical activity, managing output, lifestyle, mental health, and eating. The median number of content areas covered was 9 (IQR 4-14). The most common content areas were changing/emptying a stoma (87% of websites), skin irritation (78.3%), eating (65.2%), and odor (65.2%). Less than 26% of websites had content on irrigation, blockage/constipation, and body image. Readability scores using the Flesch-Kincaid (Mean 63, SD 10.5, IQR 54.7-69.5) and SMOG Index (Mean 8.5, SD 1.9, IQR 7.6-9.9,) correlated to a high-school or "fairly difficult" reading level. The mean PEMAT score was 80 (SD 8, IQR 78.9-84). The mean SAM score was 56 (SD 10.3, IQR 46.5-61.9), indicating "adequate material". The type of website was not associated with in any difference in the four measures or number of content areas website ($p>0.05$). A greater number of content areas on the website was associated with worse readability (SMOG $r=0.62$; $p<0.01$; Flesh-Kincaid score $r=-0.65$; $p<0.01$).

Conclusions/Discussion: There is significantly variability in the content, readability, understandability, and suitability of online materials for ostomy care. Websites with more content areas were associated with worse readability. Directing patients to websites with essential content with high readability may be an important tool to improve post-ostomy outcomes.

		Readability		Understandability	Suitability
Website	# of Content Areas	Flesch-Kincaid (higher better)	SMOG (lower better)	PEMAT (higher better)	SAM (higher better)
High performing websites examples					
Memorial Sloan Kettering Cancer Center (mskcc.org) – *Caring for Your Ileostomy or Colostomy*	15	62.2	8.3	87.5	59.5
Uchicago Medicine – *Ileostomy & Colostomy Stoma Care*	12	54.7	9.9	80.6	61.9
Low performing websites examples					
UnityPoint Health - *Ostomy Care After Colon Removal*	4	53.1	10.3	79.8	41.7
Ostomy Care India	8	51.2	10.3	79.2	42.3

Figure 1. Selected examples of the "best performing" and "worst performing" websites by number of content areas, readability, understandability, and suitability scores.

QUANTIFICATION OF MOTION DURING COLONOSCOPIES AT THE POINT OF CARE WITH COMPARISON OF ATTENDINGS TO TRAINEES.

eP554

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Purpose/Background: Quantification of a procedure allows for an objective understanding of performance and facilitates comparison between individuals. Quantification often occurs in simulation but not at the point of care. In this pilot study we demonstrate the ability to quantify and compare performance during colonoscopy performed at the point of care by attending surgeons and trainees.

Methods/Interventions: Motion capture at the point of care during routine performance of colonoscopies was conducted using Ascension trakSTAR (Victoria, AUS) electromagnetic sensors. The sensors were taped to the right and left index fingers and thumbs of the attending and trainee performing the colonoscopy. Motion data was plotted and synced with video of the procedure. The motion metrics working volume (WV), idle time (IDT), and bimanual dexterity (BMD) were calculated for each participant during their performance of the procedure. Metrics were calculated for the entire procedure. Additionally, metrics were calculated for the last 100 seconds the trainee was active and the first 100 seconds the attending was active to capture performance on an overlapping segment of colon. Statistical analysis with Student t-test was performed comparing metrics between attendings and trainees and between right and left hands.

Results/Outcome(s): Motion capture was performed during eight colonoscopies with two attendings and three trainees. During the full procedure, median WV for attending right hand was significantly larger than for the trainee (0.107m vs 0.064m $p=0.01$) and there was no difference between left hands (0.099m vs 0.139m $p=0.15$). During the 100 second sample median WV for attending left hand was significantly smaller than for the trainee (0.057m vs 0.129m $p=0.02$) and there was no difference between right hands (0.078m vs 0.045m $p=0.18$). Additionally, there was a significant difference between the right and left hands for the trainees during the 100 second sample (0.045m vs 0.129m $p=0.01$). There was no significant difference between attending and trainee or right and left hands for IDT and BMD (Table 1).

Conclusions/Discussion: In this early pilot study we successfully quantified performance during routine colonoscopy at the point of care. We were able to identify a significant difference in WV between trainees and attending. During the full procedure the larger working volume for attendings may represent the use of the right hand when taking biopsies. During the 100 second sample the large WV for trainees may represent excess

unproductive motion as the trainee attempts to traverse difficult sections of the bowel. Further work will need to be done to translate these differences into actionable performance feedback.

Full Procedure				
Working Volume				
Source	**Median (m)**	**Source**	**Median (m)**	**P value**
Attending R. Hand	0.107	Trainee R. Hand	0.064	0.01
Attending L. Hand	0.099	Trainee L. Hand	0.139	0.15
Attending R. Hand	0.107	Attending L. Hand	0.099	0.32
Trainee R. Hand	0.064	Trainee L. Hand	0.139	0.12
Idle Time				
Source	**Median (s)**	**Source**	**Median (s)**	**P value**
Attending R. Hand	47.05	Trainee R. Hand	7.79	0.14
Attending L. Hand	14.29	Trainee L. Hand	3.89	0.15
Attending R. Hand	47.05	Attending L. Hand	14.29	0.23
Trainee R. Hand	7.79	Trainee L. Hand	3.89	0.26
Bimanual Dexterity				
Source	**Median**	**Source**	**Median**	**P value**
Attending	0.086	Trainee	0.129	0.21
100 Second Sample				
Working Volume				
Source	**Median (m)**	**Source**	**Median (m)**	**P value**
Attending R. Hand	0.078	Trainee R. Hand	0.045	0.18
Attending L. Hand	0.057	Trainee L. Hand	0.129	0.02
Attending R. Hand	0.078	Attending L. Hand	0.057	0.68
Trainee R. Hand	0.045	Trainee L. Hand	0.129	0.01
Idle Time				
Source	**Median (s)**	**Source**	**Median (s)**	**P value**
Attending R. Hand	1.90	Trainee R. Hand	2.10	0.55
Attending L. Hand	0.29	Trainee L. Hand	0.48	0.27
Attending R. Hand	1.90	Attending L. Hand	0.29	0.25
Trainee R. Hand	2.10	Trainee L. Hand	0.48	0.12
Bimanual Dexterity				
Source	**Median**	**Source**	**Median**	**P value**
Attending	0.067	Trainee	0.097	0.5

Table 1. Median working volume, idle time, and bimanual dexterity for attendings and trainees during a colonoscopy for the entire procedure and a 100 second sample.

VISUAL ABSTRACTS & AUDIO PODCASTS: A PILOT EFFORT IN ASYNCHRONOUS JOURNAL CLUB (JC) CREATION AND DELIVERY FOR CONSUMPTION BY REGIONAL COLORECTAL (CR) PROVIDERS.

eP555

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Purpose/Background: JCs are an accreditation requirement for training programs and allow continuing medical education (CME) for providers. With shifts to virtual delivery during the pandemic, new challenges were uncovered: screen fatigue and mitigation of conflicting priorities. Noting success with an asynchronous surgical journal club we piloted among students, we endeavored to determine the feasibility of visual abstract & podcast creation of JC for consumption by our region's CR providers.

Methods/Interventions: Articles selected for discussion at the monthly CR-JC hosted by faculty/residents at an accredited CR training program over the past 12 months were sorted by themes, investigators' institutions, impact factor, research methods. Phase #1: Visual Abstract Creation (VAC). Student volunteers (n=5) were sent articles for VAC and were polled on time investment and experience. Phase #2: Creation of JC podcasts following our previously reported method with the addition of faculty input on the article. Phase #3: Attendance rates tracked at synchronous, video-conferenced JC and dissemination of asynchronous JC for provider consumption/evaluation.

Results/Outcome(s): CR-JC discussed 37 articles during the study period [Figure 1]. 16% of articles had visual abstracts already created by the author or publishing journal. Of the 15 articles themed on diverticulosis and colorectal cancer, we sent those without visual abstracts to five medical students for VAC. Figure 2 illustrates the medical student's VAC. Phase #1: The average VAC was 35 mins per abstract. All students reported that VAC enhanced their understanding of the article and creation of the abstract was enjoyable [Figure 3]. Phase #2: 4 podcasts were created. The average recording's play time was 3 minutes and 25 seconds. Addition of faculty input was deemed unfeasible per our initial effort. Only 1 of four faculty contacted provided the discussion audio clip which was requested. #3: Attendance data from the most recent synchronous video-conferenced JC revealed that of 73 invitations sent, attendance was as follows: trainees (n=6), CR program faculty (n=6), community CR surgeons (n=2). On-time attendance was 100% among trainees, while practicing surgeons joined at a rate of 2 per 10 minutes, for the first 30 minutes. Evaluation of asynchronous JC is underway. We aim to send the JC podcasts to a sample of faculty who were absent, and request their evaluation of this program.

Conclusions/Discussion: VAC is a form of active learning which promotes deeper understanding among students than reading alone. In addition to enhanced faculty engagement, a potential benefit in asynchronous consumption is an opportunity to provide educational content, and potentially CME, to providers with conflicting priorities during the traditional dinner-time hour of synchronous CR-JC.

Figure 1: A Year in Review: The Swedish Colon & Rectal Clinic / PolyClinic Monthly Journal Club during Academic Year 2021-22

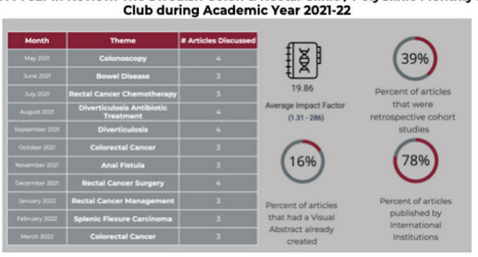


Figure 2: Two examples of visual abstracts created by medical students for our JC-CR articles

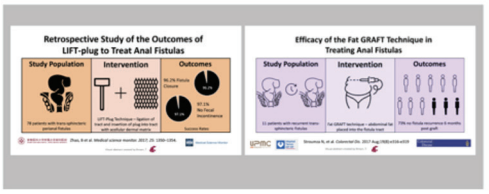
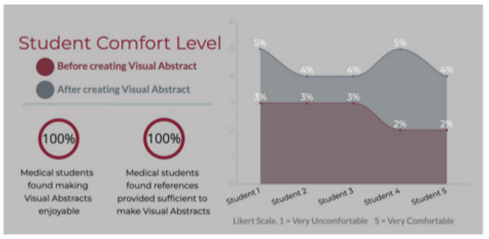


Figure 3: Medical students' perceptions of Visual Abstract Creation (VAC)



SURGICAL TRAINEE AND MEDICAL STUDENT FACTORS ASSOCIATED WITH IMPROVED PERFORMANCE ON THE GI MENTOR II SIMULATOR.

eP556

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Purpose/Background: Virtual reality simulation has become a powerful educational tool and requirement for the surgical trainee. Research has correlated factors such as video gaming experience, gender, and hand dominance with laparoscopic proficiency, but few studies have investigated predisposing factors to success on endoscopic simulation. The objective of this study was to determine if certain characteristics place surgical trainees and medical students at an advantage while training on the GI Mentor II.

Methods/Interventions: 33 general surgery residents, RWJMS with 60 pre-clinical (MS1, MS2) and 36 clinical (MS3, MS4) medical students volunteerwere assessed on the GI Mentor II™ simulator and then surveyed for baseline characteristics. Each learner completed 4 simulated tasks: 2 practice modules followed by an "easy" and "difficult" colonoscopying to participate. Students completed four 10-15 minute tasks on the simulator - two unscored tasks followed by two scored simulations. Performance parameters and baseline characteristics were analyzed using Chi-squared and Mann-Whitney U After completion, students completed a survey investigating specialty interesttests (p-value < 0.05 was considered significant).

Results/Outcome(s): Details summarized in Table 1.

Conclusions/Discussion: Several trainee factors were associated with improved simulator performance, including male gender and larger glove size, older age (greater than 25 years old), resident trainee, as well as a history of video game use, playing an instrument and playing sports. Characteristics such as higher-level resident, surgical interest among students, hand dominance or current video game use were not associated with an advantage.

ASSESSMENT OF RECTAL SURGERY-RELATED PHYSICAL PAIN AND CONDITIONING: A NATIONAL SURVEY OF CANADIAN RECTAL SURGEONS.

eP557

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Purpose/Background: Pelvic surgery is physically demanding on the operating surgeon. However, there is little study data to quantify the pain and injury experienced by rectal surgeons. We examined the baseline state of physical discomfort and its consequences through a pre-intervention survey prior to initiating a rectal surgeon-focused physical exercise program.

Methods/Interventions: An internet-based survey was distributed by email to colorectal surgeons and surgical oncologists specialising in rectal surgery across Canada. Basic demographics, rectal-case experience and volume, musculoskeletal pain, and physical training related-data were collected. Univariate and multivariate logistic regression analysis was performed.

Results/Outcome(s): The survey was distributed to 72 participants, completed by 48, for a response rate of 66.6%. The median age was 43 years. Most surgeons were in practice 5 to 10 years (40%), and the majority performed >20 rectal surgeries per year (56.3%). Amongst the highest-volume rectal surgeons, 77% performed the majority of their rectal surgeries through minimally invasive (MIS)

techniques. During both open and MIS rectal surgery, over 95% of the surgeons reported experiencing physical discomfort or pain during a case, and more than half reported that the pain occurred at least once per week. The neck, shoulders, and back were the three most commonly identified locations for pain in both open and MIS cases. The greatest provoker of discomfort was use of laparoscopic equipment, followed by the headlight, and the pelvic retractor. Half of the respondents (53%) had sought therapy (massage, physio, surgery, etc.) for pain or injury related to rectal surgery. Intraoperative stretching was only practiced by 47% of respondents as a risk-reduction strategy. Half (53%) of respondents performed exercises to improve their surgical conditioning. Most surgeons (60%) reported being less than satisfied with their current ability to perform rectal surgery free from pain or injury. On multivariate regression analysis, greater age and greater percentage of MIS surgeries performed were both significant predictors of increased pain in MIS rectal surgery, and vigorous exercise participation was a protective factor for pain experienced in both open and MIS rectal surgery.

Conclusions/Discussion: Rectal surgeons in Canada report high rates of rectal surgery-related pain and injury, resulting in limitations to work and personal activities. Our results show a clear need to improve the safety of rectal surgery for surgeons, and to preserve surgeons' physical health. They are a 'call to action' from industry, government, and hospitals. They also justify our development of an exercise program study, in collaboration with exercise scientists, as one strategy to reduce pain during rectal surgery and preserve surgeons' health. This follow-up study is currently in progress.

TOWARDS PROCESS IMPROVEMENT: USING A PATIENT COMPLAINT TO DRIVE QUALITY IMPROVEMENT INITIATIVES IN VA MEDICAL CENTER COLONOSCOPIES.

eP558

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Purpose/Background: Colonoscopies are performed with various anesthetic techniques, including moderate sedation (MS) and monitored anesthesia care (MAC). Choice of anesthesia is dependent on a multitude of factors. We hypothesize underutilization of MAC exists at our facility, resulting in likely increased risk of patient safety events, poor patient experience, and lack of patient choice in the periprocedural setting.

Methods/Interventions: A patient complaint was brought to the attention of colorectal surgery (CRS) providers and the endoscopy suite after a negative experience during a colonoscopy using MS. This complaint launched a quality improvement (QI) initiative to assess current practices and anesthetic options available to CRS at our local institution. Using lean methodology, key stakeholders, including clinic and endoscopy case managers, colorectal surgeons, and gastroenterology providers, were engaged by the surgical QI team. A current-state process map for colonoscopies was subsequently created (Figure). This revealed multiple decision points and issues in this process with high variability. Subsequently, endoscopic procedures were analyzed from 1/2022-8/2022 to assess procedural cancellation rates, aborted colonoscopy rates, and appropriateness of anesthetic techniques based on patient comorbidities and previous colonoscopy reports.

Results/Outcome(s): Our process map revealed high variation secondary to lack of standardization throughout the process of scheduling and completing a colonoscopy. Significant discrepancy in ascertaining which patients should qualify for MAC vs. MS was noted between CRS staff and the endoscopy suite. This resulted in both communication issues between clinic staff and CRS providers as well as interdepartmental communication issues for patient scheduling purposes with subsequent cancellations and delays in care. Further, we noted critical lack of access to MAC as a procedural option for CRS providers. A total of 104 colonoscopies were performed by CRS during the study period. On average, only 4% of these were aborted. However, 47% (93/197) were cancelled by either the patient (22%) or the clinic (25%). Notably, using current guidelines, 75% (78/104) of patients who underwent colonoscopies qualified for MAC based on comorbidities and previous procedural toleration. Given this large discrepancy, the process was reorganized to include more patient choice and the option for MAC for all patients, which results in a more favorable safety profile.

Conclusions/Discussion: Using a patient complaint, current processes in place for colonoscopy scheduling and sedation were assessed utilizing lean methodology. Key stakeholders across multiple departments were engaged in creating a collaborative team to identify issues in current processes to establish a solution for patient safety and improved patient care.

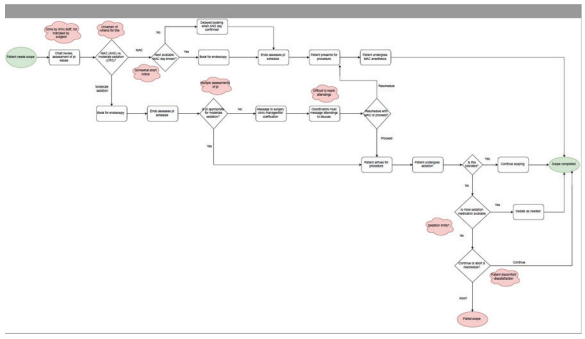

Figure: Current-State Process Map

BREAKING BARRIERS TO IMPLEMENT ROBOTIC TECHNOLOGY IN COLON AND RECTAL SURGERY: IS LEARNING CURVE A LIMITING FACTOR?

eP559

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Purpose/Background: The application of the robotic platform is steadily increasing in the United States and the world. Prolonged operating room times for robotic cases have been one of the barriers to better adoption. Learning curve for surgeons and staff, understanding of the technology and need to educate surgical trainees are among likely causes. However, there is a lack of prospective data evaluating team performance's impact on high-complexity robotic surgery. The goal of this study was to identify predictors of process variation and disruption in colorectal robotic surgery and its impact on efficiency

Methods/Interventions: This is multicenter observational study measuring team performance during robotic colorectal surgery. Robotic colorectal cases were compared to laparoscopic right colectomies and Robotic Assisted Radical Prostatectomies (RARP). These control groups were included due to frequency performed and familiarity with procedures. The primary outcome was frequency, duration, and root cause of FDs. Events were recorded by trained, observers using pre-specified tools. Observational Teamwork Assessment for Surgery (OTAS) and NASA Task Load Index (NASA-TLX) were used

Results/Outcome(s): Overall 61 robotic colorectal, 82 laparoscopic right colectomies and 25 RARP cases were analyzed. There was no difference in age, sex, BMI or ASA class between groups. Total time was 225 min for robotic colorectal, 154.5 min for laparoscopic and 253 minutes for RARPs. Operating phase was 106 min for robotic, 75 min for laparoscopic and 79 min for RARPs. There were on average 8 FD per robotic, when compared to 4 FDs per laparoscopic case. By univariate analysis, robotic cases were more likley to be delayed by teaching (OR 1.40) compared to laparoscopic cases that were delayed by discussion, distraction and extra activity (OR 0.49, 0.45 and 0.74 respectively). Similar results were noted on multivariate analysis, Table 1. Team performance by OTAS better cooperation in robotic colorectal surgery (OR 1.04) but worse communication, coordination and leadership (OR 0.98, 0.93 and 0.76) when compared to laparoscopic surgery. NASA-TLX in primary surgeons showed higher effort, temporal and mental demand in robotic surgery (OR 1.02, 1.02 and 1.003) but lower task complexity, physical demand and frustration (OR 0.98, 0.99 and 0.97). All findings were statistically significant ($p < .001$)

Conclusions/Discussion: Frequency of flow disruption is increased in robotic surgery leading to prolonged case times. Among multiple causes for these interruptions, teaching trainees most significant factor, likely indicating lack of preparedness on attending and trainee side. Robotic cases also fare worse performance from teamwork prospective, suggesting need for better preparedness. Further studies are needed to design specific interventions in order to improve outcomes

Characteristic	Laparoscopic Colorectal Cases (N = 82)	Urology Robot Cases (N = 25)	Colorectal Robot Cases (N = 61)	Odds Ratio (OR)	p-Value
Case Time (minutes)	154.5	253.0	225.0	1.02	<0.001
Flow Disruptions (FDs)	4.0	8.0	12.0	0.48	<0.001
Duration of FDs (Seconds)	15.0	9.0	19.0	1.01	<0.001
Consequence of FDs					
- Teaching	57 (15.62%)	101 (26.93%)	117 (21.95%)	1.40	<0.001
- Discussion	10 (2.74%)	53 (14.13%)	4 (0.75%)	0.49	<0.001
- Distraction	18 (4.93%)	0 (0.00%)	13 (2.44%)	0.45	<0.001
- Extra Activity	104 (28.45%)	146 (38.93%)	141 (26.45%)	0.74	<0.001

Table 1: Multivariate analysis of laparoscopic colorectal, robot urology and robot colorectal cases

IMPACT OF 3D-PRINTED MODEL ON SHARED DECISION MAKING, EDUCATION, AND ANXIETY IN PATIENTS UNDERGOING COLORECTAL SURGERY. THE SEAD CLUSTER RANDOMIZED TRIAL.

eP560

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Purpose/Background: Patients undergoing abdominal colorectal surgery often face anxiety due to poor understanding of their disease alongside the myriad of treatment options available. We hypothesized that patients taught preoperatively using 3D-printed models will demonstrate improved understanding of their surgery, experience lower anxiety levels, and perceive higher levels of involvement in their healthcare.

Methods/Interventions: We conducted a randomized trial in sequential patients 18 years or older undergoing abdominal colon or rectal surgery. Six colorectal surgeons and 36 patients participated in this study from March to September 2022. Surgeons were cluster randomized to teach their patients about their medical condition and upcoming surgery using either the "3D-printed model" or "standard of care". The 3D-printed model had a modular design that allowed for removal and reattachment of segments of bowel using magnets, as well as a stoma marking on the abdominal wall (figure1a). Patient anxiety and understanding of their disease with intended surgery was assessed before and after the clinic appointment, using the State-Trait Anxiety Inventory (STAI-6) and an Education Questionnaire respectively. The Education Questionnaire consisted of 8 items intended to assess patient's understanding of their disease and surgery. Patient involvement in decision-making was measured using the Shared Decision-Making Questionnaire (SDM-9). McNemar Change Test was used to assess improvement in patient education in each arm, while ANCOVA tests

were utilized to compare STAI-6 and SDM-9 scores after surgical consultation.

Results/Outcome(s): The mean age of enrolled patients was 50.5 years (SD 15.7), with 63% being women. Patients taught using 3D-models felt more engaged in decision making compared to patients taught using standard of care (SDM-9 Score 3D-model score 91.4 vs standard of care score 83.9, p<0.05) (Figure1b). Additionally, patients taught using 3D-models were found to have a statistically significant improvement in their anxiety scores from their baseline compared to patients taught using standard of care (STAI 3D-model score 48.6 to 47.1 vs. standard of care score 47.2 to 49.2, p<0.05) (Figure1c). Patients in both arms demonstrated improvement in their understanding of the disease and type of surgery without any significant difference between the two groups (P>0.05).

Conclusions/Discussion: For patients undergoing major abdominal colorectal surgery, using 3D-models at the time of preoperative clinic visit results in lower patient anxiety levels and improved perception of involvement in their healthcare. Though a significant improvement was noted in patient understanding of their disease and intended surgery, it was equal to the improvement noted for patients taught using "standard of care".

Figure 1a: The 3D-printed model.

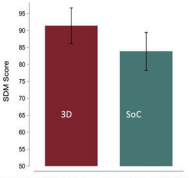

Figure 1b: Impact of 3D-printed model on Shared Decision Making.
3D= 3D-Model arm, SoC=Standard of Care arm

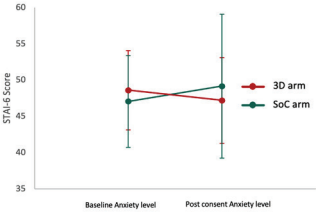

Figure 1c: Impact of 3D-printed model on patient anxiety level.
3D= 3D-Model arm, SoC=Standard of Care arm

DEVELOPMENT OF PERFORMANCE METRICS FOR AUTOMATED ASSESSMENT OF COLOANAL ANASTOMOSIS USING THE JOEL BAKER TECHNIQUE.

eP561

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Purpose/Background: Task specific metrics are useful for both assessment and to provide formative feedback to trainees. As part of the development of a virtual reality simulator for basic open colorectal surgical tasks of the Colorectal Objective Structured Assessment of Technical Skills, we are developing task specific metrics for automated performance assessment for coloanal anastomosis using the Joel Baker technique.

Methods/Interventions: A detailed hierarchical task analysis was performed by interviewing expert colorectal surgeons to deconstruct the procedure into key tasks and subtasks. A total of 29 task-specific and 7 general metrics were chosen. To obtain consensus, an online survey was administered to experts who rated the importance of chosen metrics on a Likert scale with 1 (not important) to 5 (very important). AdditionallyAdditionally, we requested their number of years in practice, specific procedure preferences, and estimated adequate time for completion of anastomosis after the rectum has been removed. The data collected were grouped into two experience levels (5-15 and >15 years). Mann-Whitney test was used to assess the agreement between the groups (p > 0.05 denotes perfect agreement).

Results/Outcome(s): A total of 25 colorectal surgeons completed the survey of which 6 had 5-15 years and 19 had >15 years of experience. The adequate completion time for the anastomosis after removal of the rectum ranged from 5 (8%) to 30 minutes (12%), with 15 minutes as the most reported by 40% of the respondents. For the preference of purse string method when securing a stapler anvil through the side wall of the colon, 50% preferred no purse string with the anvil pushed through a pinpoint enterotomy at the apex of the fold of the distal colon, 34.62% preferred handsewn prolene, and 15.38% preferred a purse string instrument. When asked to choose the distance from the cut end of the distal colon for the side-to-end anastomosis, 30.77% chose 2cm, 15.38% chose 7cm, whereas the majority (53.85%) chose 5 cm. For preference on closing the open end of the colon beyond the side-to-end colon to the low rectal anastomosis, 30.77% preferred liner stapler over-sewn and 68.23% preferred linear stapler not over-sewn. The weighted average scores of the 29 task-specific metrics (Fig 1a) ranged from 1.6 (not important) to 5 (very important), with the majority (25 metrics) scoring 4 (important) or above. For the general metrics (Fig 1b), it ranged from 3.1 (above neutral) to 4.35 (above important). Comparison of the ratings between the groups showed good agreement in all the metrics (p > 0.05) except for two.

Conclusions/Discussion: Performance metrics for objective evaluation of coloanal anastomosis using the Joel Baker technique were developed. The majority of the metrics, except for two, showed good consensus on their importance. Our next step is to validate these metrics and incorporate each into our virtual reality simulator.

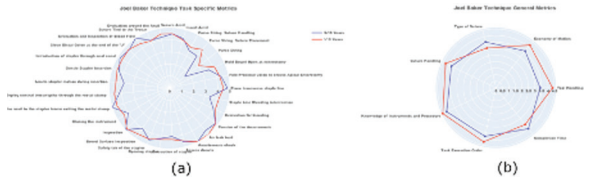

Figure 1. The weighted average of expert ratings for the coloanal anastomosis using the Joel Baker Technique (a) Task-specific metrics and (b) General metrics

AIR POLLUTION AND COLORECTAL OUTCOMES: A LOCAL FEASIBILITY STUDY OF SHORT-TERM EXPOSURE.

eP562

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Purpose/Background: Air pollution has been tied to gastrointestinal diseases in addition to pulmonary and cardiac disease processes. Short-term exposure to higher levels of air pollution is associated with increased hospitalizations for IBD as well as higher rates of perforated appendicitis, however it has not yet been studied how short-term exposure to air pollution impacts surgical outcomes. Therefore, our study aimed to assess the association between surgical outcomes and short-term air pollution exposures.

Methods/Interventions: This is a retrospective cohort study linking EPA air pollution data for Jefferson County, Alabama to institutional ACS-NSQIP data. Patients >18 years old undergoing colorectal surgery from 2006-2020 with available air pollutant data were included. Patient pollutant exposure to particulate matter that are 2.5 μm or less in diameter ($PM_{2.5}$), ozone (O_3), carbon monoxide (CO), and nitrogen dioxide (NO_2) were recorded on day of admission (Lag^0), day before (lag^1), 2 days before (lag^2), and 3 days before admission (lag^3). Mean values were calculated to capture impact of cumulative short-term exposure as follows: lag^{0-1}, lag^{0-2}, and lag^{0-3} where lag^{0-1} included day of admission and day prior while lag^{0-3} included day of admission and three days beforehand. Primary outcome was length-of-stay (LOS). Bivariate analysis as well as a linear regression model were used to identify associations between pollutant exposure LOS.

Results/Outcome(s): Overall, 280 colorectal surgical encounters from Jefferson County were linked to short-term exposure of $PM_{2.5}$, carbon monoxide (CO), and nitrogen dioxide (NO_2), while 170 were linked to ozone (O_3). For each cohort the majority were female (51.4% and 55.9% respectively), Black race (42.1% and 40.6%), and a majority had ASA 3 (67.9% and 70.6%). For the $PM_{2.5}$, CO, and NO_2 cohort, a majority of cases were non-elective (53.9%) and open (62.1%), while in the O_3 cohort a majority of cases were elective (51.2%) and minimally invasive (51.2%). On bivariate analysis, LOS was significantly associated with race, ASA classification, surgical approach, and elective status. Pollutant exposure approached significance for $PM_{2.5}$ exposure on lag^0 (p-value 0.186) and NO_2 exposure on lag^1 (0.072), lag^2 (0.182), lag^{0-1} (0.138), lag^{0-2} (0.089), and lag^{0-3} (0.192). On regression analysis, PM2.5 on lag^0 had increased relative risk of 1.02 (p-value 0.002) while other exposures approached significance for increased relative risk: $PM_{2.5}$ on lag^{0-1} (p-value 0.095), O_3 lag^0 (0.054), and CO lag^0 (0.061).

Conclusions/Discussion: Exposure to higher levels of $PM_{2.5}$ was associated with longer LOS for colorectal surgeries. While other pollutants were not significantly associated, the limited sample size warrants larger study populations. Overall, these findings suggest that colorectal surgical outcomes may be impacted by environmental exposures, a finding that may help explain continued disparities.

A COMPARISON OF INTRACORPOREAL VERSUS EXTRACORPOREAL ANASTOMOTIC TECHNIQUES FOR ROBOTIC LEFT-SIDED COLECTOMY.

eP563

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Purpose/Background: Colorectal surgery has witnessed a shift to minimally invasive surgery (MIS) techniques. This includes the following iterations of MIS: hand assist laparoscopic, laparoscopic, robotic, as well as intracorporeal (ICA) and extracorporeal (ECA) anastomoses. Many studies have been published comparing various methods of MIS to open surgery, but few specifically examine robotic intracorporeal to extracorporeal anastomotic techniques. We sought to compare robotic left-sided colectomy performed with intracorporeal versus extracorporeal anastomoses. To determine if the ICA technique is equal or superior to ECA for left-sided colon resections regarding intraoperative and post-operative outcomes.

Methods/Interventions: A total of 159 patients underwent a robotic left-sided colectomy with colorectal anastomosis between December 2016 and July 2022 by a single robotically trained colorectal surgeon. Sixty-eight patients underwent ICA and 91 patients had ECA.

Results/Outcome(s): The average operative time for patients undergoing ICA was shorter at 170 minutes compared to 238.5 minutes for ECA. ICA required fewer splenic flexure mobilizations (50%) compared to ECA (97.8%). The 30-day readmission rate was lower for ICA (2.94%) compared to ECA (4.3%). Return of flatus was similar between the two groups: 1.35 days for ICA and 1.47 days for ECA. Average length of stay was noted to be similar for ICA (2.47 days) and ECA (2.49 days). There was no difference between the two groups in terms

of anastomotic leak (1.47% ICA versus 1.10% ECA) and mortality was 0 for both groups.

Conclusions/Discussion: Both minimally invasive anastomotic techniques were both safe and efficacious in left-sided colectomy with similar outcomes in terms of complications, length of stay, and return of bowel function. Robotic left-sided colectomy with ICA demonstrated significantly reduced operative time and need for splenic flexure mobilization compared to ECA. This study is limited by collecting data from a single colorectal surgeon at a single facility.

		ICA	ECA
# of patients		68	91
	# with DLI	6 (8.82%)	10 (10.98%)
	# with splenic flexure mobilization	34 (50.00%)	89 (97.80%)
Operative time (average) (min)		170	238.5
LOS (average)		2.47	2.49
POD Flatus (average)		1.353	1.473
Complication (any)		6 (8.80%)	8 (8.79%)
	Clavien Dindo I	3	4
	Clavien Dindo II	1	2
	Clavien Dindo IIIa	1	1
	Clavien Dindo IIIb	0	1
	Clavien Dindo IVa	1	0
	Clavien Dindo IVb	0	0
	Clavien Dindo V	0	0
	Anastomotic Leak	1 (1.47%)	1 (1.10%)
Readmission		2 (2.94%)	4 (4.30%)

Data table for operative outcomes

INVESTIGATING THE FUNCTION OF MAIT CELLS IN COLORECTAL LIVER METASTASIS USING A PATIENT-DERIVED TUMOROID CO-CULTURE SUSTEM.

eP564

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Purpose/Background: Background: Stage-IV Colorectal Cancer (CRC) involves liver metastasis (CRLM). Tumour infiltrating lymphocytes (TILs), particularly conventional cytotoxic CD8+ T-cells, play a critical role in cancer, serving as a key marker for the Galon-ImmunoscoreR. The ImmunoscoreR is informative of quantity, but not quality of TILs. Mucosal-associated invariant T-cells (MAIT) are a subset of innate-like cells that are abundant in the human liver and mostly CD8αα, meaning they are included as conventional CD8+ T-cells.

Methods/Interventions: Methods: To determine their role in CRLM we assessed the quantity and phenotype of MAIT cells from patients using flow cytometry. To further determine the function of immune cells, we used a recently developed in vitro immune co-culture assay involving patient-derived tumoroids.

Results/Outcome(s): Results: We found that MAIT cells account for 15-30% of conventional CD8+ T-cells in the tumour and liver. MAIT cells were reduced in the tumour compared to surrounding liver and had elevated PD-1 and CD69 expression in the tissue. Healthy donor MAIT cells were able to kill patient-derived tumoroids in an unstimulated and stimulated state, and this was only partially reduced with anti-MR1. Blocking of PD-1 did not enhance the effector function of MAIT cells. Secreted IFNγ produced by stimulated MAIT cells induced MHI-I expression on tumoroids, demonstrating that MAIT cells have the ability to influence the tumour microenvironment (TME).

Conclusions/Discussion: Conclusions: Overall our data indicates that stimulated MAIT cells can kill patient-derived tumoroids and can influence the TME via induction of MHC-I expression which may increase the immunogenicity of these tumours to immune-cell killing by TILs.

COMPARISON OF TRADITIONAL WHITE LIGHT IMAGING (WLI) VISUAL ASSESSMENT OF BOWEL PERFUSION TO LASER SPECKLE CONTRAST IMAGING (LSCI) WITH QUANTIFICATION AND INDOCYANINE GREEN (ICG) IN MINIMALLY INVASIVE LEFT-SIDED COLORECTAL RESECTIONS.

eP565

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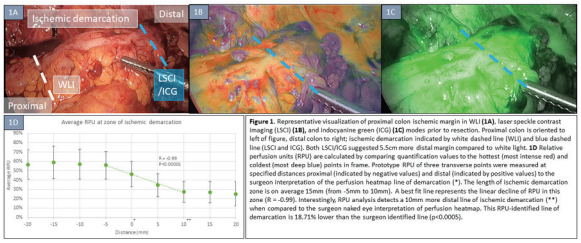
Purpose/Background: The role of ICG in intraoperative perfusion assessment remains controversial. Real-time quantification of tissue perfusion using LSCI, which measures tissue blood flow via coherent laser light scatter from red blood cells without intravenous dye, may provide more precise information for surgical decision-making and reduce anastomotic complications in colorectal surgery. This study compares clinical utility of perfusion assessment using LSCI, ICG fluorescence, and WLI in assessing ischemic margins in left-sided colorectal resections.

Methods/Interventions: An interim analysis (IRB#2021H0218) was performed on 21 consecutive patients undergoing left colorectal resection (9 LAR; 9 sigmoidectomy; 3 left colectomy) for diverticulitis and cancer. Perfusion was assessed at two time points using LSCI (ActivSight™, an FDA-cleared device), ICG, and WLI: after devascularization but before transection of proximal colon, and after anastomosis. Using each modality, operating surgeons identified proximal ischemic margins

intraoperatively. Post-hoc analysis included 1) measuring length of margin discordance between modalities and 2) Calculating prototype relative perfusion units (RPU) based on normally perfused nearby tissue.

Results/Outcome(s): In 16 of 21 cases, assessment of ischemic demarcation using WLI was similar to LSCI and ICG (mean: 0.15cm +/- 0.38). Surgeons identified different margins in 5 of 21 cases using either LSCI or ICG compared to WLI. The mean difference was 3.80 cm (+/- 4.03) more distal than the WLI (p=0.078). In two cases, LSCI was discordant with ICG; ICG suggested a more distal margin in both cases. RPU analysis revealed an ischemic demarcation zone around the surgeon-indicated area of demarcation, rather than a line. The average length of this zone was 15mm (-5 to +10 mm in relation to the surgeon-determined line). RPU analysis detected a 10mm more distal line of ischemic demarcation when compared to the surgeon naked eye interpretation of perfusion heatmap, with 18.71% lower RPU at the line of demarcation (p<0.0005). One anastomotic leak within 28 days post op was observed. The overall procedure time remained comparable.

Conclusions/Discussion: In this interim analysis of left-sided colorectal resections, advanced visualization using LSCI/ICG identified different colon perfusion margins in 25% of cases compared to WLI alone; an average additional difference of 4cm of viable bowel was detected, potentially impacting on intraoperative clinical decision. In two cases ICG demonstrated more distal ischemic margins compared to LSCI. Prototype RPU quantification showed more sensitive and precise assessment of perfusion margins compared to naked-eye interpretation suggesting a potential role for computer vision and artificial intelligence in intraoperative ischemic margin assessment.



INTRACORPOREAL VS EXTRACORPOREAL ANASTOMOSIS FOR COLECTOMY: A SYSTEMATIC REVIEW AND METAANALYSIS.

eP566

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Purpose/Background: Laparoscopic intervention is a well-established approach for performing hemicolectomy. There are two main techniques for performing ileocolic anastomosis: Intracorporeal (IA) and Extracorporeal Anastomosis (EA). We aim to evaluate existing data to compare perioperative outcomes for hemicolectomy using IA vs EA.

Methods/Interventions: Following the Preferred Instrument for Systematic Reviews and Meta-Analysis (PRISMA), we performed a systematic database search in September 2022, using PubMed, Web of Science, Scopus, and Google Scholar as search engines. We used the terms "colorectal cancer", "hemicolectomy", "ileocolic anastomosis", "intracorporeal anastomosis" and "extracorporeal anastomosis" for our search. Prospective and retrospective cohort studies, as well as randomized clinical trials, were considered. Two separate, independent reviewers further screened for inclusion, while a third reviewer performed data conciliation. Our primary outcome was overall post-operative complications. Analysis was performed in Review Manager V5.4 (Cochrane). Higgins' I2% test was employed to test heterogeneity, using 50% as a cutoff value. Outcomes are expressed as mean difference for continuous variables and odds ratio for categorical.

Results/Outcome(s): We reviewed a total of 86 studies; 59 of them fulfilled the inclusion criteria for meta-analysis. Included studies were published from 2004 to 2021. The total population was 10,292 patients, with 4,880 in the IA group and 5,412 in the EA group. The summary of findings is displayed in Table 1. The IA group had longer operative time (MD 12.35 [5.83, 18.88] p = 0.0002), but fewer blood loss (MD -16.39 [-23.44, -9.35] p < 0.0001), length of stay (MD -0.83 [-1.16, -0.50] p < 0.0001), time to first flatus (MD -0.26 [-0.31, -0.22] p < 0.0001), time to first bowel movement (MD -0.46 [-0.61, -0.31] p < 0.0001), time to solid diet (MD -0.73 [-1.06, -0.40] p < 0.0001), total postoperative complications (OR 0.71 [0.60, 0.85] p < 0.0001), ileus (OR 0.77 [0.63, 0.95] p = 0.01), surgical site infection (OR 0.68 [0.55, 0.84] p = 0.0002), and anastomotic leakage (OR 0.74 [0.57, 0.97] p = 0.03). There were no statistically significant differences in the incidence of small bowel obstruction, intraabdominal abscess, or intraluminal bleeding.

Conclusions/Discussion: Laparoscopic hemicolectomy with Intracorporeal Anastomosis (IA) is associated with fewer postoperative complications than Extracorporeal Anastomosis (EA). A longer operative time is expected due to the complexity of the procedure. It is important to consider the technical difficulty and learning curve of performing an ileocolic anastomosis laparoscopically. Treatment should remain an individualized process depending on the patient's characteristics, surgeon's experience, and hospital settings.

Intracorporeal Anastomosis compared with Extracorporeal Anastomosis for Hemicolectomy Patient or population: 10,292 patients with hemicolectomy Settings: patients undergoing laparoscopic hemicolectomy Intervention:Intracorporeal Anastomosis Comparison: Extracorporeal Anastomosis							
Outcomes	# of included studies	Intracorporeal Anastomosis	Extracorporeal Anastomosis	MD/OR (95%CI)	p value	heterogeneity I^2	heterogeneity p value
Operative time (min)	49	3702	4723	12.35 [5.83, 18.88]	0.0002	94%	< 0.0001
Blood loss (mL)	25	1818	2594	-16.39 [-23.44, -9.35]	< 0.0001	82%	< 0.0001
Length of stay (days)	50	4396	4869	-0.83 [-1.16, -0.50]	< 0.0001	88%	< 0.0001
Time to fist flatus (days)	29	2199	2685	-0.26 [-0.31, -0.22]	< 0.0001	81%	< 0.0001
Time to first bowel movement (days)	28	2215	2990	-0.46 [-0.61, -0.31]	< 0.0001	87%	< 0.0001
Time to solid diet (days)	13	708	814	-0.73 [-1.06, -0.40]	< 0.0001	76%	< 0.0001
Total postoperative complications	55	4752	5270	0.71 [0.60, 0.85]	< 0.0001	55%	< 0.0001
Ileus	34	2256	2865	0.77 [0.63, 0.95]	0.01	26%	0.09
Small bowel obstruction	11	1580	1045	0.82 [0.47, 1.44]	0.5	0%	0.84
Surgical site infection	45	4283	4572	0.68 [0.55, 0.84]	0.0002	14%	0.22
Intraabdominal abscess	14	1722	1449	0.68 [0.55, 0.84]	0.44	0%	0.67
Intraluminal bleeding	20	2616	2050	0.86 [0.63, 1.19]	0.36	9%	0.34
Anastomotic leakage	45	432	4649	0.74 [0.57, 0.97]	0.03	0%	0.59

RISK FACTORS ASSOCIATED WITH SURVIVAL AFTER METASTASECTOMY IN PATIENTS WITH PULMONARY METASTASIS FROM COLORECTAL CANCER: A SINGLE CENTER EXPERIENCE.

eP567

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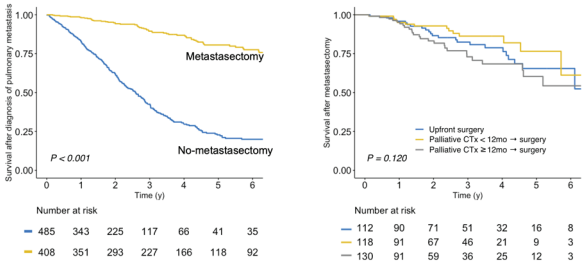
Purpose/Background: The lung is the second most common organ of metastases in patients with colorectal cancer after curative surgical resection. Though the results of previous studies suggest the beneficial role of pulmonary metastasectomy, the optimal treatment strategy such as the timing of metastasectomy has not been fully established and survival after metastasectomy has been scarcely investigated. We evaluated the risk factors associated with survival after pulmonary metastasectomy.

Methods/Interventions: We selected consecutive patients with initially non-metastatic colorectal cancer who were surgically treated with curative intent in a single institution from January 2001 to December 2017. Among the patients with pulmonary metastasis, the number and size of metastatic lesions, initial pathologic staging, the location of primary colorectal cancer, and the application of palliative chemotherapy with or without targeted agents were collected. The primary outcome was survival after pulmonary metastasectomy.

Results/Outcome(s): Among the total of 15,710 patients, 893 (5.68%) were diagnosed with pulmonary metastases during surveillance. Median follow-up period was 55.3 months (interquartile range: 34.1 – 265.8 months). Among the patients with pulmonary metastasis, 408 (45.7%) were done pulmonary metastasectomy. Five-year survival after pulmonary metastasis was significantly better in patients with metastasectomy (80.6 % vs. 22.8%, P < 0.0001). Among the patients not treated by metastasectomy, pathologic TNM staging and lymphovascular invasion at the initial curative colorectal resection were significantly associated with survival after pulmonary metastasis. However, in patients with metastasectomy, mediastinal lymph node metastasis and three or more metastatic lesions were significantly associated with survival after pulmonary metastasis. After a diagnosis of pulmonary metastasis, the timing of metastasectomy including 'immediate surgery', 'less than 12 months of palliative chemotherapy followed by surgery', and 'more than 12 months of palliative chemotherapy followed by surgery' were not associated with survival after metastasectomy (P = 0.12).

Conclusions/Discussion: Significantly better survival was shown in patients who were treated by pulmonary metastasectomy. Not clinicopathologic variables regarding primary colorectal cancer but metastatic burden and extent were associated with survival after metastasectomy. Because the timing of metastasectomy did not significantly affect survival, surgeons should actively evaluate the operability and consider metastasectomy during any time of palliative chemotherapy.



(Left) Comparison of survival after pulmonary metastasis between the patients who underwent metastasectomy and did not.(Right) Comparison of survival after metastasectomy among the patients who underwent upfront surgery, palliative chemotherapy of less than 12 months, and palliative chemotherapy of more or equal to 12 months.

SURVIVAL FOLLOWING RESECTION OF SPLENIC FLEXURE CANCER: IMPLICATIONS FOR COMPLETE MESOCOLIC EXCISION (CME) AND CENTRAL VASCULAR LIGATION (CVL) SURGERY.

eP568

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Purpose/Background: The management of splenic flexure cancers (SFCs) in the era of complete mesocolic excision (CME) is challenging because of its watershed blood supply and variable lymphatic drainage. We hypothesize that SFCs are associated with poorer survival outcomes compared to other colon cancer (CC) subsites. Therefore, the primary aim of this study was to analyse a single centre's 25-year experience with colectomy for CC, comparing long-term survival outcomes of SFCs and non-SFCs. A subsidiary aim was to explore whether clinicopathological characteristics and macroscopic features might indicate a unique phenotype of SFCs which would account for any differences in their long-term survival outcomes.

Methods/Interventions: Consecutive patients who underwent a potentially curative colon adenocarcinoma resection between January 1995 and December 2019 at

Concord Hospital, Sydney, Australia, were included in this observational retrospective cohort study. Patients were identified from a prospectively maintained institutional database. Survival estimates and associations to clinicopathological variables were investigated with Kaplan–Meier and Cox regression analyses. Logistic regression was performed to determine any differences in clinicopathological variables between the groups. The primary endpoints were overall survival (OS) and disease-free survival (DFS).

Results/Outcome(s): 2,149 patients were operated for CC and 129 had an SFC. Amongst the SFC patients, 67 (51.9%) were male, the mean age was 69.4 years (SD 14.7), and the median hospital length of stay (LOS) was 10 days (range 8-15). An urgent operation was performed in 28 SFC patients (21.7%). Of those operated urgently, 23 patients (82.1%) were obstructed. An open operation was performed in 99 SFC patients (76.7%). Of the 30 SFC patients (23.3%) managed with a laparoscopic operation, conversion to open surgery was required in five (16.7%). 5-year OS and DFS rate of all cases was 63.6% (95%CI 62.5-64.7) and 59.4% (95%CI 58.3-60.5), respectively. SFCswere not associated with OS (P=0.6) or DFS (P=0.5). SFCs were more likely to present urgently (P<0.001) with obstruction (P<0.001) or perforation (P=0.03), and more likely to require an open operation (P<0.001). These individual characteristics were associated with poorer survival outcomes. No differences were noted between SFCs and non-SFCswith respect to AJCC stage III(P=0.3) and IV(P=0.9).

Conclusions/Discussion: SFCs have a distinct phenotype, the individual characteristics of which are associated with poorer survival. However, the survivals of SFCs and non-SFCs are similar, likely because the most important determinant of outcome, tumour stage, is no different between the groups. Given this similar propensity to metastasise, the oncological management of SFCs should align with non-SFCs, and approaches viz. CME for SFCs should be standardised.

A NOVEL QUANTITATIVE CONCEPT OF COLON PERFUSION EVALUATION OF INDOCYANINE GREEN CAN PREDICT ANASTOMOSIS LEAKAGE OF COLORECTAL SURGERY.

eP569

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Purpose/Background: Background: Anastomosis leakage (AL) is one of the worst complications after colorectal cancer surgery. Several studies have reported that colonic perfusion evaluation using fluorescent angiography with indocyanine green (ICG) could lower AL. Although there were reports introduced some quantitative parameters related to anastomosis leakage, there is still no consensus. The reason is that the quantitative variables of fluorescent are relative values depending on many surrounding environments. Therefore, in this study, the novel method was proposed to overcome this limitation as standardized parameters **Objective:** The purpose of this study is to evaluate the clinical impact of new parameters for anastomosis leakage through quantitative evaluation of ICG.

Methods/Interventions: Patients who underwent colorectal surgery from October 2021 to February 2022 at this institution. During colorectal surgery, ICG angiography was performed 2 times, baseline and before anastomosis with 3 different dosages (5, 7.5, 9 mg) and 3 different distances (5, 6, and 7cm). All surgical procedures were recorded for quantitative video analysis. When performing ICG angiography, the colon perfusion was checked along with checking of perfusion of a small bowel as a control. From this approach, measured quantitative parameters (F_max, Slope_max, T_max). The fluorescence intensity factors (F_max) and maximal fluorescent factors (Slope_max) were calculated from each ICG fluorescence graph. The novel standardized parameters were expressed as ratios by dividing the values of each factor by the parameters of the small bowel. As follows: F_max_ratio = F_max_colon/small bowel, Slope_max_ratio = Slope_max__colon/small bowel, and TR_ratio = TR_colon/small bowel

Results/Outcome(s): From October 2021 to February 2022, 93 patients were enrolled, and assigned to 9 groups. Linear regression was attempted by dividing each group according to dose and distance, but no significant association was found. 8 patients had anastomosis leakage (AL), while 85 patients had no event on anastomosis. There were no significant differences of F_max (65.6 ±16.7 vs 59.8 ±0), Slope_max (5.3 ± 2.8 vs 4.0 ± 1.2), and TR (0.38 ± 0.11 vs 0.39 ± 0.11) depending on anastomosis leakage. However, in standardized parameters, F_max_ratio (0.91 ± 0.18 vs 0.74 ± 0.23, P=0.022) and Slope_max_ratio (0.77 ± 0.27 vs 0.54 ± 0.18, P=0.021) had significant differences according to anastomosis leakage, but TR_ratio (1.20 ± 0.48 vs 1.10 ± 0.36, P=0.563)

Conclusions/Discussion: The measured values of quantitative parameters of ICG perfusion did not show a significant correlation by distance or dose and showed a more significant difference in standardized values than in the group with anastomosis leakage. Therefore, standardized parameters have more clinical impact.

Table 1. Comparison of colon perfusion whether anastomosis intact or not

Clinical / perfusion parameters	Non-anastomosis leakage (n=46)	Anastomosis leakage (n=8)	P
Sex			
Male	38 (44.7)	3 (37.5)	1.000
Female	47 (35)	5 (62.5)	
Age	67.9 ± 11.3	65.8 ± 14.9	0.623
ASA (≥2)	78 (91.7)	8 (100)	0.695
BMI	23.1 ± 3.1	23.4 ± 4.0	0.163
Operation type			0.019
Right hemicolectomy	29 (34.1)	1 (12.5)	
Anterior resection	24 (28.2)	0	
Low anterior resection	27 (31.8)	7 (87.5)	
ISR	5 (5.9)	0	
Operation method			0.930
Open	1 (1.2)	0	
Laparoscopy	71 (83.5)	7 (87.5)	
Robotic	13 (15.3)	1 (12.5)	
Operation time (min)	80.3 ± 24.5	112.5 ± 19.1	0.354
Hospital stays (day)	5.3 ± 2.8	15.5 ± 8.6	0.001
CRTx	9 (10.6)	0	1.000
Quantitative parameters			
F_max	65.6 ± 16.7	59.8 ± 15.0	0.665
Slope_max	5.3 ± 2.8	4.0 ± 1.2	0.853
Time ratio (TR)†	0.38 ± 0.11	0.39 ± 0.11	0.853
Standardized Quantitative parameters (ratio of colon to small bowel)			
F_max_ratio	0.91 ± 0.18	0.74 ± 0.23	0.022
Slope_max_ratio	0.77 ± 0.27	0.54 ± 0.18	0.021
TR ratio	1.20 ± 0.48	1.10 ± 0.37	0.563

ASA, American Society of Anesthesiologists; BMI, body mass index; ISR, intersphincteric resection; CRTx, chemoradiotherapy; TR, time ratio

† TR(time ratio) = T_1/2max/T_max

LAPAROSCOPIC COLECTOMY WITH LYMPH NODE NAVIGATION AND INTRACORPOREAL ANASTOMOSIS USING ICG TECHNIQUE.

eP571

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Purpose/Background: In laparoscopic colectomy for colorectal cancer, appropriate lymph node dissection and prevention of anastomotic leak are very important. Indocyanine green(ICG) images obtain through the laparoscopic procedure helped visualize lymphatic drainage vessels and inform decision-making to determine the vessels. Intracorporeal anastomosis has the advantages such as earlier recovery of postoperative bowel function, shorter length of wound incision, reduction of intestinal mobilization range, and fewer incisional hernia. We report the surgical technique and short-term results of 33 patients who underwent laparoscopic colectomy and intracorporeal anastomosis using ICG fluorescence technique from July 2020 to July 2022.

Methods/Interventions: Two injections of ICG(0.75mg×2) into the proximal and distal subserosa of the tumor preceded the surgical procedure after pneumoperitoneum. Intraoperative lymph node mapping by the Stryker1588AIM camera imaging system was visualized. Laparoscopic colectomy was performed according to the CME and CVL concept. Complete intracorporeal anastomosis was performed by a functional end-to-end or Overlap or Delta anastomosis. After anastomosis, ICG (12.5 mg) was injected intravenously to check the intestinal blood perfusion at the anastomosis site.

Results/Outcome(s): Thirty three patients (Sex; male: 16, female: 15) (Tumor location; C :14, A: 13, T: 5,D:3, S:1) (pStage0:2, 1:12, 2: 10, 3:7 4:2) were underwent. Median age was 74. Median BMI was 24. Median number of dissected lymph nodes was 18. The median operative time was 254 minutes. Median wound length was 3.5cm. The median postoperative hospital stay was 7days. Visualization of lymphatic flow was observable in 12 of 16 cases(75%). There were no intraoperative complications, and one patient had postoperative paralytic ileus.

Conclusions/Discussion: ICG fluorescence lymphangiography in laparoscopic colectomy for colon cancer allows visualization of lymphatic flow and may complement more reliable lymph node dissection. In addition, the evaluation of intestinal perfusion using ICG contributes to the reduction of anastomotic leakage and enables safer intracorporeal anastomosis.

FRAILTY ASSESSMENT CAN PREDICT TEXTBOOK OUTCOMES IN SENIOR ADULTS AFTER MINIMALLY INVASIVE COLORECTAL CANCER SURGERY.

eP572

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Purpose/Background: Colorectal cancer (CRC) surgery can be associated with suboptimal outcomes in older patients. The aim was to identify the correlation between frailty and surgical variables with the achievement of Textbook Outcome (TO), a composite measure of the ideal postoperative course, by older patients with CRC.

Methods/Interventions: All consecutive patients ≥70years who underwent elective CRC-surgery between January 2017 and November 2021 were analyzed from a prospective database. To obtain a TO, all the following must be achieved: 90-day survival, Clavien-Dindo(CD)<3, no reintervention, no readmission, no discharge to rehabilitation facility, no changes in the living situation and length of stay(LOS) £5days/£14days for colon and rectal surgery respectively. Frailty and surgical variables were related to the achievement of TO.

Results/Outcome(s): Four-hundred-twenty-one consecutive patients had surgery (97.7% minimally invasive), 24.9% for rectal cancer, median age 80 years (range 70-92), median LOS of 4 days (range 1-96). Overall, 288/421 patients (68.4%) achieved a TO. CD 3-4 complications rate was 6.4%, 90-day mortality rate was 2.9%. At univariate analysis, frailty and surgical variables (ileostomy creation, p=0.045) were related to TO. However, multivariate analysis showed that only frailty measures such as flemish Triage Risk Screening Tool≥2 (OR 1.97, 95%CI:

1.23–3.16; p=0.005); Charlson Index>6 (OR 1.61, 95%CI: 1.03-2.51; p=0.036) or Timed-Up-and-Go>20 sec (OR 2.06, 95%CI: 1.01–4.19; p=0.048) independently predicted an increased risk of not achieving a TO.

Conclusions/Discussion: The association between frailty and comprehensive surgical outcomes offers objective data for guiding family counseling, managing expectations and discussing the possible loss of independence with patients and caregivers.

MINIMALLY INVASIVE SURGERY; IS IT A RISK FACTOR FOR PERITONEAL CARCINOMATOSIS IN PT4 COLON CANCER?

eP573

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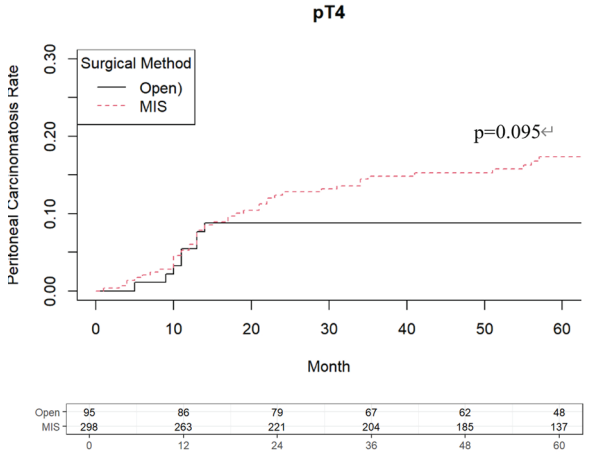
Purpose/Background: Minimally invasive surgery (MIS) has dominantly been performed in colon cancer, and non-inferior oncological outcomes of MIS compared to open surgery have been demonstrated in advanced stages. Meanwhile, evidence is emerging on increased risk of peritoneal carcinomatosis (PM) in pT4 colon cancer with laparoscopic surgeries. We aim to discover differences of the incidence of PM between MIS and open surgery, and analyze the predictive factors of postoperative PM.

Methods/Interventions: Patients who underwent radical surgery for colon cancer in tertiary referral hospital (Severance Hospital, Seoul, Korea) between 2000 and 2018 were retrospectively collected. Histologically confirmed adenocarcinoma under R0 resection were included. Patients who had neoadjuvant therapy, active abdominal malignancy, and metastasis were excluded.

Results/Outcome(s): Of total 393 enrolled patients, 95 patients underwent open colectomy, and 298 patients underwent either laparoscopic or robotic colectomy (279 and 19 each). There were no significant clinical differences in age, sex, body mass index, ASA score, past history of abdominal surgery or malignancy, preoperative endoscopic stent insertion and synchronicity of the colon cancer. But MIS was performed more frequently in left colon (62.1% vs 48.4%, p=0.019), and had lower rates of high clinical features, meaning tumor bulk unable to pass endoscope or complicated with perforation and fistula (39.3% vs 54.7%, p=0.008). Also, MIS group had less operative time, intraoperative blood loss, combined organ resection, length of hospital stays, and postoperative complications (all p<0.001). Tumor sizes were smaller and ratio of pT4b were lower (4.9 vs 7.2 cm, 5.7% vs 36.8%, all p<0.001) but pN+ rates were higher (67.1% vs 51.6%, p=0.006) in MIS group. Number of retrieved lymph nodes, tumor differentiation, lymphovascular invasion (LVI) were not significantly different between the groups. The risk factors of PM revealed in multivariate analysis were pN+ (HR 2.39, p=0.023), harvested LN<12 (HR 3.99, p=0.015), histologic high grade (HR 2.53, p=0.01), postoperative complications (HR 3.05, p=0.028), higher clinical features (HR 2.81, p=0.001), and MIS (HR 3.05, p=0.011), whereas adjuvant therapy had no protective effect on PM. Although not significant, 5-year cumulative incidence of PM showed higher cumulative rates of PM of MIS group in T4 (17.4% vs 8.8%, p=0.094). There were no significant differences of 5-year disease-free survival (DFS) and overall survival (OS) between the groups (open: 60.3% vs. MIS 61.8%, p=0.27 for DFS, and open: 76.1% vs. MIS 86.2%, p=0.11 for OS).

Conclusions/Discussion: Minimally invasive surgery seems to be a risk factor for PM in pT4 colon cancers. Furthermore, surgeons may take extra precautions to employ MIS method for radical surgery in T4 colon cancer with high-risk clinical features.



Cumulative incidence of peritoneal carcinomatosis in T1 colon cancer according to surgical methods.

PROGNOSTIC VALUE OF SERUM CARBOHYDRATE ANTIGEN 19-9 IN RELATION TO CARCINOEMBRYONIC ANTIGEN IN ASIAN PATIENTS WITH COLORECTAL CANCER AFTER RADICAL RESECTION.

eP574

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Purpose/Background: Background: Serum carbohydrate antigen 19-9 (CA19-9) is commonly used as a prognostic marker for patients with colorectal cancer in Asia, but less in the western countries. The prognostic value of Ca19-9 remains unclear. **Objective**: To explore the prognostic of preoperative serum CA19-9 in comparison to CEA in Asian patients with colorectal cancer after radical resection.

Methods/Interventions: Methods: We retrospectively divided 1604 patients from a prospectively maintained database into four groups: normal CEA and CA19-9, normal CEA, elevated CA19-9; elevated CEA, normal

CA19-9; elevated CEA and CA19-9. Survival was compared with the Kaplan-Meier method. Multivariate analysis of CA19-9, CEA and other clinicopathological factors was performed.

Results/Outcome(s): Results: Five-year overall survival of the four groups was 76.51%, 39.85%, 42.90%, and 27.60%, respectively (log-rank $p < 0.001$). CA19-9, CEA, and TNM stage (all $p < 0.001$) were independent risk factors for overall survival. No interaction between CEA and CA19-9 on survival were detected ($p = 0.241$). CA19-9 was associated with CEA, TNM stage, and tumor location (all $p < 0.001$).

Conclusions/Discussion: Conclusion: The prognostic value of CA19-9 is independent from that of CEA in Asia patients. Similar investigations in other ethnic groups are needed. Addition of CA19-9 to the routine follow-up may be warranted, at least in Asian patients.

CHARACTERISTICS AND OUTCOMES OF RECTAL CANCER PATIENTS WHO UNDERGO NEOADJUVANT CHEMORADIATION AND REFUSE SURGERY AFTER NOT ACHIEVING A COMPLETE CLINICAL RESPONSE.

eP575

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Purpose/Background: The treatment of rectal cancer has been rapidly changing over the last decade. Non-operative therapy or watch and wait (WW) strategies are accepted forms of practice. However, only a third of patients will achieve a complete clinical response (cCR). The remaining patients will need surgery to achieve a cure. Unfortunately, there are patients who refuse this surgery for a variety of reasons. This population is less studied and often not followed as closely as someone who agrees to treatment. The aim of this study is to investigate the makeup of these patients and their ultimate outcomes.

Methods/Interventions: A retrospective review was conducted on patients with rectal cancer who received preoperative chemoradiation from 2014 through January 2022. 29 patients did not achieve a cCR but refused a proctectomy. These patients were compared to 44 who did have a cCR and entered a WW protocol, and a cohort of 99 patients who did undergo curative surgery. Stage IV patients were excluded. Patients who refused surgery were then sub-grouped and compared into those who later did convert to a cCR and those who had persistent disease. A univariate analysis was conducted using chi-square testing.

Results/Outcome(s): Patients who refused surgery were significantly older that those who underwent surgery or WW (68 vs. 58 vs. 60, $p = 0.02$). There was no difference in sex, race, functional status, or size of the tumor amongst the groups. The median surveillance time was 43 months across the entire study. Overall survival was significantly worse in the refusal group vs. surgery or WW (65% vs. 95% vs. 95%, $p = 0.01$). There was no differences in distant recurrence among the three groups (29% vs. 9% vs. 15%, $p = 0.16$). 13 patients who refused surgery eventually converted to a cCR. The remaining 16 patients had persistent disease. The patients who converted were younger (64 vs. 76, $p = 0.05$) and had a better functional status (ECOG-0 92% vs. 44%, $p = 0.02$). Patients who converted had a lower distant recurrence rate (8 vs. 40%, $p = 0.05$). Finally, patients who converted to a cCR after initially refusing surgery were more likely to have a near complete response on sigmoidoscopy than those who had persistent disease (92% vs. 56%, $p = 0.03$).

Conclusions/Discussion: Patients who refuse surgery after an incomplete response to neoadjuvant chemoradiation represent a less studied and harder to manage cohort. When they are surveilled like a WW patient, a significant portion will eventually convert to a cCR. This is highlighted by the finding that almost all of these patients will have a near complete response on post treatment endoscopy at 8-12 weeks. This would suggest lengthening the time to declare a cCR. However, for those patients who do not achieve this, they are more likely to develop metastatic disease. As a group, patients who refuse surgery do have a lower overall survival.

CO2 LASER ROBOTIC SCANNER FISSURECTOMY: 1 YEAR FOLLOW-UP.

eP576

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Purpose/Background: The aim of surgery for chronic anal fissure is first of all anal pain resolution then a stable and functional wound healing. Nowadays this result is achievable through procedures that include internal sphincterotomy at the price of different grades of incontinence which, although rare, are clinically reported. The goal of this study is to explore the effectiveness of CO2 Laser Robotic Scanner Fissurectomy.

Methods/Interventions: All patients affected by chronic anal fissure susceptible to surgery, in the period of 6 months between April and September 2021, were evaluated. Data collection were scheduled before surgery, at 24 h, 1 week and 1 month follow-up. Then final follow up was established at 1 year. CO2 Laser Robotic Scanner was used to obtain a smooth and dried wound with a minimal tissue thermal damage but also to obtain good postsurgical pain control, rapid and functional, elastic and stable healing, and to prevent potential relapses. Sentinel skin tags, sentinel polyp wereCO2 Laser vaporized too as the chronic fissure. Post operative pain control was achieved with Paracetamol 1 g every 8 h for the first 24 h and then continued according to each patient's need. Ketorolac 15mg was prescribed as rescue.

Results/Outcome(s): The principal endpoint was established to be a mean pain intensity ≤3. At 1 month follow up 26/29 patients achieved this goal with a final success rate of 89.7%. Between them 1 was succesfully treated with lateral internal sphincterotomy and 2 were treated with anal dilatation. A statistically significant reduction of pain and itching was obtained Bleeding, burning, maximum pain and REALIS score showed a reduction too. At 1-month follow-up reepithelisation proved to be extremely fast and effective: 22 of 29 (75.9%) showed a complete healing and 5 showed a partial reepithelisation. At 1-year follow up all patients, those successfully treated with CO2 Laser Robotic Scanner Fissurectomy, and those with lateral internal sphincterotomy or anal dilatation showed a complete healing.

Conclusions/Discussion: The good results of this study once again cast doubt on the need to always have recourse to the internal sphincterotomy procedure in every patient. The effectiveness of CO2 Laser Robotic Scanner for fissurectomy showed that it is undoubtedly necessary to change the surgical strategy reducing the number of patients treated with internal sphincterotomy. CO2 Laser Robotic Scanner showed great results in terms of pain control and wound healing, secondary to an extremely precise ablation, vaporisation and debridement procedures withminimal lateral thermal damage.

FAECAL INCONTINENCE QUALITY OF LIFE OF PATIENTS WITH CRYPTOGLANDULAR PERIANAL FISTULA.

eP577

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Purpose/Background: The ability to control bowel movements might be compromised in patients with perianal fistula, due to repeated surgical procedures and also fistula activity. Assessing the degree of anal incontinence and its impact in quality of life is important to make and tailored surgical plan. Aim of this study was to assess which patient demographics and pre-operative fistula characteristics were associated with presence of anal incontinence and consequent impairment in in quality of life using a standardised questionnaire.

Methods/Interventions: This is a prospective study conducted in a single institution between 2018 and 2021, where 127 affected by cryptoglandular fistula were recruited and completed Faecal incontinence quality of life (FIQL) questionnaire. FIQL is a questionnaire composed of 29 questions, grouped into four domains: lifestyle, behaviour, depression and embarrassment. Patients' demographics and previous fistula procedures were recorded. Fistula characteristics included were type of fistula (Park's classification), position of longitudinal and internal opening, secondary extension, sepsis and presence of seton. Linear regression was used to examine factors associated with the four domains. The analysis was performed in two stages. Firstly, the separate association between each factor and the outcome was analysed in a series of univariable analyses. Secondly, the joint association between the factors and outcome was assessed in a multivariable analysis.

Results/Outcome(s): Results of multivariate analysis for the four domains included in the questionnaire are summarised in table 1. An increase number of previous fistula operations is the only parameters independently associated with the worsening scores for the four domains. This is probably due to an increase number of unsuccessful procedures performed to control local sepsis. ASA score II and III were associated in multivariate analysis with FIQL lifestyle score, behaviour score and embarrassment score. Patient with ASA I has a better FIQL score compare to those with ASA II and III, regardless to fistula characteristics. Furthermore, patients with multiple comorbidities have worse FIQL scores compared to those with 1 or less comorbidities. Female gender and previous pregnancy are associated with worsen FIQL behaviour score and embarrassment scores in multivariate analysis. Interestingly, none of the fistula characteristics have reach statistical significance in faecal incontinence symptoms multivariate analysis.

Conclusions/Discussion: Patients with perianal fistula have impairment in quality of life, secondary to symptoms related to faecal incontinence. Fistula characteristics and complexities don't predict FIQL probably because continence is multifactorial and other patients' characteristics, such as comorbidities, ASA and previous pregnancies might have a bigger impact. This needs to be considered when we try to predict patients' continence before fistula surgery.

Table 1: multivariate analysis about pre-operative patients demographics, fistula characteristics and FIQL questionnaire.

Variable	Category	Coefficient (95% CI)	P-value
Multivariable associations with FIQL lifestyle score			
ASA score	I	0	0.03
	II or III	-0.32 (-0.61, -0.03)	
Number of comorbidities	0	0	0.02
	1	-0.50 (-0.82, -0.17)	
	2+	-0.14 (-0.50, 0.23)	
Previous fistula operations	0	0	0.001
	1	-0.25 (-0.54, 0.05)	
	2+	-0.63 (-0.96, -0.29)	
Multivariate association with FIQL behaviour score			
ASA score	I	0	0.03
	II or III	-0.29 (-0.55, -0.03)	
Gender / pregnancy	Male	0	0.03
	Female, no pregnancies	0.10 (-0.25, 0.47)	
	Female, pregnancies	-0.41 (-0.73, -0.09)	
Previous fistula operations	0	0	<0.001
	1	-0.22 (-0.52, 0.08)	
	2+	-0.99 (-1.32, -0.65)	
Univariate association with FIQL depression score			
Previous fistula Operations	0	0	<0.001
	1	-0.27 (-0.57, 0.04)	
	2+	-0.73 (-1.08, -0.38)	
Multivariable associations with FIQL embarrassment score			
ASA score	I	0	0.04
	II or III	-0.32 (-0.63, -0.01)	
Gender / pregnancy	Male	0	0.05
	Female, no pregnancies	0.38 (-0.04, 0.80)	
	Female, pregnancies	-0.27 (-0.65, 0.11)	
Previous fistula operations	0	0	0.004
	1	-0.33 (-0.69, 0.03)	
	2+	-0.66 (-1.06, -0.27)	

ACCURACY BETWEEN ENDOANAL ULTRASOUND AND PELVIS MAGNETIC RESONANCE IMAGING FOR PATIENTS WITH PERIANAL FISTULA.

eP578

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Purpose/Background: Pelvic magnetic resonance imaging (pMRI) and endoanal ultrasound (EAUS) are both valid techniques to delineate anatomy prior to surgery for perianal fistula of cryptoglandular origin. The aim was to compare pMRI and EAUS in terms of their accuracy regards specific parameters based on intra-operative findings.

Methods/Interventions: We conducted a single institution prospective study, collecting data from 108 consecutive patients with cryptoglandular perianal fistula between 2018 and 2021. All patients underwent both EAUS and pMRI for fistula before surgical intervention. Both pMRI and EAUS were assessed by three different blinded readers (two gastro-intestinal radiologists and one colorectal surgeon), the same outcomes were compared with intra-operative findings. All three readers were more confident in pMRI rather than EAUS. Data from the three different readers were amalgamated to produce one report for patient, for pMRI and EAUS. For each outcome and each subject, the agreement with the theatre findings were evaluated. This gave binary outcomes measures: agreement or no agreement and the analysis was performed using the McNemar test.

Results/Outcome(s): Table 1 summarises the results. The first column includes parameters analysed with EAUS, pMRI and during surgery. Accuracy of the two radiological methods are summarised in comparison with surgical findings. The difference in agreement between the two methods is next shown, with the percentage difference reported along with a corresponding confidence interval. The difference is calculated as value for pMRI minus value for EAUS. P-values indicating the significance of the difference between methods are presented in the final column. The analysis results suggested a significant higher accuracy of pMRI and EAUS for ischio-anal extension, horseshoe extension and for a lesser extend anal sphincter involvement. However, the accuracy for the remaining outcomes both related to anal canal sphincter integrity and perianal fistula characteristics did not significantly vary between pMRI and EAUS.

Conclusions/Discussion: EAUS is an accurate technique to delineate anatomy for cryptoglandular fistula. It provides precise results about presence of fistula characterises such as fistula type, number of tracks, anal canal position, supralevator extension. EAUS could be considered as first line investigation for perianal fistula, because cheaper, quicker and can be performed in the outpatient. EAUS also gives information about integrity of anal canal and location of potential defects, which should be considered before surgical plan. pMRI might be reserved for more complex and or recurrent fistula where additional information are needed before making a surgical.

Table 1: Comparison of the accuracy of MRI and US (all readers combined)

Variable	n	Accuracy - MRI n (%)	Accuracy - US n (%)	Difference (*) % (95% CI)	P-value
Presence fistula	311	300 (96.5%)	296 (95.2%)	1.3% (-1.5%, 4.1%)	0.37
Fistula type**	276	218 (79.0%)	209 (75.7%)	3.3% (-2.5%, 9.0%)	0.26
Anal canal position	278	216 (77.7%)	209 (75.2%)	2.5% (-2.1%, 7.1%)	0.28
Number of tracks	273	225 (82.4%)	226 (82.8%)	-0.4% (-5.2%, 4.5%)	0.88
Supralevator extension	279	263 (94.3%)	257 (92.1%)	2.2% (-0.2%, 4.5%)	0.08
Ischio-anal extension	281	246 (87.5%)	197 (70.1%)	17.4% (12.2%, 22.7%)	<0.001
Horseshoe extension	281	224 (79.7%)	189 (67.3%)	12.5% (6.6%, 18.4%)	<0.001
Sphincter defect	255	209 (82.0%)	196 (76.9%)	5.1% (-0.6%, 10.8%)	0.08
Sphincter defect position	22	13 (59.1%)	9 (40.9%)	18.2% (-11.6%, 47.9%)	0.23
Anal canal defect involvement	21	15 (71.4%)	10 (47.6%)	23.4% (0.8%, 46.8%)	0.04

(*) Difference expressed as value for MRI minus value for US
(**) Intrasphincteric, trasphincteric, suprasphincteric, superficial

CLAMP AND SUTURE HEMORRHOIDECTOMY(CASH): A NEW TECHNIQUE FOR EXCISIONAL HEMORRHOIDECTOMY.

eP579

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Purpose/Background: The objective of this study is to describe and evaluate the surgical outcomes and safety of CLAMP AND SUTURE HEMORRHOIDECTOMY(CASH), a new technical innovation in surgical excision of symptomatic hemorrhoids.

Methods/Interventions: This is a retrospective case series, compiling data from a primary rural district hospital in Lubao, Pampanga, a town, roughly 90 kms north of Manila, Philippines. Outcomes of patients that underwent CASH were documented during regular interval follow ups (at 7 days, 4 weeks, and 3-6 months after the procedure). Outcomes measured included short term complications (urinary retention, bleeding, severe pain, wound complications and constipation), and long term complications(anal stenosis, recurrence, incontinence, reintervention).

Results/Outcome(s): The hemorrhoids of 34 patients were managed with this technique. For short term complications, one patient experienced urinary retention (2.94%), four had complains of severe pain requiring modification of their standard postoperative pain medication regimen (11.76%), and there were no patients that had significant bleeding, wound complications, or constipation. For long term complications, there were three patients had had recurrent piles on follow up (8.33%), and three that had some form of fecal incontinence (8.33%). None of the patients had documented anal stenosis and there were no reinterventions performed for any of the 34 patients.

Conclusions/Discussion: This case series may provide evidence that CASH may be safe and easy to perform as treatment for symptomatic hemorrhoids however further comparative studies may be warranted to prove superiority over traditional hemorrhoidal excision.

Short term complications	Number of patients (N=34)	Percentage	Intervention taken
Bleeding	0	0	None
Urinary Retention	1	2.94%	None
Severe pain	4	11.76%	Medications adjusted
Wound related complications	0	0	None
Constipation	0	0	None
Long term complications	Number of patients (N=34)	Percentage	Intervention taken
Recurrence	3	8.33%	None
Anal Stenosis	0	0	None
Fecal Incontinence	3	8.33%	None
Reintervention	0	0	None

EFFICACY OF THE FERGUSON HEMORRHOIDECTOMY TECHNIQUE COMPARED WITH THE MILLIGAN MORGAN TECHNIQUE IN THE TREATMENT OF HEMORRHOIDAL DISEASE.

eP580

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Purpose/Background: Hemorrhoidal disease affects 4% of the world's population. Surgical management is performed in cases of advanced disease. There are 2 techniques for such purposes; The Milligan Morgan, or open technique, and the Ferguson technique, or closed technique. It is unknown which technique is superior with respect to its results and rate of post-surgical complications.(1,2,3,4) The objective of this study was: To establish the efficacy of the Ferguson hemorrhoidectomy technique in relation to the technique of Milligan Morgan in the surgical treatment of hemorrhoidal disease.

Methods/Interventions: Comparative prospective study, a total of 39 patients undergoing hemorrhoidectomy by open technique or closed technique were recruited. The variables of surgical time, and postoperative complications were evaluated: pain, bleeding, surgical site infection, and the presence of risk factors for hemorrhoidal disease were assessed. Follow-up was given for a period of 30 days.

Results/Outcome(s): There were no significant differences regarding the surgical time between the open technique vs. the closed technique. Incidence of postoperative complications was higher in the closed technique (62.5%) vs. the open technique (46.7%) [P=0.332]. Surgical site infection was 2.56% of the population (1 case) in the closed technique group. Bleeding was more frequent in the open technique (26.7%) vs closed technique (8.3%), without significant difference [P=0.123] Pain was more frequent in closed technique (54.2%) vs open technique (46.7. No significant difference [P=648].The most prevalent risk factor was constipation with 71.8% of cases

Conclusions/Discussion: There are no differences between the efficacy of both hemorrhoidectomy techniques, regarding the incidence of post-surgical complications in the 30-day period. There are no differences between the surgical time between the Milligan Morgan techniques

and the Ferguson technique for the management of hemorrhoidal disease. The incidence of postoperative complications was higher in the closed technique vs. the open technique with 62.5% and 46.7%, respectively. The open technique had a higher incidence of bleeding, 26.7% compared to the closed technique, 8.3%.The most prevalent risk factor for hemorrhoidal disease was constipation with 71.8% of cases.

HEMORRHOIDAL HIGH MACRO RUBBER BAND LIGATION TRIAL (HHIMARUBAN TRIAL) – PRELIMINARY REPORT.

eP581

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Purpose/Background: Hemorrhoidectomy is the most effective treatment for hemorrhoidal symptomatic disease, but it is associated to severe pain in the postoperative status. Procedures such as rubber band ligation (RBL) of hemorrhoids has the aim of less postoperative pain with an effective treatment of selected patients with hemorrhoids grade II and III. In 2007, Reis Neto et al. showed the results of including 3 cm^3 of mucosa per ligation 3 – 4 cm above the pectine line looking for hemorrhoidal fixation. The objective is to assess high macro rubber band ligation's (HMRBL) discomfort, safety and efficacy in patients with symptomatic hemorrhoidal disease.

Methods/Interventions: It is an observational prospective trial which includes patients with 1 to 3 HMRBL as treatment of symptomatic hemorrhoidal disease grade II or III from September 2020 to August 2021. Digital questionaries were used before and after the procedure (30 minutes, 6 hours, 24 hours, 48 hours, 4 days, 7 days, 1 month, 3 months and 6 months) during the appointments. The pain was manage with non-steroidal anti-inflammatory drugs (NSAIDs) for a short period of time (3 days). Discomfort was assessed by pain [analog visual scale (AVS)], nausea, vomiting, bladder urgency, tenesmus and restart usual tasks; during the first 7 days. The complications were registered during the first month after the procedure. At 6 months after the procedure were evaluated efficacy and patient's quality of life and satisfaction by using Hemorrhoidal Disease Symptom Score (HDSS) and Short Health $Scale_{HD}$ (SHS_{HD}).

Results/Outcome(s): 375 hemorrhoidal symptomatic disease patients were treated with HMRBL, 49 patients completed the data protocol questionaries. 73.5% of the patients had grade II hemorrhoids, 26.5% grade III hemorrhoids. 93.9% had hemorrhoidal prolapse and 89.8% rectal bleeding. 87.7% had severe hemorrhoidal symptom score. The mean quality of life score prior to procedure was 15.9. In the first 6 hours post procedure, the pain was mild (~1.5 AVS at 30 minutes and ~2.4 AVS at 6 hours); it increases to moderate intensity at 24 hours (~4.4 AVS). 48 hours after procedure the pain intensity decreases (~2.9 AVS). 10.8% of the patients presented nausea in the first 24 hours with no record of vomiting. Within the first 24 hours 73.9% presented rectal tenesmus and 28.2% bladder tenesmus. 67.3% of the patients got back to their daily life activities within the 48 hours after the HMRBL. 14.2 % presented minor complications. No major complications were recorded. HDSS decreases in 70.2% and SHS_{HD} increases in 58.3% after HMRBL. 10.2% required a surgical treatment due to not resolving symptoms with HMRBL. 86% would repeat the procedure and 92.1% would recommend it to another one getting a HMRBL.

Conclusions/Discussion: HMRBL is a secure an efficient technique for selected hemorrhoidal grade II and III symptomatic disease treatment, with a little discomfort and quality of life improvement after procedure

TRENDS IN MANAGEMENT OF ANAL FISSURES.

eP582

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Purpose/Background: Anal fissures are a frequent and painful colorectal complaint. Though there are management guidelines, it is unclear how patients are treated in real-world settings, particularly since patients may not see colorectal surgeons for medical management. This study describes trends in treatment and explores disparities in medical therapies (including calcium-channel blockers [CCB], nitroglycerin [NTG], and narcotics) and surgical treatments (including fissurectomies, chemodenervation, and sphincterotomy).

Methods/Interventions: TriNetX is an electronic health record network from 70 health care organizations in the United States. Cohorts were created within the TriNetX platform using ICD-10 codes for anal fissures, RxNorm codes for medications, and CPT codes for surgical interventions. Demographics were compared between patients that received surgical intervention within 1 year of diagnosis, CCB or NTG within 1 year, or narcotics within 30 days versus those who did not. Odds ratios were calculated for demographic comparisons.

Results/Outcome(s): 126,434 patients were included and 7,337 had surgical intervention (5.8%). Of the total, 48% are male, 65% White and 13.5% Black (17.6% unknown race), and 64.2% non-Hispanic and 6.5% Hispanic (29.3% unknown). Factors associated with any surgical intervention were male sex (OR 1.19) and White race (OR 1.16). Male patients were more likely to undergo sphincterotomy (OR 1.45). Females (OR 1.31), non-Hispanic patients (OR 1.47), and White patients (OR 1.49) were more likely to have chemodenervation. Regarding patients that did not have surgery, non-Hispanic patients (OR 0.89) and White patients (OR 0.84) were less likely

to receive CCB/NTG. Males (OR 1.24), non-Hispanic patients (OR 1.15), and Black patients (OR 1.32) were more likely to receive narcotics. There were no differences in rates of prescription of CCB/NTG between sex or ethnicities among patients who underwent surgery. Surgical patients that are White were less likely to be prescribed CCB/NTG than surgical patients that are Black (OR 0.84). Surgical patients that are non-Hispanic (OR 1.84) and Black (OR 1.24) were more likely to receive narcotics.

Conclusions/Discussion: Male fissure patients were more likely to undergo surgical intervention, specifically sphincterotomy, whereas females were more likely to receive chemodenervation. White and non-Hispanic patients had higher rates of surgical treatment. Furthermore, the differences in narcotic prescription especially among non-surgical patients requires more attention. Further exploration of these differences may be warranted to enhance the care for patients with anal fissures.

Table 1. Demographic comparison with Odds Ratios and 95% Confidence Intervals reported.

	Male: Female	Non-Hispanic: Hispanic	White: Black
Any Surgery	1.19 (1.13, 1.25)*	0.96 (0.88, 1.06)	1.16 (1.08, 1.25)*
Sphincterotomy	1.45 (1.35, 1.56)*	1.14 (0.97, 1.34)	0.94 (0.85, 1.05)
Chemodenervation	0.76 (0.70, 0.83)*	1.47 (1.23, 1.75)*	1.49 (1.30, 1.71)*
Non-Surgical Patients			
CCB/NTG Prescription	1.00 (0.97, 1.04)	0.89 (0.84, 0.95)*	0.84 (0.80, 0.88)*
Narcotic Prescription	1.24 (1.19, 1.28)*	1.15 (1.06, 1.24)*	0.76 (0.72, 0.80)*
Surgical Patients			
CCB/NTG Prescription	1.03 (0.92, 1.15)	0.93 (0.75, 1.16)	0.74 (0.64, 0.87)*
Narcotic Prescription	0.96 (0.87, 1.06)	1.84 (1.50, 2.26)*	0.81 (0.69, 0.93)*

*Statistically significant

CHANGES IN QUALITY OF LIFE AND CONTINENCE SCORE BEFORE AND AFTER PERIANAL FISTULA SURGERY.

eP583

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Purpose/Background: Quality of life (QoL) and faecal incontinence quality of life (FIQOL) are important to assess as baseline and following surgery for perianal fistula. A variety of surgical procedures are available, with different successful rate and risk to compromise faecal continence. The aim of this study was to assess variation of QoL and FIQL using two standardised questionnaires administered before and after three different surgical procedures.

Methods/Interventions: This is a prospective study conducted in a single institution between 2018 and 2021, where 96 consecutive patients affected by cryptoglandular fistula were recruited. All patients completed Faecal incontinence quality of life (FIQL) questionnaire and Short form 36 health survey (SF-36) before and 12 weeks after lay open surgery (51), fistula plug insertion (20, Cook Medical's unique Biodesign® Anal Fistula Plug Set) and loose seton insertion (25). Although not all scores were normally distributed at each timepoint, the change in scores was found to be approximately normally distributed for all outcomes. Therefore, the paired t-test was used to compare the difference between timepoints. Separate sets of analyses were performed for each of the three procedure types.

Results/Outcome(s): Results are summarised in Table 1. For patients underwent lay open procedure, the analysis results indicated a statistically significant change between pre and post-operative surgery for all the SF-36 and FI-QOL components. For these outcomes, all scores increased at the post-operative timepoint. For SF-36 the highest increase was for the physical function and pain scores, both of which had a mean increase of 16 points. The embarrassment component of the FI-QOL score demonstrated the largest increase, with a mean increase of 0.4 units between timepoints. After fistula plug, the analysis results suggested statistically significant increases from pre to post-op for the role physical, pain and role emotional components of the SF-36 score. The largest increase was for pain, where there was a 12-unit increase at the post-operative timepoint. None of the FI-QOL scores were found to differ strongly between timepoints. The analysis results for seton procedures suggested no statistically significant differences between the two timepoints for any components of the SF-36, FI-QOL.

Conclusions/Discussion: Colorectal surgeons have become reluctant in offering lay open procedure for perianal fistula, due to concerns about faecal continence. However if patients are carefully selected and counselled, they can have significant improvement in quality of life, without impairment of bowel continence. On the contrary, sphincter preserving procedures such as fistula plug and loose seton might not achieve the same level of satisfaction due to lower successful rate, continue discharge of pus and perianal discomfort. Future studies are needed to stratify patients' risk to offer them the procedure with higher successful rate.

Table 1: Changes from pre to post-operation questionnaires for lay open, fistula plug and seton

Variable	n	Pre-Op Mean ± SD	Post-Op Mean ± SD	Change (*) Mean (95% CI)	P-value
Lay open					
SF-36					
Physical function	51	78 ± 30	94 ± 10	16 (8, 24)	**<0.001**
Role physical	51	77 ± 29	90 ± 16	13 (7, 19)	**<0.001**
Pain	51	66 ± 29	82 ± 23	16 (10, 22)	**<0.001**
General health	51	65 ± 19	70 ± 19	5 (1, 8)	**0.009**
Energy	51	52 ± 24	61 ± 19	9 (4, 13)	**<0.001**
Social function	51	73 ± 26	79 ± 25	6 (0, 12)	**0.04**
Role emotional	51	74 ± 32	88 ± 18	15 (6, 23)	**<0.001**
Mental health	51	64 ± 21	71 ± 17	7 (3, 12)	**0.002**
Physical component	51	49 ± 10	55 ± 6	5 (3, 8)	**<0.001**
Mental component	51	43 ± 14	47 ± 10	4 (1, 7)	**0.02**
FI-QOL					
Lifestyle	51	3.5 ± 0.8	3.7 ± 0.6	0.2 (0.1, 0.4)	**<0.001**
Coping/behaviour	51	3.4 ± 0.8	3.6 ± 0.6	0.2 (0.1, 0.3)	**<0.001**
Depression	51	3.5 ± 0.7	3.7 ± 0.5	0.2 (0.1, 0.3)	**0.003**
Embarrassment	51	3.2 ± 0.9	3.6 ± 0.7	0.4 (0.2, 0.5)	**<0.001**
Plug procedure					
SF-36					
Physical function	20	86 ± 14	92 ± 10	6 (-3, 14)	0.17
Role physical	20	81 ± 23	89 ± 22	8 (1, 15)	**0.03**
Pain	20	67 ± 21	79 ± 21	12 (4, 19)	**0.006**
General health	20	63 ± 22	69 ± 20	6 (-2, 13)	0.10
Energy	20	55 ± 17	65 ± 18	10 (0, 19)	0.05
Social function	20	77 ± 23	86 ± 20	9 (-1, 20)	0.07
Role emotional	20	85 ± 20	95 ± 12	10 (0, 20)	**0.04**
Mental health	20	67 ± 23	76 ± 18	8 (-2, 181)	0.11
Physical component	20	50 ± 7	53 ± 7	3 (0, 6)	0.08
Mental component	20	46 ± 11	51 ± 8	5 (-1, 11)	0.07
FI-QOL					
Lifestyle	20	3.4 ± 0.7	3.6 ± 0.6	0.2 (-0.1, 0.6)	0.14
Coping/behaviour	20	3.1 ± 0.9	3.4 ± 0.7	0.3 (0.0, 0.6)	0.08
Depression	20	3.3 ± 0.6	3.6 ± 0.6	0.3 (0.0, 0.5)	0.05
Embarrassment	20	3.2 ± 0.8	3.3 ± 0.8	0.1 (-0.3, 0.5)	0.49
Seton					
SF-36					
Physical function	25	79 ± 29	83 ± 20	4 (-4, 13)	0.33
Role physical	25	77 ± 26	77 ± 25	0 (-10, 10)	0.96

OUTPATIENT SYMPTOMATIC PILE TAILORED PROCEDURE FOR HEMORRHOIDAL DISEASE.

eP584

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Purpose/Background: The anatomical presentation of haemorrhoids is extremely heterogeneous between patients but also within the individual patient. This heterogeneity is the basis of the need to guarantee the best treatment of each single hemorrhoid with the aim of proceeding with excisions only when it is strictly necessary in order to reduce the surgical trauma and post-operative pain. Aim of this study was to evaluate the role of outpatient "Tailored Single Pile Treatment" in the short and long term.

Methods/Interventions: From March 2014 to January 2017 a prospective non-randomised study was conducted on all consecutive patients who underwent "Tailored Single Pile Treatment" in outpatient setting in our Institution. All patients affected by hemorrhoids were evaluated according to Goligher Classification and Single Pile Hemorrhoidal Classification (SPHC). Patients with one or more symptomatic Goligher grade III pile were included in the study. All the procedures were under local anesthesia using a new procedure called Tailored Anal Block (TAB) in an outpatient setting. We treated with Hemorrhoidopexy second and third degree pile without Fibrous inelastic redundant pile (F) or subversion of dentate line or congestion of external pile (E) or not tolerated skin tags (S) ES; tailored mucosectomy and hemorrhoidopexy (TM&H) for third degree piles with F pile, excision of external component for ES piles, complete semi-closed pile excision for III FES degree pile and all IV degree pile. Hemorrhoidopexy alone or with Tailored Mucosectomy (TM&H) were performed using a new small cylindrical proctoscope, LBet 88 (Sapimed®). Primary endpoint was recurrence of hemorrhoidal prolapse. Secondary endpoints were overall clinical success, percentage of changing in surgical and anesthesiological strategy, intraoperative and postoperative complications, readmission and reoperation rate, post-operative pain and patient's satisfaction.

Results/Outcome(s): 186 patients were enrolled. Mean follow up was 44 months (range 30-64 months). All surgical operations were performed in the scheduled outpatient pathway without any modification of the surgical or anesthesiologic technique. Early post-operative complication occurred in 4 patients (2,1%). Five patients (2,7%) reported minor post-operative bleeding, treated with conservative management. French bleeding severity score improved from 6,5 (range: 5-8) to 2,2 (range 1-3) after treatment and mean General symptoms score improved from 15,7 (range: 14-18) to 2,9 (range 1-4). Mean value of post-operative painkillers days consumption (PKD) was 4,1 days (range 0-15). In 10 patients (5,4%) there were recurrence of hemorrhoidal prolapse. Patient's satisfaction was recorded as very much improved and much improved in the majority of patients.

Conclusions/Discussion: Single pile tailored treatment showed good results either in short and long term follow-up in the treatment of patients with one or more symptomatic Goligher grade III pile.

MULTICENTER REVIEW OF CASES OF BUSCHHKE-LOWENSTEIN TUMOR IN THE PHILIPPINES.

eP585

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Purpose/Background: The prevalence of Buschke-Lowenstein tumor (BLT), or giant condyloma acuminata, a sexually transmitted infection caused by the human papilloma virus (HPV), has been increasing over the years. This parallels the rise in the number of cases of human immunodeficiency virus (HIV) infection in the Philippines. This study investigated the clinical profile, management, and outcomes of patients with BLT who

were managed by the Colorectal Surgery training programs in the country from January 2015 to December 2021.

Methods/Interventions: This is a descriptive retrospective study that included all patients diagnosed with BLT who underwent surgery from January 2015 to December 2021 at the following institutions: Philippine General Hospital, Rizal Medical Center, Southern Philippines Medical Center, Vicente Sotto Memorial Medical Center, and University of the East Ramon Magsaysay Medical Center. A review of patient records was done after obtaining approval from the Department of Health Single Joint Research Ethics Board.

Results/Outcome(s): Of the 11 training programs in Colorectal Surgery, only five reported having managed a case of BLT during the study period. A total of 11 patients underwent surgery for BLT. All were males and positive for HIV, with ages ranging from 21 to 41 years (median 30 years). One was heterosexual, while the rest admitted to having engaged in both insertive and receptive homosexual anal intercourse. Except for one, all patients had multiple partners. Only one patient was documented to have received an HPV vaccine. Common symptoms that included an anal mass, foul-smelling discharge, pain, bleeding, and pruritus, presented eight months prior to consult on average. All underwent excision, with the wound bed allowed to heal by secondary intention; except in two, who had a fasciocutaneous V-Y advancement flap. The average operative time was 140 minutes, and the average postoperative length of stay was four days. The average time to complete epithelization among those who underwent healing by secondary intention was seven weeks. The common complication identified was an anal stricture (45%). The reported recurrence rate was 18%, and these were noted between 2 to 8 months postoperatively. Among those who had a stricture, four underwent anal dilatation, and one needed a proximal bowel diversion. Recurrences were addressed by application of trichloroacetic acid, but one eventually underwent cauterization of anal warts. Histopathologic analysis revealed condyloma acuminata for ten patients, while one had intraepithelial carcinoma without dermal invasion.

Conclusions/Discussion: Wide excision is the gold standard in the treatment of BLT, however, incidence of anal strictures remains high. The use of advancement flaps and avoidance of an overly aggressive surgical approach should be considered in patients at high risk of developing anal strictures. Education and counseling are part of management.

Patient No.	Age (yr)/sex	Comorbidity	Onset of symptoms to surgery (mo)	Type of wound closure	Postoperative stay (day)	Postoperative complication	Histopathologic result	Time to epithelialization (wk)
1	33/male	None	48	Healing by secondary intention	11	Recurrence (2 mo), stricture (2–11 mo)	Condyloma acuminata	8
2	33/male	Idiopathic thrombocytic purpura, smoking	12	Healing by secondary intention	2	Stricture (3 mo)	Condyloma acuminata	4
3	29/male	None	8	Healing by secondary intention	1	None	Intraepithelial carcinoma without dermal invasion	4
4	23/male	None	8	Healing by secondary intention	1	Recurrence (8 mo), stricture (2 wk)	Condyloma acuminata	4
5	21/male	None	5	Healing by secondary intention	2	None	Condyloma acuminata	2
6	29/male	None	8	Healing by secondary intention	2	Stricture (2 mo)	Condyloma acuminata	16
7	41/male	None	36	Healing by secondary intention	2	None	Condyloma acuminata	8
8	30/male	None	8	Healing by secondary intention	2	None	Condyloma acuminata	3
9	22/male	None	8	Healing by secondary intention	2	None	Condyloma acuminata	10
10	32/male	None	8	Gluteus maximus fasciocutaneous V-Y advancement flap	4	Stricture (3 mo)	Condyloma acuminata	N/A
11	30/male	None	48	Gluteus maximus fasciocutaneous V-Y advancement flap	14	None	Condyloma acuminata	N/A

Table 1. Patient profile, wound closure, complications, and histopathologic results of patients who underwent surgery for Buschke-Lowenstein tumor, January 2015 to December 2021.

VAAFT PLUS FILAC PROCEDURE TO TREAT SUPRASPHINCTERIC FISTULA WITH LONG-TERM FOLLOW-UP.

eP586

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Purpose/Background: The surgical treatment of suprasphincteric fistula is challenging because of the incidence of recurrence and incontinence. Video-assisted anal fistula treatment and energy delivery devices are sphincteric protecting techniques. But there are limited results about using these two techniques for suprasphincteric fistula at the same time. In this study we reviewed the outcomes of VAAFT plus FiLaC procedure in regarding to success rate, healing time and complications and incontinence for suprasphincteric fistula with long-term follow-up.

Methods/Interventions: A retrospective observational study was conducted on patients with suprasphincteric who underwent VAAFT plus FiLaC procedure between Oct 2017 and Dec 2019. Outcomes of interest were fistula healing rate, healing time and postoperative complications and incontinence. Operative technique: We used a diameter of 3.3×4.7mm fistuloscope through the external orifice in search of the fistulous tract and the primary opening, as well as of accessory paths. After the stage of diagnosis, a 360 degree radial emission laser fiber was used via the scope. The laser fiber emitting 14watt laser energy with a wave length of 1470nm and was withdrawn slowly step by step at a speed of 1mm/sec which ensured homogenous photothermal destruction of the deep fistula tract under direct vision. If the primary opening was identified, then either laid open or closed full thickness depended on the situation.

Results/Outcome(s): In this study 26 patients with cryptoglandular suprasphincteric anal fistula were included. Patients age ranging between 22years and 59 years and male to female ratio was 21:5. Diagnosed by preoperative MR imaging verified all patients had suprasphincteric fistula. The average number of previous operations was 2.5(range 1-7). Primary success was 84.6% (22/26) with

mean healing time 6weeks. One male patient was lost during follow-up. Three patients had persistence of symptoms beyond 3 months postoperatively and were operated again and the fistulas healed well. At a median follow-up of 42 month (range 30-60 months), the overall healing rate was 96.2% (25/26). No postoperative complications and incontinence were reported in this study.

Conclusions/Discussion: We performed using VAAFT and FiLaC procedure to ablate and constrict the deep fistula track entirely. The procedure is minimally invasive and safe with high success rate in treatment of suprashincteric anal fistula.

SAFETY AND EFFICACY OF RD2 VER.02 WITH MINIMALLY INVASIVE PIT EXCISION PROCEDURE IN PILONIDAL SINUS DISEASE.

eP587

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Purpose/Background: Pilonidal Sinus (PNS) disease is a common inflammatory condition that usually affects young patients worldwide. Treatment for PNS usually is surgical, especially when the sinus presents with secondary infection and abscess, requires incision and drainage and is associated with a ~40% risk of recurrence. RD2 Ver0.2 is an autologous whole blood clot product, that functions as an extracellular matrix (ECM), protecting the wound cavity and facilitating the healing process. Autologous blood clot treatment was found to be safe and effective in surgical and chronic wounds (2). The blood clot treatment serves not only as a provisional matrix but as a regenerative tissue that can seal the sinus cavity and lead to the formation of new granulation tissue and re-epithelization. In this study, we aimed to assess the surgical outcomes of PNS treated surgically and with RD2 Ver0.2, in a large tertiary center.

Methods/Interventions: A single-arm prospective pilot study was conducted, including PNS patients that underwent minimally invasive trephine surgery using local anesthesia, followed by injection of RD2 into the surgical wounds. The procedure included pit and sinus excision, coring out the infected tissue, hair, and pus, cleaning, and flushing with saline. Following wound debridement, 15mL of blood was drawn from the patients and was mixed with Kaolin and calcium gluconate and applied into the sinus cavity, filling it entirely and allowing the blood to coagulate inside to create a stable blood clot. Follow-up visits were conducted 1-, 3-, 6- and 12 weeks post-procedure. Long-term follow-up was conducted remotely via telephone at 6- and 12 months following surgery.

Results/Outcome(s): An interim analysis of 51 patients was performed. Twelve (12) weeks after the procedure, 42 of the PNS were completely healed (82.3%) and 7 patients (13.7%) had significant improvement with partial wound healing. Recurrence was noted in 2 patients (3.9%). On the 6-month follow-up time point, 45/51 (91.8% and 88.2% in the per-protocol (PP) and the intent to treat (ITT) respectively) were healed. 2 patients were lost to follow-up and 2 patients had PNS recurrence. For the 12-month follow-up, 26 patients were analyzed and reached this time point. Twenty-two (22) remained healed (84.6% and 88% in the ITT and PP respectively) with recurrence in 3 patients and 1 patient was lost to follow-up. Overall, 28 adverse events (AEs) were recorded, including 1 patient with wound infection, and 27 unrelated AEs, none of which was severe. Twenty-two (22) AEs were classified as mild (62.8%), 13 (37.1%) as moderate, and none as severe. None of the patients were impacted by AEs due to RD2-Ver.02 use.

Conclusions/Discussion: RD2 Ver.02 was found to be a safe and effective treatment in PNS when coupled with a minimally invasive pit excision technique. Within 12 weeks of treatment, 88% of PNS were completely healed, increasing to 91.8% healing rate by 6 months.

RE-STAGING AFTER TOTAL NEOADJUVANT THERAPY IN RECTAL CANCER: THE ACCURACY OF DIGITAL RECTAL EXAM, MRI, AND ENDOSCOPY.

eP588

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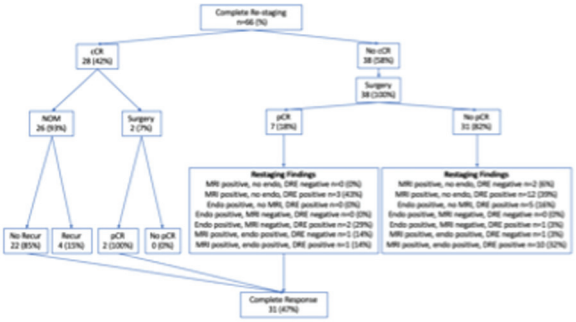
Purpose/Background: As non-operative management (NOM) of patients with a clinical complete response (cCR) after completion of neoadjuvant therapy is increasingly utilized in clinical stage 2 and 3 rectal cancer, an accurate determination of a cCR is imperative. The aim of this study is to evaluate the accuracy of digital rectal exam (DRE), MRI, and endoscopy in predicting a cCR or pathological complete response (pCR) following completion of total neoadjuvant therapy (TNT) in clinical stage 2 and 3 rectal cancer.

Methods/Interventions: Patients with clinical stage 2 or 3 rectal cancer who received TNT at the University of Colorado (2016-2022) were assessed. Only patients with palpable tumors on digital rectal exam at time of diagnosis and underwent complete restaging with DRE, MRI, and/or endoscopy were included in the analysis. A cCR required confirmation on rectal exam, MRI, and endoscopy. A complete response (CR) was defined as either a cCR in patients who underwent NOM without regrowth or a pCR in patients who had total mesorectal excision. The sensitivity, specificity, and accuracy of restaging MRI and endoscopy were calculated

Results/Outcome(s): Among 147 patients undergoing TNT, 66 (45%) had complete restaging and the overall CR rate was 47% (n=31). A cCR was observed in 28 (42%) patients with 26 (93%) subsequently undergoing

non-operative management and 2 (7%) having surgery. Of the 26 patients managed non-operatively, 22 (85%) remained disease-free at a median follow up of 24 months from the date of NOM (true-negative). The remaining 4 patients demonstrated luminal regrowth at a median of 14 months (range 11-30 months) and all were salvaged with an R0 resection (false-negative). Both (n=2) patients with a cCR who underwent surgery had a pCR (true-negative). Among the 38 patients without a cCR undergoing surgery, 31 (82%) did not demonstrate a pCR (true-positive) and 7 (18%) did (false-positive). The overall sensitivity, specificity, and accuracy of DRE in combination with MRI and endoscopy was 89%, 77%, and 83%, respectively.

Conclusions/Discussion: In this single-institutional retrospective review, a combination of DRE, endoscopy, and MRI was able to correctly detect residual rectal cancer in 89% of patients after completion of TNT and correctly identify patients without residual cancer in 77% of patients. Although MRI and endoscopy has improved our ability to detect a cCR, improved techniques are needed to optimize the success of NOM in rectal cancer.



CANARY IN THE COAL MINE: DOES EARLY RESTAGING FOLLOWING INDUCTION CHEMORADIOTHERAPY PREDICT POOR RESPONSE TO TOTAL NEOADJUVANT THERAPY?

eP589

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Purpose/Background: Total neoadjuvant therapy (TNT) has become widely adopted in the treatment of locally advanced rectal cancer. Multiple guidelines recommend restaging patients at the conclusion of TNT for surgical planning or consideration of nonoperative management. However, there is no data regarding the utility of interim restaging at the conclusion of induction therapy. This study aims to determine whether post-induction magnetic resonance imaging (MRI) restaging could predict ultimate response to TNT and thereby refine neoadjuvant treatment strategies. We hypothesized that poor response on interim MRI is associated with an ultimate poor response to TNT.

Methods/Interventions: Patients with stage II-IV rectal cancer undergoing multidisciplinary tumor board-directed TNT at a single NAPRC-accredited center were retrospectively selected for inclusion. TNT routinely commenced with induction chemoradiotherapy (CRT). Patients without post-induction MRI restaging, who did not complete induction CRT, or undergoing organ preservation with fewer than 12 months of regrowth-free surveillance at time of data collection were excluded. The primary study outcome was association of interim MRI tumor regression grade (mrTRG) with final TRG, a composite variable including either pathologic TRG or durable (>12 months) clinical complete response for those nonoperatively managed. Secondary outcomes included associations with Neoadjuvant Rectal (NAR) Score – a measure of downstaging incorporating clinical and pathologic staging – and the frequency of aborted intended TNT. Analysis was performed with chi-square, Kruskall-Wallace, and Spearman's nonparametric correlation coefficient testing.

Results/Outcome(s): 94 patients were included in the final analysis; they were predominantly male (59.6%) and middle-aged (50 – 80 years old; 72.3%) with distally located (< 5cm from verge; 54.3%), node-positive (86.2%) tumors. Post-induction mrTRG was overall significantly correlated with final TRG (Spearman's correlation coefficient = 0.26, p=0.01), though the amplitude of correlation was small. However, patients with minimal response on interim staging MRI (mrTRG=4) were significantly less likely to achieve a complete response following TNT (37% vs 13%, p=0.03). Finally, 5 patients (21.5%) with interim mrTRG-4 aborted TNT for earlier proctectomy compared to only one patient (1.4%) with mrTRG 1 – 3; reasons for treatment plan alterations included minimal response (4), progression (1), and poor tolerance of therapy (1).

Conclusions/Discussion: Minimal response to CRT on interim restaging MRI is significantly associated with poor response to TNT and aborted TNT with early surgery. Prospective studies are needed to determine if poor TNT responders have better long-term outcomes with earlier surgery. If so, interim MRI may provide the critical data needed to identify patients who do not benefit from TNT.

Outcome	Interim mrTRG 1 – 3 (n= 71)	Interim mrTRG 4 (n= 23)	p
Final TRG (%)*			
Complete	26 (36.6)	3 (13.1)	0.03
Partial	37 (52.1)	15 (65.2)	
Minimal	8 (11.3)	5 (21.7)	
NAR Score (%)			
< 8	26 (36.6)	3 (13.0)	0.03
8 – 16	29 (40.9)	11 (47.8)	
> 16	16 (22.5)	9 (39.1)	
Aborted intended neoadjuvant course N (%)	1 (1.4)	5 (21.7)	<0.01

*Final TRG is defined as TRG at surgical resection or after 12 mos nonoperative surveillance. **Complete** includes absence of tumor at resection or >12 months surveillance without regrowth; **Partial** describes moderate and near complete regression; **Minimal** encompasses poor to no treatment response.

Table 1

ADOPTION OF A TOTAL NEOADJUVANT THERAPY APPROACH IN LOCALLY ADVANCED RECTAL CANCER AND IDENTIFICATION OF OPPORTUNITIES TO REDUCE UNNECESSARY RECTAL RESECTION.

eP590

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Purpose/Background: Total neoadjuvant therapy (TNT) incorporates both systemic chemotherapy and radiation therapy prior to surgery and offers many potential advantages. The aim of this study was to evaluate our experience with adoption of TNT in patients with clinical stage 2 or 3 rectal cancer at an academic center and to identify opportunities for improved decision-making.

Methods/Interventions: Patients with clinical stage 2 or 3 rectal cancer who received TNT at the University of Colorado (2016-2022) were assessed. Complete locoregional re-staging was defined as evaluation with MRI/endoscopy. A complete response (CR) was defined as either a clinical complete response (cCR) in patients who underwent non-operative management (NOM) without regrowth or a pathologic complete response (pCR) in patients who had total mesorectal excision (TME).

Results/Outcome(s): Among 147 patients undergoing TNT, the median age was 53 years and 61% (n=90) were male. The median distance from the anal verge was 6.2 cm (IQR 4.1-8.7) and 43% (n=63) had an elevated baseline CEA. Clinical T-stage was T2 in 5% (n=7), T3 in 75% (n=111), and T4 in 20% (n=29). Clinical N-stage was N0 in 14% (n=21), N1 in 41% (n=60), and N2 in 45% (n=66). The TNT approach was induction chemotherapy and chemoradiation (CRT) in 80% (n=118), CRT and consolidative chemotherapy in 9% (n=13), induction chemotherapy and short-course radiation (SCRT) in 6% (n=9), and SCRT and consolidative chemotherapy in 5% (n=7). Among 86 patients with complete re-staging, 34% (n=29) had a cCR of whom 26 (90%) underwent NOM and 3 patients underwent TME who all had a pCR. Of the 26 patients with a cCR undergoing NOM, 22 (85%) remain disease-free at a median follow up of 24 (range 6-67). Local regrowth occurred in 4 of these patients at a median of 14 (range 12-30) months and all had an R0 salvage resection. Of the 57 patients (66%) without a cCR undergoing TME, 19% (n=11) had a pCR. Among 61 patients with incomplete clinical re-staging, 59 (97%) underwent TME with 31% (n=18) having a pCR. Two patients with incomplete re-staging were deemed to have cCR based on MRI or endoscopy alone and remain disease-free at a median of 16 (range 10-23) months. The overall CR was 38% (n=56) and poor predictors of a CR were an elevated CEA, increased tumor size, and clinical N2 disease. Disease-free survival was significantly improved in patients with a CR at 3 years compared to no CR (94% vs. 63%, respectively, p<.001).

Conclusions/Discussion: In this review of patients with clinical stage 2 and 3 rectal cancer, adoption of TNT facilitated organ preservation in one-third of patients with an acceptably low regrowth rate. A pCR in nearly one-third of patients who underwent TME indicates that improvements in post-neoadjuvant assessment could reduce the number of rectal cancer patients who undergo resection.

Flow chart of TNT patients

THE IMPORTANCE OF ENDOSCOPIC SURVEILLANCE AMONG WATCH AND WAIT PROTOCOLS.

eP591

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Purpose/Background: Digital rectal exam, endoscopy, MRI, and CEA surveillance are part of most watch and wait regimens. It has been shown that MRI is required amongst these protocols for extra-luminal disease and that it may under-stage tumor and nodal disease post neoadjuvant therapy. We aimed to assess the value of endoscopy in watch and wait protocols against MRI alone.

Methods/Interventions: A retrospective review of multi-disciplinary tumor board and electronic medical record data was conducted of all patients with rectal adenocarcinoma from 2018-2021. MRI and surgical pathology data was gathered for patients with MRI (3 Tesla - rectal protocol) response of mrTRG-1 or mrTRG-2 after undergoing neoadjuvant chemoradiotherapy in order to assess correlation with surgical pathology in our population. We separately analyzed Watch and Wait patients who received scheduled endoscopic surveillance in order to assess correlation between post-neoadjuvant MRI and endoscopic pathology exams.

Results/Outcome(s): Of the total 318 patients included in the database, 54 patients were found to have mrTRG-1 or mrTRG-2 response and available pathology for correlation. The mean time between MRI and surgical pathology was 136 days (SD ± 189 days). There were significant differences between MRI results and pathology results for tumor grade (P=0.004), with poor correlation of T-stage using Spearman coefficient (r=0.16, P=0.35) in the mrTRG 2 group. For both mrTRG 1 and 2, MRI under-read tumor grade the majority of the time (mrTRG 1: 75%, mrTRG 2: 50%) compared to surgical pathology (mean difference of two stages, ie. T1a to T1c). Seventeen of these patients were on Watch and Wait protocols. Five out of 17 (29.4%) were found to have recurrent adenocarcinoma on endoscopic pathology which was not appreciated on MRI. The average time from MRI to Endoscopy was 26.6 days (SD ± 37.0) though 4 of the 5 were within 15 days. Features of recurrence on endoscopy included: ulceration (n=1), new polyp/mass at previous tattoo site (n=4).

Conclusions/Discussion: Other studies have demonstrated 94% of recurrent rectal adenocarcinoma occur intraluminally, pointing to the value of endoscopic surveillance for detection of regrowth despite reassuring MRI. Our data is in agreement that MRI may under-stage tumor recurrence in mrTRG-1 and mrTRG-2 tumor responders after total neoadjuvant therapy; thus confirming the role of endoscopy as a critical assessement in the Watch and Wait protocol.

MRI Vs. Surgical pathology	T stage over-read	T stage under-read	T stage correlation
TRG 1-2	15.5%	46.6%	43.1%
TRG 1 Only	8.3%	75.0%	16.7%
TRG 2 Only	20.6%	50%	29.4%

ACCURACY OF MRI IN DETERMINING NODAL STAGE FOR RECTAL CANCER.

eP592

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Purpose/Background: Nodal stage (N) is an important determinant of local recurrence and survival in rectal cancer. Accurate preoperative staging is essential for determining a patient's need for neoadjuvant therapy. Rectal cancer protocol pelvic magnetic resonance imaging (MRI) is the primary method of local staging. Nevertheless, MRI may occasionally understage pathologic lymph nodes, resulting in undertreatment of these nodes.

Methods/Interventions: This retrospective, single-institution study aimed to analyze the diagnostic accuracy of post-neoadjuvant MRI in determining N stage when compared to staging determined by surgical pathology by location of tumor and node morphology on MRI. Patients were reviewed from a prospectively maintained database of those treated for rectal cancer. Selected patients had undergone pre- and post-treatment MRI, neoadjuvant therapy for locally advanced disease, and total mesorectal excision (TME). The post-treatment MRI was compared to surgical pathology results. A radiologist experienced with interpreting rectal cancer MRI performed a retrospective review of imaging determined to be understaged.

Results/Outcome(s): A total of 80 patients met study criteria. The majority of patients were Caucasian (90%) and male (57%) with median age of diagnosis of 62 years. All patients underwent neoadjuvant treatment with either chemoradiation (n=75) or total neoadjuvant therapy (n=5) followed by TME. Seventy-three (91.3%) of patients had complete or near-complete TME performed. Overall, 71.2% of patients had MRIs that were concordant with surgical pathology. Understaging of nodal disease was seen in 13.8% (11/80) compared to final pathology (p=0.09). Thirty-six percent of all upper rectal cancers were understaged based on post-treatment MRI N-stage, whereas 11% of middle rectal cancers and only 8.8% of distal rectal cancers were understaged. Understaged lymph nodes that were previously characterized on MRI as "not suspicious" were typically <5mm in size, oval, homogenous, and/or exhibited evidence of treatment effect. One patient was retrospectively identified to have mucinous features, and because of this had missed pathologic nodes on imaging and was therefore understaged both before and after neoadjuvant therapy (Figure 1).

Conclusions/Discussion: Rectal cancer protocol pelvic MRI is currently the most valuable tool for local staging of rectal cancer. Within our patient population, overall imaging accuracy for pathologic nodes was affected by tumor location with mid- and low-rectal tumors being more accurately staged by MRI. Factors that led to understaging included upper rectum location, mucinous features, <5mm nodal size, round node morphology, and nodes exhibiting treatment effect. Understanding these limitations of MRI may aid clinical decision-making to avoid undertreatment.

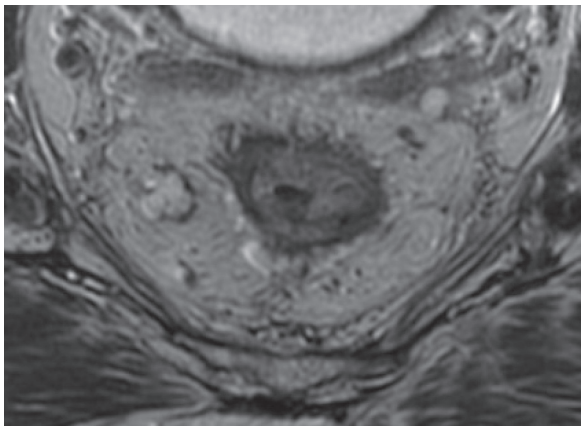

Figure 1. Suspicious right lateral mesorectal node with mucinous features.

INITIAL TUMOR GRADE OUTPERFORMS CT AND CN CLASSIFICATION IN PREDICTING TUMOR REGRESSION IN RECTAL CANCER AFTER NEOADJUVANT CHEMORADIOTHERAPY.

eP593

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Purpose/Background: Neoadjuvant chemoradiotherapy with subsequent surgical resection is the mainstay for patients with locally advanced rectal cancer. This study aimed to determine the prognostic value of the clinical stage and tumor grade with respect to pathologic regression found at the time of resection.

Methods/Interventions: A retrospective review of all patients diagnosed with rectal adenocarcinoma that were treated with neoadjuvant chemoradiotherapy and subsequent surgery from 2017–2022 was performed. Patient demographics, polyp characteristics, colonoscopy reports, and pathologic resection features were obtained from the electronic medical record. Correlation between pre-treatment clinical stage and tumor grade, pathologic tumor microenvironment, and other classical clinicopathological parameters were studied using multivariate logistical regression. A p-value less than 0.05 was considered significant.

Results/Outcome(s): 50 patients were identified – pre-treatment tumor grade, clinical T and N stages, and post-surgery regression grades can be seen in Table I. Multivariable logistic regression analysis results showed that tumor grade was significantly associated with response to neoadjuvant therapy ($p = 0.03$), whereas initial T-stage ($p = 0.60$) and N-stage ($p = 0.73$) were not associated with tumor regression.

Conclusions/Discussion: Compared to clinical T/N staging, patients that have well-differentiated, locally advanced rectal cancer have an improved tumor regression grades on final pathologic review. These results may help clinicians determine the likelihood of complete pathologic response.

Tumor Grade	n (%)	Clinical T-Staging	n (%)	Clinical N-Staging	n (%)	Regression Grade	n (%)
Well-Differentiation	27 (54)	T1	1 (2)	N0	12 (24)	1	14 (28)
Moderate-Differentiation	21 (42)	T2	5 (10)	N1	23 (46)	2	22 (44)
Poor-Differentiation	2 (4)	T3	21 (42)	N2	15 (30)	3	6 (12)
		T4	23 (46)			4	8 (16)

LINITIS PLASTICA OF THE RECTUM: AN UNCOMMON PRESENTATION OF ADVANCED BLADDER CARCINOMA.

eP595

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Purpose/Background: Linitis plastica is an uncommon pathologic condition often described in diffuse type gastric adenocarcinoma. However, linitis plastica of the rectum (LPR) has been rarely reported in the literature and is usually the result of a different primary neoplasm with rectal metastasis. Given its rarity and frequent diagnostic challenge, case reports of this condition are critical to diagnosing and treating LPR. Here, we present the case of a 79 year old male patient who was diagnosed with LPR secondary to recurrent bladder cancer. The patient ultimately underwent diverting loop colostomy with plans for neoadjuvant chemoradiotherapy.

Methods/Interventions: Patient is a 79 year old male who presented with gross hematuria. After undergoing CT urogram, a 1.8x1.8x1.8cm posterior bladder mass was noted. This was treated with TURBT and completion of induction BCG. The patient represented to the ED several months later with complaints of left abdominal/flank pain, as well as change in stool caliber. A CT scan in the ED demonstrated severe left hydronephrosis, as well as a new finding of circumferential wall thickening of the distal 10cm of the rectum. This prompted a cystoscopy with attempted urtereral stent placement, which also was demonstrative of concern for recurrence of bladder cancer. Placement of stent was ultimately unsuccessful, and the patient underwent IR placement of a percutaneous nephrostomy tube. Given concern for metastatic bladder cancer, the patient underwent an MRI of the pelvis, which corroborated previous rectal findings on CT scan, as well as demonstrating mesorectal edema and inflammation without discreet mass. Colonoscopic evaluation demonstrated circumferential narrowing and near obstruction from what appeared to be a neoplasm. Pathology demonstrated tubular adenoma. Given pathologic and radiographic discordance, the patient underwent additional flexible sigmoidoscopy with biopsies. Pathologic report demonstrated rectal mucosa with edema without any evidence of dysplasia or neoplasm. During this process, the patient was diagnosed with an upper extremity DVT and was treated with IV heparin.

Results/Outcome(s): Given ongoing concern for LPR secondary to bladder cancer, as well as near-obstructing lesion, the patient underwent diverting loop sigmoid colostomy with plans for neoadjuvant chemoradiotherapy.

Conclusions/Discussion: LPR is an uncommon pathologic diagnosis that is infrequently described in the literature. Given its rarity as well as potential detrimental outcome if diagnosis is missed, we recommend that patients with circumferential rectal wall thickening on MRI/EUS with negative biopsies undergo intensive work up for a primary neoplastic process.

SOCIAL DETERMINANTS OF HEALTH AFFECT SURGICAL OUTCOMES IN PATIENTS WITH RECTAL CANCER.

eP596

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Purpose/Background: Treatment of resectable rectal cancer ranges from polypectomy to surgical oncologic resection with or without chemotherapy and radiation. Social determinants of health (SDoH) have been shown to affect other colorectal diseases. However, currently no study has evaluated the impact of SDoH on postoperative outcomes after low anterior resection for rectal cancer. Given the negative effect that SDoH have on other colorectal diseases, we hypothesize that SDoH will negatively affect outcomes in rectal cancer.

Methods/Interventions: A 20-year review of the National Inpatient Sample of patients ≥18 years old who underwent low anterior resection for rectal cancer was completed. Patients were stratified by race, insurance status, income quartile, and geographic region. Hospitals were divided by type into urban-teaching (UT), urban-nonteaching (UNT), or rural. Multivariable logistic regression analyses assessed associations between SDoH and primary outcomes of anastomotic leak, surgical site infection, length of stay greater than 10 days after surgery (prolonged LOS), and inpatient mortality.

Results/Outcome(s): 9,284 patients were included. The number of procedures rose steadily from 2000 to 2019. The mean age was 61.86 (±0.14). 41.4% were female, 58.5% were White, 6.1% Black, 6.5% Hispanic and 3.5% Asian/Pacific Islander. Most patients had private insurance (48.1%), Medicare (39.7%), or Medicaid (7.34%). 67.8% were treated in UT hospitals, 26.7% in UNT hospitals, and 5.4% in rural hospitals. Compared to open surgery, laparoscopic surgery had lower odds of anastomotic leak (OR 0.82, $p<0.001$), infection (OR 0.52, $p<0.001$), prolonged LOS (OR 0.62, $p<0.001$), and in-hospital mortality (OR 0.57, $p<0.001$). Compared to private insurance, patients with Medicaid (OR 1.33, $p=0.02$), Medicare (OR 1.33, $p=0.004$), and uninsured patients (OR 1.89, $p=0.002$) were more likely to have prolonged LOS. Black patients had greater odds of having a prolonged LOS (OR 1.93, $p<0.001$). There was no significant difference in odds of anastomotic leak, infection, or death between races. Female patients had lower odds of anastomotic leak (OR 0.63, $p<0.001$) and prolonged LOS (OR 0.79, $p<0.001$) compared to male patients. Counter to findings in other disease processes, in our data we identified that there was no significant difference in certain SDoH outcomes including hospital type, hospital region, or income quartile.

Conclusions/Discussion: We have demonstrated a complex intersection of SDoH factors and outcomes of patients with rectal malignancy. These findings suggest that factors that affect access to care, including insurance or income status may affect underlying conditions that would contribute to overall outcomes. Further, the differing effects of sex, but not race, upon anastomotic leak may be related to degrees of severity of underlying medical comorbidities. Future work will address pre-hospital SDoH and rectal cancer at a pre-surgical, community level.

POST-OPERATIVE CLINICAL OUTCOMES ASSOCIATED WITH ROBOTIC-ASSISTED SURGERY AMONG PATIENTS WHO HAD RECTAL CANCER RESECTION WITH STOMA CREATION.

eP597

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Purpose/Background: There has been widespread adoption of robotic-assisted surgery (RAS) in rectal cancer resection, however there is limited knowledge of its clinical advantage over laparoscopic (Lap) and open (OS) surgical approaches. Thus, the purpose of this study was to compare clinical outcomes of RAS with Lap and OS among patients who had rectal cancer resection with ileostomy or permanent colostomy.

Methods/Interventions: We identified all patients aged ≥ 18 years who had elective rectal cancer resection with stoma formation from 1/2013 through 12/2020 from the Premier Healthcare Databases. Next, we assessed post-operative complications, in-hospital mortality, discharge to home, reoperation and 30-day readmission. Then we developed multivariable logistic regression models accounting for hospital clustering to compare rate of ileostomy formation between surgical approaches. Last, we built inverse probability of treatment weighted analyses to compare outcomes for ileostomy and permanent colostomy separately.

Results/Outcome(s): A total of 14,862 patients (OS: 6,621 [44.5%]; Lap: 3,394 [22.8%]; RAS: 4,487

[32.6%]) underwent elective rectal cancer resection. Compared to OS, patients who had Lap (OR= 1.27, p< 0.001), and those who had RAS (OR= 1.49, p< 0.001) were more likely to have an ileostomy rather than permanent colostomy. In those who had temporary ileostomy, RAS was associated with fewer ileus (OR= 0.82, p = 0.020), lower bleeding (OR= 0.51, p < 0.001), and higher discharge to home (OR= 1.36, p= 0.015) compared to Lap; and lower anastomotic leak (OR= 0.33, p< 0.001), lower bleeding (OR= 0.52, p< 0.001) and lower surgical site infection (OR= 0.61, p= 0.001) when compared to OS. In those patients who had permanent colostomy formation, RAS was associated with lower ileus (OR= 0.76, p< 0.001) and lower 30-day reoperation (OR= 0.52, p< 0.001) than Lap; and lower ileus (OR= 0.76, p< 0.001), lower bleeding (OR= 0.70, p< 0.001), lower transfusion (OR= 0.51, p< 0.001), and higher discharge to home (OR= 1.37, p< 0.001) than OS.

Conclusions/Discussion: Rectal cancer patients treated with RAS were more likely to have ileostomy as part of treatment rather than permanent colostomy. In addition, the data reveal significant advantages including enhanced recovery for patients who undergo rectal cancer resection with RAS techniques compared to Lap and OS.

Table 1. Comparison of Post-operative Clinical Outcomes between Robotic-assisted versus Laparoscopic and Open Surgery

	RAS versus Lap.[a]				RAS versus Open[b]			
Ileostomy	Lap, N= 1,811	RAS, N= 2,401	O.R. (95% CI)	p-value	Open, N= 2,487	RAS, N= 2,401	O.R. (95% CI)	p-value
Conversion, n (%)	469 (21,7)	133 (5,5)	0,33 (0,27, 0,40)	<0.001	-	-	-	-
LOS, mean (95% CI)	7,06 (6,86 - 7,27)	6,24 (6,03 - 6,44)	-0,82 (-1,09, -0,58)[c]	<0.001	7,24 (7,09 - 7,40)	6,21 (6,06 - 6,36)	-1,08 (-1,25, -0,90)[c]	<0.001
Anastomotic leak, n (%)	42 (1,9)	92 (1,7)	0,89 (0,55, 1,49)	0,640	190 (4,3)	92 (1,3)	0,33 (0,22, 0,49)	<0.001
Ileus, n (%)	411 (19,9)	302 (16,2)	0,82 (0,70, 0,97)	0.020	463 (16,1)	313 (13,1)	0,92 (0,79, 1,08)	0,320
Bleeding, n (%)	247 (11,6)	116 (6,2)	0,51 (0,40, 0,64)	<0.001	301 (10,4)	120 (5,7)	0,52 (0,42, 0,65)	<0.001
Transfusion, n (%)	74 (3,3)	84 (4,3)	1,26 (0,91, 1,74)	0,160	134 (5,9)	94 (4,3)	0,83 (0,64, 1,08)	0,170
SSI, n (%)	90 (4,2)	56 (3,0)	0,72 (0,51, 1,01)	0,056	149 (4,9)	64 (3,1)	0,61 (0,45, 0,82)	0,001
Urinary retention, n (%)	138 (7,4)	124 (6,6)	0,91 (0,71, 1,16)	0,460	137 (5,4)	128 (6,1)	1,14 (0,90, 1,45)	0,290
Index reoperation, n (%)	109 (5,1)	77 (4,1)	0,75 (0,56, 1,02)	0,065	122 (4,2)	88 (4,0)	0,94 (0,71, 1,25)	0,690
30-day reoperation, n (%)	123 (3,9)	102 (3,3)	0,91 (0,69, 1,19)	0,500	192 (4,6)	116 (3,3)	1,23 (0,93, 1,39)	0,110
In-hospital Mortality, n (%)	10 (0,3)	19 (0,7)	1,23 (0,34, 2,94)	0,600	19 (0,3)	19 (0,9)	2,01 (1,00, 4,14)	0,031
Discharge to home, n (%)	1,961 (92,0)	1,786 (95,9)	1,36 (1,06, 1,75)	0.015	2,690 (93,1)	1,939 (98,8)	1,19 (0,90, 1,42)	0,900
30-day readmission, n (%)	411 (19,9)	340 (18,2)	0,94 (0,80, 1,11)	0,460	617 (21,9)	407 (19,3)	0,89 (0,78, 1,08)	0,110
Colostomy	Lap, N= 1,883	RAS, N= 2,356	O.R. (95% CI)	p-value	Open, N= 4,154	RAS, N= 2,356	O.R. (95% CI)	p-value
Conversion, n (%)	338 (23,9)	164 (8,3)	0,30 (0,24, 0,36)	<0.001	-	-	-	-
LOS, mean (95% CI)	7,64 (7,44 - 7,83)	7,22 (7,01 - 7,43)	-0,42 (-0,72, -0,19)[c]	0.005	8,61 (8,43 - 8,78)	7,18 (7,01 - 7,36)	-1,43 (-1,67, -1,19)[c]	<0.001
Anastomotic leak, n (%)	40 (1,7)	42 (2,2)	1,23 (0,81, 1,93)	0,910	94 (2,3)	38 (1,9)	0,76 (0,34, 1,06)	0,110
Ileus, n (%)	492 (18,7)	286 (14,8)	0,76 (0,64, 0,89)	<0.001	673 (18,2)	408 (14,3)	0,76 (0,67, 0,87)	<0.001
Bleeding, n (%)	233 (11,0)	189 (9,8)	0,88 (0,72, 1,07)	0,190	321 (14,0)	288 (10,2)	0,70 (0,60, 0,81)	<0.001
Transfusion, n (%)	206 (8,9)	139 (8,5)	0,92 (0,74, 1,14)	0,450	329 (14,9)	218 (7,8)	0,51 (0,44, 0,61)	<0.001
SSI, n (%)	112 (4,8)	89 (4,6)	0,93 (0,72, 1,27)	0,730	172 (4,5)	107 (3,8)	0,82 (0,64, 1,05)	0,120
Urinary retention, n (%)	163 (7,1)	134 (7,0)	0,98 (0,77, 1,24)	0,860	228 (6,1)	198 (7,1)	1,17 (0,96, 1,42)	0,130
Index reoperation, n (%)	127 (3,3)	127 (6,6)	1,22 (0,93, 1,57)	0,130	212 (5,7)	171 (6,2)	1,09 (0,89, 1,34)	0,410
30-day reoperation, n (%)	289 (12,2)	130 (6,7)	0,52 (0,42, 0,64)	<0.001	299 (7,9)	200 (7,2)	0,91 (0,75, 1,09)	0,320
In-hospital Mortality, n (%)	17 (0,7)	10 (0,3)	0,74 (0,38, 1,38)	0,440	37 (1,0)	18 (0,6)	0,63 (0,36, 1,14)	0,140
Discharge to home, n (%)	1,942 (84,0)	1,634 (83,8)	1,16 (0,98, 1,37)	0,091	2,994 (80,7)	2,379 (85,3)	1,37 (1,20, 1,57)	<0.001
30-day readmission, n (%)	426 (18,4)	317 (16,3)	0,87 (0,73, 1,03)	0,100	636 (17,7)	444 (16,0)	0,88 (0,77, 1,00)	0,031

Abbreviations: RAS, Robotic-assisted surgery; Lap, Laparoscopic surgery; LOS, Length of stay; SSI, Surgical site infection
All regression analyses were weighted by inverse probability of treatment weights (IPTW) estimated using random effects logistic regression that accounts for hospital clustering, using baseline patient, surgeon and hospital characteristics. Characteristics not balanced after IPTW were included as covariate in outcome regression models.
[a] Surgeon volume and Hospital volume were not balanced after IPTW for ileostomy; [b] Hospital bed size was not balanced after IPTW for colostomy; [c] mean difference (95% CI)

THE IMPACT OF SARCOPENIA ON OUTCOMES IN RECTAL CANCER SURGERY.

eP598

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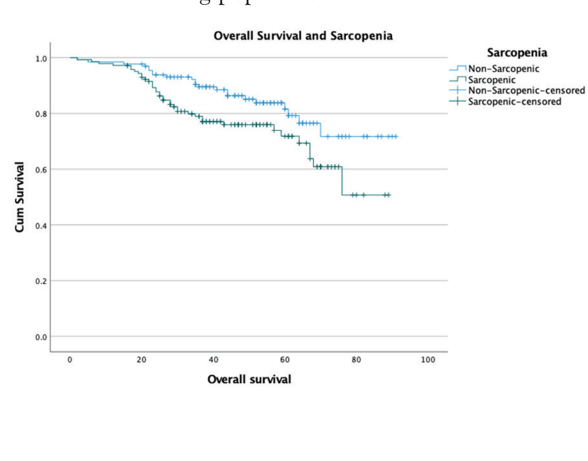
Purpose/Background: The approach to rectal cancer management is evolving with increasingly invasive treatments developing alongside approaches obviating the need for surgery. Thus, identification of modifiable risk factors to predict operative and oncological outcomes is critical in guiding this decision-making. **Hypothesis/Aim:** This study assessed the impact of CT-imaging derived sarcopenia measures on outcomes following rectal cancer surgery

Methods/Interventions: All consecutive patients who underwent surgery for rectal cancer at a comprehensive cancer centre between January 2015 and December 2020 were included. CT imaging post neoadjuvant treatment (or initial staging CT if no neoadjuvant treatment) was retrieved. The cross-sectional muscle area at the level of the third lumbar vertebrae were extracted, along with height measurements, to derive skeletal muscle index (SMI). The SMI cut-off values of <52.4 cm^2/m^2 for men and <38.5 cm^2/m^2 for women were used to define sarcopenia. Demographic and outcome data was collected from a prospective database. Categorical variables were compared using the chi-squared test and continuous data was compared using a Mann-Whitney U-test. OS and DFS were computed using Kaplan-Meier analysis and compared using the log-rank test.

Results/Outcome(s): 275 patients were included (65.8% male and 34.2% female; mean age 58.9 ± 13.7) comprising 143 with sarcopenia and 132 without. Categories of clinical stage included 6.7% stage 1, 24.3% stage 2, 51.9% stage 3 and 17.2% stage 4. Surgical procedures included ultralow anterior resection (63.8), pelvic exenteration (21.1%) and other (15.1%). Approach included open surgery (42.1%), laparoscopic (17.3%), robotic (32.8%) and hybrid (7.7%). Body mass index (BMI) was the only significantly different baseline characteristic between the sarcopenic and non-sarcopenia groups (BMI 24.6± 4.8 vs 28.9 ± 5.9, p <0.001). Post-operatively patients with sarcopenia had higher rates of stoma formation (90.9% vs 84.8%, p = 0.021) and longer length of stay (16.8±15.8 vs 13.7 ± 10.46; p = 0.038). There was no difference in having a major complication (OR 0.91, 95% CI 0.466-1.780; p = 0.784). Subgroup analysis of locally advanced rectal cancer patients (n= 173) showed that sarcopenia had a significant association with major complications (OR 3.41, p = 0.037). The median overall survival was 68.4 months for sarcopenic patients compared to 78.3 months for patients without sarcopenia (p = 0.023). There was no significant difference in disease free survival.

Conclusions/Discussion: Sarcopenia is common in patients undergoing rectal cancer surgery. Sarcopenia was associated with increased stoma formation, length of stay and overall survival. In locally advanced cancer cases it was associated with increased post-operative major complications. **Limitations:** This study is limited by its retrospective design and current SMI thresholds which have not been validated in differing populations.



DISTAL RECTAL CARCINOID TUMOR: A CASE REPORT.

eP599

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Purpose/Background: Carcinoid tumors are a rare pathology with variable treatment algorithms based on their location. Anal canal lesions provide a unique opportunity to consider local excision. Different techniques have been described for the local resection of low-grade tumors. We present a case report of a patient with distal rectal carcinoid tumor who underwent transanal excision.

Methods/Interventions: A 52-year-old female with history of endometriosis presents for routine screening colonoscopy. On colonoscopy, 4 mm sigmoid and 3 mm distal rectal polyps were removed with cold snare. Pathology revealed sessile serrated sigmoid polyp and rectal submucosal carcinoid polyp with Ki67 < 2%. To assess for residual disease, the patient underwent a repeat colonoscopy approximately 3 months later. An additional 3 mm ascending colon polyp and a residual distal rectal polyp were found. The rectal polyp was tattooed and removed with hot snare (See Figure 1). Pathology showed an ascending colon tubular adenoma and rectal polyp with carcinoid tumor, positive at base of the specimen, Ki67 < 1%, positive synaptophysin and CD56, negative for chromogranin. Given the low-grade pathology and distal location of the tumor, a transanal excision was planned. In the operating room, a flexible sigmoidoscopy was performed to confirm the location of the tumor. This was followed by patient repositioning to a prone-jack knife position and transanal excision of the residual tumor.

Results/Outcome(s): Our patient recovered well from the procedure and pathology showed no residual disease found. Follow-up is planned in 6 months for repeat flex-sig and triphasic CT scan.

Conclusions/Discussion: Low grade distal rectal carcinoid tumors can be adequately managed via transanal excision (TAE). TAE has its limitation regarding location and types of cancers. Tumors that are T1, < 30 % circumference, and generally 8-10 cm from the anal verge can be potential candidates for TAE. The 8-10 cm distance has been challenged with advancements in technology to allow greater maneuverability and reach in the rectum. Our patient had a rare and low grade, T1 carcinoid tumor that was adequately resected through transanal excision.

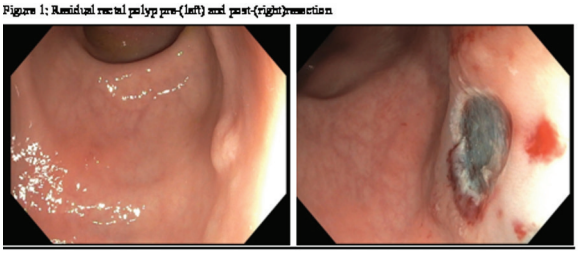

Figure 1: Residual rectal polyp pre-(left) and post-(right) resection

PHASE 2 STUDY OF TAVT-119 (AMLODIPINE BESYLATE) GEL IN PATIENTS WITH CHRONIC ANAL FISSURE.

eP600

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Purpose/Background: An anal fissure (AF) is painful and severely debilitating. As surgery has a risk of incontinence, AF is preferably managed with non-surgical interventions, such as dietary fiber and topical ointments containing glyceryl trinitrate (GTN) or calcium channel blockers (CCBs). Headache can be a debilitating side effect of topical GTN, and topical CCBs are not commercially available in the United States. TAVT-119, a novel formulation of the long-acting CCB amlodipine besylate, was developed to treat AF-associated pain.

Methods/Interventions: This was a Phase 2, double-blind, randomized, placebo-controlled trial with an open-label extension conducted at three centers in Hungary. Adults with a single, chronic AF and moderate/severe anal pain applied TAVT-119 0.1% gel (amlodipine 0.5 mg), 0.2% gel (amlodipine 1 mg), or placebo gel twice daily perianally for 6 weeks, followed by an optional 6-week extension with TAVT-119 0.2%. Change from baseline in resting anal pressure via manometry (primary endpoint at Day 42) was analyzed using mixed model repeated measures based on data from baseline (pre-treatment) and days 14, 28 and 42. Other endpoints included complete healing (epithelialization, categorized as grade 0 [none], grade 1 [partial] or grade 2 [complete]), complete response rate (composite of healing and pain), pain (0–100 mm visual analog scale, 0=no pain), bleeding (2–9 anal bleeding score; 2=lowest amount & severity) and safety.

Results/Outcome(s): The planned study in 90 patients was stopped early as sites closed due to COVID-19, and then terminated based on the interim assessment of the primary endpoint. Fifty-one patients were randomized, 49 received blinded treatment and 47 completed the 6-week double-blind treatment period. Forty-three patients continued to the open-label extension and 39 completed the trial overall. While there were no significant differences between active treatment and placebo for changes

in anal pressure, healing or complete response rates at 6 weeks, anal pain and bleeding improved, with the greatest difference in change from baseline to Day 28 (Table). A pre-specified responder analysis (≥30% reduction in anal pain) was comparable between groups, while a higher threshold (≥50% reduction in pain; post hoc) was achieved in more patients receiving TAVT-119 vs. placebo (Table). In the double-blind phase, TAVT-119 was well tolerated, with adverse events (AEs) recorded in 13 (81.3%), 10 (58.8%), and 11 (68.6%) patients (placebo, TAVT-119 0.1%, and 0.2%, respectively). The most common AEs included anorectal discomfort, constipation, respiratory/thoracic-related infections and oropharyngeal pain; there were no serious AEs.

Conclusions/Discussion: In this first clinical trial of TAVT-119 gel, both TAVT-119 doses were well tolerated in patients with AF, and the higher dose showed promise in reducing anal pain. A phase 3 study is planned to further evaluate the efficacy and safety of TAVT-119.

	Placebo (n=16)	TAVT-119 0.1% (n=17)	TAVT-119 0.2% (n=16)
	Least-squares mean change (95% CI) from baseline		
Anal pressure, mmHg			
Day 42	-42.3 (-53.6, -31.1)	-43.5 (-55.3, -31.6)	-36.1 (-47, -25.2)
Anal pain, mm			
Day 14	-24.4 (-39.1, -9.6)	-34.8 (-51.3, -18.4)	-43.2 (-58.3, -28)
Day 28	-27 (-41.8, -12.3)	-43.9 (-60.2, -27.6)	-48.1 (-63.3, -33)
Day 42	-40 (-54.9, -25)	-36.5 (-52.8, -20.2)	-50.6 (-65.7, -35.4)
Total bleeding score			
Day 14	-0.8 (-1.9, 0.2)	-2.4 (-3.5, -1.3)	-2.6 (-3.6, -1.5)
Day 28	-0.1 (-1.2, 0.9)	-2.1 (-3.2, -1)	-2 (-3, -1)
Day 42	-0.7 (-1.8, 0.4)	-1.6 (-2.6, -0.5)	-2.2 (-3.3, -1.2)
	Number of patients (%)[a]		
Complete response			
Day 42	4 (26.7)	6 (35.3)	3 (18.8)
Complete healing			
Day 42	4 (26.7)	6 (35.3)	3 (18.8)
≥30% reduction in anal pain			
Day 42	13 (86.7)	13 (76.5)	14 (87.5)
≥50% reduction in anal pain			
Day 14	4 (25.0)	9 (56.3)	12 (75.0)
Day 28	6 (37.5)	14 (82.4)	13 (81.3)
Day 42	10 (66.7)	11 (64.7)	13 (81.3)

[a]Percentages calculated based on number of patients with available data in the time window
CI, confidence interval; VAS, visual analog scale

Table. Outcomes from the DRGT119C01 trial (EUDRaCT 2019-000853-30) comparing TAVT-119 vs placebo for anal fissure (Intent-to-Treat population)

QUALITY OF LIFE IN PATIENTS WITH PERIANAL FISTULA.

eP601

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Purpose/Background: Quality of life has become an important parameters to assess during patients' treatment. It has a multifactorial components and several factors might influence it. The aim of this study was to assess which patient demographics and pre-operative fistula characteristics were associated with impairment of quality of life using a standardised and validated questionnaire.

Methods/Interventions: This is a prospective study conducted in a single institution between 2018 and 2021, where 127 consecutive patients affected by cryptoglandular fistula were recruited and completed Short form 36 health survey (SF-36). SF-36 is a questionnaire composed of 36 questions, grouped into 8 domains: general health, physical functioning, physical limitations, emotional limitations, level of energy/fatigue, emotional wellbeing, social function, pain. Patients' demographics and previous fistula procedures were recorded. Fistula characteristics included were type of fistula (Park's classification), position of longitudinal and internal opening, secondary extension, sepsis and presence of seton. Linear regression was used to examine factors associated with the four domains. The analysis was performed in two stages. Firstly, the separate association between each factor and the outcome was analysed in a series of univariate analyses. Secondly, the joint association between the factors and outcome was assessed in a multivariable analysis.

Results/Outcome(s): Multivariate analysis results are summarised in Table 1. For general health component, gender/pregnancy, smoking status, number of comorbidities, previous incision and drainage (I&D) abscesses and the presence of a seton were associated with deterioration of SF-36 score. Regards limitations of physical component, the results suggested that ASA score, time from fistula diagnosis and questionnaire and the position of longitudinal openings were significantly associated with restrictions. Emotional limitation is associated only with number of comorbidities. Regards pain score, multivariate analysis demonstrated its association with number of comorbidities and time from fistula diagnosis and questionnaire. None of the variables analysed have been found to be significantly associated with patients' level of energy/fatigue, emotional wellbeing and social functioning.

Conclusions/Discussion: Quality of life should be assessed for patients before and after surgical procedures. It is important to be measured for long term medical conditions, which include also perianal fistula. Disease duration and presence of additional comorbidities seem to play an important role in affecting QoL. These factors should be taken into account during decision making process and consent form.

Table 1: Multivariable associations with SF-36 General Health, Physical functioning, Physical and emotional limitations and Pain

Variable	Category	Coefficient (95% CI)	P-value
Multivariable associations with SF-36 General Health			
Gender / pregnancy	Male	0	0.02
	Female, no pregnancies	-2.0 (-11.9, 8.0)	
	Female, pregnancies	-13.7 (-22.9, -4.5)	
Smoking status	Non-smoker	0	0.08
	Smoker	-7.4 (-15.8, 1.0)	
Number of comorbidities	0	0	0.06
	1	-5.9 (-14.7, 2.9)	
	2+	-10.6 (-20.0 -1.3)	
Previous I&D abscess	0	0	0.04
	1	-9.5 (-17.0, -2.1)	
	2+	-6.5 (-15.4, 2.4)	
Seton present	No	0	0.01
	Yes	-10.8 (-19.1, -2.6)	
Multivariable associations with SF-36 Physical Functioning			
ASA score	I	0	0.01
	II or III	-12.1 (-21.6, -2.7)	
Gender / pregnancy	Male	0	0.006
	Female, no pregnancies	7.9 (-5.5, 21.2)	
	Female, pregnancies	-16.9 (-28.7, -5.0)	
Multivariable associations with SF-36 Role Limitations - Physical			
ASA score	I	0	0.02
	II or III	-13.5 (-24.5, -2.5)	
Time from fistula diagnosis to questionnaire	New diagnosis	0	0.03
	1-24 months	-13.7 (-25.5, -1.9)	
	25+ months	0.7 (-13.3, 14.6)	
Position of longitudinal opening	Low	0	0.08
	Middle	1.2 (-12.0, 14.3)	
	High	-12.0 (-23.6, -0.3)	
Multivariate association with SF-36 Role Limitations- Emotional			
Number of	0	0	0.02

MODIFIED WHITEHEAD HEMORRHOIDECTOMY TECHNIQUE FOR GANGRENOUS GRADE 4 HEMORRHOIDS.

eP602

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Purpose/Background: Grade 4 gangrenous is an unusual presentation. We present a case of circumferential grade 4 hemorrhoids with gangrenous changes. Traditionally, in this type of case a Whitehead hemorrhoidectomy is recommended where a circumferential excision of hemorrhoidal tissue and redundant anoderm just proximal to the dentate line is done. However, it has a high incidence of postoperative complications including anal stenosis, mucosal ectropion, and disturbed continence. We present a modified Whitehead hemorrhoidectomy procedure with the aim of excision of ischemic mucosal tissue while decreasing postoperative complications.

Methods/Interventions: A 62 y/o male patient presents with excruciating anal pain associated with hemorrhoidal protrusion and constipation. Upon examination, he was found to have circumferential grade 4 hemorrhoids with early signs of gangrenous changes yet no systemic signs/symptoms. Patient was taken to the operation room, where GETA induced, and placed in a prone jackknife position for a rectal exam under anesthesia. Local blockage performed with 0.5% bupivacaine/epinephrine mixed with 20 mL bupivacaine liposome injectable suspension. A trapezoid-shaped incision on either side where the narrow side is proximally in the rectal mucosa and extending outside to the limit of the hemorrhoidal complex. Anodermal flap raised from rectal mucosa towards the external limit of the hemorrhoid. Hemorrhoids are excised from under the flap in a 180 degree fashion. The proximal edge of the anodermal flap is sutured to cut edge for the rectal mucosa internally incorporating some muscle fibers. Then, interrupted sutures done from flap to the underlying tissue to decrease third spacing where hematoma can be formed. Flap is closed with running locking Vicryl 4-0 suture down to anoderm. Same procedure done to the other lateral side of anorectal tissue.

Results/Outcome(s): On one-week postoperative visit patients found with pain well controlled, wounds healing well with viable tissue and regular bowel movements. Pathology report revealed hemorrhoidal tissue with dilated submucosal vessels with partially wrinkled grey-tan mucosal ulceration. On one-month and five-month follow up patient healed wound completely and no evidence of anal stenosis nor fecal incontinence reported.

Conclusions/Discussion: Hemorrhoidal disease presents in different stages of disease where different approaches may be considered especially where involved circumferential aspect and gangrenous mucosal changes. Importance to excise all ischemic tissue, hemorrhoidal vessels while maintaining adequate anal sphincter function is essential. We present an unusual case where a modified Whitehead hemorrhoidectomy was performed to removed all 360 degree hemorrhoidal tissue while preserving anodermal tissue into the anal canal and fixing it to underlying tissue. This way it decreases the development of ectropion, anal stenosis and hematoma formation.

PREDICTORS OF FISTULA RECURRENCE AND LONG-TERM PATIENT REPORTED OUTCOMES FOLLOWING SURGICAL REPAIR FOR CRYPTOGLANDULAR ANAL FISTULA.

eP603

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Purpose/Background: The management of cryptoglandular anal fistula remains challenging due to the balance prevention of recurrence and fecal incontinence. In this study we compared the recurrence rates of cryptoglandular anal fistula as well as the long-term functional outcomes based on fistula classification and surgical repair type.

Methods/Interventions: Patients 18 years or older who underwent definitive surgery for a primary or recurrent anal fistula with an identified internal and external os were consented for enrollment between 2012 and 2020. Patients were excluded if they had a non-definitive procedure or if they had a non-cryptoglandular fistula (i.e., malignant neoplasm, Crohn's disease, radiotherapy). Patients were interviewed via phone via a standard questionnaire to evaluate incontinence (Wexner score) and impact on quality of life (FIQL score). Primary outcome was fistula recurrence. Secondary outcomes were incontinence and postoperative quality of life.

Results/Outcome(s): A total of 312 patients were consented for the registry at the time of their procedure. A total of 178 patients met inclusion criteria (63.2% male). The median age was 46 years and 65.5% of patients had a prior non-definitive fistula repair. Fistula classifications were defined as complex anal fistula including mid/high transsphincteric (32.6%) and suprasphincteric (<2%), or noncomplex including low transsphincteric (35.4%), intersphincteric (23.6%), or subcutaneous (6.7%). Surgical interventions included fistulotomy (63.5%), cutting seton (18.5%), LIFT (11.2%), fistula plug (5.6%), endoanal advancement flap or fistulectomy (<1%). There were no differences in recurrence rates based on age, gender, or race. Preoperative factors associated with increased fistula recurrence included diagnosis of diabetes mellitus ($p=0.017$), prior draining seton ($p=0.013$), prior incision and drainage procedure ($p>0.001$), and history of anorectal abscess ($p=0.030$). History of smoking, pelvic radiation, hemorrhoids, anal fissure, and fecal incontinence were not associated with increased recurrence. Complex fistulae were associated with increased recurrence ($p<0.001$), whereas non-sphincter sparing surgical interventions including fistulotomy, fistulectomy, and cutting seton were associated with lower recurrence ($p<0.001$). Wexner scores were highest amongst patients with a mid/high transphincteric fistula. These patients also had the lowest quality of life, FIQL scores.

Conclusions/Discussion: Anal fistula repair with sphincter preservation is associated with an increased risk of recurrence. This does not correlate with the presence of a complex anal fistula. Our data does show in increased likelihood of incontinence and decreased quality of life in patients with complex anal fistula. More studies and innovation in fistula management are necessary to advance successful anal fistula repair without sacrificing incontinence or quality of life.

Recurrences according to fistula classification and surgery type

Fistula Classification		Non-Sphincter-Sparing Surgery			Sphincter-Sparing Surgery			Total
		Fistulotomy	Fistulectomy	Cutting Seton	Plug or Biologic Graft	Endoanal Advancement Flap	LIFT	
Simple	Subcutaneous	2	0	0	0	0	0	2
	Intersphincteric	0	0	0	0	1	0	1
	Low trans-sphincteric*	3	0	0	0	0	1	4
Complex	Mid/high trans-sphincteric*	0	0	2	5	0	8	15

*Low, mid, and high trans-sphincteric involve <33%, 33-50%, and >50% of external anal sphincter muscle, respectively

A PROSPECTIVE CASE REPORT ON 33 CONSECUTIVE PATIENTS TREATED WITH THD® DOPPLER ANOLIFT PROCEDURE: FIRST OUTCOMES.

eP604

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Purpose/Background: Transanal hemorrhoidal dearterialization (THD) with mucopexy has evolved in last ten years as a popular, minimally invasive non-excisional surgery for symptomatic prolapsing haemorrhoids. Recently, in addition to the standard technique, was introduced a targeted mucopexy (TM), called Anolift, which is performed using a continuous barbed suture with a synthetic absorbable monofilament (Polydioxanone) 2/0 Filbloc (Assut Europe) stich mounted on a 4/8 30 mm needle. We aim to analyse the very first outcome of the THD technique performed combining the new targeted mucopexy (TM), in the management of prolapsing and symptomatic haemorrhoids

Methods/Interventions: A prospective data was collected on 33 consecutive cases of grade 2 (3 patients) and grade 3 (30 patients) symptomatic haemorrhoids who underwent the THD Anolift procedure between September 2021 and September 2022. Overall median follow-up is 6 months (range 1-12), and patients average age is 54.4 ranges from 34 to 79 and gender ratio of 61% Male and 39% Female. Pre-and postoperative symptoms were scored from 0 to 20 using a dedicated questionnaire: the Hemorrhoidal Assessment Severity Score (HASS). During the THD Anolift procedure in 5 patients one or more skin tags were removed too, and in one patient a ragadectomy was performed

Results/Outcome(s): The Mean HASS changed from 15,9 pre-operatively to 0,7 post-operatively. One patient suffered with difficulty in defecation and developed a fecaloma. There were no intra-operative neither post-operative bleeding, nor other significative complications,

and actually no cases of reoperation. According to the HASS Score all patients suffered less pain and rectal tenesmus after THD® Doppler for Anolift procedure when compared to the older THD® Doppler procedure, where mucopexy was performed using the same suture used for the dearterialization

Conclusions/Discussion: THD® Doppler for Anolift method is a safe and effective procedure for the management of different degrees of hemorrhoidal diseases. Due to the dual action of dearterialization associated with mucopexy, this technique is also advantageous in cases of complicated hemorrhoids. Furthermore, THD® Doppler for Anolift technique guarantees the benefits of minimally invasive surgery, including early patient discharge and with quick return to normal activities

TRANSANAL HEMORRHOID DEARTERIALIZATION WITH BARBED SUTURE LIFT VS. TRANSANAL HEMORRHOID DEARTERIALIZATION WITH SELECITVE MUCOPEXY. (A TRIAL OF MODIFICATION TO TRANSANAL HEMORRHOID DEARTERIALIZATION).

eP605

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Purpose/Background: Transanal Hemorrhoid Dearterialization (THD) has been utilized as one of the options for treating bleeding and prolapsing hemorrhoids, especially when having patients who are wary of having to undergo painful and extensive excisional treatments. THD however is not an entirely painless procedure. Multiple reports of pain, bleeding as well as urinary retention were shown ro be frequent complications. Although selective mucopexy with THD has shown improvement to mitigate post operative pain, improvement still needed. As a modification, barbed sutures (stratifix®) was introduced to further decrease pain by eliminating plicating ties to the distal rectal mucosa as well as to achieve a more meaningful anal canal lift to restore normal anorectal anatomy. This is my initial experience and report of THD with barbed suture in a retrospective review comparing with my last 20 THD with selective mucopexy patients. 20 THD with barbed suture lift (THD Lift) patients were compared with 20 THD with Selective mucopexy (THD SMP) patients. These two groups were demographically matched. Both groups of patients had the same number of mucopexies and barbed suture lifts. Only differences in these two groups were technique and material used to achieve pexy or lift.

Methods/Interventions: 40 patients were compared in their subjective pain score (evening of the surgery date), amount of pain medication used (narcotic and non narcotic, and days of use), post op bleeding (if positive, how long), infection, satisfaction score. Surveys were done during post operative visits and/or via telephone interviews. Interviewers asking questions were blinded as to which procedure the patient had.

Results/Outcome(s): Patients who had THD Lift had lower average pain score 1.33 Vs. 8.14 in POD#1, used less medications and when medication was required, they were non narcotic medications. Average days of medication use was 1 Vs.13. Bleeding and infection rates did not show differences between the groups. Satisfaction score was higher in THD Lift group with 8.83 Vs. 6.71.

Conclusions/Discussion: This is a very small retrospective review of a new technique utilizing barbed suture material in distal rectume to achieve anorectal lift. It shows that there is less pain associated with the new technique and therefore less medication use. Due to the small sample size, it is difficult to clearly state improvements from previous technique of THD with mucopexy. Further and larger comparative study will be needed to answer if THD Lift will be a better choice compared to THD SMP.

LAPAROSCOPIC RECTAL MOBILIZATION WITH BILATERAL RE-HOUSE ADVANCEMENT FLAP ANOPLASTY FOR RESTENOSIS OF SEVERE ANAL STENOSIS SECONDARY TO HEMORRHOIDECTOMY WITH PROMISING OUTCOME: REPORT OF A CASE.

eP606

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Purpose/Background: Anal stenosis is a disabling consequences and challenging condition that often represents a complication of anorectal surgery, most commonly after hemorrhoidectomy with incidence ranging from 1.2% to 10%. Several anoplasty techniques have been recommended for severe form of anal stenosis. However, the optimal surgical treatment for restenosis after the anoplasty treatment is not well defined. We report the laparoscopic approach rectal mobilization with the re-house flap to solve this condition.

Methods/Interventions: A 41-year-old male with a history of hemorrhoidectomy, presented with complaints of difficulty passing the stool and narrowing of stool caliber. He underwent a bilateral house flap to correct the anal stenosis, but he had a postoperative wound infection causing complete re-stenosis. The diverting loop colostomy was performed before surgery. First, under GA, the patient was placed in a modified lithotomy position, then an examination under anesthesia showed total stenosis of the anal canal. The laparoscopic exploration was done. Following the lateral-to-medial mobilization of the left-sided colon, the pelvic dissection was performed in TME plane down to the level of the pelvic floor. The pelvic autonomic nerves were identified and well preserved. The perineal phase

started with excision on the scar, closure of the anal lumen was created. Intersphincteric dissection was made to join the previous dissection from the pelvis. The stenotic part of the anal canal was resected exposing the good viable distal rectal tissue. The incision was made on the previous house flap on both sides, then a re-approximation of skin, external sphincter muscles, and distal rectum were performed.

Results/Outcome(s): The patient was discharged home on a postoperative day 10 without complications. The colostomy reversal was performed 3 months after the operation. The patient was seen after six months later with improvement of anal sphincter function which was confirmed by anorectal manometry.

Conclusions/Discussion: In patients with a severe degree of restenosis of anal canal, it is not clear in which flap method is the best result in favorable outcomes. House flap anoplasty is easy to perform with combined advantage of triangular, rhomboid and V–Y flaps, in one technique, result in excellent clinical improvement and fewest complications. A 41-year-old male who suffered from restenosis of anal canal resulting from wound infection after the first bilateral house flap, successfully underwent re-house flap with autonomic nerve preserving laparoscopic rectal mobilization. The patient recovered well without complications and good anal sphincter function. **Conclusion** For restenosis after anoplasty, the laparoscopic rectal mobilization with a re-house flap is safe and feasible with promising outcomes in the selected patient.

COMPARISON OF MINIMALLY INVASIVE MANAGEMENT OF ILONIDAL DISEASE USING SINUS EXCISION TECHNIQUE VS. PILONIDAL CYSTECTOMY WITH RHOMBOID FLAP RECONSTRUCTION.

eP607

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Purpose/Background: A minimally invasive technique known as the trephine technique involves the excision of pilonidal pits together with the underlying fistulous tracts and hair debris through the use of skin punch biopsies. Its main appeal is a short recovery time with faster return to normal activities, and it has been largely studied in pediatrics. We hypothesized that, for adults, a trephine technique will have non-inferior recurrence outcomes compared to a wide cyst excision with rhomboid flap reconstruction.

Methods/Interventions: Patients with pilonidal disease who underwent surgical intervention between April of 2018 to June 2022 were retrospectively compared. Cases were completed by two board-certified colorectal surgeons at a single multi-institutional facility. The rhomboid transposition flap portion of the case was performed by a single plastic surgeon. Only index cases of pilonidal disease were included, and simple cystectomies without flap reconstruction and pediatric cases (patients < 18 years old) were excluded. Continuous variables were compared with t-test and categorical with chi-square. Two-tailed p-value < 0.05 was considered significant.

Results/Outcome(s): A total of 62 cases were included; wide excisions with flap reconstruction (n=44) and trephine (n=18). Estimated blood loss (EBL) was missing for 1 trephine case, OR time was missing for 2 reconstructive cases and the follow-up appointment missing for 5 trephine techniques. The majority of cases were men (73%) and young, mean age 29 years old; there was no significant difference in the two groups for sex ($p = 0.225$) or age ($p = 0.748$). Cystectomies with flap reconstructions tended to have longer operative times (64.4 ± 2.7 min vs 13.5 ± 1.5 min, $p < 0.01$) and had a higher EBL (10.5 ± 1.3 mL vs 2.9 ± 0.7 mL, $p < 0.01$). Mean time to follow-up was 26 days for the trephine and 10 days for the flap reconstruction ($p < 0.01$). There was no significant association between the incidence of recurrence and the type of surgery performed ($p = 0.873$). On post-hoc power analysis with 5% recurrence in rhomboid flap reconstruction and 40% for trephination based on currently available literature, 21 patients in each group would be required for 80% power and $\alpha = 0.05$.

Conclusions/Discussion: Although pilonidal cystectomy with flap reconstruction has an increased OR time and EBL, our data suggest that the rates of recurrence are comparable between this operation and the trephine

technique. Further investigation of these techniques with longer follow-up and a larger cohort is needed to better understand the progression of disease post-surgical intervention.

LONG TERM RECURRENCE AFTER SELECTIVE VERSUS TOTAL MUCOPEXY WITH TRANSANAL HEMORRHOIDAL DEARTERIALIZATION AT A SINGLE INSTITUTION.

eP608

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Purpose/Background: Transanal hemorrhoidal dearterialization is an effective treatment for hemorrhoids that has been associated with better pain control in the postoperative period. However, there is limited long-term data regarding the recurrence rates and reintervention rates following transanal hemorrhoidal dearterialization. Available data is also hard to interpret with variations in performing a total or partial mucopexy technique.

Methods/Interventions: This was a retrospective review of patients who underwent transanal hemorrhoidal dearterialization between January 2012 until December 2021 by a single surgeon. Patients were included if they had at least one follow up beyond 30 days post procedure. Our team evaluated patient demographics, rate of recurrence and reintervention. Patient characteristics and postoperative outcomes were compared between selective and total mucopexy cohorts.

Results/Outcome(s): We evaluated a total of 234 hemorrhoidal dearterialization procedures done over a ten-year period. The cohort had a mean age of 56.9 years, was 70% male, and had a mean BMI of 27.4 kg/m^2. The most common presenting symptom was bleeding (78.2%), followed by prolapse (48.7%), pain/itching (28.2%), and straining (9.8%). During the first 3 years, the surgeon performed six column mucopexy for all cases, before transitioning to a selective mucopexy after 2014. 33.4% of cases had six column mucopexy, while 1.5% had 0 column mucopexy, 7.3% had 1 column, 43.2% had 2 columns, 11.0% had 3 columns, and 2.5% had 4 columns. There was a mean follow up of 924 days (ranged 51 days to 4371 days). 37/234 (15.6%) patients reported a recurrence of symptoms prompting either an in office or operative reintervention. There was no statistically significant difference in the rate of recurrence symptoms of pain(p=0.303), prolapse(p=0.767), or bleeding(p=0.372) between mucopexy cohorts. The mean time to reintervention was 21.3 months. Repeat reintervention was more common among the patients undergoing selective mucopexy, however it was not statistically significant (7.6% v 12.8%, p=0.222). 27 patients had a reintervention performed in the operating room and 10 had in office interventions. Only 13 of those patients had an early reintervention within a year of the original procedure.

Conclusions/Discussion: Transanal hemorrhoidal dearterialization has an overall low rate of recurrence requiring reintervention regardless of the type of mucopexy. Contrary to the findings of previously published, smaller studies, our study did not show increased rates of postoperative complications associated with total mucopexy nor increased recurrence rates with partial mucopexy.

Variables	Total (n=234)	Selective Mucopexy (n=155)	Total Mucopexy (n=79)	P value
Preoperative Data				
Age (years)	56.9 +/- 13.6	55.1 +/-13.8	60.49+/- 12.6	0.002
Male	166 (70%)	61 (77.2%)	105 (67.7%)	0.086
ASA Class 1 2 3 4	 47 (20.1%) 145 (62.0%) 41 (17.5%) 1 (0.4%)	 26 (16.8%) 93 (60.0%) 35 (22.6%) 1 (0.6%)	 21 (26.6%) 52 (65.8%) 6 (7.6%) 0 (0.0%)	0.018
Hemorrhoid Grade 2 3 4	 139 (59.4%) 93 (39.7%) 2 (0.9%)	 90 (58.1%) 63 (40.6%) 2 (1.3%)	 49 (62.0%) 30 (38.0%) 0 (0.0%)	0.535
BMI	27.4+/-5.6	28.0+/-5.7	26.0+/- 5.3	0.009
Presenting Symptoms Pain/Itch Bleeding Bulge Sensation Constipation/Strain	 66 (28.2%) 183(78.2%) 114(48.7%) 23(9.8%)	 54(34.8%) 117(75.5%) 73(47.1%) 12(7.7%)	 12(15.2%) 66(83.5%) 41(51.9%) 11 (13.9%)	 0.002 0.182 0.493 0.104
Preop Duration of Symptoms (months)	51.4+/- 78.2	62.8+/- 32.8	57.2+/- 10.6	0.288
Prior Hemorrhoid Procedure	51 (22.1%)	22 (14.5%)	29 (36.7%)	<0.001
Intraoperative Data				
Number of Mucopexied Columns 6 4 3 2 1 0	 79(33.4%) 6(2.5%) 27 (11.0%) 101(43.2%) 17 (7.3%) 4(1.7%)	 0(0.0%) 6(3.9%) 27(17.4%) 101(65.2%) 17(11.0%) 4(2.6%)	 79(100%) 0(0.0%) 0(0.0%) 0(0.0%) 0(0.0%) 0(0.0%)	<0.001
OR time (minutes)	47.0+/- 12.5	44.9+/-12.0	51.5+/-12.2	<0.001
Postop Course				
Urinary retention	6 (2.6%)	3 (1.9%)	3 (3.8%)	0.401
Constipation	3 (1.3%)	2 (1.3%)	1 (1.3%)	0.996
Tenesmus	1 (0.4%)	1 (0.6%)	0 (0.0%)	0.474
Recurrence Symptoms: Pain Prolapse Bleeding	 4 (1.7%) 19(8.1%) 25(10.7%)	 4(2.6%) 12(7.7%) 18(12.3%)	 0(0.0%) 7(8.9%) 6 (7.6%)	 0.303 0.767 0.372
Reintervention	37 (17.2%)	29 (20.4%)	8 (11.0%)	0.082
Repeat THD/hemorrhoidectomy	26 (11.1%)	20(12.9%)	6(7.6%)	0.222
Follow up time (days)	924.1+/-5129.0	1174+/- 6306.0	446.7+/- 729.0	0.005
Months from OR to Reintervention	21.3 +/- 18.9	15.4+/- 14.1	33.5+/- 21.8	0.089

Operative Details and Long-term Postoperative Outcomes for Selective Versus Total Mucopexy with Transanal Hemorrhoidal Dearterialization.

PROSPECTIVE REGISTRY STUDY EVALUATING OVINE FORESTOMACH MATRIX GRAFT AS PART OF PILONIDAL SINUS FLAP RECONSTRUCTION - INTERIM ANALYSIS.

eP609

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Purpose/Background: Flap procedures following excision of recurrent or complex pilonidal sinus disease (PSD) are associated with relatively high wound complication rate. Given the inflammation and contamination associated with PSD, we hypothesized that the addition of an ovine forestomach matrix graft to our existing bilateral gluteal fasciocutaneous advancement flap may help reduce wound complications.

Methods/Interventions: This is an interim analysis of a single site in an ongoing prospective registry study

evaluating the safety and efficacy of an ovine forestomach matrix (OFM) graft across a range of surgical procedures (ClinicalTrials.gov Identifier: NCT05243966). The OFM graft (Myriad Matrix™) is an FDA-cleared biologic implant, which provides a scaffold for cell re-population and rapidly forms well vascularized tissue and is remodeled over time. Following elliptical excision of pilonidal disease, gluteal fasciocutaneous advancement flaps were elevated circumferentially. Prior to closure, a hydrated OFM graft was placed in the surgical dead space above the pre-coccygeal fascia. The flaps were approximated with interrupted sutures incorporating the OFM graft. A surgical drain was then placed in the subcutaneous space followed by midline closure of the dermal layer with interrupted absorbable sutures. Two full thickness retention sutures tied over a rolled-up gauze were placed at the inferior portion of the midline incision. The primary outcome for the study were device related adverse events, wound complications, and time (weeks) to complete healing.

Results/Outcome(s): A total of 9 (8 males) patients with a mean age of 26 (range: 21-35) years and mean BMI of 28.2 (range: 23.2-35.9) were included. Mean follow up was 13 weeks (range:4-27). Seven (77.8%) patients had complete healing at their 1 month follow up. The mean time to complete healing was 6.5 weeks (range:4-16). There were two superficial wound dehiscences that occurred before the 1-month post op visit and one superficial wound dehiscence that occurred after the 1-month follow. All three healed without any need for subsequent surgery. There were no post-procedural infections, hematoma/seroma formation or device related adverse events. Four (44.4%) patients achieved a 3 month follow up with an average patient scar satisfaction score of 4.8 on a 1-5 scale.

Conclusions/Discussion: The addition of the OFM graft to reconstruction of PSD wound was safe and had low rate of wound complications and high satisfaction with scar cosmesis. A larger analysis will be completed at the conclusion of the study.

VENOUS THROMBOEMBOLISM RISK AFTER AMBULATORY ANORECTAL SURGERY.

eP610

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Purpose/Background: Anorectal disorders are very common, with about 90% of such cases suited for ambulatory management given their low-risk nature. Pain and bleeding are cited as common complications, but little is known regarding post-operative venous thromboembolism (VTE) rates. The 2015 American Society of Colorectal Surgeons Clinical Practice guidelines cite weak evidence for use of thromboprophylaxis in this subset of patients and thus no definitive conclusions have been made to guide reduction in VTE- related morbidity. This study aimed to describe a single institution's symptomatic VTE rate post-ambulatory anorectal procedures.

Methods/Interventions: A retrospective review of all adult patients who underwent any ambulatory anorectal procedure from 2010-2022 was performed. Anorectal cases included management of fistulas, fissures, hemorrhoids, abscesses, pilonidal disease, any mass or lesion, and exams under anesthesia. Data collected included patient demographics, intra-operative details, use of in-hospital and post- discharge chemothromboprophylaxis, and in-hospital and 90-day post hospital discharge symptomatic VTE events.

Results/Outcome(s): A total of 34,731 patients were identified as meeting criteria, of which 313 (0.9%) developed subsequent symptomatic VTEs. Of all VTEs, cancer and inflammatory bowel disease comprised 4.2% and 1.0% of events, respectively; the remainder of VTE events were in the setting of other diagnoses requiring anorectal management. Mass or lesion management (whether malignant or benign), stenosis care, and incision and drainages resulted in the highest rates of VTE development by procedure (0.98%, 0.81%, and 0.79%, respectively), but overall, no procedure type resulted in a greater than one percent rate of symptomatic VTE. Intra-operatively, supine positioning had more VTE events than prone positioning (1.0% versus 0.52%) and those who developed VTEs lost more blood (14.3 cc versus 6.6 cc). Post-operatively, patients who developed VTEs more frequently received inpatient prophylaxis (18.5% versus 12.2%) but were not prescribed extended prophylaxis (4.2% versus 7.8%). Those who developed VTEs were older (55.1 versus 47.2 years), more obese (BMI 31.1 versus 28.3), current or former smokers (60.1% versus 48.7%), and had underlying hypercoagulable states (21.4% versus 1.04%) and cardiovascular disease (15.3% versus 8.9%).

Conclusions/Discussion: Overall, the rate of symptomatic VTE development after ambulatory anorectal surgery remains low at 0.9%, indicating standard use of chemothromboprophylaxis may not be beneficial in this subset of patients. Further prospective and multi-institutional studies would better define cost and safety implications for chemothromboprophylaxis post ambulatory anorectal surgery.

BOTOX FOR CHRONIC ANAL FISSURE: FEW BENEFIT FROM INITIAL TREATMENT AND NONE AFTER REPEAT TREATMENT.

eP611

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Purpose/Background: Botulinum toxin (Botox) injection can be used as an alternative to lateral internal sphincterotomy (LIS) in the treatment of anal fissures, particularly for chronic fissures that have not responded to treatment with topical agents. Healing and recurrence rates after Botox injection reported in the literature are highly variable. The aim of this study is to evaluate outcomes after Botox injection for anal fissure.

Methods/Interventions: This was a retrospective review of all patients undergoing perianal Botox injection by a colorectal surgeon for a chronic anal fissure between 1/2016 and 8/2022 at a single tertiary academic hospital. Patient demographics, characteristics of the fissure, Botox injection technique, and postoperative outcomes were abstracted from the medical record.

Results/Outcome(s): Among 44 patients undergoing perianal Botox injection, the median age was 40 years (IQR 34-47) and 46% (n=20) of patients were male. Most patients had duration of symptoms of more than 6 months (n=27, 61%) and 82% (n=36) had used a topical agent without success (n=27 diltiazem, n=5 nifedipine, n=4 nitroglycerin). The fissure location was most commonly in the posterior midline (n=27, 61%) and 11% (n=5) had more than one fissure. Botox injection was typically performed with 100 units (n=37, 84%) injected into the internal sphincter (n=37, 84%) or intersphincteric groove (n=7, 16%). Location of injection was variable: posterior midline (23%), right and left lateral position (23%), four quadrants (21%), circumferentially (16%), or other (17%). Fecal incontinence was reported in 6 patients (14%) prior to injection and an additional 4 patients (9%) developed new incontinence post-injection. At a median follow up of 3.5 months (IQR 1.5-10.0), 43% (n=19) of patients had significant improvement or resolution of symptoms after injection. However, of these 19 patients, 42% (n=8) had eventual recurrence of symptoms at a median of 6 months (IQR 3-15) after treatment. Repeat Botox injection was performed in 8 (18%) patients and none of these patients experienced symptom relief after the procedure. Among the 38 patients with follow up, the overall success rate of Botox was 29% (n=11). Botox injection appeared to be more successful for isolated anterior fissures and less successful for fissures that were off midline. Comparing patients who had significant improvement or resolution of symptoms after treatment without recurrence (n=11) to those who had no symptom relief or eventual fissure recurrence (n=27), there were no differences in patient demographics or technique of injection.

Conclusions/Discussion: In this single center study, perianal Botox injection had a low rate of durable success for the treatment of anal fissure. Repeat injection following initial Botox failure provided no clinical benefit and these patients should be considered for LIS to expedite anal fissure healing.

	Overall (n=44)	No improvement in symptoms, or recurrence (n=27)	Durable improvement in symptoms (n=11)	p-value
Age in years, median [IQR]	40 [34, 47]	43 [33, 50]	40 [36, 41]	0.57
Male sex, n (%)	20 (46)	13 (48)	5 (46)	1.00
Duration of symptoms, n (%)				0.47
< 3 months	10 (23)	7 (26)	2 (18)	
3-6 months	7 (16)	6 (22)	1 (9)	
> 6 months	27 (61)	14 (52)	8 (73)	
Topical agent attempted, n (%)	36 (82)	22 (82)	10 (91)	0.82
Fissure location, n (%)				0.02
Posterior midline	27 (61)	18 (67)	7 (64)	
Anterior and posterior midline	4 (9)	4 (15)	0 (0)	
Anterior midline	6 (14)	0 (0)	3 (27)	
Off midline	7 (16)	5 (19)	1 (9)	
More than one fissure, n (%)	5 (11)	5 (19)	0 (0)	0.32
Less than 100 units injected, n (%)	7 (16)	4 (15)	0 (0)	0.44
Site injected, n (%)				0.44
Internal sphincter	7 (16)	4 (15)	0 (0)	
Intersphincteric groove	34 (84)	23 (85)	11 (100)	
Injection location, n (%)				0.58
Posterior midline	10 (23)	7 (26)	2 (18)	
Four quadrants	9 (21)	6 (22)	3 (27)	
Circumferential	7 (16)	5 (19)	1 (9)	
Right and left lateral	10 (23)	4 (15)	4 (36)	
Other	8 (18)	5 (19)	1 (9)	
Fissurectomy, n (%)	3 (7)	0 (0)	2 (18)	0.14

A COMPLEX PRESENTATION AND SUCCESSFUL MANAGEMENT OF FISTULIZING PERI-ANAL CROHN'S DISEASE EXTENDING TO THE MID-BACK.

eP612

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Purpose/Background: Surgical management of complex peri-anal fistulas in patient's with Crohn's disease present significant challenges to treating physicians. Here we describe a patient with complex perianal fistulas extending to the mid back and it's successful management.

Methods/Interventions: A 22 year old male with history of Crohn's disease on Humira, severe malnutrition and prolonged immobility presented to our care with extensive fistulizing perianal Crohn's disease. His exam was significant for malnutrition, multiple peri-anal abscesses and draining fistulas that extended up to mid back. His prior treatment consisting of steroids, immunomodulators and multiple seton placements had failed to control symptoms.

Results/Outcome(s): As part of his staged treatment, he underwent a laparoscopic loop sigmoid colostomy. Once fecal diversion was achieved, local control with abscess drainage, subcutaneous fistulotomy and seton placements of the fistulous tracts in the back and in the peri anal region was performed. At discharge, inflammation, drainage and pain was significantly improved with nutritional supplementation, physical therapy, wound care, antibiotics and immunomodulators.

Conclusions/Discussion: Management of extensive and complex peri-anal fistulas in Crohn's patients requires a staged and multidisciplinary approach with focus on minimizing contamination, treating infection and use of setons, wound care and nutrition.

DIAGNOSTIC YIELD OF COLONOSCOPY IN YOUNG PATIENTS PRESENTING WITH HEMATOCHEZIA.

eP613

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Purpose/Background: Hemorrhoids represent one of the most common complaints in anorectal disease, and often present with hematochezia. There is disagreement in the published literature regarding the best initial workup of hematochezia in patients who are younger than the recommended age to begin endoscopic screening for colorectal cancer.

Methods/Interventions: A retrospective review of all colonoscopies performed by a single colorectal surgeon on adult patients younger than 45 years old was performed. Patients were included if their presenting symptoms were pain or bleeding. Patients were excluded if they had a known diagnosis of colorectal cancer or inflammatory bowel disease prior to colonoscopy. Patient history, endoscopy results, pathology and outcomes were evaluated.

Results/Outcome(s): 97 patients under the age of 45 years underwent diagnostic colonoscopy. Of these, 91 had a presenting complaint of bleeding, and 63 had a diagnosis of hemorrhoids on presentation to a colorectal surgeon. 25 patients had polyps on colonoscopy (8 hyperplastic polyps, 9 (9.9%) tubular adenoma, 1 (1.1%) sessile serrated polyp, 4 other benign pathology). 1 (1.1%) patient had a mass and was diagnosed with rectal adenocarcinoma. 13 patients reported a family history of colorectal cancer, and 3 (23.1%) of these patients were found to have polyps on colonoscopy. Of the adenomatous polyps, 7 (70%) were left sided and 3 (30%) were right sided.

Conclusions/Discussion: Diagnostic colonoscopy in patients presenting with hematochezia below the currently recommended age to initiate screening colonoscopy remains controversial. In our review we identified 1 patient who had malignancy, and 10 patients with adenomatous polyps. Though evaluation of the left colon only via flexible sigmoidoscopy would identify many of these, 30 % of the adenomatous polyps in this patient cohort were on the right side and would be missed by this method. Full endoscopic evaluation in this patient population, while not standard, should be considered, particularly in patients with family history of malignancy.

TWO STEPS MFAT (MICROFRAGMENTED FAT) SURGERY FOR CHRONIC, FIBROTIC, COMPLEX AND RECURRENT FISTULA IN ANO: A SINGLE-CENTER EXPERIENCE.

eP614

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Purpose/Background: Sphincter saving surgery for Perianal fistulas is still burdened by a high number of relapses despite new technologies and new surgical techniques introduced in recent years. Failure may be related to the characteristics of the anal tissue undergoing surgery. Fibrotic, rigid, chronic and recurrent tissues have lower chances of success, let alone tissues undergoing radiation therapy or patients suffering for Crohn Disease or Ulcerative Rectocolitis. MFAT showed to have extreme healing capacity, serving as a "site-regulated drug store" regulating and reducing inflammation. Aim of the study is to evaluate the effectiveness, safety and feasibility of MFAT Surgery associated with reconstructive surgery in the treatment of complex perianal fistulas. The success of the procedure was estimated through the closure and/or non-secretion of the external orifice during the follow up.

Methods/Interventions: The surgical strategy foresees two interventions: local injection of autologous microfragmented adipose tissue in the perianal fistula first, then at 30-45 days the sphincter saving surgery. From January 2015 to August 2022, all patients affected by complex perianal fistula, as previously decribed, were included in the

study. Exclusion criteria were: age < 18 years, pregnancy, diagnosis of neoplasia. Paracetamol 1 g every 8 h was prescribed for the first 24 h and then continued according to each patient's need. Ketorolac 15mg was prescribed as rescue.

Results/Outcome(s): The number of patients included was 12, mean age 53.8 years (range 36-77), 6 women. 1 suffered for Crohn disease, 2 for previous local Radiotherapy. 11/12 underwent the second time procedure (sphincter saving surgery): 1 patient was exlcuded because the internal orifice was still wide and rigid. No intraoperative or postoperative complications occurred after MFAT surgery. 1 case of abdominal pain due to liposuction was registered. Sphincter saving surgery too did not registered intra or post operative complications. The postoperative pain was moderate and well controlled by pain relief therapy and was absent after 7 days for all patients. The results were as follows: at one month 1 follow up 7/12 showed the closure of the external orifice without any sign of recurrence, at 3 months the number of patients increased at 9/12 and remained stable at 6 months follow up. Follow up ranged from 6 to 90 months: at last follow up 9/12 patients confirmed the surgical success.

Conclusions/Discussion: The results obtained, even if on a limited number of patients, indicate that Two steps MFAT (Microfragmented fat) Surgery represents a high interesting strategy in the care of patients affected by complex perianal fistula. In the near future it will be necessary to increase the number of patients, perhaps resorting to multicentre studies, preferably conducted on patients with each other homogenesis first of all for diagnosis.

COMPLETE PATHOLOGIC RESPONSE AFTER LONG COURSE CHEMORADIOTHERAPY IN A REAL-WORLD SETTING - A POPULATION-BASED STUDY.

eP615

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Purpose/Background: Neoadjuvant chemoradiotherapy (CRT) or radiotherapy alone (RT) decreases the local recurrence of rectal cancer and can produce complete pathologic response (pCR) in some patients. After completion of CRT, the optimal time to surgery to maximize the chances of pCR in the general population of patients with rectal cancer is uncertain. The objective of this project is to determine impact on delay to surgery after CRT on the pCR rate in a population-based cohort.

Methods/Interventions: In British Columbia, a prospectively maintained colorectal cancer database collects clinical, treatment and outcomes data for all patients referred for radiation or chemotherapy treatment. We identified all adult patients with histologically proven Tany, Nany, M0 rectal adenocarcinoma treated by RT or CRT followed by total mesorectal excision (TME). Demographic and tumor characteristics, pCR (defined as T0N0 pathologic stage), and survival data were analyzed.

Results/Outcome(s): Between 2000 and 2017, 3478 patients met inclusion criteria. Of these, 1628 (46.8%) received CRT and 1850 (53.2%) RT. The pCR rate in the entire cohort was 6.2%. A multivariable logistic regression model found that the number of days from chemoradiation to surgery (OR 5.38, 95% CI 2.02-14.33, p = 0.002), patient sex (OR 1.43, 95% CI 1.05-1.93, p = 0.022), and tumor grade (grade 2 OR 0.49, 95% CI 0.28 – 0.85, p = 0.011) were associated with pCR. No significant difference in pCR between RT and CRT was observed, although there were only 26 patients in the RT group who achieved pCR. The median follow-up time is 9.5 years. The median overall survival (OS) time is 9.7 years. After CRT, the maximal pCR rate was observed at 16 weeks post treatment (see Fig 1). An adjusted Cox regression analysis showed that advanced T stage (HR 1.44, 95% CI: 1.14-1.81, p = 0.002), age at diagnosis (HR 1.04, 95% CI:1.04-1.05, p <0.0001), and patient sex are strongly associated with OS. The 5-year OS rates among the RT patients are 72.6%, 73.2%, and 55.7% for delay to surgery of <1 week, 1-3 weeks and 3+ weeks respectively (p = 0.001). The 5-year OS rates among the CRT patients are 67.3%, 69.8%, and 56.5%, for <6 week, 6-10 weeks and 10+ weeks respectively (p = 0.003).

Conclusions/Discussion: In rectal cancer patients treated by neoadjuvant CRT, increase in pCR is observed with longer delay to radical resection in a population-based cohort. However, overall pCR rates are lower than those reported in trial populations, suggesting organ preserving strategies may not be an option for the majority of rectal cancer patients.

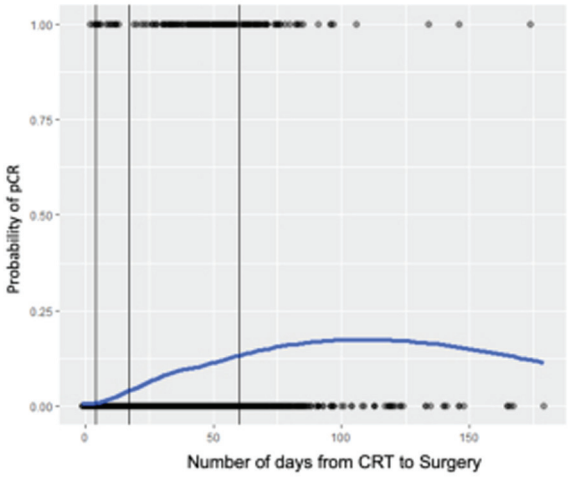

Figure 1: The probability of pathologic complete response based on the number of days from completion of chemoradiation therapy to surgery.

AN INSTITUTIONAL EXPERIENCE WITH FLAP RECONSTRUCTION VERSUS PRIMARY CLOSURE AFTER ABDOMINOPERINEAL RESECTION. DO THE OUTCOMES DIFFER? A RETROSPECTIVE REVIEW.

eP616

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Purpose/Background: Healing complications arise frequently in the postoperative course of abdominoperineal resections. Flap-based reconstruction has been utilized to improve wound outcomes. The body of literature supporting this practice as opposed to primary closure remains limited, however. We sought to characterize our institutional experience with flap versus primary closure in these patients, as well as describe the respective costs and operative durations for each approach.

Methods/Interventions: The objective was to compare cost and outcomes for patients undergoing APR with and without flap closure, exploring complications noted in both the inpatient and outpatient settings. This was a retrospective analysis of our institutional APR database (2010-2020). All patients who underwent an APR with or without flap closure were included. Patient demographics, clinical and operative characteristics, surgical outcomes, and cost data were analyzed. Any complications noted in either the inpatient or outpatient documentation were included.

Results/Outcome(s): A total of 100 patients were identified (primary closure (PC), n=70; flap closure (FC), n=30). There were no significant differences in demographics, comorbidities or clinicopathologic characteristics between the two cohorts. Median participant age and BMI were 68 (± 19.25) and 27.1 (± 7.3) kg/m^2. The majority of patients received neoadjuvant chemoradiotherapy (76%). Node positive disease was seen in 27% of the patients, with local invasion (T3 or T4) seen in 51%. Poorly differentiated tumors made up 14% of specimens. The FC cohort had longer operative times (p<0.001); approached a significantly higher rate of dehiscence (16.6% vs. 4.3%, p=0.051), and trended towards higher rates of re-admission (33.3 vs. 17.1%, p=0.11) and reoperations (20 vs. 7.1%, p=0.08). No significant differences were seen with respect to cost (p=0.39) between the two cohorts.

Conclusions/Discussion: Limitations: The limitations of this study include the nonrandomized and retrospective evaluation. More complex, severely diseased, or atypical resections were likely selected for flap reconstruction due to the nature of surgeon judgement in preoperative planning, despite not being evident in the clinicopathologic variables captured here. Also, a significant shift in practice patterns occurred with the hiring of new faculty in the more recent years of the dataset who preferentially involved Plastic Surgery in most cases, which was a departure from previous practice patterns of more selectively involving Plastic Surgery on a case-by-case basis. **Conclusions:** While patients with flap reconstruction displayed statistically significant longer operative times and a trend towards greater rates of dehiscence and need for re-intervention post-operatively, there was a lack of significant differences in the measured patient outcomes metrics between the groups.

Table 1. Post-Operative Outcomes

	All Patients (n=100)	Primary Closure (n=70)	Flap Closure (n=30)	
Characteristic	No (%)	No (%)	No (%)	P-Value
Any Complication	59 (59%)	38 (54.3%)	21 (70%)	0.34
Infection				
Soft-Tissue Infection	11 (11%)	7 (10%)	4 (13.3%)	0.64
Abscess	13 (13%)	8 (11.4%)	5 (16.6%)	0.51
Sepsis	3 (3%)	2 (2.8%)	1 (3.3%)	0.72
DVT	0 (0%)	0 (0%)	0 (0%)	
Pulmonary Embolus	1 (1%)	0 (0%)	1 (3.3%)	0.16
ECF	0 (0%)	0 (0%)	0 (0%)	
CVA	1 (1%)	1 (1.4%)	0 (0%)	0.99
Ureteral Injury	3 (3%)	3 (4.3%)	0 (0%)	
Intestinal Complications (SBO)	4 (4%)	2 (1.4%)	2 (6.7%)	0.38
Incisional Hernia	2 (2%)	1 (1.4%)	1 (3.3%)	0.54
OR Time (minutes)*	424 ± 222	307 ± 181	528 ± 238	***<0.001***
Cost (dollars)**	$17,847.00	$15,790.00	$20,352.00	0.39
Wound Complication				
Seroma	0 (0%)	0 (0%)	0 (0%)	
Hematoma	2 (2%)	2 (1.4%)	0 (0%)	0.51
Dehiscence	8 (8%)	3 (4.3%)	5 (16.6%)	0.051
Re-Admissions	22 (22%)	12 (17.1%)	10 (33.3%)	0.11
Re-Operations	11 (11%)	5 (7.1%)	6 (20%)	0.081

DVT; Deep vein thrombosis. ECF; enterocutaneous fistula. CVA; cerebrovascular accident. ** mean, standard deviation. *median, IQR

COLORECTAL CANCER IN PREGNANCY. APPROACH AND COMPLICATIONS.

eP617

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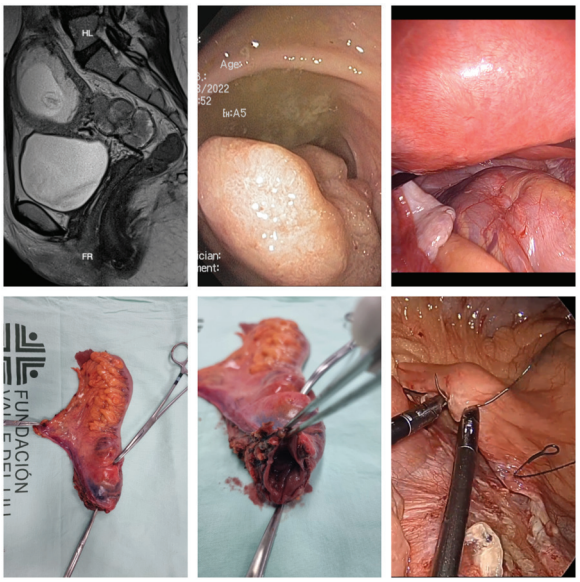
Purpose/Background: Diagnosis of cancer during pregnancy is a rare event, especially colorectal cancer (1 in 13,000 pregnancies). Unfortunately, in pregnant patients, the clinical manifestations of cancer are confused by the symptoms of pregnancy itself, which causes a delay in diagnosis and causes it to occur in more advanced stages of the disease. The treatment depends on the gestational age at the time of diagnosis, the location of the tumor and the stage, as well as the patient's desire to continue or not with her pregnancy. In this paper we present the case of a pregnant patient with early-stage upper rectal cancer.

Methods/Interventions: We present the case of a 34-year-old patient, in her third pregnancy, with a 13-week pregnancy by ultrasound that she consulted for a month of rectal bleeding and constipation. Colonoscopy was performed finding a mass in the upper rectum located 11 cm from the anal verge that extended 5 cm caudally and compromised 40% of the circumference and 80% of the lumen. The pathology was compatible with adenocarcinoma. Staging was performed with MRI of the chest, abdomen, and pelvis for fetal protection, taking into account gestational age. It is a T1N0M0 tumor, stage I. The patient wanted to preserve her pregnancy, so she decided to carry out an anterior resection of the rectum laparoscopically with curative intent.

Results/Outcome(s): An anterior resection of the rectum was performed laparoscopically with mechanical colorectal anastomosis with a circular stapler at 14 weeks' gestation. The main technical difficulty presented was the uterine manipulation associated with the growth of the

uterus due to her own pregnancy, which generated difficulty when performing the resection of the upper rectum and the middle rectum in order to obtain negative surgical margins. A liver retractor was used to gently retract the uterus to achieve adequate surgical exposure. The procedure ended without complications and postoperative fetal viability was confirmed by gynecology. She was discharged on the fifth postoperative day. The patient was readmitted one week later due to multiple episodes of emesis, a abdominal MRI was performed that showed an intestinal obstruction secondary to an internal hernia. A new laparoscopic surgery was performed to reduce the hernial content and close the mesenteric defect. The patient was discharged on the third postoperative day, tolerating the oral intake and with fetal viability confirmed by ultrasound. The surgical pathology confirmed an adenocarcinoma of the upper rectum with involvement up to the submucosa, with 0/15 lymph nodes positive for a TNM: pT1N0M0.

Conclusions/Discussion: Based on this case, we can conclude that it is feasible to perform a surgical approach with curative intent despite the technical difficulties that may be generated by pregnancy.



NEUTROPHILE TO LYMPHOCYTE RATIO AT DIAGNOSIS ASSOCIATED WITH ADVANCED STAGE AT PRESENTATION IN EARLY-ONSET COLORECTAL CANCER.

eP618

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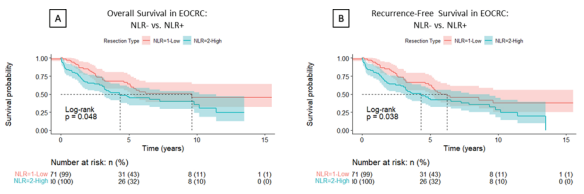
Purpose/Background: The neutrophil-to-lymphocyte ratio (NLR) represents the magnitude of the systemic inflammatory response and has been reported as a prognostic marker for colon cancer in older patients. However, there is paucity of data regarding the reliability of the NLR as a prognostic indicator for patients <50 years-old diagnosed with colorectal cancer. This study assesses the impact of NLR on disease stage at diagnosis and on overall and recurrence-free survival in early-onset colorectal cancer (EOCRC).

Methods/Interventions: A retrospective review was performed on all patients <50 years of age diagnosed with sporadic colorectal cancer between 2005 and 2019 at a single tertiary care institution. NLR was calculated (neutrophil count/lymphocyte count) at time of diagnosis and patients were separated into cohorts of NLR >3 (NLR+) and NLR ≤3 (NLR-) based on previous literature utilizing similar cutoff. Demographics, tumor characteristics, treatment modalities, date of last contact, vital status, and date of recurrence was collected. Baseline patient characteristics were compared using univariate analysis. Kaplan-Meier analysis and multivariable Cox proportional hazards to obtain hazard ratios for overall survival and recurrence-free survival between the two cohorts. Model adjusted for clinical stage at presentation and NLR as a categorical variable. P-value of <0.05 was considered statistically significant.

Results/Outcome(s): 159 patients with available data were identified with a median age at diagnosis of 43 years. A total of 76 (47.5%) were NLR- and 83 (52.5%) were NLR+. Baseline characteristics, including age, sex, race, ethnicity, history of polyposis, tumor side, histologic features, receipt of neoadjuvant chemotherapy, and ASA risk score, were equivalent between the two cohorts. NLR+ were more likely to present with Stage IV disease (49.4% vs. 30.7%) compared to NLR-. On Kaplan-Meier estimates, NLR+ was associated with lower median overall survival (4.4 vs. 9.6 years, p<0.05) and lower median recurrence-free survival (4.3 vs. 6.2 years, p<0.05) compared to NLR-. On multivariate survival model, NLR+ did not significantly impact mortality risk (HR 1.16, p=0.56) or recurrence-free survival (HR 1.18, p=0.46). Stage at presentation was predictive of mortality with lower overall survival associated with stages 1, 2, and 3 (HR 0.11, 0.33, and 0.28, respectively, p<0.05) and lower recurrence free survival with stages 1, 2, and 3 (HR 0.09, 0.29, and 0.34, respectively, p<0.05).

Conclusions/Discussion: NLR values at presentation are associated with advanced disease at presentation but not independently predictive of overall or recurrence-free survival in patients with EOCRC. This highlights that, while a poor prognostic marker, NLR serves as a marker of the systemic inflammatory response present in more advanced stages of EOCRC.



Overall (A) and recurrence-free survival (B) in patients with EOCRC comparing high vs. low NLR at diagnosis.

COMPARING EXTRACORPOREAL, "SEMI-EXTRACORPOREAL," AND INTRACORPOREAL ANASTOMOSIS IN LAPAROSCOPIC RIGHT HEMICOLECTOMY: INTRODUCING A BRIDGING TECHNIQUE FOR COLORECTAL SURGEONS.

eP619

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Purpose/Background: Intracorporeal anastomosis (IA) in laparoscopic right hemicolectomy has been associated with faster recovery in bowel function compared to extracorporeal anastomosis (EA). However, the technical difficulty of laparoscopic suturing technique and intraabdominal fecal contamination hinders many surgeons from implementing such procedure. We here introduce and compare a new technique known as "semi-extracorporeal" anastomosis (SEA), which embraces the advantages of intracorporeal anastomosis while amending the drawbacks of extracorporeal anastomosis.

Methods/Interventions: Between May 2016 and October 2022, patients who underwent laparoscopic right hemicolectomy were reviewed. All patients underwent one of the three anastomosis methods by a single colorectal surgeon: EA, SEA, IA. SEA is a method in which ileum and transverse colon are transected and tagged intracorporeally to prevent mesentery rotation after which hand-sewn bowel anastomosis is performed extracoporeally through the specimen extraction site. EndoGIA was used for bowel transection in IA, and anastomosis was performed in isoperistaltic, side-to-side stapling method with closure of common channel via 3-0 barbed suture. Data including perioperative parameters and postoperative outcomes were analyzed by each group.

Results/Outcome(s): A total number of 100 patients were reviewed. Thirty patients underwent extracorporeal anastomosis, and fifty and twenty patients underwent semi-extracorporeal and intracorporeal anastomosis, respectively. There was no statistical significance in demographics and baseline characteristics between each group. Operation time was 175.2min (range 100-285), 183.6min (range 110-280), and 147.5min (range 80-235) in EA, SEA, and IA, respectively (P=0.007). Wound size was smaller in SEA and IA compared to EA (mean 6.23 versus 4.32 versus 4.48, P<0.001). IA and SEA was associated with shorter time to first flatus and shorter time to first stool compared to EA (P<0.001 and P=0.028, respectively). Time to first flatus was shorter in IA even when compared to SEA (P<0.001). Postoperative complication showed no statistical significance between the three groups, yet IA group showed an upward trend of surgical site infection. There were two cases of mortality in SEA group due to the patients' underlying disease, and one case of readmission within 30 days in the IA group.

Conclusions/Discussion: Semi-extracorporeal is an attractive bridging option for colorectal surgeons worrisome of the technical difficulty and surgical site infection of IA while maintaining faster bowel recovery and smaller wound incision compared to EA. In accordance with studies comparing EA and IA, IA showed shorter operation time, shorter time to first flatus, shorter time to first stool, and smaller wound size.

Table 1. Baseline characteristics

Variables	EC (n=30)	SEC (n= 50)	IC (n=20)	P-value
Age (yr)	73.5 (56-91)	69 (43-90)	63 (35-86)	0.104
Sex				0.414
Male	12 (40%)	19 (38%)	11 (55.0%)	
Female	18 (60%)	31 (62%)	9 (45.0%)	
BMI (kg/m2)	23.63 (16.80-31.15)	24.03 (17.75-31.52)	23.43 (18.61-32.82)	0.767
ASA				0.738
1	4	2	1	
2	17	34	14	
3	9	14	3	
4	0	0	2	
Cause of operation				
Appendiceal cancer	1	3	0	
Ascending colon cancer	23	41	13	
Transverse colon cancer	6	6	2	
Benign/Other	0	0	5	
Emergency				0.373
Yes	5 (16.7%)	8 (16.0%)	6 (31.2%)	
No	25 (83.3%)	42 (84.0%)	14 (68.8%)	
Lesion complication	7 (23.3%)	15 (30.0%)	5 (25.0%)	0.789

THE NUMBER OF PATIENTS WITH OBSTRUCTIVE COLORECTAL CANCER IN A RURAL HOSPITAL IN JAPAN DURING THE COVID-19 PANDEMIC: A RETROSPECTIVE SINGLE-CENTER COHORT STUDY.

eP620

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Purpose/Background: The global pandemic of COVID-19 has changed dramatically the circumstances of cancer therapy. In Japan, cancer screenings were temporarily restricted and the number of endoscopy and surgery was decreased in some hospitals based on the state of emergency declared. The aim of the study was to investigate the impact of the COVID-19 pandemic on the clinical characteristics of colorectal cancer (CRC) patients in our hospital that are on the frontline of both COVID-19 and cancer treatments.

Methods/Interventions: This is a retrospective cohort study that analyzed the cases of all of the CRC patients (n = 123) who underwent surgery at our regional cancer treatment center and tertiary emergency hospital in Japan during a 120-day period ranging from before to after the state of emergency declaration. CRC patients during the corresponding period in the previous year were also compared.

Results/Outcome(s): Although the number of CRC patients remained almost the same before and after the pandemic started, the rate of obstructive CRCs significantly increased after the beginning of the pandemic. The number of outpatients and colonoscopies both decreased in our hospital, which could have resulted in the decline of CRC patients detected in the earlier stage by cancer

screening during the pandemic. Likewise, the number of both symptomatic CRC patients and emergency admissions also increased significantly during the pandemic.

Conclusions/Discussion: Our findings indicate that the diagnosis of CRC could be delayed due to the halt of cancer screenings because of the COVID-19 pandemic, resulting in the increase of the number of patients with obstructive CRC. These results stress the importance of cancer screening and necessity that the screening system for cancers should be restructured preparing for the future pandemics.

THE IDEAL TEAM PLAYER: A COLORECTAL SURGERY APPLICANT PERSPECTIVE.

eP621

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Purpose/Background: Teamwork is an everyday skill in the life of a surgeon. Increasing emphasis on the development of teamwork skills can be seen starting in undergraduate medical education through surgical practice. Little research has been published on how colorectal surgeons or colorectal surgery residents (CSR) applicants view the team player. Patrick Lencioni, psychologist, notes that the 3 most important qualities identified are humility, hunger (drive) and smart (emotional intelligence). This study evaluates the perceptions of those qualities among CSR applicants.

Methods/Interventions: This study was conducted with prospective CSRs at a single program. During the institution's standard interview process, applicants were asked questions regarding the Ideal Team Player framework. Responses were documented, but not shared between interviewers or used in the scoring/ranking process (reasoning and discussion were more important). Responses were compared to each other and aspects of the application including ABSITE scores, standardized letter rankings, and adjectives used to describe applicants.

Results/Outcome(s): There were 32 complete responses (RR 97.0%); 20 female (62.5%). Most (n=16; 50.0%) identified humility as the most important virtue in a team player, 12 (37.5%) noted emotional intelligence (EI) and only 4 (12.5%) said hunger (drive). When asked in what order these virtues manifested in themselves personally, the order was the same (humble, 14;43.8%, EI 10;31.3%, and hunger 8;25.0%). Those that noted hunger first had the lowest median 4 th year ABSITE percentile (51.5 vs 77 for humble and 73.5 for EI). This trend was the same for all the years of the exam. No differences were found in relation to USMLE Step 1 scores. Those who identified hunger first had the lowest mean ranking (22 vs 13 for humble and 16 for EI). Adjectives used to describe applicants who listed hunger first included "hard-working," "determined" and "committed." Words used to describe applicants who said humility included "empathetic," "polite," and "critical thinker."

Conclusions/Discussion: Among prospective CSRs, humility was identified as the most valuable attribute of a team player, and most frequently self-identified. Applicant self-assessments seemed to match faculty assessments of their strengths in standardized ranked letters. Applicants who self-identified as hungry had lower ASBITE scores and mean rankings. Thought-provoking questions for candidates may lead to improved alignment between core values of applicants and programs.

COLON AND RECTAL RESIDENCY APPLICANT TRENDS 2014-2020: ACADEMIC INFLATION, POTENTIAL MISREPRESENTATION, AND TRENDS IN PUBLICATION.

eP622

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Purpose/Background: Colon and Rectal Surgery (CRS) Residency has become increasingly competitive with 30% of applicants not matching in 2021. This added pressure may lead candidates to exaggerate accomplishments or create a higher possibility of accidental misrepresentation when entering a robust resume into the Electronic Residency Application Service (ERAS) system. This study aimed to evaluate academic productivity trends and verify applicant publication listings for inaccuracies from 2014-2020.

Methods/Interventions: All ERAS applications to one CRS program were analyzed from 2014-2020. Individual data points were recorded including test scores, graduate degrees and research years, and total number of publications, manuscripts, and presentations. Researchers then verified each applicant's listed manuscripts by searching for evidence of published accuracy. Any discrepancies between listing and publication were noted as a misrepresentation. Descriptive statistics were calculated for recorded variables and Spearman correlations were used to test for relationships between variables.

Results/Outcome(s): A total of 733 applications were analyzed, with an average of 105 (SD=18) applicants per year. Over the six years, there was no visibly distinct trend in test scores, with ABSITE means ranging between 54.16 (SD=22.42) in 2016 at the lowest and 59.79 (SD=19.84) in 2019 at the highest (M=57.19±21.49), and USMLE scores ranged between 222.80 (SD=14.23) in 2015 at the lowest and 234.25 (SD=14.05) in 2019 at the highest (M=229.16±17.80). There was a distinct positive trend in average total publications, manuscripts, and presentations (Table 1). Notably, there was some evidence of increase in the percentage of individuals with a discrepancy in manuscript reporting (9.4% in 2016, 9.6% in 2017, 17.7% in 2018,

and 21.0% in 2019), this pattern dropped off in 2020 with only 8.6% of applicants having evidence of a discrepancy (Table 1). Evidence of misrepresentation ranged from incorrect authorship order to the listing of publications that the applicant was not actually an author on. There was no relationship between test scores, graduate degree, or research years and misrepresentation. ABSITE score, $r(663)=.152$, $p<.001$., USMLE score, $r(662)=.091$, $p=.019$, and research years, $r(739)=.533$, $p<.001$, were positively correlated with the number of total manuscripts listed.

Conclusions/Discussion: This large analysis of residency applications shows evidence of increasing competition in the form of publication, manuscript, and presentation listings. There is also evidence that within these applications there is a degree of accidental misrepresentation (at best) or deception (at worst) as applicants present their scholarly accomplishments. Future work should focus on increasing the efficiency and precision of the application process.

Table 1: Academic Production and Misrepresentation in Colon and Rectal Surgery Residency Applicants 2014-2020

Year	Number of Applicants	Applicants with a(n) Grad Degree (% of total applicants)	Applicants who completed Research Years (% of total applicants)	Average Total Publications M (SD)	Average Total Manuscripts M (SD)	Number of individuals with a Manuscript Discrepancy (% of applicants)	Total Number of Presentations (Posters and Abstracts) M (SD)
2014	83	21 (25.3%)	23 (27.7%)	4.78 (5.63)	4.35 (5.27)	5 (6.0%)	7.57 (6.87)
2015	85	23 (26.7%)	33 (36.5%)	5.28 (5.57)	4.95 (5.30)	9 (10.6%)	8.03 (8.14)
2016	106	27 (25.5%)	44 (41.5%)	5.68 (6.44)	5.01 (5.88)	10 (9.4%)	9.65 (8.32)
2017	94	31 (33.0%)	40 (42.6%)	6.93 (6.78)	6.35 (6.15)	9 (9.6%)	10.35 (7.92)
2018	113	21 (18.6%)	50 (44.2%)	6.07 (7.39)	5.42 (6.93)	20 (17.7%)	10.17 (9.15)
2019	126	33 (26.6%)	52 (42.0%)	7.33 (10.83)	6.52 (10.03)	26 (21.0%)	11.35 (14.84)
2020	126	37 (29.9%)	53 (43.4%)	8.02 (10.71)	7.51 (10.39)	11 (8.6%)	12.28 (11.58)
Total	733	191 (26.1%)	293 (40.0%)	6.36 (8.22)	5.77 (7.76)	90 (12.3%)	10.05 (10.30)

Academic Production and Misrepresentation in Colon and Rectal Surgery Residency Applicants 2014-2020

MINIMALLY INVASIVE COLON AND RECTAL SURGERIES; HOW DO GENERAL AND COLON AND RECTAL SURGERY RESIDENCIES COMPARE?

eP623

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[1]*Rochester, MN;* [2]*Jacksonville, FL*

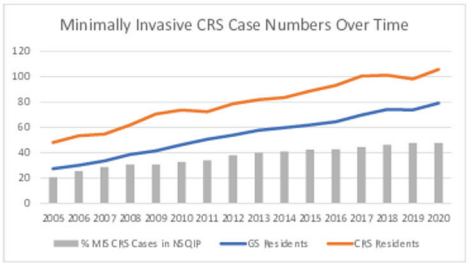
Purpose/Background: Minimally invasive colon and rectal surgeries have significantly evolved in complexity over the past two decades. Colon and rectal surgery residency program directors report a decreasing level of surgical skills among newly matched general surgery residency graduates. We aimed to evaluate the number of Accreditation Council for Graduate Medical Education (ACGME) minimally invasive colorectal surgeries performed by general and colon and rectal surgery residents, and to compare them to National Surgical Quality Improvement Program (NSQIP) rates over time.

Methods/Interventions: ACGME case logs for general and colon and rectal surgery residencies from 2005 to 2020 were reviewed focusing on case codes relevant to minimally invasive colorectal surgeries. Additionally, the NSQIP database was searched from 2005 to 2020 utilizing common procedural terminology (CPT) codes for colon and rectal surgeries, and the percentage of minimally invasive cases was calculated as a proportion of total yearly cases. The rate of growth in general and colon and rectal surgery residencies and NSQIP rates were compared over time. The mean number of cases were compared using t-tests.

Results/Outcome(s): In the ACGME data, the mean number of colorectal minimally invasive surgeries rose gradually over time for both general (rate of increase 3.4, average yearly increase 12.6%) and colon and rectal surgery residencies (3.8, 8%). Each subsequent period had a statistically significant mean increase in cases (for every time comparison $p<0.005$ for GS, $p<0.006$ for CRS). However, the mean number of minimally invasive cases was consistently lower for general surgery every year (27.4 in 2005 to 79.2 in 2020) compared to colon and rectal surgery (48.1 in 2005 to 105.8 in 2020), see Figure 1. The NSQIP data demonstrated that the proportion of minimally invasive colorectal surgeries increased steadily from 20.7% in 2005 to 47.6% in 2020.

Conclusions/Discussion: Despite a steady increase across the country, general surgery residencies continue to underperform when compared to colon and rectal surgery residencies in terms of minimally invasive cases related to colorectal surgery. Although we saw similar rates of growth in cases in general and colon and rectal surgery, general surgery residents continue to enter independent practice, or colon and rectal residency training, with a smaller volume of experience while the proportion of minimally invasive colon and rectal surgeries continues to increase across the United States.

Figure 1: Average colorectal minimally invasive surgeries plotted over time for general surgery residents, colorectal residents, and NSQIP.



CRS - colon and rectal surgery
GS - general surgery
MIS - minimally invasive surgery
NSQIP - National Surgical Quality Improvement Program

Average colorectal minimally invasive surgeries plotted over time for general surgery residents, colorectal residents, and NSQIP.

IS IT TIME TO REDEFINE AFFERENT LIMB SYNDROME IN ILEAL POUCH-ANAL ANASTOMOSIS?

eP624

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Purpose/Background: Afferent limb syndrome (ALS) has been historically described, in a limited manner, as the positioning of the most distal segment of the ileum in a position posterior to the ileal pelvic pouch (IPAA), thus causing an obstructive pattern of symptoms. We posit that this diagnosis is, in fact, quite diverse in presentation and the definitive management can be surgically complex. We aim to highlight this complexity by revealing its clinical features and management.

Methods/Interventions: Using our prospectively maintained database, we identified patients who underwent IPAA requiring a revision in our institution by a single surgeon. The demographic, clinical, endoscopic, and radiographic features together with its management strategies and outcomes were studied.

Results/Outcome(s): We studied a sub-set of three patients who underwent IPAA revisions for pre-pouch pathologies in our institution. These three patients represent a key sub-category of pathologies that are all traditionally classified as ALS. All three patients presented with intermittent obstructive symptoms, including pain, difficult defecation, and tenesmus. These patients' pathology included: A 23yo female with classic ALS with chronic kinking of the afferent limb posterior to the IPAA contributing additionally to a pouch body intussusception, A 30yo female with an internal herniation and pouch ischemia due to acute on chronic rotation of the small bowel mesentery with extrinsic compression of the afferent limb where the afferent limb herniated underneath the cut edge of the small bowel mesentery forming a complete obstruction, and a 27yo male with fibro-stenosis of the afferent limb likely related to his Crohn's disease. Each patient underwent targeted surgery based on their surgical presentation: with resection of angulated bowel with pouch revision and pouchopexy, lysis of adhesions with pouch mobilization and small bowel fixation, and small bowel resection and primary anastomosis respectively.

Conclusions/Discussion: The presentation of pre-pouch pathologies that have historically been grouped together as ALS in patients after IPAA can be markedly varied and diverse. This subset of patient presentations highlights not only the importance of accurate diagnosis of pouch dysfunction, but also the need to better describe the syndrome. Many patients require surgical therapy for definitive fixation, and accurate identification of the pathology is paramount for successful surgical correction.

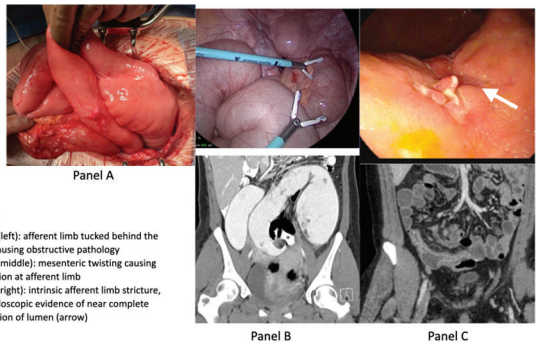

Figure 1:
Panel A (left): afferent limb tucked behind the pouch causing obstructive pathology
Panel B (middle): mesenteric twisting causing obstruction at afferent limb
Panel C (right): intrinsic afferent limb stricture, with endoscopic evidence of near complete obliteration of lumen (arrow)

LAPAROSCOPIC RIGHT HEMICOLECTOMY FOR INFLAMMATORY BOWEL DISEASE: IS INTRACORPOREAL ANASTOMOSIS FEASIBLE?

eP625

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Purpose/Background: Inflammatory bowel disease affects individuals of all ages and backgrounds, and encompasses both Crohn's disease and ulcerative colitis. Many individuals with IBD require surgical intervention during the course of their disease. The adoption of laparoscopic techniques to individuals with IBD has been slow, and the implementation of intracorporeal anastomoses for these patients has been even slower than its adoption for cancer patients. The aim of our study is to determine if patients with IBD undergoing totally laparoscopic right hemicolectomy with intracorporeal anastomosis (ICA) have similar outcomes to those undergoing laparoscopic assisted right hemicolectomy with extracorporeal anastomosis (ECA).

Methods/Interventions: This is a retrospective, single institution cohort study. Eligible patients underwent laparoscopic right hemicolectomy at our institution between 2012 and 2022. Patients were identified using a hospital database, and surgeon office databases. Patients included in the study underwent laparoscopic right hemicolectomy for IBD or were diagnosed with IBD on pathology. We excluded patients who underwent laparotomy (planned or intra-operative conversion), resection without anastomosis or unconfirmed diagnosis of IBD. Data was compared using two sided t-test evaluation with a 95% confidence interval.

Results/Outcome(s): A total of 70 patients were included, 12 ICA (17%) and 58 ECA (83%). Patient demographics (age, biologic sex, ASA and BMI) were not significantly different. Underlying disease characteristics (type of IBD, number of IBD specific medications, type of medication, smoking status (nicotine and cannabis were included), or underlying reason for OR) were also not statistically different between groups. Anastomotic leak rate (ICA 8.3% (n=1), ECA 8.6% (n=5), p=0.97) and surgical site infection rates (ICA 0%, ECA 6.9% (n=4), p=0.36) were similar. Post-operative length of stay, rates

of 30-day readmission/re-operation and diagnosis of hernia at 1 year were not significantly different. Timing of IBD recurrence and rates of remission at 1 year were similar. However, operative time was significantly longer in those undergoing ICA (ICA 187min vs. ECA 139min, p=<0.05).

Conclusions/Discussion: Overall, our study demonstrates that ICA is a feasible and safe option in patients with IBD undergoing laparoscopic right hemicolectomy.

THE IMPACT OF BIOLOGIC THERAPY ON ULCERATIVE COLITIS THROUGH THE YEARS.

eP626

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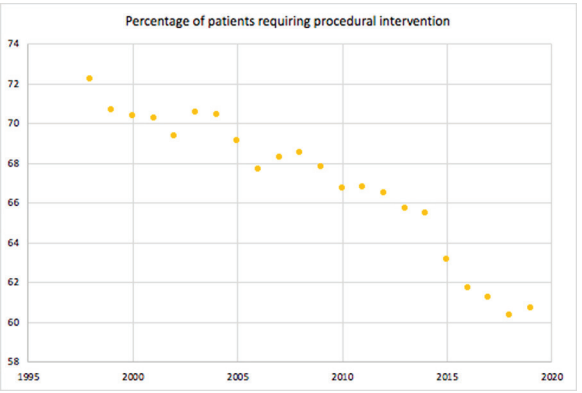
Purpose/Background: Biologic therapy has been widely accepted for early treatment of ulcerative colitis (UC) due to its ability to induce and maintain remission. However UC outcomes trends in the Unites States (US) since the introduction of biologic therapy have not been analyzed. Our goal was to identify surgical intervention, mortality, and admission trends associated with the emergence and prevalence of biologic therapy use in UC patients in the US.

Methods/Interventions: The National Institute of Health database was used to identify patients diagnosed with UC from 1998 to 2019. A retrospective analysis was completed to determine trends in admissions, procedures, and in-hospital mortalities in this cohort. Admissions were divided into elective and non-elective categories with the non-elective category including urgent and emergent admissions. Linear regression models were used with each data set to determine the R^2 value and significance of each value trend over the analyzed time range.

Results/Outcome(s): The percentage of patients per year who have required a surgical procedure for treatment of UC has dramatically decreased from 72.2% in 1998 to 60.7% in 2019 (R^2 0.91, p<0.0001). Meanwhile, there has not been a significant difference in the in-hospital mortality rate, which has consistently ranged from 1.7-2.8% from 1998 to 2019. Within this patient population, Black and Hispanic patients had significantly higher non-elective admission rates compared to White UC patients. 88.3% of Black patients (OR 2.01, 95% CI 1.94-2.08, p <0.0001) and 86.3% of Hispanic patients (OR 1.68, 95% CI 1.61-1.74, p <0.0001) had non-elective admissions compared to 78.9% of White patients.

Conclusions/Discussion: This is the first study demonstrating a national trend in decreased surgical intervention rates over time since the introduction of biologic therapy. Despite this decrease in surgical intervention, in-hospital mortality rates have remained relatively stable. Black and Hispanic patients to require urgent or emergent hospital admissions at much higher rates their White counterparts. Further studies are warranted to better understand the discrepancy between these patient populations, and this may reflect an additional health care disparity that these patient populations face.



DOES QUALITY OF LIFE WORSEN DEPENDING ON THE TYPE OF COLORECTAL CANCER RESECTION?

eP627

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Purpose/Background: Total pelvic exenteration (TPE) is undertaken to treat locally advanced and recurrent colorectal carcinoma. Compared to less extensive surgeries, the removal of pelvic organs en-bloc creates a major impact on quality of life (QoL), due to often a prolonged recovery and the formation of two permanent stomas. Given the added burden we wanted to explore whether there were any QOL differences between the two types of surgeries.

Methods/Interventions: A prospective study analysing 108 patients who underwent colorectal cancer resections (23 TPE patients) from 2021-2022 was performed. QoL assessed at four time points; baseline (T1), pre-operatively (T2), 30 days (T3) and 90 days post-operatively (T4). Fifteen subscales of QoL were assessed using the EORTC QLQ-C-30 questionnaire. Two-way mixed ANOVA analysis performed on the results using SPSS software.

Results/Outcome(s): Findings showed two significant interactions effects on the fatigue and insomnia subscales; fatigue experienced by TPE patients at 30 days post operatively were significantly higher than patients who underwent non-TPE surgery, p=0.005. Insomnia was also found to be significantly higher in TPE patients than non-patients at 30 days post-operatively (T3), p=0.016. In general, there was a trend in both TPE and non-TPE groups to have worsened functional and symptom outcomes from time of admission (T2) to 30 days post-op (T3), but improving at 90 days post-op (T4) to near baseline levels. Across both groups, a significant difference was shown in the following subscales; physical, cognitive, social, role

functioning, and pain, between both pre-operative time periods (T1, T2) and 30 days post-operative (T3). Global health scores were also markedly reduced over these same time periods. However, TPE patients did not experience a worse deterioration than non-TPE patients. No difference between the time points was noted in the remaining seven subscales of QoL assessed, most notably, GI symptoms such as nausea, vomiting, constipation and diarrhoea. This may be due to mild pre-operative symptoms as patients are often previously defunctioned as well as the asymptomatic nature of locally advanced rectal cancer.

Conclusions/Discussion: After undergoing surgical resection of colorectal carcinoma, patients experience a temporary deterioration in eight subscales out of the fifteen QoL measures assessed by the EORTC QLQ-C-30, with significant differences between TPE and non TPE on levels of fatigue and insomnia. Despite this deterioration, the trend observed showed improvement by 90 days post operatively. This indicates that despite more extensive surgery, TPE patients equate to non-TPE patients in their overall recovery by 90 days. Patients did not experience a change in baseline physical GI symptoms, indicating surgery does not improve physical pre-operative symptoms. Future research is required to establish the QoL trajectory between patients with TPE and non-TPE beyond 90 days

ROBOTIC VS LAPAROSCOPIC-ASSISTED RECTAL CANCER RESECTION: A COST-UTILITY ANALYSIS.

eP628

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Purpose/Background: Robotic surgery has been increasingly used in rectal cancer resection. However, its cost-effectiveness remains controversial and there is a paucity of economic evaluations to guide decision-making in robotic program implementation. This study aimed to assess the cost-effectiveness of implementing a new robotic vs. laparoscopic-assisted program for rectal cancer resection in a Canadian healthcare setting.

Methods/Interventions: A model-based cost-utility analysis using a decision tree was performed. A lifetime time horizon, healthcare system perspective and annual discount rate of 1.5% were adopted. The base case considered a Canadian rectal cancer program utilizing a da Vinci Si robot shared between different surgical specialties. The outcome was the incremental cost-effectiveness ratio (ICER), which was compared to a cost-effectiveness threshold of CAN $100,000/quality-adjusted life year. Probabilistic and one-way sensitivity analyses were performed. Three scenario analyses were conducted to consider changes in outcome when operating time and length of stay from the Robotic vs. Laparoscopic Resection for Rectal Cancer (ROLARR) trial were used, when robotic volume was reduced, and when costs of the da Vinci Xi robot were used.

Results/Outcome(s): Robot-assisted rectal cancer resection was cost-effective compared to the laparoscopic approach at an ICER of CAD $17,500/QALY. Results were most sensitive to length of stay, operating time and complication rate. The robotic approach remained cost-effective with inputs from ROLARR and costs from the da Vinci Xi. However, when robotic volume decreased by 78% by assuming the robot was no longer shared between specialties, the robotic approach was no longer cost-effective.

Conclusions/Discussion: Implementation of a new robotic program has a higher probability of being cost-effective than a laparoscopic program in the setting of Canadian rectal cancer care, assuming a cost-effectiveness threshold of CAD $100,000/QALY and high robotic volume. When implementing a robotic program, centres should consider length of stay, operating time and minimization of complications.

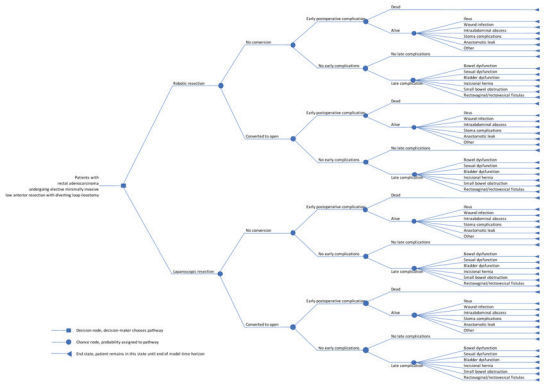

Figure 1. Decision tree describing the comparators of RACS vs LACS and subsequent risk of conversion and complications.
RACS = robotic-assisted colorectal surgery; LACS = laparoscopic-assisted colorectal surgery

INTRAOPERATIVE NEAR-INFRARED SPECTROSCOPY (NIRS) ASSESSMENT OF COLORECTAL ANASTOMOSIS.

eP629

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Purpose/Background: Visual inspection is the most relied on technique for assessment of colonic conduits, although limited by subjectivity. Efforts for a standardized approach have led to the popularity of near-infrared fluorescence(NIF) imaging with indocyanine green(ICG) dye. Near-infrared spectroscopy(NIRS) represents an alternative cost-effective, portable, non-invasive method to assess tissue viability without use of injectable material. It assesses oxygen saturation of hemoglobin rather than perfusion. The aim of this study was to determine the feasibility of intraoperative assessment using NIRS while

adding data to the literature of viability with NIRS. Our hypothesis was that NIRS would effectively evaluate bowel viability.

Methods/Interventions: Colorectal resection and anastomosis between December 2018 to October 2020 were included in the study. Procedures included: low anterior resection(LAR), partial colectomy, total abdominal colectomy(TAC), Hartmann reversal, ileostomy reversal with robotic(31), laparoscopic(6), or open(18) technique. Tissue was assessed by NIRS with the use of Kent Imaging(Calgary, AB, Canada) to determine bowel demarcation after vascular ligation. Surgeon assessment was performed subjectively between viable and nonviable bowel. For robotic procedures, NIRS of externalized bowel was compared to robotic NIF imaging(FireFly^{TM}). Primary outcome was correlation with surgeon visual assessment and NIF. Secondary outcome was presence of anastomotic leak.

Results/Outcome(s): 55 patients underwent resection with intraoperative NIRS: 54.5% LAR, 29.1% partial colectomy, 1.8% TAC, 9.1% Hartmann Reversal, 5% ileostomy reversal. 32 were female and mean age was 61± 13 years. Diagnoses included: Cancer(74.5%), diverticulitis(18.2%), and Congenital band, constipation and endometriosis each 1.8%. 54 of 55 patients showed adequate oxygenation(>70%) of the proximal bowel with the use of NIRS. Surgeon assessment was consistent with NIF for 89.1% of patients. In cases that utilized NIF with ICG there was 100% correlation when compared with NIRS(**Figure 1**). The average oxygen saturation assessed by NIRS for the proximal healthy bowel was 82.1% ± 7.2%, while the distal portion of the bowel was 46.5 ± 15.8%. One patient with suboptimal oxygenation on NIRS developed a postoperative leak. There were five leaks in patients with adequate saturation on NIRS. Three were robotic LAR's that had adequate perfusion with FireFly^{TM}. The other two cases were an open partial colectomy and open Hartmann reversal did not use NIF imaging.

Conclusions/Discussion: NIRS offers adequate assessment of colonic transection levels with similar results to NIF while eliminating the need for intravenous injection. Levels of 82.1% ± 7.2% were consistent with viability. Our results show that NIRS was comparable to NIF is assessing viability of bowel. Inadequate oxygenation with NIRS may correlate with risk for anastomotic leak. Limitations to this study include small volume.

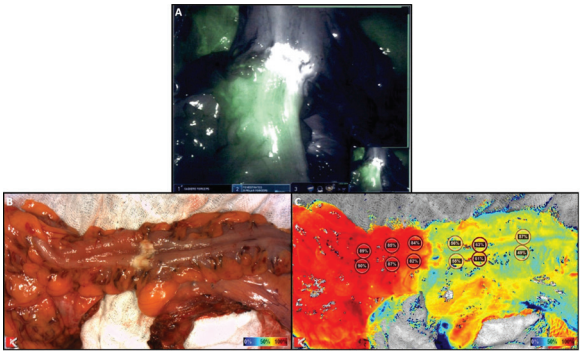

Figure 1: A - Robotic Fluorescence Imaging (FireFly^{TM}), B – Kent Spectroscopy Color Imaging, C – Kent Spectroscopy Oxygen Saturation Imaging

HEMORRHOIDAL DISEASE MANAGEMENT WITH BAND LIGATION VERSUS POLIDOCANOL FOAM SCLEROTHERAPY: A SYSTEMATIC REVIEW AND META-ANALYSIS.

eP630

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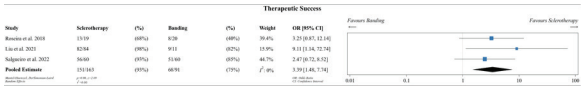
Purpose/Background: Symptomatic internal hemorrhoids impact up to 40% of the adult population in Western society. Multiple trials have compared both medical and surgical management options for management of symptomatic hemorrhoids. Liquid sclerotherapy is an ASCRS-recommended second line treatment option, however polidocanol foam sclerotherapy is a relatively new treatment approach. This systematic review and meta-analysis compares polidocanol foam sclerotherapy to rubber band ligation for the management of grade I-III internal hemorrhoids.

Methods/Interventions: Systematic review was completed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. A comprehensive search was performed using MEDLINE, Embase, and CENTRAL databases from inception to August 2022. Randomized controlled trials and cohort studies comparing sclerotherapy to rubber band ligation, or studies that evaluated sclerotherapy alone for treatment of adult patients (over 18 years) with internal hemorrhoids were included in the review. The primary outcome was therapeutic success and the secondary outcomes were treatment-relatedcomplications and Hemorrhoids Severity Score. A pair-wise meta-analysis was performed using a Mantel-Haenszel random effects model for comparative studies.

Results/Outcome(s): The search yielded 139 citations, of which 10 full text citations (3 comparative and 7 single-arm studies) and 4 abstracts (2 comparative and 2 single arm) were included in the review. For evaluating therapeutic success, three studies, Roseira et al (2018),

Liu et al (2021) and Salgueiro et al (2022) were included in the meta-analysis. Pooled estimate demonstrated 93% (151/163) people in the sclerotherapy group compared to 75% (68/91) in the rubber band ligation group achieved therapeutic success [OR 3.39, Cl 1.48-7.74, p = 0.00]. In comparing the post-procedure morbidity between the groups, four studies (Roseira et al (2018), Liu et al (2021), Salgueiro et al (2022), Liu et al (2021)) were included in the analysis. Pooled estimates showed the post-procedure morbidity was 8% (17/200) in the sclerotherapy group and 18% (23/128) in the rubber band ligation group [OR 0.53 Cl 0.15-1.82, p = 0.31].

Conclusions/Discussion: Polidocanol foam sclerotherapy was associated with a significantly higher likelihood of achieving therapeutic success compared to rubber band ligation without differences in post-procedure morbidity. These data are significantly limited by heterogeneity of the included studies and the number of included studies in the meta-analysis. Further comparative studies are required. In the interim, foam polidocanol sclerotherapy appears to be a safe and efficacious option for treating symptomatic grade I-III internal hemorrhoids.



OPERATIVE OUTCOMES BETWEEN FISTULOTOMY AND LIGATION OF INTERSPHINCTERIC FISTULA TRACT FOR FISTULA IN ANO.

eP631

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Purpose/Background: Fistula in ano is the benign anorectal condition but becomes a major problem for the surgeon to cure the disease. It is difficult to treat fistula in ano due to high recurrence rate and anal incontinence. Ligation of the intersphincteric fistula tract (LIFT) is a new surgical procedure in the treatment of fistula in ano with the advantage of avoiding anal incontinence and has been shown to be successful in the short term.

Methods/Interventions: This comparative study was carried out in the Department of Surgery of Chattogram Medical College Hospital, Chattogram, during the period Nov 2019 to Nov 2020. A total of 40 patients with fistula in ano of both sexes above 18 years were included in this study. Fistulotomy patient was considered as a group I and LIFT patient was considered as group II. Statistical analysis of the results was obtained by using windows computer software with Statistical Packages for Social Sciences (SPSS-version 22).

Results/Outcome(s): The mean age was 42.2±16.8 years in group I and 41.3±13.58 years in group II. Male to female ratio was 19:1 and 15:5 in group I and group II respectively. More than a half (55.0%) of the patients had bleeding in group I and 2(10.0%) in group II. More than one third (40.0%) patients had sphincter injury in group I and 1(5.0%) in group II. The mean VAS scoring at 7th POD was 6.3±1.0 in group I and 4.6±1.1 in group II. The mean VAS scoring differences at 7thPOD,2 weeks, 6 weeks, 12 weeks, and 6 months were statistically significant ($p<0.05$) between two groups. Regarding the wound healing, 15(75.0%) patients at 6 months had healed in group I and all patients healed in group II at 6 months. The difference was statistically significant ($p<0.05$) between two groups. Incontinence was found 2(10.0%) and 0 (0%) in group I and group II respectively. The difference was not statistically significant ($p>0.05$) between two groups at 6 months follow-up. Persistent symptoms were found 3 (15.0%) in group I and LIFT failure found 1(5.0%) in group II at 6 months follow-up. The difference was not statistically significant ($p<0.05$) between two groups at 6 months follow-up.

Conclusions/Discussion: LIFT offers the benefit of a decreased postoperative pain, faster wound healing with no incidence of incontinence, with a low failure rate in comparison with Fistulotomy. The LIFT technique is simple and easy to learn and is a good choice for the treatment of Fistula in Ano.

CLINICAL OUTCOMES OF LASWER HEMORRHOIDOPLASTY WITH FEEDING VESSELS HIGH LIGATION.

eP632

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Purpose/Background: Laser hemorrhoidoplasty(LHP), which has been a new choice of minimally invasive treatment of hemorrhoids. Hypertrophic hemorrhoidal tissue was denatured by diode laser through probe. This procedure is indicated in grade 2 and 3 hemorrhoids. In addition, we suture ligated feeding vessels of hemorrhoidal tissue (3', 7' and 11' of anus) before LHP that expected better effort and less postoperative hemorrhage. The aim of this study was to describe our current technique and identify the efficacy and complications. Also, the outcomes were compared with traditional hemorrhoidectomy.

Methods/Interventions: From September 2020 to August 2022, patients who received hemorrhoidectomy were included. The outcomes included operation time, postoperative pain, acute urine retention rate, length of stay, early bleeding and 28-days readmission rate and reasons. In the LHP group, hemorrhoids supplying vessels at 3', 7', 11' of anus were suture ligated with 3-0 Vicryl first. A diode laser device was employed under a wavelength of 1470mm, average energy of 316J each area. Once has been completed, icicle was inserted into anal canal for 2 minutes.

Results/Outcome(s): 397 patients were included (202 females, mean age 50.7 years). 185 patients received LHP and the remaining 212 received traditional The average length of stay in the LHP group was 0.96 days, 1.18 days in the traditional group. Postoperative pain was recorded by using a 10-point visual analog scale (VAS). Average VAS 2 hours after operation was 3.28 versus 4.11. Postoperative day 1 average VAS was 1.27 versus 1.75. Early postoperative bleeding rate was 0.011(2/185) versus 0.052(11/212). Acute urine retention rate was 0.059 (6/185) versus 0.132(28/212). In LHP group, there were 3 patients readmitted within 28 days after discharge. Two of them had complications of postoperative bleeding. Other complications included stricture(1/185), abscess formation(2/185).

Conclusions/Discussion: Laser hemorrhoidoplasty has been already used widely with less postoperative pain and less early bleeding and acute urine retention rate especially. We started to develop this procedure since 2020 and we also do feeding vessels high ligation additionally. Most patients who received this procedure were satisfied with the outcomes including symptoms relieving and better appearance. Further following up of hemorrhoid recurrence and prospective randomized controlled studies are needed.

NURTURE OR NATURE: CAN ENHANCED RECOVERY PATHWAYS OVERCOME PATIENT FRAILTY.

eP633

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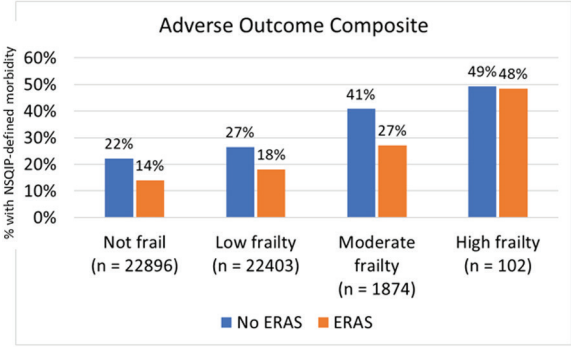
Purpose/Background: Frailty is significantly associated with post operative morbidity and mortality, leading to increased healthcare utilization and poor post operative quality of life. We hypothesize patients can be risk stratified based on their modified frailty index independent of enhanced recovery protocol (ERP) interventions.

Methods/Interventions: Following institutional review board approval, patients from a high volume colorectal cancer center were queried from the institutional National Surgical Quality Improvement Program database from 2013-2018. Patients were stratified into frailty risk cohorts of either no frailty, low, moderate, or severely frail based on their modified frailty index. Cohorts were compared secondary to their adherence to ERP. Odds ratios for each factor were then used to calculate a corresponding frailty score for each patient, then used to stratify frailty in groups. A chi-square analysis of frailty group by morbidity was calculated to examined morbidity composite scores for each frailty group.

Results/Outcome(s): Chi-square analysis revealed that morbidity composite scores among patients who did and did not receive ERP treatment in the high frailty group did not differ (p-value .552). Morbidity composite scores among not frail, low frailty, and moderate frailty groups did differ significantly (p-value < .001). Morbidity events were noted to correlate significantly to frailty (p < .001), with patients in the high frailty group having readmission rates of greater than 20% and 30-day mortality rate of 10%.

Conclusions/Discussion: ERP guidelines were created with the goal of improving clinical outcomes after elective colorectal surgery, however, frailty is an independent predictor of poor post-operative outcomes, regardless of ERP adherence. Therefore, preoperative counseling is a necessary component of wholistic colorectal care to ensure patient satisfaction and optimal healthcare utilization.



CUTANEOUS METASTASIS FROM SIGMOID CANCER.

eP634

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Rio de Janeiro, Brazil

Purpose/Background: We present the case of a 72-year-old male patient referred to the Coloproctology Department of the Hospital Federal de Ipanema RJ/MS for evaluation of an ulcerative-infiltrative lesion on the anal margin, which later proved to be a metastasis of an adenocarcinoma of the sigmoid.

Methods/Interventions: We will present the data from the physical examination, colonoscopy and imaging findings and the management we chose for treatment.

Results/Outcome(s): Patient was referred to the Coloproctology Service for investigation of a lesion on the anal margin, with ulcerated surface, infiltrated base, measuring 7.3 x 6.5 x 4.0 cm and evolving over two years.. At the initial consultation, proctologic examination could not be performed due to severe pain. We scheduled an examination under sedation and colonoscopy, believing it to be adenocarcinoma of the rectum fistulizing to the anal margin. Magnetic resonance imaging of the pelvis identified a tumor in the left anal margin and in the proximal sigmoid a stenosis of neoplastic appearance with multiple lymph nodes committed to the inguinal and external iliac chain. The lesion was located between 3 and 7 o'clock, superficially infiltrating the external anal sphincter and

with a broad base of implantation in the skin and subcutaneous cellular tissue of the region. This study did not identify involvement of the rectum or mesorectal fat. During colonoscopy, a infiltrating tumor was observed in the sigmoid, beginning 25 cm from the anal border, with a proximal extension of 5 cm, whose histopathological report of the biopsy confirmed it was a moderately differentiated adenocarcinoma. Analysis of the material sent to us revealed that it was also a moderately differentiated adenocarcinoma affecting the chorion and ulcerating the squamous epithelium, suggesting that it was a metastasis. Tomographic studies did not identify any liver or lung metastases, and the carcinoembryonic antigen level was 6.52 ng/mL (reference value: up to 5.0 ng/mL). We chose to perform a wide resection of the skin lesion with primary reconstruction by the Plastic Surgery Service using a V-Y flap and concomitant Hartmann rectosigmoidectomy with preservation of the rectum, aiming at a possible reestablishment of the intestinal transit, if there was no significant sphincter impairment. The histopathological study of the surgical specimens classified the sigmoid lesion as pT3, pN1a. A lesion morphologically compatible with the colorectal primary was also observed in a surgical specimen of the anal margin. Both showed surgical margins free of neoplasia.

Conclusions/Discussion: The case reported here illustrates a rare site of metastasis from colorectal cancer treated surgically with complete removal of the primary lesion and the skin lesion with preservation of adjacent structures (sphincter complex and rectum) aiming to allow a better quality of life for the patient postoperatively and the possibility of reconstructing after the end of adjuvant treatment.

COVID-19: CHANGES IN COLORECTAL CANCER CARE AND IMPACT ON SURGICAL OUTCOMES, A SINGLE-INSTITUTION EXPERIENCE.

eP635

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Purpose/Background: The COVID-19 pandemic led to several challenges in the management of surgical patients. The aim of the current study is to evaluate its impact on the surgical care of patients diagnosed with colorectal cancer (CRC).

Methods/Interventions: We retrospectively identified patients who underwent surgical management for CRC from January 2018 to December 2021 at a single academic medical center. Patients who underwent surgery before the pandemic were compared to those who had surgical care during the pandemic. The primary outcome was time from colonoscopy to initiation of treatment (neoadjuvant therapy [NAT] and/or surgery). Secondary outcomes included postoperative complication rates.

Results/Outcome(s): We identified 436 patients who underwent surgery for colon (71.1%) and rectal (28.9%) cancer, of which 58.3% had their procedure before and 41.7% during the pandemic. For colon cancer, although not statistically significant, more colonoscopies were performed following symptom onset during the pandemic (67% vs 57%), while screening colonoscopies dropped

from 33% to 23%. Moreover, a higher proportion of patients were classified as ASA 3 and 4 during the pandemic (58% vs 45% and 2.3% vs 1.6% [p = 0.049], respectively). For rectal cancer, there were more patients diagnosed with stage III disease at the time of surgery (31% vs 15%, p = 0.03) during the pandemic. Regarding colon cancer patients, time from colonoscopy to resection was shorter during the pandemic (27 vs 32 days, p = 0.026). There were no differences in time from diagnosis to NAT or from NAT to surgery for rectal cancer patients. Colon cancer patients who had surgery during the pandemic showed longer operative times (154 vs 127, p < 0.001), lower rates of robotic surgery (8.2% to 2.3% [p = 0.029]), and decreased rate of discharge to rehabilitation (8.2% vs 2.3% [p = 0.029]). Similarly, robotic surgery for rectal cancer decreased from 60% to 35% (p = 0.006) in contrast to laparoscopic surgery, which increased from 29% to 46% (p = 0.048). When performing subgroup analysis by ethnicity and insurance status, there were no differences in the outcomes evaluated.

Conclusions/Discussion: The COVID-19 pandemic impacted cancer care in multiple ways. We identified more colonoscopies were performed after onset of symptoms versus asymptomatic screenings. At our institution, once cancer was diagnosed, NAT and surgical care were not delayed. Rectal cancer patients showed more advanced disease and surgical cases seemed to be more complex as demonstrated by an increase in operative time and higher ASA. COVID-19 further impacted patient care by limiting discharge to rehabilitation facilities. As we continue to see the effects on patient care due to COVID-19, strategies to prevent delays in cancer diagnosis and treatment should continue. Further long-term evaluation of the COVID-19 impact on CRC management and outcomes is needed to identify patients in need of expedited care.

Table 1. Time to colorectal cancer management

COLON CANCER			
Characteristic	Before COVID, N = 182[1]	After COVID, N = 128[1]	p-value[2]
Days from colonoscopy to staging	8 (4, 14)	7 (2, 12)	0.14
Days from colonoscopy to surgery	32 (21, 52)	27 (15, 40)	**0.026**
RECTAL CANCER			
Characteristic	Before COVID, N = 72[1]	After COVID, N = 54[1]	p-value[2]
Days from colonoscopy to staging	10 (6, 17)	8 (4, 12)	0.056
Days from colonoscopy to surgery	130 (46, 188)	158 (35, 258)	0.18
Days from colonoscopy to neoadjuvant therapy	24 (19, 30)	26 (20, 40)	0.33
Days from neoadjuvant therapy to surgery	64 (60, 70)	71 (51, 80)	0.11

[1] *Median (IQR)*

[2] *Wilcoxon rank sum test*

THE IMPACT OF STANDARDIZED ROBOTICS COURSE TRAINING DURING COLORECTAL SURGERY RESIDENCY ON POST TRAINING PRACTICE: A SURVEY OF GRADUATES.

eP636

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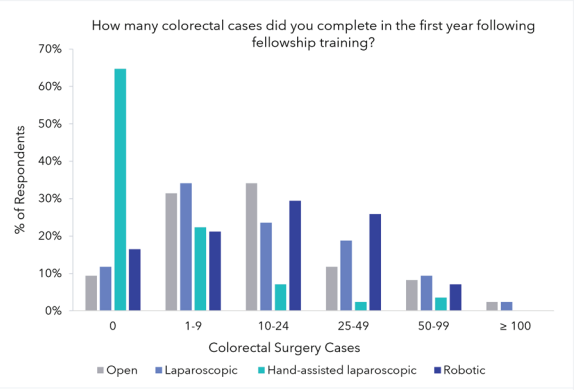
Purpose/Background: The Association of Program Directors for Colon and Rectal Surgery (APDCRS) has sponsored a standardized robotics course for colon and rectal surgery residents and minimally invasive surgery fellows since 2011 to offer residents an opportunity for exposure to this approach during the fellowship training year. This survey study aims to assess the effect of this program on the minimally invasive practice trends following fellowship training.

Methods/Interventions: An anonymous, internet-based 42-question survey was sent via Qualtrics® to graduates of ACGME-accredited colorectal surgery programs from 2016-2022 using an email listserv. The survey questions were designed to determine the impact of the APDCRS-sponsored course on surgical approaches adopted by young colorectal surgeons after fellowship training. All study variables are summarized using frequencies and proportions to offer a descriptive overview of training experiences by cohort.

Results/Outcome(s): The survey response rate was 27.1% and is ongoing. 95.7% participated in the APDCRS-sponsored robotic course and respondents are currently distributed across community (46.4%), university (30.9%), non-university academic (16.5%), and military (2.06%) practices evenly distributed across geographic regions. During general surgery residency, 97.9% had laparoscopic colorectal experience with 44.7% completing more than 25 cases; only 61.7% had robotic experience and only 7.5% completed more than 25 cases. During colorectal surgery residency, all respondents received laparoscopic training with 50.0% performing more than 50 cases. In contrast, 93.6% had robotic exposure and only 33.0% performed more than 50 cases. During the first year after fellowship training, 22.4% performed ≥25 open cases, 30.6% performed ≥25 laparoscopic cases, 5.9% performed ≥25 HA-lap cases and 38.8% performed ≥25 robotic cases. Robotics is currently utilized by 94.9% of respondents and 47.1% have completed ≥50 robotic cases since fellowship, with 92.2% completing their first robotic case within 1 year after fellowship. Respondents reported that ≥75% of elective colectomies and ≥75% of rectal resections were done robotically by 33.3% and 53.6%, respectively. While 82.9% of respondents agree (21.1%) or strongly agree (61.8%) that the APDCRS robotics training course met expectations, 80.3% agree or strongly agree that the course prepared them for post-graduate robotics practice. The most common barrier for utilizing the robotic approach is gaining access to a robot (37.2%).

Conclusions/Discussion: The APDCRS-sponsored robotics training course met expectations and prepared colorectal surgery residents for adopting the robotic approach after graduation, with the majority of respondents reporting that they utilize robotics in their colorectal practice post-graduation.



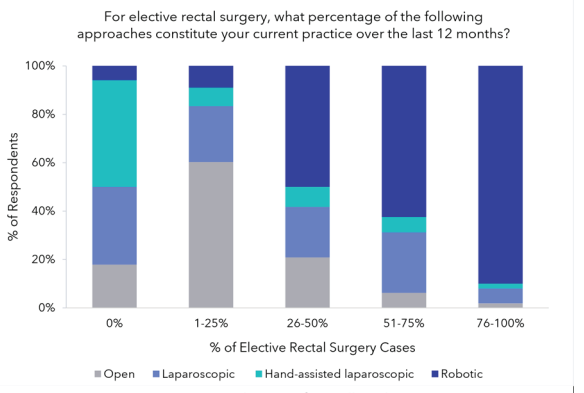


Figure. Operative Choices after Fellowship Training

SPEAKING STOMA: A NEEDS ASSESSMENT OF PATIENT-PROVIDER COMMUNICATION AND PATIENT-CENTERED CARE FOR INDIVIDUALS WITH OSTOMIES.

eP637

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Purpose/Background: One million people live with an ostomy in the US. Ostomates benefit from effective communication with their physicians about their care; however, many find these conversations difficult and burdensome. The purpose of this study is to better understand communication difficulties ostomates face when communicating with their physicians.

Methods/Interventions: We conducted semi-structured interviews and focus groups with individuals who have had an ostomy for at least a year. The interviews discussed challenging interactions participants have had since receiving their ostomies, including difficult interactions with physicians. We conducted inductive thematic analysis of interview transcripts and identified common themes.

Results/Outcome(s): Participants expressed opportunities to improve both their own communication and physician communication. First, participants found that

deciding whether or not to ask for a second opinion was often difficult, particularly when ostomy resources may be difficult to find. Second, participants described a need to discuss the importance of finding what works for them and for physicians to include examples of different strategies for ostomy care rather than one method only. Finally, participants desired more optimistic communication about benefits of ostomies. For instance, participants preferred when physicians emphasized how ostomies could offer immediate relief and improve quality of life.

Conclusions/Discussion: People with ostomies noted communication difficulties with their physicians regarding medical care such as requesting second opinions on their condition and ostomy care. They also expressed the need for more physician optimism regarding ostomies. Future work should address these issues to improve patient-centered care for people with ostomies.

IMPACT OF A MODULAR SURGICAL TRAINING PROGRAM ON PERIOPERATIVE AND ONCOLOGICAL OUTCOMES IN ROBOTIC RECTAL CANCER SURGERY.

eP638

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Purpose/Background: Robotic approach is rapidly being adopted in colorectal oncological surgery. However, structured training programs for robotic colorectal surgery have been limited due to the lack of suitable trainers, limited accredited training programs and curricula, and scarcity of dual console systems. Moreover, concerns on suboptimal surgical outcomes and longer operating times limit the training opportunities for a novice robotic surgeon. The aim of the study was to compare the perioperative and oncological outcomes of robotic total mesorectal excision (rTME) for rectal cancer performed by expert consultants only and by surgical trainees in a modular surgical training program.

Methods/Interventions: Consecutive rTME cases were reviewed retrospectively from a prospectively maintained institutional database between October 2013 and October 2017 and divided into two groups. Group I: rTME performed by expert consultants only (May 2013-June 2015). Group II: rTME performed by surgical trainees in a modular surgical training program under direct supervision (July 2015-December 2017). Trainees were pursuing a six-month robotic colorectal fellowship. rTME training module was divided into five modules which were performed in a stepwise fashion with increasing degrees of complexity. Video footage was recorded and revised postoperatively. Demographic, perioperative, and oncological data were collected.

Results/Outcome(s): A total of 238 rTME resections were performed (Group I: n=99, Group II: n=139). Four trainees operated in Group II with 37.5 modules performed in total by each trainee. Patients' characteristics were similar between groups regarding age (69/67 years), sex (male 69/66%), and BMI (26/27 kg/m^2). ASA III was higher in group I (24/7%, p=0.005). Operating time (251/263 minutes), morbidity rates (16/11%), mean intraoperative blood loss (17/13 ml), R0 resection rates (92/93%), and harvested lymph node count (19/19) were similar between groups. There were no conversions in either group. There was no difference between the two groups in terms of length of stay (6 days), anastomotic leak (4/5%), and return to theatre (4/3.6%). Median follow-up was 65 months. 5y overall survival (83 vs. 90%, p=0.62) and 5y disease-free survival (80.6 vs. 84.8%, p=0.96) were similar between groups.

Conclusions/Discussion: This modular surgical training program for rTME maximizes the training experience for the trainee without affecting the perioperative and oncological outcomes of rectal cancer patients. Each rTME can be performed by multiple trainees with different skills on a skill-proficiency basis, optimizing the training experience. Video footage revision could be a key component for feedback analysis.

NEOADJUVANT CHEMOTHERAPY COULD BE COMPLETED AS PLANNED IN MOST PATIENTS WITH LOCALLY ADVANCED COLON CANCER AND INCOMPLETE COLONOSCOPY: A RETROSPECTIVE COHORT STUDY.

eP639

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Purpose/Background: Current evidence has shown oncological benefit of neoadjuvant chemotherapy for patient with locally advanced colon cancer (LACC). However, LACC often presents with stenotic bowel lumen, resulting in incomplete colonoscopy (IC) and potential of imminent bowel obstruction. Whether the stenosis will alleviate or aggravate after chemotherapy is unknown; this uncertainty and fear of obstruction prevents patients from receiving optimal treatment. This study aimed to evaluate the feasibility and safety of neoadjuvant chemotherapy in patients with LACC and IC.

Methods/Interventions: This retrospective study included 124 patients diagnosed with LACC and IC between 2013 and 2020. Primary outcomes of this study were discontinuance of planned 4 to 6 cycles, or 2 to 3 months of neoadjuvant chemotherapy.

Results/Outcome(s): Out of the 124 patients undergoing neoadjuvant chemotherapy, 35 developed obstruction (33) or perforation (2), 3 discontinued chemotherapy due to severe adverse reaction, and the remaining 86 patients completed planned treatment uneventfully. Among the 35 patients with obstruction or perforation,

16 resumed and completed neoadjuvant chemotherapy (11 after conservative treatment, 1 after change of regimen, and 4 after stenting), 1 discontinued chemotherapy to have transverse colostomy, and 18 discontinued chemotherapy to have the primary tumor resected. Of these 18 patients, 6 also received stoma, 2 of which were Hartmann stomas. To conclude, 102 (82%) patients completed neoadjuvant chemotherapy as planned. Serum carbohydrate antigen 19-9 (CA19-9) > 105 U/mL (three times the upper limit of normal) was associated with discontinuance of planned chemotherapy (64.71% vs 26.19%; OR = 5.07; $p < 0.005$). In multivariate analysis, CA19-9 > 105 U/ml was independent risk factor for discontinuance (OR = 8.94; 95% CI, 1.54-74.2; $p < 0.05$).

Conclusions/Discussion: For most patients with LACC and IC, neoadjuvant chemotherapy can be completed as planned. Patients with increased serum level of CA19-9, especially those with CA19-9 > 105 U/ml, are at higher risk of discontinuance of neoadjuvant therapy.

PREHABPAL: A DIGITAL TOOL FOR OLDER ADULTS TO INCREASE ENGAGEMENT WITH PREHABILITATION.

eP640

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Purpose/Background: Older Adults who undergo surgery for colorectal cancer are at substantial risk of surgical complications, including discharge to a facility or death. By increasing resilience, pre-operative rehabilitation or "prehab" has been shown to mitigate adverse outcomes. However, there are multiple barriers to prehab implementation, including high cost, patient flow logistics, and the multidisciplinary expertise required to develop the programs. This abstract describes the protocol for a multi-site randomized clinical trial investigating a novel, web-based application for remote prehab aimed at increasing patient engagement in prehabilitation and improving clinical outcomes.

Methods/Interventions: This randomized clinical trial will be conducted at three high volume cancer centers. Patients age 65 years and older, are scheduled for colorectal cancer surgery, and have regular access to internet will be eligible for enrollment. Patients will be randomized to one of two study arms for prehabilitation activities: 1) digital prehabilitation via the PrehabPal web app (intervention arm, Arm 1) or 2) written prehabilitation instructions (usual care, Arm 2). The PrehabPal app was adapted from a prior in-person prehab clinic with input from patients and clinicians, and has been successfully piloted by more than 200 oncologic surgery patients at our institution. The written materials will include the same prehab core content as the web app. We will enroll at least 40 patients per site. Using data collected through chart review, patient self-entries, and surveys administered by study staff, we will compare the effect of the web app on patient engagement and adverse outcomes as compared to traditional written materials.

Results/Outcome(s): The effect of prehab will be compared between subjects randomized to the webapp (Arm 1) and written instructions (Arm 2). The primary outcome measure is the proportion of available days before surgery that the subject engaged in prehabilitation activities. Secondary outcome measures include, surgical complications, hospital length of stay and 30-day readmission, and functional status at 8 weeks.

Conclusions/Discussion: Although prehab in older adults has been demonstrated to reduce healthcare costs and improve surgical outcomes, implementation is currently limited in the United States. If digital, remote prehabilitation is found to increase patient engagement and mitigate adverse outcomes in colorectal cancer patients after surgery, prehab webapps may fill this critical gap.

THE EFFECT OF MINIMALLY INVASIVE SURGERY ON TIME TO INITIATION OF ADJUVANT CHEMOTHERAPY FOR COLON CANCER.

eP641

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Purpose/Background: Adjuvant chemotherapy (AC) is the standard of care for patients with high-risk stage 2 or 3 colon cancer. Multiple studies have shown that increased time to initiation of adjuvant chemotherapy (TIAC) worsens overall survival. However, data regarding the effect of minimally invasive surgery on TIAC is limited. The purpose of this study is to determine if the type of surgical approach affects time to receipt of adjuvant chemotherapy for patients with colon cancer utilizing data from the National Cancer Database (NCDB).

Methods/Interventions: Patients in the NCBD diagnosed with colon cancer between 2010-2019 were categorized based on surgical approach: open, laparoscopic and robotic. Demographics and clinical characteristics between the three groups were compared using ANOVA, Kruskal-Wallis or chi-square tests, as appropriate. TIAC was defined as days between surgery and first dose of AC. Multivariable regression was performed to determine factors independently associated with TIAC. Cox proportional hazards regression models were used for survival analyses. Data analysis was performed using R Version 4.1.2 (The R Foundation for Statistical Computing).

Results/Outcome(s): 77,697 patients with stage 2 or 3 colon cancer who received adjuvant chemotherapy were identified. 45.6% underwent open resection, 45.2%

underwent laparoscopic resection and 9.3% underwent robotic resection. The median TIAC was 42 days for robotic surgery, 43 days for laparoscopic surgery and 47 days for open surgery. On multivariable linear regression, laparoscopic (OR -3.9 days; 95% CI -4.28 - -3.52; p-value<0.001) and robotic surgery (OR –4.6; 95% CI -5.25- -3.94; p-value<0.001) were independently associated with earlier receipt of adjuvant chemotherapy. On Cox proportional hazard modeling increased number of days from surgery to receipt of adjuvant chemotherapy was independently associated with worse overall survival (HR 1.006; 95% CI 1.005-1.006; p-value<0.001) when controlling for comorbidities, stage, age and sex. Additionally, robotic (HR 0.63; 95% CI 0.58-0.68; p-value<0.001) and laparoscopic resection (HR 0.73; 95% 0.71-0.76; p-value<0.001) were independently associated with improved overall survival compared to open surgery after adjustment for each of the above relevant clinical factors and TIAC.

Conclusions/Discussion: We found a survival benefit for earlier receipt of adjuvant chemotherapy in patients with colon cancer. Although patients who undergo minimally invasive colectomy receive AC slightly sooner, the true potential of MIS in reducing the time to initiation of chemotherapy needs to be investigated in future prospective trials.

NOVEL CRITICAL REVIEW OF PROGNOSTIC SCORING SCALES – NELA AND POSSUM – FOR EMERGENCY COLORECTAL MAJOR SURGERIES.

eP642

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Purpose/Background: Existing risk stratification models such as the National Emergency Laparotomy Audit (NELA) and Physiologic and Operative Severity Score (POSSUM) have been designed to assist in prediction of outcomes in emergency surgery (ES). However, in existing literature, these scores have yet to be tested in colorectal-specific emergency surgeries which may have high morbidity and mortality rates.

Methods/Interventions: A review of prospectively collected data of all major emergency colorectal surgeries from 2019 to 2022 in a single institution in Singapore was performed. Peri-operative ASA, NELA and POSSUM scores were calculated and compared with observed short-term surgical outcomes, such as Clavien-Dindo (CD) morbidity classification, 30-day mortality and duration of hospitalisation, to determine the accuracy of such risk models.

Results/Outcome(s): A total of 165 adult patients who underwent major emergency colorectal surgeries between May 2019 to May 2022 were included. Isolated ostomy creations without resections were excluded. Incidence of morbidity CD classification ≥3b, 30-day mortality, and duration of hospitalisation ≥10 days were 22.4%, 3.6%, and 67.9% respectively. Analysis of receiver operating characteristic (ROC) curves demonstrated that NELA was a better predictor of both mortality (0.862 vs 0.829) and length of stay (0.829 vs 0.746) when compared to POSSUM. However, both NELA and POSSUM were poor estimators of morbidity ≥3b CD classification (AUC 0.772 vs AUC 0.682).

Conclusions/Discussion: This review of prognostic scoring systems in a novel subgroup of patients showed that NELA risk stratification model is useful predictor of 30-day mortality and duration of hospitalisation for major emergency colorectal surgeries.

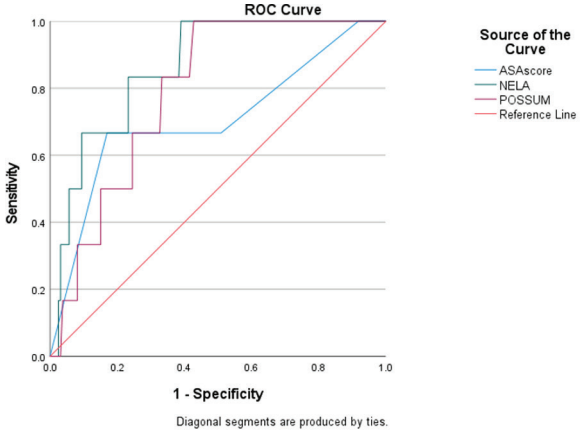

Figure 1: ROC curve predicting 30-day mortality rates.

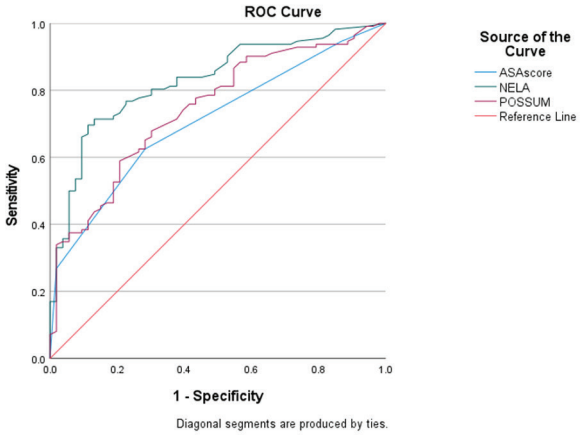

Figure 2: ROC curve predicting length of stay ≥ 10 days.

AI EMPOWERMENT FOR LAPAROSCOPIC SURGERY.

eP643

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Purpose/Background: Artificial intelligence (AI) has made dramatic progress in various fields in recent years, from daily life to medical field. In our clinical field, we use the 2D tomographic image data of the Digital Imaging and Communication in Medicine (DICOM) standard, and the DICOM data such as Computed Tomography (CT) are converted to the three-dimensional (3D) data that are widely utilized, and they can be reconstructed to show the surface/body information (e.g., visceral, vessels, muscles, or bone). In the process, it is necessary to convert the two-dimensional (2D) tomographic image data into the 3D data composed by polygon. In order to construct an accurate real model, it is necessary to obtain sufficient information which is a sort of measurement information provided by the 2D data photographed by the fine slices. While the 3D data are useful to consider and estimate the general treatment in laparoscopic gastrointestinal surgery, we cannot handle the data during surgery "directly". If we can control the data, like a real model constructed by the 3D data by "touch," it is very helpful for a simulation of laparoscopic surgery and evaluation of the anatomy and location around tumor as to oncological surgery. Although 3D data are helpful for the patients to understand the disease and treatment policy, they also enable medical staff/team to recognize the spatial image.

Methods/Interventions: We have launched a project using 3D view device powered by AI and wearable tools.

Results/Outcome(s): We use the benefit to project the 3D data in laparoscopic surgery as a navigation surgery using this system, which helps us to perform oncological surgery with functional preservation even in the limited surgical space in the abdominal cavity. It enables us to detect the location, specifically, easily and safely, without examination by handling the PC or keyboards.

Conclusions/Discussion: We report the present image-guided, navigation surgery and the future.

ENDOLUMINAL VACUUM DEVICE CREATION.

eP644

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Columbus, OH

Purpose/Background: Gastrointestinal perforations and leaks have historically caused significant morbidity and mortality. Advanced endoscopic techniques have revolutionized minimally invasive techniques in addressing leaks (e.g. esophageal stents). Endoluminal negative pressure wound therapy has been introduced as a possible technique for treating colorectal anastomotic leaks in appropriately selected patients. However, resources demonstrating the creation of the endosponge are limited. We thereby present a video exhibiting a technique used to create the endosponge with a nasogastric tube.

Methods/Interventions: The patient initially presented with an infected presacral cystic lesion and underwent excision of a 9.5 x 11 x 10 cm lesion, ultimately requiring excision of the posterior rectal wall, coccyx, and creation of a loop sigmoid colostomy. Despite months of appropriate diversion, the posterior rectal wall failed to heal adequately upon repeat evaluation. Endoluminal negative pressure wound therapy was thereby recommended.

Results/Outcome(s): An endosponge was created using a small-bore nasogastric tube and negative pressure wound therapy supplies. The black sponge from the wound vac was cut to fit the rectal cavity being treated. The sponge was then secured onto the distal end of the nasogastric tube using a two-point anchor technique as demonstrated in the video and the nasogastric tube was connected to the wound vac tubing. The patient started negative pressure wound therapy on 7/26, returned to the operating room for wound vac exchanges every 2-3 days thereafter, and successfully healed within three weeks.

Conclusions/Discussion: Endoluminal negative pressure wound therapy remains a viable therapeutic approach for select patients presenting with gastrointestinal leaks.

ANAL MELANOMA: A PATHOLOGY MORE DESCRIBED IN BOOKS THAN SEEN IN REAL LIFE.

eP645

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Purpose/Background: Anal melanoma (AM) is a rare tumor, with poor prognosis. The first case was reported by Moore in 1857 and, so far, approximately 500 cases have been reported (2). It has an incidence of 0.4% - 1.6% of all malignant melanomas, <1% of all anorectal neoplasms and the incidence rate of AM is approximately 2.7 cases per 10 million population per year in the United States. (3, 4). Its clinical picture does not usually differ from other anal sphincter tumors, even simulating benign pathologies, being predominantly rectorrhagia, it can also be accompanied by anal pain, pruritus or sensation of mass.(3) Therapy has not been standardized due to the low incidence of this disease and the lack of clinical experience. Surgical excision is the main treatment option, but the selection of abdominoperineal resection (APR) or local excision (LE) remains controversial (5, 6). Currently remains a highly lethal disease; overall, patients with anorectal melanoma have a median overall survival (OS) of 17 months and a 5-year survival rate of 17%. Patients with localized disease

have a median OS of 29 months and a 5-year survival rate of 25.6%, which is significantly superior to those with regional (median OS of 21 months, 5-year rate of 16.1%) and distant (median OS of 7 months, 5-year rate of 8.9%) groups.(7)

Methods/Interventions: We present the case of a 73-year-old woman, with no relevant medical history, who was referred to our private colorectal practice, with a clinical picture of long evolution, composed of rectorrhagia, sensation of lump in the anus and anal pain while defecating. Anal inspection identified a mass of approximately 8 centimeters in diameter, macroscopically compatible with anal melanoma (Figure 1, 2). The result of the CT scan and colonoscopy showed that it was a localized disease and she was offered local excision as treatment, which he accepted.

Results/Outcome(s): Local excision was performed (Figure 3, 4) and the surgical product was sent to pathology confirming the diagnostic suspicion. Adjuvant treatment with chemotherapy was offered and refused. A clinical follow-up of 6 months has been performed, in which no remission of the disease has been demonstrated.

Conclusions/Discussion: The infrequent incidence of AM, its nonspecific clinical features and its similarity to benign anorectal etiologies may lead to late diagnosis, and its aggressive behavior carries a poor prognosis. Am currently has no treatment guidelines; the choice of therapeutic approach should be carefully considered. The stage of the disease is the most important determinant of prognosis in AM. LE with adjuvant chemoradiotherapy should be considered in selected patients with small tumors that are suitable for LE. However, APR should be offered for all advanced and deeply infiltrating lesions in which LE is not possible or as salvage after local recurrence. Early diagnosis and a tailored multidisciplinary treatment plan would likely improve the outcome of MA treatment.

A RARE CASE OF SITUS INVERSUS AMBIGUOUS AND COLON CANCER PRESENTING AS ADULT INTUSSUSCEPTION.

eP646

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Purpose/Background: Situs Inversus (SI) is a rare congenital abnormality in laterality of internal organs with incidence rate of 1 per 20,000. SI ambiguous (heterotaxy) is much rare than totalis but both types are not premalignant and does not confer higher potential for malignancy.[1,2,5] There is no proven direct correlation with cancer incidence and SI abnormality but its presence poses treatment dilemma and confusion with actual disease creating surgical complication intra-operatively and poses varied post operative outcome from unplanned radical resection.

Methods/Interventions: A rare case of 61yo Filipino female presenting with nine months history of epigastric pain, loose stools, and anemia. Her abdomen was flat but with fullness at the supraumbilcal area to epigastric area without signs of peritonitis. Endoscopic biopsy showed adenocarcinoma. CT Scan showed distinct colonic segments on the left while small bowels predominantly on the right and right-sided duodeno-jejunal junction. There is also telescoping pattern at the transverse colon and wall thickening of descending, sigmoid colon and rectum. Her CEA was normal.

Results/Outcome(s): An extended right colectomy with sigmoidopexy was performed with findings of marked centralization of cecum, appendix and ascending colon and detached right Toldt's (Fig 2). Treitz ligament was absent with small intestines completely adherent to right side (Fig 2) and transverse colon intussusception (Fig. 1) without detorsion. Sigmoid was redundant with mesenteric congenital bands. Histopathology showed a well differentiated adenocarcinoma with muscularis propria invasion, negative node metastasis and no vascular nor perineural invasion (Stage 1 pT2N0).

Conclusions/Discussion: SI ambiguous occurence was initially described by Fabrizio (1600) followed by Kartagener (1933) and Siewart (1904) supporting the etiology of immotile cilia syndrome. This paved way for Bjorn Afzelius (1995) to postulate theories of complex relationship of immotile cilia and body axis abnormality resulting signal abnormality in laterality of organ development. Adenocarcinoma type is the most common pathology for pts with concommitant SI. Incidentally, transverse colon (43%) is most common location followed by hepatic flexure (36%) and ascending colon (27%). Conclusion SI does not always cause serious condition as these are usually an incidental findings with other common disease e.g., appendicitis, cholecystitis, but it poses diagnostic dilemma and treatment challenge especially to surgeons---as an unplanned radical procedure

ensues surgical complication intra-operatively. They may need an immediate surgery for an initial disease complains hence emphasis with familiarity on pre-operative imaging by radiologist and surgeons alike will improve cancer treatment and outcome from specific cases. Careful planning and multidisciplinary approach with subspecialty involvement as these cases involves anatomic variance and technical challenge.

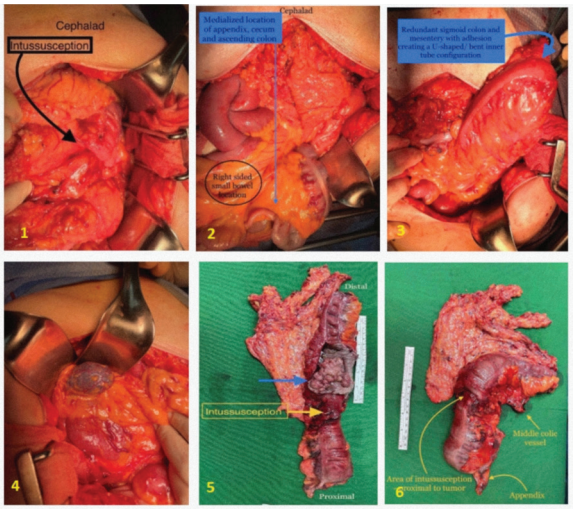

Figure: 1) intussusception of transverse colon; 2) centralized part of appendix, cecum and ascending colon with clumping of small bowel at right side; 3) redundant sigmoid with shortened mesentery; 4) distended gallbladder w/ duodenal c-loop at right side; 5) specimen cut open with mass 6)lead point of intussusception at TC

image taken with consent

LENGTH OF STAY VARIES WITH RACE IN ONCOLOGIC COLECTOMIES.

eP647

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Purpose/Background: Race and ethnicity have been linked to disparities in colorectal cancer. Rates of screening, stage at diagnosis, and outcomes of oncologic resections differ for minority populations. Additional barriers to care, such as language barriers and distance to hospital can impede continuity of care and decrease quality of life. Although differences by race in short-term outcomes such as length of stay (LOS) have been identified, these patterns are not consistent and have been challenging to explain. In our multicultural, metropolitan setting, we sought to identify causative factors and explain the relationship between race and LOS following elective resections of colorectal neoplasms.

Methods/Interventions: This is a retrospective study of adult patients undergoing elective colectomy for colorectal neoplasm at a single institution between January 1st, 2015 and December 31st, 2020. Data were abstracted prospectively from the National Surgical Quality Improvement Program (NSQIP) database and from chart review. SAS Academic was used for statistical analysis. Patients with concurrent surgery or prior colectomies were excluded.

Results/Outcome(s): 383 patients were included. 161 (42%) were female. 153 (40%) were Asian, 46 (12%) were black, 101 (26%) were Hispanic, and 83 (22%) were white. Race was strongly associated with age (p=0.0009), BMI (p<0.0001), length of stay (LOS) (p<0.0001), American Society of Anesthesiologists (ASA) class (p=0.004), and use of enhanced recovery after surgery (ERAS) (p=0.006). Race was also associated with type of household members (p=0.009), discharge disposition (p=0.05), distance from home to hospital (p=0.0002), time to hospital by public transportation (p<0.0001), and number of transfers on public transportation (p<0.0001). LOS was associated with similar factors such as age (p<0.0001), albumin (p=0.02), duration of surgery (p=0.0003), CCI (p=0.003), ASA class (p=0.0004), and ERAS (p<0.0001). It was additionally associated with features of disposition, such as type of household members (p=0.002) and discharge disposition (p<0.0001). Oncologic factors such as tumor size, nodal involvement, presence of metastases, and overall stage were not associated with race or LOS (p>0.05). In multivariable analysis, race (p=0.01), duration of surgery (p=0.001), preoperative ERAS (p<0.0001), operative approach (p=0.01), and discharge disposition (p=0.0003) remained associated with LOS after accounting for age, BMI, albumin, ASA class, CCI, and household members.

Conclusions/Discussion: In elective colectomies for colorectal neoplasm, race remained associated with LOS, even after controlling for surgical risk factorsand postoperative disposition. Though only significant in bivariate analyses, factors not commonly explored such as household composition may explain some of the variation in LOS by race. Unmeasured factors such as views on hospitalization may also account for differences in LOS by race.

Table 1. Bivariate analysis of race by continuous variables

	Asian	Black	Hispanic	White	p-value
Age (years)	-6.8 [-10.3, -3.4]	-6.9 [-11.5, -2.3]	-4.3 [-8.0, -0.6]	REF	0.0009
BMI* (kg/m²)	-3.1 [-4.4, -1.9]	2.2 [-0.2, 4.5]	0.04 [-1.4, 1.5]	REF	<0.0001
Albumin (g/dL)	0.2 [0.1, 0.3]	0.03 [-0.1, 0.2]	0.1 [-0.1, 0.2]	REF	0.02
Duration of surgery* (min)	-17.5 [-41.0, 6.0]	-7.5 [-45.0, 30.0]	6.0 [-19.0, 31.0]	REF	0.2
Length of stay** (days)	-1.7 [-2.5, -0.8]	-0.4 [-1.6, 0.7]	-1.3 [-2.2, -0.3]	REF	<0.0001
CCI**+ (score)	-0.3 [-0.4, -0.1]	-0.2 [-0.4, 0.01]	-0.1 [-0.3, 0.03]	REF	0.009

Results are reported as coefficient and 95% confidence interval in brackets. Significance was set at p=0.05. Significant p-values in bold.
** CCI = Charlson Comorbidity Index.
* BMI and duration of surgery were analyzed via Kruskal-Wallis due to skewness greater than 0.5 or less than -0.5. p-values were derived from Kruskal-Wallis. Coefficient intervals were estimated from Hodges-Lehmann Estimation.
** LOS and CCI were analyzed as a negative binomial as both variables in our dataset were recorded as count data. All other variables did not have significant skew and were therefore analyzed via simple ANOVA.

A CASE-MATCHED ANALYSIS OF SURGERY COMBINED WITH INTRA-OPERATIVE MICROWAVES ABLATION FOR THE MANAGEMENT OF COLORECTAL LIVER METASTASES.

eP649

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Purpose/Background: Parenchymal sparing surgery has nowadays become the best standard of care for patients with colorectal liver metastases (CRLM) suitable for surgery. As the application of intra-operative microwaves ablation (IMW) combined with surgery remains poorly analyzed, we aimed to compare this approach with surgery alone in patients with CRLM candidate to metastases resection with radical intent.

Methods/Interventions: Using a case-matched methodology based on age, gender, ASA score, BMI and CRLM burden that considers the number and maximum size of lesions, 20 patients undergoing hepatic resection plus IMW (SURG + IMW group) and 20 patients undergoing hepatic resection alone (SURG group), were included. The two groups were compared in terms of peri-operative outcomes and follow up data, as well as of relapse-free Survival (RFS) and post-resection Overall Survival (OS).

Results/Outcome(s): Post-operative complications (p=0.110) and length of hospitalization (p=0.187) were similar in the two groups. At a median follow up of 22.4±17.8 months, 12/20 patients (60%) in SURG+IMW group and 13/20 patients (65%) in SURG group experienced CRCLM recurrence (p=0.774). None of them had recurrence at the same surgical or ablation site of the first hepatic treatment. No differences were reported between the two groups in terms of RFS (p = 0.685) and post-resection OS (p = 0.151). The combined use of IMW was not an independent factor affecting RFS and post-resection OS at univariate and multivariate analysis.

Conclusions/Discussion: CRLM patients undergoing surgery plus IMW have similar short and mid-term results compared with surgery alone group. The choice between the two approaches could be only technical, depending on the site, number, and volume of the CRCLM. This approach could also be used in patients with CRCLM relapse who have just undergone hepatic surgery.

RE-RESECTION HEPATECTOMY AFTER SIMULTANEOUS COLORECTAL AND HEPATIC RESECTION FOR METASTATIC COLORECTAL CANCER.

eP650

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Purpose/Background: Simultaneous colon and liver resection is becoming more widely accepted as an effective and safe approach to synchronous metastatic colorectal cancer. Despite curative intent, recurrence of disease is common. Multiple treatment options are available for the management of colorectal metastases to the liver. We aimed to identify the safety and feasibility of repeat surgical resection in patients with recurrent or persistent disease.

Methods/Interventions: Retrospective review of a prospectively maintained hepatectomy database at a tertiary referral center between 2010 and 2022 was studied. We identified patients who had undergone simultaneous colon/liver resection and subsequently required surgical re-resection of metastases to the liver. Clinical, pathologic, and perioperative data were analyzed.

Results/Outcome(s): Fifty-eight patients underwent simultaneous colon and liver resections at our institution. Eight patients (13.8%) required re-resection of metastatic disease to the liver. The mean time to re-resection was 14.2 months (2-29). The most common location of the primary tumor was the sigmoid colon (62.5%). All patients had adequate lymphadenectomy at the time of colorectal resection, yet 4 patients (50%) had zero positive lymph nodes on pathological examination. Five patients (62.5%) initially underwent minor hepatic resection followed by major hepatectomy while two patients (25%) underwent major hepatectomy initially. Two patients required percutaneous drainage (Clavien-Dindo grade 3a) but otherwise there was no major perioperative morbidity or mortality for initial or subsequent resections.

Conclusions/Discussion: Simultaneous colon and liver resection is a safe and reasonable approach for metastatic colorectal cancer. Re-resection of liver metastases is necessary and feasible in a large portion of these patients. This emphasizes the importance of planning for the possibility of future additional hepatectomy. Important considerations include parenchymal sparing, avoidance of unnecessary liver mobilization, and limited hilar dissection at the time of initial operation. Use of other modalities such as Y90 or ablation for deeper lesions instead of larger hepatic resection should also be considered.

INPATIENT SURGICAL TRENDS FOR PATIENTS WITH CROHN'S DISEASE IN THE UNITED STATES FROM 1998 TO 2019.

eP651

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Purpose/Background: The prevalence of Crohn's disease in the United States is 214 per 100,000. This study is designed to evaluate if the use of biologic therapies for Crohn's Disease, starting in 1998, has led to a decrease in the number of admissions, surgical interventions, and inpatient treatments carried out for patients with this disease. Despite multiple pharmacological options, 2/3 of patients with Crohn's Disease will eventually require surgery with ½ needing surgical resection within 10 years of diagnosis. In 1998, Infliximab was the first FDA approved biologic for the treatment of Crohn's Disease. This study is designed to evaluate if the use of biologic therapies for Crohn's Disease, starting in 1998, has led to a decrease in the number of non-elective admissions, and inpatient surgical interventions in patients with Crohn's disease.

Methods/Interventions: Patients that were admitted with an admission or discharge for Crohn's disease from January 1, 1998, through December 31, 2019, were identified in the Healthcare Cost and Utilization Project's National Inpatient Sample based on diagnosis codes. The demographic data, number of patients that underwent surgical procedures, and admissions defined as elective were queried for this cohort.

Results/Outcome(s): During the studied period, the number of patients admitted with Crohn's disease for elective admissions increased slightly from 1.3/100k to 1.9/100,000 (r^2=0.4, p=0.007). The number of patients who underwent procedure during their hospitalization decreased significantly from 62.5% (62.4%-62.6%) to 55.0% (54.9%-55.1%) (r^2=0.8, p<0.0001). Patients who identified as Black or Hispanic were more likely to present with Crohn's disease as non-elective admissions (OR=1.61 (1.57-1.65) p<0.001, and OR=1.72 (1.65-1.78 p<0.001)).

Conclusions/Discussion: While elective admissions for Crohn's disease slightly increased during the studied period, patients undergoing procedures significantly decreased. This may have been due to increasing use of biologic therapy in patients with Crohn's disease. Additionally, patients identifying as Black or Hispanic were less likely to present as elective admissions during the studied period.

ILEOCOLIC RESECTION FOR MEDICALLY REFRACTORY CROHN'S DISEASE RESULTS IN SIGNIFICANT IMPROVEMENT IN PATIENT QUALITY OF LIFE.

eP652

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Purpose/Background: Despite advances in biologic therapy, a considerable proportion of patients with ileocolonic Crohn's disease (CD) require resection for refractory disease. While surgery is usually a last resort, impact on patient quality of life (QoL) may provide insight regarding optimization of timing of surgical intervention in selected patients. We analyzed the initial results of patient reported QoL before and after primary ileocolic resection (ICR) for medically refractory CD.

Methods/Interventions: A retrospective review of a prospectively maintained inflammatory bowel disease database was performed to identify patients with CD who underwent primary ICR at a high volume tertiary care center between July 2018 and March 2022. QoL was measured using physical and mental component scores calculated from the RAND SF-36 Questionnaire. Patients with preop and at least 1 response between 6-12 months postop were included. Age, gender, biologic therapy, disease features, surgical urgency, operative approach and 30-day morbidity were analyzed as potential confounders; variables with univariate p<0.30 were included for multivariate analysis.

Results/Outcome(s): 97 patients, median age 35.1 (19-74), underwent primary ICR and completed preop and at least 1 postop QoL survey. 68% of patients were exposed to a biologic preop and 67% were initiated on biologics within 6 months of ICR. Disease phenotype based on Montreal classification included stricturing (49.5%), penetrating (15.5%), both stricturing and penetrating (17.5%) and non-stricturing non-penetrating (14.5%) disease. 80.4% of cases were elective vs 19.6% emergent; 99% were approached laparoscopically with 10.4% conversion to open. 30-day morbidity was 14.4%, including 1 anastomotic leak. Preop physical and mental survey scores were worse in patients who underwent emergent surgery (P<0.001 and P=0.003). There was no correlation between QoL scores and biologic use pre or postop. 96.9% and 71.1% of patients reported significant improvement in physical and mental QoL respectively (p<0.001). Those <40 years of age (58.8%) had greater improvement in physical (p<0.001) and mental (p=0.044) scores. While females had significantly lower preop mental QoL scores (p=0.047), improvement in QoL scores did not correlate with gender (PCS p=0.41, MCS MV p=0.11), smoking status (p=0.53, p=0.44), concomitant perianal disease (p=0.97, p=0.58), disease phenotype (MV p=0.56, p=0.75), operative approach (p=0.35, MV p=0.69) or 30-day morbidity (MV p=0.10, p=0.33).

Conclusions/Discussion: In a cohort of CD patients in whom QoL was measured prior to and 6-12 months post-ICR, significant improvement in QoL scores was documented, most pronounced in younger patients. Patients undergoing emergent surgery had lower preop QoL, which may reflect disease severity. RAND SF-36 scores may help support consideration for earlier surgical resection in patients with medically refractory ileocolonic CD.

15-YEAR ACS-NSQIP ANALYSIS OF TRENDS IN CONTINENT ILEOSTOMY.

eP653

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Purpose/Background: Since its first description in 1969, the continent ileostomy (CI) has been a vital tool in the surgeon's armamentarium for patients undergoing total proctocolectomy (TPC) who desire continence. However, it has been largely overlooked in recent years, as many patients prefer the ileal pouch-anal anastomosis (IPAA) for preservation of the anatomical route for defecation. CI is also a technically challenging operation with reports of higher rates of postoperative complications. We sought to study the trends in CI over the last 16 years and describe associated outcomes when compared to IPAA.

Methods/Interventions: Using the ACS-NSQIP database, we identified patients undergoing either CI (CPT 44156, 44316) or TPC with IPAA (CPT 44158, 44211) between 2006-2020. Univariate analysis was performed on preoperative characteristics (age, sex, BMI, race, and comorbidities) as well as surgical characteristics and postoperative outcomes. Multivariate analysis was used to determine significant predictors of reoperation, readmission, and mortality. Data were assessed using chi-squared test and logistic regression.

Results/Outcome(s): 365 patients underwent CI as compared to 6473 for IPAA. CI patients were older (55.9 [IQR 45-69] vs 43.5 [30-55] years, p<0.0001), more likely to be female (53.4 vs 43.3%, p=0.0002), and more likely to have significant comorbidities including diabetes, pulmonary disease, hypertension, renal disease, immunosuppression, malnutrition, and bleeding disorder. CI patients also had greater ASA class (60 vs 33%, p<0.0001), have a contaminated or dirty case (44 vs 19.2%, p<0.0001), and have shorter operative times (227 [138-298] vs 288 [208-352] minutes, p<0.0001). On univariate analysis, CI patients had longer hospital stays (median 9 [6-16] vs 6 [4-9] days, p<0.0001) and were more likely to experience postoperative complications such as superficial surgical site infection, respiratory failure, renal failure, anemia, sepsis (Table 1). CI patients had similar reoperation (9.0 vs 7.5%, p=0.32) and readmission (11.5 vs 15.9%, p=0.13) but a significantly higher mortality rate (6.0 vs 0.4%, p<0.0001). However, this association with mortality did not persist with multivariate analysis (coefficient estimate 0.8, SE 0.4, p=0.06).

Conclusions/Discussion: CI is a less commonly performed procedure as when compared to IPAA. Considering it is technically challenging, CI is expectedly associated with a longer hospital stay and other postoperative complications but can be performed with similar safety as TPC with IPAA.

Table 1. Univariate Analysis of Postoperative Outcomes

	CI (n=365)	IPAA (n=6473)	P
LOS (median, IQR)***	9 [6-16]	6 [4-9]	<0.0001
Readmission (only available for 2011-2020)	42 (16.8%)	1029 (21.0%)	0.13
Reoperation	33 (9.0%)	484 (7.5%)	0.32
Mortality***	22 (6.0%)	24 (0.4%)	<0.0001
Superficial SSI***	33 (9.0%)	280 (4.3%)	<0.0001
Deep SSI	5 (1.4%)	88 (1.4%)	1
Organ SSI	29 (8.0%)	548 (8.5%)	0.8
Wound dehiscence	5 (1.4%)	65 (1.0%)	0.68
Pneumonia***	17 (4.7%)	80 (1.2%)	<0.0001
Reintubation*	8 (2.2%)	59 (0.9%)	0.032
Pulmonary embolism	3 (0.8%)	46 (0.7%)	1
Prolonged ventilator dependence (>48h)***	24 (6.6%)	56 (0.9%)	<0.0001
Acute kidney injury (creatinine increasing >2)	7 (1.9%)	1 (0.2%)	1
AKI requiring dialysis***	10 (2.7%)	34 (0.5%)	<0.0001
UTI	12 (3.3%)	256 (4.0%)	0.62
CVA	1 (0.3%)	8 (0.1%)	0.98
MI	2 (0.6%)	14 (0.2%)	0.47
Transfusion***	57 (15.6%)	476 (7.4%)	<0.0001
DVT/VTE	12 (3.3%)	195 (3.0%)	0.89
Sepsis*	32 (8.8%)	356 (5.5%)	0.012
Septic shock***	27 (7.4%)	63 (1.0%)	<0.0001
Discharge to home***	196 (53.7%)	4714 (72.8%)	<0.0001

Table 1. Univariate Analysis of Postoperative Outcomes

LAPAROSCOPIC TaTME-SHORT TERM AND LONG TERM RESULT OF FIRST HUNDRED CASES IN SINGLE CENTER.

eP654

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Purpose/Background: Laparoscopic total mesorectal excision technique has been widely adopted around the world since first described. Short term and long term outcome varies in different localities. Two dedicated surgeons started TaTME service after hands on training in Hospital Clinic, Spain. The short term ang long term outcomes were reviewed.

Methods/Interventions: Clinical information of all patients with operations done for rectal cancers were collected prospectively in our database. The first 100 cases with TaTME done were reviewed, they were done from 2015 to 2019.

Results/Outcome(s): All the cases had biopsy confirmed adenocarcinoma of mid to lower rectum, less than 10cm from anal verge, sphincter preserving TaTME was done followed by primary anastomosis and defunctiong stoma. Early post-operative results were reported in Table 1. 47 patients received neoadjuvant chemoradiation. 50 patients had BMI >23, of which 29 had BMI>25. Mean operation time was 245±54min. Conversion to open in 1 case who had previous right hemicolectomy done. R0 resection was acheived in all cases, except on close margin of 1mm.

There were 5 anastomotic leak, one was delayed presentation, no treatment was required, 4 needed antibiotics and endoscopic drainage or irrigation. Mean hospital stay was 12±9 days. There were 2 patients lost to follow-up soon after operation, the rest of them had follow up at least 36 months. The 3 year disease free survival was 76%, 3 year overall survival was 91%. There was 3 local recurrence.

Conclusions/Discussion: Early experience in our centre showed that TaTME is a safe procedure with encouraging long term oncological outcome. In the absence of formal proctorship during the development of a new technique, hands on cadeveric training and partnership mutral training could be a solution to ensure patient safety and outcome.

Background characteristics	
Age	62.5±10
Sex M:F	68:32
Neoadj chemoradiation	47
ASA 1/2/3	17/67/16
BMI	23±3.8
Operative details	
Operation time	245min±54
Blood loss	64ml±83
Staple vs hand sewn anastomosis	72:18
Conversion to open	1
Post-operative course	
Hospital stay	12days±9
Anastomotic leak	5
Re-operation	0
Complications (Clavidien Dindo) 1/2/3/4	12/30/4/0
Pathological findings	
Stage I/II/III/IV&PR	28/31/31/3/7
R0 resection	99
Close margin (1mm)	1

Table 1: Patient background and short term outcomes

PROPER RESECTION MARGIN FOR UPPER RECTAL CANCER.

eP655

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Purpose/Background: In order to reduce recurrence in patients with rectal cancer, it is important to secure a sufficient distal margin. In upper rectal cancer, when the distal margin is lengthened, there is a risk of LAR syndrome because the rectum, which serves as a reservoir, disappears. Conversely, if the distal margin is short, there is a risk of recurrence, therefore it is important to set the appropriate distal margin. The NCCN guideline recommends tumor resection with a distal margin of 4-5 cm, however, it is questionable whether it is appropriate because the length of the rectum is different for each person. Therefore, we aimed to evaluate the recurrence rate according to the length of the distal margin.

Methods/Interventions: Upper rectal cancer was defined as a case where the tumor was located from the lower part of the imaginary line connecting the sacral promontory and the pubic symphysis to the upper part of the anterior peritoneal reflection through MRI or CT. Patients included in this study were those who underwent curative surgery with stage II or III at our hospital from June 1, 2009, to December 31, 2017. Assuming that the resected specimen might contract about 30% after surgery, we divided the distal margin into two groups, a distal margin of 3.5 cm or more group (LM) and a less than 3.5 cm group (SM). We performed propensity score matching (PSM) with the following covariates; age, sex, height, body mass index(BMI), ASA classification, obstruction, perforation, tumor size, T stage, N stage, lymphatics, venous and perineural invasion, tumor differentiation, adjuvant chemotherapy, and concurrent chemoradiotherapy. The primary outcome was 3-year recurrence-free survival, and the secondary outcome was 3-year overall survival.

Results/Outcome(s): Out of the total of 88 included patients, 34 after PSM were assigned to the LM and SM groups, respectively. The mean ages of the LM and SM groups were 65.1 ± 12.7 and 65.2 ± 11.2(p=0.992). There was no difference in tumor size (p=0.088), T stage (p=0.350), N stage (p=0.743), lymphatic (p>0.999), venous (p=0.707) and perineural invasion (p= 0.559) between two groups. In the LM and SM groups, adjuvant chemotherapy was performed in 88.2% and 79.4% (p=0.510). In terms of CCRT between the LM and SM groups, neoadjuvant CCRT was performed in 20.6% and 11.7%, and adjuvant CCRT was performed in 5.9% and 2.9% (p=0.485). As a primary outcome, 3-year recurrence-free survival was 50.2% in the LM group and 61.2% in the SM group, and there was no statistical significance (Log Rank p=0.260). As a secondary outcome, 3-year overall survival was 70.3% in the LM group and 61.8% in the SM group, and there was no statistically significant difference between the two groups (Log Rank p=0.970).

Conclusions/Discussion: Securing a distal margin of less than 3.5 cm does not affect recurrence and survival. It might be more important to secure the length of the discriminatory distal margin according to the difference in the rectum length of each patient.

STUDY COMPARING NEO-ADJUVANT RESPONSE(NAR) SCORES IN DIFFERENT NEO-ADJUVANT TREATMENT MODALITIES FOR CA RECTUM.

eP656

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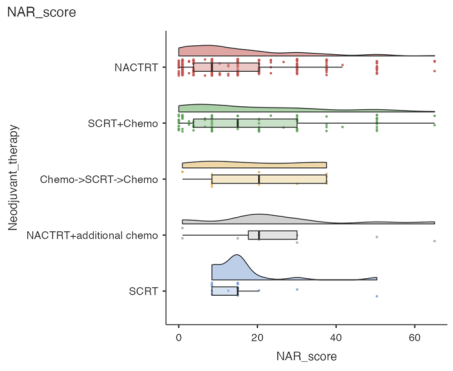
Purpose/Background: Neo-Adjuvant Response Scores has been developed & validated as a new surrogate endpoint in rectal cancer clinical trials. Most of such data comes form trials using Long course Radiotherapy. However no study has compared the NAR score between different neo-adjuvant modlaities. In light of different combinations of regimes of long-course radiotherapy vs short course radiotherapy and induction chemo vs consolidation chemo vs sandwich regime(Chemo--> SCRT-->Chemo) the difference in

validated NAR score can at least, suggest the modality with better response scores, if not pick the winner up.

Methods/Interventions: We have included Curative intent rectal cancer patients that received neoadjuvant radiation, chemotherapy and underwent Surgery where details on cT(from baseline MRI), Path TRG, pT, pN, were available. This retrospective study was conducted between Jan 2020 to Dec 2021in a tertiary cancer hospital in Mumbai, India. Out of the 1798 patients, 460 patients were eligible for the NAR score calculation. Different treatment modalities were compared for NAR scores, pathological TRG scores.

Results/Outcome(s): Median NAR scores with Interquartile ranges in NACTRT, SCRT+Chemo, Chemo->SCRT->Chemo, NACTRT+additional chemo, SCRT are 8 (4, 20), 15 (4, 30), 20 (8, 38), 20 (18, 30), 15 (8, 15) with non-sgnificant p value 0.11.

Conclusions/Discussion: NAR scores didnt show any difference between different modalities in our study. Probably unequal numbers in different subgroups, non standardized interval between neo-adjuvant therapy & surgery would have affected the desired outcome. This study throws light on requirement of an appropriately powered prospective study to make final conclusions on difference in NAR scores between different treatment modalities.



Characteristic	NACTRT n = 304 (66%)	SCRT+Chemo n= 109 (24%)	Chemo->SCRT->Chemo n = 16 (3.5%)	NACTRT+additional chemo n = 11 (2.4%)	SCRT n = 20 (4.3%)	p-value
NAR score Median(IQR)	8 (4, 20)	15 (4, 30)	20 (8, 38)	20 (18, 30)	15 (8, 15)	0.11

GENETIC COUNSELING IN COLORECTAL CANCER PATIENTS: WHO COMPLETES GENETIC TESTING?

eP657

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Purpose/Background: Up to 10% of colorectal cancers are due to hereditary causes resulting from underlying cancer susceptibility genes. Genetic testing is essential to guide treatment and preventative measures in patients and family members. While indications for genetic testing are expanding, current genetic testing rates remain suboptimal. Our aim was to evaluate characteristics of colorectal cancer patients who do not complete genetic testing after consultation with a genetic counselor.

Methods/Interventions: We performed a retrospective review of prospective genetic testing logs maintained by genetic counselors at a large tertiary center in the deep south from June 2016 to August 2021. The cohort included patients diagnosed with colorectal cancer who were seen by a genetic counselor to discuss genetic testing. Key variables of interest included patient demographics, area level social vulnerability index (SVI), 2021 National Comprehensive Cancer Network (NCCN) criteria for genetic testing, and the clinic setting where genetic counseling was performed. The primary outcome was successful completion of genetic testing. A multivariable logistic regression model was utilized to assess the relationship between key variables of interest and completion of genetic testing.

Results/Outcome(s): Among 142 patients referred to genetic testing for colorectal cancer, the median age was 53 years (SD 13.5), 54.9% (N=78) were female, 76.5% (n=110) identified as white and 19.0% (n=27) identified as Black. NCCN criteria for genetic testing was met in 86.6% (N=123) of patients. Overall, 85.2% (N=121) agreed to undergo genetic testing. On bivariate analysis, patient who completed genetic testing had lower social vulnerability (SVI 0.504) compared to patients who did not complete testing (SVI 0.600; p=0.04). Patients who had genetic counseling in the genetics clinic were more likely to complete genetic testing (95.8%) compared to patients who were seen over telehealth (82.9%) or in a surgery clinic (63.3%; p<0.01). On multivariable analysis, genetic testing rates were significantly lower for patients seen over telehealth (OR 0.20, 95%CI 0.05-0.83) or in the surgery clinic (OR 0.08, 95%CI 0.01-0.30) compared to patient seen in the genetics clinic. In a subanalysis limited to patients meeting NCCN criteria, similar findings were shown.

Conclusions/Discussion: Even after meeting with genetic counselors, several patients with colorectal cancer do not undergo genetic testing. Genetic consultation over telehealth or in a surgery clinic was associated with decreased rates of genetic testing. Better understanding of why these factors influence genetic testing rates is essential as indications for genetic testing expand in colorectal cancer.

MINIMALLY INVASIVE HEPATIC TREATMENT OF COLORECTAL LIVER METASTASES EXPLOITING THE ACCESS OF SYNCHRONOUS STOMA CLOSURE: CASE SERIES AND TECHNICAL DETAILS.

eP658

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Purpose/Background: Patients with colorectal liver metastases (CRLM) who may require a contextual stoma closure are nowadays increasing in frequency. We aim to report our case-series of minimally invasive hepatic resections for colorectal liver metastases, by exploiting the access of synchronous stoma closure.

Methods/Interventions: Clinical and peri-operative data of four patients who underwent minimally invasive hepatic resection with curative intent for CRLM plus stoma closure, from January 2018 to October 2022, were retrospectively reviewed and analyzed. All patients were previously operated for rectal cancer, three robotically with protective ileostomy, and one with open approach that was complicated with an anastomotic leakage requiring a re-do anastomosis with right colostomy. During the follow-up CRLM were detected and, after systemic therapy and a multidisciplinary evaluation, the patients were considered for stoma closure plus hepatic resection.

Results/Outcome(s): The operations started with the stoma closure. Then a GelPort device was always inserted through the access of the stoma closure: in two cases all the robotic trocars were positioned inside the GelPort and the da Vinci Xi was used for single site robotic CRLM multiple resections. In one case, after extensive laparoscopic adesiolysis, two robotic trocars were disposed in the sovra-umbelical line to treat bilobar CRLM. In the last case, the hepatic resection was carried out with an hand-assisted laparoscopic approach (HALS). The mean operative time was 315 min and no intra-operative complications occurred. The post-operative course was uneventful in all cases, and the mean hospital stay was 4 days.

Conclusions/Discussion: A minimally invasive surgical treatment of CRLM can be safely offered by exploiting the mini-laparotomy of a synchronous stoma closure in selected patients. The GelPort turned out to be very useful for the reported technique and it can be used both for pure laparoscopic, HALS and robot-assisted approach.

OPERATIVE AND LONG-TERM ONCOLOGIC OUTCOMES OF MID-TRANSVERSE COLON CANCER: THE OPTIMAL SURGICAL RESECTION?

eP659

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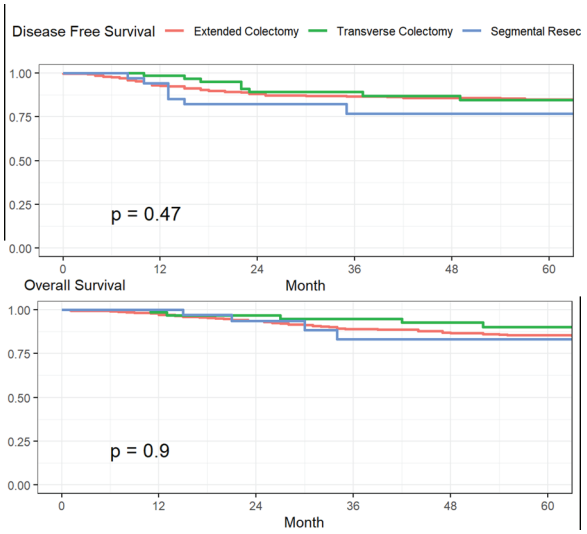
Purpose/Background: The surgical procedure of transverse colon cancer is not standardized due to its indistinct extent of resection margin regarding anatomic aspect. There are few studies comparing feasibility of surgical methods for transverse colon cancer. This study aims to compare operative and long-term oncologic outcomes of curative resection for mid-transverse colon cancer according to surgical procedures.

Methods/Interventions: Patients who underwent curative resection for transverse colon cancer in tertiary referral hospital (Severance Hospital, Seoul, Korea) between 1989 and 2018 were reviewed. Patients diagnosed with mid 1/3 transverse colon cancer and histologically confirmed adenocarcinoma were included. Both flexure colon cancers, familial colon cancer, synchronous or metachronous cancer, metastatic cancer and emergently operated patients were excluded. Extended colectomy (EC), which includes extended right or left hemicolectomy and subtotal colectomy, represents complete mesocolic excision (CME) of right or left plus transverse colon and complete central vessel ligation (CVL) of the corresponding vessels. Transverse colectomy (TC) implies CME and CVL of transverse colon and mid-colic vessels. Segmental resection (SR) designates incomplete CME of transverse colon and trunk-ligation of mid-colic vessels.

Results/Outcome(s): Among total 531 enrolled patients, EC, TC, and SR patients were 423, 71, and 37 each. There were no significant differences in age, sex, body mass index, ASA score, preoperative serum carcinoembryonic antigen (CEA), surgical approach (open, laparoscopic, or robotic), preoperative tumor status (bleeding, obstruction, or perforation), open conversion rates, combined resection, and intraoperative blood transfusion between the groups. Tumor stages, histologic grade, and retrieved LNs were highest in EC group, followed by TC and SR group. Lymphovascular invasion, perineural invasion, and margin status were similar. Median follow-up duration was 50.6 months. Five-year disease-free survival (DFS) and overall survival (OS) according to surgical groups were not significantly different (DFS: 84.9% vs 84.5% vs 76.8%, P=0.47, OS: 85.4% vs 90.2% vs. 83.2%, P=0.897 for EC, TC and SR). Subgroup analysis according to stages also revealed no significant differences in DFS and OS. However, 5-year DFS and OS for stage III showed bigger survival gaps compared to other surgical groups than in stage I and II. In multivariate analysis, higher preoperative CEA, pT and N stage, segmental resection were related to worse DFS.

Higher preoperative tumor status, pN stage, and harvested LN <12 were associated with worse OS.

Conclusions/Discussion: Curative surgery for transverse colon cancer varies and oncological outcomes according to surgical procedures were not significantly different. However, segmental resection of transverse colon cancer might need cautious approach, and properly perform CVL for sufficient LN retrieval.



Disease-free survival and overall survival according to surgical methods.

PREOPERATIVE MRI STAGING IMPROVES WITH IMPLEMENTATION OF A TOTAL NEOADJUVANT THERAPY PROTOCOL FOR LOCALLY ADVANCED RECTAL CANCER.

ePoster 660

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Purpose/Background: Accurate staging is paramount when tailoring the optimal therapy for rectal cancer patients. Patients without distant metastases, with node positive disease and/or T-stage of 3 or greater are offered neoadjuvant chemoradiotherapy prior to re-staging and surgical resection. Re-staging is the cornerstone in the evaluation that determines surgical strategy. At our institution we started the transition from long course chemoradiotherapy (LCCRT) to total neoadjuvant therapy (TNT), including 5x5Gy radiotherapy at initiation of therapy, in 2018. This study was undertaken to find out whether MR re-staging accuracy differs between LCCRT and TNT. Our local institutional review board approved the study.

Methods/Interventions: Retrospective review of data regarding patients treated for rectal cancer 2018-2021 identified in our institution's cancer registry, who were clinically staged as T3-4, and/or N+, without distant metastatic disease (clinical stage II or III). All pelvic MR were performed using a rectal cancer protocol sequence on 3T MR. MR images were interpreted by radiologists who are members of our multi-disciplinary rectal cancer program, accredited by the National Accreditation Program for Rectal Cancer. The study population consisted of patients who underwent both restaging MR and subsequent proctectomy at our institution. Staging accuracy was defined as concordance of both mrT and mrN stage.

Results/Outcome(s): 115 patients were cT3-4 and/or N+. Nine were excluded because of lack of preoperative MR at our institution and 35 were excluded as they did not undergo proctectomy at our institution, two did not complete neo-adjuvant therapy and one transferred care to an outside facility, leaving a study population of 68 patients. Of these, 45 patients underwent LCCRT and 23 patients underwent TNT with short course radiotherapy (5x5Gy) followed by 8 cycles of FOLFOX chemotherapy. Restaging MR was performed approximately one month after completion of neoadjuvant therapy. Out of the 68 patients included in our analysis 17 (25%) were accurately staged, with 6/23 (26%) of patients in the TNT group and 10/45(22%) in the LCCRT group having complete pathological response (CPR) to therapy. Patients who underwent TNT were more than twice as likely to be accurately staged with MRI 9/23 (39%), when compared to LCCRT patients 8/45 (17.8%). 3/6 (50%) TNT patients who had a CPR were accurately staged with MRI; 1/10 (10%) LCCRT patients with CPR was accurately staged.

Conclusions/Discussion: Restaging imaging overall was prone to inaccuracy; however, in the TNT subgroup, there were more patients with accurate restaging. Our study suggests that TNT improves preoperative staging of rectal cancer. A possible explanation for this finding is the increased time between RT and the re-staging MRI in the TNT group. Future studies will tell us whether TNT will result in favorable oncologic outcomes.

COMPARISON OF NON-RADIATION AND NON-PATHOLOGIC COMPLETE RESPONSE AFTER PREOPERATIVE CHEMORADIATION IN PATIENTS WITH LOCALLY ADVANCED RECTAL CANCER.

ePoster 661

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Purpose/Background: There is some evidence base that radiotherapy reduces the rate of local recurrence in locally advanced rectal cancer. However, the role of preoperative chemoradiation on survival is controversial.

Methods/Interventions: We reviewed the patients who underwent curative total mesorectal excision for rectal cancer with clinical T3 or nodal positivity on initial imaging from 2004 to 2019. We adopt preoperative chemoradiation for locally advanced rectal cancer in 2011. The patients were divided into 3 groups. Group A had surgery before

2010 and did not receive chemoradiation. Groups B and C received chemoradiation, of which group C was pathologic complete response. We compared baseline characteristics, perioperative outcomes, and oncologic outcomes between the three groups.

Results/Outcome(s): There were 595, 392, and 90 people in each group. Tumor height was significantly lower in group C. Group A shows a significantly early clinical stage compared with the other two groups. Local recurrence developed in 55 (9.2%), 16 (4.1%), and 1 (1.1%) patients in groups A, B, and C, respectively. The 5-year relapse-free survival rates were 70.2%, 73.5%, and 91.9% in groups A, B, and C, respectively. The 5-year overall survival rates were 80.1%, 84.3%, and 96.1% in groups A, B, and C, respectively.

Conclusions/Discussion: The role of preoperative chemoradiation on local recurrence in locally advanced rectal cancer is clear. However, the effect on the survival rate might be achieved only in pathologic complete response patients.

A CASE REPORT OF LYMPHOEPITHELIOMA-LIKE CARCINOMA OF THE ANAL CANAL AND REVIEW OF LITERATURE.

eP662

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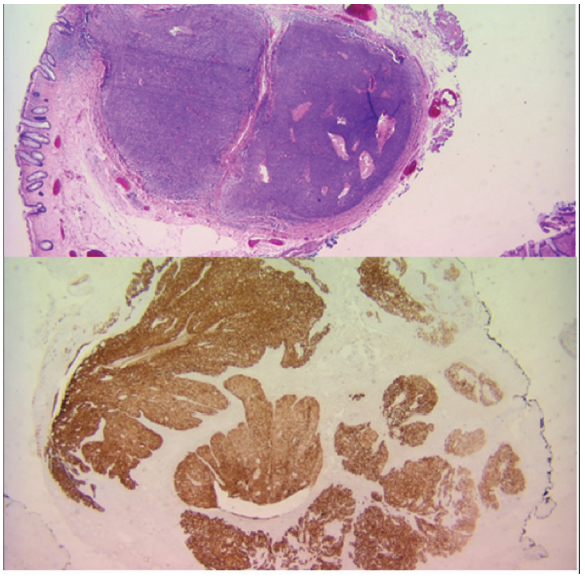
Purpose/Background: Lymphoepithelioma-like carcinoma is a rare tumor similar in morphology to nasopharyngeal lymphoepithelioma. Lymphoepithelioma-like carcinoma has been associated with viral infections, particularly Epstein-Barr, hepatitis B and C, as well as human papillomavirus (HPV) when occurring in the gynecologic tract. Lymphoepithelioma-like carcinoma in the anal canal is very rare and to our knowledge, only two such cases have ever been reported in literature.

Methods/Interventions: Case report and literature review.

Results/Outcome(s): A 61-year-old woman was found to have an anal mass on screening colonoscopy. The endoscopist initially thought it to be a hypertrophied anal papilla. Biopsies, however, revealed high grade anal intraepithelial neoplasia (AIN 3). The patient was asymptomatic and had no risk factors for anal carcinoma. She underwent transanal excisional biopsy of the lesion, sparing the anal sphincter musculature. Histologic analysis revealed lymphoepithelioma-like carcinoma of the anorectal junction with invasion of submucosa, positive deep margin, pT1. There was diffuse P16 reactivity suggesting relation to underlying HPV. Patient recovered without complication and completed 3 months of adjuvant chemoradiotherapy.

Conclusions/Discussion: Lymphoepithelioma-like carcinoma of the anal canal is an extremely rare variant of HPV-related anal malignancy. Recommended treatment is the same as for squamous cell carcinoma.



Top Fig. Rectal mass excision: H&E shows large well-circumscribed island of exuberant tumor cells and lymphoid tissue extending from the overlying anorectal mucosa down into the underlying submucosa Bottom Fig. P16 immunohistochemical stain is diffusely positive in tumor cells supporting that this tumor has been variably related to HPV virus

CIRCUMFERENTIAL PERIANAL CYTOMEGALOVIRUS-ASSOCIATED LESION SUCCESSFULLY TREATED WITH VALGANCICLOVIR: A CASE REPORT.

eP663

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Purpose/Background: Cytomegalovirus (CMV) is a DNA virus which is estimated to affect majority of population in the world and tends to be symptomatic only in immunocompromised patients with one of its manifestations being cutaneous lesions. Perianal CMV-associated ulcers has not been well-documented in the colorectal surgery literature. We present a case report of a patient who presented with an atypical circumferential perianal lesion with biopsy showing CMV-associated ulcer, which was successfully treated with Valganciclovir.

Methods/Interventions: 46-year-old female with history of antiphospholipid syndrome, systemic sclerosis (On rituximab and mycophenolate) and hemorrhoidectomy (few years ago) who presented to colorectal surgery office with perianal irritation and discharge per anus which according to her was going on for many years. On examination she was noted to have a very atypical circumferential

perianal lesion which was biopsied due to uncertainty about the diagnosis. Pathology revealed exuberant lymphoplasmacytic and neutrophilic inflammation with several inclusion bodies consistent with CMV-associated lesion. After the biopsy results, the case was discussed with the infectious disease specialist who recommended initiating Valganciclovir and withholding immunosuppressants. Subsequently she underwent ophthalmologic exam and serum CMV testing which turned out to be negative for retinitis and viremia respectively. Patient was seen in colorectal surgery office again after 6 weeks and examination revealed near-complete resolution of perianal lesion with minimal residual scarring. She was followed by infectious disease team to ascertain the appropriate timing for resumption of her immosuppressants and determine the duration of therapy with Valganciclovir.

Results/Outcome(s): Our patient recovered well after treatment with Valganciclovir, with no clinical evidence of perianal disease. She continues to follow with the infectious disease specialist for completion of valganciclovir therapy and potential resumption of immunosuppressants.

Conclusions/Discussion: Immunocompromised patients who present to the colorectal surgery office with atypical perianal lesions should be biopsied with high suspicion for CMV-associated lesion being one of the differentials. It can be successfully treated with Valganciclovir while withholding immunosuppressants (if possible) temporarily through multidisciplinary care with the infectious disease team.

Figure 1: Pre-Treatment

Figure 2: Post-Treatment

THROMBOSED EXTERNAL HEMORRHOIDS DURING PREGNANCY: SURGERY VERSUS CONSERVATIVE TREATMENT.

eP664

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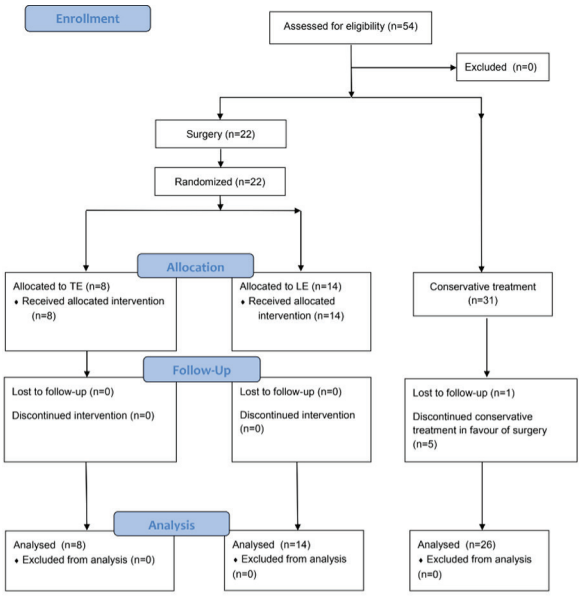
Purpose/Background: The optimal management of thrombosed external hemorrhoids (TEH) during pregnancy is still under debate. Study purpose was to compare efficacy and safety of conservative treatment and two surgical treatment approaches for TEH in pregnant women.

Methods/Interventions: Design: prospective study **(NCT04588467)** with randomization within surgical group (Figure 1). **Patients:** pregnant women experiencing TEH. **Interventions:** conservative treatment, thrombectomy (TE) and local excision (LE) of TEH. Conservative

treatment included dietary modification (intake of at lest 3 liters of water), stool-softeners (a 25 ml solution containing: Macrogol 3350: 13.125 g Sodium chloride: 0.3508 g Sodium hydrogen carbonate: 0.1786 g Potassium chloride: 0.0502 g) and local anesthetics application (Lidocaine 2.5%+Prilocaine 2.5%, 2g twice a day) for 10 days. TE and LE of TEH were performed with the patient in the lithotomy position under local infiltrative anesthesia with UltracainDS 1:200000 1.7ml. To perform TE, the TEH pile was grabbed by Allis clamp, and a longitudinal incision was performed using a scalpel. Thrombotic masses were evacuated without excision of hemorrhoidal tissue. The wounds were not sutured to minimize postoperative pain. Hemostasis was reached by compression dressing. In case of LE, the TEH pile was grabbed by Allis clamp, and the pile was completely excised using a scalpel. Hemostasis was reached by compression dressing without suturing. **Main outcome measures:** pain intensity (VAS) on 3rd and 10th days, quality of life (SF-12 questionnaire) and patient assessed treatment effect (CPGAS) on 10th postoperative day.

Results/Outcome(s): Initially, 54 patients were included. Out of 31 patients of the conservative group, 5 were subsequently excluded (asked for operation because of persistent pain) and one lost to follow-up. Thus, the data from 48 women were analyzed: 26 after conservative treatment and 22 after surgery (among them 8 had TE and 14 underwent LE). As compared to pretreatment values, VAS, SF-12 and CPGAS scores improved in both groups on 3rd and 10th postoperative days. Mean pretreatment VAS was 7 (5.2-8.0) and 8.5 (7.0-9.7), while on 3rd day after treatment it was 4.5 (3.0-7.00) and 2.0(1.0-3.0) in conservative and surgery groups, respectively. However, SF-12 physical and mental health domains and CPGAS on 10th postoperative day were significantly better in surgical group than in conservative treatment group. Patients in surgical group had significantly earlier reduction of pain ($p=0.0004$). Outcomes of two surgical treatments were comparable with one exception: re-thromboses rate was higher after TE than after LE (37.5% vs. 7.1% respectively, $p<0.05$). There were no pregnancy or fetus complications related to TEH treatment.

Conclusions/Discussion: Both surgical and conservative treatment are safe and effective, however surgery leads to faster relief of anal pain. TE is associated with higher risk of re-thrombosis than LE.



SHORT-TERM SURGICAL RESULT IN HIGH TRANS-SPHINCTERIC AND HIGH INTER-SPHINCTERIC EXTENSION COMPLEX FISTULA-IN-ANO.

eP665

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Purpose/Background: Treatment outcomes in complex fistula-in-ano are controversial due to heterogeneity; thus, the results are not impressive. To date, Magnetic Resonance Imaging (MRI) plays a major role in describing fistula morphology and uses to guide the surgical decision. High Trans-sphincteric (fistula tract involved superficial external sphincter, puborectalis, or levator) and high inter-sphincteric extension fistula are complex fistula-in-ano with no standardized treatments. This study tries to demonstrate surgical outcomes in these types of fistulas.

Methods/Interventions: Retrospective review of prospective data collections. All patients with cryptoglandular fistula-in-ano underwent definitive fistula surgery by colorectal surgeons between January 2021 and December 2021 were included. MRI fistulas were reviewed by MRI fistula-specialist radiologist. Complex fistula classified as anterior or posterior high trans-sphincteric and high inter-sphincteric extension. The involvement of perianal, intersphincteric, ischioanal, deep postanal, infralevator and supraleavator spaces was documented for each fistula tract. Details of operation to fistula tracts describe related to anal canal anatomy (intra-anal part, intersphincteric part, and extrasphincteric part). Ligation of the intersphincteric fistula tract (LIFT) was used to treat a well-formed granulated tract. Intra-anal fistulotomy and opening closure was used in the oblique/horizontal intersphinccteric tract.

Postoperative healing was evaluated at 6 months. Factors related to clinical failure were analyzed.

Results/Outcome(s): There were 65 patients diagnosed with complex cryptoglandular fistula-in-ano. From preoperative MRI, the posterior high trans-sphincteric fistula was the most common complex type, followed by high inter-sphincteric extension and anterior high trans-sphincteric type with incidences of 38 (58.3%), 35 (53.9%), and 14 (21.5%) patients respectively. At 6 month-post operation, 43 patients out of 65 patients (66.15%) were clinically healed. Posterior high Trans-sphincteric was associated with a higher failure rate (P=0.008). The pattern of recurrence was unhealed tracts at 64.3%.

Conclusions/Discussion: The short-term results for complex fistula surgery with MRI-guided were promising, with a high success rate compared to previous studies. The posterior high trans-sphincteric type was the most common complex type related to a higher failure rate. However, further long-term follow-up and prospective trials should confirm this strategy.

CURRENT UPDATE ON MULTIMODAL ANALGESIA AND NON-OPIOID SURGICAL PAIN MANAGMENT.

eP666

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Purpose/Background: The opioid epidemic continues to impact patient's physical, mental, and financial well-being. Besides their potential for addiction, opioids also cause gastrointestinal hypomotility and hinder recovery after abdominal surgery. Though Enhanced Recovery After Surgery (ERAS) protocols with low or non-opioid multimodal analgesia have been implemented in some institutions, there is no specific recommendation or inquiry into what combinations work best. The goal of this paper was to review current literature on the use of low or non-opioid multimodal analgesia in abdominal, pelvic, and gynecological surgeries, and provide recommendations for future research and use.

Methods/Interventions: A systematic review was conducted to determine the efficacy of non-opioid therapies in multimodal analgesia. The focus was on abdominal, pelvic, and gynecological surgeries. Random clinical trials, meta-anlayses, and systematic reviews from Pubmed between 2017 to 2022 were used. They had to be in the English language, focused on adults, and could originate worldwide.

Results/Outcome(s): ERAS protocols with multimodal non-opioid analgesics are highly beneficial for gynecological and abdominal surgeries. Studies suggest they can decrease length of stay, time to bowel function, opioid consumption, readmission rates, and complication rates. The efficacy of certain medications within multimodal analgesia were then analyzed. There is no strong evidence suggesting that acetaminophen is beneficial in multimodal analgesia. It is better to add tramadol or diclofenac instead. Epidurals work better than IV or continuous peripheral nerve block administrations, yet intrathecal analgesics work better than epidurals. Intrathecal local anesthetics should be combined with adjuncts and either etoricoxib or dexmedetomidine to decrease pain and opioid consumption. Dexmedetomidine also makes local wound anesthetics and transversus abdominis plane (TAP) blocks more efficient. TAP blocks are better to use than port-site infiltrations and have the same efficacy as local wound infiltrations. Epidurals and intrathecal analgesics might be better to use than liposomal TAP blocks. There is conflicting data on whether TAP blocks are beneficial in multimodal analgesia. Transmuscular quadratus lumborum and erector spinae plane blocks might work better.

Conclusions/Discussion: It is highly recommended that all institutions enact ERAS protocols with low or non-opioid multimodal analgesia. The overall goal for future studies is to standardize a non-opioid multimodal analgesic combination that eliminates the need for opioids, provides adequate pain relief, few adverse reactions, and is cost effective. Specific studies should determine the importance of acetaminophen and TAP blocks in multimodal analgesia. They should also analyze which combinations of local anesthetic, adjunct, and dexmedetomidine work best, and whether an NSAID should be added.

SAME DAY COLECTOMY: EXPERIENCE OF AN URBAN ACADEMIC CENTER WITH AN UNDERSERVED PATIENT POPULATION.

eP667

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Purpose/Background: The development of robotic colorectal surgery and Enhanced Recovery After Surgery (ERAS) protocols have independently decreased the inpatient length of stay after colectomy. The viability of same day discharge after robotic colectomy using ERAS protocol has been shown at other institutions in patient populations with ASA Class 1-2, often with BMI in the non-obese range. At our institution, we demonstrate good outcomes with same day discharge following colectomy even in an underserved patient population with ASA Class 2-3, and inclusive of patients with BMI over 35. Our aim is to describe our institution's experience with same day colectomy.

Methods/Interventions: Retrospective chart review at a single tertiary care center was performed over a 16-month period in patients discharged within the same day of colon surgery. Inclusion criteria were adults age 18 to 80 undergoing robotic colectomy. Exclusion criteria

were conversion to open surgery and ostomy creation. All patients had partial colectomy performed, including right, left and sigmoid colectomies for benign and malignant pathology. ERAS protocol included pain control with pre- and post-operative multimodal oral medication, intra-operative transversus abdominus plane block and restricted use of narcotics. Oral diet was initiated immediately and advanced as tolerated. Patients were encouraged to ambulate as soon as possible after surgery. Patients were discharged when tolerating a general diet with pain well controlled on an oral regimen. Readmission rates and post-operative complications were assessed.

Results/Outcome(s): Over the course of 16 months, 22 patients undergoing robotic partial colectomy were discharged within the same day of surgery using ERAS protocol. 6 (32%) were male and 13 (68%) were female, with a median age of 58, ranging from 32 to 75. BMI ranged from 19.3 to 41.0, with a median of 28.6 (26-31) and 21% of patients with BMI > 35. 26% of patients were ASA Class 3, with the remaining 74% ASA Class 2. Co-morbidities included diabetes (47% of patients), hypertension (63%), obesity (37%), and tobacco use (16%). 26% of patients were insured with Medicaid, 32% with Medicare, and 42% with Private insurance. Only two patients were readmitted within 30 days, with one requiring a return to the operating room for a port site hernia. There were no mortalities in 30 days.

Conclusions/Discussion: Our study demonstrates that same day discharge after minimally invasive colon surgery is safe and effective not only in the previously demonstrated population of patients with ASA Class 1-2 and BMIs < 35, but also in an urban environment with underserved, resource poor population with increased comorbidities and operative risk. While limited by its small sample size, readmission rate of 10%, return to OR rate of 5%, and 0% mortalities in this study encourage continued practice of same day colectomy regardless of risk profile when patients meet discharge criteria.

PERIOPERATIVE OUTCOMES IN PATIENTS AFTER OSTOMY REVERSAL: 9-YEAR EXPERIENCE WITH NATIONAL SURGICAL QUALITY IMPROVEMENT PROGRAM (NSQIP).

eP668

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Purpose/Background: A proportion of patients having colorectal resections undergo proximal fecal diversion to decrease the incidence and consequences of an anastomotic leak. However, construction of a diverting stoma is also associated with risks including operative morbidity with reversal. In order to objectively characterize these risks to aid in perioperative decision making and counseling, we evaluated the 30-day morbidity after ostomy reversal leveraging the strengths of the National Surgical Quality Improvement Program (NSQIP) database.

Methods/Interventions: The NSQIP database from 2012-2020 was queried to identify patients who underwent ostomy closure as defined by Current Procedural Terminology Codes 44625 and 44620, as the only primary procedure code and without concurrent procedure codes. Emergent cases were excluded. Patient demographics, comorbidities, 30-day complication rates were analyzed. Univariate and multivariate odds ratios were used to assess associations.

Results/Outcome(s): A cohort of 25,724 patients who underwent an ostomy closure between 2012 and 2020 was identified. There were no relevant differences in the patient characteristics and outcomes of the two CPT codes and therefore they were further analyzed together. The median age was 57 years [IQR, 46 – 67], with 55% females, 48% had an ASA of <3 and 26% had a BMI >30. The median operative time was 73 mins (IQR, 53 – 103) and median length of hospital stay was 3 days (IQR, 2-5). The reoperation rate was 4% and readmission rate was 9%. The major and minor complication rate was 7%, and 2%, respectively. The rate of superficial incisional surgical site infections (SSI) was 3%, deep incisional SSI was 0.76%, and organ space SSI was 3%. 30-day mortality rate was 0.4%. A BMI > 30, albumin <3 and preoperative weight loss were associated with increased risk of minor complications, OR of 1.018, 1.030, and 1.031, respectively ($p<0.001$ for all 3) but not major complications.

Conclusions/Discussion: Notwithstanding the limitations of the database including the fact that we could not distinguish between patients with an ileostomy or colostomy, we observed that ostomy reversal is associated with an acceptable but clinically appreciable morbidity, that may not be necessarily modifiable. This risk of operative morbidity with ostomy reversal therefore should be carefully considered and balanced with the risk of not performing fecal diversion at the time of colorectal resections.

Variable	Odds Ratio [95% CI]	p-value
Male Sex	1.006 [1.002 to 1.010]	0.001
Age > 65	0.999 [0.995 to 1.003]	0.649
Steroid Use	1.012 [1.004 to 1.020]	0.003
Significant Weight loss	1.025 [1.014 to 1.035]	p<0.001
BMI>30	0.999 [0.998 to 1.004]	0.977
Albumin < 3	1.007 [0.998 to 1.016]	0.164
Bowel Resection	1.000 [0.997 to 1.004]	0.634
ASA classification (relative to 1)		
2	1.006 [0.995 to 1.020]	0.258
3	1.017 [1.015 to 1.031]	0.010
4	1.034 [1.018 to 1.052]	p<0.001
Wound Classification		
Clean-Contaminated/Clean	1.009 [0.993 to 1.025]	0.266
Contaminated	1.017 [1.001 to 1.034]	0.043
Dirty	1.026 [1.008 to 1.046]	0.010
Preop Sepsis	1.031 [1.011 to 1.052]	0.004
Preop Transfusion	0.969 [0.951 to 1.029]	0.569

Table 1. Multivariate Analysis of Major Complication Risk Factors

LONGER DURATION OF LOOSE SETONS LEADS TO DISTALIZATION OF ANAL FISTULAS.

eP669

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Purpose/Background: Loose setons have been commonly used as an initial treatment of anal fistulas. The majority of studies look at seton treatment as a single variable at a single point of time without consideration of duration of treatment. There is no research on whether duration of seton distalize anal fistula tract over time leading to change in definitive surgery for anal fistulas.

Methods/Interventions: This is a retrospective study of patients who presented between 2015 to 2020 with anal fistulas and were treated with a loose seton at an initial operation followed by a definitive operation at a later time. Patients were divided into two groups based on duration of seton treatment with 100 days being a cutoff between the two groups. Patients with complex fistulas, those with Crohn's disease, or recurrent fistulas were excluded. Demographic information, type of anal fistula, seton duration, definitive surgery, complication and recurrence rates were collected.

Results/Outcome(s): We included 49 patients. Our patient population had a median age of 39 [33-49]. The majority of patients were Hispanics (n=21, 43%) followed by non-Hispanic white (n=10, 20%) and African-American (n=9, 18%). At initial presentation patients were split evenly between having low (low transsphincteric, superficial, and intersphincteric) (n=25, 51%) and high (high and mid transsphincteric) (n=24, 49%) fistulas. A third of high fistulas downgraded to low fistulas at the 2nd operation post-seton placement (n=16, 33%). The majority of patients who downgraded to a low fistula had the seton placed at a longer duration (69% vs 31%). Of the procedures done, only LIFT was associated with fistula recurrence (n=1, 2%).

Conclusions/Discussion: While our sample size is small and we are limited by retrospective nature of our analysis, our study demonstrates that longer duration of seton treatment is associated with an increased rate of distalization of fistula tract allowing surgeons to perform fistulotomy procedures that have a higher success rate in treating anal fistulas.

CUTTING SETON FOR THE TREATMENT OF CRYPTOGLANDULAR FISTULA-IN-ANO: A SYSTEMATIC REVIEW AND META-ANALYSIS.

eP670

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Purpose/Background: Till date, there is no consensus regarding the optimal treatment modality for fistula-in-ano of cryptoglandular origin. One of the common management strategies is the use of cutting seton (CS) which has remained controversial amongst colorectal surgeons due to reports of fecal incontinence, recurrence of fistula, and extended healing time. This review aims to provide the first synthesis of studies investigating the use of cutting seton for the treatment of cryptoglandular fistula-in-ano.

Methods/Interventions: A comprehensive search was performed in MEDLINE, Embase, and CENTRAL from database inception to July 2022. Articles were eligible for inclusion if they were single-arm or multi-arm randomized controlled trials or cohort studies focusing on patients diagnosed with fistula-in-ano of cryptoglandular etiology who underwent CS for management. The primary outcome was recurrence of fistula. Secondary outcomes included incontinence, healing time, and operative time. Inverse variance random effect meta-analyses were used to pool effect estimates. Subgroup analyses comparing CS with other comparators (e.g. fistulotomy) were conducted if studies included sufficient data. This systematic review was completed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.

Results/Outcome(s): 675 citations were initially obtained of which 29 studies fit the inclusion criteria. In total, 1513 patients undergoing CS (20.3% female, age: 41.7 years) were included. The most common type of fistula was transsphincteric (73.6%), followed by intersphincteric (18.8%), extrasphincteric (3.9%), and suprasphincteric (3.7%). Patients with CS had a 3% (95% CI: 2-4%)

chance of recurrence. When compared to fistulotomy, the risk of recurrence was insignificant. Furthermore, patients undergoing CS had a 13% (95% CI: 10-15%) risk of incontinence. When CS was compared to fistulotomy, the risk of incontinence was increased in the fistulotomy group, however non-significantly. Gas incontinence was most frequently observed (53%), followed by liquid (38.5%), and then solid (8.5%). CS patients had an average healing time of 13.30 weeks (95% CI: 8.82-17.77). Operative time for CS when pooled was 39.64 minutes (95% CI: 26.98-52.31).

Conclusions/Discussion: The management of fistula-in-ano has a variety of different treatment options. Our analysis shows that CS has low recurrence and incontinence rates within patients making it a safe and valuable tool for colorectal surgeons. However, these conclusions are based on limited prospective comparative analyses. Further randomized controlled trials comparing CS with other interventions are required.

A CASE SERIES OF ABSCESS AN FISTULA IN ANO AFTER TAMIS.

eP671

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Purpose/Background: Trans anal minimally invasive surgery has revolutionized local excision of benign and early rectal cancers with minimal morbidity and low complication rates. It is a safe approach and is now well-established technique for removal of benign lesions and select early rectal cancer T1(1). We report 4 cases with a rare post operative complication that is underreported in the literature.

Methods/Interventions: This is a case series study involving a single center. We identify 4 cases out of 500 procedures from 2013 to 2022 that had the complication of interest. We reviewed each case presentation, outcome, and management.

Results/Outcome(s): Two patients had an abscess complicated by a fistula that required drainage and seton insertion, one of them was managed successfully with an advancement flap. One patient was managed conservatively with IV and oral antibiotics. Another patient had an abscess that required transrectal drainage only.

Conclusions/Discussion: We believe that abscess and fistula post TAMIS is a complication that is underreported in the literature. We need to discuss the pathophysiology, presentation, treatment, and possible prevention methods. We always close the defect with an absorbable PDS suture. Defect closure has been previously studied and this did not show any statistical significance in respect to complications in those studies (2). Whether this had a role in the pathophysiology of an abscess or not is a point to take in mind.

SURGEON AGREEMENT IN ENDOSCOPIC IMAGE ANALYSIS OF RECTAL CANCER TO NON-OPERATIVE MANAGEMENT.

eP672

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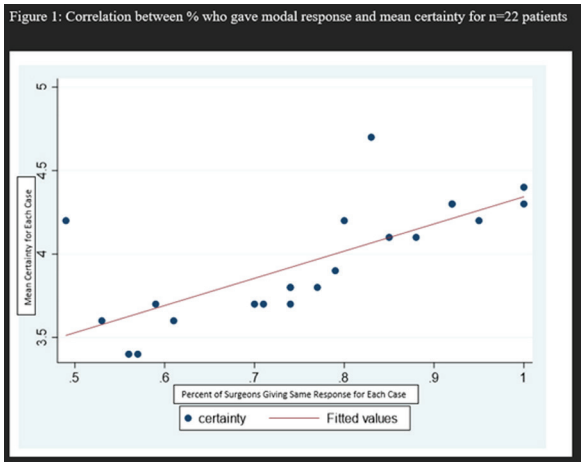
Purpose/Background: Neoadjuvant chemoradiation therapy is an important management therapy for rectal cancer, and in some cases, it eliminates the need for surgery entirely. Non operative management (NOM) is a treatment modality in which patients who have a complete clinical response are observed without surgery. Reliable methods to identify rectal cancer patients with complete responses are needed to safely apply and expand NOM. Of the currently available tumor response assessment tools, endoscopic examination has been considered the most robust method; however, evaluation is challenging and variable among colorectal surgeons. Reliable and consistent endoscopic image analysis is essential for safe and effective management of NOM of rectal cancer. This study aims to evaluate colorectal surgeon consistency and accuracy of endoscopic images of patients undergoing NOM. Using an internet survey-based system, multiple surgeons evaluated serial endoscopic images for patients undergoing NOM.

Methods/Interventions: A Red-Cap internet survey was designed with 22 patient scenarios with each containing three endoscopic images demonstrating tumor at three different time points: 1) tumor at diagnosis 2) tumor at middle of therapy 3) tumor at completion to total neoadjuvant therapy. This survey sent to the membership of ASCRS. Degree of agreement between surgeons was then measured with a Spearman-coefficient statistical analysis. Accuracy was measured against final pathology for those who underwent surgery and against freedom from local regrowth at two years for those who did not undergo surgery. Surgeon demographics were assessed.

Results/Outcome(s): In total, 53 surgeons responded to the survey. Correlation was measured between colorectal surgeons for categorizing clinical response status after neoadjuvant treatment for rectal cancer. The degree of correlation ranged from 49-100%, with overall Spearman correlation coefficient of 0.76 ($p<0.0001$). Figure 1 shows the correlation between who gave the modal response and mean certainty. In this study, 72% of surgeons accurately identified complete clinical response (95% CI 67%-76%); 82% of surgeons accurately identified incomplete clinical response (95% CI 75%-88%). Of those that responded, 24 of the surgeons practiced in an academic institution, 18 in a private institution, 6 in a multispecialty clinic, and 2 chose "other" type of institution. Eighteen were 'Very comfortable' practicing non operative management of rectal cancer; 21 were 'Somewhat comfortable', 10 were 'Uncomfortable', and 1 'Would never do it'.

Conclusions/Discussion: There was high correlation among colorectal surgeons regarding the status of a rectal tumor response to non-operative rectal cancer; limited data indicates that surgeons were able to correctly identify pCR and cCr in 82% and 72% respectively but more data will be required to fully evaluate surgeon accuracy of endoscopic analysis.



METASTATIC LUNG CANCER PRESENTING AS A LARGE BOWEL OBSTRUCTION.

eP673

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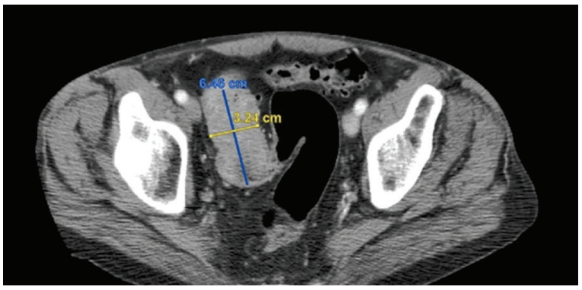
Purpose/Background: Lung cancer is the second most common cancer in both males and females and the leading cause of cancer related deaths. While metastatic disease is common at the time of diagnosis, metastatic lung cancer to the colon is rare. There have been few reports of clinical presentations of metastatic lung cancer to the colon, however this may be under reported as the incidence has been found to be higher in autopsy studies.

Methods/Interventions: We present the case of a 62 year old patient with known metastatic lung cancer being treated with pembrolizumab and Imprime PGG. He had been previously workup up for abnormal colonic thickening with negative biopsies. However, despite treatment of his metastatic disease with radiation, his symptoms progressed to complete large bowel obstruction requiring surgical intervention with colectomy and end colostomy. Final pathology revealed metastatic lung cancer.

Results/Outcome(s): The patient was taken to the operating room for laparoscopic sigmoid colectomy with end colostomy. The decision to not perform a primary anastomosis was due to his chronic malnutrition with a prealbumin of 3, radiated field, as well as upstream dilation of the colon. The surgery was uncomplicated and he tolerated it well. The patient was discharged on postoperative day two. Final pathology revealed metastatic lung cancer with lymphovascular invasion. Immunohistochemistry stains were positive for TTF1 andCK7, negative for CDX2 and CK20.

Conclusions/Discussion: While lung cancer metastases to the colon are rare, clinicians should be suspicious if patients present with partial obstructive symptoms, abdominal pain or bleeding. Patients presenting with these symptoms should be evaluated with colonoscopy and may benefit from resection for symptom control as well as potential for prolonged survival. Metastatic lung cancer can be distinguished from primary colon cancer with staining positive for TTF-1 and CK7 and negative for CDX2 and CK20.



THE IMPACT OF PRIMARY CARE PHYSICIANS IN THE DIAGNOSIS OF COLORECTAL CANCER AT A SAFETY-NET HOSPITAL SYSTEM.

eP674

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Purpose/Background: Primary care physicians (PCP) play a key role in offering colorectal cancer (CRC) screenings to general population. Delay in or omission of CRC screening is associated with late stage (stage 3 and 4) at diagnosis. Several factors have been identified as barriers to adhering to screening recommendations including lack of PCP to manage CRC screening schedules. This is especially pertinent in underserved patient population with limited access to health care. We investigate the impact of availability of PCP in the diagnosis of CRC including adherence to screening recommendations and stage at diagnosis at an urban safety-net hospital system.

Methods/Interventions: A retrospective chart review was conducted of patients who were diagnosed with CRC through institutional cancer registries between 2018-2021 at two urban safety net hospitals. Patients who did not meet recommending screening age (50 -75), obtained screening or already underwent surgery at outside hospital, presented with diagnosis of inherited polyposis syndromes or inflammatory bowel disease were excluded form analysis. In addition, presence of total abdominal colectomy or incomplete medical chart for analysis were excluded from

analysis. Patients that met inclusion criteria were classified into three cohorts of PCP, No PCP (nPCP) and PCP not diagnosed by screening (PCPnDx). Statistical comparison of groups was performed using t-test for continuous variables, and Pearson's X^2 test for categorical variables to evaluate outcomes of interest.

Results/Outcome(s): A total of 374 patients meeting inclusion criteria were identified with CRC between 2018-2021. The cohort had 60.4% males and 54.8% were Hispanic. 58% spoke Spanish, and 31.9% spoke English. 47.6% had a PCP at the time of diagnosis. Of those with PCP, 71.4% had screening ordered. 52.5% of patients with PCP were diagnosed with CRC by screening. Of the patients who presented symptomatically, 21.5% presented with blood per rectum and 12.9% with anemia. Patients with a PCP had a significantly lower rate of late stage CRC than those without a PCP (42.3% vs. 68%, p<0.01). Of those with a PCP 52.6% were diagnosed by screening, while the rest presented symptomatically. Of those who presented to a PCP with symptoms, diagnosis of late stage CRC was significantly lower than those without PCP (49.5% vs 68%, p=0.003).

Conclusions/Discussion: Patients with a PCP at diagnosis presented with earlier stage of CRC at diagnosis than those without a PCP. Furthermore, patients with PCP but presented symptomatically presented with significantly lower rates of late stage CRC when compared to those without PCP. These findings highlight the importance of engaging PCP in screening and diagnosis of CRC at urban safety-net hospital system.

Table. Stage at diagnosis comparison for patients with colorectal cancer stratified by groups of interest. *PCP: Primary Care Physician; nPCP: No Primary Care Physician and PCPnDx: PCP not diagnosed by screening.*

	nPCP (n=178)	PCP (n=196)	P[a] value	nPCP (n=178)	PCPnDx (n=93)	P[b] value
Stage at Diagnosis (%)			<0.01			<0.01
In Situ	1 (0.5%)	16 (8.2%)		1 (0.6%)	3 (3.2%)	
Stage 1	10 (5.5%)	51 (26.0%)		10 (5.5%)	17 (18.3%)	
Stage 2	46 (25.8%)	46 (23.5%)		46 (25.7%)	27 (29.1%)	
Stage 3	54 (30.3%)	53 (27.0%)		54 (30.3%)	28 (30.1%)	
Stage 4	67 (37.9%)	30 (15.3%)		67 (37.9%)	18 (19.3%)	
Late Stage (3-4)			<0.01			0.003
No	57 (32.1%)	113 (57.6%)		57 (32.0%)	47 (50.5%)	
Yes	121 (67.9%)	83 (42.3%)		121 (68.0%)	46 (49.5%)	

[a]PCP vs. nPCP

[b]nPCP vs. PCPnDx

PROGRESSIVE IMPROVEMENTS IN POSTOPERATIVE LENGTH OF STAY AT AN ACADEMIC INSTITUTION.

eP675

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Purpose/Background: Colorectal resections are associated with high morbidity and long postoperative stay with significant healthcare costs. We evaluated whether the deliberate institution of changes to standardized perioperative pathways can temporally impact length of stay (LOS) within a colorectal unit.

Methods/Interventions: Data for all patients undergoing colorectal resection with primary anastomosis at a single academic institution from 2013 to 2022 were obtained from a prospectively maintained database. All patients underwent uniform perioperative pathways with changes introduced at different time-points. Patient controlled analgesia with immediate introduction of oral diet was used from July 2013-June 2015; TAP blocks at surgery were added to the protocol starting July 2015; Alvimopan was introduced starting July 2016; and in July 2018, an Enhanced Recovery After Surgery (ERAS) pathway was instituted, which included standardized bowel preparation, multimodal analgesia starting preoperatively, immediate resumption of a solid diet and early ambulation. Patients were divided into 4 groups: prior to any intervention (PI), TAP block (TB), alvimopan (ALV), and ERAS. Data were analyzed using Kruskall-Wallis test, ANOVA, and logistic and linear regressions.

Results/Outcome(s): In total, 1676 patients were included (403 PI, 149 TB, 281 ALV, 843 ERAS). The four groups had similar age (p=0.11), body mass index (BMI) (p=0.48) and gender (p=0.58). PI patients had higher rates of cardiopulmonary and neurological comorbidity, malnutrition and osteoporosis (p<0.05 for all), higher tobacco (p<0.0001) and alcohol (p<0.0001) use, and prior surgery (p<0.0001). All groups had similar use of a laparoscopic approach but PI had greater conversion to open surgery (p=0.0024) and were more likely to have intraoperative complications (p<0.0001) and higher blood loss (p<0.0001). Postoperatively, urinary retention (p=0.02) and ileus (p<0.0001) occurred less often with each successive intervention. Mean LOS for the 4 groups was: PI 6.6 days [IQR 4-7], TB 5.0 [3-6], ALV 5.0 [3-5], and ERAS 4.2 [2-5] (p<0.0001). On multivariate analysis, there was a significant decrease in LOS associated with each intervention while controlling for age, BMI, sex, underlying comorbidities, and intraoperative characteristics: TB with a 0.9 day decrease, ALV with 1.8 days, and ERAS with 2.1 days when compared to PI. There was no significant difference among the 4 groups in reoperation, readmission, or mortality rates on univariate or multivariate analysis.

Conclusions/Discussion: A focused approach to perioperative care after colorectal resection led to incremental improvement in recovery reducing LOS by 2 days without adversely influencing complications, mortality or readmission even within a tertiary referral center dealing with a high volume of complicated cases. These data support the frequent consideration of interventions that impact recovery and outcomes in our era of constrained resources.

Table 1. Multivariate Linear Regression on Length of Stay – only significant variables shown

	Estimate	SE	P
Age	0.025	0.007	0.0002
TB	-0.92	0.36	<0.0001
ALV	-1.85	0.29	<0.0001
ERAS	-2.1	0.26	<0.0001
Female	-0.7	0.21	0.001
EtOH	-0.6	0.28	0.04
CHF	4.1	0.68	<0.0001
Prior MI	-2.2	0.75	0.003
CKD	3.8	1.4	0.006
Prior Revascularization	3.1	0.81	0.0001
Steroid Use	2.2	0.63	0.0005
Prior Radiation	5.9	1.5	<0.0001
Conversion to Open	1.1	0.4	0.008
EBL	0.005	0.0005	<0.0001
Drain	1.9	0.55	0.0008

Not shown but included in model: BMI, smoking status, dyspnea, ventilator dependence, angina, COPD, prior PCI, impaired sensorium, stroke, rest pain, hypercoagulability, chronic wound, malnutrition, anemia, chemotherapy, osteoporosis, prior abdominal surgery, intraoperative complication, intraoperative transfusion, wound class

EVALUATING COMPLIANCE WITH NCCN GUIDELINES IN PATIENTS WITH LYNCH SYNDROME.

eP676

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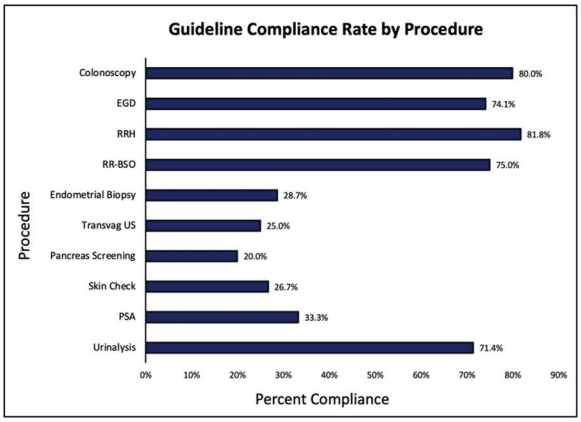
Purpose/Background: Lynch syndrome (LS), an autosomal dominant condition, is the most common form of hereditary colon cancer that also predisposes patients to an increased risk of extra-colonic cancers including endometrial, gastric, prostate, and several others. The National Comprehensive Cancer Network (NCCN) has developed evidence-based screening guidelines for patients with LS. Adherence to these guidelines is associated with earlier recognition of neoplasia and improved overall survival. The aim of this study was to assess the rate of adherence to NCCN guidelines for patients with Lynch syndrome at our institution.

Methods/Interventions: We performed a retrospective cohort study using the MUSC Cancer Registrar including patients diagnosed with LS from 2015-2021. Patients were assessed for compliance with the NCCN guidelines for the following 10 screening and management interventions: colonoscopy, esophagogastroduodenoscopy (EGD), risk-reducing hysterectomy (RRH), risk-reducing bilateral salpingo-oophorectomy (RR-BSO), endometrial biopsy, transvaginal ultrasound (TVUS), pancreatic cancer screening (MRCP or EGD with EUS), skin check, PSA, and urinalysis. We evaluated compliance by percent of patients who underwent the appropriate screening/procedure and by individual patient compliance rates for all guidelines.

Results/Outcome(s): 30 patients were identified with LS and analyzed. 66% of patients were female and 80% were Caucasian. Age ranged from 29 to 82, with the average age 51 years old. 5 patients with MLH1 mutation (16.7%), 6 with MSH2 (20.0%), 11 with MSH6 (36.7%), and 8 with PMS2 (26.7%). 80% of patients had guideline-compliant care for colonoscopy, 74.1% for EGD, 81.8% for RRH, 75% for RR-BSO, 28.7% for endometrial biopsy, 25% for TVUS, 20% for pancreatic screening, 26.7% for dermatologic skin check, 33.3% for PSA, and 71.4% for urinalysis. There were zero patients with a 100% individual compliance rate.

Conclusions/Discussion: This retrospective observational study highlights the poor compliance to NCCN guidelines for screening and surveillance in patients with LS, particularly for non-colorectal cancers. RRH and colonoscopy had the highest rate of compliance (81.8% and 80% respectively). However, only two out of seven patients who still had a uterus received guideline-compliant care for endometrial biopsy. Pancreatic screening, which is recommended in patients with a 1st or 2nd degree relative with pancreatic cancer, had the lowest rate of compliance (20.0%). Also, of note was a high rate of nonadherence for PSA screening (33.3%) among the six men over 40 years old. While this study is limited by its retrospective design and small sample size, it emphasizes a need for improved adherence to screening and surveillance in an effort to decrease LS associated cancer deaths. Future efforts that build off of this study will focus on understanding how demographics and other variables may influence the guideline-compliant management for individual patients.



MISMATCH OF EXPECTATIONS: COLORECTAL CANCER PATIENTS' EXPERIENCE OF PRE-OPERATIVE INFORMATION.

eP677

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Purpose/Background: Surgery for colorectal cancer patients significantly impacts on their quality of life (QOL), and in turn which can impede post-operative recovery. Delivery of key information on peri-operative aspects of care is imperative, and ensures shared decision making. However, patient feedback in clinical settings and previous research have identified challenges with patients'

retention and understanding of information. This in turn, impacts on patient's adherence to advice, treatment plan, and adversely affects patient experience.

Methods/Interventions: A prospective study using semi-structured interviews was conducted. 16 patients were selected and underwent semi-structured interviews. Patients had a consultation period consisting of pre-operative information and advice from the multidisciplinary team (MDT), with the aim of optimising care and surgical outcomes. To better understand patients' priorities for pre-operative information, eight healthcare professionals representing each professional within the MDT were interviewed. Results were analysed in accordance with thematic analysis structure.

Results/Outcome(s): Patients' median age was 55, with 56% male and 44% female. Four sub-themes emerged within the context of information; benefits of information, information retention and being overwhelmed, the need for information, and timing of information. Main finding was a pattern of mismatched priorities between patient participants and MDT-member participants. Patients reported that timing of delivery of pre-operative information was optimal and retained details about expected treatment trajectory. However, patients unanimously reported insufficient information on the immediate post-operative period regarding levels of physiological discomfort, scarring and physical appearance. This led to confusion, and emotional distress, which in turn led to variable adherence behaviours. In contrast, MDT participants prioritised details about key instructions on adherence, limiting on purpose their information to primary advice to reduce the information burden. Thus, MDT-participants perceived patients' variable adherence behaviours and general expression of emotional distress as indicative of poor information retention.

Conclusions/Discussion: This work provides new insight about mismatch priorities between patients and healthcare providers. This information gap creates uncertainty for patients which may lead to exacerbations of baseline levels of anxiety, and likely complicates and prolongs inpatient recovery. Future recommendation includes utilisation of a pre-assessment checklist, allowing patients to express preferences in terms of type of information they would like to receive and timing with the view to develop personalised care. It is envisioned that this will enhance retention of targeted information, and reduce the mismatch in perception alignment to optimise patient's decision making, recovery and QOL.

COLORECTAL RESIDENTS' PERCEIVED EDUCATIONAL NEEDS FOR IPAA.

eP678

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Purpose/Background: Ileal pouch anal anastomosis (IPAA) is a key procedure for colorectal surgeons, but the median number of IPAA cases performed in colorectal residency is only 7. There is a need for adjunctive curriculum to teach IPAA, but there is no consensus on what should be included and how it should be taught. The perspective of colorectal residents should play a role in the design of an IPAA curriculum. This study aims to understand the perspective of colorectal residents and their educational needs regarding IPAA.

Methods/Interventions: An anonymous, voluntary email invitation to an online survey was sent to colorectal residency program directors who were asked to forward it to their residents. Residents then rated their readiness to provide various aspects of pre-operative, intra-operative (both routine and troubleshooting maneuvers), and post-operative care for patients undergoing IPAA. The survey instrument utilized the validated Zwisch four-level scale of resident autonomy (Level 1: show and tell/observer, Level 2: active help, Level 3: passive help, and Level 4: supervision only).

Results/Outcome(s): Out of 109 colorectal residents in 2021, 46 (42%) answered the survey. On a 100-point scale, the median rating of the importance of IPAA training to respondents' rank lists was 40 (IQR 23 to 59) and to perceived future practice was 50 (IQR 35 to 66). Across most elements of IPAA care, the median self-assessment was a skill level requiring active help (Table 1). Elements where readiness was deemed lower (show and tell/observer) by a median of respondents were: doing a mucosectomy/hand sewn IPAA (median 1.00, IQR 1.00 to 2.00), converting to another pouch configuration (median 1.00, IQR 1.00 to 1.75), and assessing pelvic floor function (median 1.00, IQR 1.00 to 2.00). Only the performance of a total abdominal colectomy (median 3.00, IQR 2.00 to 3.00), control of bleeding (both in the intra-operative [median 3.00, IQR 2.00 to 3.00] and post-operative period [median 3.00, IQR 2.00 to 3.00]), and management of anastomotic leaks were assessed as feasible with only passive help by a median number of respondents. No elements of care were deemed by a median number of respondents to require supervision only. Across pre-, intra-, and post-operative aspects of care, readiness was assessed as lowest in the intra-operative setting (median 2.00, IQR 1.00 to 3.00).

Conclusions/Discussion: Matriculating colorectal residents perceive a need for a high level of supervision and help in the care of patients undergoing IPAA – especially

for the technical aspects of care. Educational interventions should focus on those areas where the most growth is required to optimally train residents in IPAA surgery.

	Median	Quartile 1	Quartile 3
Overall care of a patient with an IPAA	2.00	2.00	3.00
PREOPERATIVE CARE			
Assessing patient's appropriateness for IPAA	2.00	2.00	3.00
Assessing pelvic floor function	2.00	1.00	2.00
Assessing cancer risk	2.00	2.00	3.00
Counseling patients' appropriateness for IPAA	2.00	2.00	3.00
Overall pre-operative care	2.00	2.00	3.00
OPERATIVE CARE			
Routine Intra-Operative Care			
Deciding on 1 stage vs 2 stage vs 3 stage procedures	2.00	2.00	3.00
Understanding the flow/steps of the case	2.00	2.00	3.00
Total abdominal colectomy	3.00	2.00	3.00
Mobilization of small bowel near duodenum/pancreas	2.00	2.00	3.00
Proctectomy	2.00	2.00	3.00
Creation of an ileal pouch	2.00	1.00	2.75
Creating a stapled IPAA	2.00	1.00	3.00
Doing a mucosectomy/hand sewn IPAA	1.00	1.00	2.00
Intra-Operative Troubleshooting			
Managing bleeding	3.00	2.00	3.00
Improving IPAA reach	2.00	1.00	2.00
Converting to another pouch configuration (i.e. S or W)	1.00	1.00	1.75
Issues with stoma reach	2.00	1.00	2.75
Stapler Complications	2.00	1.00	2.00
Overall operative care	2.00	1.00	3.00
POST-OPERATIVE CARE			
Bleeding	3.00	2.00	3.00
Anastomotic leak	3.00	2.00	3.00
Stoma issues	2.00	2.00	3.00
Pouchitis or cuffitis	2.00	2.00	3.00
Incontinence	2.00	2.00	2.00
Overall post-operative care	2.00	2.00	3.00

Table 1: Zwisch score self-ratings for steps of IPAA Surgery (Level 1: show and tell/observer, Level 2: active help, Level 3: passive help, and Level 4: supervision only.)

LEARNING CURVE FOR ROBOTIC NICE PROCEDURE: DOUBLE STAPLE TECHNIQUE-SINGLE INSTITUTION EXPERIENCE.

ePoster 679

A. Ky, t. lu
New York, NY

Purpose/Background: Natural orifice intracorporeal anastomosis and transrectal extraction of the specimen have been described. Same day discharges have also been described by a number of trailblazing surgeons. For those of us who have been around for a long time or just started, there is always hesitation to embrace new ways of surgical techniques especially if the complication can be major. We present our experience at our institution demonstrating the feasibility, safety, and utility of transrectal extraction with progressing earlier discharge of 2 surgeons with different surgical experiences.

Methods/Interventions: Six natural orifice intracorporeal anastomosis with transrectal extraction procedures with double stapled anastomosis were performed. All specimens were extracted through a wound protector. Between 5/22-10/22, a total of 6 low anterior resections with transrectal extraction were performed robotically. The average age for attending A was 57 (47-70yrs old) attending B 24.5(24,25yrs old) attending A have been in practice for 22yrs, attending B 2 yrs. All of the patient was collected on operative time, BMI, indication for surgery, length of operations and length of stay,

Results/Outcome(s): The indications were complicated diverticulitis, rectal cancer, large circumferential polyps and chronic constipation with rectal prolapse. The mean operative time was 182.2 minutes for durgeon A (132-225 min), and 367.5 min (239-496 min) for surgeon B. There were no intraoperative complications or conversions. An EEA double staple technique intracorporeal anastomosis was successful in all patients. Natural orifice transrectal extraction was successful in all (100%) patients. A small wound protector was used transrectally for extraction. The mean postoperative length of stay was 3 days (1.5-5) for surgeon A and 6days (5-8 days) for surgeon B. There was 1 complication of post op bleeding from the staple line from an unexpected postoperative elevated INR. The patient was returned to the OR the same day and the anastomosis clipped endoscopically by surgeon A. Surgeon B had a readmission for stricture that was dilated and discharged. There were no reoperations or mortalities.

Conclusions/Discussion: Robotic natural orifice intracorporeal anastomosis with transrectal extraction procedure and anastomosis was feasible and safe in this initial series. This technique can be successfully performed in a total intracorporeal manner without the need for an abdominal wall extraction incision. Patients who have surgery for pelvic floor disorder may have a higher length of stay due to the nature of the disorder. It is not too late for senior surgeons to learn new technology for the benefit of their patients. Length of surgery correlates to the experience of the surgeon.

IMPORTANT OPERATIVE LESSONS RELATED TO LAPAROSCOPIC ENTRY: A LITERATURE REVIEW OF LAPAROSCOPIC ENTRY TECHNIQUES AND DISCUSSION OF SURGICAL RESIDENT PREPAREDNESS FOR COLORECTAL SURGERY PRACTICE.

ePoster 680

J. Zorn
New Hyde Park, NY

Purpose/Background: Laparoscopic surgery has become an increasingly popular surgical tool worldwide and standard of care for many surgical procedures. Laparoscopic entry is regarded as the first pivotal step in any laparoscopic procedure. It can be accomplished with an open or closed technique. To date there has been no single safe technique that reduces or eliminates laparoscopic surgical entry complications in low risk patients. Surgeon preference and individual patient and operative characteristics are regarded as the most important considerations

when choosing an entry technique. Knowing the possible complications and how to rectify them is as important, with the two most common being visceral and vascular related injury. Surgical residents learn a wide range of techniques based on their mentorship and experiences, specifically related to colorectal surgery. This experience-based learning can be variable and is not without challenges. These challenges are broken up into operative and non-operative and are related to work hour limitations and exposure to specific cases, including an overall decline in open surgical procedures.

Methods/Interventions: We present a case report of a robotic assisted right hemicolectomy with laparoscopic entry related vascular injury. The case is discussed for the purpose of comprehensive review of laparoscopic entry techniques and their complications along with management. Additional focus of discussion is the surgical residents knowledge of laparoscopic entry techniques, intra-operative management of complications and overall preparedness for practice after residency in an era of a shifting paradigm for surgical residency from decades before, specifically in colorectal surgery.

Results/Outcome(s): General surgery residents assist on colon cases routinely within the United States. The need for proper acquisition of efficient and safe laparoscopic skills to be adapted early in residency continues to grow. The attainment of these skills is based on experience-based learning and introspective analysis of skills. Specifically, general surgery residents are not meeting the overall cases for colorectal surgery to be proficient at the end of residency alone and this is contributing to less general surgeon's feeling comfortable with colorectal surgeries.

Conclusions/Discussion: According to our literature review, it was found that the most common rationale for laparoscopic entry technique chosen was based on residency training, specific mentors and the ease of applicability of chosen technique. This supports the imperative that surgical residency is the initial pillar for preparation into practice. There needs to be an objective discussion and shift in training to reduce the current deficits in general surgery training for greater proficiency toward colorectal surgeries.

FECAL INCONTINENCE: ANALYSIS OF A SERIES WITH ENDOANAL ULTRASOUND, TRANSPERINEAL ULTRASOUND AND HIGH RESOLUTION ANAL MANOMETRY.

eP681

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Purpose/Background: Fecal incontinence (FI) rather than a single disease, represents a clinical spectrum with diverse manifestations closely related to its wide etiology. Temporal relationship in most patients are not so evident (e.g. developing symptoms several years after an uneventful vaginal delivery due to a hidden sphincter injury), in which association between the event and the onset of symptoms is less clear, and probably represents just one component of a multifactorial etiology. The aim of this study is to identify and characterize the main manometric and ultrasonographic variations presented by patients diagnosed with FI.

Methods/Interventions: We conducted a descriptive retrospective study form the medical records of patients diagnosed with fecal incontinence, between March 2017 to June 2018. Main variables: past history of pelvic floor, anorectal or spinal surgeries, as well as comorbidities such as diabetes mellitus and arterial hypertension. The study was carried out using a BK Medical Flex Focus 400 and a 24-channel MMS Solar HR manometry equipment.

Results/Outcome(s): 82 patients were included. 60% were females, 50% had no surgical history and 4.8% reported previous anorectal surgery (hemorrhoidectomy and fistulotomy procedures). 44% of the patients had a defect in the external anal sphincter and 46% in the internal anal sphincter. The most common site of injury was on the posterior region of the sphincter complex. An sphincter complex with more than 1 site with lesion was identified in 8.75% of the patients. Transperineal ultrasonography was performed in 25% of our patients with FI concomitant with rectal prolapse and cystocele, or a combination of both (70% of the patients). High resolution anal manometry was performed in all patients. 33% showed rectal hypersensitivity, 18% hyposensitivity and 48% had normal findings. One patient showed high resting anal pressures. A Pearson correlation coefficient was used for correlation of endoanal ultrasound and manometry results. A significant correlation was identified in patients with alteration in the resting pressure - squeeze, resting - dyssynergia and rectal sensitivity in patients with lesions of the EAS.

Conclusions/Discussion: There is no correlation in most cases between injury of the sphincter complex and manometric alterations. FI is associated with alterations in rectal sensitivity. Rectal sensation assessment should be regarded as one of the most useful parameters. Rectal sensitivity evaluated by manometry in patients with tibial stimulation and biofeedback can be helpful to demonstrate therapeutic effectiveness. The study shows the complexity of the problem and the need for a detailed multidisciplinary approach, in which studies of pelvic floor physiology are imperative, helping to individualize the treatment modalities and their best suitable combinations (surgical repair, surgical augmentation, electrostimulation, biofeedback, etc.).

Correlation	R	p
IAS Injury - Contraction	0.97	0.356
EAS Injury - Contraction	-190	0.068
Wexner – EAS Disorder	0.140	0.536
Wexner – IAS Disorder	0.058	0.602
Wexner – Rest	0.60	0.658
Rest – Contraction	0.890	0.001
Rest – Disynergia	0.577	0.001
Altered Manometry – IAS Disorder	0.144	0.195
Altered Manometry - EAS Disorder	-0.035	0.756
Sensibility – EAS Disorder	0.687	0.001

BE KIND TO YOUR BEHIND: A RANDOMIZED CONTROLLED TRIAL ON THE HABITUAL USE OF BIDETS IN BENIGN PERIANAL DISEASE.

eP682

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Purpose/Background: Patients with benign perianal disease are often advised to use sitz-baths for symptom control in addition to fiber, local treatment, and attention to good toileting habits. Anecdotally, water bidets may offer benefits in the treatment of hemorrhoidal and fissure symptoms. During the COVID-19 pandemic, bidet sales increased substantially in North America. However, its role in perianal disease remains largely unknown. We considered whether bidets can be used as a treatment modality to attenuate symptoms of perianal disease.

Methods/Interventions: Patients diagnosed by a general surgeon or surgical resident with hemorrhoids and/or anal fissures will be recruited into the study at the outpatient department or the endoscopy unit. This includes patients who have active symptoms because of fissures or hemorrhoids. Patients will be screened for inclusion and exclusion, and then randomly assigned to bidet vs. no bidet. Patients will still be advised to undergo the current gold-standard treatment, which includes sitz baths, increased fiber intake, and local creams. The only difference between the two arms of the study was the use of a bidet. The outcomes will be assessed in terms of patients' self-reported symptoms with a questionnaire, completed via phone at baseline, after 6 weeks and 12 weeks of agreeing to participate in the study

Results/Outcome(s): The study is powered to include 120 patients in order to identify a potential 20% difference between the two study arms. Enrollment is currently underway and 30/120 patients have been recruited.

Conclusions/Discussion: This will be the first-ever randomized controlled trial to study bidets as a potential treatment modality in the treatment of benign perianal disease.

FOURNIER'S GANGRENE SECONDARY TO PERFORATED SIGMOID COLON CANCER WITHIN AN INCARCERATED INGUINAL HERNIA: A CASE REPORT.

eP683

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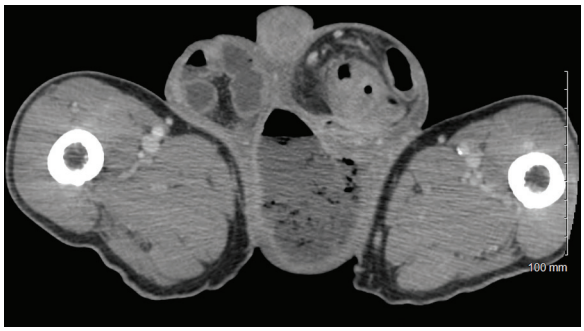
Purpose/Background: An 81-year-old male presented to the emergency department with a three-day history of scrotal pain and generalized weakness. He had not seen a physician in fifty years and took no home medications. On physical exam he was noted to have a benign abdomen and scrotal edema and erythema with palpable bowel within bilateral inguinal hernias. The right inguinal hernia was reducible; however, the left inguinal hernia was incarcerated. Laboratory studies were significant for a leukocytosis of 16.7 and creatinine of 1.7. Imaging demonstrated a 9.6 cm gas-containing fluid collection in the left hemiscrotum concerning for necrotizing soft tissue infection, a large left inguinal hernia containing 20 cm of sigmoid colon with a 4 cm segment of mural thickening, a right inguinal hernia containing small bowel, and multiple indeterminate liver lesions.

Methods/Interventions: The patient initially underwent incision and drainage of his scrotal abscess in the emergency department. The following day, due to worsening erythema, the patient was taken to the operating room where he underwent further debridement of his perineum, groin and scrotum with urology and general surgery. The left hemiscrotum was entered, exposing the patient's colon. There was necrosis of the colonic wall. Due to the chronically incarcerated nature of his hernia and the likely need for resection, the operation was converted to an exploratory laparotomy. An area of perforation adjacent to a palpable mass was encountered within the herniated colon. This was resected and the remainder of the herniated colon was then able to be reduced. Temporary mesh was placed in the left pelvis to prevent herniation of the reduced colon and a temporary abdominal closure device was placed. He was taken back to the operating room three days later where he underwent left orchiectomy, reinforced biologic mesh placement, colostomy creation, and abdominal wall closure. He eventually underwent complex repair of his groin and scrotal wounds with plastic surgery. He was discharged to a subacute rehabilitation facility on post-operation day 10.

Results/Outcome(s): Pathology demonstrated invasive adenocarcinoma of the sigmoid colon with macroscopic perforation and 0 out of 16 lymph nodes involved, TNM stage pT4a pN0 pMx, MMR proficient. All margins were uninvolved. Subsequent staging workup showed no evidence of disease in the chest and a CEA level of 7.6. MR abdomen demonstrated more than fifteen hepatic masses consistent with metastases. The patient was started on adjuvant chemotherapy with capecitabine and was eventually lost to follow-up.

Conclusions/Discussion: In patients presenting with an incarcerated inguinal hernia and concurrent necrotizing soft tissue infection, perforated colon cancer is a possible, albeit rare, etiology. Surgeons should perform oncologic resection in these instances, especially if there is a palpable mass.



Bilateral inguinal hernias. The right inguinal hernia contains small bowel. The left inguinal hernia contains colon.

DACRON VASCULAR GRAFT PROSTHESIS FOR THE MANAGEMENT OF A BLOWHOLE COLOSTOMY.

eP684

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Purpose/Background: In cases of severe abdominal disease where a diverting ostomy is indicated, it is rarely necessary to bring up only one wall of the intestine as a so-called "blowhole" ostomy. These are often difficult to manage due to issues with appliance fitting, effluent which is directed onto skin, skin maceration and irritation, among others. To help manage challenges related to this type of ostomy, in 2021 Brazilian researchers described a novel technique of attaching a Dacron graft to the mucocutaneous junction to exclude the surrounding skin and re-create the silo that a traditionally created stoma would have.

Methods/Interventions: The patient was a 74-year-old male with a history notable for metastatic carcinoid who presented with a sigmoid colon obstruction secondary to disease burden. He had been treated previously with PRRT, radiation therapy, and tumor removal via open small bowel resection 14 years prior. Additional surgical history included a subsequent laparoscopic ventral hernia repair with mesh, as well as prior open inguinal hernia repair with mesh, laparoscopic cholecystectomy, and open appendectomy. Endoscopic stent placement for his obstruction was attempted, but unsuccessful as it was unable to be traversed with a wire. The patient was then taken to the operating room for exploratory laparotomy with plan to create a diverting loop colostomy. Intraoperatively, the patient was noted to have a frozen abdomen which made it difficult to even identify the anterior wall of a dilated transverse colon. Therefore, a transverse blowhole colostomy was brought out just lateral to the incision. Eight months after the procedure, the patient had ongoing problems with pouching and severe pain from peri-stomal skin irritation.

Results/Outcome(s): The patient underwent placement of a 24 mm Dacron graft in the operating room under monitored sedation. The graft was cut to 3 cm in length and attached to the mucocutaneous junction using a running 4-0 Vicryl (absorbable) suture. Two weeks postoperatively, the stitches pulled away from the inferior aspect of the graft causing leakage. The graft was re-sutured under local anesthesia, this time with 4-0 Nylon (non-absorbable) suture using interrupted horizontal mattresses. This was repeated two more times in the outpatient setting and one final time in the operating room, where large bites of skin could be taken with non-absorbable suture to secure the graft.

Conclusions/Discussion: We present a case of improved pouching and quality of life after creation of a Dacron graft silo for management of a difficult colostomy. In contrast to the original case series, we found improved graft function with: (1) use of non-absorbable suture (2) use of interrupted mattress suture rather than running (3) graft cut to 3-4cm rather than 5 and (4) larger bites of skin at the mucocutaneous junction.

THE IMPACT OF SARCOPENIA ON OUTCOMES IN CYTOREDUCTIVE SURGERY FOR COLORECTAL CANCER.

eP685

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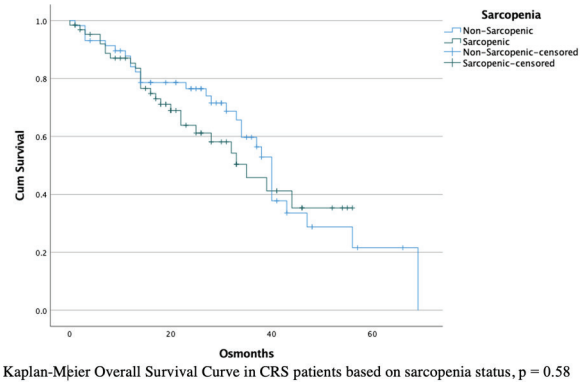
Purpose/Background: Peritoneal metastasis are synchronous in 7% of patients presenting with colorectal cancer (CRC). Peritoneal metastasis (PM) is associated with cachexia, loss of performance and death. Cytoreductive surgery (CRS) ± heated intraperitoneal chemotherapy (HIPEC) is associated with considerable morbidity and identifying risk factors for poor outcomes is critical in decision making. **Aim:** This study aimed to assess the impact of sarcopenia in patients undergoing curative cytoreductive surgery for PM due to CRC on post-operative morbidity and oncological outcomes.

Methods/Interventions: All consecutive patients who underwent CRS ± HIPEC at a comprehensive cancer centre between January 2015 and December 2019 were included. Pre-operative CT imaging closest to the operative date was reviewed. The cross-sectional muscle area at the level of the third lumbar vertebrae were extracted, along with height measurements, to derive skeletal muscle index (SMI). The SMI cut-off values of <52.4 cm^2/m^2 for men and <38.5 cm^2/m^2 for women were used to define

sarcopenia. Demographic and outcome data was collected from a prospective database. Categorical variables were compared using the chi-squared test and continuous data was compared using a Mann-Whitney U-test. OS and DFS were computed using Kaplan-Meier analysis and compared using the log-rank test.

Results/Outcome(s): A total of 123 patients were included (mean age 55.81 ± 12.4; 39.8% being male and 60.2% female; average BMI 26.8). There were 65 patients with sarcopenia and 58 patients without. Complete cytoreduction was achieved in 80.5% of the patients and HIPEC administered in 77.2%. The mean operative duration was 264.9 minutes. Post-operative complications occurred in 39% of patients. Differences in baseline characteristics were noted in gender (sarcopenia 69.4% male, non-sarcopenic 30.6% male; p = 0.03) and age (sarcopenia 58.9 years, non-sarcopenia 52.4 years; p = 0.04). SMI and the patient-generated subjective global assessment (PS-SGA) had a positive correlation (r = 0.317, p = 0.001), but no significant correlation was found between SMI and body mass index, pre-operative albumin, or neutrophil-to-lymphocyte ratio. Median DFS for sarcopenic patients was 11months compared to 13month with non-sarcopenic patients (p = 0.114). Median OS for sarcopenic patients was 35 months compared to 40 months for non-sarcopenic patients (p = 0.58). Sarcopenia was not significantly associated with Clavien-Dindo 3 or 4 complications (p = 0.23) or length of stay (p = 0.724).

Conclusions/Discussion: Conclusion: Sarcopenia is common in patients undergoing CRS for CRC. SMI was correlated with PS-SGA score but not pre-operative BMI, albumin or inflammatory status. Sarcopenia was not associated with overall survival, disease free survival or post-operative complications. **Limitations:** This study is limited by its retrospective design and current SMI thresholds which have not been validated in differing populations.



Kaplan-Meier Overall Survival Curve in CRS patients based on sarcopenia status, p = 0.58

POSTOPERATIVE DAY ONE AND TWO C-REACTIVE PROTEIN VALUES FOR PREDICTING POSTOPERATIVE MORBIDITY FOLLOWING COLORECTAL SURGERY.

eP686

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Purpose/Background: Colorectal surgery, while increasingly safe, can be associated with 30-day postoperative morbidity rates of up to 35%. C-reactive protein (CRP) has been extensively studied as a biomarker for predicting morbidity following colorectal surgery. However, prior publications have focused on postoperative days (POD) 3-5. With the growing prevalence of ERAS programs, patients undergoing colorectal surgery are increasingly being discharged within two days of their operation. As such, validated CRP values for predicting postoperative morbidity on POD 1 and 2 would have significant clinical utility. The aim of this retrospective cohort study is to evaluate the prognostic value of POD 1 and POD 2 CRPs in predicting postoperative morbidity and determine predictive cut-off values.

Methods/Interventions: This multi-center retrospective cohort study included patients undergoing elective or emergent colectomy with primary anastomosis for colorectal disease between 2019 and 2022. Patients without POD 1 or 2 CRP values, undergoing formation of an end stoma, and under the age of 18 were excluded. The primary outcome was 30-day postoperative morbidity. Secondary outcomes included prevalence of infectious complications and anastomotic leak (AL). Univariable and stepwise multivariable logistic regressions were performed. The diagnostic accuracy of CRP was analyzed with receiver operating curve (ROC) analysis for the primary outcome and optimal cut-off values were estimated by Youden's index.

Results/Outcome(s): In total, 126 patients (mean age: 63.4 years SD 16.2, mean BMI: 29.3kg/m^2, 45.2% female) met inclusion criteria. The most common indication for colectomy was colorectal neoplasia (66.7%), followed by diverticular disease (18.3%) and inflammatory bowel disease (IBD) (7.1%). The most common operation was right hemicolectomy (32.8%), followed by anterior resection (25.6%) and low anterior resection (10.4%). Operations were completed laparoscopically in 95.2% of cases. Twelve (9.5%) emergent cases were included. The 30-day postoperative morbidity rate was 19.0% (n=24). On univariable logistic regression, elevated POD 1 CRP was significantly associated with postoperative morbidity (OR 1.01, 95%CI 1.001-1.02, p=0.025). Optimal cut-off values for POD 1 and 2 CRP values for predicting postoperative morbidity were 27.4 mg/L (sens: 91%, spec: 46%, AUC: 0.69, NPV: 96%, PPV: 28%) and 53.8 mg/L (sens: 91%, spec: 42%, AUC: 0.67, NPV: 95%, PPV: 26%), respectively.

Conclusions/Discussion: CRP values on POD 1 and 2 following colectomy with primary anastomosis for colorectal disease may be predictive of 30-day postoperative morbidity. Values of 27.4 mg/L and 53.8 mg/L have high negative predictive values and may be used to rule out postoperative morbidity when drawn on POD 1 and 2, respectively. This study is limited by sample size and future adequately powered study is required to confirm these findings.

LAPAROSCOPIC PROXIMAL BOWEL DIVERSION IN A RECTAL CANCER PATIENT WITH SITUS INVERSUS TOTALIS DELA FUENTE JAB, LOPEZ MPJ, SACDALAN DL, ONGLAO MAS DIVISION OF COLORECTAL SURGERY, PHILIPPINE GENERAL HOSPITAL, UNIVERSITY OF THE PHILIPPINES MANILA.

eP687

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Manila, Philippines

Purpose/Background: Purpose/Background Situs inversus totalis(SIT) is the mirror image transposition of all uncoupled thoracic and abdominal organs. It is a rare condition that is only seen in 1/10,000 live births. There have been multiple reports citing malignancies, mostly from a gastric primary, found in patients with the condition. A 62 year-old female had a three-month history of intermittent hematochezia associated with decrease in stool caliber, weight loss, and colicky abdominal pain.

Methods/Interventions: METHODS/INTERVENTIONS On colonoscopy the scope was unable to pass beyond 8cm from the anal verge due to an almost-completely obstructing mass. The biopsy revealed adenocarcinoma. Her serum carcinoembryonic antigen (CEA) was elevated at 197ng/ml (normal value <5ng/ml). Chest and abdominopelvic CT scan showed a long-segment mid-rectal mass with extraserosal extension causing obliteration of the normal anatomic planes. The mass was intimately related to the posterior aspect of the uterus. There was no distant metastasis seen. Incidentally, a complete transposition of her thoracic and abdominal viscera was noted.

Results/Outcome(s): RESULTS/OUTCOMES On diagnostic laparoscopy, the abdomen followed a transposed pattern with the stomach, cecum, liver, and gallbladder found on the left; the gastric cardia was connected to the esophagus from the right and the pylorus and duodenum were situated on the left. The sigmoid and spleen were seen on the right. There was no carcinomatosis. The proximal transverse colon was identified on the left of the patient. A segment of this was identified and used for bowel diversion. The patient was fully feeding a day after the procedure. She was discharged well with plans for short course radiotherapy and systemic chemotherapy (RAPIDO protocol).

Conclusions/Discussion: Discussion/Conclusion The benefits of neoadjuvant therapy for locally-advanced rectal cancer are well-entrenched in literature. In some patients, a need to address the rectal obstruction will need to be prioritized before neoadjuvant therapy is started. In our setting, logistic concerns result in a four- to six-week delay prior to commencement of neoadjuvant treatment. Concerns with cost limit the use of self-expanding metallic stents (SEMS), hence bowel diversion being the preferred option. A proximal transverse colostomy was decided on due to the future plans of performing a low anterior resection on the patient. Thisaffords better length for the eventual coloanal anastomosis. Minimally-invasive surgery is feasible and safe in patients with a unique anatomy. It also allows a thorough inspection and orientation of the abdominal cavity through small incisions

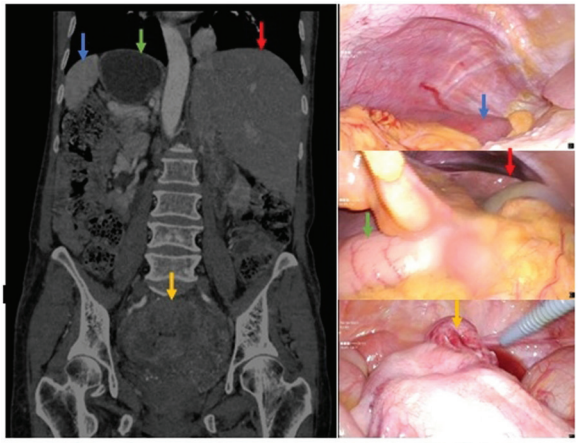

Figure 1. (A) CT scan image and (B) laparoscopic image showing the spleen (blue arrow), gastric cardia (green arrow), right liver lobe (red arrow), and rectal mass (yellowarrow). PGH, 2022.

END-TO-SIDE VERSUS END-TO-END ANASTOMOSIS FOR LOW ANTERIOR RESECTION: AN UPDATED SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS.

eP688

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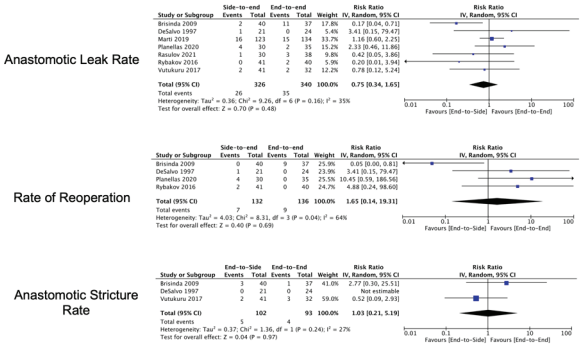
Purpose/Background: Multiple reconstruction methods have been developed to improve outcomes after low anterior resection, including end-to-side and end-to-end anastomoses. Several randomized controlled trials have shown variability in postoperative outcomes and a recent meta-analysis demonstrated a significantly lower risk of anastomotic leak with end-to-side anastomosis. This study aims to compare end-to-side versus end-to-end anastomosis in terms of anastomotic leak rate and functional bowel outcomes with the inclusion of the most recent available evidence.

Methods/Interventions: A systematic literature search was performed in MEDLINE, EBM Reviews and EMBASE. Studies were included if they were randomized controlled trials that compared end-to-side and end-to-end anastomoses after either anterior resection or low anterior resection for rectal cancer. The primary outcome was anastomotic leak rate. Secondary outcomes included anastomotic stricture, reoperation, mortality, operative time, length of stay, and functional bowel outcomes. A meta-analysis of the included studies was performed using an inverse variance random effects model.

Results/Outcome(s): Out of 1988 references, 7 studies were selected, including 301 patients undergoing end-to-side anastomosis (50.3% male, 61.8 years) and 305 patients undergoing end-to-end anastomosis (55.8% male, 62.6 years). The rate of anastomotic leak was not significantly reduced with the use of end-to-side anastomosis compared to end-to-end anastomosis (RR 0.75, 95% CI 0.34-1.65, P = 0.48, I^2=35%). The rate of reoperation was also not significantly reduced with end-to-side anastomosis (RR 1.65, 95% CI 0.14-19.31, P=0.69, I^2=64%). The rate of anastomotic stricture was not significantly reduced with end-to-side anastomosis (RR 1.05, 95% CI 0.19-5.82, P=0.69, I^2=27%). Narrative review of available data on postoperative bowel function showed a statistically significant improvement in Wexner score in the end-to-side group compared to the end-to-end group at 3- and 6-months post-operatively, but this did not persist at 12 months.

Conclusions/Discussion: This updated meta-analysis, including the most recent available data, shows no significant difference in anastomotic leak rate, reoperation, or stricture between end-to-side and end-to-end colorectal anastomoses. There may be a transient improvement in postoperative bowel function with end-to-side anastomosis, but this does not persist at one year. Given the heterogeneity in outcome measures, further prospective trials are needed to investigate the impact of anastomosis type on bowel function.



Comparison of anastomotic leak rate, rate of reoperation and anastomotic stricture rate between end-to-side anastomosis and end-to-end anastomosis after low anterior resection.

USEFULNESS OF COMPARTMENTAL QUANTIFICATION OF ADIPOSE TISSUE BY COMPUTERIZED TOMOGRAPHY IN PATIENTS WITH RECTAL CANCER.

eP689

J. De Leon Rendon, J. Pastrana, Y. López, M. RECALDE RIVERA, H. Estrada, J. Villanueva-Herrero, B. Jimenez
Ciudad de Mexico, Mexico

Purpose/Background: Obesity is considered a prognostic factor in colorectal cancer (CRC) and there is evidence that not only the body mass index (BMI), but also the distribution of abdominal fat, plays an important role in the prognosis of patients with CRC. In the present study we describe and determine the usefulness of compartmental quantification of adipose tissue by computerized tomography (CT) in patients with rectal cancer.

Methods/Interventions: A prospective study was carried out in which 33 consecutive patients diagnosed with rectal cancer confirmed by histopathology were included. The demographic, clinical, and biochemical data of each patient were collected. Visceral fat area (VFA), superficial fat area (SFA), and total fat area (TFA) were measured using ImageJ software (NIH), and the VFA/SFA index was then calculated. Nonparametric Mann-Whitney U tests were used to compare two groups and Kruskal-Wallis to compare three or more groups. Spearman's r was used to quantify the correlation between the variables. Data were analyzed with the statistical package SPSS version 26. Statistical significance was determined with a p value < 0.05.

Results/Outcome(s): Of the patients included in the study, 18 (54.5%) were female, with an age of 55.9±12.8 years (range, 30-83 years). The average BMI was 25.62±4.94. 9.1% of the patients had clinical stage (CS)-II, 60.6% CS-III and 30.3% CS-IV. Up to 57.6% of the patients presented the tumor in the lower rectum and 42.4% in the middle rectum. 74.5% of the patients had undergone surgical treatment, either emergency, definitive or palliative, and of these 12% presented post-surgical complications and 8% required at least one reintervention. Of the patients who received neoadjuvant therapy, 33.3% showed a response to it. 11.11% experienced recurrence after adjuvant therapy. When calculating the areas of adipose tissue with CT in the different compartments, significant differences were found in VFA between men and women (144.67cm2 vs 99.96cm2; p=0.03) and with the VFA/SFA index (0.68cm2vs0.36cm2; p: < 0.001); SFA and presence or absence of smoking (323.63cm2 vs 234.99cm2; p=0.03), as well as differences and a positive correlation in SFA and AGT between BMI (grouped according to WHO) (p=0.007 and p=0.008, respectively). A relationship and a negative correlation were found between N+ and N- (by CT and MR) and VFA (p=0.005/r=-0.53: p=0.01), SFA (p= < 0.001/r=-0.72; p= < 0.001) and TFA (p= < 0.001/r=-0.68; p= < 0.001).

A relationship between a higher VFA/SFA index and post-surgical complications (p=0.02) and reinterventions (p=0.04) was recognized.

Conclusions/Discussion: Patients with locoregional invasion have significantly less adipose tissue. Compartmental quantification of adipose tissue by CT could be useful in the prognosis of rectal cancer patients.

DECISION-MAKING PREFERENCES AND REGRET IN RECTAL CANCER PATIENTS UNDERGOING RESTORATIVE PROCTECTOMY.

eP690

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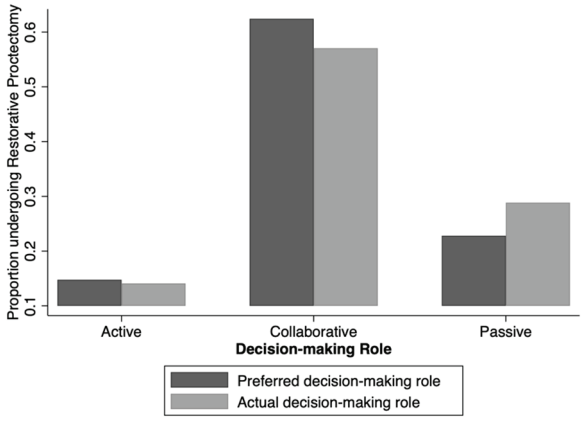
Purpose/Background: Shared decision-making is important for rectal cancer surgery given the high incidence of bowel dysfunction after restorative proctectomy versus a permanent colostomy with an abdominoperineal resection. How patients make treatment choices may affect long-term regret and satisfaction, but this is poorly studied. Therefore, the objective of this study is to characterize decision-making preferences and its effect on decisional regret in patients undergoing restorative proctectomy for rectal cancer.

Methods/Interventions: A prospective study from 10/2018-06/2022 was performed at a single academic specialist rectal cancer centre, and enrolled adult patients with rectal adenocarcinoma undergoing restorative proctectomy. Health literacy was assessed using the BRIEF instrument, a 4-item instrument that categorizes patients into adequate, marginal, and limited health literacy. Decision-making preferences regarding cancer treatment was assessed using the Control Preferences Scale, which asks about patients' preferred and actual decision-making roles (active, collaborative, and passive). Regret regarding their choice of restorative proctectomy was assessed using the Decision Regret Score, with high regret defined as scores ≥25. Bowel dysfunction was assessed using the Low Anterior Resection Syndrome (LARS) score, and categorized into no, minor, and major LARS. BRIEF and CPS was assessed prior to surgery, and LARS and decisional regret at ≥1 year after restoration of bowel continuity.

Results/Outcome(s): A total of 123 patients were included in this analysis (mean age 62.7y (SD 10.8), 72% male, mean tumour height 8.4cm (SD 3.1), 56% neoadjuvant radiotherapy, 51% diverting stoma). Health literacy was categorized as adequate in 62% of participants, marginal in 25%, and limited in 13%. There was significant incongruence between preferred and actual decision-making roles (Figure, p<0.001), with 13% preferring a more active role and 6% preferring a less active role. Importantly, 37% of patients who experienced a passive decision-making role would have preferred a more active role. Patients with adequate health literacy were more likely to prefer a collaborative decision-making role (86% vs. 65%, p=0.016). Patients with incongruence between preferred and actual decision-making role were more likely to report high regret (56% vs. 26%, p=0.005). Patients with major LARS were also more likely to experienced high regret compared to patients with no/minor LARS (44% vs. 25%, p=0.037).

Conclusions/Discussion: A significant proportion of rectal cancer patients undergoing restorative proctectomy do not have a decision-making role that is congruent with their preferences, and these patients experience a high degree of regret. Furthermore, health literacy may affect decision-making preferences. These data should help identify patients who would benefit from shared decision-making in rectal cancer.



Preferred and actual decision-making preferences in patients undergoing restorative proctectomy for rectal cancer

RECURRENCE RATES IN T1 AND T2 RECTAL CANCER UNDERGOING LOCAL EXCISION AT A HIGH-VOLUME RECTAL CANCER CENTER.

eP691

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Purpose/Background: Local excision is an acceptable oncologic treatment strategy for patients with T1 rectal adenocarcinoma without high-risk features. The aim of this study is to evaluate the disease characteristics and recurrence outcomes for all pT1-2 rectal adenocarcinomas that underwent local excision at a high-volume rectal cancer center.

Methods/Interventions: A retrospective chart review was performed on patients who underwent local excision for rectal cancer from 2016-2020 by our colorectal practice. Our institutional National Accreditation Program for Rectal Cancer (NAPRC) data was cross-matched. We divided the patients into 2 groups: low-risk (pT1 sm1/2) and high risk (pT1 sm3 and pT2). Demographic information, disease characterization, further treatment, and recurrence rates were evaluated.

Results/Outcome(s): There were 61 transanal excisions for pT1-T2 rectal cancer from 2016-2020. Of these, 33 (54.1%) were female, mean age 67.1 (47-89) years old. Excision methods included transanal excision (TAE) with 5 patients (8%), transanal endoscopic microsurgery (TEM) with 14 (22.9%) patients, and transanal minimally invasive surgery (TAMIS) with 42 (68.8%) patients. The average follow time period was 29.5 months. All high-risk patients were recommended adjuvant treatment after initial surgery. Of the ten T2 patients: one underwent additional surgical resection, five underwent adjuvant chemo/radiation and 4 patients declined further treatment. Overall, 7 (11.4%) patients developed recurrences: 3 local, 3 distant to the lung and one diagnosed with local recurrence and metastatic disease to the liver simultaneously. In the low-risk group, we identified 2 recurrences of the 30 patients (6.7%). In the high-risk group, we identified 5 recurrences in 31 patients (16%), two local and three distant (Table 1). All local recurrences underwent salvage surgery.

Conclusions/Discussion: Local excision allows for organ preservation for early stage rectal cancer and avoids major abdominal surgery in carefully selected patients. More advanced T stage and high risk variables increases the risk of recurrence.

Table 1: Recurrence rates by group

	Low-risk group	High-risk group
Number of patients	30	31
Local recurrence	1	2
Distant recurrence	0	3
Local and Distant	1	0

THE IMPACT OF CAPRINI RISK ADJUSTED VTE PROPHYLAXIS IN COLORECTAL SURGERY PATIENTS: AN ANALYSIS OF PATIENTS WITH INFLAMMATORY BOWEL DISEASE.

eP857

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Purpose/Background: Background: Venous Thromboembolism (VTE) is the most common cause of preventable mortality in the post-operative setting among colorectal surgery patients, with an incidence of approximately 2%. Patients with Inflammatory Bowel Disease (IBD) are at particularly high risk for developing VTE. Prophylaxis, including chemoprophylaxis, is recommended when appropriate. Use of VTE risk-assessment models is recommended to help guide VTE prophylaxis practices, but the adoption of these tools in practice remains unclear. **Objective:** This study aimed to determine the utilization and impact of Caprini guideline-indicated venous thromboembolism prophylaxis in patients undergoing elective colorectal surgeries for inflammatory bowel disease between 2016 and 2021.

Methods/Interventions: Design: This is a retrospective analysis **Setting:** The study was conducted at the Mayo Clinic **Intervention:** None **Main outcome Measures:** Receipt of Caprini-guided venous thromboembolism prophylaxis, inpatient and discharged rates of venous thromboembolism and bleeding.

Results/Outcome(s): Results: A total of 3,252 patients had a colorectal procedure for IBD, of which, 86.4% were stratified as high risk for VTE. Overall, 1,778 (58%) received Caprini-guided VTE prophylaxis in the inpatient setting. A post-discharge cohort included 2,307 patients, of which, 178 (7.7%) received Caprini-guided VTE prophylaxis. In those receiving Caprini guided VTE prophylaxis, inpatient VTE was more than 3 times lower than those not receiving Caprini-guided VTE prophylaxis (0.28% vs. 0.94%, p 0.016). All 30-day (0.14% vs. 0%) and 90-day (0.33% vs 0%) discharged VTE events occurred in those not receiving Caprini-guided VTE prophylaxis. Inpatient (1.8% vs. 4.3%, p <0.001), 30-day (0% vs 0.28%, pNS) and 90-day (0% vs 0.52%, pNS) bleeding rates were lower in those receiving Caprini-guide VTE prophylaxis. Counterintuitive to expectation, higher Caprin scores were associated with a reduced odds of receiving Caprini-guided VTE prophylaxis (OR 0.19, CI 0.15-0.24, p <0.001), even though it correlated with VTE risk (OR 1.16, CI 1.00-1.33, p 0.038). Receiving Caprini-guide VTE prophylaxis was not associated with increased bleeding risk (OR 0.29, CI 0.17-0.48, p <0.001).

Conclusions/Discussion: Limitations: Study limitations include its retrospective nature and use of aggregated electronic medical records. **Conclusion:** Receipt of Caprini-guided VTE prophylaxis reduced the risk of post-operative VTE in IBD patients undergoing colorectal surgeries, without increasing bleeding risk.

Inpatient	Not appropriate (N=1274)	Appropriate (N=1778)	Total (N=3052)	P value
Postoperative DVT	7 (0.55%)	1 (0.06%)	8 (0.26%)	0.009
Postoperative PE	5 (0.39%)	4 (0.22%)	9 (0.29%)	0.40
Postoperative VTE before discharge	12 (0.94%)	5 (0.28%)	17 (0.56%)	0.016
Inpatient mortality	0 (0.00%)	4 (0.22%)	4 (0.13%)	0.090
Postoperative bleeding	55 (4.32%)	32 (1.80%)	87 (2.85%)	<0.001
Post-discharge	Not appropriate (N=2129)	Appropriate (N=178)	Total (N=2307)	P value
DVT in 30 days after discharge	3 (0.14%)	0 (0.00%)	3 (0.13%)	1.00
DVT in 90 days after discharge	6 (0.28%)	0 (0.00%)	6 (0.26%)	1.00
PE in 90 days after discharge	1 (0.05%)	0 (0.00%)	1 (0.04%)	1.00
VTE in 30 days after discharge	3 (0.14%)	0 (0.00%)	3 (0.13%)	1.00
VTE in 90 days after discharge	7 (0.33%)	0 (0.00%)	7 (0.30%)	0.44
90-day mortality	1 (0.05%)	0 (0.00%)	1 (0.04%)	1.00
30-day bleed ≥2 crit.	6 (0.28%)	0 (0.00%)	6 (0.26%)	1.00
90-day bleed ≥2 crit.	11 (0.52%)	0 (0.00%)	11 (0.48%)	1.00

TRANSCUTANEOUS ELECTRIC NERVE STIMULATION ON ACUPOINTS (ACUTENS) FOR LOW ANTERIOR RESECTION SYNDROME.

eP692

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Purpose/Background: With recent advances in technology and oncological treatments for rectal cancer, more patients are receiving sphincter-preserving surgery. However, up to 80% of patients who have undergone low anterior resection suffer from severe bowel dysfunction postoperatively termed "Low Anterior Resection Syndrome, LARS", with a negative impact on their quality of life. Causes of LARS are often multifactorial, and many are unavoidable. There is no cure for LARS. There are some evidence to suggest that neuromodulation may help patients suffering from LARS. Transcutenous electric nerve stimulation on acupoints (AcuTENS) may offer an alternative, less invasive neuromodulation.

Methods/Interventions: Patients with LARS were offered 16 sessions of AcuTENS treatment in the outpatient department at the Prince of Wales Hospital, Hong Kong. Their Demographics, rectal cancer treatment details, LARS score and Quality of Life scores were documented before, during and after AcuTENS treatment.

Results/Outcome(s): Twenty-two patients with severe LARS underwent AcuTENS treatment. 11 Robotic-assisted Total Mesorectal Excision (TME), 6 Laparoscopic Transanal Total Mesorectal Excision (TaTME), 5 Laparoscopic Low Anterior Resection. 5 patients had neoadjuvant chemoradiotherapy. Sixteen patients had marked improvement in their LARS score after treatment, and 15 patients had sustained improved scores at 6months post AcuTENS treatment. Their Quality of Life scores also improved.

Conclusions/Discussion: AcuTENS may offer non-invasive neuromodulation treatment for patients suffering from LARS. A Randomised Controlled Trial is required to assess the true effect of AcuTENS for the treatment of LARS.

MANAGEMENT AND OUTCOMES OF SYNCHRONOUS RECTAL AND PROSTATE CANCERS: 15 YEAR RETROSPECTIVE REVIEW.

eP693

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Purpose/Background: Prostate and rectal cancers are two of the most common malignancies in men. However, the occurrence of synchronous prostate and rectal cancer is rare, posing a unique challenge to establishing guidelines on diagnostic and treatment strategies. Current practice is based on limited case reports and case series. In this study we present a review of diagnostic pathways and treatments of synchronous prostate and rectal cancers.

Methods/Interventions: We conducted an IRB approved retrospective cohort study of patients with synchronous prostate and rectal cancers from January 2004 - 2019 using the British Columbia Cancer Agency provincial database. Synchronous cancers were defined as diagnosed within 6 months of each other. Patients with metastatic disease at diagnosis were excluded. Descriptive summary statistics were performed. Survival was assessed using the Kaplan-Meier method.

Results/Outcome(s): A total of 57 patients with synchronous prostate and rectal cancer were identified with a median age at diagnosis of 70 (IQR 65-77) years and median time between diagnoses of 84 (IQR 42-137) days. The initial diagnosis was rectal cancer in 36 patients, with the majority being diagnosed based on clinical symptoms (n=32). Prostate cancer was subsequently identified incidentally on staging MRI or final surgical pathology in a substantial portion of these patients (n=19). Cancer detection means are summarized in Table 1. A total of 52 patients underwent radical resection of their rectal cancer, including 6 pelvic exenterations and 1 combined low anterior resection with radical prostatectomy. Furthermore, 27 patients received neoadjuvant or adjuvant radiotherapy for their rectal cancer. Of these patients, 15 included the prostate in the radiation field, though only 5 with curative intent radiation doses. A further 6 patients received staged curative intent prostate radiotherapy, 7 radical prostatectomy, while 24 clinically significant prostate cancers were incompletely treated. The median overall survival was 5.82 years and 5 year overall survival was 55%. The 5 year rectal cancer recurrence-free survival was 77.2%.

Conclusions/Discussion: In this large retrospective cohort study, largest to date, we identified notable heterogeneity in the diagnostic pathways and treatment strategies of synchronous rectal and prostate cancer. A significant portion of prostate cancers were incidentally identified during rectal cancer management, suggesting a potential role for prostate cancer screening in the rectal cancer work-up. Given its aggressive biology, rectal cancer management has traditionally taken precedence in the context of these synchronous malignancies. However, the promising 5-year rectal cancer survival rate suggests a potential role for further integrating prostate cancer management within a multidisciplinary environment.

Table 1. Summary of synchronous rectal and prostate cancer diagnosis and management

	Rectal		Prostate	
Initial Diagnosis	36 (63.2%)		21 (36.8%)	
Means of Diagnosis				
Screening	18 (31.6%)		24 (42.1%)	
Clinical	37 (64.9%)		13 (22.8%)	
Incidental	2 (3.5%)		20 (35.1%)	
Prognostic Classification	Clinical Stage		Risk Group	
	I	21 (36.8%)	*Low*	18 (31.6%)
	II	19 (33.3%)	*Intermediate*	20 (35.1%)
	III	17 (29.8%)	*High*	19 (33.3%)
Treatment				
Radical Surgery	51 (89.5%)		14 (24.6%)	
Reconstructive	27 (52.9%)		7 (50.0%)	
Radical Radiation	38 (66.7%)		11 (52.4%)	
Under Treatment	3 (5.3%)		10 (17.5%)*	
None	2 (3.5%)		14 (24.6%)*	

*only clinically significant prostate cancers included

NATIONAL TRENDS OF USING TOTAL NEOADJUVANT THERAPY (TNT) FOR LOCALLY ADVANCED RECTAL CANCER. AN ANALYSIS OF NATIONAL CANCER DATABASE.

eP859

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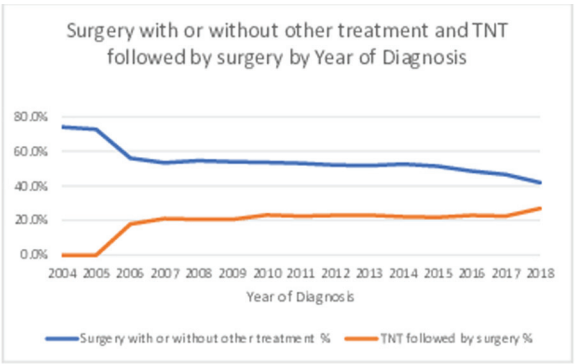
Purpose/Background: Non-metastatic locally advanced rectal cancer has been traditionally treated with chemoradiation followed by surgery and adjuvant chemotherapy. The introduction of total neoadjuvant therapy (TNT), that includes upfront chemoradiation and chemotherapy, followed by surgery, revolutionized rectal cancer therapy. TNT improved disease-free survival and overall survival, addressed early micro-metastasis, improved pathological complete response rates and increased chances of sphincter preserving surgery, improved tolerability to therapy and ensured effective delivery of treatment before surgery, addressing prior poor adjuvant therapy compliance.

Methods/Interventions: The objective of this study was to explore the trends of TNT use in patients with non-metastatic clinically locally advanced rectal cancer, compared to patients who received surgery with or without chemoradiation or chemotherapy in pre-TNT era, as well as to determine factors associated with increased TNT use. This is the retrospective cohort-study, conducted using the National Cancer Database (NCDB). We evaluated non-metastatic clinically locally advanced (all T3-4 and T1-2 lymphatic node positive) rectal cancer patients who were diagnosed from 2004 to 2018 and received TNT followed by surgery (TNT group) or underwent surgery with or without additional treatment modality (non-TNT group). Main outcome measures were frequencies of TNT and non-TNT use depending on year of diagnosis, as well as factors associated with TNT use.

Results/Outcome(s): 110 461 patients with locally advanced rectal cancer were identified in NCDB (2004-2018). Almost three quarters of those patients, 81 121 (73.4%) underwent surgery. TNT followed by surgery was used in 23 035 (20.9%) of cases for patients with locally advanced rectal cancer. TNT followed by surgery use increased over the study period from 0 % to 27% in the entire cohort of patients with locally advanced rectal cancer. The rise started in 2006 at 17% rate and increased abruptly in 2018 from 23% to 27%. At the same time, surgery with or without additional treatment use decreased correspondently from 74% to 41%, with an abrupt drop in 2006 from 72% to 56%. Demographics, patients, hospital characteristics and tumor characteristics were evaluated to determine factors associated with the increased use of TNT.

Conclusions/Discussion: During the pre-TNT era, use of TNT followed by surgery in patients with locally advanced rectal cancer started in 2006, growing on the national level from 0 to 27%, while surgery with or without other treatment modalities dropped from 74% to 41%. This data will serve as a baseline for the future studies.



CIRCULATING BACTERIAL METABOLITE PHENYLACETALDEHYDE INHIBITS CRC AND POTENTIATES THE EFFECT OF 5-FLUOROURACIL TREATMENT.

eP694

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Purpose/Background: Phenylacetaldehyde (PAA), a product of phenylalanine metabolism, is generated by microbiota and has demonstrated anticancer properties in breast cancer. As intestinal homeostasis is influenced by

the gut microbiome, we investigated the effect of PAA on colorectal cancer (CRC).

Methods/Interventions: Serum PAA levels and feces microbiota from a test cohort of 30 CRC patients and 30 healthy control patients were analyzed by targeted GC-MS/MS and metagenomic sequencing. A validation cohort of 75 CRC patients and 53 healthy control patients was analyzed for PAA levels in serum. CRC cell lines and CRC-patient-derived organoids were cultured and treated with PAA alone or in combination with 5-fluorouracil (5-FU), then evaluated for cell death in vitro. The effect of PAA alone or in combination with 5-FU on tumor growth was also tested in vivo. RNA-seq and western blot analyses were used on 2 colon cancer cell lines to investigate the anti-cancer mechanism of PAA.

Results/Outcome(s): PAA levels were significantly decreased in the circulation of CRC patients compared to healthy controls in our study cohort (613 μg/L vs 1039 μg/L, respectively; $p<0.0001$) and the validation cohort (677 μg/L vs 848.5 μg/L, $p=0.007$). In vitro, PAA inhibited the viability in CRC cell lines (by 20% on HCT116; by 70% on RKO; $p=0.0002$; with treatment of 50μM) and colony formation as well as human-derived organoids in a concentration-dependent manner. Mechanistically, PAA treatment generated endoplasmic reticulum stress leading to decrease of PI3K/AKT/mTOR and ERK survival pathways. Moreover, when combined with 5-FU, PAA enhanced the potency of 5-FU on viability (+22% and +35% for HCT116 and RKO, respectively. $p=0.0002$), clonogenicity, and tumor growth (by 30%, $p=0.0159$).

Conclusions/Discussion: The bacteria metabolite PAA caused CRC cell death by inducing endoplasmic reticulum stress and subsequently decreasing the PI3K/AKT/mTOR and ERK survival pathways PAA also potentiated the chemotherapeutic efficacy of 5-FU in vitro and in vivo. These findings warrant further exploration of PAA as a potential circulating CRC biomarker and novel therapeutic agent

FURTHER ENHANCEMENT OF LYMPH NODE DISSECTION FOR COLON CANCER USING THE REAL-TIME INDOCYANINE GREEN FLUORESCENCE IMAGING.

eP695

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Purpose/Background: The lymph node dissection based on anatomical perfusion can potentially result in excess or insufficiency in cases with blood vessels variations and complicated lymph flow in colorectal cancer surgery. Indocyanine green (ICG) fluorescence imaging has been applicated in the clinical practice for intraoperative real-time visualization of lymphatic flow to optimize lymph node dissection. The aim of this study is to investigate the utilization of the ICG fluorescence navigation for colon cancer surgery.

Methods/Interventions: This study was retrospectively conducted to assess whether near-infrared (NIR) imaging using ICG contributed to the histopathological improvement in the surgical outcomes. The outcomes were compared between patients who underwent laparoscopic colectomy with and without NIR-imaging from January 2011 to December 2019. An ICG solution was injected into the submucosa around the tumor using a colonoscope within 3 days before surgery. The surgery was performed confirming the lymphatic flow in the mesentery laparoscopically in real-time using a NIR fluorescence imaging camera system. With regard to the fluorescence results, the fluorescent lymph nodes in the mesentery were totally removed.

Results/Outcome(s): A total of 124 patients with colon cancer who had received laparoscopic resection with lymphadenectomy were included. Sixty-eight patients underwent colectomy with NIR imaging (NIR-group), and 56 patients underwent colectomy without NIR imaging (non-NIR group). The number of harvested lymph nodes in the NIR group was significantly higher than that in the non-NIR group (28.9±11.4 vs. 24.8±9.7; $p=0.039$). Especially in the main lymph nodes, the higher number of harvested lymph nodes in the NIR group contributed the significant difference (7.0±4.0 vs. 3.6±2.9; $p<0.001$). Moreover, the number of negative lymph nodes harvested in the NIR group was significantly higher than in the non-NIR group (27.8±11.4 vs. 23.1±9.9; $p=0.017$).

Conclusions/Discussion: It was demonstrated that laparoscopic colon cancer resection with NIR fluorescence imaging could increase the total number of harvested lymph nodes, which might be brought by adequate yield of apical lymph nodes.

EFFECT OF STATINS ON OUTCOMES IN PATIENTS WITH LOCALLY ADVANCED RECTAL CANCER TREATED WITH NEOADJUVANT THERAPY FOLLOWED BY RESECTION.

eP696

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Purpose/Background: Statins have recently been investigated as a potential chemo-preventive agent in colorectal cancer. However, the current evidence on the long-term effect of statins in locally advanced rectal cancer (LARC) is inconclusive. We aim to assess the effect of statins on

long-term outcomes in patients with LARC who received neoadjuvant therapy followed by surgical resection.

Methods/Interventions: A retrospective review of 298 patients with non-metastatic LARC who received long course chemoradiation followed by major surgical resection at a tertiary care institution from 2004-2018. Patients with stage IV disease at metastasis were excluded. There were 78 patients who received statins before surgery and 220 patients who did not receive statins. Univariate and multivariate survival analyses were performed to assess the impact of statins on survival.

Results/Outcome(s): Patients who received statins were more likely to be older (p<0.001), males (p<0.001), associated with higher BMI (p=0.003), and higher American Society of Anesthesiologists (ASA) score (p<0.001). On Kaplan-Meier survival analysis, patients who received statins had worse overall survival (OS, p<0.001) and disease-free survival (DFS, p=0.013). On Cox regression analysis, statin intake did not predict OS (HR: 1.55, CI:0.88-2.72, p=0.132), when controlled for age (HR: 1.04, CI 1.02-1.06, p<0.001), BMI (HR: 0.95, CI 0.91-0.99, p=0.031), ASA score (HR: 1.83, 1.11-3.01, p=0.018), lymph node yield (HR: 0.99, CI 0.96-1.02, p=0.572), pathological stage III disease (HR: 1.93, CI 1.17-3.19, p=0.01), and extramural vascular invasion (HR: 2.02, CI:1.07-3.79, p=0.029). Disease-free survival showed a similar trend with no significant effect of statin intake (HR: 1.06, 0.63-1.8, p=0.83) when controlled for age, BMI, ASA, lymph node yield, stage III disease, and extramural vascular invasion.

Conclusions/Discussion: Statin intake by itself does not affect survival in LARC treated with neoadjuvant therapy followed by surgical resection. Statin intake most likely reflects an older and more morbid cohort possibly due to underlying cardiovascular diseases and thus worse long-term survival. Prospective studies with larger sample sizes are needed to further validate the findings.

LIPOSOMAL BUPIVACAINE VERSUS CONVENTIONAL ANESTHETIC OR PLACEBO FOR HEMORRHOIDECTOMY: A SYSTEMATIC REVIEW AND META-ANALYSIS.

eP697

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Purpose/Background: Liposome bupivacaine (LB) is a long-acting anesthetic intended to reduce postoperative analgesia. Studies evaluating the efficacy of the LB against an active comparator (bupivacaine, or placebo) on acute postoperative pain control in hemorrhoidectomy procedures are few and heterogeneous. Therefore, we sought to perform a meta-analysis comparing the analgesic efficacy, and side effects of LB compared to conventional/placebo anesthetic in hemorrhoidectomy patients.

Methods/Interventions: This is a systematic review and meta-analysis of articles published from the time of inception of the datasets to August 30, 2022. The electronic databases included English publications in Ovid MEDLINE In-Process & Other Non-Indexed Citations, Ovid MEDLINE, Ovid EMBASE, and Scopus.

Results/Outcome(s): A total of 370 patients who underwent hemorrhoidectomy procedure enrolled in 4 comparative studies were included. The overall mean age was 39.6 years, (standard deviation [SD] ± 13), and there was a male predominance (63.5% male). 193 (52.2 %) received LB and 177 (47.8 %) received either bupivacaine or placebo. There was no statistically significant difference between LB and the comparison groups in sex, age, or ASA score. Cumulative pain score at 72 hours, reported by numeric rate scale (NRS) in three studies, showed no difference between LB group vs other conventional/placebo anesthetic (MD -2.4, 95% CI -9.4 – 4.7). However, the dose of rescue medication was significantly lower in the LB group (MD -0.3, 95% CI -0.6 – 0.0). Additionally, the time to first opioid, reported by two studies, was significantly longer by 525 minutes in LB (median 800min IQR 8-5760) versus conventional anesthetic/placebo (median 275 min IQR 18-5760). Meta-analysis revealed no difference in LB compared to conventional anesthetic/placebo in nausea or vomiting (OR 2.45, 95% CI 0.48- 12.49), anal bleeding (OR 1.54, 95% CI 0.05- 52.25), and gastrointestinal adverse effect (OR 1.47, 95% CI 0.25- 8.60).

Conclusions/Discussion: In comparing LB to conventional anesthetic/placebo anesthetic for hemorrhoidectomy, we found no statistically significant reduction in pain score through 72 hours, or in adverse effects. However, LB decreased the time to first opioid and was associated with lower dose of rescue medication compared to conventional anesthetic/placebo.

ASSOCIATION BETWEEN DIABETES, METFORMIN USE, AND PROGNOSIS IN STAGE I-III COLORECTAL CANCER PATIENTS: A NATIONWIDE REGISTER-BASED STUDY.

eP698

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Purpose/Background: Previous studies suggest that the use of metformin is associated with decreased incidence of colorectal cancer (CRC) and improved survival following CRC diagnosis. However, data has been conflicting, and studies limited by small size and confounding by indication. The aim of this study was to assess how diabetes and pre-diagnostic metformin use influence all-cause mortality

and CRC recurrence, in an unselected cohort of patients diagnosed with non-metastatic CRC who underwent surgery with curative intent.

Methods/Interventions: Patients diagnosed with primary CRC stage I-III, aged ≥ 18 years at diagnosis, from 2007 through 2016 were identified using the nationwide population-based Colorectal Cancer Data Base Sweden (CRCBase), and followed until 31st of May 2022. CRCBaSe is a data linkage originating from the Swedish Colorectal Cancer Register, with linkages to other national health care and demographic registers, including information on diabetes diagnosis and metformin use. Exposure was defined as (i) diagnosis of diabetes, and (ii) dispensed prescription of metformin equivalent to at least 6 months use within one year of surgery. Cox proportional hazards models were fitted to estimate hazard ratios (HRs) with 95% confidence intervals (CIs) of the association between pre-diagnostic diabetes and metformin use and all-cause mortality and relapse-free survival. Models were adjusted for sex, age, year of diagnosis, highest education level, BMI, Charlson comorbidity index, and ASA score as potential confounders.

Results/Outcome(s): A total of 34,412 patients diagnosed with CRC were included among whom 4,984 (14.4%) had diabetes; 332 with type 1 diabetes (T1DM) and 4,652 with type 2 diabetes mellitus (T2DM). At the time of CRC surgery, 2,413 (51.9%) of T2DM patients were metformin users. The mean follow-up time was 7.4 years. Diabetic patients had a significantly worse all-cause mortality than non-diabetic patients, both among T1DM (adjusted HR=1.29, 95% CI: 1.11-1.49) and T2DM patients (adjusted HR=1.18, 95 % CI: 1.13-1.24). Metformin use was associated with increased all-cause mortality (adjusted HR=1.13, 95% CI: 1.07-1.20) and CRC-recurrence (adjusted HR=1.13, 95% CI: 1.06-1.20) compared to non-diabetic patients. Sensitivity analyses where the duration of metformin use and the dose relationship were analyzed did not demonstrate any association between metformin use and either outcome.

Conclusions/Discussion: In this population-based study, the largest to date, a diagnosis of diabetes was associated with an increased all-cause mortality, particularly in T1DM patients where a 29% increase in mortality was observed. Moreover, the study showed worse all-cause mortality and relapse-free survival in patients receiving metformin compared to non-diabetic patients.

A CLINICAL-EPIDEMIOLOGICAL APPROACH TO COLORECTAL CANCER IN YOUNG ADULT PATIENTS. EXPERIENCE OF A TERTIARY HOSPITAL CENTER IN MEXICO.

eP699

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Purpose/Background: The prevalence of colorectal cancer (CRC) in adults under 45 years of age without risk factors is low, however; there is growing interest in this group of patients, as most investigators report more advanced stages of disease at diagnosis and worse prognosis in younger patients. The aim is to describe and analyze the clinical-epidemiological features of young adult patients (<45 years) with CRC treated in a tertiary care center in Mexico.

Methods/Interventions: A retrospective, relational and analytical study was carried out, which included 371 patients diagnosed with CRC treated at Coloproctology Service of the Hospital General de México "Dr. Eduardo Liceaga" (period from January 2019 to December 2021). The demographic and clinical features of patients (gender, age, location of the neoplasm, clinical stage, histological phenotype and grade of histological differentiation) were collected. Data were analyzed with the statistical package SPSS version 26. Statistical significance was determined with a p value <0.05.

Results/Outcome(s): Of the total of patients included, we identified 82 (22.1%) patients under 45 years of age. When comparing the clinical and demographic features of patients with CRC aged less than or greater than 45 years, we found no statistically significant differences in terms of gender, clinical stages or histological phenotype (p=>0.05), but there were differences in the grades of histological differentiation (p=0.02), presenting a risk factor an age <45 years to be a carrier of tumors with poor histological differentiation (OR 1.7 [95% CI: 1.06 – 2.76], p=0.02). When analyzing the age groups (> or < 45 years), by disease (colon cancer or rectal cancer); we found differences between the clinical stage of patients with colon cancer (p=0.01) and in the grade of histological differentiation in rectal cancer (p=0.002). An age younger than 45 years conferred a higher risk of presenting a rectal tumor with poor histological differentiation (OR 2.82 [95% CI: 1.47 – 5.42], p=0.002) and was associated with a lower risk of presenting an advanced clinical stage (III-IV) in colon cancer (OR 0.44 [95% CI: 0.21 – 0.95], p=0.03).

Conclusions/Discussion: The clinical features of young patients with CRC, especially the poor histological differentiation, highlights the need to monitor the incidence of CRC in the younger population to assess whether changes in screening practices are needed and to increase awareness among clinicians on the increasing incidence of CRC in this population.

SAFETY AND FEASIBILITY OF DISCHARGE WITHIN 24 HOURS OF COLECTOMY: A SYSTEMATIC REVIEW AND META-ANALYSIS.

eP700

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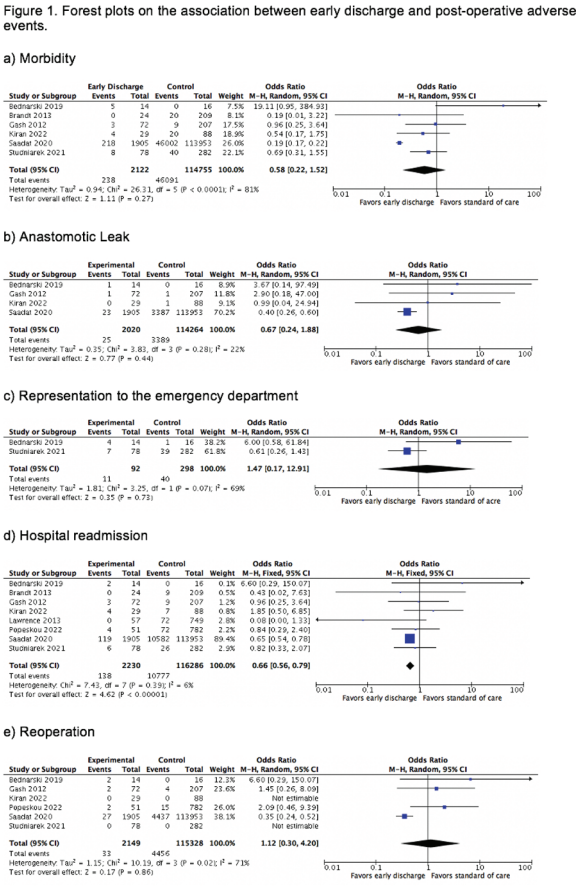
Purpose/Background: Advances in surgery, anesthesia and perioperative care have contributed to expedited recovery following colorectal surgery. The concept of ambulatory colectomy has been posed and initial experience appears promising. The aim of this study is to determine the safety, feasibility and acceptance of early discharge (ED) following colon resection.

Methods/Interventions: MEDLINE, EMBASE, CINAHL, Cochrane Central Registry of Controlled trials were searched to identify published and ongoing unpublished interventional and observational studies reporting on experience with ED following colon resection. Early discharge was defined as within 24 hours post-operative. This review was conducted in accordance with the Preferred Reporting Items for Systemic reviews and Meta-analysis (PRISMA) guidelines. The primary outcome was safety. Secondary outcomes included feasibility, resource utilization; patient and practitioner acceptance. Details pertaining to specific study protocols were also collected. Meta-analysis was preformed using random-effects methods to compare post-operative adverse events in the ED cohort to standard of care. Dichotomous outcomes were calculated as odds rations with 95% confidence intervals.

Results/Outcome(s): A total of 17 studies (83,675 patients) published between 2009 and 2022 were included. 1029 (4.1%) patients were discharged within 24 hours of surgery. Ten studies were comparative (1 RCT, 2 prospective cohort, and seven retrospective cohort). The remaining were prospective single-arm studies reporting on ED following colectomy. Laparoscopic colectomy was performed in 15 studies, robotic in 5 and open in 3. The most common indication for surgery was for colonic neoplasm (86.3% of patients). The incidence of readmission (6.2% vs 9.3%, OR 0.66; 95% CI 0.56-0.79) was lower in the ED cohort compared to standard of care (n=8 studies) (Figure 1). There was no significant difference in the incidence of 30-day morbidity (n=6), anastomotic leak (n=4), mortality (n=6) or reoperation (n=6) between the two groups. Discharge on post-operative day (POD) 0 was reported in seven studies and was demonstrated to be feasible in 94% (n=189) of patients in prospective studies (n=3). 12 studies reported on discharge within 24 hours (either POD 0 or POD 1); successful discharge was reported in 25-100% of prospective studies (n=5 studies, 137 patients). Two studies reported on patient perspective. In one, 100% of patients would request ED again and recommend it to others. In the other, there was no difference in patient satisfaction at POD 30 between the ED cohort and standard of care. None of the studies reported practitioner acceptance.

Conclusions/Discussion: Initial experience with early discharge following colectomy is safe, feasible and acceptable in appropriately selected patients. Standardization of eligible patients and post-operative follow up protocols may increase adoption.

Figure 1. Forest plots on the association between early discharge and post-operative adverse events.



PATTERNS OF SCREENING COLONOSCOPY IN RURAL AND URBAN COUNTIES OF OKLAHOMA: A STATE-WIDE ANALYSIS.

eP701

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Purpose/Background: Colon cancer is the third most common cause of cancer-related deaths in the United States. It can frequently be prevented if appropriate screening methods are performed. colonoscopy is the gold standard and recommended screening method for colorectal cancer. This study aimed to assess rates of colonoscopy in Oklahoma in different rural and urban areas, in different age groups, race and ethnicity, gender, and

its correlation with the number of primary care providers (PCP) in each area.

Methods/Interventions: We used the Oklahoma Public Use Date File (PUDF) of the Ambulatory Surgery Center Discharges and Hospital Outpatient Surgery Discharges to analyze colonoscopies performed in populations 50 years or older per county from 2016-2019. Population above 50-year-old per county was obtained from the reports from the United States Census Bureau reports. Medicare Part-D Prescriber database was used to calculate the number of PCPs in each zip code and county. The rate of colonoscopy in rural, small urban, and large urban areas were calculated, as well as in different age groups, genders, and race and ethnicity. Correlation of rate of colonoscopy with number of PCPs were evaluated.

Results/Outcome(s): 1,687,686 colonoscopies in patients ≥50 years (55.4% female) were analyzed. While the rate of PCP per 10,000 population was higher in small urban and rural areas (19.5 and 18.3, respectively) in comparison to large urban areas (15.1) but the rate of colonoscopy was higher in large urban areas (4.2 per 100 colonoscopy-eligible individuals per year) versus small urban and rural areas (1.6 and 2.2, respectively) and these were statistically significant. Males were more likely to undergo colonoscopy with an adjusted odds ratio (OR) of 1.098 (95%CI:1.086-1.11) and older populations were significantly less likely to undergo colonoscopy (OR: 0.799 in 60-69 years, 0.596 in 70-79 years, and 0.337 in 80 and older, all p values <0.05). African Americans were 6% less likely and American Indians were almost 30% less likely to undergo colonoscopy. Area of residence was also statistically significant with small urban and rural communities being almost 35% less likely to get their screening colonoscopies. Lastly, colonoscopy rates correlated with rates of primary care physicians only in rural areas.

Conclusions/Discussion: There seem to be disparities in colorectal cancer screening based on Oklahoma state data. In rural areas, females, older age groups, and African Americans and American Indians had a lower colonoscopy rate in our study. The number of PCP seems to be a significant factor in rural areas. Health administrators need to study two factors including "access to PCPs" and "access to endoscopic services" to improve screening for colorectal cancer, especially in minorities. We will need to increase our primary care workforce in addition to providing more access to quality screening methods for rural Oklahoma.

Table 1. Association between demographic variables and colonoscopy

Variable	Crude OR (95%CI)	Adjusted OR* (95%CI)
Gender		
Male	1.088 (1.074, 1.098)	1.098 (1.088, 1.110)
Female	Reference	Reference
Age group		
50 – 59	Reference	Reference
60 – 69	0.795 (0.785, 0.805)	0.799 (0.789, 0.809)
70 – 79	0.587 (0.578, 0.596)	0.596 (0.587, 0.605)
80 or older	0.331 (0.322, 0.340)	0.337 (0.328, 0.346)
Race		
White	Reference	Reference
African American	1.087 (1.061, 1.113)	0.943 (0.921, 0.966)
American Indian	0.704 (0.682, 0.727)	0.719 (0.696, 0.743)
Other	1.731 (1.696, 1.767)	1.585 (1.553, 1.617)
Area of Residence		
Large Urban	Reference	Reference
Small Urban	0.860 (0.851, 0.869)	0.873 (0.864, 0.882)
Rural	0.843 (0.835, 0.851)	0.873 (0.864, 0.882)

* Adjusted for all other variables in the table

A PROSPECTIVE STUDY OF DETECTING POSTOPERATIVE STOOL SYNDECAN-2 (SDC2) METHYLATION CHANGE IN COLORECTAL CANCER, PAIRED WITH TISSUE CONFIRMATION.

eP702

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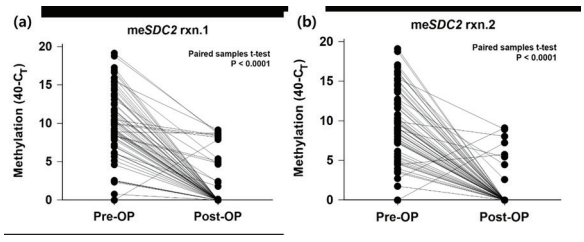
Purpose/Background: Stool DNA methylation has been shown to be a sensitive and specific biomarker for screening of colorectal cancer (CRC) as well as colorectal adenoma. Detection of Syndecan2 (SDC2) methylation in stool has been demonstrated in several studies with high performance. As stool DNA test identifies shed cancer cells, stool test after surgery may reveal negative conversion of DNA methylation, leading it to a potential candidate of postoperative biomarker. This study aims to evaluate postoperative stool SDC2 methylation changes paired with tissue confirmation and validate stool DNA test as a biomarker.

Methods/Interventions: Patients who underwent upfront radical surgery for colorectal cancer were enrolled in tertiary referral hospital (Severance Hospital, Seoul, Korea) from January 2020 to April 2021. Tissue from surgically resected cancer and adjacent nontumorous tissue were collected, as well as pre- and postoperative stool samples. Linear Target Enrichment-quantitative methylation-specific real time PCR test (Genomictree, Inc. Daejeon, South Korea) was used for detecting methylation in stool DNA. Methylation was detected when cycle threshold (C_T) value was <40. Positive methylation was determined by any one detection of methylation in duplicate PCR reactions. All test result was acceptable when C_T of control DNA COL2A1 was <33. Bisulfite

pyrosequencing was also performed by computing the methylation index with the average % of methylation across four CpG sites in tissues. Methylation positivity of tumor tissue was determined by higher methylation level compared to adjacent nontumor tissue.

Results/Outcome(s): Among 78 enrolled patients, 77 patients (98.7%) had positive SDC2 methylation of tumor tissue and methylation levels were higher in tumor tissue than adjacent nontumor tissue (P<0.001). Seventy patients (89.8%) had positive stool SDC2 methylation preoperatively and among them, 15 patients (21.4%) remained stool SDC2 methylation positive postoperatively. Quantitative analysis of stool SDC2 methylation levels had significantly decreased after surgery (P<0.0001). Among the sustained positive stool SDC2-methylated patients, methylation level decreased in 14 patients but increased in one patient. Those 14 patients with sustained but decreased stool SDC2 methylation had undergone postoperative colonoscopy, and 5 patients showed de novo polyps. There were no associations between stool SDC2 methylation level with clinical features such as age, gender, preoperative serum carcinoembryonic antigen levels, tumor locations and stages.

Conclusions/Discussion: Stool SDC2 methylation decreased after surgical resection of CRC. Positive result may sustain due to residual lesions or de novo polyps. Postoperative stool DNA test may be informative and valuable for detecting polyps, recurrence, and metachronous cancers alongside with serum carcinoembryonic antigen test.



Methylation status of SDC2 in stool DNA before and after surgical resection

USE OF BIOLOGIC THERAPY IS ASSOCIATED WITH SHORTER INTERVAL TO SECONDARY ILEOCOLIC RESECTION IN CROHN'S DISEASE PATIENTS.

eP703

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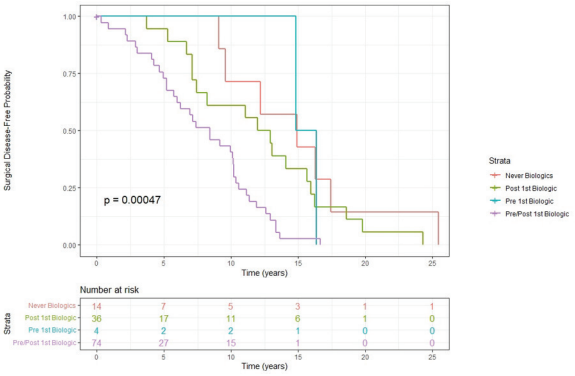
Purpose/Background: Biologics are a mainstay medical therapy in Crohn's Disease (CD) but their effect on need for surgery is not yet known. Terminal ileum involvement frequently requires ileocolic resections (ICR) with some patients requiring multiple ICR. We present a set of patients who underwent both 1st and 2nd ICR and hypothesized that biologic therapy reduces the risk of 2nd ICR.

Methods/Interventions: We performed a retrospective analysis of CD patients from a high-volume tertiary center. Patients who underwent 1st and 2nd ICR were included. Collected data included demographics and details of biologic treatment timelines. Adjusted Cox proportional hazard ratios (aHR) were calculated with adjustment for age, gender and BMI and patients were stratified by exposure to biologics. In our subanalyses, aHR's were calculated based upon timing of biologics. First, patients were re-stratified by biologics timing (never, pre-1st ICR only, post-1st ICR only, and pre/post-1st ICR). Second, patients exposed post-1st ICR were stratified by whether exposure occurred within 6 months. Inclusion of patients who underwent only 1st ICR had limited utility as censoring occurred too soon in a majority cases (data not shown).

Results/Outcome(s): 64 patients were identified with both 1st and 2nd ICR. 57/64 (89%) patients were exposed to a biologic at any timepoint prior to 2nd ICR. 7 (10.9%) patients never received biologics, 2 (3.1%) received pre-1st ICR only, 18 (28.1%), received post-1st ICR only, and 37 (57.8%) received pre/post-1st ICR. Median time until 2nd ICR was 14.91 years (IQR 10.88-16.86) years in patients never exposed to biologics and 9.94 years (5.75 – 12.92) in patients exposed to biologics. We found decreased time to secondary ICR in patients exposed to biologics (aHR 2.52, [95% CI 1.06 – 5.99]). On subanalysis, those treated with a biologic pre/post-1st ICR biologics had an elevated aHR (4.31 [1.71 – 10.9]), while those on pre-1st ICR only (1.03 [0.19 – 5.43]) or post-1st ICR only (1.57 [0.60 – 4.09]) did not. Additionally, in patients who were exposed to biologics post 1st ICR, initiation of therapy after 6 months was not significant (2.75 [0.54 – 13.99]). Age, gender, and BMI were not significant in any analyses.

Conclusions/Discussion: Exposure to biologics had a significantly decreased time to 2nd ICR. In our first subanalysis, patients exposed to biologics pre/post-1st ICR had 331% increased risk of 2nd ICR. Among those exposed postoperatively, timing of exposure did not show different risk. We theorize that the increased risk associated with biologics represents patients with severe CD refractory to medical therapy, which is supported by our first subanalysis. However, some patients may have had their disease progression halted by biologics and would not be captured in this analysis. Further investigation into the impact of biologics is warranted to better characterize their impact on CD.



RACIAL DISPARITIES IN THE SURGICAL MANAGEMENT OF ULCERATIVE COLITIS? A RETROSPECTIVE ANALYSIS AT A TERTIARY REFERRING CENTER.

eP704

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Purpose/Background: While Ulcerative Colitis (UC) has predominantly been described in white patients, there is a rising incidence of UC in minority populations. Previous studies exploring the impact of racial/ethnic diversity on the surgical management and outcomes of Inflammatory Bowel Disease (IBD) patients are limited due to small sample size. The aim of this study was to investigate whether racial/ethnic disparities could be identified in the surgical management of UC at a high volume IBD center.

Methods/Interventions: Retrospective analysis of a prospectively maintained IBD database identified all patients who had surgery for UC, including subtotal colectomy (STC) and total proctocolectomy (TPC), with or without ileal pouch anal anastomosis (IPAA) or abdominoperineal resection (APR), from January 2010 to December 2021. Demographics, preoperative therapies, timing and type of surgery were analyzed across all self-identified racial and ethnic groups.

Results/Outcome(s): Of 834 patients with a mean age of 43 years who had a colectomy for UC, 701 were White (W 84%), 38 Black (B 5%), 44 Hispanic (H 5%), and 51 Asian/Pacific Islander (A 6%). The cohort included 468 men (56%) who were predominantly white (p=0.001). Surgical indications included refractory UC (79%) or dysplasia/cancer (21%). Mean disease duration from diagnosis until initial colectomy was 114 months, with significantly differences noted between groups (W 119±122 months, B 92±90, H 112±123, A 65±77 p=0.008). No difference was observed in medical therapies used within 3 months of resection among the groups (corticosteroid p=0.72, biologic=0.17, immunomodulator p=0.98). With respect to index procedures (STC and TPC), no differences were noted between groups regarding laparoscopic vs open approach (p=0.70), emergent vs elective surgery (p=0.85), and with the rate of STC vs TPC (p=0.27). Overall, 629/834 (75%) had a restorative procedures including 3-stage (49%), 2-stage (17%), modified 2-stage (5%) and 1-stage restorative proctocolectomy (RPC, 4%). In total, 205/834 (25%) patients had a non-restorative procedures including TPC with simultaneous or staged APR (15%) and STC with end-ileostomy (EI, 10%). No difference was identified across groups regarding restorative vs non-restorative procedures (p=0.42), RPC stages (p=0.53), and mean interval between STC and IPAA (W 4.3 months±3.1, B 4.4±2.3, H 9.0±24, A 4.7±2.5 p=0.396). Among non-restorative procedures, no difference was observed in the rate of APR preformed either as index procedure or completion APR (p=0.16), and STC with EI across groups (p=0.07).

Conclusions/Discussion: In a contemporary cohort of patients who underwent surgery for UC at a high-volume tertiary referral center, no significant difference in surgical treatment or approach were identified across racial and ethnic groups. Improved access to equitable surgical care may be achieved through regional centralization of IBD services.

EFFECT OF THE PROPHYLACTIC ANTIBIOTICS ON THE POSTOPERATIVE COMPLICATION IN THE PATIENTS WITH CROHN'S DISEASE.

eP705

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Purpose/Background: Surgical site infections in colorectal surgery represents a significant cause of poor patient outcome. Many surgeons continue to routinely use antibiotics after surgery for Crohn's disease (CD) to prevent the infection. The Korean institute guideline to use prophylactic antibiotics only within 24 hours during surgery had been applied to prepared colorectal surgery, such as cancer surgery. From September 2020, the guideline also has been applied to surgery for CD. But it is difficult to accept this part easily in CD, which is operated on an inflamed intestine. This study aims to evaluate the effect of prophylactic antibiotics on the postoperative complication, especially infectious complication and to find out the risk factors for the postoperative complication.

Methods/Interventions: This is a retrospective study based on medical records. Patients with intestinal surgery for CD from January 2013 to December 2015 (conventional group) and from September 2020 to July 2022 (prophylactic group) were included. Conventional group continued to use antibiotics after surgery and prophylactic group used prophylactic antibiotics only within 24 hours during surgery. We divided the patients into two groups

and compared demographics, operative results, postoperative complications. Patients were excluded if they were just stoma formation or not accompanied by bowel resection. The primary outcome was postoperative complication rate. Multivariate analysis for overall and infectious complication was done using logistic regression model.

Results/Outcome(s): We identified 332 patients in conventional group and 43 patients in prophylactic group. There was no difference in the overall complication rate (23.8% vs 27.9%, P = 0.572) and infectious complication rate (15.1% vs 18.6%, P =0.507) between the two groups. The proportion of Clavien-Dindo classification 2 or more was equivalent between the two groups (23.8% vs 20.9%, P = 0.848). In multivariate analysis, penetrating behavior (odds ratio [OR] 5.76, 95% confidence interval [CI] 1.15 – 28.71, P = 0.033) was risk factor for overall complication. Ileocolonic involvement ([OR] 3.46, 95% [CI] 1.24 – 9.64, P = 0.017) and open surgery ([OR] 5.09, 95% [CI] 2.07 – 12.53, P < 0.001) were risk factors for infectious complication.

Conclusions/Discussion: Prophylactic group had equivalent postoperative overall and infectious complication rate compared to conventional group. Our results show that use of prophylactic antibiotics only within 24 hours during surgery for CD may not increase postoperative complication rate. Penetrating behavior was a risk factor for overall complication, and ileocolonic involvement and open surgery were risk factors for infectious complication.

Table. Postoperative complications in prophylactic and conventional group.

	Total (n=375)	Prophylactic (n=43)	Conventional (n=332)	*P*
Overall complications	91 (24.3%)	12 (27.9%)	79 (23.8%)	0.572
Clavien-Dindo Classification ≥2	88 (23.5%)	9 (20.9%)	79 (23.8%)	0.848
Infectious complications				
Anastomotic leakage	10 (2.7%)	0 (0%)	10 (3.0%)	0.612
Wound infection	30 (8.0%)	6 (14.0%)	24 (7.2%)	0.135
Intra-abdominal abscess	18 (4.8%)	2 (4.7%)	16 (4.8%)	0.999
Postoperative complications				
Ileus	16 (4.3%)	3 (7.0%)	13 (3.9%)	0.410
Bleeding	10 (2.7%)	2 (4.7%)	8 (2.4%)	0.321
Length of stay (day)		6.6 ± 3.7	11.3 ± 15.1	0.042

Data presented as numbers (%) or mean± standard deviation (SD) unless otherwise specified.

TREATMENT STRATEGY OF BIOLOGIC THERAPY FROM SANDPOINT OF THE EFFECT FOR CLINICAL LESIONS IN CROHN'S DISEASE.

eP706

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Purpose/Background: The patients with Crohn's disease are treated based on the concept of treat to target. Biologic therapy has been frequently performed as one of standard treatments. This study was conducted to evaluate the efficacy of biologic therapy for the several kinds of CD lesions such as fistula or intestinal lesion with active inflammation, and to analyze the indication of this therapy based on the improvement of CD lesions.

Methods/Interventions: Two hundred and nine CD patients with biologic therapy for more than 6 months in our institution were included. Past history of intestinal resection was seen in 87% and a combination therapy with azothioprine was continued in 30%. Median period of biologic therapy was 56 months (7-231). CD lesions treated with biologic therapy were intestinal lesions with active inflammation without stricture or fistula in 101 patients, enterocutaneous fistula in 38, internal fistula in 3, post massive intestinal bleeding in 9, complex anal fistulae in 13, postoperative recurrence of seton treatment in 7, prevention for postoperative recurrence of intestinal resection in 41 (several lesions in some cases). The effect of biologic therapy was evaluated based on the necessity of the operation, the closure of enterocutaneous fistula, and the improvement of CD lesions by image studies after treatment. The side effects were also analyzed.

Results/Outcome(s): 1) The operation was performed in 46% of the patients after biologic therapy. The main surgical indications were stricture in 33%, intestinal fistula in 33%, intestinal lesions with active inflammation without stricture or fistula in 18%. 2) Overall efficacy ratio was 39% in intestinal lesions with active inflammation without stricture or fistula, 33% in internal fistula, 32% in enterocutaneous fistula, 75% in post massive intestinal bleeding, 25% in complex anal fistulae, 50% in postoperative recurrence of seton treatment, 61% in prevention for postoperative recurrence of intestinal resection. 3) Serious side effects were infusion reaction in 18 patients, pneumonia in 6, pulmonary tuberculosis in 3.

Conclusions/Discussion: Biologic therapy had no remarkable effect for CD lesions such as intestinal lesions with active inflammation without stricture or fistula or intestinal fistula which were commonly seen. The effect of biologic therapy should be evaluated about CD lesions with image studies for the patients including without symptoms. The next treatment including surgery should be considered in CD patients without improvement of CD lesions.

THE EFFECTS OF THE COVID-19 PANDEMIC ON COLECTOMY OUTCOMES FOR INFLAMMATORY BOWEL DISEASE.

eP707

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Purpose/Background: Inflammatory bowel disease (IBD) encompasses Crohn's disease (CD) and ulcerative colitis (UC). These two chronic inflammatory conditions can differ in severity, presentation and anatomical localization can greatly affect quality of life if not managed properly. Given the many healthcare challenges during the COVID-19 pandemic, we sought to study the effects of the pandemic on surgical outcomes for patients with IBD.

Methods/Interventions: Deidentified data from patients who underwent a colectomy for CD or UC was collected from the American College of Surgeons (ACS) National Surgical Quality Improvement Program (NSQIP) database. We analyzed various factors such as patient demographics, comorbidities, and surgical outcomes between 2019 and 2020. The Control cohort consisted of data from 2019, with data from 2020 serving as the COVID cohort. Chi- squared and Student's t tests were used to analyze discrete and continuous variables respectively.

Results/Outcome(s): A smaller proportion of White patients underwent colectomies for IBD in 2020 versus 2019. Patients undergoing colectomies for UC were less likely to be on medication for hypertension in 2019. Patients with IBD (CD or UC) were also more likely to have lost > 10% of their body mass prior to the operation in 2020. Operations for colitis patients were significantly shorter in the first year of the pandemic. Patients with CD were less likely to have a urinary tract infection (0.81% vs. 1.45%, $p = 0.032$) or sepsis (4.43% vs. 4.98%, $p < 0.001$) post-operatively in 2020, while patients with UC were more likely to require a repeat operation (9.39% vs. 6.91%, $p = 0.040$). Interestingly, patients with IBD were less likely to undergo an emergency operation in 2020 than in 2019 (54.97% vs. 43.27%, $p < 0.001$ for UC; 26.58% vs. 18.96%, $p < 0.001$ for CD).

Conclusions/Discussion: Colectomy outcomes for patients with CD in 2020 were similar or improved to those seen in 2019. On the other hand, colectomies for UC saw a statistically but not clinically significant increase in the rate of repeat operations. Overall, these patients seem to have been well managed despite the COVID-19 pandemic-induced strain on the healthcare system.

A COMPARISON OF CLINICAL OUTCOMES OF COLECTOMIES FOR PEDIATRIC AND ADULT PATIENTS WITH IBD.

eP708

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Purpose/Background: Crohn's disease (CD) and ulcerative colitis (UC) are prevalent within both adult and pediatric populations. Differences between them, however, are not well characterized using nationwide data. Therefore, in this study we compared the clinical outcomes of these patients using the National Surgical Quality Improvement Program (NSQIP) databases.

Methods/Interventions: Colectomy cases for CD and UC were analyzed for adult and pediatric patients using data from the American College of Surgeons (ACS) NSQIP data in 2017, 2018, and 2019 combined. Various demographic and clinical factors, such as race, age, gender, BMI, and several comorbidities were analyzed to determine their effect, if any, on clinical outcomes. All statistical analyses were performed using Minitab version 17.1.0, with Chi-squared and Student's t tests being used for categorical and discrete variables respectively.

Results/Outcome(s): From 2017 to 2019, a total of 542 pediatric and 5174 adult patients underwent a colectomy for CD, and 360 pediatric and 1292 adult patients underwent a colectomy for UC. Adults with CD were more likely to be on steroids preoperatively, (60.15% vs. 24.54%, $p < 0.001$) or UC (65.63% vs. 51.39%, $p < 0.001$). Pediatric patients with either disease were more likely to have preoperative transfusions (1.48% vs. 0.33%, $p < 0.001$ for CD; 8.33% vs. 0.62%, $p < 0.001$ for UC), systemic inflammatory response syndrome (3.51% vs. 0.93%, $p < 0.001$ for CD; 12.78% vs. 3.10%, p) or sepsis (1.85% vs. 0.66%, $p < 0.001$ for CD; 1.39% vs. 0.31%, $p = 0.014$ for UC). Operation times were longer for adult patients with CD (178.70 ± 1.40 vs. 167.60 ± 3.30 minutes, $p = 0.002$) and pediatric patients with UC (248 ± 5.40 vs. 210.70 ± 2.40 minutes, $p < 0.001$).

Conclusions/Discussion: Inflammatory bowel disease had a more pronounced systemic effect on pediatric patients, as manifested by the need for preoperative transfusions and prevalence of sepsis. These factors may have led to the more severe post-operative complications such as longer length of hospital stay observed in this study. The longer length of stay in pediatrics can be attributed to these complications and the normalization of their general physiologic and nutritional status.

AGE ALONE IS NOT IS NOT ASSOCIATED WITH MAJOR MORBIDITY IN INFLAMMATORY BOWEL DISEASE (IBD) SURGERY.

eP709

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Purpose/Background: Historically, concerns about high operative morbidity in elderly patients with IBD have discouraged referral to surgery however there is growing literature that suggest other factors, such as frailty, may be more strongly associated with outcomes. Contemporary multi-center outcomes from IBD centers have yet to be reported are not well defined. The IBD-NSQIP collaborative was created to collect IBD specific data in addition to standard NSQIP data for 14 high-volume IBD centers. Therefore, we examined the outcomes of surgery for patients with IBD in this cohort to assess whether age or other factors were associated with significant perioperative morbidity.

Methods/Interventions: Elderly patients were defined as 60 years old or older. Three cohorts were examined between 2017-2021. Patients with Crohn's disease (CD) who underwent small bowel resection or ileocecectomy and ulcerative colitis (UC) who underwent total abdominal colectomy or proctocolectomy. The primary outcome

was perioperative major morbidity. Secondary outcomes included minor complications, length of stay, and readmission rate. Multivariable analysis was used to identify factors associated with major perioperative morbidity.

Results/Outcome(s): Out of 1,517 patients with CD undergoing small bowel resection, elderly patients (16%) had significantly higher rates of major morbidity (5 vs 10%, p=0.003) as well as minor complications (10 vs 20%, p<0.001) and readmission rate (9 vs 17%, p<0.001). In multivariate regression, age (odds ratio 2.22, confidence interval [1.12-4.43], p=0.023), preoperative anemia (3.41, [0.32-1.34], p=0.001), open surgery (3.97, [2.01-7.83], p<0.001), and a simplified frailty index (3.85, [1.07-13.9], p=0.04) were found to be significantly associated with major morbidity. In contrast, out of 1,011 patients with UC undergoing surgery, elderly patients (27%) had similar rates of major morbidity although they did have significantly higher rates of minor complications (17 vs 30%, p<0.001) and total length of stay (5.0 vs 7.0, p<0.001). After similar adjustment, frailty (3.82, [1.51-9.67], p=0.005) and urgent surgery (2.26, [1.11-4.61], p=0.025) were significantly associated with increased major morbidity whereas age was not (p>0.05).

Conclusions/Discussion: Age is not associated with major morbidity in elderly patients with UC undergoing surgery while in contrast, it is for CD. These preliminary findings suggest that case context, timing, as well as frailty are also important factors. Patient selection should focus on comorbidities and preoperative optimization rather than just age.

	CD small bowel resection (N=1,517)		UC total colectomy or proctocolectomy (N=1,011)	
	Non-elderly (N=1,272)	Elderly (N=245)	Non-elderly (N=733)	Elderly (N=278)
Patient characteristics				
Urgent surgery (SD)	279 (22.0%)	38 (15.6%) [a]	252 (34.5%)	97 (35.5%)
Emergent surgery	33 (2.7%)	5 (2.1%) [a]	39 (5.5%)	19 (7.2%)
mFI score ≥2 [1]	15 (1.2%)	15 (6.1%) [b]	14 (1.9%)	45 (16.2%) [b]
Malnourishment [2]	450 (35.4%)	83 (33.9%)	354 (48.3%)	149 (53.6%)
Preoperative anemia	373 (39.1%)	55 (29.4%) [a]	293 (52.1%)	133 (63.6%) [a]
Immunosuppression	934 (73.4%)	172 (70.2%)	584 (79.7%)	188 (67.6%) [b]
Open surgery	357 (30.9%)	106 (46.7%) [b]	97 (13.5%)	83 (31.8%) [b]
Ileostomy present	201 (17.2%)	31 (13.4%)	-	-
Outcomes				
Major morbidity [3]	67 (5.3%)	25 (10.2%) [a]	55 (7.5%)	26 (9.4%)
Minor complication [4]	136 (10.7%)	49 (20.0%) [b]	125 (17.1%)	83 (29.9%) [b]
Total length of stay (IQR)	5.0 (3.0-8.0)	5.0 (3.0-8.0)	5.0 (3.0-10.0)	7.0 (4.0-13.0) [b]
Readmission rate	115 (9.0%)	42 (17.1%) [b]	108 (14.7%)	45 (16.2%)
	Major Morbidity		Major Morbidity	
Covariates	Odds ratio	Confidence interval	Odds ratio	Confidence interval
Elderly age ≥ 60	2.22 [a]	1.12-4.43	0.69	0.34-1.41
Urgent case	0.98	0.46-2.10	2.26 [a]	1.11-4.61
Emergent case	1.44	0.28-7.38	2.07 [a]	0.78-5.47
mFI score ≥2	3.85 [a]	1.07-13.9	3.82	1.51-9.67
Malnourishment	0.66	0.32-1.34	0.70	0.33-1.48
Preoperative anemia	3.41 [b]	1.64-7.08	1.34	0.65-2.75
Immunosuppression	1.21	0.59-2.49	0.95	0.45-2.00
Open surgery	3.97 [b]	2.01-7.83	1.00	0.99-1.02
Ileostomy present	1.38	0.65-2.94	-	-

Table 1: Patient characteristics, outcomes, and covariate-adjusted logistic regression model for 30-day major morbidity in patients with Crohn's disease (CD) or Ulcerative colitis (UC) patients undergoing surgery1. Modified frailty score includes CHF, COPD, functional status, hypertension requiring medication, diabetes2. malnourished status including preoperative albumin <3.5 g/dL, preoperative BMI <18.5 kg/m2, or 10% weight loss within 6 months of surgery3. Major morbidity defined as occurrence of at least one of the following: organ space surgical site infection, unplanned intubation, pulmonary embolism, prolonged ventilation, acute renal failure, stroke, cardiac arrest, sepsis/septic shock, or death4. Minor complications defined as occurrence of at least one of the following: superficial or deep surgical site infection, wound disruption, pneumonia, urinary tract infection, deep vein thrombosis, acute renal insufficiencya. p0.05b. p0.001

OUR FIRST 100 POUCHES: A QUARTER CENTURY LATER.

eP711

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Purpose/Background: Restorative proctocolectomy with ileal pouch anal anastomosis (IPAA) was described in 1978 by Parks and Nicholls at St. Marks Hospital in London as a way to maintain intestinal continuity in patients with ulcerative colitis. At our institution, this procedure started being performed in 1983. The learning curve for pelvic pouches is not well established. With this study, we aimed to review the long-term functional and survival outcomes of the first 100 pouches performed at our center as we progressed in our learning curve.

Methods/Interventions: We retrospectively reviewed our prospectively collected institutional pelvic pouch database and identified the first 100. We reported pouch survival and functional outcomes, which were compared between first and latest available quality of life survey. Figures are frequency and median (interquartile range).

Results/Outcome(s): The first 100 pouches were performed between February 1983 and November 1985. The median age at IPAA was 32.5 (26 – 39) years). The most common diagnosis was ulcerative colitis (85), followed by familial adenomatous polyposis (10) and indeterminate colitis (5). For the colitis patients, the indication for surgery was acute colitis in 34 cases, refractory disease in 12 cases, dysplasia/cancer in 21 cases. Most pouches had a J configuration (98), while 2 had an S configuration. Most were performed in two stages (64), and all had a handsewn IPAA with mucosectomy. After a median follow-up of 26 (24 – 35) years, 88 patients were still alive. Mortality was perioperative in 1 case, colon cancer-related in 1 case, due to primary sclerosing cholangitis in 2 cases, due to complications of afferent limb syndrome in 1 cases, and due to other causes in 7 cases. Twenty-four patients

had their diagnosis changed to Crohn's disease. Pouch failure occurred in 32 patients; of, those, 13 had their pouch excised and 3 were converted to a K pouch. The most common reason for pouch failure was sepsis (13), followed by incontinence (7), small bowel obstruction (3), and cancer (2). The median interval from IPAA to pouch failure was 5 (0 – 20) years. Six patients had a redo pouch. Pouch survival was 82% at 10 years, 75% at 20 years, and 63% at 30 years. Functional outcomes at the first post-operative quality of life evaluation versus the latest are shown in Table 1. There were no differences between male and female patients except for quality of health at latest follow-up, which was diminished in females (median 7 vs 8, p = 0.04).

Conclusions/Discussion: After a quarter century follow-up, the majority of the first 100 pouches performed at our center are still viable, with acceptable functional outcomes and quality of life. More than 90% of patients would undergo IPAA again and recommend it to others.

	First QoL survey (n = 97)	Latest QoL survey (n = 97)	p value
Interval between IPAA and QoL survey	7 (2 – 18) months	22 (16 – 27) years	
Bowel movements per day			
Total	7 (6 – 10)	7 (6 – 10)	0.958
Daytime	6 (5 – 9)	6 (4 – 8)	0.126
Nighttime	1 (0 – 2)	2 (1 – 3)	0.247
Urgency			
Always/mostly	2 (2)	9 (9)	< 0.001
Sometimes	15 (15)	34 (35)	
Rarely/never	79 (82)	54 (56)	
Incontinence			
Always/mostly	3 (3)	7 (7)	< 0.001
Sometimes	10 (10)	27 (28)	
Rarely/never	82 (85)	64 (66)	
Seepage			
Daytime	24 (25)	38 (39)	0.168
Nighttime	55 (57)	52 (54)	1.00
Pad usage			
Daytime	21 (22)	38 (39)	0.011
Nightime	40 (41)	49 (51)	0.070
Quality of life (0 – 10)	9 (8 – 10)	8 (6 – 9)	< 0.001
Quality of health (0 – 10)	10 (10 – 10)	8 (6 – 9)	0.131
Quality of energy (0 – 10)	9.5 (8 – 10)	7 (5 – 8)	0.023
Happiness with surgery (0 – 10)	10 (10 – 10)	9 (8 – 10)	0.275
Would undergo surgery again	93 (96)	90 (93)	1.00
Would recommend surgery to others	97 (100)	90 (93)	1.00
Dietary restrictions	35 (36)	33 (34)	1.00
Social restrictions	15 (16)	25 (26)	0.083
Work restrictions	20 (21)	16 (17)	0.575
Sexual restrictions	9 (9)	22 (23)	0.032

Data are number (percentage) or median (interquartile range), as appropriate

Table 1 – Bowel function and quality of life postoperatively and at latest quality of life (QoL) follow up

NATIONAL TRENDS AND HOSPITAL-LEVEL VARIATION IN OUTCOMES FOLLOWING PELVIC EXENTERATION FOR PRIMARY RECTAL CANCER: IS THERE ROOM FOR QUALITY IMPROVEMENT?

eP855

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Purpose/Background: Given a current paucity of national data, this study evaluated trends and hospital-level outcomes following pelvic exenteration for rectal cancer in the United States.

Methods/Interventions: Pelvic exenterations for primary rectal adenocarcinoma were identified in the National Cancer Database (2005-2019). Hospital pelvic exenteration volume was defined as the average annual number of pelvic exenterations performed for primary rectal, gynecologic, or urologic cancer during the study period and characterized into tertiles. Bivariate analyses assessed trends in outcomes over time, and multilevel regression analyses estimated hospital-level variation and assessed the association between hospital volume and the outcomes of 5-year overall survival, neoadjuvant radiation therapy, systemic therapy, positive surgical margin, adequate lymph node yield (≥ 12), and postoperative 90-day mortality.

Results/Outcome(s): Among 3,557 patients across 750 hospitals, there was overall improvement from 2015-2019 compared to 2005-2009 in the rates of neoadjuvant radiation (69.6% vs 52%), systemic therapy (81.6% vs 69.6%), adequate lymph node yield (77.9% vs 65.3%), and 90-day mortality (2.8% vs 6.5%) (all p<0.0001), but there was no change in the rate of positive margin (13% vs 12.2%, p=0.17). After controlling for patient and oncologic factors, high hospital annual pelvic exenteration volume was independently associated with better 5-year overall survival and higher odds of neoadjuvant radiation, systemic therapy, adequate lymph node yield, and 90-day mortality compared to low hospital annual volume (Table). Furthermore, there was wide hospital-level variation in neoadjuvant radiation (median=63.3%, range=44.6%-83.4%), systemic therapy (median=77.6%, 54.4%-96.2%), adequate lymph node yield (median=74.5%, range=50.6%-88.3%), and 90-day mortality (median=4%, range=2.5%-15%).

Conclusions/Discussion: There has been overall improvement in outcomes following pelvic exenteration for rectal cancer from 2005-2019 in the United States. However, a clear volume-outcome relationship exists, and quality of care varies widely across institutions. Increases in neoadjuvant radiation utilization, systemic therapy use, and quality of resection and decreases in postoperative mortality across centers remain targets for continued quality improvement.

Table: Multivariable Analyses Assessing the Association between Annual Hospital Pelvic Exenteration Volume and Outcomes

Annual Hospital Pelvic Exenteration Volume	5-Year Overall Survival HR, (95% CI)*	Neoadjuvant Radiation Therapy OR (95% CI)*	Systemic Therapy OR (95% CI)*	Positive Surgical Margin OR (95% CI)*	Adequate Lymph Node Yield OR (95% CI)*	90-Day Mortality OR (95% CI)*
Low (< 2)	Reference	Reference	Reference	Reference	Reference	Reference
Medium (2-7)	0.92 (0.80-1.06)	1.56 (1.26-1.93)	1.60 (1.25-2.04)	0.90 (0.71-1.14)	1.17 (0.93-1.46)	0.92 (0.60-1.42)
High (> 7)	0.83 (0.71-0.96)	1.96 (1.54-2.48)	1.65 (1.26-2.17)	0.84 (0.66-1.08)	1.46 (1.12-1.89)	0.57 (0.34-0.96)

OS=overall survival, RT=radiation therapy, HR=hazard ratio, OR=odds ratio, CI=confidence interval
*Multivariable models control for patient age, sex, race, education, insurance type, Charlson-Deyo comorbidity score, elevated serum carcinoembryonic antigen level, AJCC pathologic T classification, AJCC pathologic N classification, tumor grade, tumor size, and year of diagnosis.

PATTERNS AND PREDICTORS OF RECURRENCE IN YPT0N0 RECTAL ADENOCARCINOMA.

eP856

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Purpose/Background: Pathological complete response (PCR) (ypT0N0) is seen in a subset of locally advanced rectal cancers undergoing neoadjuvant treatment. Patients achieving PCR have a better prognosis when compared to partial or non-responders. Data on the patterns of recurrence and risk factors of recurrence in this subgroup is limited. This study aimed to analyze the patterns and predictors of recurrence in patients achieving PCR after neoadjuvant treatment.

Methods/Interventions: This was a retrospective cohort study in the colorectal surgery unit of a tertiary care teaching hospital. Patients undergoing curative intent total mesorectal excision following neoadjuvant treatment and achieving a PCR between Jan 2009 and Dec 2018 were included. Demographic, operative, and clinical details, along with follow-up, were obtained from a prospectively maintained rectal cancer database and electronic patient records. Patterns of recurrence were analyzed. Predictors for recurrence were identified using multivariate logistic regression analysis.

Results/Outcome(s): Five hundred sixty-three patients underwent total mesorectal excision during the study period. PCR was seen in 107 (19%) of patients. 70% were male, and the mean age was 50 years. 58.9% underwent sphincter preserving surgery, and 48.6% were laparoscopic operations. The mean follow-up was 45.5 months. Recurrence was seen in 10 patients (9.3%). Systemic recurrence was seen in 8 patients (7.5%), local recurrence in 1 (0.9%), and both local and systemic recurrence in 1 patient (0.9%). Systemic recurrence was in the peritoneal cavity in four, the liver in three, the lungs in two, and breast metastasis in one patient. Age, gender, CEA levels, tumour differentiation, type of operation, T and N stage and use of adjuvant chemotherapy did not predict recurrence.

Conclusions/Discussion: The pattern of failure after PCR in rectal cancer is primarily systemic, with a low local recurrence rate. No particular risk factors for recurrence could be identified in our cohort of patients.

COMPARING OUTCOMES IN RECTAL CANCER PATIENTS TREATED WITH SHORT-COURSE NEOADJUVANT RADIATION VERSUS LONG-COURSE.

eP857

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Purpose/Background: Neoadjuvant radiation is standard of care for stage II and III rectal cancer. However, while many European centers continue to use short-course radiation, most American centers utilize long-course. Long-course advocates cite improved downstaging, while short-course advocates claim that long-course increases the risk of side effects with no proven survival benefit. We aimed to investigate any differences between outcomes in patients treated with short-course versus long-course using a large national database.

Methods/Interventions: A retrospective analysis of the National Cancer Database (NCDB) was performed including all patients who received radiation and surgery for stage II and III rectal cancer. Patients were divided into having received short-course or long-course radiation. The two groups were matched using propensity scoring and demographics and outcomes were compared. Overall survival between the two groups was also compared using a Kaplan-Meier Curve.

Results/Outcome(s): 763,411 rectal cancer patients were eligible, including 648 who received short-course radiation. Patients who received short-course were more likely to be older (63.8 vs 59.3 years;$p<0.001$), female (43.8% vs 37.8%;$p=0.002$), have a higher Charlson-Deyo score ($p<0.001$), more likely to have Medicare insurance ($p<0.001$), and higher clinical T ($p<0.001$) and N stages ($p=0.031$). After propensity score matching based on age, Charlson-Deyo score, insurance status, clinical stage, grade, and sequence of treatment, 190 patients in the long-course group were compared to 380 patients in the short-course group. The groups were not otherwise significantly different in terms of sex, race, or treatment location. Short-course was more likely to be done at academic institutions (53.4% vs 28.4% of long-course patients;$p<0.001$). There was no significant difference in R0 resection, sphincter-preservation, minimally invasive approach, conversion to open, 30- and 90-day mortality, or 30-day readmissionbetween the two groups.. Short-course patients were significantly more likely to have positive lymph nodes and lymphovascular invasion (61.7% N0 vs 66.9% in long-course, $p=0.03$ and 31.1% with lymphovascular invasion vs 14.8% in long-course, $p<0.001$). However, no significant difference was seen in overall survival regardless of length of radiation on Kaplan-Meier curve **(Figure 1).**

Conclusions/Discussion: Although long-course neoadjuvant radiation for rectal cancer may be associated with better downstaging as evidenced in this study by a higher

probability of negative lymph nodes and less lymphovascular invasion, overall survival is not significantly different. Short-course offers less exposure of the patient to radiation and the hospital environment and time away from work and personal life. It also allows surgery to be performed sooner after the diagnosis than would be the case with long course radiation.

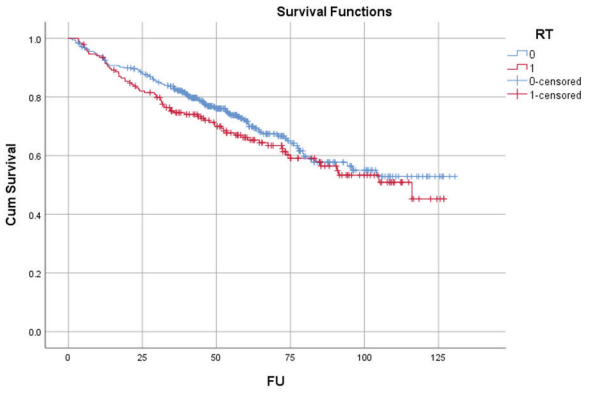

Figure 1: Kaplan-Meier curve demonstrating survival estimates for patients with long vs short-course radiotherapy.

CLONES 1A8 AND 4FD TARGETED ANTI-DEFA5 MABS SENSITIVE AND SPECIFIC IMMUNEREACTIVE BIOASSAYS FOR IBD DIAGNOSTICS.

eP713

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Purpose/Background: Delineating ulcerative colitis (UC) & Crohn's colitis (CC) in otherwise indeterminate colitis (IC) patients is of utmost importance when determining a patient's candidacy for restorative proctocolectomy with ileal pouch-anal anastomosis. Our recent published data has shown robust evidence supporting presence of alpha defensin 5 (DEFA5 alias HD5) in areas of the colon mucosa with aberrant expression of apparent crypt cell-like cells (CCLCs), which identifies an area of **colonic ileal metaplasia**, consistent with the diagnosis of CC. DEFA5 immunoreactivity in IC patient samples facilitated CC diagnosis with positive predictive value (PPV) of 96% accuracy. Due to the sequence homology of the DEFA class of proteins, we tested a set of robust and widely used Abs to evaluate and assess specificity to DEFA5, both for scientific validation and continuity of supply chain. We performed dot blot analysis using commercially available antibodies against recombinant HD1-6, **Fig. 1A, A**. Furthermore, we screened a series of anti-DEFA5 Abs (R&D systems) and identified DEFA5 specific capture and detection mAbs, **Fig. 1A, C**. Thus, the high degree of similarity of DEFAs implies that antibodies against DEFA5, though specific, may not be specific enough to distinguish DEFA5 from other defensins. Together, Meharry Medical College in collaboration with Vanderbilt University Medical Center and University of Georgia, has developed two high affinity mAbs against the segments of DEFA5, which only recognizes DEFA5 which may prove to be a valuable diagnostic tool and no other defensins.

Methods/Interventions: We characterized the two novel mAbs, clones 1A8 & 4FD. We first determine the specificity and sensitivity using normal human ileum as positive control by immunohistochemistry. We also used cellular lysate to get specific bands using Western blot analysis, and finally for sensitivity study purified proteins were used, as well as lysate by various amounts.

Results/Outcome(s): As depicted in **Fig. 1B, D, E & H** beyond any doubt that this antibody only recognizes DEFA5 which is diagnostic for CC. The peptide antibodies against the **P**, **B** & **M** binding sites indicated segments of DEFA5 successfully and tested functional for both the sensitivity and specificity.

Conclusions/Discussion: DEFA5 is differentially expressed in IBD. Aberrant expression, localization, and/or activation of DEFA5 underlies the tissue inflammation and damage associated with authentic CC form of colitis. The clinical relevance of this screen would most likely lead to the elusive accurate diagnosis to circumvent the inexact IC patients into CC with a first clinic endoscopy biopsy. Larger patient-centered proof of efficacy and safety studies is underway. **Limitations:** The rate limiting step was the generation of mAbs to the DEFA5 **P**, **B** & **M** binding sites. We now have developed the peptide antibodies against the segments successfully carried out hitch-free and tested functional.

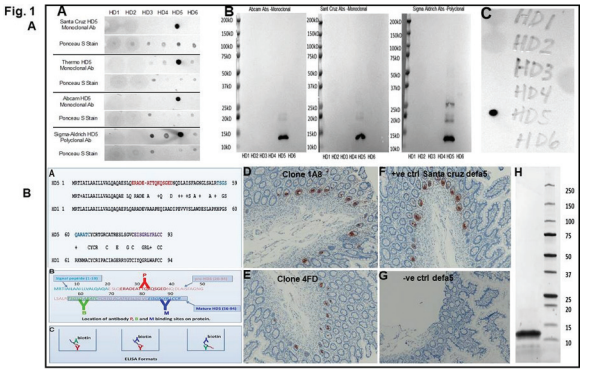

Fig. 1. A, Widely tested and used DEFA5 commercially available antibodies were evaluated and validated. (**A**) Dot blotting Ponceau staining was used as a loading control of commercially available sources, tested against purified **α**-defensin proteins, DEFA1 to DEFA6. mAbs from Santa Cruz Biotechnology were used due to specificity. (**B**) Western Blotting mAb and pAbs. (**C**) We also screened a series of anti-DEFA5 antibodies (R&D systems) and identified DEFA5 specific capture and detection antibodies. **B, Show IHC test of our two newly developed high affinity purified anti-DEFA5 mAbs (1A8 & 4F5) analyzed on normal ileum as positive control.** These mAbs have a complementarity determining region (CDR) that is complementary to each of, or all, the DEFA5 sequence of the **P, B,** & **M** binding sites of DEFA5 (A & B). (**H**), Western Blotting using our newly developed anti-DEFA5 mAb, Clone 1A8.

IS PHARMACOLOGICAL EXTENDED VENOUS THROMBOPROPHYLAXIS REQUIRED IN PATIENTS UNDERGOING PELVIC POUCH PROCEDURE FOR ULCERATIVE COLITIS?

eP714

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Purpose/Background: Background: Venous thromboembolic events (VTE) are common adverse surgical events with serious and life-threatening complications. More recently, extended VTE prophylaxis for 4 weeks in the post-operative period has been recommended for patients with colorectal cancer, but this recommendation has been less clear for patients undergoing surgery for inflammatory bowel disease (IBD) due lack of high-quality evidence. **Objective:** To assess VTE rates during the first 30 days after pelvic pouch surgery for ulcerative colitis (UC) or indeterminate colitis (IC) at the tertiary centre for IBD.

Methods/Interventions: Methods: This was a retrospective study using data from a prospectively maintained IBD database at a tertiary care centre. All patients with UC or IC who underwent ileopouch anal anastomosis (IPAA) between January 1, 2017, and December 31, 2021 were included in the study. The primary outcome was to assess the VTE rate after IPAA construction. The VTE were determined by the National Surgery Quality Improvement Program (NSQIP) algorithm. The secondary outcomes were the percentage of VTE occurring while in-hospital, the percentage of patients receiving appropriate thromboprophylaxis in hospital and the type and duration of the anticoagulant treatment prescribed for VTE. Quantitative variables were summarized as mean with the corresponding standard deviation. Categorical variables were summarized as frequency or percentage. Data were analyzed using IBM SPSS Statistics.

Results/Outcome(s): Results: The cohort included 204 patients who underwent IPAA (61.8% male, 73% laparoscopic, mean LOS 6.6 days). Of these, 177 had a previous subtotal colectomy prior to IPAA. The VTE rate after IPAA construction was 6.3% (13/204). Of these, 92.3% (12/13) had a portomesenteric venous thrombosis (PMVT). None of the patients developed PE. Seventy-seven percent (10/13) of the VTE occurred while the patient was in-hospital and 92.3% of these patients received appropriate thromboprophylaxis (12/13). There were no re-operations or mortality related to VTE. Fifty-four percent of the patients with VTE (7/13) received anticoagulation therapy for their VTE and the type and duration of this treatment were highly variable.

Conclusions/Discussion: Conclusion: The results of this study found a VTE rate of 6.3% in patients undergoing IPAA for UC and IC and is similar to the reported literature in this population. The majority of events were PMVT, occurred while the patients were in hospital and were receiving appropriate VTE prophylaxis. While these findings do not seem to support the routine use of extended VTE prophylaxis following IPAA, future randomized controlled trials will be required to more definitively answer this question. Furthermore, guidelines to help standardize the treatment of PMVT following pouch surgery are warranted given the long-term negative impact of PMVT on pouch function.

Table N°1: VTE in 204 patients underwent IPAA (30 days after surgery)

Patient	Type of Surgery	VTE	VTE location	In-hospital thromboprophylaxis	VTE In-hospital v/s VTE at home	Anticoagulation	Type of anticoagulation	Duration
1	CP + IPAA	PMVT	Portal/mesentery	No	Hospital	Yes	Apixaban	6 months
2	TPC + IPAA	PMVT	Subsegmental	Yes	Hospital	No		
3	TPC + IPAA	PMVT	Segmentary	Yes	Hospital	Yes	Rivaroxaban	1 month
4	CP + IPAA	PMVT	Segmentary	Yes	Home	Yes	Apixaban	7 months
5	CP + IPAA	PMVT	Segmentary	Yes	Home	No		
6	CP + IPAA	DVT	Basilic vein	Yes	Hospital	No		
7	CP +IPAA	PMVT	Portal/mesentery	Yes	Hospital	Yes	Apixaban	3 months
8	TPC + IPAA	PMVT	Portal/mesentery	Yes	Hospital	Yes	Rivaroxaban	5 months
9	CP + IPAA	PMVT	Portal/mesentery	Yes	Hospital	Yes	Unknow	Unknow
10	CP + IPAA	PMVT	Portal/mesentery	Yes	Home	Yes	Rivaroxaban	8 months
11	TPC + IPAA	PMVT	Subsegmental	Yes	Hospital	No		
12	CP + IPAA	PMVT	Segmentary	Yes	Hospital	No		
13	CP + IPAA	PMVT	Subsegmental	Yes	Hospital	No		

VTE: Venous thromboembolic event
CP: Completion proctectomy, IPAA: Ileo pouch anal anastomosis, TPC: Total proctocolectomy
PMVT: Porto-mesenteric vein thrombosis, DVT: Deep vein thrombosis

HAS THE USE OF ENHANCED RECOVERY SURGERY PROTOCOLS IN MAJOR COLORECTAL SURGERY INCREASED POSTOPERATIVE BLEEDING COMPLICATIONS?

eP715

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Purpose/Background: Enhanced Recovery after Surgery (ERAS) protocols are multimodal perioperative care pathways shown to improve postoperative complications and decrease length of stay after elective major colorectal surgery. A critical component of an ERAS protocol is the use of multimodal non-opiate analgesia using NSAIDs and COX-2 inhibitors, both of which are drugs associated with gastrointestinal bleeding. The aim of this paper is to compare the incidence of postoperative gastrointestinal bleeding between patients treated with and without an ERAS protocol after elective major colorectal surgery.

Methods/Interventions: A prospectively maintained colorectal registry was queried for patients undergoing elective major colorectal surgery requiring an anastomosis with an ERAS protocol (started in 2017) and the pre-ERAS era (2012-2016). The standardized ERAS protocol included celecoxib (200 mg PO BID starting just before surgery) and ketorolac (30 mg IV after induction). Both patient groups received 5000 units subcutaneous unfractionated heparin TID starting just before surgery. Postoperative outcomes included bleeding (+/- sequelae), reduction in hematocrit

after operation, intervention for bleeding (blood transfusion, endoscopy or surgery), length of stay and hospital readmission within 30 days. A patient was considered to have bleeding without sequelae if patient, doctor or nurse noted blood per anus without any clinical consequence. Bleeding with sequelae was considered when bleeding caused a deviation of the planned postoperative course, was symptomatic, necessitated blood, required intervention (endoscopic or surgical) or prolonged hospital stay. Variate analysis were performed using SPSS.

Results/Outcome(s): The ERAS group (n=630) and non-ERAS groups (n=739) were comparable in baseline clinical features except for surgical indication, with more IBD and less malignant disease in the ERAS group. Minimally invasive surgery was significantly more commonly performed in the ERAS group. Both bleeding with sequelae and bleeding without sequelae were significantly more common in the ERAS group compared to the non-ERAS group. In addition, there was a significantly larger hematocrit decline after operation noted in the ERAS group. Both the need for transfusion and intervention for bleeding however did not significantly differ between patient groups. On multivariate analysis, factors significantly associated with bleeding with sequelae were the use of an ERAS protocol (OR=2.96; 95% CI 1.57-5.58; p<0.001) and performing a small bowel to large bowel anastomosis (OR= 2.68; 95% CI 1.49-4.81; p<0.001).

Conclusions/Discussion: Use of an ERAS protocol in patients undergoing major colorectal surgery with an anastomosis is associated with an increased incidence of bleeding with sequelae and bleeding without sequelae. However, there was no significant difference in the need for blood transfusion or intervention between groups.

Clinical Features and Outcomes

Variable	Study Cohort (n=1369)	ERAS (n=630)	Non-ERAS (n=739)	P Value
Age at surgery (yr)	44.4 (18.3)	45.1 (19.2)	43.8 (18.4)	0.21
Female gender	673 (49)	322 (51)	351 (48)	0.18
Indication for surgery				
IBD	964 (70)	466 (74)	498 (67)	0.008
Other benign disease	157 (12)	73 (12)	84 (11)	0.9
Malignant disease	248 (18)	91 (14)	157 (21)	0.001
Anastomosis performed				
SB-SB	492 (36)	215 (34)	277 (38)	0.2
SB-LB	456 (33)	212 (33)	244 (33)	0.8
LB-LB	98 (7)	44 (7)	54 (7)	0.82
Pelvic anastomosis	371 (27)	176 (28)	195 (26)	0.52
MIS approach	600 (44)	333 (53)	267 (36)	<0.0001
Outcomes				
Bleeding without sequelae	119 (9)	82 (13)	37 (5)	<0.0001
Bleeding with sequelae	48 (4)	34 (5)	14 (2)	0.0004
Hematocrit reduction	7.7 (0-32.6)	8.6 (0-32.6)	7 (0-27)	<0.0001
Transfusion	27 (2)	16 (2.5)	11 (1.5)	0.2
Intervention	12 (1)	8 (1)	4 (1)	0.15
Length of stay (days)	4 (5)	3 (5)	4 (5)	<0.0001
Readmission	202 (15)	96 (15)	106 (14)	0.64

All values expressed as n (%), mean (+/- SD) or median (range)
ERAS enhanced recovery after surgery; IBD inflammatory bowel disease; SB small bowel; LB large bowel; MIS minimally invasive surgery;

SOCIAL VULNERABILITY AND ACCESS TO CARE IN THE MANAGEMENT OF BENIGN POLYPS.

eP716

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Purpose/Background: Prior research has suggested that up to 90% of patients referred to surgery with endoscopically unresectable polyps have disease amenable to endoscopic mucosal resection (EMR) or endoscopic submucosal dissection (ESD); however, many patients with endoscopically resectable polyps continue to undergo segmental colectomy with the inherent morbidity of resection. Our group sought to analyze the differences in colectomy for benign polyps in increasingly vulnerable populations in our healthcare system.

Methods/Interventions: A retrospective cohort study was conducted for patients undergoing colectomy for malignant intent in a multi-hospital healthcare system from 2020-21. These patients were identified using billing data and ICD procedure codes. Patient demographics, patient-level social vulnerability, operative details, and pathologic and clinical outcomes were captured. The Social Vulnerability Index (SVI) is a composite metric used at the CDC that quantifies the resilience of communities to public health threats, including factors such as poverty, access to transportation, and housing. Patients were stratified into quartiles: low (SVI < 0.25), intermediate (SVI 0.25-0.75), and high vulnerability patients (SVI > 0.75). Patients under age 18, cases with small bowel, rectum, or anus specimens, and colectomy for benign intent (i.e. inflammatory bowel disease, diverticulitis) were excluded. Analysis was performed using STATA.

Results/Outcome(s): Among 479 colectomies performed for malignant intent over this period, 164 (34.2%) were benign on final pathology. Highly vulnerable patients were more often non-white (p=0.037) with Medicaid insurance (p=0.038). Highly vulnerable patients were more likely to be managed by general surgeons than colorectal surgeons (p=0.005), and were less likely to have their surgery at our tertiary care center (p=0.002). Of all colectomies, there was no difference in rates of benign final pathology between low, intermediate, and high vulnerability groups (p=0.73). A subanalysis of the benign pathology cohort showed that highly vulnerable patients in this group were more likely to have surgery at low-volume hospitals by general surgeons (p=0.012 and p=0.015 respectively).

Conclusions/Discussion: These results demonstrate critical differences in access between low, intermediate, and highly vulnerable populations in our system. They suggest that referral patterns for highly vulnerable patients who had colectomy for unresectable benign polyps did not include access to subspecialty surgeons in Colorectal

Surgery who more often employ organ-sparing techniques. This supports the development of multidisciplinary management pathways for complex polyps to address differences in access created by social determinants of health.

		Low Vulnerability	Intermediate Vulnerability	High-Vulnerability	p-value
		N=126	N=205	N=71	
Sex	*Female*	55 (43.7%)	96 (46.8%)	37 (52.1%)	0.52
Race	*Black or African American*	47 (37.3%)	78 (38.0%)	30 (42.3%)	0.037
	White	78 (61.9%)	120 (58.5%)	34 (47.9%)	
	Other	1 (0.8%)	7 (3.4%)	5 (7.0%)	
Ethnicity	*Hispanic or Latino/a*	4 (3.2%)	5 (2.4%)	4 (5.6%)	0.29
	Not Hispanic or Latino/a	122 (96.8%)	199 (97.1%)	66 (93.0%)	
Age	*20-30*	0 (0.0%)	0 (0.0%)	2 (2.8%)	0.2
	30-40	5 (4.0%)	4 (2.0%)	1 (1.4%)	
	40-50	12 (9.5%)	16 (7.8%)	5 (7.0%)	
	50-60	24 (19.0%)	43 (21.0%)	18 (25.4%)	
	60-70	42 (33.3%)	77 (37.6%)	21 (29.6%)	
	70-80	27 (21.4%)	46 (22.4%)	19 (26.8%)	
	80-90	15 (11.9%)	15 (7.3%)	5 (7.0%)	
	>90	1 (0.8%)	4 (2.0%)	0 (0.0%)	
Insurance	*Private*	39 (31.0%)	58 (28.3%)	17 (23.9%)	0.038
	Medicare	76 (60.3%)	107 (52.2%)	35 (49.3%)	
	Medicaid	11 (8.7%)	36 (17.6%)	16 (22.5%)	
	Self Pay	0 (0.0%)	4 (2.0%)	3 (4.2%)	
CRS surgeon		67 (53.2%)	74 (36.1%)	25 (35.2%)	0.005
Main Campus		71 (56.3%)	76 (37.1%)	27 (38.0%)	0.002
Low Volume Hospital		25 (19.8%)	51 (24.9%)	22 (31.0%)	0.21
Benign path		43 (34.1%)	76 (37.1%)	23 (32.4%)	0.73
BENIGN PATHOLOGY SUBSET		**Low Vulnerability**	**Intermediate Vulnerability**	**High-Vulnerability**	**p-value**
		N=43	N=76	N=23	
CRS surgeon		25 (58%)	25 (33%)	7 (30%)	0.015
Main Campus		25 (58%)	25 (33%)	6 (26%)	0.009
Low Volume Hospital		6 (14%)	21 (28%)	11 (48%)	0.012

Table 1: Demographics, Access, and Pathologic Outcomes of Patients who Underwent Colectomy with Malignant Intent from 2020-2021.

Table 1: Demographics, Access, and Pathologic Outcomes of Patients who Underwent Colectomy with Malignant Intent from 2020-2021

ENDOSCOPIC MANAGEMENT OF ANASTOMOTIC LEAKS FOLLOWING LEFT-SIDED COLECTOMY AND PRIMARY COLORECTAL ANASTOMOSIS: A SINGLE INSTITUTION RETROSPECTIVE REVIEW.

eP717

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Purpose/Background: Post-operative anastomotic leaks are one of the most common complications following colorectal surgery, with rates reaching 51%. A third of post-operative mortalities are attributed to these leaks, which also result in prolonged hospital stays and/or readmission. Previous studies on endoscopic management of leaks (with techniques such as EndoClip, OverStitch, and stenting) have shown similar outcomes to re-operation; however, implementation of endoscopic strategies for leak management has been limited by the paucity of data examining the characteristics that promote suitability for endoscopic management.

Methods/Interventions: A single institution, retrospective review was conducted to include patients who underwent a left-sided colectomy (low anterior resection vs. sigmoidectomy) with primary colorectal anastomosis, and who developed clinically significant anastomotic leaks that were managed endoscopically between 2018 and 2021. All indications for surgery were included, as well as open and laparoscopic approaches. Seven adult patients were identified who met these criteria.

Results/Outcome(s): Seven patients presented with post-operative leaks and underwent endoscopic intervention. Of these seven cases, three of the initial operations were performed for diverticulitis and four for malignancy. There were three robotic cases, one laparoscopic, two open, and one robotic converted to open. Three cases of anastomotic leaks were managed with only endoscopic intervention without need for interventional radiology (IR) or surgery. One case was managed initially with IR drainage and subsequent endoscopic stenting/suturing. Three cases utilized multimodal treatment involving surgery (with diverting loop ileostomy creation).

Conclusions/Discussion: Post-operative anastomotic leaks remain challenging to manage with endoscopic techniques becoming increasingly employed. In our series, the diversity of cases in which clinically significant leaks were managed endoscopically suggests a potentially broad application for such methods in the setting of colorectal anastomotic leaks. In all the cases highlighted here, clinical picture, size and progression of leak all factored into the timing of endoscopic intervention. When faced with such a complication, a multidisciplinary approach including interventional gastroenterology should be applied to reduce morbidity and mortality and optimize patient outcomes.

TRUTH OR MYTH: DOES THE POSITION OF THE END TO END (EEA) STAPLER SPIKE REALLY MATTER FOR COLORECTAL ANASTOMOSES USING A DOUBLE-STAPLED TECHNIQUE?

eP718

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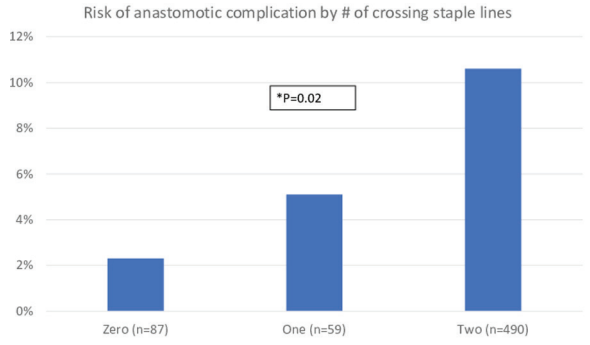
Purpose/Background: Surgeons are often emphatic about preferred placement of the EEA stapler spike through the rectal stump for double-stapled anastomosis during colorectal anastomoses. Very little data exists regarding spike position, subsequent crossing staple lines, and differential outcomes. The aim of the current study was to determine if EEA spike placement relative to the rectal transection line is associated with anastomotic complications. We hypothesized that different/various spike positions are not associated with anastomotic complications including intraoperative air leak, incomplete donuts, or clinical anastomotic leak.

Methods/Interventions: We queried our prospective surgeon-entered clinical quality improvement registry for patients undergoing any left-sided colorectal resection or ileorectal anastomosis (IRA) using a double-stapled

anastomotic technique (2/2020-8/2022). Technical details of anastomotic construction were reported, including location of stapler spike relative to transverse staple line (through, anterior, posterior, corner). The primary outcome was a composite of intraoperative anastomotic complications including positive air insufflation test, incomplete anastomotic donut, or eccentric anastomotic donut; secondary outcome was clinical anastomotic leak or organ space infection.

Results/Outcome(s): Overall, 636 patients were included. The majority underwent colorectal anastomosis, while 22 patients underwent IRA. Overall, 250 patients had the EEA stapler spike placed anterior to the staple line, 210 placed through the staple line, 117 posterior to the staple line, and 59 through the corner of the staple line. The rate of intraoperative anastomotic complication was 8.8%, 8.1%, 12.8%, and 5.1% respectively (p=0.3). The rate of postoperative clinical anastomotic leak/abscess was 2.0%, 4.3%, 5.1%, and 6.8% respectively (p=0.2). Of patients that had an intraoperative anastomotic complication (n=57), 42% were diverted compared to 28% without intraoperative complications. Unexpectedly, anterior anastomoses that did not include the transverse staple line, often referred to as reverse Baker technique (n=87), had an anastomotic complication rate of 2.3%, which is significantly lower than other groups (p=0.02). When stratifying patients by number of crossing staple lines, the rates of anastomotic complication was 2.3% for zero crossing staple lines, 5.1% for one crossing staple line, and 10.6% for two crossing staple lines (p=0.01, **Figure 1**).

Conclusions/Discussion: For double-stapled pelvic anastomoses that result in crossing staple lines, the position of the stapler spike not associated with anastomotic complications. However, we observed that an anterior placement of the anvil with no subsequent crossing staple lines resulted in significantly lower rate of anastomotic complications, and should be the subject of future investigation.



SINGLE CENTER EXPERIENCE WITH EXPANSION OF SAME DAY DISCHARGE COLECTOMIES.

eP719

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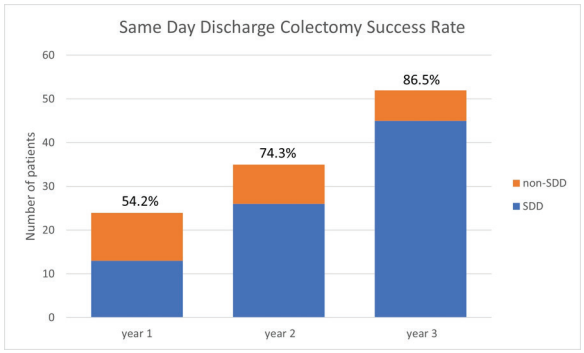
Purpose/Background: Enhanced recovery after surgery pathways have provided widespread benefits to both patients and hospital systems. As we continue to improve on these protocols, there has been great interest in ambulatory colectomies which has been shown to be feasible and safe in well selected patients. There remains; however, limited data on how to effectively implement same day discharge (SDD) protocols. This study aims to evaluate how our single center SDD experience evolved over time and to identify factors associated with failure of SDD.

Methods/Interventions: A retrospective review was performed on all patients that were identified as candidates for electiev ambulatory colectomies performed between August 2019 to September 2022 at a single institution. The patients were evaluated by the surgical team in the recovery area to determine if they met criteria for SDD. Demographic data, operative details, and post-operative complications were compiled and compared between the SDD and non-SDD groups. The reason that a patient was deemed to be unsuitable for SDD post-operatively was also recorded. The number of patients identified as candidates and success rate of SSD over time was compared throughout the years to evaluate the growth of the program.

Results/Outcome(s): A total of 111 patients were identified as candidates for same day discharge colectomy, of which 83 were successful SDD. The number of patients identified for SDD in the first year was 24, with a success rate of 54.2%. This increased to 34 patients in the second year with a success rate of 74.3%, which was further expanded to 54 patients in the third year with an 86.5% success rate. Multiple factors were not found to contribute to failure of SDD including age, BMI, prior abdominal surgery, and indication for procedure. The only statistically significant factors found to contribute to SDD falilure were increased operative time (149 min vs. 269 min; p<0.01) and increased estimated blood loss (48 mL vs. 77 mL; p<0.01). The mean length of stay for the non-SDD group was 2.07 days with 13/28 patients able to be discharged on POD 1. Readmission rate within 30 days was 7.2% in the SDD group vs. 14.3% in the non-SDD group. One anastomotic leak each was identified in the SDD group and the non-SDD group.

Conclusions/Discussion: SDD colectomy is safe in well-selected patients and complications remain rare, though more complicated cases with longer operative time and increased blood loss are more likely to be unsuitable for SDD. As we continued to build on our SDD colectomy

experience, we were able to identify more patients for inclusion and improve our successful implementation rate.



USING A RECEIVER OPERATING CHARACTERISTIC CURVE TO IDENTIFY WHICH VALUE OF ABDOMINAL FAT RATIO BEST PREDICTS CONVERSION IN LAPAROSCOPIC COLORECTAL SURGERY.

eP720

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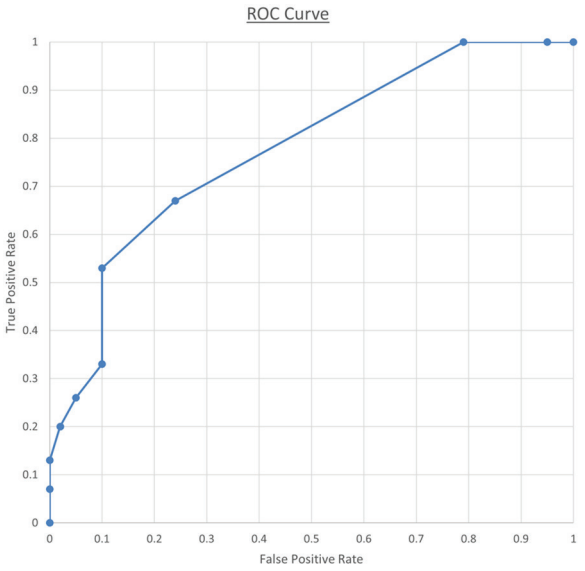
Purpose/Background: Abdominal Fat Ratio (AFR) has previously been validated as an independent, reproducible predictor of conversion in laparoscopic colorectal surgery for obese patients. It is defined as the ratio of internal to external abdominal fat at the level of the umbilicus. Obese patients with a higher AFR are statistically more likely to require conversion to open surgery. The aim of this study was to identify the AFR value which best predicts the chance of conversion.

Methods/Interventions: Data from consecutive patients with body mass index greater than 30 undergoing laparoscopic colorectal cancer resections were collected and analysed. All patients were operated on by one of two consultant surgeons who had previously completed laparoscopic fellowships. A receiver operating characteristic (ROC) curve was constructed and the cut-off point closest to the perfect classifier identified.

Results/Outcome(s): 57 consecutive patients with BMI > 30 were included in the study. Male to female ratio was 34:23 with a median age of 68. The cut off value for the AFR ratio closest to ideal was 4. Using this value, the test predicted the likelihood of conversion with an accuracy of 0.737.

Conclusions/Discussion: When assessing obese patients for laparoscopic colorectal resection, using an AFR cut off measurement of 4 gives the most accurate predictor of conversion, correctly predicting in around three quarters of patients in this study. This should not be used to rule out the laparoscopic approach but can help to plan operations and inform the patient preoperatively.



TRANS ANAL SPECIMEN EXTRACTION MORBIDITY BASED ON RECTAL STUMP CLOSURE.

eP721

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Purpose/Background: Advances in surgical technology have allowed for progressive minimally invasive techniques in colon and rectal surgery. An emerging technique to low anterior resections includes trans anal specimen extraction with total intracorporal anastomosis. This is appealing for patient and surgeon as it can allow for shorter hospital stays, improved post operative pain scores, equivalent oncologic outcomes and improved cosmesis. There remains a paucity of clinical outcomes data describing post operative rates of organ space abscess or anastomotic breakdown in this cohort of patients. Our aim was to investigate rates of organ space abscess and anastomotic breakdown in patients undergoing low anterior resections with trans anal specimen extraction.

Methods/Interventions: A single surgeon's Low Anterior Resections were queried for CPT codes 44207 and 44208 between January 1, 2016 and June 20, 2022. Patients were excluded if age less than 18 or if the specimen was removed transabdominally. All procedures were completed on a Da Vinci Xi Robotic platform. Key demographic information, rectal stump closure technique, postoperative organ space abscess formation, and anastomotic breakdown were evaluated. Anastomotic breakdown was defined as requiring re-operation within 30 days of index surgery or radiographic evidence of anastomotic sinus tracts on Gastrografin enema. We also determined

if a diverting loop ileostomy (DLI) was created and subsequently reversed during our study period.

Results/Outcome(s): Of the 34 patients that met inclusion criteria, 24 had a stapled and 8 had a purse string rectal stump closure. Two patients had a hand sewn coloanal anastomosis. Among patients receiving a stapled rectal stump closure, 2 (8.8%) developed an organ space abscess and 1 (4.2%) developed an anastomotic breakdown. Of patients receiving a purse string rectal stump closure, 1 (12.5%) developed an organ space abscess and 2 (25%) developed an anastomotic breakdown. Patients in the hand sewn coloanal technique had no abscess nor anastomotic breakdown identified. When looking at only patients recorded to have a complication, 4 (66.7%) of those had neoadjuvant chemoradiation, 4 (66.7%) had a protective DLI created, and 2 of those 4 (50%) have now been reversed.

Conclusions/Discussion: Minimally invasive techniques for low anterior resections utilizing trans anal specimen extraction followed by a stapled rectal stump closure and end to side anastomosis appears to be a safe option with comparable outcomes to previously described techniques. Rectal pouch closure utilizing a purse string method is associated with increased rates of abscess formation and anastomotic breakdown in our study group. Given the limitations with a single surgeon, single site and low sample size, additional studies are needed to fully characterize outcomes in patients who receive our described approach.

Rectal Stump Closure	N	Organ Space Abscess	Anastomotic Breakdown	Total Complication
Stapled	24	2 (8.3%)	1* (4.2%)	3 (12.5)
Purse String	8	1 (12.5%)	2 (25%)	3 (38%)
Hand Sewn Coloanal	2	0	0	
Overall	34	3 (8.8%)	3 (8.8%)	6 (17.6%)

*Required re-operation within 30 days of index surgery

EQUITABLE CARE WITH UNEQUAL OUTCOMES: ETHNIC DISPARITIES IN SURGICAL ONCOLOGY IN CANADA. A SCOPING REVIEW.

eP722

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Purpose/Background: Although there has been significant progress towards cancer screening, prevention and surgical management, there conrinues to be disparities. In Canada, the cancer incidence and morality are higher in First Nation Canadians compared to all other Canadians. Furthermore, previous studies have shown an increase in cancer incidence in other ethnic minorities in Canada as well. Despite increased understanding of health outcomes, the oncological disparities for ethnic groups, post-surgery remain unknown. In this review we present a summary of the evidence on racial and ethnic disparities in Canada after oncological surgery.

Methods/Interventions: This is a scoping review of relevant studies. With the help of a librarian, studies were identified through MEDLINE, PubMed, Embase and Cochrane Library databases. Two independent reviewers screened abstracts based on inclusion and exclusion criteria. A total of sixteen studies were identified and reviewed for data extraction and critical appraisal using a validated critical appraisal tool.

Results/Outcome(s): From the sixteen studies identified, 3 assessed disparities in head and neck cancers, 5 assessed cancer mortality in general, and 8 assessed colorectal, breast, prostate, liver, lung, and renal cancers. For all cancer types, mortality was higher in First Nations and lowest in recent immigrants and those of Asian and South Asian descent. Furthermore, Asian ethnicity had higher head and neck cancer survival than non-Asians. Cancer specific mortality was also higher in First Nations and Inuit People. No studies reported on oncological outcomes specifically apart from mortality.

Conclusions/Discussion: This review identified sixteen good quality studies that addressed ethnic disparities in outcomes for oncological surgeries in Canada. However, the only reported outcomes were on mortality. The current studies report a higher overall mortality in First Nation Canadians, and lower mortality in Asians, South Asians and recently arrived immigrants from Asia. No study specifically addressed disparities in oncological outcomes. This is likely due to scarcity of data on ethnic identifiers in provincial databases. Further research is required to identify the scope of ethnic disparity in oncological post-operative outcome.

OUTCOMES OF COLECTOMY ACCORDING TO SURGEON'S TRAINING: GENERAL VS. COLORECTAL.

eP723

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Purpose/Background: Colectomies are performed by general and colorectal surgeons with the surgical approach and preparation dictated by the surgeon's training. The objective of this study was to investigate outcomes of patients undergoing non-emergent colectomies to determine if they varied according to surgeon's training.

Methods/Interventions: Clinical data of patients who underwent partial colectomy for elective procedures from 2018 through 2022 were obtained from the Vizient database. Data were examined between general surgeons versus colorectal surgeons and were reviewed for number and type of operations performed, demographics, length of stay, and postoperative morbidity and mortality.

Results/Outcome(s): During the 48-month period, 130,566 colectomies were performed; 72,298 (55%) by general surgeons and 58,268 (45%) by colorectal surgeons. Mean length of stay (LOS) for colectomies performed by colorectal surgeons was 5.18±5.63 days compared to 6.12±7.26 days compared to colectomies performed by general surgeons, $p<0.05$. There were 1302 deaths for the colectomies performed by both surgeon category; there were 275 (21%) deaths in the colorectal surgery group vs 1027 (79%) deaths in the general surgery group, $p<0.05$.

Conclusions/Discussion: General surgeons performed more colectomies than did colorectal surgeons in this time period. There are LOS and Mortality differences between surgeon groups. Perhaps just as prior studies demonstrate post-graduation emphasis predicts outcomes, this data suggests that practice focus does seem to make a difference in patient outcomes in non-emergent cases.

PATIENT PERCEPTION OF ROBOTIC SURGERY.

eP724

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Purpose/Background: Since FDA approval in 2000, widespread integration of robotic-assisted Minimally Invasive Surgery has yielded an unusual ethical and political interplay between patients, healthcare staff, manufacturers and legislature. It is not surprising demand generated from robotic-assisted MIS revenue has increased competition from one FDA approved manufacturer in 2000 in the US to eight, five of which were registered in 2021. Even as the industry grows, some surveys reveal patient misunderstandings and distrust over the platform's use in surgery. Widespread acceptance of this technology may therefore depend on a healthy patient-doctor relationship and institutional collegiality. Our intent is to clarify potential drawbacks of robotic MIS early and promote public perception of these technological devices.

Methods/Interventions: An integrative review of published research on patient perception and hospital experience with robotic surgery was conducted. Two international publications were selected for ethical analysis. A 2021 European survey with 25,132 patients by Torrent-Sellens et al suggested a lack of trust with robotic-assisted machines due to citizen's lack of information, perception about the technology, and attitudes to the platform. The year prior, a Canadian quantitative review of 14 publications by Matinello et al found similar results and recommended robotic surgery education and patient autonomy with decision making.

Results/Outcome(s): The novelty and appeal of 'robotic surgery' may mislead uninformed patients. Therefore, robotic-assisted MIS necessitates informed consent, patient education, and transparency of surgeon experience.

Conclusions/Discussion: Even as medical robotics gains attention, colorectal surgeons must maintain their laparoscopic and open technique, especially when technology fails. The inherent physical limitations of current bulky mechanical and electrical systems are accompanied with rare, but potentially impactful drawbacks. The MAUDE database for medical devices reviewed by the FDA estimates instrument malfunctions occur at an incidence of 13 per 10,000 cases. However, the data collected is voluntary and not nationally standardized, and therefore subject to be underestimated. In addition, stress from equipment failure may create a negative and stressful operating room environment. Strategies focused on patient awareness, institutional training, on-demand manufacturer support, and collaborative patient-centered teamwork may alleviate systemic stress and discontent. And as the market enlarges, manufacturers should continue to maintain their ethical integrity to patient safety and invest in designing instruments with longevity. We recommend surgeons who integrate robotics to educate patients, answer questions, and provide resources about the platform. In conclusion, the success of this robotic-assisted MIS will ultimately depend on public perception of these operative devices.

MISSED OPPORTUNITIES FOR ALIGNING GOALS IN COLORECTAL CANCER PATIENTS.

eP725

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Purpose/Background: Advance Care Planning (ACP), a process through which patients and providers discuss and record goals and preferences, has been broadly endorsed as a quality measure for patients with serious illnesses, including cancer. It is also an important component of informed consent for surgery. While ACP conversations may happen, documentation is essential to inform the broader care team and measure quality. We sought to understand trends in ACP documentation for patients with colorectal cancer undergoing surgery.

Methods/Interventions: Adult patients with a diagnosis of colorectal cancer (CRC) undergoing a major elective major operation (including hepatectomy for CRC-related metastatic disease) in 2019 were included. Electronic health record (EHR), National Surgical Quality Improvement Project (NSQIP), National Cancer Database (NCDB), and state death registry data were linked. The primary exposure was preoperative ACP documentation (i.e., a scanned outpatient document or ACP note). Chart review was conducted to evaluate the content of preoperative ACP documentation for a high risk subset of patients who died within a year of surgery, experienced a serious complication (as defined by NSQIP), or were admitted

perioperatively to the intensive care unit (ICU); categories were not mutually exclusive.

Results/Outcome(s): Among the 236 patients with a mean age of 59 years, 43.1% were female, 52.3% had colon cancer, 47.7% had rectal cancer, and 33% had stage 4 disease at diagnosis. The overall frequency of preoperative ACP documentation was 14.8% (n=35; 86% scanned documents, 14% provider-authored notes). One-year mortality was 5.9% (n=14), ICU admission rate 2.5% (n=6), serious complication rate 1.7% (n=4). Of this high-risk subset (n=24), the mean age at the time of diagnosis was 55.6 years and 45.6% (n=11) had stage 4 disease at the time of diagnosis. 70.8% (n=17) in the high-risk subset were missing preoperative ACP documentation, and none had ACP notes by a member of the surgical team. When preoperative ACP documentation was available (n=7; 71% scanned documents, 29% provider-authored notes), it had been completed a median of 155 days prior to surgery. Only three patients had new ACP documented between the date of cancer diagnosis and their operation.

Conclusions/Discussion: ACP documentation among colorectal cancer patients was rare. Future efforts must be directed toward collaboration between medical, radiation, and surgical oncologists to discuss and document ACP at the time of a major health change, such as a new cancer diagnosis.

	No. (%)
Age at diagnosis, mean (years)	55.6
Gender	
Female	7 (29.2)
Primary site	
Colon	14 (58.3)
Rectum	11 (44.0)
TNM stage group at diagnosis	
1	1 (4.2)
2	4 (16.7)
3	8 (33.3)
4	11 (45.8)
Preoperative ACP	7 (29.2)
ACP written before surgery, median (days)	155 days

Table 1. Demographic, clinical, and ACP descriptors for the high-risk subset (high-risk defined as 1-year mortality, admitted perioperatively to the ICU, or >1 serious complication).

COST TRANSPARENCY AND VARIABILITY IN CONSUMER PRICING IN COLORECTAL SURGERY.

eP726

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Purpose/Background: The Centers for Medicare & Medicaid Services (CMS) mandate that every United States hospital provides public online pricing information for services rendered. This allows patients to compare prices across hospital systems before establishing care. The goal of this project was to evaluate transparency and variability of pricing information in colorectal surgery.

Methods/Interventions: The study evaluated hospital cost transparency within our institution and all sixty-seven colorectal fellowship affiliated centers. Hemorrhoidectomy, partial colectomy, screening colonoscopy and their associated Current Procedural Terminology (CPT) codes were included to capture a range of common procedures within the specialty. Access to public online pricing information through hospital cost calculators and variation in costs provided to patients within included centers were studied. The Kruskal-Wallis assessed for cost variation for hemorrhoidectomy and colonoscopy across the sixty-eight centers.

Results/Outcome(s): A majority of the sixty-eight hospitals (95.6%) had a health transparency website. While fifty-nine hospitals (86.8%) provided a cost calculator for patients, only twenty hospitals (29.5%) provided a searchable option for single-column or multiple-column hemorrhoidectomy. An overwhelming sixty-two hospitals (91.0%) did not provide cost estimates for hemorrhoidectomy even if there was a searchable option for the procedure. Partial colectomy CPT codes and keywords were only accessible in two centers (2.9%) through cost calculator websites. Colonoscopy cost data were the most accessible with fifty hospitals (73.5%) providing public access to pricing information. In successful attempts, the median pre-insurance estimated cost ranges for hemorrhoidectomy were $840.00 to $26,013.00 ($p<0.001$), while cost ranges for colonoscopy were $706.79 to $18,867.00 ($p<0.001$), demonstrating significantly wide variability. Only two centers provided pricing for partial colectomy, with values of $1,423.00 and $41,844.00.

Conclusions/Discussion: Despite regulatory requirements by CMS for increased price transparency for surgical procedures, our results demonstrate a significant need for improved access to pricing information for a wide variety of common procedures within colorectal surgery.

PREDICTORS OF PERINEAL WOUND DEHISCENCE FOLLOWING ABDOMINOPERINEAL RESECTION.

eP727

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Purpose/Background: Abdominoperineal resection (APR) may result in large perineal defects that commonly result in significant surgical-site morbidity. The aim of this study was to identify risk factors for perineal wound dehiscence following an APR.

Methods/Interventions: We performed a retrospective review of all patients undergoing APR at the University of Colorado between April 2019 and May 2022. A perineal wound dehiscence was defined as breakdown of the perineal incision requiring local wound care, wound vacuum placement, or operative intervention. Patient demographics, operative characteristics, and perioperative interventions were reviewed

Results/Outcome(s): We identified 60 patients undergoing APR for the following diagnosis: rectal cancer (n=38, 63%), inflammatory bowel disease (n=8, 13%), anal cancer (n=5, 8%), rectourethral fistula (n=4, 7%), and other (n=5, 8%). Overall, 17 (28%) patients developed perineal wound dehiscence. There was no difference in age, sex, body mass index, diabetes, or smoking status between those who did and did not have perineal wound dehiscence (all p>0.05). There was a trend towards a lower albumin in patients with a dehiscence (3.7 vs. 4.0; p=0.076). Patients with perineal wound dehiscence were significantly more likely to have anal cancer (24% vs. 2%; p=0.02) compared to those without dehiscence. All patients with a perineal wound dehiscence had prior radiation therapy. There was no difference in surgical approach, blood loss, or concomitant pelvic organ resection between groups (all p>0.05). There was a trend towards a reduction in perineal wound dehiscence in patients with reduced operative time (240 vs. 322 minutes; p=0.064) and use of pelvic mesh (0% vs. 19%; p=0.056). No patient undergoing an intersphincteric dissection developed a dehiscence. An omental flap (OR 1.1, 95% 0.25-4.87), perineal wound closure with a gracilis or vertical rectus abdominus myocutaneous (VRAM) flap (OR 2.3, 95% CI 0.54-10.05), and intraoperative drain placement (OR 1.6, 95% CI 0.17-15.8) were not associated with a reduction in perineal wound dehiscence. There was no significant difference in length of hospital stay (9 vs. 6 days; p=0.121) or 30-day readmission (35% vs. 21%; p=0.247) between patients with and without perineal wound dehiscence, respectively. Among the 17 patients with dehiscence, 5 (29%) required an operation with wound vac placement and the remaining 12 (71%) were managed with local wound care.

Conclusions/Discussion: In this single center retrospective review, up to one-third of patients developed perineal wound dehiscence following APR and nearly 30% will require subsequent operative intervention. Patients with prior radiation therapy or anal cancer are a particularly high risk and thus require special consideration. The ineffectiveness of perineal wound closure with VRAM or gracilis flap suggests the need for more effective perienal wound techniques to avoid this complication.

SYNOPTIC OPERATIVE REPORTS FOR RECTAL CANCER: A QUALITY IMPROVEMENT INITIATIVE.

eP728

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Purpose/Background: The National Accreditation Program for Rectal Cancer (NAPRC) advocates for synoptic operative reporting to improve completeness and reliability of documentation as compared to traditional narrative reporting. The American Society of Colon and Rectal Surgeons (ASCRS) has developed a comprehensive rectal cancer surgery checklist, which outlines the essential operative details that inform further care. We hypothesize that the traditional narrative operative reporting, the present practice at our institution, lacks certain key information outlined in the ASCRS checklist. Hence, we conducted this quality improvement project to identify the potential gaps in documentation and also to provide a basis for creation of a synoptic operative report template.

Methods/Interventions: A retrospective review of operative reports describing low anterior resection (LAR) and abdominoperineal resection (APR) performed for rectal adenocarcinoma in the years of 2016 to 2021 was conducted. Emergency operations and operations other than LAR and APR were excluded. All of the operations were performed by two fellowship trained colorectal surgeons. All operative approaches including robotic, laparoscopic, and open were included. Operative reports were assessed against the 12 essential data points on the ASCRS intra-operative checklist.

Results/Outcome(s): Operative reports of 80 patients were initially reviewed and 39 were included for the final review that met the inclusion criteria. Twenty-four described LAR and fifteen described APR. A significant variability in the documentation of ASCRS recommended checklist data points was seen (Table 1). The documentation was adequate (defined as 80% documented or greater) for sharp TME, distal resection margin, rationale for reconstruction of intestinal continuity versus stoma, end-to-side or straight anastomosis, integrity of anastomosis, consideration of DLI, and hand sewn versus stapled anastomosis. The documentation was inadequate for the remainder of the data points. None of the operative reports contained documentation of assessment of pelvic nerves.

Conclusions/Discussion: This quality improvement project identified several essential data points missing in the present practice of narrative operative reporting. This provides an opportunity and rationale for adopting the practice of synoptic reporting.

Essential Intra-operative Data Points	Times Reported/Total n of Cases (%)
Adequate (80% or greater)	
Sharp TME	39/39 (100%)
Distal Resection Margin from Tumor	39/39 (100%)
Rationale for Intestinal Continuity versus Stoma	39/39 (100%)
End-to-Side or Straight Anastomosis*	19/23 (82.6%)
Integrity of Anastomosis*	20/23 (87%)
DLI Considered*	22/23 (95.7%)
Hand Sewn versus Stapled Anastomosis*	23/23 (100%)
Inadequate (less than 80%)	
Assessment of Pelvic Nerves	0/39 (0%)
Involved Adjacent Organs Resected en bloc	4/39 (10.3%)
Completeness of Resection	6/39 (15.4%)
Assessment for Extra pelvic Disease	17/39 (43.6%)
Location of Final Anastomosis*	1/23 (4.3%)
*(Reconstruction Data Points N/A for APR n = 15 and Patient Preferred End Colostomy n = 1)	

Table 1. Assessment of ASCRS essential intra-operative checklist data point documentation in the studied narrative operative reports.

ACCURACY OF THE "TIMED UP AND GO TEST" FOR PREDICTING SARCOPENIA IN A PREOPERATIVE PREHABILITATION PROGRAM IN COLORECTL CANCER.

eP729

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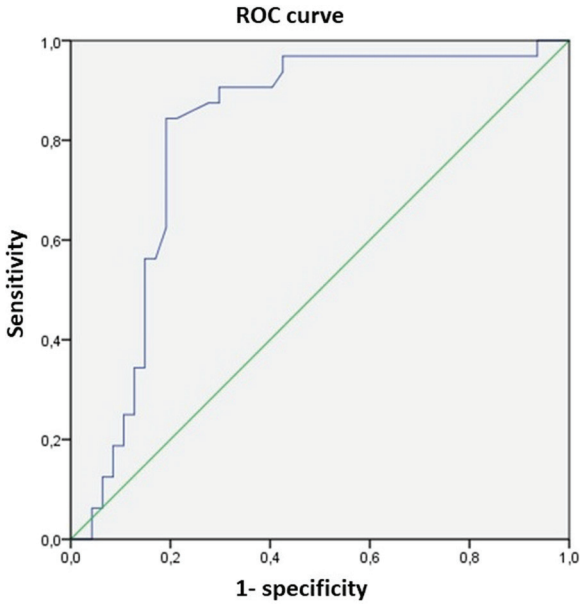
Purpose/Background: Preoperative sarcopenia is associated with increased morbidity and mortality in patients undergoing colorectal cancer surgery and should be addressed preoperatively. The computed tomography scan (CT-Scan) is one of the imaging test used to measure muscle mass. On the other hand, the "Timed Up and Go test" is a functional test that assesses mobility and risk of falls. The aim of this study was to evaluate the accuracy of the "Timed Up and Go test" for predicting preoperative sarcopenia.

Methods/Interventions: A prospective study including patients scheduled for colorectal cancer surgery in a tertiary Colorectal Unit from January to October 2022 was performed. All patients were assessed in the Prehabilitation Clinic 4 weeks preoperatively. The "Timed Up and Go test" score was compared to reduced muscle mass calculated on L3 cross sectional computed tomography image. Statistical analysis included demographic data, sensitivity, specificity and accuracy scores for the "Timed Up and Go test" for predicting sarcopenia.

Results/Outcome(s): 84 colorectal cancer patients (70 ± 11years) were included. Tumor location was (29) 34.5% right-sided; (8) 9.5%% transverse colon; (9) 10.7% descending colon; (16) 19.1% sigmoid colon and (22) 26.2% rectum. Sarcopenia was present in (32) 38.1%. The median "Timed Up and Go" test length was 10.46s, and a cut-off point of 10.16s or over predicted sarcopenia with a sensitivity of 84% and a specificity of 80.9%. The accuracy of this cutoff for the Timed Up and Go test was good (0.81; IC=0.70-0.91; p<0.001).

Conclusions/Discussion: The "Timed Up and Go" test is an excellent predictor of sarcopenia in patients scheduled for colorectal cancer surgery, reducing the need for computer tomographic assessment of this condition. It is a simple out-patient tool and could be useful for early diagnosis and treatment of sarcopenia.



ENHANCED RECOVERY AFTER SURGERY REDUCES POSTOPERATIVE OPIOID USE IN COLECTOMY PATIENTS.

eP730

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Purpose/Background: Patients undergoing colorectal surgery require a multimodal post-operative pain regimen. Reducing the need for opioids in this setting is desirable to avoid gastrointestinal adverse effects and to accelerate and enhance overall recovery. We hypothesize utilization of a robust and comprehensive protocol for enhanced recovery after surgery (ERAS) for colorectal operations can help practitioners provide patients adequate post-operative pain control with reduced opioid use.

Methods/Interventions: In 2017, Stamford Hospital initiated a colorectal ERAS protocol, with steps occurring prior to hospital admission, on the day of surgery, intraoperatively, during post-anesthesia care, and post-operatively. The protocol covers management of comorbidities (such as smoking), serum glucose control, deep venous thrombosis prophylaxis, antimicrobial precautions, bowel preparation, fluid management, catheter and device management, wound dressing and care, activity

and ambulation, diet advancement, patient education, nausea control, and pain management, including nerve block, non-opioid medication, opioid medication, and adjunct therapy options. Protocol details are available upon request. Institutional review committee approval was granted and a single center retrospective chart review was conducted to compare the post-operative in-hospital opioid use between patients undergoing colorectal surgery at Stamford Hospital during the year preceding initiation of the ERAS protocol (pre-ERAS) versus during the first year of its implementation (post-ERAS).

Results/Outcome(s): The pre-ERAS and post-ERAS patient groups were equivalent in size (N=106 for each). There were no significant differences between groups with respect to age, gender, medical comorbidity, reason for surgery, operative time, or surgical approach (laparoscopic versus open). Opioids used for post-operative in-hospital pain management included intravenous (IV) or per os (PO) hydromorphone, IV morphine, transdermal fentanyl, immediate (IR) or sustained (SR) release oxycodone, oxycodone-acetaminophen (percocet), hydrocodone-acetaminophen (lortab), or tramadol. Dosages were converted to morphine milligram (mg) equivalents (MMEs) for comparison. Post-ERAS patients had 67.8% reduction in MMEs of opioids used relative to pre-ERAS patients (6,108.5 versus 18,989 mg, respectively).

Conclusions/Discussion: These findings suggest a comprehensive ERAS protocol significantly reduces opioid use in colectomy patients without compromising pain control. Further investigation is warranted to evaluate the generalizability and utility of such a protocol for other index surgeries.

Pre-ERAS Opioid Totals			MME Conversion	
PO Hydromorphone	30	mg	4	120
IV Hydromorphone	780.8	mg	20	15616
IV Morphine	56	mg	3	168
Oxycodone IR	655	mg	1.5	982.5
Oxycodone SR	960	mg	1.5	1440
Percocet	15	mg	1.5	22.5
Lortab	64	tabs	10	640

Table 1. Pre-ERAS opioid use, showing a total of 18,989 mg in MMEs.

Post-ERAS Opioid Totals			MME Conversion	
PO Hydromorphone	78	mg	4	312
IV Hydromorphone	62.7	mg	20	1254
IV Morphine	20	mg	3	60
Oxycodone IR	2625	mg	1.5	3937.5
Tramadol	5450	mg	0.1	545

Table 2. Post-ERAS opioid use, showing a total 6,108.5 mg in MMEs.

ILEOSTOMY EDUCATION: PREVENTING DEHYDRATION READMISSION, ONE STOMA AT A TIME.

eP731

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Purpose/Background: Readmission rates after ileostomy range between 10-30%. The most common reason for readmission is dehydration. Ileostomy education has a beneficial impact through early recognition of dehydration. Implementing an ileostomy educational protocol can save hospitals $123,505-$173,905 per annum. Our study aimed to assess the number of readmissions for dehydration after the implementation of the protocol and analyze ways to improve it.

Methods/Interventions: A retrospective chart review was conducted of patients with ileostomy from September 2015 to June 2022 at our institution. Starting in November 2018, we implemented an ileostomy educational protocol order set. All new ileostomy patients were eligible for education by an Advanced Practice Provider regarding dehydration, an ostomy nurse for education on ostomy care, and a nutritionist to reinforce hydration needs. Patients not seen by the Ileostomy team despite the order were excluded. Data was not available from April 2020 to March 2022 secondary to the EMR transition. Data were sorted into three groups: patients not readmitted, patients readmitted for reasons other than dehydration, and patients readmitted for dehydration. Averages, ANOVA, and chi-square tests were calculated for the three groups, with a p-value < 0.05 being significant.

Results/Outcome(s): From November 2018 to June 2022, 93 patients had ileostomy creation. 88 patients were included. 64 patients were not re-admitted, 23 patients were re-admitted, 20 out of 23 were re-admitted for reasons other than dehydration and 3 out of 88 (3.4%) patients were readmitted for dehydration from high ileostomy output (> 1200) within the 30-day postoperative period. All patients readmitted for dehydration had ileostomy output < 1500 ml at the time of discharge. 2 out of 3 patients underwent loop ileostomy and 1 patient has end ileostomy. 1 out of 3 patients readmitted for dehydration did not have ileostomy education before discharge. 5 out of 64 patients who were not readmitted did not have ileostomy education. From September 2015 to November 2018 prior to the ileostomy educational protocol, 51 ostomies were created, and 13 patients were readmitted during the 30-day postoperative period – 5 out of 51 (9.8%) for dehydration and 8 for other reasons.

Conclusions/Discussion: A multi-disciplinary ileostomy educational protocol decreased our 30-day readmission rate due to dehydration [3.4% vs 9.8%]. Patients with loop ileostomies appeared to be more prone to dehydration. Based on these findings, a future adaptation to our protocol would be to have patients receive preoperative and postoperative

education sessions with a stoma nurse or surgical educator. Our Department has recruited a Nurse practitioner who will reach out to patients, families or the facility during the first post-operative week. This additional step will help in the early recognition of signs of dehydration and will decrease the readmission rate and financial burden in long run.

TESTING POSITIVE FOR COVID-19 BEFORE GI PROCEDURES: WHO'S GETTING VACCINATED, AND HOW DOES IT AFFECT OUTCOMES?

eP732

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Purpose/Background: COVID-19 infection is associated with post-operative complications, including mortality. However, vaccination has not had equitable uptake. It is also unknown what effect vaccination has. We aimed to characterize factors associated with pre-operative vaccination (POV), length of stay (LOS), and post-operative mortality (POM) among patients who tested positive for COVID-19 prior to GI procedures.

Methods/Interventions: Patient data was abstracted from the electronic medical record for patients who tested positive for COVID-19 prior to GI procedures (Mar 2020–Dec 2021). This included procedures with GI medicine (GIM) and surgeries with GI surgery (GIS). Patients who received at least one vaccine were considered vaccinated. Patient and procedure factors were analyzed with Chi-square, ANOVA, and multivariable regression to predict POV, LOS, and POM.

Results/Outcome(s): There were 169 patients during this time period who tested positive for COVID-19 prior to their procedure; 110 (65%) had 1+ vaccine, 94 (56%) had 2+ vaccines, and 21 (12%) had 3 vaccines. Mortality was 0% for those with POV and 9.3% for the unvaccinated. Most were GI medicine procedures (n=147, 87%), with few GI surgeries (n=22, 13%). Patients who tested positive for COVID-19 prior to surgery were on average 57 yr old, 57% female, 44% White, 50% Black, and came from high SVI ZIP codes (mean=0.63). Rates of vaccination were similar by specialty (GIS 64%, GIM 65%, p=1). There were no statistically significant associations between patient demographics and POV except for patient sex. Those who were vaccinated at the time of surgery were more likely to be female (65% vs 44%, p=0.02). On multivariable analysis of patient-level factors, POV was associated with Black race (aOR: 2.15, 95% CI:1.05-4.38). Male patients were less likely to have POV (aOR: 0.36, 95% CI:0.18-0.72). Length of stay was increased for those from higher SVI ZIP codes (coeff: 9.73, 95% CI:2.15-17.31) and decreased for those who had POV (coeff: -2.44, 95% CI: -4.73, -0.16). Since there were no mortalities among those who had POV, multivariable analysis of POM was not possible.

Conclusions/Discussion: Vaccination uptake among white male patients is lowest among those who are testing positive for COVID-19 before undergoing surgery. Those who receive pre-operative vaccination have a lower mortality rate. On multivariable analysis, pre-operative vaccination has been found to be protective against longer hospitalizations. Patients from more vulnerable backgrounds are not being vaccinated proportionately and are experiencing worse post-operative outcomes.

INCREASING PREOPERATIVE PHYSICAL ACTIVITY DECREASES LENGTH OF HOSPITAL STAY AMONG PATIENTS UNDERGOING MAJOR ABDOMINAL COLORECTAL SURGERY.

eP733

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Purpose/Background: With the goal of improving perioperative outcomes, we instituted a Surgical Readiness and Recovery Care Plan (SRR) in which patients drink nutritional supplements 5 days before and after surgery and are encouraged to do daily purposeful activity leading up to surgery. Enrolled patients engage with the SRR through our institutional online patient portal. In this study we evaluated the relationship between preoperative physical activity and length of hospital stay among patients who underwent major abdominal colorectal surgery and engaged in SRR.

Methods/Interventions: Adult patients who underwent major abdominal colorectal surgery from 10/2020-9/2022 were included if they engaged with the SRR before surgery. As part of the SRR, patients were instructed to engage in purposeful daily physical activity (self-directed). Engagement was defined as documentation in the online portal of physical activity or drinking nutritional supplements before surgery. 310 patients met criteria. We retrospectively reviewed electronic medical records for demographic and surgical characteristics and postoperative length of hospital stay. Engagement was divided in three categories: 0 or no documented days (Group I), 1-15 days (Group II), or 16 or more days of preoperative physical activity (Group III). Kruskal-Wallis and Chi-square tests were used to compare differences between the three groups.

Results/Outcome(s): The groups were similar in terms of demographics and surgical approach: Group I n= 112: 54.7±15.5 years, 49% female, 24% open, 43% ostomy created, Group II n=110: 56.3±15.3 years, 46% female, 15% open, 54% ostomy created, Group III n=88: 53.3±16.4 years, 50% female, 30% open, 43% ostomy created (p>0.05 for all comparisons). Length of stay was longest in Group I (5.1 ± 3.5 days) compared to Group II (4.8 ± 5.0 days, p=0.03) and Group III (4.1 ± 4.3 days, p=0.03).

Conclusions/Discussion: Patients who did more physical activity as part of a Surgical Readiness and Recovery Care Plan had a statistically significant decrease in length of hospital stay after major abdominal colorectal surgery. This study supports the importance of prehabilitation before major colorectal surgery to improve postoperative recovery. Future work is aimed at evaluating effects of SRR on postoperative complications.

OPIOID PRESCRIBING AND CONSUMPTION AFTER SAME-DAY DISCHARGE FOLLOWING MINIMALLY INVASIVE COLORECTAL SURGERY.

eP734

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Purpose/Background: As enhanced recovery programs continue to evolve, there has been increased interest in same-day discharge (SDD) after minimally invasive (MIS) colorectal surgery. With this approach, multimodal pain management after discharge requires active patient engagement to ensure timely, unsupervised intake of analgesics. However, concerns about SDD failure due to inadequate pain control (i.e., ED visit, readmission) may lead to opioid overprescription and overuse. This is particularly relevant for colorectal patients who are at increased risk of persistent postoperative opioid use compared to other general surgery procedures. This study aimed to assess the extent to which opioids are prescribed and consumed by patients following SDD after MIS colorectal surgery.

Methods/Interventions: We included adults (≥18yo) undergoing MIS colectomy or stoma reversal with SDD at an academic hospital. Patients were eligible for SDD if they had few comorbidities, lived near the hospital, had adequate home support, and owned a mobile device for remote follow-up. Discharge criteria included adequate analgesia with oral medication, tolerance of liquids without nausea, independent ambulation, urination, and absence of complications. Surgical and perioperative care information (including discharge prescriptions) was obtained from electronic medical records. Self-reported opioid consumption was assessed one week after discharge using an electronic questionnaire. We calculated opioid prescription and consumption using morphine milligram equivalents (MMEs). The total amount of opioids prescribed and consumed after discharge was compared using Wilcoxon signed-rank test.

Results/Outcome(s): We analyzed 61 patients (mean age 54, 54% female, 23% stoma reversal, 77% colectomy). Most patients received an intraoperative transversus abdominus plane block (85%). Analgesia prescription at discharge included non-opioids 'around-the-clock' (acetaminophen [98%] and/or NSAIDs [77%; Celecoxib (66%), Ibuprofen (7%), or Naproxen (5%)]) for 5 days at least and opioids 'as needed' (oxycodone [95%], hydromorphone [3%], or morphine [2%]). The quantity of opioids prescribed (median 10 pills [IQR 10-20], 75 MMEs [75-150]) was significantly higher than patient-reported consumption (median 4 pills [IQR 0-7], 22.5 MMEs [0-52.5] ($p<0.001$). Overall, 31% of patients did not consume any opioids post-discharge and 68% of the opioid pills prescribed were not used.

Conclusions/Discussion: This study supports that most opioid pills prescribed after SDD colorectal surgery are not consumed by patients. Our findings are similar to those reported in previous literature focused on inpatient colorectal procedures, suggesting that SDD patients do not have increased analgesia requirements. Post-discharge analgesia with minimal or no opioids may be feasible after SDD colorectal surgery and should be further investigated in future research.

IDENTIFYING PATIENTS FOR SAFE EARLY DISCHARGE FOLLOWING ROBOTIC COLORECTAL RESECTION: CAN C REACTIVE PROTEIN LEVELS HELP?

eP735

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Purpose/Background: Robotic surgery is being increasingly implemented for colorectal resections in both benign and malignant disease. Current enhanced recovery protocols are mainly based on outcomes from laparoscopic surgery and do not factor in the reduced inflammatory response seen in robotic surgery. A recent systematic review cited a postoperative day 3 CRP of 148 mg/L as a cut-off value for anastomotic leak following colorectal surgery. It is difficult to extrapolate these values to patients undergoing robotic colorectal resections where the surgical stress may be less compared to open/laparoscopic surgery. We report our centre's seven-year experience in managing patients undergoing robotic colorectal resections and aim to define cut-offs for inflammatory markers to allow early and safe discharge of these patients.

Methods/Interventions: A retrospective single-centre UK study including patients who underwent robotic colorectal resections with primary anastomosis for benign or malignant pathology from 01/02/2015 to 28/02/2022. Electronic case records were used to obtain patient data. Anastomotic leak was defined as evidence of anastomotic disruption on radiological imaging or on direct visualisation of anastomosis at return to theatre. Serial white cell counts and C-reactive protein (CRP) levels from postoperative day 1 to day 5 were used as surrogate markers for assessing inflammatory response.

Results/Outcome(s): In total, 200 patients (M:F 2:3; median age 63 years (25-88 years)) were included. Most

patients (181; 90.0%) underwent a cancer resection. Both right and left sided resections were included. Overall, 19 patients (9.5%) had an anastomotic leak after anterior resection postoperatively. On multivariate analysis, there was no statistically significant increased risk of anastomotic leak based on patient's age, BMI, and ASA grade. Postoperatively, a higher day 3, 4, and 5 white cell count and CRP were seen in patients with anastomotic leak (Table 1). Radiological drainage was required in 3 (15.8%) patients and 9 patients (47.4%) had an unplanned return to theatre. ROC curve analysis revealed a day 3 CRP of < 95.5 mg/L had a sensitivity of 94.4% in predicting no anastomotic leak with an AUC of 0.842. In our study, 94/200 patients met this cut-off and could have been safely discharged from hospital at day 3. The median length of stay for patients that had no anastomotic complications was 5 days (IQR: 2-40 days) compared to 16 days (IQR: 3-41 days) for those that did.

Conclusions/Discussion: A day 3 CRP of < 95.5 mg/L was found to be a sensitive marker in ruling out anastomotic leak in patients undergoing robotic colorectal resection which is lower than the threshold described in the literature for open/laparoscopic procedures. Enhanced recovery protocols need to be redesigned to factor in the relative reduction in inflammatory response conferred by robotic surgery.

Parameter	Anastomotic leak	No anastomotic leak	Sig
Day 1 CRP (mg/L)	84,90	70,82	,297
Day 2 CRP (mg/L)	174,80	128,90	,124
Day 3 CRP (mg/L)	242,86	130,56	,001
Day 4 CRP (mg/L)	285,70	100,12	<0,001
Day 5 CRP (mg/L)	277,00	73,12	<0,001
Day 1 WCC (x10⁹/L)	11,43	10,74	0,0466
Day 2 WCC (x10⁹/L)	11,82	9,74	0,036
Day 3 WCC (x10⁹/L)	13,30	9,1	0,001
Day 4 WCC (x10⁹/L)	12,41	8,1	<0,001
Day 5 WCC (x10⁹/L)	11,15	7,53	<0,001

Table 1 – Mean inflammatory markers (POD 1 to 5)

Table 1: Mean inflammatory markers (POD 1 to 5)

MORTALITY AND MORBIDITY AFTER ROBOTIC VERSUS LAPAROSCOPIC COLECTOMY: A NSQIP DATABASE ANALYSIS.

eP736

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Purpose/Background: Robotic colectomy has been historically associated with comparable 30-day mortality when compared with laparoscopic colectomy procedures. As robotic adoption has continued to grow with more surgeons having surpassed their learning curve, there is a need for an updated perspective on this comparison. In this study, we provide an updated analysis of perioperative outcomes for robotic versus laparoscopic colectomy procedures.

Methods/Interventions: We analyzed the American Colleges of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) participant user files for all colectomy procedures from 1/2016 though 12/2020 that were performed with minimally invasive surgical techniques (robotics and laparoscopic). Relative risks (RR) through Poisson Regression models were calculated after adjusting for age, gender, body mass index (BMI), presence of diabetes mellitus with and without insulin use, hypertension, emergency status, smoking history, American Society of Anesthesiologists (ASA) scores, use of steroids, mechanical bowel preparation, and history of heart failure.

Results/Outcome(s): Outcomes: Analyzed outcomes include 30-day mortality, 30-day morbidity, conversion rate, hospital length of stay, anastomotic leak, ileus, and operative time. **Results:** Of the 118,927 patients in the minimally invasive cohort, 21,819 cases were robotic and 97,108 cases were laparoscopic. The robotic approach was associated with a significant reduction in 30-day mortality (adjusted RR: 0.53 (95%CI: 0.40-0.64), p<0.001}, 30-day morbidity {adjusted RR: 0.87 (95%CI: 0.83-0.93), p<0.001}, ileus {adjusted RR: 0.80 (95%CI: 0.75-0.84), p<0.001}, and unplanned conversion to open surgery (12.6% vs. 6.1%, p<0.001) when compared to laparoscopy. Robotic approach was also associated with a shorter hospital length of stay by approximately 1 day (p<0.001) despite having a longer operative time (p<0.001) when compared to laparoscopy. There was no statistically significant difference in the incidence of anastomotic leak {adjusted RR:1.05 (95%CI: 0.95-1.17), p = 0.2} between groups.

Conclusions/Discussion: The robotic approach was associated with a significant reduction in 30-day mortality, 30-day morbidity, ileus, hospital length of stay, and conversion rate despite longer operative times when compared to laparoscopy. The data reveal substantial short term gains in postoperative outcomes for colectomy procedures performed with the robotic approach.

SPLENIC INJURY DURING COLONOSCOPY WITH SUCCESSFUL ENDOVASCULAR TREATMENT - CASE REPORT.

eP737

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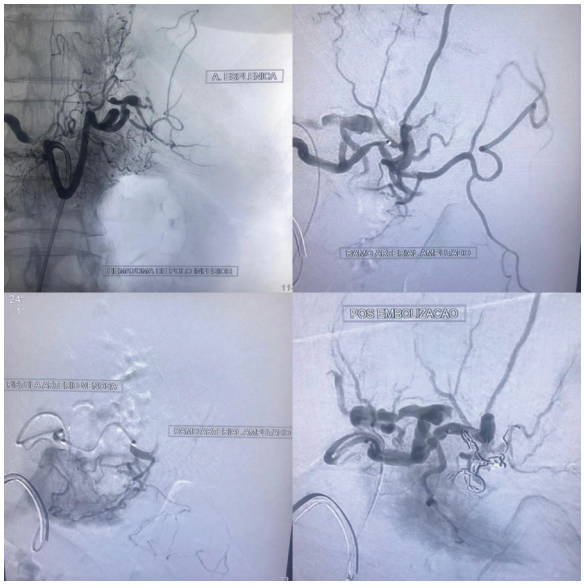
Purpose/Background: Splenic injury during routine colonoscopy is rare event that may lead to significant increase in morbidity and mortality without early recognition and intervention. Recognized risk factors for this complication are female sex and advanced (> 60 years) age. Mortality is around 5 % in this scenario, and a

hemoglobin (Hb) drop greater than 3 points is a predictor of the need for surgical intervention.

Methods/Interventions: case report and brief literature review

Results/Outcome(s): We present the case of a 65 years old female Patient admitted to the Emergency Department complaining of left upper abdominal pain refractory to routine analgesia 6 hours after routine colonoscopy. Patient history was notable for two previous hospitalizations for diverticulitis. Upon admission the patient was pale, dehydrated and upon abdominal examination was presenting defense on palpation. The patient was hemodynamically stable and presented a positive FAST Ultrasound Result. Admission Hemoglobin level was 11.6. A CT scan was performed approximately 8 hours after colonoscopy, demonstrating a Large splenic subcapsular hematoma with signs of active arterial bleeding adjacent to the periphery of the parenchyma in the middle third and lower pole. We decide to perform an endovascular embolization of the splenic artery, successfully performed around 24 hours after the initial procedure. The patient received 3 blood transfusions during the hospital stay, after a control hemoglobin of 7.4, after which she sustained stable hemoglobin level of around 9. The patients was discharged home after 5 days and remains asymptomatic.

Conclusions/Discussion: In this case of splenic lesion during routine colonoscopy procedure, Despite an unfavorable profile for non-operative treatment, due to a high hemoglobin drop, splenic artery embolization had successful results. Early recognition and intervention is key to reducing morbidity and mortality in this scenario.



COMBINED MECHANICAL AND ORAL ANTIBIOTIC BOWEL PREPARATION VERSUS ORAL ANTIBIOTICS ALONE FOR THE REDUCTION OF SURGICAL SITE INFECTION FOLLOWING ELECTIVE COLORECTAL RESECTION.

eP738

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Purpose/Background: Colorectal resections are associated with higher rates of surgical site infections (SSI) than nearly any other gastrointestinal surgery. Many retrospective studies have demonstrated that preoperative polyethylene glycol with oral antibiotics (OA) decrease rates of SSI as compared to no prep or mechanical bowel preparation (MBP) alone. The data comparing MBP with OA versus antibiotics alone is incongruous and limited to retrospective data. Herein, we have performed a randomized controlled, prospective analysis to determine if the addition of a mechanical bowel cleanse to a standard oral antibiotic bowel preparation prior to elective colorectal surgical resection contributes substantially to a decrease in rates of post-operative surgical site infection.

Methods/Interventions: All patients over 18 years of age undergoing elective colon resections were included in the study. Patients were stratified using BMI and diabetic status in randomization. Patients took Neomycin and Metronidazole for antibiotic preparation with or without polyethylene glycol. Primary outcomes of superficial and deep SSI, and anastomotic leak as well as secondary outcomes of Clostridium difficile infection, ileus, cardiopulmonary complications, urinary tract infection, length of stay and mortality were evaluated. Risks and risk differences between treatment groups with 95% upper confidence bounds were also calculated for surgical site infection (SSI) after stratifying for BMI category and diabetes status.

Results/Outcome(s): A total of 144 participants were enrolled. Forty-nine percent (n=70) received OA alone; whereas 51% received a combination MBP+OA. Demographic variables were balanced between the two groups. The observed risk of SSI in the entire study population was 3.37% Risk in OA alone versus the MBP+OA with 4.55% versus 2.94%, respectively. The observed difference in risk of post-operative SSI between the OA and MBP+OA treatment group is 0.016 (1.6%), and we are 95% confident that the true difference in risk is less than or equal to 0.07 (7%). This indicates the potential for a decrease in risk of SSI in the MBP+OA group compared to the OA group, though statistical significance is not being considered. We also found that the rates of adynamic ileus post-operatively were lower in the MBP+OA group, 2.9% versus 10.8%.

Conclusions/Discussion: Our data shows that a mechanical bowel preparation in addition to oral antibiotics has a decreased rate of surgical site infection as compared to oral antibiotics alone. Although our observed risk reduction was only 1.6%, this non-inferiority analysis suggests that the true difference may be as high as 7%. This would suggest that oral antibiotics alone may be associated with increased rates of surgical site infection following elective colon resection and may be associated with increased rates of post operative ileus.

Descriptive Statistics of Post-Operative Data by Treatment Group

	Oral Antibiotics (N=70)	Oral Antibiotics + Mechanical Bowel Prep (N=74)	Total (N=144)
Length of stay (Post-Surgery)	3.9 (2.4)	4.8 (7.7)	4.4 (5.7)
Superficial Surgical Site Infection	2 (3%)	1 (1.5%)	3 (2.2%)
Deep/Organ Space Surgical Site Infection	1 (1.5%)	1 (1.5%)	2 (1.5%)
Anastomotic Leak Surgical Site Infection	2 (3%)	1 (1.5%)	3 (2.2%)
UTI	0 (0%)	4 (5.9%)	4 (3%)
Pneumonia	0 (0%)	0 (0%)	0 (0%)
Sepsis	0 (0%)	2 (2.9%)	2 (1.5%)
Cardiopulmonary Complications	1 (1.5%)	3 (4.4%)	4 (3%)
Clostridium difficile Infection	0 (0%)	0 (0%)	0 (0%)
Adynamic Ileus	7 (10.8%)	2 (2.9%)	9 (6.8%)
Readmission *Missing n=4 ABX, n=6 ABX+prep Frequency(%)*	6 (9.1%)	7 (10.3%)	13 (9.7%)

ISOLATED SYMPTOMATIC BRAIN METASTASIS AS INITIAL PRESENTATION OF A RIGHT COLON CANCER: AN UNUSUAL PRESENTATION.

eP739

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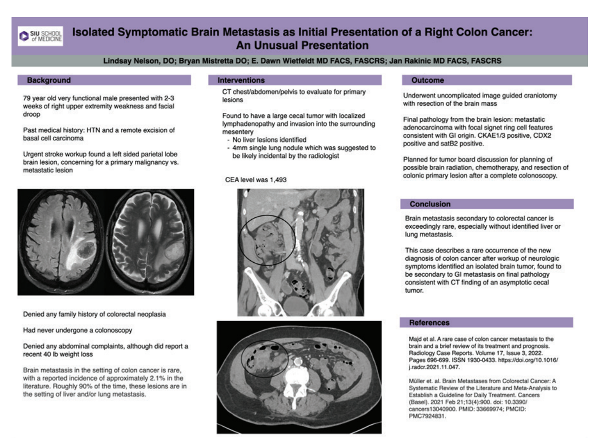
Purpose/Background: Brain metastasis in the setting of colon cancer is rare, with a reported incidence of approximately 2.1% in the literature. Roughly 90% of the time, these lesions are associated with liver and/or lung metastasis. This case describes a 79 year old very functional male who presented with 2-3 weeks of right upper extremity weakness and facial droop. PMH was significant only for HTN and remote excision of basal cell carcinoma. Urgent work up for possible stroke identified a left parietal lobe brain lesion, concerning for a primary malignancy vs. metastatic lesion. He denied any family history of colorectal neoplasia and had never undergone a colonoscopy. He denied abdominal complaints, though did report a recent 40 lb weight loss.

Methods/Interventions: CT of chest/abdomen/pelvis, obtained in attempt to identify a primary lesion which may have led to the brain mass, showed a large cecal tumor with localized lymphadenopathy and invasion into the surrounding mesentery. No liver lesions were identified, and no pulmonary lesions aside from a single 4mm nodule suggested to be likely incidental by the radiologist. CEA level drawn before craniotomy was 1,493.

Results/Outcome(s): The patient underwent an uncomplicated image guided craniotomy with resection of the symptomatic brain mass. Final pathology of the brain lesion was reported as metastatic adenocarcinoma with focal signet ring cell features consistent with GI origin; CKAE1/3 positive, CDX2 positive and satB2 positive. As of this submission, tumor board discussion is pending regarding possible brain radiation, chemotherapy, and resection of colonic primary lesion after a complete colonoscopy is performed.

Conclusions/Discussion: Brain metastasis secondary to colorectal cancer is exceedingly rare, especially in the absence of liver and/or lung metastasis. This case describes a rare occurrence of a new diagnosis of colon cancer after workup of neurologic symptoms identified an isolated brain lesion, which on pathology proved to be a metastasis from an asymptotic cecal tumor. **References:** Majd et al. A rare case of colon cancer metastasis to the brain and a brief review of its treatment and prognosis. Radiology Case Reports. Volume 17, Issue 3, 2022. Pages 696-699. ISSN 1930-0433. https://doi.org/10.1016/j.radcr.2021.11.047. Müller et. al. Brain Metastases from Colorectal Cancer: A Systematic Review of the Literature and Meta-Analysis to Establish a Guideline for Daily Treatment. Cancers (Basel). 2021 Feb 21;13(4):900. doi: 10.3390/cancers13040900. PMID: 33669974; PMCID: PMC7924831.



CELIAC PLEXUS NEUROLYSIS FOR PAIN CONTROL IN STAGE IV COLORECTAL CANCER WITH CARCINOMATOSIS.

eP740

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Purpose/Background: Celiac plexus block (CPB) and neurolysis (CPN) are minimally invasive techniques to block pain signaling through the visceral afferent nerves of the celiac plexus, which transmits pain originating from upper abdominal viscera. It has been utilized for chronic refractory abdominal pain, including both benign conditions such as chronic pancreatitis as well as malignant, such as pancreatic cancer. There is very limited data for its utilization in pain control for carcinomatosis.

Methods/Interventions: A retrospective chart review was performed for this patient presenting with intractable abdominal pain secondary to diffuse carcinomatosis and metastasis from colorectal cancer. Narcotic requirements were examined, including type, amount, and route, and converted to morphine milligram equivalents (MME), both before and after the CPB. SPSS was utilized to do the t-test calculation. $P<0.05$ was considered statistically significant.

Results/Outcome(s): The patient was a 20-year-old male with stage IV rectal cancer with peritoneal implants who had previously undergone diverting ileostomy and rectal stent placement for the obstructing colorectal mass and returned with intractable abdominal pain, nausea, and emesis. His pain was only moderately controlled with hydromorphone patient controlled analgesia (PCA) causing prolonged hospitalization as a result. In the week leading up to the procedure, he required an average of 15.2mg (range 12-23.1mg) of intravenous (IV) hydromorphone daily via the PCA in addition to other narcotics for an average MME of 368 MME per day (range 320-520 MME). After the CPN, he was transitioned to methadone 10 mg three times daily (240 MME) with oral hydromorphone as needed, requiring 253 MME daily (range 240-272 MME). Comparing his pain medication requirement 5 days pre and post-procedure yielded a t-value of 12.05594 and a statistically significant p-value <0.00001. The patient had been admitted for 27 days before CPB and subsequently was able to be discharged 5 days post-procedure with adequate pain control and significantly decreased MME requirements.

Conclusions/Discussion: Patients with advanced metastatic colorectal cancer pose a particular challenge with complex pain management issues. Once oral and IV pain medication have hit a plateau it is imperative to find alternative means of pain management and adjuvants to narcotics. CPB and CPN are established pain management modalities for peripancreatic ailments; therefore, it is not a stretch to utilize the same concepts in colorectal metastatic manifestations causing significant pain. In the case described, many different avenues of pain modalities were tried without success. However, adding the CPB to the multimodal analgesia allowed the patients enough symptomatic relief to allow discharge home after prolonged hospitalization. These results warrant further investigation of its utility in this patient population.

PREDICTING MORTALITY WITH A NOMOGRAM OF HIGH-RISK FEATURES IN STAGE II COLON CANCER.

eP741

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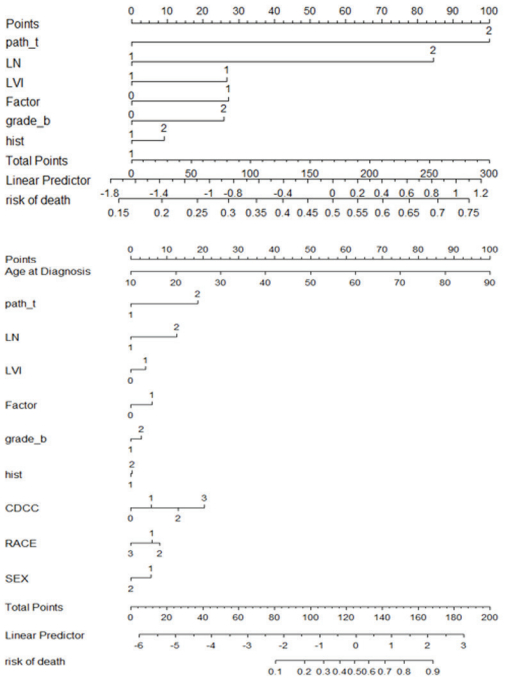
Purpose/Background: The guidelines regarding the use of chemotherapy in stage II patients are less clear-cut than those for stage I, III, or IV. Often the presence or absence of high-risk features (HRF) influence the decision for adjuvant chemotherapy (AC); several studies have variable results regarding outcomes. The purpose of this study was to determine whether a nomogram might guide providers in choosing which patients should receive AC based on the presence of HRF.

Methods/Interventions: The 2019 National Cancer Database (NCDB) was used to isolate stage II colon cancer patients that underwent surgical resection without AC. Patients were excluded if relevant data was missing. Demographic information and histology were also used. Nomograms using HRF alone and HRF with demographic features were created to predict 3-year mortality.

Results/Outcome(s): In the HRF alone nomogram, pathologic T stage and regional lymph node yield were the strongest predictors of mortality. Patients with scores over 160 were noted to have greater than 50% chance of death within 3 years. For example, a patient with a T4 tumor, lymphovascular invasion, and perineural invasion with adequate lymph node yield and favorable grade and histology would have a score of 153 correlating with approximately a 46% chance of mortality. However, this nomogram was noted to have c-statistic of 0.60. Using the nomogram with HRF and demographics, age and Charlson-Deyo Comorbidity Index (CDCI) were the strongest predictors of mortality. Patients with scores over 125 were noted to have greater than 50% chance of death within 3 years. For example, a 70-year old Black male with a CDCI of 1 and the same HRF as above would have about a 48% chance of mortality. This nomogram had a c statistic of 0.73.

Conclusions/Discussion: HRF alone do not adequately predict who may benefit from AC, nor does inclusion of demographics. Further study is needed to better define which stage II colon cancer patients would benefit from AC and improve guidelines.

Figure 1. Nomograms for high-risk features alone and high-risk features with demographics (path_t = T4 Stage, LN = lymph node yield, LVI = lymphovascular invasion, Factor = perineural invasion, grade_b = Grade, hist = histology)



ROBOTIC-ASSISTED MINIMALLY INVASIVE TRANSANAL APPROACH TO RECTOVAGINAL FISTULA REPAIR.

eP742

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Purpose/Background: Recto-vaginal fistula (RVF) is defined as a pathological epithelialized communication between the posterior wall of the vagina and the anterior wall of the rectum through the recto-vaginal septum. RVFs are rare and represent less than 5% of rectal fistulas. Transanal minimally invasive surgery (TAMIS) offers a magnified view of the surgical field, easing dissection of the rectum and vagina.

Methods/Interventions: A 55-year-old female, whose current condition began in December 2020 with straining and tenesmus, bleeding is added during bowel movements, a colonoscopy is performed in which a stenosing sigmoid tumor is detected. The patient presented a rectovaginal fistula after left colectomy and colorectoanastomosis, for which minimally invasive transanal surgery was performed, with primary closure of the fistula, placement of biological mesh and flap advancement. The video shows the steps involved in repairing a rectovaginal fistula: debridement of the fistula tract, primary closure of the tract, placement of biological mesh, flap creation, and mucosal closure.

Results/Outcome(s): Fistula resection can be complex due to scarring, and repair can be compromised by local microvascular injury. Flap repair is a valid option in this type of case. Transanal minimally invasive surgery (TAMIS) offers a magnified view of the surgical field, facilitating dissection of the rectum and vagina. However, moving instruments in a limited space can be a challenge, so the robot-assisted TAMIS (R-TAMIS), combines the benefits of better vision and exposure of TAMIS with the ergonomics and the ability of fine movements. of the robot.

Conclusions/Discussion: R-TAMIS can provide a highly stable platform for local repair and an ideal platform for operating in a microsurgical field where precision is crucial.

TRENDS IN LOCATION OF DEATH IN PATIENTS WITH RECTAL CANCER IN THE UNITED STATES AND ANALYSIS OF CDC WONDER DATABASE.

eP743

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Purpose/Background: The incidence of rectal cancer is a increasing in the United States. For patients with terminal rectal cancer, death in hospice or at home can improve comfort and quality of life. There is a paucity of evidence on the place of death in rectal cancer patients.

Methods/Interventions: We utilized publicly reported data to investigate trends in place of death in patients with rectal cancer. The United States National Center for Health Statistics Wide-Ranging Online Data for Epidemiologic Research platform was used to access mortality data based on death certificates of all mortalities in the United States from 2003-2020. All patients with rectal cancer as the underlying cause of death were included in analyses. Mann Kendall trend test was applied to identify temporal trends. Chi square test was used to investigate associations between categorical variables and place of death.

Results/Outcome(s): There were 175,119 deaths with rectal cancer as the underlying diagnosis during the study period, with an overall rate of 3.12 rectal cancer deaths per 100,000 deaths (95% CI 3.11 - 3.13). From 2003 to 2020 the crude rate increased from 2.94 per 100,000 deaths (95% 2.88 - 3.00) to 3.45 per 100,000 deaths (95% 3.38 - 3.51). Over the study period, 24.4% of deaths occurred in inpatient facilities. 44.8% of patients died at home. 10.2% of participants died in a hospice facility, and 15.1% of deaths were reported in nursing homes/long term care facilities. The percentage of deaths in hospice facilities significantly increased during the study period, with a change in proportion from 0.6% in 2003 to 12.6% in 2020 ($p<0.001$). This was accompanied by an increase in deaths at home from 45.0% in 2003 to 53.8% in 2020 ($p<0.001$) and a decrease in inpatient deaths from 29.7% in 2003 to 18.7% in 2020 ($p<0.001$). A similar proportion of males and females with rectal cancer died in a hospice facility

(10.2% vs 10.2%; p=0.91) or at home (45.7% vs. 43.5%, p<0.001). A similar proportion of white patients died at a hospice facility, compared to all other race groups (10.2% vs. 9.7%, p=0.004). Furthermore, a significantly higher proportion of white patients died at home as compared to non-white individuals (45.7% vs. 39.8%, p<0.001).

Conclusions/Discussion: Most terminally ill rectal cancer patients now die in hospice or at home, a major change over the last twenty years. However, there is a disparity in home deaths based on race. Future research should work to address this disparity, and ensure that end-of-life care is concordant with patient wishes.

SURVIVAL OUTCOME IS THE SAME IN ELDERLY PATIENTS WITH COLORECTAL CANCER WITH PERITONEAL METASTASIS UNDERGOING CYTOREDUCTIVE SURGERY AND HYPERTHERMIC INTRAPERITONEAL CHEMOTHERAPY.

eP744

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Purpose/Background: Colorectal cancer with peritoneal metastasis has a poor prognosis. Aggressive surgical management with cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC) is offered to selected patients. Advanced age is often associated with increased morbidity and mortality for major oncological intraabdominal surgeries as well as increased length of stay. This study investigates the short- and long-term outcomes of patients over the age of 70 undergoing CRS/HIPEC.

Methods/Interventions: A retrospective cohort analysis was performed on a single institution database of CRS/HIPEC patients from January 1996 to March 2022. Patients were categorised by age ≥ 70 or < 70. The primary outcome was long term overall survival (OS). Secondary outcomes included morbidity and mortality (measured by Clavien-Dindo scores), length of stay (LOS), and intensive care unit (ICU) LOS.

Results/Outcome(s): 409 patients were identified; 57 (13.9%) were aged ≥70 and 352 (86.1%) were aged <70. Kaplan-Meier survival curves (figure 1) and Log Rank (Mantel-Cox) analysis out to 10 years showed no significant difference in median OS for those aged ≥70 versus <70, with median OS 22.1 and 21.5 months respectively (p=0.958). Between groups there was no statistically significant difference in gender, peritoneal carcinoma index (median 8 vs. 9, p=0.637), completeness of cytoreduction (median 0 vs. 0, p=0.932), ICU LOS (median 2 vs. 2 days, p=0.217), overall LOS (median 14 vs 15, p=0.229), morbidity or mortality.

Conclusions/Discussion: Equivalent survival as well as other key morbidity outcomes can be achieved with CRS/HIPEC for colorectal cancer in an elderly population. An experienced centre with careful patient selection remains critical.

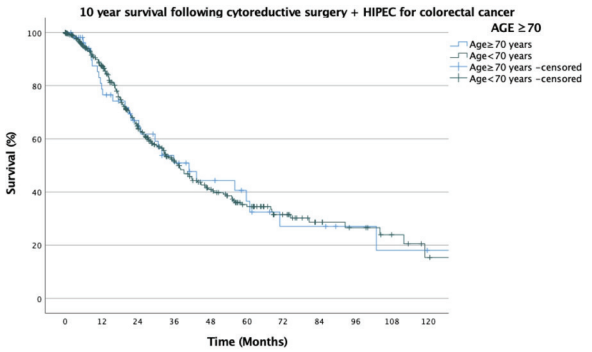

Figure 1. Kaplan Meier survival analysis to 10 years in patients undergoing cytoreductive surgery + HIPEC for colorectal cancer

SINGLE PORT ROBOTIC LOW ANTERIOR RESECTION (SP RLAR).

eP745

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Purpose/Background: This video demonstrates a Single Port (SP) robotic Low Anterior Resection (LAR). The patient presented with T1 rectosigmoid cancer with positive margins after endoscopic resection. The SP robot allows the LAR to be performed safely, with exceptional visualization and precision with dissection and suturing. The patient was discharged home POD3 without any short-term postoperative complications.

Methods/Interventions: N/A - film synopsis in purpose/background

Results/Outcome(s): N/A - film synopsis in purpose/background

Conclusions/Discussion: N/A - film synopsis in purpose/background

STRUCTURED TRAINING CAN IMPROVE THE SURGICAL ACQUISITION OF LATERAL PELVIC NODE DISSECTION: THE KOREAN LATERAL PELVIC NODE STUDY GROUP.

eP746

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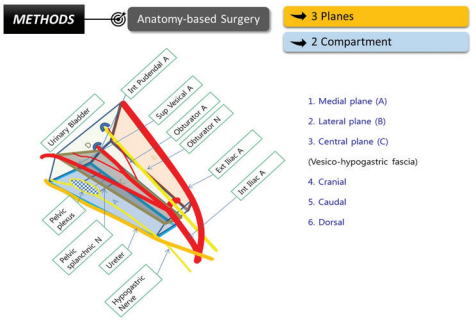
Purpose/Background: Lateral pelvic lymph node dissection (LPND) is recommended in suspicious lateral pelvic node (LPN) metastasis in locally advanced rectal cancer. However, LPND is a technically demanding procedure, and it has only been performed at a few institutions. Therefore, training program might be inevitable. In this study, we describe the consensus about the detailed surgical

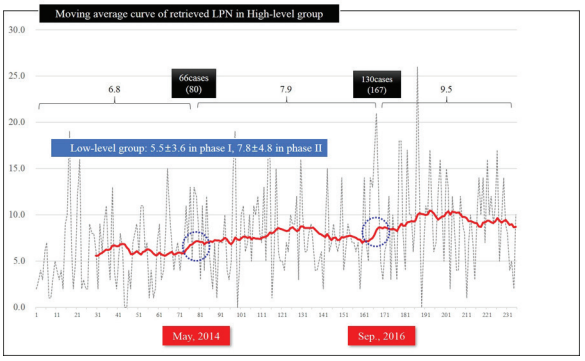
techniques of LPND. We also evaluate the improvement of surgical acquisitions to perform LPND by comparing the surgical outcomes after undergoing the training program.

Methods/Interventions: In 2017, video conferences and cadaver workshops to teach, share, and standardize the LPND techniques were held three times annually. A total of 21 surgeons from eight institutions having different levels of experience of LPND ranged from 2 to 81, including a novice of LPND were included in this study. Patients' characteristics and perioperative and pathologic outcomes were reviewed from 2011 to 2019. Moreover, we divided the phases before and after the first cadaver workshop and defined them as phase I and phase II.

Results/Outcome(s): In total, 315 pelvic sidewall dissections in 259 patients were performed in phase I, and 174 pelvic sidewall dissections in 143 patients were performed in phase II. The number of harvested LPN increased from 6.5±4.0 to 8.5±4.8 (P<0.001) in phase II. The two groups were divided by the level of experience into high- and low-level group. The high-level group was defined as having experiences more than 30 cases of LPND in phase I, and only two experts were included in this group. The number of harvested LPN increased in both the high- and low-level groups, from 6.9±4.2 to 10.3±4.4 in the high-level group (P<0.001) and from 5.5±3.6 to 7.8±4.8 in the low-level group (P<0.001). When the moving average curve of the number of harvested LPN was examined chronologically in the high-level group, two plateaus were identified in 66 and 130 cases. Time taken to reach the first plateau was 3.3 years, and time taken to reach the second plateau after the first plateau was 2.3 years. In comparison, in the low-level group, the number of LPN in phase II was reached to the second plateau of high-level group only after two years. The overall complication rate did not differ between the two phases (34.4% vs. 34.1%). The frequent complication was lymphocele, anastomotic leakage, and urinary problems. There was no injury of the obturator nerve or uncontrolled bleeding after the training program.

Conclusions/Discussion: LPND is a procedure that may follow standardized technical steps by using precise anatomical landmarks after training program, even for inexperienced or novice surgeons. The training program accelerated the surgical ability in performing LPND. We should establish a more structured training system for the complex procedure like LPND.





ROBOTIC APPROACH FOR COLORECTAL ONCOLOGIC RESECTIONS IS ASSOCIATED WITH DECREASED LENGTH OF STAY.

eP747

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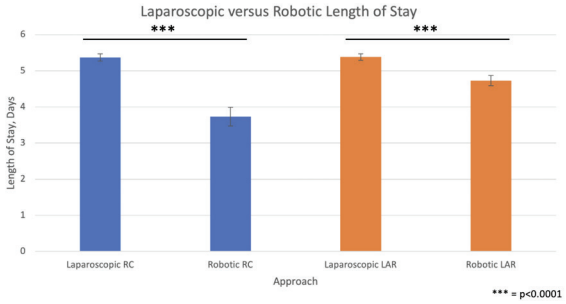
Purpose/Background: To investigate national trends in length of stay (LOS) after minimally invasive right colectomy and proctectomy.

Methods/Interventions: We performed a query of the prospectively maintained NSQIP database, looking at CPT codes for the two most commonly performed robotic colorectal oncologic procedures: right colectomy (RC) and low anterior resection (LAR). Data accrual was from 2013-2020. We hypothesized that LOS would be shorter for robotic as compared to laparoscopic colectomies. SAS was used for statistical analysis.

Results/Outcome(s): From 2013 to 2020, there were 7101 laparoscopic and 1143 robotic RCs performed, and 6466 laparoscopic and 2543 robotic LARs performed. LOS for robotic versus laparoscopic RC was 3.7 ± 9.0 versus 5.4 ± 8.7 days (p<0.0001), respectively. LOS for robotic versus laparoscopic LAR was 4.7 ± 7.3 versus 5.4 ± 7.2 days (p<0.0001), respectively. For RC and LAR patients, those operated on laparoscopically were slightly older (69.1 laparoscopic vs. 67.6 years robotic RC, p<0.0001; 61.6 laparoscopic vs. 59.8 years robotic LAR, p<0.0001). BMI was greater for robotic RCs (29.6 vs. 28.7, p<0.0001), as well as robotic LARs (28.9 vs. 28.5, p<0.0001). Other preoperative variables such as preoperative dialysis use,

renal failure, hypertension, chronic obstructive pulmonary disease, smoking, and congestive heart failure were similar between groups. ASA class was statistically different between groups with 65.9% of laparoscopic RCs versus 66.7% of robotic RCs being ASA-3 or greater (p<0.001), and 55.3% of laparoscopic versus 55.8% of robotic LARs being ASA-3 or greater (p<0.001). There were similar superficial surgical site infection (SSI) rates after robotic or laparoscopic RC (3.8% laparoscopic versus 3% robotic; p=0.17), but more superficial SSIs for laparoscopic LARs as compared to robotic (3.9% vs. 2.3%, p<0.001). Deep SSIs were similar for RCs as well (3.1% robot vs. 3.2% laparoscopic, p=0.29), but were slightly increased for robotic LARs (5.7% vs. 4.2%, p<0.001). There were no significant differences in readmission rates. Other complications rates were either similar or slightly favored robotic resections.

Conclusions/Discussion: According to the NSQIP database, LOS after robotic RC and LAR was significantly decreased compared to laparoscopic LAR and RC, with similar outcomes. Although the decreased LOS for robotic operations could reflect a difference in patient selection, or differences in enhanced recovery pathway implementation, the finding is still hypothesis driving and we feel it reflects something intrinsic to robotic assisted colorectal operations. Integrating robotic surgery in appropriately selected patients could potentially increase inpatient flow and hospital access by decreasing overall postoperative hospital course. A secondary analysis using propensity score weighting to further validate these results is underway.



Length of stay after laparoscopic versus robotic right colectomy (RC) and low anterior resection (LAR). Error bars reflect standard error of the mean (SEM).

CAN POSTOPERATIVE IMMUNOSUPPRESSIVE THERAPY PREVENT THE DEVELOPMENT OF POUCHITIS AND DE NOVO CROHN'S DISEASE AFTER ILEAL POUCH?

eP748

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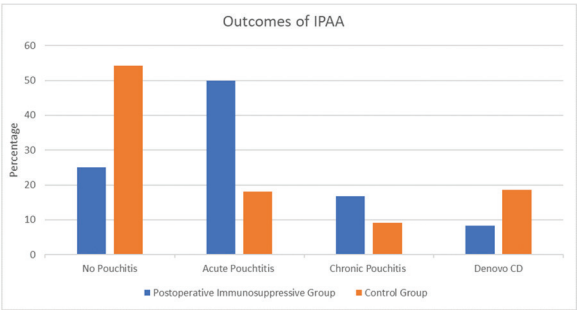
Purpose/Background: Although ileal pouch-anal anastomosis (IPAA) has excellent functional results and high patient satisfaction, the development of pouchitis and denovo Crohn's disease (CD) after surgery remain significant clinical problems. Robust preventative strategies for these inflammatory conditions of the pouch are lacking. Studies have shown that postoperative prophylactic immunosuppressive therapy is effective in preventing endoscopic recurrence of CD after ileocolic resection. This study investigated whether postoperative immunosuppressive therapy given for other autoimmune disorders could influence the development of pouchitis and denovo CD after IPAA.

Methods/Interventions: Charts of consecutive UC or IC patients undergoing IPAA were identified from a prospectively maintained database were reviewed. Patients with a preoperative diagnosis of CD were excluded. Patients were then categorized based on whether they received postoperative immunosuppressive therapy (immunomodulators or biologics) for associated autoimmune disease. Outcomes included acute pouchitis (antibiotic responsive), chronic pouchitis (antibiotic dependent or refractory) or de novo CD (small bowel inflammation above the pouch inlet or pouch fistula).

Results/Outcome(s): The study cohort of 669 patients included 323 (48%) females and had a median age at the time of IPAA of 38 (5-81) years. Twelve (1.8%) patients were continued on postoperative immunosuppressive therapy with immunomodulators using methotrexate (n=2) or biologics using adalimumab (n=5), infliximab (n=3), ustekinumab (n=1) or etanercept (n=1). Indications for postoperative immunosuppressive therapy were rheumatoid arthritis (n=5), psoriasis (n=3), ankylosing spondylitis (n=1) or pyoderma (n=2). No statistically significant differences were noted in baseline patient characteristics between the postoperative immunosuppressive therapy group and control group. After a median follow up of 49 (1-339) months, 125 patients (19%) developed acute pouchitis, 62 patients (9%) developed chronic pouchitis and 123 patients (18%) developed denovo CD. There was a significantly higher rate of acute pouchitis (50% vs 18%; p=0.005) in the postoperative immunosuppressive group (Figure). Median time to acute pouchitis was 13 (1-257) months in the control group compared to that of 27 (11-73) months in the postoperative immunosuppressive group (p=0.22).

Conclusions/Discussion: UC or IC patients maintained on postoperative immunosuppressive therapy appear to have a higher incidence of acute pouchitis after IPAA compared to patients not on therapy. While this observation may reflect a more severe disease phenotype in patients with other autoimmune disorders, it also suggests that immunosuppressive therapy may not prevent the development of inflammatory conditions of the pouch after IPAA.



SETTING THE STAGE FOR SUCCESS IN HIGH-RISK ILEOCOLIC CROHN'S DISEASE: 2-STAGE VS MODIFIED 2-STAGE APPROACHES - IS THERE AN OPTIMAL STRATEGY?

eP749

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Purpose/Background: Optimal management of ileocolic Crohn's disease (CD) in high-risk situations, with malnutrition, penetrating disease, steroid therapy, and urgent/emergent indications, is not well-defined. We aimed to evaluate a subset of patients who received an ileostomy at time of ileocolic resection (ICR) to determine if a 2-stage approach with ileocolic anastomosis and diverting loop ileostomy (ICA-DLI), or a modified 2-stage (m2-stage) ICR with end ileostomy (ICR-EI), was the optimal strategy to reduce complications. We hypothesized ICR-EI, compared to ICA-DLI, was associated with a lower composite anastomotic leak (AL) rate.

Methods/Interventions: We queried our institutional prospective registry for CD patients who underwent ICR with an ileostomy from 1997-2022. For meaningful comparisons patients who did not undergo reversal or had 3-stage operations (n=32) were excluded from analysis. Perioperative variables and 30-day outcomes for both the index resection and subsequent loop ileostomy reversal or end-ileostomy takedown were reported. Our primary outcome was the composite AL rate for each strategy, and the secondary outcome was composite short-term (30-day) post-operative complication rate. All univariate analyses compared the 2-stage vs m2-stage approaches, respectively.

Results/Outcome(s): Over 25-years, 326 patients underwent a 2-stage (271, 83.1%) or m2-stage (55, 16.8%) ICR. Overall median age was 35.4 (IQR 27-49.5). At initial ICR, 2-stage and m2-stage groups had similar (p>0.05) characteristics: steroids (50.5% vs 29.0%), weight loss (16.9% vs 9%), penetrating disease (41.7% vs 23.6%), immunomodulators (20.7% vs 14.5%) and biologics (36.5% vs 18.2%). However, the m2-stage group had more urgent/emergent operations (5.2% vs 17.2%, p<0.01). After initial ICR, both groups had similar rates of readmission (19.2% vs 23.6%, p=0.45), and reoperation (3.0% vs 3.6%, p=0.45). The median time to ileostomy closure was 14 [12.7-18.1] vs 22.8 weeks [15.1-28.0] between groups (p<0.01). In the 2-stage group, the ICA leak rate was 1.8% after ICA-DLI operation, and 0.4% after DLI reversal. In the m2-stage group, the ICA leak rate was 0% following EI reversal. The composite AL rate was 2.2% vs 0% p=0.26, and the composite 30-day complication rate was 59.0% vs 60.0%, p=0.89, in the 2-stage and m2-stage approaches, respectively. The only significant difference was total length of stay 10.1 (8-14) vs. 14 (10-17) p<0.01.

Conclusions/Discussion: In patients with high-risk ileocolic Crohn's disease, overall outcomes between the two approaches were similar, except the modified 2-stage group had a slightly longer time with ileostomy and lengths of stay. In the setting of high-risk presentations, both strategies were safe with low anastomotic leak rates, suggesting either a diverting loop- or end-ileostomy may be considered in patients who are not optimal candidates for a primary ileocolic anastomosis.

Table 1. Combined post-operative outcomes between ICA staged strategies

Variable	2-stage (ICA+DLI and DLI-R) N = 271 (100%)	Modified 2-stage (ICA+EI and EI-R) N = 55 (100%)	p-value
Total LOS*	10.1 [8.0, 14.0]	14.0 [10.0, 17.0]	< 0.01
Any 30 days complications	160 (59.0%)	33 (60.0%)	0.89
Anastomotic leak	6 (2.2%)	0 (0.0%)	0.26
Readmission	66 (24.4%)	17 (27.3%)	0.64
Reoperation	9 (3.3%)	3 (5.5%)	0.44

*median and IQR, DLI-R = Diverting loop ileostomy reversal, EI-R = End ileostomy reversal.

IS A DOUBLE-STAPLED ANASTOMOSIS REALLY BETTER THAN A MUCOSECTOMY WITH HANDSEWN ANASTOMOSIS IN ILEAL POUCH-ANAL ANASTOMOSIS?

eP750

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Purpose/Background: Controversies still exist when comparing quality of life and functional outcomes after mucosectomy with handsewn (HS) anastomosis and double stapling (DS) technique among ulcerative colitis (UC) patients undergoing ileal pouch-anal anastomosis (IPAA). A major factor contributing to this debate has been a lack of expertise in surgeons performing a proper mucosectomy. In this study, we compare bowel, urinary and sexual function as well as the global quality of life of patients undergoing IPAA using a HS or DS technique.

Methods/Interventions: The senior author had exclusively performed an IPAA using a HS technique until January 2012 when he switched to a DS technique. A retrospective analysis of patients who underwent IPAA between August 1993 and April 2022 was performed. The patients filled out five validated questionnaires: Colorectal Functional Outcomes (COREFO), Cleveland Clinic Fecal Incontinence Severity Scoring System (CCIS),

International Prostate Symptom Score (IPSS) for urinary function, Patient-Reported Outcomes Measurement Information System (PROMIS Global-10) for quality of life and the PROMIS Sexual Function and Satisfaction (SexFS). Questionnaire scores were calculated as mean +/- standard deviation (SD) and compared between the HS and DS groups.

Results/Outcome(s): The study cohort of 116 patients underwent either a HS (n=93) or DS (n=23) anastomosis. DS patients were significantly younger than HS patients (31.2 (15.3) yr vs 39.9 (14.1) yr; p=0.02). Mean follow-up was 66.8 (53.7) months in the DS group and 152.6 (80.6) months in the HS group (p<0.01). COREFO total score and sub scores were similar between groups except that DS patients had significantly worse symptoms for social impact (23.3 (19) vs 17.8 (17.5); p=0.005) and stool aspect (28.6 (23) vs 18.8 (15.2); p=0.03). CCIS and IPSS scores were comparable between DS and HS patients (4.1 (3.5) vs 4.6 (4.1); p=0.72) and (6 (6.3) vs 5.6 (6.3); p=0.71), respectively. The PROMIS-10 questionnaire revealed that HS patients had better physical and mental scores (12.5 (2.1) vs 11.7 (2); p=0.04) and (16.1 (3.1) vs 14.3 (3.9); p=0.03), respectively. The two groups had similar SEXFS scores except for erectile function where the DS group performed better (55.7 (0) vs 44.8 (9.1); p=0.02).

Conclusions/Discussion: When performed frequently by an experienced surgeon, HS-IPAA appears to provide a better global quality of life compared to DS-IPAA. There is no statistical difference in urinary or bowel function between HS-IPAA and DS-IPAA. Erectile function appears to be better in DS-IPAA patients than HS-IPAA patients, perhaps reflecting the significantly younger age of the DS patient.

TEMPORARY DIVERTING LOOP JEJUNOSTOMY IN CROHN'S DISEASE: A NECESSARY EVIL OR SAVING GRACE?

eP751

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Purpose/Background: Crohn's disease (CD) patients are prone to surgical recurrence requiring multiple resections and are at increased risk of short-bowel syndrome. Additionally, they often have several risk factors for anastomotic leak. In this setting, a temporary diverting loop jejunostomy (DLJ) may be required as a temporizing measure to facilitate future restoration of intestinal continuity. To date, literature pertaining to perioperative and long-term outcomes following DLJ for CD is lacking. We aimed to describe outcomes in a cohort of CD patients who underwent DLJ

Methods/Interventions: An institutional IBD registry was queried for adult CD patients who underwent DLJ at our institution from 1998-2020; supplementary chart review was then performed. Perioperative (e.g., 30-day complications) and long-term outcomes (e.g., TPN use) are reported using descriptive statistics.

Results/Outcome(s): A total of 122 patients were included. Most were women (62.3%) with a mean age at surgery of 44.8 ± 14.2 years, baseline BMI of 24.0 ± .5 kg/m^2, and a median disease duration of 17.5 [10.0, 28.2] years. Roughly half (45.1%) of patients were on home parenteral nutrition (HPN), and 37.7% had lost >5% of body weight preoperatively. Mean preoperative albumin was 3.1 ± 0.7 mg/dL. The most common reasons for DLJ included poor tissue quality or a history of poor wound healing (34.4%) and malnutrition (31.9%). A large proportion (45.1%) of the index surgeries were emergent, and 43.4% of the DLJ were planned. At the time of surgery, 43.4% of patients were ASA 3. The median estimated blood loss was 250.0 [IQR 100, 338] mL, and the mean operative time was 259.2 ± 122.6 minutes. Fistulas were present in 55.7%, and abscesses in 31.1% of cases. The median length of small bowel remaining postoperatively was 200.0 [IQR 150.0, 296.2] cm and the distance from the LOT to the jejunostomy was 77.5 [IQR 50.0, 84.74] cm. The median post-operative length of stay was 11 [IQR 8, 16] days. Following DLJ, TPN was initiated or maintained in 115 (94.2%) patients, 66 (54.1%) patients experienced any 30-day complication, and 28 (22.9%) required readmission. All patients underwent DLJ closure. After closure, HPN was continued in 62.3%, and then later discontinued within 1 year in 81%. After closure, a total of 38 (31.1%) patients experienced a complication within 30-days, 17 (13.9%) required readmission, and 47 (38.5%) had recurrence of CD within a mean follow-up of 94.3 ±67.5 months. The median LOS was 8.8 [IQR 3, 11] days.

Conclusions/Discussion: In our experience, complex CD patients who are at increased risk of intestinal failure may benefit from temporary diverting loop jejunostomy and home parenteral nutrition until restoration of intestinal continuity.

THE CLINICAL STUDY OF 1470NM LASER FISTULA CLOSURE (FILAC®)IN TREATING CRYPTOGLANDULAR ANAL FISTULA.

eP752

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Purpose/Background: Objective: The purpose of this study was to explore the clinical effect of the 1470nm Laser Fistula Closure (FiLaC®)in treating cryptoglandular anal fistula.

Methods/Interventions: Methods: A total of 150 patients with cryptoglandular anal fistula in Yueyang

Hospital of Integrated Traditional Chinese and Western Medicine affiliated to Shanghai University of Traditional Chinese Medicine were enrolled from September 2017 to December 2019. Patients were divided into laser group (52 cases) and control group (98 cases) according to the operation mode. Demographic, operative,perioperative and postoperative data were collected.

Results/Outcome(s): Results: The cure rates of laser group and control group were 76.9% and 93.9% respectively, with significant statistical difference (P=0.015). The Parks classification, whether the internal opening is at 6 o'clock of the lithotomy position, the number of internal openings, the number of external openings, the treatment of internal opening, the treatment of fistulas and the use of thread drawing operation between the two groups were statistically significant (P<0.05). In the laser group, there was a statistically significant difference in whether the internal opening is in the midline (P<0.05). We included the univariate logistic regression analysis results in the multivariate logistic regression. The result suggested that whether the internal opening is in the midline was an independent risk factor for the recurrence of anal fistula after surgery between the two groups and in the laser group (P=0.018 and P=0.040). The Visual Analog Scale pain score (VAS-PS), the Cleveland Clinic Florida incontinence score (CCF-IS), and the Quality of Life in Patients With Anal Fistula Questionnaire score (QoLAF-QS) of the two groups increased after surgery and gradually decreased with time. The VAS-PS and CCF-IS of the laser group were significantly lower than the control group after surgery (P<0.05), while QoLAF-QS of the laser group was lower than the control group at first, and then higher than the control group over time (P<0.05).

Conclusions/Discussion: Discussion: Although the cure rate of the FiLaC® method is lower than that of traditional method, but it was superior to the traditional method in terms of pain, anal incontinence risk and quality of life after surgery. Therefore, considering the advantages and disadvantages of the two operations, FiLaC® method can be recommended for anal fistula patients whose internalopening is not located in the midline. Due to the limitation of sample size, this study can be screened and further studied according to the results of this study.

Table 1. Demographic and preoperative clinical data between two groups

Data	laser group (53 cases)	control group (120 cases)	Statistical value	*P* value
Sex, n(%)			Z=-2.542	0.011
Male	39(73.5)	73(60.8)		
Female	14(26.5)	47(39.2)		
Age, year [M(P_{25}, P_{75})]	38.7(31,44)	39.1(30.25,45)	Z=-0.307	0.759
BMI, kg/m²[M(P_{25}, P_{75})]	24.6(22.6,26.3)	24.1(22.5,25.6)	Z=0.632	0.527
History of anal fistula surgery, n(%)			Z=-0.122	0.903
YES	4(7.5)	6(5)		
NO	49(92.5)	114(95)		
Surgical history of perianal abscess, n(%)			Z =-0.620	0.535
YES	19(35.8)	44(83.0)		
NO	34(64.2)	76(17.0)		
Duration of disease, month [M(P_{25}, P_{75})]	8.23（1.5,12)	7.51（2,8)	Z=-0.386	0.700

Table 2. Comparison of anal fistula data between two groups

Data	laser group (53 cases)	control group (120 cases)	Statistical value	*P* value
Parks type, n(%)			Z=-0.842	<0.001
Intersphincteric anal fistula	12（22.7)	17（14.4)		
Transsphincteric anal fistula	41（77.3)	103（85.6)		
Length of anal fistula, mm [M(P_{25}, P_{75})]	33.1（28.0,38.8)	31.6(23.7,35.3)	Z=-1.733	0.083
Inside diameter of fistula, mm [M(P_{25}, P_{75})]	3.2（2.8,4.0)	3.4（2.5,4.0)	Z=-1.292	0.196
Whether the internal opening is at 6 o'clock of the lithotomy position, n(%)			Z=-2.144	0.032
YES	14(26.4)	44(36.7)		
NO	39(73.6)	76(63.3)		
Whether the internal opening is at 12 o'clock of the lithotomy position, n(%)			Z=-0.674	0.500
YES	6(11.3)	8(6.7)		
NO	47(88.7)	112(93.3)		
Whether the internal opening is in the midline, n(%)			Z=-1.698	0.090
YES	20(37.7)	52(43.3)		
NO	33(62.3)	68(56.7)		
Number of internal openings, n [M(P_{25}, P_{75})]	1.25(1,1)	1.07(1,1)	Z=-2.528	0.011
Distance between inner mouth and anal margin, cm [M(P_{25}, P_{75})]	33.0(27.5,38.5)	31.5（24,35)	Z=-1.227	0.220
Number of external openings, n [M(P_{25}, P_{75})]	1.27(1,1)	1.13(1,1)	Z=-1.983	0.047
Whether there is blind fistula, n(%)			Z=-0.138	0.890
YES	7(13.2)	14(11.7)		
NO	46(86.8)	106(88.3)		

Table 3. Comparison of intraoperative data of patients between two groups

Data	laser group (53 cases)	control group (120 cases)	Statistical value	*P* value
Treatment method of internal opening, n(%)			χ^2=134.219	<0.001
Suture	16(30.2)	0(0.0)		
Incision	10(18.9)	96(80.0)		
FiLaC®	49(92.5)	0(0.0)		
Treatment method of anal fistula, n(%)			χ^2=122.364	<0.001
Resection	2(3.8)	0(0.0)		
Incision	9(17.0)	96(80.0)		
FiLaC®	50(94.3)	0(0.0)		
Selection of thread drawing for anal fistula, n(%)			χ^2=17.787	0.010*
Tight	2(3.8)	6(5.0)		
Loose	1(1.9)	16(13.3)		

*Fisher exact test

Table 4. Comparison of intraoperative data between cured and relapsed patients in laser group

Data	Cure group (40 cases)	Recurrence group (12 cases)	Statistical value	*P* value
Whether the internal opening is at 6 o'clock of the lithotomy position, n(%)			Z=-1.300	0.194
YES	9(22.5)	5(41.7)		
NO	31(77.5)	7(58.3)		
Whether the internal opening is at 12 o'clock of the lithotomy position, n(%)			Z=-1.648	0.099
YES	3(7.5)	3(25.0)		
NO	37(92.5)	9(75.0)		
Whether the internal opening is in the midline, n(%)			Z=-2.268	0.023
YES	12(30.0)	8(66.7)		
NO	28(70.0)	4(33.3)		
Selection of suture materials for internal opening, n(%)			χ^2=0.762	0.550*
2-0 absorbable suture	2(5.0)	0(0.0)		
3-0 absorbable suture	10(25.0)	4(33.3)		
Power of FiLaC®, W [M(P_{25}, P_{75})]	11.2(12,12)	10.5(7.3,12)	Z=-0.681	0.496
Time of FiLaC®, J [M(P_{25}, P_{75})]	12.0(12.0,12.0)	12.0(8.5,12.0)	Z=-1.229	0.219

*Fisher exact test

Table 5. Multivariate Logistic Regression Analysis of Postoperative Recurrence in two groups

Variable	Regression coefficient	Wald value	OR (95%CI)	*P* value
Whether tight thread drawing is performed	17.524	0	4.081×10^7(--)	0.999
Whether to perform FiLaC®	-1.259	0.313	0.284(--)	0.576
Parks type	0.528	0.343	1.696(--)	0.558
Length of anal fistula	-0.066	2.06	0.936(--)	0.151
Whether the internal opening is in the midline	-1.995	5.558	0.136(--)	0.018
Whether the internal and external opening are at the same point of lithotomy site	0.527	0.472	1.694(--)	0.492
Whether the inner opening is sutured	20.329	0	6.739×10^8(--)	0.999
Whether 3-0 absorbable suture is used to suture the inner opening	-20.629	0	0(--)	0.999
Whether the internal opening is cut open	1.015	0.369	2.759(--)	0.543
Whether FiLaC® is applied to the internal opening	-20.339	0	0(--)	1.000
Whether anal fistula is cut open	19.688	0	3.552×10^8(--)	0.999
Whether FiLaC® is applied to the anal fistula	37.94	0	3.000×10^{16}(--)	0.999

Table 6. Multivariate Logistic Regression Analysis of Postoperative Recurrence in the Laser Group

Variable	Regression coefficient	Wald value	OR (95%CI)	*P* value
Number of fistulas treated	1.198	0.525	3.313(0.13~84.852)	0.469
Whether the internal opening is in the midline	-1.503	4.202	0.223(0.053~0.936)	0.040
Is it a complex anal fistula	0.794	0.217	2.213(0.078~62.694)	0.641

CLINICAL STUDY ON MICROBIAL COMMUNITY CHARACTERISTICS OF TERMINAL INTESTINAL MUCOSA IN PATIENTS WITH COMPLEX ANAL FISTULA.

eP753

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Purpose/Background: To compare the microbial composition and structure of terminal intestinal mucosa between patients with complex anal fistula and normal people.

Methods/Interventions: Ten patients with complex anal fistula from February 2022 to March 2022 were included, and 10 healthy volunteers were recruited. They were divided into the anal fistula group and the control group. Baseline data of the two groups were collected, and mucosal tissue at the anal gland (or internal opening) was collected for 16S rDNA high-throughput sequencing and analysis.

Results/Outcome(s): Alpha and Beta diversity analysis showed that there were significant differences between the two species composition groups, and the evenness of the anal fistula group was significantly lower than that of the control group, while the richness was significantly higher than that of the control group (all $P<0.05$). Through species classification annotation and difference analysis, it was found that there was a significant difference between the two groups ($P<0.05$). The abundance of Fusobacterium mutans in the anal fistula group was 2% higher than that in the control group. Among the top 10 species in the two groups, the Acinetobacter junii in the control group was significantly higher than that in the anal fistula group ($P=0.012$). Compared with KEGG database, there were also significant differences in the predicted function between the two groups. Ethylbenzene degradation, ECM-receptor interaction and Pentose phosphate pathway were mainly enriched in the anal fistula group (all $P<0.05$), And the relative abundance of pentose phosphate pathway in anal fistula group was significantly higher than that in control group ($P<0.05$).

Conclusions/Discussion: This study aims at exploring the tissue morphology and microbial community characteristics of the intestinal terminal mucosa, which has certain value for understanding the pathogenesis of anal fistula, and provides a certain theoretical basis for local microbiota transplantation, local drug treatment and improvement of surgical procedures. It needs further clinical research.

WHEN ENOUGH IS ENOUGH IN THE USE OF MULTIPLE BIOLOGICAL AGENTS FOR ULCERATIVE COLITIS? – A COMPRESENCE OF ELECTIVE SUB-TOTAL COLECTOMY FOR UC AFTER THE FAILURE OF ONE, TWO, THREE, OR FOUR BIOLOGICALS.

eP754

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Purpose/Background: Subtotal colectomy (STC) with end ileostomy (EI) is usually the first surgical stage for patients with ulcerative colitis (UC) that failed medical treatment, most often with biological agents. Is there a difference in surgical outcome after the failure of one or two biologicals vs. three or four?

Methods/Interventions: A retrospective study of all patients that underwent STC with EI for UC (5-2018 to 1-2022). After excluding emergent cases, the elective cohort was divided into patients that failed 1-2 biologicals (group 1-2) vs. patients that failed 3-4 biologicals (group 3-4), and surgical outcomes were compared. Data collected included patients' demographics, preoperative clinical manifestations, operative and postoperative outcomes.

Results/Outcome(s): 98 patients underwent STC and EI for UC, and of them, 53 were elective. 30 patients have failed 1-2 biologics (group 1-2), and 23 failed 3-4 biologics (group 3-4). The groups were fairly similar in average age (37.6±11 vs. 32.7±10), BMI (27±6 vs. 28±7), number of years with UC (9.5±9 vs. 9±8), percentage of patients with preoperative flair (9 (30%) vs. 5 (22%)), number of patients that were steroid dependent (20 (67%) vs. 13 (57%)), average number of bowel movements (BM) per day (9.2±7 vs. 9.3±6), percentage of patients with bloody BM (18 (60%) vs. 18 (78%)) and number of patients that lost >10 Lbs. in the year up to surgery. (8 (27%) vs. 7 (30%)) respectively, as well inflammatory markers and Albumin levels. Laparoscopic or hand assist laparoscopy was used in all patients; all rectal stumps were stapled or over-sewn in the pelvis with no need for added mucus fistulae, and similar operative time of 217±74 vs. 210±79 minutes. The length of hospital stay differed with 3.2±1 days for group 1-2 and 5±6 days for group 3-4. Post-operative complications were seen in 10 patients (33%) vs. 7 patients (30%) ($p=0.82$), and of them 2 (7%) and 2 (9%) ($p=0.82$) had Venous thromboembolism (VTE), respectively. Only 20 patients (67%) in group 1-2 and 16 patients (70%) in group 3-4 ($p=0.82$) have gone to a second stage of an Ileoanal pouch (IPAA) in 11.1 ±4 and 9.2 ±2 months intervals. The overall average follow-up time of 41.1 months.

Conclusions/Discussion: Ulcerative Colitis patients that fail 3-4 biological agents and choose to go to elective STC with EI have very similar surgical outcomes compared to patients that choose elective surgery after failing only 1-2 biologicals in the same time span of known disease. UC

patients with severe colitis and poor quality of life, which failed two lines of biological treatments, may be better off electing surgical treatment than failing more biologics and then going to surgery. On the other hand, patients who try 3-4 biologics and fail may expect no worse surgical outcomes compared to after failing 1-2 biological agents.

IMPACT OF SURGICAL OUTCOMES IN A SAFETY-NET HOSPITAL IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE COMPARED TO A NATIONAL DATABASE.

eP755

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Purpose/Background: Safety-net hospitals serve a high proportion of low socioeconomic patients with limited access. Few studies have examined surgical outcomes in patients with Inflammatory Bowel Disease (IBD) at a safety-net hospital. Our goal was to assess the effect of a safety-net burden on readmissions, re-operations and complications in IBD patients requiring surgery compared to a national database.

Methods/Interventions: We conducted a retrospective chart review of patients with Inflammatory bowel disease (IBD), Crohn's disease or Ulcerative colitis, who underwent surgery between 2015-2019 at a single institution safety-net hospital. A case-matched analysis was performed comparing our cohort to the National Surgical Quality Improvement Program (NSQIP) database. The analysis included patient demographics (age, race, American Society of Anesthesiologists classification and Body mass index (BMI)), preoperative medical therapy, 30-day readmission rates, re-operation rates and surgical site infections. Preoperative medical therapy for both groups included steroids, maintenance and biologic therapy. Chi-Square test and Fisher's exact test were used to compare these patient cohorts.

Results/Outcome(s): A total of 170 patients with IBD who underwent surgery between 2015-2019 were compared to the NSQIP database. There were no statistical differences in age, ASA and BMI among cohorts. There were statistically more patients on preoperative medical therapy in the NSQIP cohort compared to our safety-net hospital. (Table 1) There was no statistical difference in the rate of re-operation ($p=0.32$) when comparing cohorts. There was a statistically significant number of 30 day readmissions and surgical site infections at the safety-net hospital compared to NSQIP database ($p<0.0001$).

Conclusions/Discussion: These data suggest that a safety-net hospital can provide specialty care to IBD patients requiring surgery without an increase in 30 day re-operation rates. Readmission rates and SSIs were significantly higher at this safety net hospital. Future investigations into insurance status, access to medical therapy at this safety-net hospital as well as closer follow up are needed and may improve outcomes.

Table 1: Demographic Information NSQIP versus Safety-net Hospital

	NSQIP (n=15078)	Safety-net Hospital (n=170)	p-values
Age, Median [IQR]	48 [35-61]	40 [29-56]	
Race			
Non-Hispanic White	11384 (76%)	124 (73%)	<0.0001
Black	1177 (8%)	23 (14%)	
Hispanic	545 (4%)	15 (9%)	
ASA			
0-2	7973 (53%)	102 (60%)	0.0643
3-5	7105 (47%)	68 (40%)	
BMI			
Underweight	1556 (10%)	14 (8%)	0.2265
Normal	6563 (44%)	70 (41%)	
Overweight	3879 (26%)	53 (31%)	
Obese I	1817 (12%)	22 (13%)	
Obese II	800 (5%)	7 (4%)	
Obese III	463 (3%)	4 (2%)	
Preoperative medical therapy			
Yes	9994 (66%)	95 (56%)	0.0044
No	5084 (34%)	75 (44%)	

COLONOSCOPIC BOWEL PERFORATION IN INFLAMMATORY BOWEL DISEASE: THE MAYO CLINIC EXPERIENCE.

eP756

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Purpose/Background: Colonoscopic bowel perforations range from 0.01 to 0.3%. Data is scarce and conflicting in patients with inflammatory bowel disease (IBD). The aim of our study was to determine the rate of colonoscopic related bowel perforations in IBD patients and describe short-term outcomes when it occurs.

Methods/Interventions: All patients with IBD who underwent surveillance endoscopy at Mayo Clinic from 2005-2022 were included. Those with colonoscopic related bowel perforation were identified and retrospectively reviewed. Baseline and IBD data at the time of perforation, context, location of the perforation, surgical vs conservative management, and adverse events were recorded. Data among operated versus observed patients were compared through respective contrast hypothesis tests. Data were analyzed in R v4.0 (R Foundation for Statistical Computing; Vienna, Austria).

Results/Outcome(s): 33,805 of 61,338 IBD patients underwent lower endoscopy during the study period. In 58 cases colonoscopic bowel perforation was identified (0.0017%, 95% CI 0.0013% to 0.0022%); 1.7 IBD patients suffered a colonoscopic related bowel perforation per 1000 who underwent lower endoscopy surveillance. The median age was 49 years (range 33.8-64.3), 33 were

female (56.9%), 23 had a diagnosis of ulcerative colitis (39.7%) and 35 Crohn's disease (60.3%), and the median BMI was 24.5 kg/m2 (range 20.9-29.8). In four cases, the IBD-specific treatment at the time of perforation was biologics and systemic corticosteroids (6.9%); in 17, only biologics (29.3%); in 14 only systemic corticosteroids (24.1%), and 23 another treatment (39.7%). The main context of perforation was full thickness biopsy in 31 cases (53.4%), followed by cannulation of the terminal ileum in 9 (15.5%), stricture dilation in 8 (13.8%), and endoscopic mucosal resection in 7 (12.1%). The left colon was the most frequent location of perforation (16 cases / 27.6%), followed by the terminal ileum (15 / 25.9%), and the rectum (12 / 20.7%). In 34 cases (58.6%), surgery was necessary to address the perforation, while the other 24 (41.4%) were treated conservatively. Surgical management was more frequent among patients with lower BMI (p=0.008) with a combination of biologics *and systemic corticosteroids (p=0.016) and when the perforation was due to stricture dilation (p=0.027). In 11/34 (32.4%), total colectomy with end ileostomy was performed. There were no surgery-related adverse events in 24/34 (70.6%). In 10/34, adverse events included intraabdominal infection (7), aspiration during endoscopy (1), ileus (1), and leak of previous repair (1).

Conclusions/Discussion: Despite the increase in lower endoscopic surveillance among patients with IBD, the risk of bowel perforation resulting from colonoscopy remains low.

Table 1. Baseline and Inflammatory Bowel Disease (IBD) data stratified among surgical vs conservative management.

	Total (*N*=58)	Surgery (*n*=34)	Conservative (*n*=24)	*p*-value
Age (years), median (RIC)	49.0 (33.8 - 64.3)	44.0 (31.3 - 57.5)	56.0 (42.8 - 67.3)	0.072
<18 yo	2 (3.4)	2 (5.9)	-	
18-39 yo	17 (29.3)	11 (32.4)	6 (25.0)	
40-64 yo	24 (41.4)	15 (44.1)	9 (37.5)	
≥65 yo	15 (25.9)	6 (17.6)	9 (37.5)	
Sex (female), *n* (%)	33 (56.9)	21 (61.8)	12 (50.0)	0.534
IBD diagnosis, *n* (%)				0.104
Ulcerative colitis	23 (39.7)	10 (29.4)	13 (54.2)	
Crohn's disease	35 (60.3)	24 (70.6)	11 (45.8)	
Body mass index (BMI, kg/m^2), *n* (%)	24.5 (20.9 - 29.8)	22.3 (20.2 - 27.0)	27.5 (24.3 - 32.5)	0.008
Underweight (<18.5)	3 (5.2)	3 (8.8)	-	
Normal range (18.5-24.9)	26 (44.8)	18 (52.9)	8 (33.3)	
Overweight (25-29.9)	14 (24.1)	8 (23.5)	6 (25.0)	
Obese (≥30)	13 (22.4)	5 (14.7)	8 (33.3)	
Missing	2 (3.4%)	-	2 (8.3%)	
IBD-specific treatment, *n* (%)				0.016
Biologics & systemic corticosteroids	4 (6.9)	2 (8.3)	2 (5.9)	
Only biologics	17 (29.3)	4 (16.7)	13 (38.2)	
Only systemic corticosteroids	14 (24.1)	3 (12.5)	11 (32.4)	
Another treatment	23 (39.7)	15 (62.5)	8 (23.5)	
Context of perforation, *n* (%)				0.027
Full thickness Biopsy	31 (53.4)	19 (55.9)	12 (50.0)	
Retroview	1 (1.7)	-	1 (4.2)	
Canulation of terminal ileum	9 (15.5)	3 (8.8)	6 (25.0)	
Stricture dilation	8 (13.8)	8 (23.5)	-	
Endoscopic mucosal resection (EMR)	7 (12.1)	3 (8.8)	4 (16.7)	
Undefined	2 (3.4)	1 (2.9)	1 (4.2)	
Perforation location, *n* (%)				0.519
Terminal ileum	15 (25.9)	11 (32.4)	4 (16.7)	
Right colon	8 (13.8)	6 (17.6)	2 (8.3)	
Left colon	16 (27.6)	7 (20.6)	9 (37.5)	
Rectum	12 (20.7)	7 (20.6)	5 (20.8)	
Undefined	7 (12.1)	3 (8.8)	4 (16.7)	
Time from perforation to treatment (hours), median (RIC)	7.5 (3 - 24)	10 (3.8 - 24)	-	n/a
Length of stay (LOS) after hospital admission due to bowel perforation (days), median (RIC)	4.5 (3 - 8)	6 (4 - 9)	3 (1 - 4.3)	<.001

INCIDENTAL MECKEL'S DIVERTICULUM CONTAINING NEURO-ENDOCRINE TUMOUR IN SURGERY FOR RECTAL CANCER - LEARNING FROM A CASE STUDY.

eP774

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Purpose/Background: Meckel's diverticulum (MD) occurs in 2% of population and is therefore occasionally found incidentally during colorectal surgery. The risk of neoplasia in MD is 0.5%-3%, with most of these being neuro-endocrine tumours (NET). Management of incidentally detected asymptomatic MD is controversial, varying from routine resection to selective resection depending on intraoperative appearance and risk factors. Decision-making can be challenging. We therefore describe our experience and recommendations based on this case study of elective resection of rectal cancer with incidental MD.

Methods/Interventions: A 68y female presented with rectal bleeding and positive stool occult blood test. Past medical history was unremarkable. There were no symptoms of carcinoid syndrome. Investigations revealed a moderately differentiated adenocarcinoma of the upper rectum, mismatch repair proficient, clinical stage cT3b N1b M0 V0 and clear circumferential resection margin. After discussion at the tumour board, she underwent total neoadjuvant treatment, with subsequent imaging showing good response. She then underwent laparoscopic anterior resection and defunctioning loop ileostomy performed by the authors. At laparoscopy, MD was incidentally detected with some irregularity at the tip. Adjacent ileal mesentery showed no suspicious lymph nodes. A laparoscopic anterior resection with total mesorectal excision was performed with end-to-end stapled colorectal anastomosis. The MD was excised with a cuff of normal tissue from the antimesenteric surface of ileum. Loop ileostomy was matured at this enterotomy site.

Results/Outcome(s): Histopathology of the MD specimen showed a 6mm grade-1 NET with an 8mm margin (pT3R0). Rectal histology showed a residual tumour (ypT3 N1a V0 L0 Pn0 R0). The patient had an uneventful recovery. She will be discussed at the NET board and awaits closure of loop ileostomy.

Conclusions/Discussion: MD is the commonest gastrointestinal congenital anomaly. In our patient, this was asymptomatic and detected incidentally intraoperatively. A defunctioning ileostomy was planned preoperatively. Intraoperative decisions were made to (i) Resect the MD as it had an irregular tip; and (ii) Form the ileostomy at the site of the MD excision, which is slightly more proximal than our preferred site of ileostomy. If required, a segmental small bowel resection can be performed at time of ileostomy closure.

QUALITY OF SPECIMENS IN RECTAL CANCER SURGERY: COMPARISON OF ROBOTIC TO TRANSANAL TOTAL MESORECTAL EXCISION.

eP775

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Purpose/Background: Circumferential resection margin (CRM), quality of total mesorectal excision (qTME), and distal resection margin (DRM) are established histopathology metrics in resectable low rectal cancer surgery. The aim of this study was to comparatively evaluate the differences in the above-mentioned metrics between robotic (rTME) and transanal (taTME) TME.

Methods/Interventions: This was a mixed methods design study. RESURRECT (REgistry of robotic SURgery for RECTal cancer) registry provided pooled values for CRM, qTME, and DRM in rTME. A systematic review of the literature of 29 clinical studies provided metrics in taTME. Pooled CRM, qTME, and DRM values were compared using independent samples t-test and Chi-squared tests as appropriate.

Results/Outcome(s): Overall 4,790 subjects were included. 1,884 patients who underwent rTME by eight surgeons were included into the RESURRECT registry. 2,906 patients who underwent taTME were identified by the systematic review. No significant differences were found in baseline patient characteristics as well as peri-operative clinical variables. Mean tumor distance from anal verge did not significantly differ between robotic TME and taTME (5.5 vs. 5.2 cm; p=0.316). Mean CRM was slightly narrower in robotic TME (7.6 vs. 9.3 mm; p=0.075). Mean DRM did not significantly differ (1.8 vs. 1.9 cm; p=0.652). The rate of complete qTME was slightly higher in rTME (87.4% vs. 80.1%; p=0.046).

Conclusions/Discussion: This study found no clinically significant differences in histopathology metrics between rTME and taTME in resectable low rectal cancer.

LOW RECTAL CANCER REQUIRING ELAPE: ONCOLOGICAL RESULTS AND SHORT-TERM RESULTS AFTER PRIMARY CLOSURE OR VY FASCIOCUTANEOUS FLAP RECONSTRUCTION.

eP776

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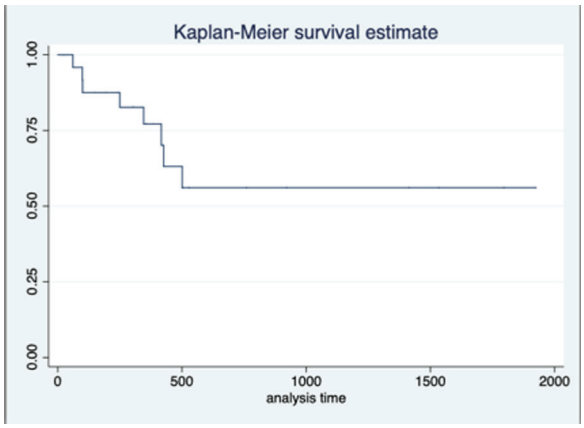
Purpose/Background: In the era of neoadjuvant chemoradiation and total neoadjuvant therapy, the need for an abdominal perineal resection for distal rectal cancers has diminished. Nonetheless, when necessary, extralevator abdominoperineal excision (ELAPE) results in a large perineal defect that needs reconstruction by a flap or biological mesh. Also, the incidence of perineal wound complications is thought to be higher following an ELAPE compared to conventional abdominoperineal excision (APE). This is precisely the reason why we believe that flap-based immediate reconstruction might be the better option in this setting.

Methods/Interventions: This was a retrospective analysis of all consecutive patients who underwent ELAPE procedure in our institution between December 2016 and May 2022 for rectal cancer. We retrieved the demographic data, treatment data, and pathological data from the case records. Reconstruction of the perineal defect after a prone perineal dissection was performed using a local VY fasciocutaneous flap or by primary closure, with or without the use of a mesh. Oncological outcomes, incidence of perineal wound complications, hospital stay and need for reoperation were determined.

Results/Outcome(s): A total of 26 patients underwent ELAPE and 15 (57.7%) were reconstructed with the use of a VY fasciocutaneous flap (unilateral or bilateral). The perineal dissection during ELAPE was done in the supine position as well as primary closure, while flap reconstruction was done in the prone position. Mean operative time was 338 ± 66 minutes and it was longer in the flap group (356 vs 273min; p=0.013). Major perineal wound complications (with need for reoperation) after primary closure were seen in 2 patients after primary closure, and one after flap reconstruction, where a mesh was also used. Minor complications, such as small wound dehiscence were seen in 4 patients after primary closure and 1 patient after flap reconstruction (p=0.022). Length of hospital stay was longer for flap group, with a median of 8 days (range 4-61) vs 4 days (range 3-88); p=0.046. Regarding oncological results, 16/26 patients (61.5%) were stage III or up and in 73.1% the mesorectal fascia was compromised before RT and 69.2% on re-staging MRI. Multivisceral resection to attempt free margins was done in 9 patients (34.6%) and circunferential margins were free in 69.2% of all the pathological specimens. After a median follow up of 357 days (25-1925), 8 patients died; local recurrence occurred in 6 cases (23.1%) and systemic recurrence in 9 (34.6%).

Conclusions/Discussion: In conclusion, although low rectal cancers that will require an ELAPE are generally advanced and have a high recurrence rate, a VY flap reconstruction may help to reduce immediate wound complications. Also, fasciocutaneous flap has the advantage of avoiding functional distress following muscle flaps.



INDICATIONS AND RATIONALE FOR TOTAL NEOADJUVANT TREATMENT IN LOCALLY ADVANCED RECTAL CANCER: A SINGLE-CENTER EXPERIENCE.

eP777

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Purpose/Background: Supported by clinical trials, total neoadjuvant treatment (TNT) has become an integral part of the decision-making in rectal cancer. A variety of TNT regimens exist, and are offered in various settings. While one of the rationales of TNT is the upfront delivery of chemotherapy prior to surgery to treat micrometastatic disease, it is not without toxicity and possibility of overtreatment. We sought to elucidate the institutional rational around choosing a TNT approach.

Methods/Interventions: After institutional board review, all patients with rectal cancer who underwent surgery between 2018-2021 were selected. Patients with treatment for rectosigmoid cancer, synchronous metastatic disease, with a rectal cancer recurrence or a planned watch and wait intent were excluded. Demographic variables, tumor characteristics, tumor board decision and discussion highlights were collected. Postoperative pathologic outcomes were also collected. Univariate regression analyses were performed to compare patients who underwent TNT and those who had other treatment strategies.

Results/Outcome(s): Of 93 patients with primary rectal cancer treated for curative intent, TNT was offered for 16 (17.6%) patients; the majority after 2020 (81%). The mean age of the cohort was 63 years (SD 12.2) and the majority of the patients were male (63.4%). A low anterior resection with a diverting loop ileostomy was the operation most commonly performed (72%), followed by abdominoperineal resection (20%). Patients who were offered TNT were younger (54.5 vs. 64.0 years, p=0.047), had higher burden of nodal disease (N2 disease 50% vs. 15% p=0.008), threatened mesorectal fascia by MRI (67% vs. 38%, p=0.038). The presence of obturator nodes or lateral pelvic sidewall nodes did not alter patients being offered TNT (9% vs 12%, p=0.70), and neither did the presence of extramural vascular invasion (18% vs 21%, p=0.76). There was no difference in planned non-operative management between both groups (18% vs. 12%, p=0.61). Pathologic complete response was identified in a similar proportion of patients in both groups (24% vs. 17%, p=0.68). Long course chemoradiotherapy was the most frequently used neoadjuvant treatment approach (36.3%). This was followed by short course or high dose endorectal brachytherapy (28.6%), and consolidation chemotherapy as part of a TNT approach (13%). Decision-making for TNT was documented as driven by: 1) pandemic related operating room access delays, 2) extramural venous invasion, and 3) advanced nodal disease.

Conclusions/Discussion: We identified an increasing use of TNT approaches at our institition, especially during and after the pandemic. This also coincides with the publication of randomized trials highlighting the role of TNT for patients with locally advanced rectal cancer. Future directions include the identification of predictors of TNT approach, and a change in the type of TNT option offered to patients.

NCDB ANALYSIS OF THE EPIDEMIOLOGIC CHARACTERISTICS AND OUTCOMES OF INTRA-OPERATIVE RADIATION THERAPY (IORT) IN RECTAL CANCER.

eP778

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Purpose/Background: The role of intra-operative radiation (IORT) in patients with locally advanced and recurrent rectal cancer is unclear. There are limited data on the epidemiologic characteristics and outcomes of this patient population. Therefore, we aimed to assess the epidemiologic characteristics and outcomes of rectal cancer patients who underwent surgery with or without IORT.

Methods/Interventions: We retrospectively analyzed the National Cancer Database (NCBD) for patients with clinical stage II-III rectal cancer who underwent surgery with or without IORT from 2004-2019. Variables analyzed included age, sex, race, type of surgery, clinical and pathologic TNM stage, histologic type, and grade. The two groups were matched using propensity score matching with 1:3 ratio. The main outcomes were overall survival, and 30- and 90-day mortality.

Results/Outcome(s): 165 patients underwent surgery for rectal cancer with IORT. The median age for the entire cohort was 59 years. The majority of patients were white (83.3%) males (64.8%) with a moderately differentiated adenocarcinoma (68.1%), with a clinical TNM stage III (46.7%), who underwent an open (81%) low anterior

resection. The overall survival rate was 51.9% and 30-day and 90-day mortality rates were 1.3% and 2.6%, respectively. After matching, 16 patients were included in the IORT group compared to 48 patients treated without intraoperative radiation (control group). Overall survival calculated with a Kaplan Meier Survival Analysis revealed a lower overall survival in the IORT group, however it did not amount to a statistical significance (100.37 vs 92.42 months; p=0.294). Cox regression analysis demonstrated no advantage to IORT (HR 1.55, 95% CI 0.67-3.53; p=0.29). No differences were seen in the secondary outcomes, including 30 (0% vs 0%; p=1) and 90-day mortality (0% vs 4.2%; p=1) and 30 days readmission rates (6.2% vs 10.4%; p=1).

Conclusions/Discussion: The use of IROT in the treatment of rectal cancer may not confer a significant short-term or long-term survival benefit.

OUTCOMES OF ABDOMINOPERINEAL RESECTIONS (APER) FROM A SUBCONTINENT WITH LOW PREVALENCE.

eP779

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Purpose/Background: Rectal cancers (adenocarcinoma) in the Indian subcontinent have a low prevalence but are seen in younger patients with a higher percentage of signet tumors (10 %). The outcomes of these cannot be the same as those from the developed world. We look at the oncological outcomes of APER from a tertiary cancer hospital

Methods/Interventions: A retrospective analysis from a unit colorectal database of patients undergoing Aper. Thus include demographic parameters, grade of tumor, baseline TNM staging with preoperative CRM involvement, and details of neoadjuvant therapy. Approach to surgery with perioperative outcomes and long-term oncological outcomes were also assessed.

Results/Outcome(s): Between June 2010 to July 2022, 953 patients underwent APER. With a median age of 48 years, 70 percent of males with low BMI (median 22.8) and a high percentage of signet ring cancers (10.4%). The preoperative scan revealed 36 % with MRF involved and 9% as T4 cancers, 95 percent Neiadjuvnr chemoradiation with additional chemotherapy in 28 percent 60 percent were performed with either laparoscopic or open approach with ten percent being extended TME and an average blood loss of 500 cc. The MIS approach improved with time, being MIS in 95percent cases in 2022. Operative mortality was 0.5 percent and Grade 3/4 morbidity was around 10 % In terms of Oncological outcomes, pathological T4 tumors wer 50 (5.2%) with TRG 3 or more than 3 in 60 percent cases. The median lymph node harvest was 11 with CRM involvement of 8.2 %. Msi-high tumors were seen in 4 percent of patients (38/ 537). 79 % of patients received adjuvant therapy With a median follow-up of 61 months, 5-year DFS and OS were 59% and 68.3 % respectively. Local recurrences alone were seen in 6.8 percent of Patients with an additional 2.7 percent with combined systemic recurrence Cusum analysis showed These outcomes did not change with experience or time.

Conclusions/Discussion: Outcomes of aper are acceptable in a younger patients group with ten percent signet tumors. Based on 2-year local recurrence rate, Outcomes do not improve beyond a certain point even with experience.

APR

953 patients
June 2010 – July 2022
Adenocarcinoma only

Table 1: Baseline characteristics

Characteristic	N = 953; Median, (IQR)/ Numbers (proportions)
Age	48 (37, 58)
Sex	
male	654 (69%)
female	299 (31%)
ECOG	
0	136 (16%)
1	629 (74%)
2	83 (9.8%)
3	1 (0.1%)
Unknown	104
ASA	
0	2 (0.2%)
1	588 (72%)
2	205 (25%)
3	18 (2.2%)
Unknown	140
BMI	22.8 (20.6, 25.3)
CEA	5 (2, 13)
Histology	
Well Diff.	12 (1.3%)
Mod Diff.	663 (69.6%)
Poorly Diff.	127 (13.3%)
Signet ring cell	99 (10.4%)
Not available	52 (5.5%)
PreopCRM	
free	614 (64%)
Involved	339 (36%)
PreopT	
Tis	1 (0.1%)
T1	10 (1.0%)
T2	69 (7.2%)

COMPARISON OF YOUNG VS OLD RECTUM PATIENTS FROM A SINGLE TERTIARY CANCER CENTRE FOR THE YEAR 2018.

eP781

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Purpose/Background: Cancer in young patients is increasing in number with a significant number of patients present at an early age. The median age of presentation of colorectal cancer in India is 47 years. it is noticed in routine practice that young patients have a higher percentage of signet ring cancer and overall poor survival. For the same purpose, we compared all rectal cancer patients as young vs old with an age cut-off of 45 years, presented to Tata memorial hospital, Mumbai in 2018 with a median follow-up of 47 months.

Methods/Interventions: This is a retrospective audit of prospectively maintained data from a single centre. All patients with a diagnosed case of carcinoma rectum which are registered to our institute are included. Patients are divided into young vs old groups with cut off of 45 years. All patient data were maintained and collected from electronic media records.

Results/Outcome(s): 579 rectal cancer patients were registered in our institution from 1st January 2018 to 31st December 2018. 52 % (299) of patients were less than 45 with a median age of 36 years and 48% (280) of patients were more than 45 years with a median age of 62 years. Both groups have 30 and 32 % of females. There was a significant difference in BMI with the younger patients having lower BMI. Older patients have higher ECOG status which was statistically significant. 28% and 25 % were metastatic at the time of diagnosis in < 45 and > 45-year group respectively. There was significant involvement of the lower rectum in the young patients as compared to older (54 % vs 26 %).25 % of younger patients have signet ring cells as compared to 5.4 % of older patients. There was a significant difference in MRF involvement, T stage and lateral nodes and EMVI in younger patients as compared to older patients. 24 % of the younger patients and 20 % of older patients were treated with palliative intent from the initial assessment. 52 % and 47 % of patients underwent surgery from the young and old groups respectively. Younger patients had higher pT stage and pN2 stage and CRM positivity. Recurrence rate was highr in younger patient (39% vs 31%- p-0.15) .49% Vs 54 % of patients had disease progression or defaulted. Median overall survival was 45 months for young patients as compared to 52 months in the older group which was not statistically significant. Disease-free survival was better in older patients without statistical significance

Conclusions/Discussion: Despite the normal belief, with a higher stage and grade at initial presentation, young rectal cancer patients have comparable survival to older patients.

RAPPORT STUDY: RADIO-PATHOLOGICAL CORRELATION OF POST NEOADJUVANT RESECTIONS OF RECTAL TUMORS.

eP782

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Purpose/Background: About 10% of rectal cancer patients are locally advanced with higher risk for local recurrence after surgery. The long term survival of patients depends on surgical resection with complete tumor clearance with histopathological tumor free margins. Patients with locally advanced rectal carcinoma involving contiguous pelvic organs are considered for either resection of the involved organ alone [extended resection of the rectum (ERR)] or total pelvic exenteration (TPE) to obtain negative margin status. As a consequence, most patients postoperatively have 2 ostomies with significant increase in postoperative morbidity. Pelvic MRI assesses response to Neo-adjuvant therapy (NAT) and determines the extent of surgical resection. However post Therapy MRI can overestimate the disease extent and not very accurate in differentiating residual tumors from treatment related changes

Methods/Interventions: MRI and pathologic data from 30 consecutive patients who underwent neoadjuvant treatment and surgical excision beyond the conventional mesenteric planes were retrospectively analysed. This study aimed to assess the diagnostic accuracy of MRI in determining rectal tumour invasion of anterior pelvic structures and surgical planning by comparing MRI with histological outcomes.

Results/Outcome(s): The male-to-female ratio was 29 : 1; with median age of 41 years (21-63 years). Pre-operative biopsy diagnosis was adenocarcinoma 83% (25/30), adenocarcinoma with signet ring cells 10% (3/30) and signet ring cell carcinoma 7% (2/30) cases. Post therapy tumor regression score was 3/5 in most patients (30 %, 10/30). Nodal metastasis, perineural and lymphovascular invasion was present in 33% (10/20), 23% (7/30) and 10% (3/30) cases respectively. Around 13/30 (43%) cases showed radio-pathological discordance (7 major and 6 minor). The major discordances were due to differences in the extent of tumor on radiology and pathology (7/7) while the minor discordance was due to radiological over-assessment of tumor extent due to presence of acellular mucin and/or

fibrosis on pathology (6/6). The anterior resection margin was free in all the cases but close (less than 1mm) in 5/30 (17 %) cases.

Conclusions/Discussion: The study reiterated that assessing the degree of extramural tumor extension after NAT is challenging. The accuracy of MRI in assessing the post-therapy tumor stage is lower which can lead to over-staging and hence more radical resections.

LAPAROSCOPIC TOTAL PELVIC EXENTERATION FOR LOCALLY ADVANCED RECTAL CANCER: A FEASIBILITY STUDY.

eP783

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Purpose/Background: Beyond-TME procedures are performed for tumors involving contiguous organs which have not responded to neoadiuvant therapy or for recurrent cancers. Unike the developed world, in the absence of screening programmes, beyond-TME procedures are performed for primary tumors in the Indian subcontinent. We assess the feasibility of laparoscopic total pelvic exenteration (TPE) in patients presenting to a tertiary cancer centre

Methods/Interventions: From a prospectively maintained database, data of patients undergoing TPE are obtained. Parameters included were demographics, stage of presentation, type of neoadjuvant therapy, presence of high risk features like EMVI, lateral pelvic lymph nodes or presence of signet cell histology. Operative parameters included conversion to open procedures, duration, blood loss and type of conduit. Perioperative morbidity and pathological outcomes were asssesed.

Results/Outcome(s): Between 2014 and June 2022, 68 lap TPE were performed for patients with a median age of 44 years (range 35-53) predominantly males (88.2%). And included signet cell cancers in 10 (14.7%). Clinically 80.9% patients were T4, with lateral pelvic nodes in 38.3 % and EMVI in 17.6%. Majority received neoadjuvant radiation, with 5.9% patients undergoing upfront surgery. For conduit formation ileum was used for 94.1% cases. Median duration of surgery was 550 min with median blood loss of 800 ml (600-1800). Perineal reconstruction was performed in 75% cases and sphincter preservation rates were 11%. There were 2 conversions. The pathological Circumferential Resection Margin (CRM) involvement was 8.8% with mortality of 2 (2.8%), with grade 3 or more morbidity in 20 patients. Urinary leak was the most common morbidity (6, i.e 8.8%). With a median follow up of 14 months there were 23 recurrences (33.8 percent) with local recurrence of 5.8 %.

Conclusions/Discussion: Laparoscopic Total pelvic Exenteration is technically and oncologically feasible with acceptable outcomes as demonstrated in our study

	N= 68
Age (median, IQR)	44 (35 – 53)
Sex	
Males	60 (88.2%)
Females	9 (11.8%)
Recurrent	1 (2.1%)
Histology	
WD/MD	45 (66.2%)
PD	23 (33.8%)
Signet ring cell cancer	10 (14.7%)
Preoperative diversion	27 (39.7%)
CEA (median, IQR) ng/ml	6.4 (2.7 – 28)
mrT	
T3	13 (19.1%)
T4	55 (80.9%)
mrN	
N0	2 (2,9%)
N1	30 (44.1%)
N2	36 (52.9%)
EMVI	12 (17.6%)
Lateral pelvic nodes	18 (38.3%)
Neoadjuvant	
CTRT	43 (63.2%)
SCRT	21 (30.9%)
Upfront	4 (5.9%)
Consolidation Chemotherapy	40 (59.7.%)
ASA	
1	45 (66.2%)
2	21 (30.9%)
3	2 (2.9%)
LPLND	49 (72.1%)
Urinary conduit	
Ileal	64 (94.1%)
Sigmoid	4 (5.8%)
Perineal reconstruction	50 (73.5%)
Surgical duration (median, IQR) minutes	550 (430 – 650)
Blood loss (median, range) ml	800 (600 – 1800)
Sphincter preservation	8 (11.7%)
pT	
T0	7 (10.3%)
T1	1 (1.4%)
T2	6 (8.8%)
T3	18 (26.5%)
T4	36 (52.9%)
pN	
N0	43 (63.2%)
N positive	25 (36.8%)
pCR	4 (5.9%)
CRM positive	6 (8.8%)
Complications (CDC)	
0	21 (30.9%)
I	10 (14.7%)
II	17 (25%)
IIIA	8 (11.7%)
IIIB	9 (13.2%)
IVA	1 (1.5%)
IVB	0
V	2 (2.9%)
Urinary leak	6 (8.8%)
Abdominal wound infection	1 (1.5%)
Paralytic ileus/Small bowel obstruction	9 (13.2%)
Perineal wound infection	18 (26.5%)
Adjuvant chemotherapy	54 (79.4%)
Urinary strictures	5 (7.3%)
Follow up (median)	14 months
Recurrences	23 (33.8%)
Sites of recurrence	
Local	2 (2.9%)
Distant	14 (20.6%)
Peritoneal	5 (7.4%)
Local + distant	2 (2.9%)
Recurrence Free Survival (median, 2 year)	37 months; 55.5%
Overall Survival (median, 2 year)	NR; 77.1.%

CHRONIC ANAL FISSURE-FIBRITIC CORD IN THE FISSURE-MAIN OBSTACLE FOR TREARMENT.

eP784

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Purpose/Background: Anal fissure is called chronic when it passed 8 wek times after the incidence. It is a deep tear invade to the deeper muscle coat. Per rectal digital finger examination can identified this tract. It is a fibrotic cord. it nevers heals by lateral internal sphincterotomy alone. Associated excision of the fibrotic cord is main part of treatment.

Methods/Interventions: It is a prospective study. Study time is from January 2017 to December 2021. Total case no is 176. All age group are involve. Female are more affected. Neonates and infants also affected but number is few oly 8. Both high and low socioeconomic group people are affected. Main cause is the dietary habit. Hard stool is the main reason. During defaecation this hard stool causes tear in the posterior wall of anal canal. Tear in this area is more. Anterior wall tear is less. Bleeding is nit significant only stsin the stool surface. But pain is tremendous during defaecation. Even so severe that he will ot pass stool 2 or 3 days. That causes further tear in the anal canal mucosa. This repeated tear causes narrowing of the anal canal orifice.

Results/Outcome(s): Examinations are important. Per rectal finger test is always helpful. In acute case this test never done because of severe painful condition. Multiple fissure always indicate there are prevailing of underlying disease like malignant lesion, sexually transmitted inflammatory conditions, inflammatory bowel conditions like chrons disease, ulcerative colitis, tubeoculosis and any traumatic injury. Anoscope is used for the identification of lesion in anal canal. Flexible sigmoidoscope is used when the is below 5o years or less. Colooscope helpful when the is more than 5o years. This two test is done for indentificatio of any colonic disease. Contrast computerized tomography of wholeabdomen always performed in the suspected l intestinal disease. MRI of rectum and anal canal performed for associated any disease in thise area

Conclusions/Discussion: Lateral internalsphincterotomy alaways perfomed with excision of the fibrotic cord in the anal fissure and digital finger dilatation provide best result. Never recurrence happened.

CLINICAL PRESENTATION OF MONKEYPOX AT A SINGLE INSTITUTION: DESCRIPTIVE CASE SERIES.

eP785

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Purpose/Background: Monkeypox infection may have higher prevalence among men who have sex with men. The aim of this study is to describe the clinical features of Monkeypox infection.

Methods/Interventions: This is a descriptive case series of Mokeypox positive cases that presented to George Washington University Hospital and Outpatient Clinic necessitating general or colorectal surgery consult between August and October of 2022.

Results/Outcome(s): Overall five patients are included in the study. Median age is 36 years. All participants are men who have sex with men. 3/5 patients were diagnosed with Monkeypox before their initial presentation to our institution. 80% of the patients required hospital admission. 40% of the patients required >1 admission to our institution or another facility. Median length of stay is 4 days. All patients presented initially with anal pain. 4/5 patients are HIV positive. 75% of HIV positive patients have low CD4 count <100 and history of syphilis. Three patients required examination under anesthesia. One patient returned with acute appendicitis and required laparoscopic appendectomy. The appendix was found to be perforated intraoperatively. All patients received at least one course of Tecovirimat, which is FDA approved for first line treatment of Monkeypox. Patients who required >1 admission and >1 trip to the OR, received two courses of Tecovirimant. 3/5 patients were discharged after clinical improvement of their symptoms, one patient left against medical advice and one patient never required admission. So far, only one patient presented for follow up. He has persistent anal pain and plan is to repeat the exam under anesthesia to rule out possible fistula.

Conclusions/Discussion: Monkeypox anal disease may have higher prevalence in men who have sex with men, and who are HIV positive with low CD4 count. Patients with more than one admission or repeat trips to the operating room may benefit from repeat courses of Tecovirimant. Colorectal and general surgeon should consider testing for Monkeypox when evaluating patients with anal lesion who are HIV positive and men who have sex with men. Further long term data is required to fully evaluate the nature history of the disease.

IMPACT OF PRE-OPERATIVE ANAL PHYSIOLOGY TESTING, ANAL ULTRASONOGRAPHY AND DEFOCOGRAPHY ON OUTCOMES OF PATIENTS WITH SACRAL NEUROMODULATION FOR FECAL INCONTINENCE INCONTINENCE.

eP787

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Purpose/Background: Sacral neuromodulation (SNM) has become the standard technique for refractory fecal incontinence (FI). It is unclear which patients may most benefit from SNM and there is no consensus as to the required preoperative work-up. Currently, the best predictor of success is the patient's response to test stimulation, leading an increasing number of surgeons to abandon further preoperative anorectal testing for SNM placement. This study aimed to investigate the impact of preoperative anorectal manometry (AM), electromyography (EMG), anal ultrasonography (AUS), and defecography (DG) on outcomes after SNM for FI.

Methods/Interventions: This was a retrospective cohort study of consecutive patients with fecal incontinence (FI)

who underwent SNM from 2012-2020. Cleveland Clinic Fecal Incontinence Score (CCF-FIS) was used to assess postoperative FI severity. Patients were divided into two groups: those who underwent at least one modality of preoperative testing (POP) and those who did not undergo any preoperative testing (NPOP). Subgroup analysis in the POP group compared those who had normal versus abnormal findings. Success rate was determined as ≥50% improvement in CCF-FIS.

Results/Outcome(s): Our cohort included 106 patients (92.5% female), with a mean age of 61.7 years (SD±14.13) and mean BMI 26.1 kg/m2 (SD±5.36). Five (4.8%) were tobacco users, 10 (9.4%) had diabetes and 29 (27.4%) had some form of neurologic disease. 14 (13.3%) and 12 (11.4%) patients had a prior history of spine surgery and pelvic radiation, respectively. Median preoperative CCF-FIS was 18 (15-20), 4 (3-85), 5 (1-9) and 10 (4-15) at 6, 12 and at last follow up at 49 months (12-74), respectively. % reduction in CCF-FIS at last follow up was 52%. Overall success rate was 55.7%. 84 (79.2%) patients underwent at least one modality of preoperative testing (POP group); 22 patients (20.8%) did not (NPOP group). Success rates and median % reduction in CCF-FISfor each modality, when performed, is shown in **Table 1A.** In the POP group, comparison of outcomes between patients with normal and abnormal tests did not show statistical significance (**Table 1B).** The 30-day complication rate was 36.4% and 63.6%, redo SNM rate was 5.9% and 94.1%, and device explanation rate within 30 days was 4.2% and 95.8% for POP and NPOP, respectively.

Conclusions/Discussion: Owing to the small sample size, our study did not detect statistically significant disparities on outcomes of patients who underwent SNM for FI who underwent preoperative AM, EMG, AUS, and DG compared to patients who did not. There was no detectable impact on success rates or % reduction in the CCF-FIS for patients with normal versus those with abnormal test results in the POP group. Although not statistically significant, the 30-day complication rate, redo SNM, and 30-day explantation rates were substantially higher and more clinically relevant.

Table 1A

Test Modality		Abnormal	Normal	Not performed	p value
Anal Manometry					
	Success (%)	30 (53.6)	8 (80.0)	21 (52.5)	0.26
	Median pre-op CCF-FIS	18 (15-20)	15 (14-16.7)	18 (15-20)	0.08
	Median CCF-FIS at last follow-up	10 (4-15)	5 (3-12)	10 (4-15)	0.6
	Median % reduction in CCF-FIS	50 (14-92)	91 (74-100)	50 (11-80)	0.15
EMG					
	Success (%)	27 (47.4)	14 (73.7)	18 (60.0)	0.11
	Median pre-op CCF-FIS	17 (14-20)	18 (14.5-20)	18 (15.25-20)	0.49
	Median CCF-FIS at last follow-up	10 (4-15)	7 (3-11.5)	10 (5.5-15)	0.48
	Median % reduction in CCF-FIS	42 (11-80)	79 (38-100)	52 (19-98)	0.16
PNTML					
	Success (%)	13 (44.8)	21 (55.3)	25 (64.1)	0.28
	Median pre-op CCF-FIS	17 (14-18)	18 (15-20)	18 (15-20)	0.32
	Median CCF-FIS at last follow-up	9.50 (4-13.2)	9.50 (4-15)	10 (5.50, 15.00)	0.61
	Median % reduction CCF-FIS	41 (11- 75)	53 (12-83)	60 (21-100)	0.47
Anal Ultrasound		Sphincter defect	No defect	Not performed	
	Success (%)	24 (51.1)	16 (59.3)	19 (59.4)	0.7
	Median pre-op CCF-FIS	18 (14-20)	18 (15-20)	17 (15-19.25)	0.82
	Median CCF-FIS at last follow-up	6 (3.15)	10 (4-12)	12.5 (6-5.25)	0.47
	Median % reduction in CCF-FIS	71 (16-88)	50 (19-80)	58 (11-100)	0.65
Defecography					
	Success (%)	9 (38.1)	7 (63.6)	19 (59.4)	0.19
	Median pre-op CCF-FIS	18 (14-20)	16 (14.5-18)	17 (15-18.2)	0.27
	Median CCF-FIS at last follow-up	12 (5.75-16)	7 (3.7-12.7)	12.50 (6-15.2)	0.38
	Median % reduction in CCF-FIS	38 (3-81)	75 (33-95)	58 (11-100)	0.29

Table 1B

Test Modality		Abnormal	Normal	p value
Anal Manometry				
	Success (%)	30 (53.6)	8 (80.0)	0.17
	Median pre-op CCF-FIS	18 (15-20)	15 (14-16.7)	0.03
	Median CCF-FIS at last follow-up	10 (4-15)	5 (3-12)	0.58
	Median % reduction in CCF-FIS	50 (14-92)	91 (74-100)	0.12
EMG				
	Success (%)	27 (47.4)	14 (73.7)	0.06
	Median pre-op CCF-FIS	17 (14-20)	18 (14.5-20)	0.61
	Median CCF-FIS at last follow-up	10 (4-15)	7 (3-11.5)	0.42
	Median % reduction in CCF-FIS	42 (11-80)	79 (38-100)	0.06
PNTML				
	Success (%)	13 (44.8)	21 (55.3)	0.46
	Median pre-op CCF-FIS	17 (14-18)	18 (15-20)	0.26
	Median CCF-FIS at last follow-up	9.50 (4-13.2)	9.50 (4-15)	0.6
	Median % reduction in CCF-FIS	41 (11-75)	53 (12-83)	0.69
Anal Ultrasound		Sphincter defect	No sphincter defect	
	Success (%)	24 (51.1)	16 (59.3)	0.63
	Median pre-op CCF-FIS	18 (14-20)	18 (15-20)	0.7
	Median CCF-FIS at last follow-up	6 (3.15)	10 (4-12)	0.75
	Median % reduction in CCF-FIS	71 (16-88)	50 (19-80)	0.38

Table 1A. Success rates and CCF-FIS outcomes for each preoperative test modality when performed or not. PNTML: Pudendal Nerve Terminal Motor Latency; EMG: electromyography. Table 1B: Success rates and CCF-FIS outcomes for abnormal and normal preoperative test results for each modality. PNTML: Pudendal Nerve Terminal Motor Latency; EMG: electromyography

THE USE OF CORE DESCRIPTORS FROM THE ENIGMA CODE STUDY IN RECENT LITERATURE.

eP788

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Purpose/Background: Heterogeneity and variable data quality complicate extrapolation of data regarding anal fistulas in Crohn's disease (CAF). The ENiGMA collaborators established core outcomes and descriptors to better standardize reporting of CAF. It is unclear to what extent the core descriptors have been used in existing studies of CAF. Our objective was to evaluate the use of these descriptors in recent literature.

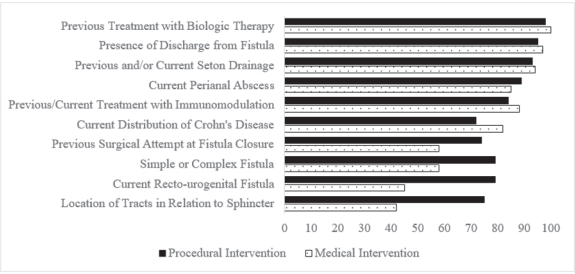
Methods/Interventions: We completed a systematic review using Covidence (Veritas Health Information, Melbourne, Australia) extracting publications from PubMed and the Cochrane library (including retrospective studies, case series, and prospective trials) from the past 10 years specific to the clinical interventions and outcomes of CAF. Each article was assessed for inclusion of ENiGMA descriptors. The median number of criteria per publication was evaluated in addition to the overall frequency

of each individual descriptor throughout the studies. Use of ENiGMA descriptors was compared between medical and procedural publications using the Wilcoxon Mann Whitney test and Fisher's exact test.

Results/Outcome(s): Ninety publications were extracted. The median number of descriptors was 15. Descriptors were more frequently used in procedural publications (n = 16) than medical publications (n = 14) (p = 0.031). The ten most frequently used descriptors included Previous Treatment with Biological Therapy, Presence of Discharge from Fistula and Previous and/or Current Seton Drainage (Figure 1). Sixteen distinct descriptors were used in over half of publications while 17 others were used in less than a third. The least commonly used descriptors included Fistula Quality of Life Descriptor (1%), Psychological Impact of Living with CAF (2%), and Previous Recto-urogenital Fistula (2%). Medical and procedural publications tended to use different descriptors. In procedural publications Faecal Incontinence (p = 0.004), Total Number of Internal Openings (p = 0.019), Number of Previous Fistula Interventions (p = 0.002), Presence and Severity of Ano-rectal Stenosis (p = 0.015), Current Proctitis (p = 0.016), Current Recto-urogenital Fistula (p = 0.002), Location of Tracts in Relation to Sphincter (p = 0.003), and Recurrent Fistulae (p = 0.012) were more commonly described. Medical publications were more likely to include the descriptors of Previous Response to Biologic Therapy (p < 0.001) and Duration and Type of Current Course of Biological Therapy (p < 0.001).

Conclusions/Discussion: Fewer than half of the 37 descriptors were frequently used in studies regarding CAF with different descriptors used in procedural versus medical interventions. With many descriptors used less than a third of the time, the colorectal community should determine the necessity of all 37 descriptors and commit to either inclusion or elimination.

Figure 1. Frequency (%) of the most commonly used descriptors based on type of intervention (medical versus procedural)



COMPLEX ANAL FISTULA TREATMENT USING A PLUG OF NOT CROSS-LINKED ACELLULAR DERMAL MATRIX IN A COUNTY HOSPITAL.

eP789

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Purpose/Background: Surgical treatment of complex anal fistula is controversial and the main objective is remove the fistula and its symptoms, prevent recurrence and preserve the function of the anal sphincter. The probability of recurrence and/or complications is bigger in complex fistulas than in simple ones. Therefore, there are different options of treatment, some technically complicated and not available in all hospitals. The aim of the study is to analyze the results in complex anal fistula treatment using Pressfit®, in our experience.

Methods/Interventions: Retrospective study of case series treated with Pressfit® between 2016 and 2022. 17 surgical procedures were performed in 15 patients (9 men and 6 women). Recurrence was defined as the symptomatic suppuration referred by patient from 3 months in the postoperative. All procedures were performed by outpatient surgery.

Results/Outcome(s): At first, from 15 procedures, we got successful results in 7 patients (46.6%) and unsuccessful results in 8 patients (53.3%): 40% (6 patients) with recurrence and 13.3% (2 patients) with technical problems (migration of the plug). We performed re-Pressfit® in 2 cases (1 migration and 1 recurrence) with successful results in both patients. Overall we got 9 patients (60%) without fistula and it is persisting in 5 patients (33.3%). 1 more patient (6.6%) reached healing after recurrence with another procedure. No patients presented any change in anal continence after this surgery.

Conclusions/Discussion: Complex anal fistula surgical treatment using Pressfit®, well indicated and if it is necessary, is a useful technique, reliable and safe, with acceptable results compared to another complex techniques and, in our experience, there is no increasing morbidity, preserves anal sphincter function and its possible to repeat the procedure in case of recurrence or migration of the plug.

BILOBED TRANSPOSITION FLAP AND PILONIDAL DISEASE: ANOTHER NOVEL APPROACH FOR COMPLEX CLOSURE.

eP790

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Purpose/Background: Pilonidal disease is a benign disease with high incidence of recurrence after surgery. Several flap techniques have been described for closure of complex pilonidal disease with variable success and wound dehiscence rate especially at edges. We present a case of a

complex recurrent pilonidal disease that was satisfactorily managed with a unique off midline bilobed surgical flap reconstruction technique.

Methods/Interventions: A 26 year old male presented with chronic recurrent pilonidal disease affecting his quality of life. Examination showed pilonidal disease at the natal cleft extending towards the right side with several chronic sinuses almost 12 cm length and 6 cm wide. Conservative and surgical management options were discussed in detail including postoperative complications such as delayed wound healing. Patient underwent ambulatory surgery in a prone jackknife position under general anesthesia along with long acting local anesthesia for post-operative analgesia. The pilonidal disease area was marked and excised to get clean margins and deep close to sacral fascia until no residual disease was visible using methylene blue staining. A large defect of 13 x 8cm was left after excision. A bilobed flap was fashioned in a way that first lobe was marked directly to the right side of defect, almost 80 % of diameter of defect. The second lobe was marked immediately adjacent to the first lobe, in half past 1 o'clock position, 45 degrees off of the vertical axis and half of first lobe diameter. A hat added to flap to keep edges round creating less chance of dehiscence and more vascularity to flap. The wide undermining done and first lobe was transpositioned to cover primary defect and sutured in place in layers with 3-0 vicryl with the first layer between presacral fascia and flap base to keep the tension off. The second lobe was transpositioned to cover the defect of the first lobe in the same manner. Skin closed with V-loc 2-0 suture in subcuticular fashion. A high viscosity tissue adhesive glue applied over the wound.

Results/Outcome(s): Patient was followed up for 3 months after surgery. No interval infection nor wound dehiscence reported. Crescentic wound edges healed nicely without any local dehiscence. He reported adequate satisfaction with surgery. Patients advised to continue with the local hygiene regine and hair loss shaving cream on a regular basis.

Conclusions/Discussion: Complex recurrent pilonidal disease is benign disease with high recurrence rate and mostly treated with limberg or karydakis flap with variable success rate and almost always have edge dehiscence in short term recovery period. We report a successful bilobed transposition flap reconstruction for complex pilonidal disease with no wound dehiscence at edges during recovery. This is a novel alternative type of flap for this disease that can be considered in selective cases. The avoidance of sharp edges in this flap decreases the risk of wound dehiscence.

POST-HEMORRHOIDECTOMY OPIOID PRESCRIBING PRACTICES.

eP791

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Purpose/Background: Hemorrhoidectomy is one of the oldest and most common anorectal procedures. Given the push to move simple anorectal procedures like hemorrhoidectomy to outpatient only, post-operative analgesia is exceedingly important. Narcotics are commonly prescribed for this purpose. Previous studies have demonstrated 17.1-33% of patients needing a refill. However, the opioid epidemic has increased scrutiny on post-operative prescribing practices. Although there is no specific recommendation for hemorrhoidectomy, the evidence-based prescribing recommendations from the Michigan Opioid Prescribing Engagement Network (MOPEN) recommends 0-5 tablets of 5mg oxycodone (37.5 MME's) for a transanal resection of a rectal tumor, which is likely comparable. Given this guidance, we sought to examine a single institution's experience with hemorrhoidectomy narcotic prescribing practices.

Methods/Interventions: The electronic health record of a single-state health system was queried for hemorrhoidectomy CPT codes from 11/2021 to 10/2022. Retrospective chart review was conducted for basic demographics, operative variables, and pain control variables including pre-operative narcotic use, post-operative narcotics refill, and total morphine milligram equivalents (MME) for both. A statewide database that tracks controlled substance prescriptions by patient, was used to verify narcotics prescriptions. Median with interquartile range were used when appropriate. Chi-squared test and t-test were used for comparison.

Results/Outcome(s): There were 110 total patients in the cohort with an average age of 52, 57% (62) female, and 79% (87) white. A total of 15% of patients (16) were taking narcotics prior to their hemorrhoidectomy with an average pre-operative daily MME of 28.5. In regards to pain management, Exparel (bupivicane liposome) was administered to 47% of patients. Total discharge MME's were 60 [45-100]. Twenty-five patients received a medication refill with a total refill MME's of 90 [60-201]. Of those who received a refill, 28% (7) were taking a pre-operative narcotic with an average of 21 daily MME's and 48% (12, p = 0.93) received Exparel intra-operatively. There was no statistical difference between the discharge MME's of patients who did not and did receive a refill (72.7 vs 72.2, p=0.97). Out of 110 patients, 20 (18%) received less than or equal to the recommended MOPEN amount. There was no statistical difference in age, gender, or refills between those who received over the recommended amount.

Conclusions/Discussion: Patients are being prescribed twice the recommended amount at discharge and three times the amount when refilled. Only 25% of patients who received refills were chronic users. Previous literature has shown a reduction in opioid consumption with pudendal block, but less so with perianal anesthesia. There was no statistical difference in our study between patients who received a pudendal block or perianal anesthesia with Exparel and those who received refills.

OUTCOMES OF CO2 WAVEGUIDE-DIRECTED LASER ABLATION FOR THE TREATMENT OF COMPLEX ANAL FISTULAS.

eP792

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Purpose/Background: The surgical treatment of complex anal fistulas remains challenging. CO2 laser ablation presents the potential advantage of reduced tissue penetration, and reduced risk of sphincter injury, when compared to other laser delivery systems.

Methods/Interventions: Patients with complex fistulas underwent CO2 waveguide-directed laser ablation of complex anal fistulas, and were followed for a period of one year. Subjects with inflammatory bowel disease or fistula related to known malignancy were excluded. Follow-up occurred at 3 weeks, 6 weeks, 3 months, 6 months and patients received a telephone call 12 months post-operatively. Healing status was determined based on physical exam and self-report of peri-anal symptoms including pain, swelling and drainage. An intention-to-treat analysis was performed for patients who were taken out of study due to persistent symptoms and/or required another procedure during the study period.

Results/Outcome(s): A total of 29 patients were enrolled in the study. Subjects were primarily male (n=18, 62%), non-Hispanic (n=25, 86.2%), Caucasian (n=20, 69%) with a median age of 43 (IQR 35-57) years. All fistulas were trans-sphincteric, with a median length of 30 (IQR 25-45) mm. Two patients were lost to follow-up at the 3-month timepoint, and 6 patients were taken out of the study as they required an additional procedure for symptom control. A total of 12 (44%) patients were found to be completely healed at 6 months, and 11 (39%) were found to be healed at 1 year. There were no post-operative complications, including sphincter injury, throughout the study period.

Conclusions/Discussion: Modest healing rates were observed with CO2 laser ablation for the treatment of complex anal fistulas. This study was limited by a small sample size. Thus, larger studies are warranted to investigate the use of this technology, given its added benefit of limited damage to surrounding tissues, including the sphincter complex.

INDOCYANINE GREEN GUIDED SENTINEL LYMPH NODE BIOPSY IN COLON CANCER: A PROSPECTIVE STUDY.

eP793

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Purpose/Background: Indocyanine green (ICG) dye guided Near Infrared fluorescence imaging is a promising tool for sentinel lymph node (SLN) identification in colon cancer. The aim of this study was to evaluate the role of intraoperative Near infrared (NIR) ICG guided SLN biopsy in colon cancer.

Methods/Interventions: Forty eight patients of clinically staged T1-T3 node negative colon cancer underwent laparoscopic/open resection from June, 2020 to June, 2022. Patients received colonoscopic peritumoral submucosal ICG injections for laparoscopic cases (n=32) and subserosal injections for open cases (n=16) followed by detection of SLN using NIR camera. SLNs underwent conventional hematoxylin and eosin staging with additional serial sectioning and immunohistochemistry for Pancytokeratin (ultra-staging) for node negative patients on conventional histopathology. Detection rate and upstaging rate were the primary end points.

Results/Outcome(s): Forty eight patients with mean age of 60.2 ± 11.7 years, mean BMI of 25.4 ± 4.29 were recruited. An average of 2.08 ± 1.27 SLN were identified in 45 patients at mean time of 8.2 ± 3.68 minutes with detection rate of 93.75 %. Eighteen patients had node positive disease and SLN was false negative in 4 of these patients resulting in a sensitivity of 77.77 %. The negative predictive value (NPV) and accuracy of the procedure was 87.09 % and 91.11 % respectively. Aberrant lymph node

drainage was identified 2.22% patients in our study. Three out of thirty patients who were node negative on routine histopathology was upstaged (10 %) due to presence of micrometastasis on ultra-staging. There was no significant difference in sensitivity, NPV, accuracy and detection rates between the submucosal and subserosal injection groups.

Conclusions/Discussion: ICG guided SLN mapping can help in identifying metastatic lymph nodes in colon cancer patients which can be missed on conventional hematoxylin and eosin staging.

METASTATIC SOFT TISSUE LESION AS FIRST IDENTIFIABLE SITE OF PRIMARY COLORECTAL CANCER.

eP794

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Purpose/Background: It is well established that liver and lungs are the most common sites of metastasis of colorectal malignancies, whereas this young adult uniquely presented as metastases to the soft tissue of the back.

Methods/Interventions: TS is an otherwise healthy 39-year-old male who first identified a soft tissue mass to his back around December 2021. He was referred to a general surgeon following an ultrasound noting a nonvascular mildly lobular hypoechoic mass measuring 3.1 x 1.6 cm. During the excision, the mass was found to be larger than identified on ultrasound and intramuscular in nature. Thus, the procedure was aborted to pursue additional workup. An MRI demonstrated a suspicious avidly enhancing 4.7 x 3 x 7 cm lobulated mass inseparable from the trapezius and latissimus muscles. He was then referred to surgical oncology where a second chest wall mass was identified. Core biopsies of both soft tissue masses demonstrated moderately differentiated adenocarcinoma consistent with a colorectal primary. Additional evaluation noted an elevated CEA of 2564. A PET revealed an avid mass within the sigmoid colon and evidence of skeletal, soft tissue, liver, pancreatic, renal, retroperitoneal, lung, and lymph metastases. Further history revealed an aunt and uncle with colorectal cancers, a recent forty pound weight loss and bowel habit changes.

Results/Outcome(s): He was started on systemic therapy (FOLFOX). Oxaliplatin was omitted following reaction and he transitioned to Xeloda. Progression of disease prompted braf analysis (positive) and he was transitioned to cetuximab/encorafenib. His course has been complicated by obstructive jaundice from liver metastasis and portal vein thrombus. These have been managed with stent placement and anticoagulation respectively. Currently, he remains on palliative chemotherapy with stable disease.

Conclusions/Discussion: Patients with colorectal primary malignancies are not infrequently diagnosed by incidental identification of metastatic lesion. In this patient's case, it is important to note his atypically young age of presentation and post diagnosis admission of familial history of colorectal cancers and associated symptoms. This example highlights the necessity of a thorough history and physical exam, maintaining a high index of suspicion in young patients with atypical presentations and ensuring patients undergo colorectal cancer screening with strong family histories or symptoms.

INFILTRATING LOBULAR CARCINOBULAR CARCINOMA OF THE BREAST WITH LATE EXTRAOCULAR AND COLON METASTASES WITH NORMAL MACROSCOPIC COLONOSCOPY: A CASE REPORT.

eP795

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Purpose/Background: To report the case of a 59-year-old female patient with an initial diagnosis of infiltrating lobular mammary adenocarcinoma, with late recurrence 14 years after mastectomy, expressed as extraocular and colonic dissemination, to provide valuable information to the literature on the management of this type of disease. patients

Methods/Interventions: An analysis of the patient's clinical record, cabinet studies and therapeutic interventions was carried out. International guidelines on management were analyzed. A review of the literature was carried out.

Results/Outcome(s): We present the case of a 59-year-old woman who was referred to our service with a remission of 14 years of an invasive lobular carcinoma of the breast (ER positive, PR negative, HER-2/neu 1+ negative), now with gastrointestinal alteration (constipation, nausea, vomiting and indigestion). On further evaluation, and with high level of suspicion, a colonoscopy was performed in which stenosis was observed, a rectal biopsy reported adenocarcinoma with signet ring cells. PET scan proven metastases to colon (cecum) and ayelid. Chemotherapy treatment with capecitabine is started. A second colonoscopy was performed, observing loss of elasticity of the mucosa (molecular interplay), biopsy reported metastatic infiltrating lobular mammary carcinoma with signet ring cells. The patient is currently under treatment with aromatase inhibitors + CDK4/6 inhibitors (3). She is currently undergoint the 12-month treatment and toleraiting it well.

Conclusions/Discussion: A recent systematic review suggested reserving surgical treatment in emergencies (perforation, obstruction and hemorrhage) and in patients with isolated injuries where it could improve the clinical course, however, we currently do not have a

recommendation with A1 evidence for the treatment of these patients [3]. Regarding the loss of elasticity in the mucosa, it could be attributed to the molecular interplay between tumor cells and non-malignant elements of the lamina propria [4].

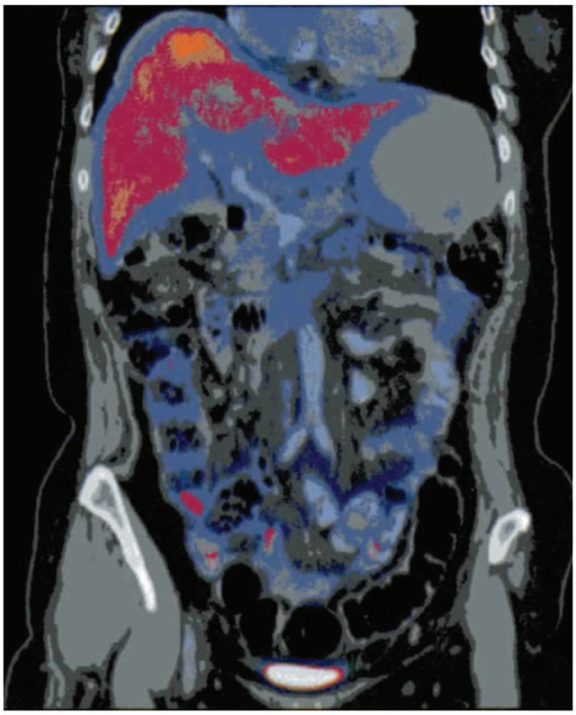

Fig 1) PET/CT reported metabolic increase in the cecum and ascending colon.

DOES SIZE MATTER? IMPACT OF BODY MASS INDEX AND POLYP SIZE ON COMBINED ENDOSCOPIC ROBOTIC SURGERY OPERATIVE TIME.

eP796

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Purpose/Background: Compared to its laparoscopic counterpart, combined endoscopic robotic surgery (CERS) has decreased operative times. However, factors that impact operative time have not been investigated. We sought to investigate the impact of body mass index (BMI), polyp size, and number of polyps resected on operative time.

Methods/Interventions: A single-center retrospective study of a prospectively collected database was conducted. The study population included all consecutive CERS patients from a single colorectal surgeon between March 2018 and October 2021. Patients that were converted to other procedures were excluded from the final analysis. Statistical analysis was conducted utilizing IBM SPSS 28 (Armonk, NY).

Results/Outcome(s): CERS was attempted in 93 patients during this study period. The procedure was completed in 88 (95%) cases. Reasons for conversion to other procedures included a smaller than anticipated polyp, concern for malignancy, involvement of the ileocecal valve, inability to lift the polyp, or involvement of the appendiceal stump. Most of the population was white (88) and male (68%). The average age was 66 years (SD=10), the average history of abdominal surgeries was 1 (SD=1), and the median BMI was 28 kg/m^2 (range 20-45). Median operative time and polyp size were 72 mins (range 31-184 mins) and 40 mm (range 5-180 mm), respectively. The most common polyp locations were the cecum, ascending, and transverse colon (31%, 28%, 25%). A total of 15 patients (18%) had multiple polyps resected during their CERS procedure. Subgroup analysis based on primary polyp location showed no difference in operative time between groups ($p>0.05$). Linear regression analysis showed that BMI, primary polyp size, and the total number of polyps had no impact on operative time ($p>0.05$).

Conclusions/Discussion: In combined endoscopic robotic surgery, patient BMI, polyp size, polyp location, and the total number of polyps resected had no impact on operative time. The time needed for endoscopic platform setup and docking of the robotic system may be a more likely source for variability in operative times. After the equipment was set up, cases proceeded quickly regardless of patient BMI, polyp size, or polyp location. Recent literature reported that median BMI and primary polyp size in combined endoscopic laparoscopic surgery was 26 kg/m^2 (19-32) and 30mm (7-50), respectively. CERS was associated with a larger median BMI and primary polyp size. Despite this, robotic augmentation to CERS decreased operative time, further suggesting that BMI and primary polyp size may not have an effect.

THE OUTCOMES OF ENDOSCOPICALLY PLACED COLONIC STENTS IN MALIGNANT LARGE BOWEL OBSTRUCTIONS AT A SINGLE CENTER.

eP797

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Purpose/Background: Colonic obstruction can be due to a variety of causes, including malignant and benign conditions. Self-expanding metal stents (SEMS) are commonly used to treat large bowel obstructions (LBO) due to malignant disease prior to surgery. Following resolution of the obstruction, a completion colonoscopy through the stent to rule out synchronous lesions can be performed. Although SEMS do not have a high-risk profile, they are not without potential complication – including perforation, migration, re-obstruction. Due to the urgency

to remove the cancer and stent, patients often undergo surgery without a completion colonoscopy, although these rates are unknown. We sought to identify the rates at our institution of completion colonoscopy prior to OR and outcomes of the operations with stents.

Methods/Interventions: All colonic stent attempts for obstructions were gathered between January 1, 2017 and January 1, 2022 using CPT codes. These were then screened for malignant disease of the left side causing an LBO necessitating the need for colonic stent placement. Any patient that did not undergo surgery was excluded. A retrospective chart review was then conducted on these patients to look at completion colonoscopies prior to OR after SEMS placement, time from hospital arrival to stent placement, time to OR from stent placement, ostomy rates after stent placement, and length of stay (LOS).

Results/Outcome(s): During this time interval, 83 colonic stents were attempted. Of the successful stent placements, 19 then underwent surgery. Four patients had right sided and proximal transverse obstructing lesions and were excluded, therefore a total of 15 patients were included in our review. Of these 15 patients, only 1 (6.7%) underwent a completion colonoscopy to the cecum after stent placement and before surgical resection. No synchronous cancers or adenomatous polyps were found. The median time from arriving at the hospital to the start of endoscopy was 22 hrs and 3 mins. One (6.7%) patient had a colonic perforation after stent placement, which was after the initiation of chemotherapy, and 1 (6.7%) patient was restented due to tumor growth before the OR. Ten (66.7%) cases were completed laparoscopically and only 1 (6.7%) required an ostomy. Thirteen (86.7%) patients went home with a stent and returned for a semi-elective surgery. Median length of time from stent to OR was 16 days and an average of 28.7 days. After the operation, the median LOS was 5 days with an average LOS of 5.7 days.

Conclusions/Discussion: SEMS placement in the setting of a malignant LBO has a theoretical advantage of doing a completion colonoscopy prior to the OR to rule out synchronous lesions. However, after reviewing our single center data, we concluded that the vast majority of these patients do not get a completion colonoscopy prior to the OR. Future work is needed to determine if these completion colonoscopies would change operative management.

IDENTIFYING RISK FACTORS PREDICTIVE OF URGENT AND EMERGENT SURGICAL INTERVENTION FOR INITIAL PRESENTATION OF COLORECTAL ADENOCARCINOMA.

eP798

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Purpose/Background: It is well established that early diagnosis of colon and rectal adenocarcinoma through screening decreases morbidity and increases overall survival. However, a significant number of patients are diagnosed with colorectal cancer in the emergency department. Of these patients diagnosed with colorectal cancer in the acute setting, approximately 30% require surgical intervention in the urgent or emergent setting. The patient population at our institution appears to be afflicted with worse healthcare disparities compared to the national and state average. The aim of this study is to identify certain risk factors that are associated with urgent and emergent surgical intervention at the initial diagnosis of colon and rectal adenocarcinoma within our patient population.

Methods/Interventions: This is a single center, retrospective study of a safety net hospital in New Orleans, LA. All patients whose initial diagnosis of colon or rectal cancer was obtained during a hospital admission via the emergency department were queried using ICD-10 codes specific to the pathology.

Results/Outcome(s): Over the 5 year study period, 154 patients were diagnosed with a colon or rectal cancer during a hospital admission via the emergency department. Of these, 82 (53.2%) required urgent or emergent surgery within 7 days of their initial presentation. Hispanic patients were more likely to undergo urgent or emergent resection compared to non-Hispanic white and Afro-American patients (RR 1.98, CI 1.09-3.58; RR 3.27, CI 1.61-6.65). Both Hispanic and white patients were more likely to receive an ostomy during emergent surgery than were Afro-American patients (RR 3.02, CI 2.08-4.39; RR 2.92, CI 2.01-4.25). 31 (20%) patients required an ileostomy or a colostomy creation at the index operation.

Conclusions/Discussion: In the present cohort, over half (53.2%) of the patients diagnosed with colon or rectal cancer in the acute setting required a surgical intervention for acute indications such as obstruction, bleeding or perforation. This is significantly higher than the national average. In our cohort, Hispanic ethnicity was associated with a higher rate of urgent or emergent surgery and stoma formation. Identification of patient factors contributory to urgent or emergent surgery at time of diagnosis is critical to enact practices for prevention in these vulnerable patient populations. Further studies aimed at identifying healthcare disparities and income inequalities are needed to effectively impact this patient population and prevention of urgent and emergent surgical intervention.

ROBOTIC VERSUS LAPAROSCOPIC COLORECTAL SURGERY: A COMPARISON OF ONCOLOGIC OUTCOMES.

eP799

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Purpose/Background: Minimally invasive laparoscopic and robotic surgery is widely practiced nowadays for colorectal cancer. With increasing availability and surgical experience, robotic surgeries are being utilized more frequently for colorectal cancers. It is unclear if any approach is superior to other for cancer patients. This study compares oncological outcomes of robotic vs laparoscopic surgery for colorectal cancer from a single institution.

Methods/Interventions: A retrospective study was performed to compare outcomes of consecutively operated patients who underwent elective laparoscopic or robotic colorectal resections at a tertiary academic center from 2016 to 2020. The associations between patient characteristics, type of operation, open conversions, length of stay, distal margins and number of harvested lymph nodes were assessed. Data analysis was done using SPSS.

Results/Outcome(s): A total of 164 patients included in study who underwent laparoscopic (59.8%) and robotic (40.2%) surgery between 2016 and 2021. Females comprised 43% colorectal and 40% of robotic procedures. Among patients undergoing laparoscopic surgery 75% had colon cancer, and among patients undergoing robotic surgery 24 % had colon cancer. Majority of rectal cancer patients underwent robotic surgery 74% vs 26% via laparoscopic surgery. Rate of conversion to open was 5% in laparoscopic surgery and 4% in robotic surgery ($p<0.00$). There was no significant difference in length of hospital stay, complications rate, number of harvested lymph nodes and more than 12 lymph nodes retrieval in laparoscopic and robotic groups. Mean number of lymph nodes harvested were equivalent in laparoscopic and robotic groups 24.9 vs 24.1 respectively. Four patients had less than 12 lymph nodes harvested in the laparoscopic approach and 6 patients in the robotic group ($p> 0.05$). Distal pathological margins were negative in 95.8% of colon cancer patients who had laparoscopic surgery versus 98.6% of patients with robotic surgery ($P<0.01$). Majority of low rectal cancer treated with robotic approach 88% vs 12% laparoscopic. Robotic locally advanced low rectal cancer patients who were treated by neoadjuvant chemotherapy, two had positive circumferential resection margin and two had less than 2mm distal margin. Majority of laparoscopic rectal cancer resections were mid/upper rectal and all had negative circumferential resection margin and 2 patients had less than 2 mm distal margin ($p =0.05$).

Conclusions/Discussion: Both approaches are currently practiced for colorectal cancer due to early recovery and comparable postsurgical outcomes. This study showed lymph node harvestation is equivalent in robotic and laparoscopic approach. Robotic resection is associated with a wider negative margin in colon cancer patients. Robotic approach is practiced more for very low locally advanced rectal cancers with inherent potential of positive margins as compared to laparoscopic approach with aim of sphincter preservation.

SIMULTANEOUS ENDOVASCULAR ANEURYSM REPAIR (EVAR) AND LAPAROSCOPIC LOW ANTERIOR RESECTION IN PATIENT WITH ABDOMINAL AORTIC ANEURYSM(AAA) AND RECTOSIGMOID CANCER.

eP800

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Purpose/Background: The incidence of colorectal cancer (CRC) in patients with abdominal aortic aneurysm (AAA) is uncommon and has been reported in 0.5%-4% of patients with AAA. Patients with synchronous AAA and CRC represent a major surgical challenge and their treatment is still a therapeutic dilemma, not only the sequence of which these two serious pathologies should be treated first, but also whether they should be managed as one-stage or two-stage operations. Endovascular aneurysm repair (EVAR) compared with conventional open repair, demonstrates its reduced physiological impact, especially for older patients and for the concomitant treatment of abdominal aortic aneurysm (AAA) and other abdominal neoplasm, such as colorectal cancer.

Methods/Interventions: This is a case report/literature review.

Results/Outcome(s): A 70-year-old male presented with lower gastrointestinal bleeding and bowel habit change. Colonoscopy showed circumferential mass at rectosigmoid 15 cm from AV with impending obstruction. The colonic stent was inserted as a bridging to surgery. CT scan findings showed rectosigmoid colon cancer with fusiform AAA, infrarenal type 5.6 cm with thrombus. After discussed with vascular surgeon, we decided to perform one-stage operation. Patient underwent simultaneous Endovascular aneurysm repair (EVAR) and laparoscopic Low anterior resection (LAR). Operative time was 4 hours with minimal blood loss. No perioperative complication was presented. Patient has no graft infection and no recurrent after 1 year follow up.

Conclusions/Discussion: Abdominal aortic aneurysm and colorectal cancer are occasionally discovered concurrently. Management of patients with synchronous CRC and AAA remains a therapeutic challenge for surgeons. AAA repair first, before colorectal cancer treatment might lead to a significant delay in the treatment of the malignancy. While treating the malignancy first might lead to an increased risk of AAA rupture during the perioperative period. Endovascular aneurysm repair (EVAR) might lead

to better results in the synchronous treatment of CRC and AAA, because it could minimize the risk of graft infection and shorten the period between AAA repair and CRC treatment. Simultaneous operative treatment is feasible in selected case and may be an effective management strategy, alternative to a staged procedure.

COMPARING ANASTOMOTIC SEPTIC COMPLICATIONS (SC) AFTER MINIMALLY INVASIVE AND OPEN ONCOLOGIC COLON RESECTION.

eP801

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Purpose/Background: Major anastomotic septic complications (SC) remain an important source of morbidity and mortality among patients undergoing oncologic colon resection. In this retrospective study, we compare differences in SC between minimally inavasive (laparoscopic and robotic) and open colon resections.

Methods/Interventions: The prospectively accrued HCA Healthcare enterprise-wide database was employed for this retrospective study. This included colon cancer patients aged 18-90 who underwent curative intent Minimally Invasive Surgery (MIS) or open colonic resection from 2014 to 2018. Utilizing a logistics regression model, MIS and open procedure septic complications were analyzed statistically against age, gender, race, BMI, ethnicity, steroid administration, anticoagulant use and renal failure. SC was defined as anastomotic leak, abscess formation and anastomotic fistula. Exclusion criteria included superficial wound infections, proctectomy, and palliative resection.

Results/Outcome(s): 7,288 patients met criteria for study. Fifty-three percent were male. The mean age was 67.4 years. Of those, there were 3,496 MIS (47.97%), 3,401 open (46.67%) and 391 converted cases (5.36%). There was a total of 281 patients with SC (3.86%); 108 (3.09%), 150 (4.41%) and 23 (5.88%) from the MIS, open, and converted groups respectively. Those who underwent MIS were less likely to develop SC ($p=0.0021$, odds ratio (OR)=0.7, 95% confidence interval (CI)=0.543-0.903). Female patients were less likely to develop SC ($p<0.0001$, OR=0.524, 95% CI=0.405-0.679). Hispanic patients were more likely to develop SC ($p=0.0109$, OR=1.542, 95% CI=1.105-2.152). Absence of renal failure was protective of SC ($p=0.0332$, OR=0.674, 95% CI=0.469-0.969). Absence of steroid therapy was similarly protective against SC ($p<0.0001$, OR=0.443, 95% CI=0.314-0.626). Patient age, race, BMI and anticoagulant use were not found to be of statistically significance.

Conclusions/Discussion: Previous studies revealed that laparoscopic and open colon resections had similar outcomes regarding long term morbidity, overall survival and cancer recurrence. Our study demonstrates that MIS was associated with fewer major anastomotic septic complications. Converted cases had lesser outcomes in comparison to completed MIS cases, but better outcomes than completely open cases. Female and non-Hispanic patients had lesser risk for SC. Steroid use and renal failure patients had increased risk for SC.

COLORECTAL SURGERY PATIENT PERCEPTIONS OF A MINDFULNESS INTERVENTION.

eP802

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Purpose/Background: Research has shown the benefits of mindfulness practice including improved psychological well-being, stress relief, reduced pain perception, improved sleep, and relief of headaches and vomiting. All of these could improve colorectal postoperative outcomes. This study aimed to qualitatively analyze colorectal surgery patient perceptions of a mindfulness intervention.

Methods/Interventions: Participants (N=16) were guided through three 15-20 minute mindfulness interventions: day of surgery, post-operative day 1, and day of discharge. Semi-structured interviews were conducted on the day of discharge. The authors iteratively coded and identified emerging themes from the interview transcripts.

Results/Outcome(s): A code book was created including 20 unique codes descriptive of patient experience with the intervention, 5 categories and 2 themes (Figure 1). One major theme, "healing and restoration of health," refers to patients' perceptions of medical care and recovery from surgery, following the intervention. This theme was characterized by categories "the experience of recovery", "progression to physical relaxation" and "pathway to serenity". Patients identified self-confidence that promoted their recovery and a desire to have balanced care (e.g. western and complimentary practices; "experience of recovery"). Many patients also reported that the intervention assisted with relaxing the body, identifying and managing pain, and treating pain with medications ("progression to physical relaxation"). Patients felt the intervention helped them identify and manage emotional discomfort, relax the mind, and achieve mental quietness ("pathway to serenity"). "Becoming in-tune with self," the second major theme, focused on increased patient awareness of their own emotions and changing perceptions of mindfulness practice. Patients expressed curiosity and sometimes apprehension about mindfulness, gratitude for an adjunctive therapy, and appreciation for human interaction ("awareness of emotions"). Further, patients described changes in their perceptions of mindfulness through the intervention. There were varying levels of exposure to mindfulness prior to this study with some

patients describing limited prior familiarity and others having prior beliefs about mindfulness. By completion of the intervention, many expressed a new positive opinion of mindfulness, that the current experience reinforced prior beliefs, or a desire to continue the practice independently. While some were uncertain, a vast majority reported benefits from the intervention ("Evolution of perceptions and experience of mindfulness").

Conclusions/Discussion: The use of mindfulness as an adjunct to traditional recovery methods could improve the postoperative experience for the colorectal patients. These findings will be used to support peri-operative implementation of mindfulness practice at our institution.

Figure 1: 2 major themes (yellow), 5 categories (green) and 20 unique codes (blue).

BEYOND THE CASE LOG: THE INTEGRATION OF VIDEO-BASED COACHING TO ROBOTIC EDUCATION.

eP803

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Purpose/Background: Exposure to robotic assisted colon and rectal surgery has become increasingly common in surgical training. There has also been a concurrent increase in the use of video-based coaching in surgical training. This study sought to understand the role of video-based coaching in robotics in the development of colon and rectal surgery training.

Methods/Interventions: A narrative literature review was performed in October 2022. Web of Science and Pubmed were the databases utilized. Search terms included "robotic," "colon," "rectal," "surgery," "video," and "surgery."

Results/Outcome(s): No studies, to date, have published results of video-based coaching in colon and rectal surgery using the robotic platform. This search was expanded by removing "colon" and "rectal" from the search and again no studies were identified.

Conclusions/Discussion: A recent systematic review demonstrated that the majority of robotic training programs in colorectal surgery included evaluation of theoretical knowledge, case observation, simulation, and proctored training. This systematic review identified a need for validated assessment of residents but does not discuss the utilization of video-based coaching. A survey of general surgery program directors found that >90% did not use the robotic platform. Video-based coaching has been shown to be effective in training general surgery, emergency medicine, anesthesia, and family practice residents. However, these programs had difficulty with implementation, in part, due to limitations of non-robotic video-recording platforms. Despite overwhelming evidence demonstrating the effectiveness of video-based coaching and the increase in robotic surgery, there are no published video-based coaching programs in robotic surgery. The importance and need of a standardized video-based coaching program to aid in the development of young colon and rectal surgeons should not be overlooked. The combination of video-based coaching and the robotic platform offers exciting new methods of training residents that avoid the technological pitfalls of other video-recording platforms.

HOLISTIC REVIEW OF COLORECTAL SURGERY RESIDENCY APPLICANTS.

eP804

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Purpose/Background: Advice regarding application preparation is often anecdotal; there is a paucity of information on how programs evaluate applicants and which portions of the application are most heavily weighted. Colon and rectal surgery (CRS) match has become increasingly competitive due to increasing numbers of applicants. This study aims to describe which applicant characteristics are considered and the process by which CRS programs evaluate applications.

Methods/Interventions: A survey was sent to the Program Directors (PD) of ACGME CRS residency programs in the United States. The survey had questions regarding number of applicants received and the review process including who reviews applications, which screening parameters were used, and which criteria were most heavily

weighted in evaluating applications. Descriptive statistics including medians, IQRs, and frequencies are reported.

Results/Outcome(s): Thirty-six responses from the 67 CRS residency PD (54%) were received. The majority (58%) classified their hospital setting as academic. The median number of applications reviewed per program was 100, with a median of 26% (IQR 20-31%) of applicants invited to interview. Most (72%) characterized their review process as "holistic." Twenty-two (61%) of PDs do not use screening parameters in ERAS; when used, the most frequently used screen was for standardized test scores (36%). When deciding who to interview, ABSITE score (92%), letter of recommendation (LOR) content (89%), LOR writer (83%), and research productivity (83%) were the most commonly considered criteria (Table 1). The least frequently used criteria were involvement in organizations (11%), dedicated time off (19%), advanced degrees (19%), and medical school type (17%) and reputation (22%). The "Top 3 Criteria" cited by PD's in choosing applicants to interview were LOR (83%), ABSITE (50%) and Publications/Research (42%).

Conclusions/Discussion: CRS residencies continue to value traditional metrics such as ABSITE scores, publications, and especially letters of recommendations with both the content and identity writer appearing to be important. Letter of recommendation writers should recognize the weight that their letters may have on the future of applicants. Applicants should direct their energy towards highlighting these achievements in their application.

Table 1: Applicant criteria considered in application review

	Considered in application review n (%)	Top 3 Criteria (per PD) n (%)
ABSITE Score	33 (92)	18 (50)
Letter of Recommendation – Content of Letter	32 (89)	30 (83)
Letter of Recommendation – Writer Identity	30 (83)	
Research Productivity	30 (83)	15 (42)
Reputation of Residency Program	28 (78)	8 (22)
Personal Statement	23 (64)	6 (17)
Ability to Overcome Obstacles	21 (58)	6 (17)
Residency Activities	20 (56)	
Contact from General Surgery Program	20 (56)	
Residency Type (ex. Academic, Community)	19 (53)	

ARTIFICIAL INTELLIGENCE IN THE OPERATING ROOM: A SYSTEMATIC REVIEW OF CURRENT APPLICATIONS.

eP805

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Purpose/Background: Artificial intelligence (AI) is being increasingly applied in healthcare, including several aspects of colorectal surgery. Despite advances in data science, robotics and other intraoperative technology in colorectal surgery, real-world application of AI in the operating room (OR) remains limited. This is in contrast to the established role of AI in aviation, including recent progress in autonomous take-off, cruise, and landing. We review the current scope of AI in the OR and potential future directions.

Methods/Interventions: A systematic search was performed including MEDLINE and Embase. Studies reporting applications of AI or machine learning in the OR were included.

Results/Outcome(s): The search strategy revealed 231 studies, 25 were included. AI was reported in the following roles: phase recognition, interpretation of signals in fluorescence-guided surgery, and managing work flow. In phase recognition, AI identified different steps and phases of an operation, though required extensive manual expert annotation for training. Simple operations were more amenable to this kind of classification, with more complex surgical procedures remaining a challenge. Furthermore, this was done in retrospect using video analysis. AI has also been applied to characterise quality of bowel perfusion in colorectal surgery using indocyanine green. This has been used in real-time to guide intraoperative decision-making. For work flow, AI has been applied to predicting OR demand to improve OR utilisation and efficiency, and for triaging patients for access to emergency theatre.

Conclusions/Discussion: AI has been used in several experimental roles in the OR, both to optimise work flow and to interpret and classify intraoperative visual information. Though the phase recognition role of AI remains rudimentary, it has future potential roles in classifying the operative field to guide surgery (e.g. 'no go' zones), and in error prevention and detection. In the longer term in robotic surgery, there could be scope for robot assistance and certain levels of autonomy (e.g. task autonomy, conditional autonomy). Though high degrees of autonomy and decision-guidance have already been achieved in aviation (e.g. in-flight decisions, finding optimal routes), the quantity, complexity, and ambiguity of intraoperative surgical information limits its current role in the OR. However, in the digital surgery era, increasing amounts of surgical data and greater sophistication of AI raise the prospect of higher quality more efficient care in the OR.

PRACTICE MODELS, OUTCOMES, SUCCESSES AND FAILURES OF PART-TIME CRS PRACTICE IN THE ERA OF COVID-19 AND PROFOUND WORKFORCE SHORTAGES.

eP806

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Purpose/Background: The COVID-19 pandemic exacerbated workforce shortages, health care disparities and access to care in many specialties, including colon and rectal surgery. Hospitals faced hiring freezes, including for full-time colorectal positions. An institution in our area adopted an as-needed contract with a board-certified colorectal surgeon who was in town parttime for academic work. The model involved 1) hospital employment via a wRVU compensation conversion, 2) malpractice and marketing coverage, 3) modest travel stipend per calendar day worked. The provider committed to 2.5 clinical days per month, intended to be both a maximum and minimum. We aimed to determine case mix, outcomes and adherence to the goal number of clinical days. What cases are a part-time CRS provider able to safely perform? How often is the full-time CRS practice in town at the competing institution leaned on for help?

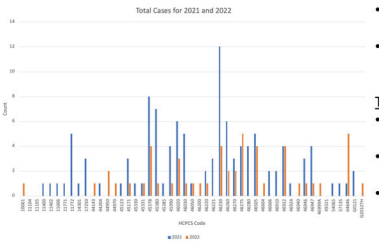
Methods/Interventions: After gaining approval as a QI (quality improvement study), we retrospectively reviewed clinical activity of a single colorectal provider over 2.5 years of pandemic and its aftermath (August 2020 to present). We tracked clinical encounters, cases booked vs. performed, outcomes, patient satisfaction, referral patterns, number of clinical days worked per month (goal vs. actual), and number of referrals to the full-time CRS practice in town.

Results/Outcome(s): In the 2.5 days per month given for clinical work, we found that provider could see 6-8 patients in a half-day clinic and undertake 3-4 outpatient procedures in a procedural half-day block. Clinical creep was noticed: the number of clinical days per month as the 2.5 year time period elapsed increased [Figure 1]. The most frequent case undertaken by the parttime provider was ambulatory endoscopy. Of the outpatient anorectal procedures undertaken, the most common were botox injection and skin tag removal [Figure 2]. Complex fistula surgery was undertaken in approximately half of all consults seen. The rest were managed expectantly (seton placement, tract shortening, wound care), and sent to the full-time team in town for definitive management. Of the known complications, two experienced major complications, resulting in transfer and hospitalization to the full-time team in town. On both occasions, the provider was not in town to handle the complication themselves. The general surgeons who provide coverage to the parttime colorectal surgeon found themselves beyond the boundaries of their comfort zones.

Conclusions/Discussion: We believe that a discussion of parttime models (partial FTE, locums, per diem, prn) of colorectal surgery is an important and often overlooked aspect of colorectal practice management. This review provides perspectives on strengths and glaring limitations, especially related to call coverage.

Figure 1: Clinical Creep

Figure 2: Cases 2021 & 2022



Top Cases: 2021
- Removal of Anal Tags – 46230 (n=12)
- Diagnostic Colonoscopy – 45378 (n=8)
- Colonoscopy and Biopsy – 45380 (n=7)

Top Cases: 2022
- Diagnostic Colonoscopy – 46600 (n=13)
- Removal Anal Fistula Inter – 46275 (n=5)
- Chemodenervation – 64646 (n=5)

INTEGRATION OF ANORECTAL MANOMETRY INTO CLINIC ENCOUNTERS FOR RAPID THERAPEUTIC PLANNING.

eP807

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Purpose/Background: Evaluation of sphincter function with Anorectal manometry (ARM) is a key determinant in therapeutic planning for patients with pelvic floor disorders. Delays in diagnosis and treatment can result during the time between the initial clinic visit, ARM testing, and interpretation. In this study, we assess the feasibility of integrating ARM into the clinical encounter itself, in order to provide same-day therapeutic planning.

Methods/Interventions: This is a retrospective review of patients who underwent ARM in the clinic between 2020 and 2022. ARMs were performed with a portable manometer allowing for rapid setup and breakdown in the examination room. Patients were positioned in left lateral decubitus, and the ARM probe was inserted for measurement of anal canal pressures, reflexes, volumes of sensation, and balloon expulsion. Results from the ARM were visible to the colorectal surgeon in real-time and interpreted during the same clinical encounter. Retrospective data were compiled and evaluated using Excel.

Results/Outcome(s): A total of 63 anal manometries were performed on 61 colorectal surgery patients at the initial outpatient consult between September 2020 and September 2022. Average age in the cohort was 61 years,

with 18 males and 43 females. The most frequent indications for ARM included: fecal incontinence (34), chronic constipation (17), and fecal urgency (4). The average time interval to perform the ARM was 4.12 ± 2.05 minutes, which was integrated into the patients' physical examination, did not impact the workflow of the clinic. Manometry results included mean resting (34.22 ± 17.89 mm Hg), squeeze (66.95 ± 35.14 mm Hg), and strain (39.07 ± 23.25 mm Hg) pressures. Max squeeze pressures (87.58 ± 44.48 mm Hg). Volumetric results included volumes for first sensation (33.67 ± 21.01 cc), defecation (62.46 ± 31.22 cc), and discomfort (87.04 ± 41.76 cc). 72.13% of patients were unable to expel the balloon.

Conclusions/Discussion: Portable ARM can be easily integrated into the outpatient clinic setting alongside the physical exam due to its short duration, ease of use, and real-time interpretation. This eliminates the need for referred off-site testing and drastically reduces the time between the initial encounter and the ARM results, allowing for same-day therapeutic planning.

A RANDOMIZED CONTROL TRIAL (RCT) TO EVALUATE THE EFFECT OF PATIENT NAVIGATION ON COLONOSCOPY SCREENING RATE FOR COLORECTAL CANCER (CRC) IN UMMC.

eP808

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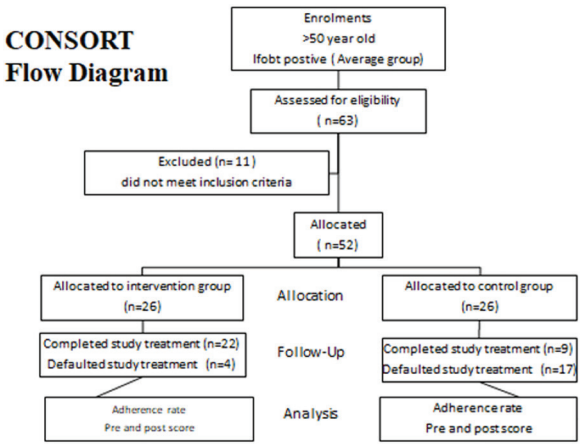
Purpose/Background: Colorectal cancer screening is disproportionately underutilized in Malaysia. As an early-stage diagnosis of colorectal cancer is closely associated with a high survival rate, aggressive interventions are needed to increase lower screening rates as a way to reduce CRC morbidity and mortality. As a screening program using IFOBT and colonoscopy is one of the few screening techniques that can prevent advanced cancer, improving colorectal cancer screening rates has become a priority by using intervention from the patient navigation program.

Methods/Interventions: A randomized controlled trial conducted in PPUM with patients more than 50 years old under average risk of colorectal carcinoma with IFOBT positive will be recruited. Patients under the intervention group will be guided by the patient navigation program

Results/Outcome(s): Outcomes: Primary Outcomes: Regarding the primary outcome of our study, 22 patients (84.6%) under the intervention arm had their colonoscopy screening completed. Under the control arm, 17 patients (65.4%) defaulted their colonoscopy screening appointment Secondary outcomes: Patient well-being pre and post-colonoscopy were documented and analyzed using HADs score and GHQ-12 questionnaire. HADs score consists of 2 components which analyze depression and anxiety scores. The mean score for the intervention arm under the depression score, pretest was 1.5±1.14 and post test was 0.96±1.31. For the control arm, pretest was 3 ±1.72 and post test 2.96±1.73. The mean score for the intervention arm under anxiety score, pretest was 8.19±3.45 and post test was 5.5±4.0. For the control arm, pretest was 10.38 ±3.57 and post test 10.23±4.2. Under GHQ-12 score the mean score for the intervention arm, pretest was 16.8±8.39 and post test was 10.54±8.76. For control arm, pretest was 19.27 ±6.17 and post test 19.5±6.13. Pre-test and post test score was analyzed using independent T Test. Pre and post-test were statistically significant in the intervention arm under HADs depression score ($p= 0.008$), anxiety score ($p<0.001$), and GHQ-12 score ($p<0.001$)

Conclusions/Discussion: Our study shows that with the patient navigation program, more the half of the participants completed their screening program. The importance of dissemination of information about the procedures and peer pressure from the health care provider is a powerful motivator to guide patients The Navigation program greatly benefited enrolled patients as the study showed a significantly higher rate of completion of colorectal screening (84.6%) and a lower rate of defaulted appointments. Our research and analysis subsequently demonstrated that such programs are socially effective in this patient population as significant improvement can be seen as well inpatient general mental health based on Anxiety and Depression Score (HADS) and General health questionnaire score (GHQ12).



PREHABILITATION FOR THE PLANNED OSTOMY SURGERY PATIENT WITH THE ENHANCEMENT OF A STOMA DOULA; A CASE STUDY.

eP809

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Purpose/Background: The "Clinical Practice Guidelines for Enhanced Recovery After Colon and Rectal Surgery from The American Society of Colon & Rectal Surgeons

and Society of American Gastrointestinal and Endoscopic Surgeons" purports that colorectal patients should not be discharged until they have the ability to perform self-care. Under the Enhanced Recovery Program colorectal surgical patients have anticipated hospital stays of 3-4 days[i]. While shorter stays appear to be cost effective, readmission rates of up to 28% of new ostomates refute this logic. Anecdotal evidence observed by new ostomy patients on social media reflects inadequate ostomy teaching as they describe the horrors of leaks and skin damage. Patients resort to learning stoma care by trial and error, the internet, manufacturer's websites, Apps and YouTube reflecting a failure of our care.

Methods/Interventions: A "Stoma Doula" is an ostomy nurse specialized in training the expectant ostomate on how to manage their future stoma. The Doula specialty, originated as the Birth Doula is becoming more recognized for their ability to improve childbirth outcomes. Now, with the Covid pandemic, Death Doulas are becoming more popular as people seek extra assistance with this major life transition. People of the millennials want to be more prepared and educated for major life changes. So, the Stoma Doula services were created to help the future ostomate. Currently this is a private practice that offers all the prehabilitation services (exercise, nutrition, smoking and alcohol cessation, psychosocial interventions, stress management in addition to stoma care). Private educational lessons are conducted in person with intermittent phone calls. Ostomy starter kits are provided with a practice stoma and supplies. The Stoma Doula provides coaching on the anticipated surgery, expected outcomes, and practice wearing an ostomy pouch.

Results/Outcome(s): Two case studies performed by the author demonstrate that prehabilitation with a stoma doula avoided rehospitalizations or ED visits. Patient length of stay was 4 days with only one ostomy nurse visit and one preop visit for stoma marking. Patients had no peristomal skin complications after 6 months, no major leaks, experienced decreased anxiety, and returned to work within 6 weeks. Both cases were women in their early 60's undergoing ileostomy surgery. Patients were seen in person for a total of 3 visits each approximately 4 weeks before scheduled surgery. The cost for the Stoma Doula services was $500, the return to a good quality of life living with an ostomy was priceless.

Conclusions/Discussion: The Stoma Doula is an innovative concept for the delivery of prehabilitation care to prepare the future ostomate for the changes they will need to adapt to living with a stoma.

INCOME INEQUALITY IS ASSOCIATED WITH MORTALITY BUT NOT INCIDENCE OF COLORECTAL CANCER OUTSIDE OF MAJOR METROPOLITAN AREAS.

eP810

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Purpose/Background: Social determinants of health are known to impact oncologic outcomes. Income inequality is one variable in a complex array of social determinants, however its association with colorectal cancer incidence and mortality are currently unknown. We aimed to explore the association of income inequality, as measured by the Gini index, with the incidence and mortality of colorectal cancer. The Gini index is a measure of income inequality ranging between 0 (perfect equality) and 1 (perfect inequality). We hypothesized that counties with a higher Gini index would have higher rates of colorectal cancer incidence and mortality.

Methods/Interventions: We performed a cross-sectional analysis of county-level colorectal cancer incidence and mortality for each county in Pennsylvania, Ohio, New York, and New Jersey from 2015-2019. We collected data from publicly available statewide Department of Health cancer registries, along with the 2015-2019 Gini index for each county. Covariates including county proportions of 5-year age groups, sex, and race were obtained from the US Census. We also adjusted for rurality and population density. We used multi-level mixed effects negative binomial regression modelling with a random intercept for state to generate incidence rate ratios and 95% confidence intervals to test the association between county-level Gini index and colorectal cancer incidence and mortality. We ran unadjusted models and adjusted models in the full dataset and among counties in metro areas with fewer than 1,000,000 people to account for unmeasured confounding present in hyper-densely populated metro areas.

Results/Outcome(s): Our region included 238 counties with a total population of 265,331,007 over a five-year study period. The mean Gini index was 0.44 (SD 0.03). There was an overall mean age-adjusted colorectal cancer incidence of 41.4 per 100,000 (SD 5.32), and age-adjusted mortality of 14.9 per 100,000 (SD 3.07). Among all counties, there was no association between Gini index and colorectal cancer incidence or mortality after adjustment for known confounders. However, including only counties in metro areas with fewer than 1,000,000 people, for every 0.1 higher Gini index, we found a 17% higher risk of colorectal cancer mortality (IRR 1.17 95% CI 1.03, 1.33, Table 1). The association was present in men (IRR 1.19 95%CI 1.02, 1.38) but not women (1.18 95%CI 0.98, 1.40). There was no association between Gini index and colorectal cancer incidence in the restricted analysis.

Conclusions/Discussion: In counties outside of major metro areas, making up over 70% of counties in this study, worse income inequality was associated with a higher risk of death from colorectal cancer in the setting of an unchanged risk of diagnosis. The mechanisms for how income inequality leads to higher risk of death from colorectal cancer are complex and need to be further elucidated.

Table 1. Association of Gini Index with incidence and mortality of colorectal cancer by county excluding counties with in metro areas of population of 1 million or more , 2015-2019

	Total population		Males		Females	
	Crude	Adjusted	Crude	Adjusted*	Crude	Adjusted*
Incidence	0.86 (0.78, 0.95)	0.99 (0.90, 1.09)	0.83 (0.74, 0.92)	0.98 (0.89, 1.12)	0.90 (0.80, 1.01)	0.99 (0.88, 1.11)
Mortality	0.90 (0.79, 1.04)	1.17 (1.03, 1.33)	0.93 (0.80, 1.07)	1.19 (1.02, 1.38)	0.90 (0.77, 1.05)	1.18 (0.98, 1.40)

*Negative binomial regression did not converge so performed Poisson

USE OF PERIOPERATIVE LIDOCAINE AS PART OF AN ABDOMINAL SURGERY ERP DOES NOT SIGNIFICANTLY IMPACT POSTOPERATIVE PAIN.

eP811

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Purpose/Background: The utility of perioperative IV lidocaine in improving postoperative pain control remains unclear. While lidocaine has been studied against other analgesic regimens or placebo, the role of IV lidocaine in a rigorously implemented enhanced recovery protocol (ERP) for patients undergoing major abdominal surgery has not been studied. We therefore aimed to assess postoperative pain outcomes in ERP abdominal surgery patients who did or did not receive IV lidocaine. We hypothesized that patients receiving lidocaine would have lower postoperative pain scores and consume less opioids than those not receiving lidocaine.

Methods/Interventions: We conducted a retrospective study of patients undergoing elective abdominal surgery at a single institution via an ERP pathway from 2017-2018. ERP patients received IV lidocaine intraoperatively and postoperatively for 24 hours as part of a multimodal pain strategy that also included intrathecal pain block, acetaminophen, gabapentin, and NSAIDs. A lidocaine shortage in 2017 resulted in the elimination of lidocaine from the ERP. Patients who received lidocaine in the 6 months prior to the shortage were compared to those who did not receive lidocaine for 6 months following the shortage. The primary outcome measures were pain scores as measured on the visual analogue scale and opioid consumption as measured by oral morphine equivalents (OME). Secondary outcomes included postoperative length of stay (LOS) and ileus.

Results/Outcome(s): 1,226 eligible ERP abdominal surgery patients were included. 519 patients received lidocaine in the 6 months prior to the lidocaine shortage, and 707 patients did not receive lidocaine following the shortage. Demographics were similar between the two groups with the following exceptions: the lidocaine group had more males, lower BMI and psychiatric comorbidities, increased intrathecal pain block, and increased intraoperative ketamine. The total average pain score from postoperative day (POD) 0-5, as well as the POD4 and POD5 scores, were lower in the lidocaine group, though by a narrow margin (Table 1). There was no difference in postoperative OME consumed, LOS, or ileus between the two groups. Multivariable linear regression models for pain score and OME adjusted for procedure, approach, risk factors for poor pain control, and other analgesics used did not identify lidocaine as an independent predictor of pain score or OME consumption.

Conclusions/Discussion: In our study of ERP abdominal surgery patients, perioperative IV lidocaine did not offer clinically significant improvement in postoperative pain scores, OME consumed, return of bowel function, or LOS. We therefore do not recommend the use of IV lidocaine as part of an ERP multimodal pain management strategy in abdominal surgery patients. More studies are needed to determine which combination of medications is most effective based on surgery type or patient factors.

Table 1. Postoperative pain scores and OME for patients receiving lidocaine versus those not receiving lidocaine, mean(SD)

Postoperative pain scores				
	Lidocaine	No Lidocaine	Total	p-value
Total (POD0-5)	3.98(1.67)	4.14(1.73)	4.07(1.71)	0.05
POD0	4.64(2.25)	4.76(2.25)	4.71(2.25)	0.18
POD1	5.25(1.78)	5.24(1.84)	5.24(1.81)	0.5
POD2	4.83(1.87)	4.84(1.95)	4.84(1.92)	0.45
POD3	4.15(2.23)	4.32(2.36)	4.25(2.35)	0.09
POD4	3.04(2.76)	3.32(2.84)	3.21(2.81)	0.04
POD5	1.97(2.74)	2.31(2.81)	2.17(2.78)	0.02
Postoperative oral morphine equivalents				
	Lidocaine	No lidocaine	Total	p-value
Total (POD0-5)	241.81(437.79)	240.98(405.41)	241.33(419.25)	0.51
POD0	35.49(67.95)	41.47(74.67)	38.93(71.93)	0.08
POD1	57.58(95.31)	62.74(113.22)	60.55(105.1)	0.2
POD2	54.41(100.59)	51.09(93.77)	52.5(96.69)	0.72
POD3	40.94(98.25)	37.6(73.34)	39.01(84.76)	0.75
POD4	29.01(83.62)	29.8(100.33)	29.46(93.59)	0.44
POD5	24.39(100.92)	18.29(49.69)	20.87(75.76)	0.92

THE ROLE OF WARMED-HUMIDIFIED CARBON DIOXIDE INSUFFLATION IN COLORECTAL SURGERY; A SYSTEMATIC REVIEW AND META-ANALYSIS.

eP812

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Purpose/Background: Dry-cold CO2 traditionally used for insufflation in laparoscopic surgery and cold air in negative pressure operating theatres can lead to peritoneal desiccation and intraoperative hypothermia. These are associated with adverse perioperative clinical outcomes. Preclinical studies report that warmed-humidified CO2 may alleviate these detrimental effects. Randomized controlled trials (RCT) in colorectal surgery evaluating the effect of intraoperative warm-humidified CO2 have been underpowered. Therefore, the aim of this review was to evaluate perioperative clinical outcomes for patients

undergoing colorectal surgery with warmed-humidified CO2 compared to traditional dry-cold or ambient air in operating theatres.

Methods/Interventions: A search of Medline, EMBASE, and Cochrane Central Register of Controlled Trials was performed. Articles were included if they were RCTs that compared patients receiving warm-humidified CO2 with either ambient air or dry-cold CO2 insufflation during colorectal surgery. Primary outcome was length of stay. Secondary outcomes included time to flatus, time to diet, rates of wound infection, and postoperative pain. A pairwise meta-analysis was performed using inverse variance random effects.

Results/Outcome(s): Following screening of relevant articles, 6 RCTs fit the inclusion criteria. In total, 208 patients received warmed-humidified CO2 (42.3% female, age: 65.8 years) and 210 patients received standard care with dry-cold CO2 (46.2% female, age: 66.1 years). From the total 418 patients, 315 (75.4%) had an oncologic indication for surgery and 103 (24.6%) underwent surgery for benign disease. No significant difference was found in rates of postoperative wound infection (RR 0.6, 95% CI= 0.28, 1.29, p=0.19), time to diet (MD 0.00, 95% CI= -0.14, 0.16, p=0.91), time to flatus (MD -0.05, 95% CI= -0.29, 0.19, p= 0.69), or length of stay (MD -0.75, 95% CI= -1.61, 0.11, p= 0.09).

Conclusions/Discussion: Insufflation temperature is likely inconsequential in terms of postoperative clinical outcomes in colorectal surgery. Further studies may benefit from reporting all facets of postoperative course including nausea, emesis, and quality of life using standardized scoring systems.

RELATIONSHIP BETWEEN THE SOCIAL VULNERABILITY INDEX (SVI) AND BOWEL PREPARATION FOR COLORECTAL SURGERY.

eP813

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Purpose/Background: The Social Vulnerability Index (SVI), originally developed by the CDC to identify socially vulnerable populations when faced with natural or manmade disasters, has been increasingly linked to surgical outcomes. Its role in driving the surgical processes that lead to these outcomes, however, is poorly studied. Bowel preparations, a process important to achieving optimal colorectal surgery outcomes such as reduced surgical site infections, is one example of a process that has varied adherence rates and poorly understood reasons for those variations. This study therefore aimed to assess the association and contribution of SVI to bowel preparations in colorectal surgeries.

Methods/Interventions: Patients undergoing colorectal surgery at a single institution from 2012-2020 and included in the institutional American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) database were identified. Pre and post-operative characteristics were collected. SVI was calculated by geo-linking participant data to CDC SVI census-tract data and stratifying into high (0.66-1, with 1 being the most socially vulnerable), medium (0.33-0.66), and low (0-0.33, with 0 being the least socially vulnerable) SVI. The primary outcome was bowel preparation (no bowel prep, oral antibiotics only, mechanical only, or both). Univariate and multivariate analyses were performed to identify factors associated with bowel preparations including SVI and its sub-domains.

Results/Outcome(s): Of 1,573 patients, 1,142 (72.6%) patients underwent any type of bowel preparation: 371 (23.6%) oral antibiotic only, 47 (3.0%) mechanical only, and 724 (46%) both. Overall, 446 (28.4%) patients were classified as high SVI, 502 (31.9%) as medium SVI, and 625 (39.7%) as low SVI. The overall mean age was 59.8 years (interquartile, IQ, 48.0-69.2), mean BMI 27.7 (IQ 23.8-32.9), 43.5% male, and 26% identified as Black race. On unadjusted comparison, there was no significant difference between overall SVI status and bowel preparation types. However, the SVI sub-domain of "housing type and transportation" was significantly higher (i.e. more vulnerable) among those participants with no bowel preparation (p=0.035). On multivariable analysis, housing and transportation remained significantly associated with bowel preparation including for oral antibiotics only (OR 0.53, p=0.01) and mechanical only (OR 0.33, p=0.04) bowel preparations. Additional factors associated with bowel preparation adherence included BMI (OR 1.03, p=0.001) and preoperative cancer diagnosis (OR 0.22, p<0.001).

Conclusions/Discussion: In this study, the SVI subdomain of housing type and transportation was significantly associated with bowel preparation adherence. BMI and pre-existing cancer diagnoses were also contributory. Further research is needed to better understand the mechanism-of-action and to ultimately improve bowel preparations rates before major colorectal surgery.

COLORECTAL VIRTUAL WARD, A SOLUTION TO REDUCE READMISSIONS AND LENGTH OF STAY POST COLORECTAL RESECTIONS.

eP814

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Purpose/Background: 30-day Readmissions rate post colorectal surgery are variable and have been reported as 8-20% (1). The Commonest causes for readmissions include Surgical Site Infection (SSI)(13%), (2)

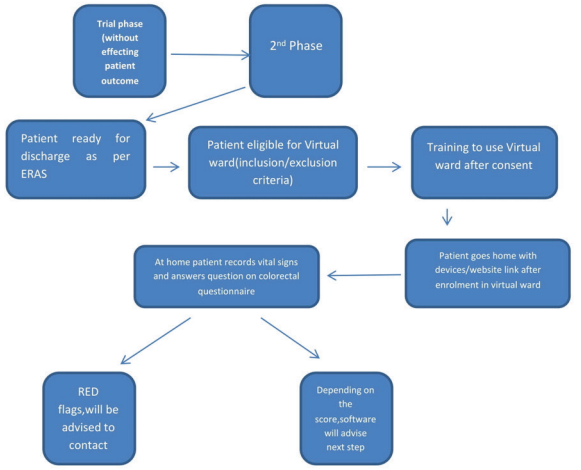
Intra-abdominal collection (3-10%), anastomotic leak (3-10%)—32% as a cause of reoperation(3), Ileus, Pain, Cardiovascular and Respiratory system related complications. (4) Representation in the emergency department adds additional costs(5). Furthermore, the readmission rate is a quality metric used to compare colorectal units in national audits The colorectal virtual ward is a concept that utilizes a user-friendly self-guiding software platform and input from patients/carers along with observations recorded using gadgets in the comfort of the patient's home to identify "post-colorectal resection patients" who need urgent face-to-face assessment or investigation, thus avoiding unnecessary hospital trips and picking up complications as early as possible. The secondary aim is to safely discharge patients under a virtual ward with Enhanced Recovery after Surgery (ERAS) protocol continuity at home.

Methods/Interventions: A literature review was undertaken to identify the commonest complications in the first 30 days post colorectal surgery. Symptoms to represent these complications were shortlisted using a literature review. Pre-tested scoring systems were used to categorise the complications and merged with a modified (National Early Warning Score) NEWS system(6-9). An application was designed with the help of "Spirit Digital Limited" utilising a warning system to handle Red flags or a combination of different Green, Red and Amber scenarios.

Results/Outcome(s): In the initial phase, the virtual ward is being used to reduce readmission rates. In the second phase, it will be used for an earlier discharge of patients allowing remote monitoring with telephone/virtual or face-to-face advice as needed.

Conclusions/Discussion: It is anticipated that the Colorectal virtual ward would assist in cost-saving for healthcare systems.

Flow chart to show plan of action



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INTERVENTION TO PREVENT POSTOPERATIVE ILEUS IN PATIENTS UNDERGOING ILEOSTOMY FORMATION: A FOLLOW-UP STUDY.

eP815

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Purpose/Background: Postoperative ileus (POI) is associated with increased patient discomfort, length of stay (LOS), and healthcare cost. Based on our prior work linking POI and early positive postoperative net fluid balance in patients with new ileostomies, we developed a protocol of postoperative diuretic administration, delayed diet advancement, and early stoma intubation for this patient population and demonstrated improvement in POI rates after instituting the new protocol. Nearly two years after implementation, we aim to re-assess efficacy of the intervention.

Methods/Interventions: This is a single-institution, retrospective, pre-post intervention study of patients who had non-emergent ileostomy formation by colorectal surgeons in academic practice. Baseline data (7/1/15-6/30/20) and those from two post-intervention periods (period 1 [P1] 8/13/20-6/1/21 and period 2 [P2] 6/2/21-6/30/22) were obtained from an automated electronic medical record report supplemented by manual chart

review. POI status was determined by explicit documentation or clinical evidence of POI (e.g., nausea/vomiting, x-ray evidence of POI). Demographics, intraoperative factors, postoperative fluid balance, and outcomes (POI, post-procedure LOS, hospitalization cost, and readmissions) were compared between patients pre-intervention and in both post-intervention periods. Adherence to the intervention was summarized descriptively for the intervention period.

Results/Outcome(s): 380 patients (n=261 baseline, n=58 P1, n=61 P2; mean age 50, 44.7% female) were included in the analysis. No differences in demographic or intraoperative characteristics were observed between the 3 periods. While POI rate dropped from 32.6% (baseline) to 13.8% in P1 (p=0.004), it increased again in P2 to 32.8% (p=0.002). Accordingly, between P1 and P2, there was an increase in average post-procedure LOS (5.3 days to 8.1 days, p=0.002) and direct cost (from $21.7K to $33.0K, p=0.004). When evaluating compliance with the protocol, the rate of diuresis administration dropped from 76% during P1 to 49% during P2 (p=0.003). However, the two-day ileostomy output and postoperative fluid balance were not significantly different between the two intervention periods.

Conclusions/Discussion: Despite initially-observed efficacy of the intervention during P1, POI rate, LOS, and direct cost rebounded to baseline during P2 despite no changes to protocol stipulations. The decrease in compliance with pharmacologic diuresis in the follow-up period likely reflects an overall decrease in protocol adherence, which may, in part, account for the differences in results between the two intervention periods. Worse adherence during the follow-up period may represent 'real world' protocol uptake when focused attention on the effort diminished. Further investigation into unmeasured factors contributing to POI, potential reasons for decline in intervention adherence, and strategies to overcome them is needed.

Table 1.

	Baseline (7/1/2015-6/30/2020) n=261	Intervention (8/13/2020-6/30/2022) Period 1 [P1] n=58	Period 2 [P2] n=61	p-value*
Demographics				
Gender				
Female	119 (45.6%)	30 (51.7%)	21 (34.4%)	0.06
Male	142 (54.4%)	28 (48.3%)	40 (65.6%)	
Age (years)	50.4	46.2	50.6	0.13
Body Mass Index (kg/m2)	25.7	25.5	25.9	0.60
Intraoperative Characteristics				
Operative Approach				
Open	45 (17.2%)	12 (20.7%)	12 (19.7%)	0.37
Laparoscopic	150 (57.5%)	36 (62.1%)	32 (52.5%)	
Robotic	66 (25.3%)	10 (17.2%)	17 (27.9%)	
Ileostomy Type				
Diverting Loop Ileostomy	173 (66.3%)	43 (74.1%)	47 (77.0%)	0.71
End Ileostomy	88 (33.7%)	15 (25.9%)	14 (23.0%)	
Procedure Duration (min)	289.9	290.8	287.4	0.87
Postoperative Characteristics				
Lasix admininistered		**44 (75.9%)**	**30 (49.2%)**	**0.003**
Two-day ileostomy output (L)	**0.8**	1.1	0.9	0.19
Two-day postoperative fluid balance (L)	**2.1**	0.3	0.2	0.74
Outcomes				
Post-operative Ileus Rate	**85 (32.6%)**	**8 (13.8%)**	**20 (32.8%)**	**0.02**
Post-Procedure Length of Stay (days)	**7.2**	**5.3**	**8.1**	**0.002**
Direct Cost	**$27,213**	**$21,652**	**$32,975**	**0.004**
30-day Readmissions	46 (17.6%)	7 (12.1%)	11 (18.0%)	0.36

*Comparison between P1 and P2

INSULIN-DEFICIENT PATIENTS WITH DIABETES HAVE WORSE GLYCEMIC CONTROL FOLLOWING PREOPERATIVE CARBOHYDRATE LOADING.

eP816

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Purpose/Background: Preoperative carbohydrate loading (CHO) has been adopted as a component of enhanced recovery protocols to reduce postoperative insulin resistance. The effects of carbohydrate loading on preoperative glucose levels in patients with diabetes are not well-studied.

Methods/Interventions: Using institutional data, we performed a retrospective study to compare glucose levels on the day of surgery in patients with diabetes enrolled in an enhanced recovery protocol for elective colorectal surgery. The control group included patients from 2016-2017 who received two bottles of preoperative carbohydrate beverage (total 100g CHO). The treatment group included those from 2021 after which patients with diabetes received only one bottle of preoperative carbohydrate beverage (50g CHO), while patients without diabetes continued to receive two bottles. Descriptive analyses were performed for diabetes status and glucose level in each group.

Results/Outcome(s): Of 412 control patients, 54 (13.1%) had diabetes. Meanwhile, the treatment group consisted of 344 patients, of whom 35 (10.2%) had diabetes. Nineteen patients had insulin-deficient diabetes in the control group compared to 14 in the treatment group (p=0.71). Median glucose level on the day of surgery was elevated for patients with non-insulin-deficient diabetes in the control group compared to those in the treatment group (see Table). Day-of-surgery glucose levels remained >180mg/dL for patients with insulin-deficient type 2 diabetes in both control and treatment groups.

Conclusions/Discussion: Patients with insulin-deficient type 2 diabetes demonstrate poor glycemic control on the day of surgery in response to CHO with both 50g and 100g whereas those with non-insulin-deficient type 2 diabetes tolerate 50g CHO with day-of-surgery glucose levels <180mg/dL. These findings warrant additional investigation into the role of day-of-surgery glucose levels on postoperative outcomes. Further study may also inform future recommendations for preoperative carbohydrate loading in patients with diabetes undergoing colorectal surgery.

Diabetes status	Mean day-of-surgery preoperative glucose (mg/dL) Control group (100g CHO)	Treatment group (50g CHO)
Insulin-deficient Type 1	150	184
Diet-managed Type 2	151	130
Medication-managed Type 2	210	177
Insulin-deficient Type 2	246	259

THE ASSOCIATION BETWEEN COMORBIDITY INDICES AND HOSPITAL COSTS IN PATIENTS UNDERGOING MAJOR SMALL AND LARGE BOWEL PROCEDURES.

eP817

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Purpose/Background: Bundling payments is a strategy to control healthcare costs and should drive quality improvement measures. Medicare Severity-Diagnosis Related Group (MS-DRG) bundling is a largely fixed tiered reimbursement system which accounts for complications and comorbid conditions. Major small and large bowel procedures (MSLBP) occur in a heterogenous population of patients, diagnoses, and acuity, with tiered MS-DRG groups 329-331 which attempt to account for this heterogeneity. Tiering accounts for multiple comorbid conditions, however, we hypothesize that MS-DRG does not account for several modifiable and/or unmodifiable variables which impact cost.

Methods/Interventions: A single-institution retrospective review was performed using administrative financial data of patients who underwent MSLBP between 2019-2021. Total hospital cost (THC) and the deviation of total cost from expected hospital costs were compared using the Pearson correlation coefficient. Association of THC with case mix index (CMI), Elixhauser and Charslon comorbidity indices were calculated using linear regression analyses.

Results/Outcome(s): A total of 998 patient encounters were analyzed. Mean THC was $87,900 (median = $67,300) and was on average $63,000 higher than expected cost, however, THC and the deviation of THC from expected costs were highly correlated (r = 0.97). Average Charlson score was 1.9, predicting approximately 90% 10-year survival. Average Elixhauser score was 7.5, suggesting approximately 5% chance of in-hospital mortality. CMI was most highly correlated with THC (R^2 = 0.210), followed by Elixhauser (R^2 = 0.144), then Charlson (R^2 = 0.095). Elixhauser and Charlson scores were most highly correlated with each other (r = 0.74) than with CMI (r = 0.35 and r = 0.18, respectively; **Figure 1**).

Conclusions/Discussion: CMI is a numerical weight calculated based on national average hospital resource consumption for each individual MS-DRG and is used to determine THC within individual hospitals or healthcare systems. As expected CMI is most highly correlated with THC, however, it is not as closely related with the Elixhauser and Charleson comorbidity indices which are historically associated with morbidity and mortality. Additional analysis is needed to assess association of morbidity and mortality with Elixhauser and Charlson indices within our institution, and to determine weighted contribution from individual modifiable and/or unmodifiable comorbid conditions.

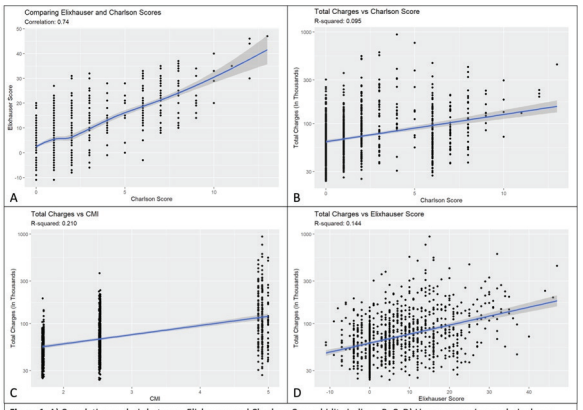

Figure 1. A) Correlative analysis between Elixhauser and Charlson Comorbidity indices. B, C, D) Linear regression analysis shows THC vs Charlson, CMI, and Elixhauser, respectively.

USE AND IMPACT OF ADJUVANT CHEMOTHERAPY IN YPT0N0 RECTAL CANCER: A NATIONAL CANCER DATABASE (NCDB) STUDY.

eP818

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Purpose/Background: The gold standard for managing locally advanced rectal cancer (LARC) is long-course neoadjuvant chemoradiation (NACRT), total mesorectal excision, then adjuvant chemotherapy (AC). AC's role is to eliminate micrometastasis, stop distant disease progression, and improve overall survival (OS). A proportion of LARCs seem to be fully eradicated with NACRT; nonoperative protocols are evolving in these patients, but many still have radical resection. The benefit of AC in complete pathologic response (pCR) patients has been questioned and warrants study. The goal was to examine the utilization of AC and its impact on OS in pCR rectal cancer cases using a national registry.

Methods/Interventions: The NCDB was reviewed for clinical stage 2 and 3 rectal cancers receiving NACRT and curative resection, with a pCR (verified as ypT0N0) from 2010-17. Cases were stratified by AC and no AC. Kaplan-Meier and Multivariate Cox regression, adjusted for patient, disease, intervention, and provider factors, assessed OS. A sensitivity analysis was performed using propensity- score matched cohorts. The main outcome measures were the rates of AC and its impact on OS.

Results/Outcome(s): Of 4,550 cases meeting inclusion criteria, 34% (n=1,542) received AC. After median follow-up of 67.38 months, the AC cohort had significantly improved 5-year OS of 94.6% (95%CI 93.4%; 95.8%) compared to 88.3% without AC (95%CI 87.1%; 89.6%) (p<0.001). On multivariate Cox regression, AC improved OS by 41% (HR 0.59; 95%CI 0.45, 0.78; p<0.001). Other factors associated with improved OS were ≥12 lymph nodes examined (HR 0.59; 95%CI 0.45, 0.78; p<0.001)

female sex (HR 0.62; 95%CI 0.49, 0.78; p<0.001), and patients living outside metropolitan areas (HR 0.59; 95%CI 0.35, 0.98; p=0.043). Factors associated with worse OS were uninsured status (HR 1.95; 95%CI 1.20, 3.16; p=0.007); Medicare payor (HR 1.49; 95%CI 1.09, 2.06; p=0.014); increasing age (HR 1.05; 95%CI 1.03, 1.06; p<0.001); and greater comorbidity burden ([CCI1 [HR 1.44; 95%CI 1.11, 1.87; p=0.006], CCI2 [HR 2.21; 95%CI 1.50, 3.25; p<0.001; CCI3 [HR 2.67; 95%CI 1.62, 4.39; p<0.001]). On the sensitivity analysis, after propensity score matching, AC had significantly improved 5-year OS at 94.7% (95%CI 93.1%; 96.3%) compared to 89.4% (95%CI 87.2%; 91.7%) without AC (p<0.001).

Conclusions/Discussion: This data shows that AC independently improved long-term survival in rectal cancer patients who have a complete pathological response after TME surgery. In these LARC patients with complete local control, we postulate that AC improved clearance of micrometastatic distant disease. LARC would be expected to have substantial spread to the liver and lungs if left untreated. Despite the survival benefit, AC is only used in 1/3 of patients nationally. As non-operative management and interest in total neoadjuvant therapy evolve, these results are important to include in the discussion.

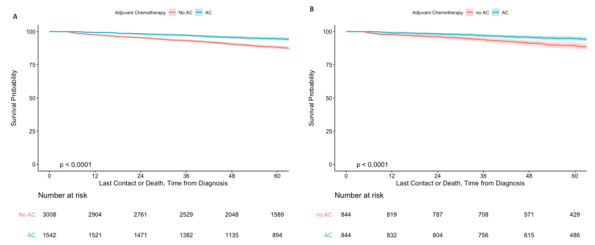

Figure. Kaplan-Meier curve for overall survival in locally advanced rectal cancer patients that had neoadjuvant chemoradiation, curative resection, and pathologic ypT0N0, stratified by adjuvant chemotherapy and no adjuvant chemotherapy, from 2010 through 2017. A) unmatched cohorts, B) matched cohorts.

CLOSED INCISION NEGATIVE PRESSURE WOUND THERAPY REDUCES SURGICAL SITE INFECTIONS AND READMISSIONS AFTER OPEN COLON SURGERY.

eP819

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Purpose/Background: The use of closed incision negative pressure wound therapy (CINPWT) has increased in the last decade across surgical fields including colorectal surgery. This study sought to compare postoperative outcomes associated with use of closed incision negative pressure wound therapy following open colorectal surgery from a large national database.

Methods/Interventions: A retrospective review of patients who underwent open colorectal operations from 2015-2020 was performed using National Surgical Quality Improvement Program (NSQIP) participant user files as well as Targeted Colectomy Database. Intraoperative placement of CINPWT was identified using Current Procedural Terminology (CPT) codes in patients undergoing open abdominal operations with closure of all wound layers including skin. Propensity score matching was performed to define control group who underwent closure of all wound layers without CINPWT. Patients were matched in a 1:4 (CINPWT vs. control) ratio with replacement based on age, sex, body mass index, comorbidities, ASA category, preoperative albumin level, prior neoadjuvant chemotherapy, surgical indication, and surgical wound classification. Logistic regression was performed to examine differences in postoperative outcomes, including superficial, deep, and organ-space surgical site infection (SSI), wound disruption, and readmission. A p-value of <0.05 was considered statistically significant.

Results/Outcome(s): Between 2015-2020, CINPWT was only used in 429 (0.6%) undergoing open operations in colon surgery. A matched cohort of 1686 was selected. Matched variables had equivalent proportions in CINPWT and control cohorts. On logistic regression, patients with CINPWT experienced decreased odds of developing a superficial SSI (OR: 0.43, 95% CI: 0.24-0.75) and lower of odds of readmission within 30 days postoperatively (OR 0.70, 95% CI 0.5-0.99). CINPWT did not cause significant change in odds of deep SSI, organ-space SSI, or wound disruption. CINPWT was associated with longer median operative time (166 vs. 148 minutes) compared to control.

Conclusions/Discussion: Although there is a slightly increased operative time, utilization of CINPWT in colon surgery is associated with lower odds of superficial SSI and 30-day readmissions. This suggests that CINPWT should be more routinely utilized in open colon surgery to improve patient outcomes.

Table: Logistic Regression for outcomes of skin closure with CINPWT compared to no CINPWT in patients undergoing open colon surgery.

Outcome	OR	P-value	95% CI	
Superficial SSI	0.43	0.003	0.24	0.75
Deep SSI	0.89	0.82	0.34	2.37
Organ-Space SSI	1.28	0.16	0.93	1.75
Disruption	1.49	0.25	0.76	2.91
Readmission	0.70	0.044	0.50	0.99

THE LEARNING CURVE IN THE MANAGEMENT OF COLORECTAL PERITONEAL METASTASES: LESSONS FO 220 CONSECUTIVE PATIENTS.

eP820

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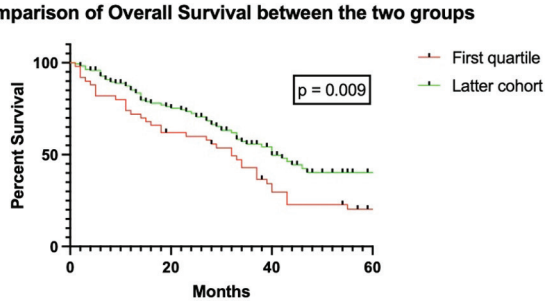
Purpose/Background: Cytoreductive Surgery(CRS) and Heated Intraperitoneal Chemotherapy(HIPEC) improves survival in 'select' patients with colorectal peritoneal

metastases (CPM) due to improvements in patient selection, cytoreduction and chemotherapy. This study evaluates the effect of the learning curve on patient selection, morbidity, and survival outcomes.

Methods/Interventions: Data was collected from consecutive patients undergoing CRS/HIPEC for CPM at a quaternary cancer centre over a twelve-year period using a prospective database and chart review to obtain demographic, operative, morbidity and survival records. Two groups were formed based on the length of the learning period and patient selection, cytoreduction and survival outcomes were compared between the two groups using a Mann-Whitney test.

Results/Outcome(s): Between 2010-2022, 220 patients were included; 127 (57.8%) females and median(SD) age 56(12)years, with a difference in outcomes noted between the first quartile (50patients) and the remaining 170 patients. Patient selection was more judicious, with the proportion of patients having PCI>15 decreasing from 32% to 14.7% (p=0.0034), and subsequent complete cytoreduction (CC0) increasing from 62% to 84%, (p=0.0016) and fewer unresectable cases (20% to 12.4%, (p=0.0016). Overall, there was a trend to lower major morbidity (28% vs.20%), reduced transfusion rates (36% vs.18%). The median OS of the entire cohort was 37 months; with a considerable difference between the two groups (32 vs. 40 months) and 5-year OS improving from 28.8% to 41.2% (p=0.009).

Conclusions/Discussion: There is a learning curve associated with CRS/HIPEC that directly impacts survival outcomes. As the utility of cytoreductive surgery expands, this should be considered with the provision of any CRS and HIPEC service.



RECTAL ADENOMA-LIKE ADENOCARCINOMA IN A PATIENT WITH MCKITTRICK-WHEELOCK SYNDROME.

eP821

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Purpose/Background: McKittrick-Wheelock Syndrome is a rare disorder characterized by the triad of secretory diarrhea, electrolyte imbalance causing renal impairment, and a rectosigmoid tumor, usually a benign villous adenoma.[1] Villous, or adenoma-like, adenocarcinoma is a recently classified subtype of colorectal cancer, identified by its similarity in architecture to villous and tubulovillous adenomas.[2] A recent case series documented only 11 cases of MKWS arising from a malignancy. Of these, nine were adenocarcinoma, while one was a mucinous adenocarcinoma.[3] To our knowledge, we document the first case of MKWS arising from an adenoma-like adenocarcinoma.

Methods/Interventions: A 72-year-old female was referred for findings of a polypoid mass (Figure 1A) 4cm from the anal verge. She presented with diarrhea, weakness and weight loss prompting multiple hospital admissions. Upon optimization, the patient underwent an abdomino-transanal resection (ATAR). Intraoperatively, we noted a long segment rectal mass (Figure 1B) almost-completely obstructing the lumen with its proximal extent just distal to the sacral promontory.

Results/Outcome(s): Since her discharge 7 days post-operatively, she had no episodes of diarrhea or excessive mucoid secretions per rectum. Histopathology revealed an adenoma-like well-differentiated adenocarcinoma/villous adenocarcinoma with mucinous carcinoma component invading into the visceral peritoneum (Figure 1C). Adjuvant chemotherapy was started thereafter.

Conclusions/Discussion: The definite treatment for MKWS remains surgical excision of the colorectal tumor. The use of pharmacologic agents including indomethacin and octreotide remains controversial, with the role of medical management limited to fluid replacement and electrolyte correction.[4-5] Newer minimally-invasive methods including endoscopic and transanal approaches have been utilized, but some patients still eventually undergo bowel resection to effectively treat MKWS.[6] Our patient underwent a formal oncologic resection in anticipation of an invasive pathology which eventually revealed a well-differentiated adenoma-like adenocarcinoma with component of mucinous carcinoma and involved the visceral peritoneum of the rectum (pT3). Adenoma-like adenocarcinoma was first documented in 1998 as a part of a series of 50, and present more commonly in the elderly populations, offer improved recurrence-free survival and are inversely associated with poor prognostic factors such as high pathologic grade, lymph node metastasis, lymphovascular, and perineural invasion.[2] In summary, we presented a case of villous adenocarcinoma presenting as MKWS managed with surgical resection. Because its presentation is often overlooked and managed medically, increasing awareness and improving our recognition of this syndrome is crucial in managing our patients – which requires surgical resection to fully reverse symptoms.

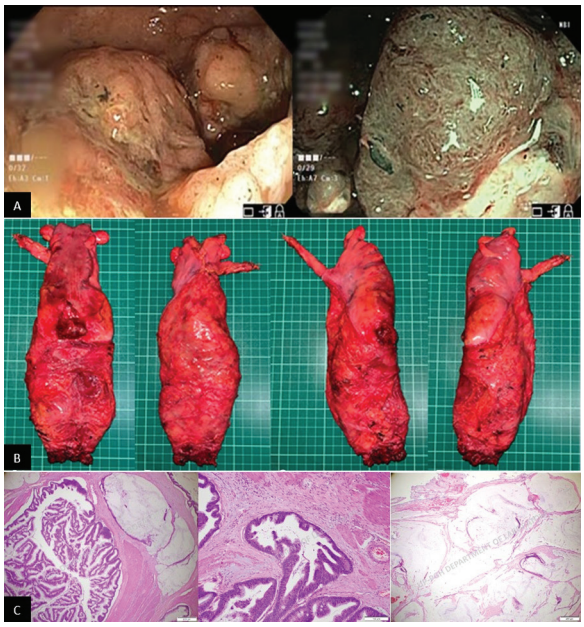

Figure 1. (A) Colonoscopic image. (L) Standard and (R) Narrow Band Imaging of the long segment nodular mass from 4 to 25 cms from the anal verge. **(B) Gross Specimen.** (L-R) Anterior, posterior, right lateral and left lateral views of the specimen excised. It was 18 cm in length with a 12 x 6 x 3.5 intraluminal mass **(C) Microscopic sections.** (left) Histopathologic sections of the mass showed an invasive adenocarcinoma component, 60% of which had an adenoma-like aspect with villous structures. The mucinous carcinoma component (40%), also seen in this image on the right side, with pools of extracellular mucin containing overt malignant epithelium. (middle) The low-grade cytologic atypia may present difficulties in establishing a diagnosis of the invasive component on biopsies. (right) Mucinous Carcinoma component, 40X magnification] The mucinous carcinoma component, with pools of extracellular mucin containing overt malignant epithelium.

WHICH PART SHOULD WE REMOVE FOR CENTRAL LYMPH NODE DISSECTION OF RIGHT COLON CANCER?

eP822

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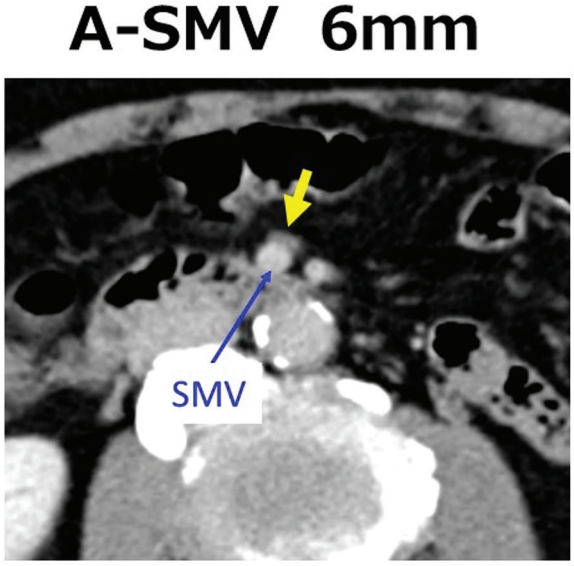
Purpose/Background: Central vascular ligation is one of the concepts for curative resection of colon cancer. Origin of the right colic vessels is various and actual site of central lymph node metastasis is unclear. This study is assessed regarding site of central lymph node metastasis using CT image.

Methods/Interventions: Pathological central lymph node positive right colon cancer (cecum and ascending colon) patients were registered from 23 hospitals of Japanese Society for Cancer of the Colon and Rectum. All CT images of central lymph node metastasis were assessed by one radiologist and one surgeon. Metastatic site was classified as follows: around the superior mesenteric artery (SMA), left part of the superior mesenteric vein (Lt-SMV), anterior part of the SMV (A-SMV), posterior part of the SMV (P-SMV), and right part of the SMV (Rt-SMV).

Results/Outcome(s): Total 128 cases were assessed, and 107 cases were node positive near the origin of the ileocolic and right colic artery. CT images were recognized at SMA: 1, Lt-SMV: 2, A-SMV: 7, P-SMV: 1, Rt-SMV: 69, uncertain: 27. The origin of the middle colic artery positive cases were 21, and CT images demonstrated the site at SMA: 0, Lt-SMV: 0, A-SMV: 12, P-SMV: 0, Rt-SMV: 6, uncertain: 3. Recurrence was observed in 54 cases of this series. Although part of the SMV was removed for D3 dissection in most of the patients, only one patient recurred at the central lymph node around the SMA. There was no recurrence around the SMV.

Conclusions/Discussion: Lymph node removal of anterior and right side of SMV is enough for central lymph node clearance of right colon cancer. Metastasis and recurrence are extremely rare around the SMA for cecal and ascending colon cancer.



ARE MORE SOCIAL VULNERABILITY PATIENTS LESS LIKELY TO HAVE AN IDEAL ONCOLOGIC OUTCOME AFTER COLECTOMY FOR COLON CANCER? A MULTI-HOSPITAL ANALYSIS.

eP823

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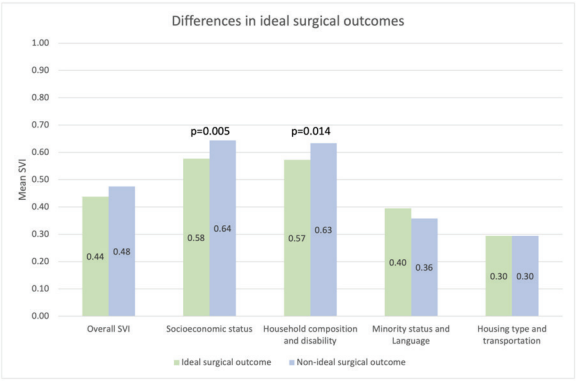
Purpose/Background: The Centers for Disease Control (CDC) Social Vulnerability Index (SVI) is a tool that uses United States census data to determine the social vulnerability of an individual based on their residing census tract. The index is subdivided into four subthemes: socioeconomic status, household composition and disability, minority status and language, and housing type and

transportation. We hypothesized that more socially vulnerable patients with colon cancer are at higher risk of suffering adverse surgical outcomes.

Methods/Interventions: We performed a retrospective review of all patients who underwent a colon resection for management of colon adenocarcinoma or for which malignancy was suspected in 2020-2021 within the Ochsner Health system. An ideal oncologic resection (IOR) was defined by negative margins and ≥12 lymph nodes obtained. An ideal surgical outcome (ISO) was defined as an ideal oncologic resection in addition to a hospital length of stay ≤7 days and no readmission within 30 days. Pathologic data was merged with SVI by census-tract using the United States census geocoder tool. The impact of SVI on IOR and ISO outcomes was then evaluated. Analysis was performed in Prism utilizing descriptive statistics and unpaired t-test.

Results/Outcome(s): 433 patients underwent a colon resection for colon adenocarcinoma or for which malignancy was suspected between 2020-2021. The mean age of patients was 54 years with the majority being White (59.12%) and Black or African American (36.95%). Most patients had Medicare (53.35%) and private insurance (30.72%). Three hundred thirty-nine (78.29%) patients received an IOR, with 249 (57.51%) patients having an ISO. There was no significant difference in overall SVI for those receiving an IOR or ISO compared to those who did not (p=0.712 and p=0.142 respectively). When evaluated by vulnerability subthemes, however, higher values indicating more vulnerable socioeconomic status and household composition and disability were more likely to not receive an ISO (p=0.005 and p=0.014 respectively).

Conclusions/Discussion: Socially vulnerable patients are as likely to undergo ideal oncologic resections as those who are less vulnerable. Socioeconomic status and household composition and disability are associated with less-than-ideal overall surgical outcomes, suggesting that length of stay and readmissions drive worse outcomes in the more socially vulnerable. Our study provides additional insight into important areas for intervention to optimize oncologic outcomes.



COMPARATIVE CLINICAL EFFECTIVENESS OF LAPAROSCOPIC AND ROBOTIC ASSISTED COLECTOMY: A MULTI-INSTITUTIONAL EXPERIENCE IN TAIWAN.

eP824

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Purpose/Background: The objective of this retrospective study is to explore the comparative clinical effectiveness of robotic-assisted colectomy (RAC) compared to laparoscopic colectomy (LAC) for patients with colon cancer in Taiwan.

Methods/Interventions: The patients from 6 hospitals who underwent RAC or LAC from January 2015 to December 2021 were included. All patients were primarily diagnosed of colon cancer (ICD-10, C18-19). Patient baseline information and clinical outcomes recorded in medical charts and operative notes were reviewed and retrieved retrospectively. A 1:1 propensity score matching (PSM) was used to equate baseline differences between RAC and LAC groups for age, sex, BMI, CCI, ASA, cancer stage, tumor size, and type of surgery (right hemicolectomy, left hemicolectomy, sigmoidectomy). A paired t-test or Wilcoxon signed-rank test was used after checking the normality of continuous variables, and the McNemar test for categorical variables.

Results/Outcome(s): A total of 772 patients who underwent minimal-invasive colon resection were collected. Patients' baseline characteristics of RAC and LAC were comparable in terms of age, sex, BMI, CCI, and tumor size. However, the type of surgery, ASA, and cancer stage are significantly different between RAC and LAC. After PSM, there were 544 cases available for the analysis and there was no significant difference in any patients' backgrounds. The number of lymph node examinations is significantly higher in RAC than in LAC (p=0.034). But other than that, we couldn't find any statistically significant difference in outcomes between the two groups. OR time was 271.76 min in RAC and 246.31 min in LAC (p=0.0581). Conversion rate was 0% (N=0) in RAC, and 1.9% (N=5) in LAC (p=0.0614). Reoperation rate was 1.47% (N=4) in RAC, and 0.74% (N=10) in LAC (p=0.1739). Blood loss was 64.6 ml in RAC, and 66.22 ml in LAC (p=0.8009). positive surgical margin was 2.23% in RAC and 0.38% in LAC (p=0.1226). Regarding postoperative outcomes, the length of stay (8.15 vs 8.57 days, p=0.0627), readmission rate (1.47% vs 2.21%, p=0.7516), complication rate (5.33% vs 7.17%, p=0.2432), local recurrence (3.68% vs 2.49%, p=0.6416) and 1-year survival rate (99.6 vs 98.5%, p=0.4) were comparable between RAC and LAC (Table 1).

Conclusions/Discussion: The number of lymph node yields is higher in RAC than in LAC. Otherwise, postoperative morbidity and mortality rates of robotic-assisted colectomy were comparable to the laparoscopic colectomy despite a relatively shorter history of RAC. Therefore,

we conclude that robotic-assisted colectomy could be regarded as a safe and feasible option compared to laparoscopic colectomy.

Table 1. Intraoperative and postoperative outcomes details after PSM.

	RAC (N=171)		LAC (N=171)		P-value
	N of mean (SD)	% of median (IQR)	N of mean (SD)	% of median (IQR)	
OR time	271.78 (109.80)	240 (142.25)	248.31 (99.36)	240 (175)	0.0561
Conversion	0	0%	5	1.8%	0.0614
Reoperation	4	1.47%	10	3.65%	0.1738
Transfusion	4	1.47%	2	0.74%	0.8656
Blood loss	84.80 (80.77)	30 (20)	88.22 (92.15)	30 (20)	0.8009
Positive surgical margin	6	2.23%	1	0.36%	0.1228
Lymph node examination	23.48 (12.20)	21 (13.25)	21.42 (9.02)	19 (9.25)	0.0340
Postoperative length of stay	6.15 (4.01)	5 (2)	6.57 (4.33)	5 (2)	0.1827
Readmission	4	1.47%	6	2.21%	0.7518
Complications	28	5.33%	38	7.17%	0.2432
30-day mortality	1	0.37%	1	0.37%	1
Local recurrence	10	3.68%	5	2.94%	0.8418
1-year overall survival rate	1	98.5%	4	98.5%	0.4

THE PROGNOSTIC VALUE OF ASPARAGINYL-TRNA SYNTHETASES AS A BIOMARKER IN STAGE II COLON CANCER.

eP825

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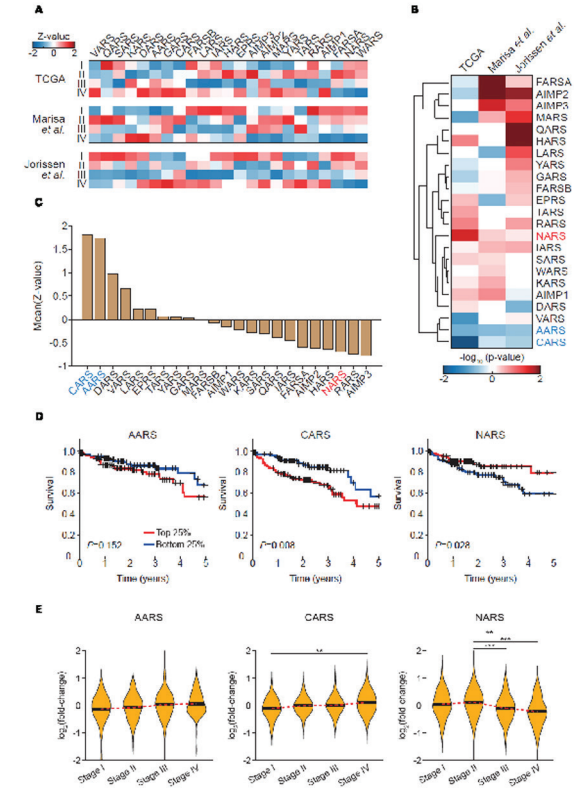
Purpose/Background: Discovering a novel biomarker to predict disease outcomes and inform outcomes with specific interventions is essential for managing colorectal cancer (CRC). Aminoacyl-tRNA synthetases (ARSs) are a family of 20 essential enzymes for protein synthesis associated with carcinogenesis. This study aims to discover potential prognostic biomarkers among 20 ARSs and evaluate the prognostic value of a candidate biomarker in stage II colon cancer (CC) patients.

Methods/Interventions: Top candidate ARSs genes were tested for their association with survival with gene expression data from an open public large database. Then, immunohistochemistry (IHC) staining was performed on the tissues of 334 patients with CC, and the log-rank test was used with Kaplan-Meier (KM) estimation to compare survival rates according to protein expression levels of cysteinyl-tRNA synthetases (CARS) and asparaginyl-tRNA synthetases (NARS). To identify the pathways represented by the CARS and NARS correlating genes and proteins, we performed an enrichment analysis of cellular pathways for the genes and proteins using ConsensusPathDB. Finally, the frequency of CD3+ and CD8+ immune cells within CC tissue was determined using IHC and a digital image analyzer.

Results/Outcome(s): Among the 20 ARS genes, CARS, alanyl-tRNA synthetases (AARS), and NARS were selected as candidate ARSs genes in the discovery data set. Only the high protein expression level of NARS was the independent prognostic factor with disease-free survival (DFS) in IHC analysis of 344 CC samples (P=0.001), and high expression of NARS was associated with better DFS in patients with stage II CC (HR 0.237; 95%CI 0.101-0.557, p=0.001). Furthermore, NARS showed favorable AUC value 0.82 (P < 0.001, 95%CI: 0.71–0.93) in stage II CC. The network model showed the association between NARS and anti-tumor immunity in stage II CC, and IHC analysis of tumor-infiltrating immune cells showed that the numbers of CD3+ T cells were significantly increased in the NARS high-expression group (p=0.018).

Conclusions/Discussion: The protein expression level of NARS is a potential prognostic marker for survival in patients with stage II CC. However, further studies are needed on the benefit of adjuvant chemotherapy according to the expression level of NARS.

Fig 1.



MACHINE LEARNING APPROACH TO PREDICT SURVIVAL IN COLORECTAL LIVER METASTASIS.

eP826

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Purpose/Background: Colorectal Cancer remains the third most common malignancy worldwide with over 20% of patients presenting with metastatic disease, most commonly to the liver. Surgical resection remains as the only potentially curative treatment modality for patients with Colorectal Liver Metastasis (CRLM). In this study we aim to utilize machine learning to better prognosticate patients undergoing surgical resection for CRLM.

Methods/Interventions: A retrospective analysis of the National Cancer Database (NCDB) was conducted to include all patients diagnosed with isolated CRLM from 2004 – 2018 who underwent surgical resection of the primary site that was not palliative in nature. A K-Means clustering algorithm was used to separate the patients into two cohorts which were then compared using ANOVA, Cox Univariate Regression and Kaplan-Meier Analysis.

Results/Outcome(s): A total of 11,552 patients with isolated CRLM were studied of which 54% were male, average age of diagnosis 61 y., and average year of diagnosis was 2012. A K-means clustering algorithm was used to divide the patients into two cohorts; group 1 consisting of 1795 patients and group 2 consisting of 9757 patients. Group 1 had an average age of 57 y. compared to 61 y. for group 2 ($p<0.001$), average time to start of systemic chemotherapy of 40 days vs. 63 days for group 2 ($p<0.001$), and average time to surgery of 196 days vs. 18 days for group 2 ($p<0.001$). The median Overall Survival (mOS) for group 1 was 42 mos. compared to 29 mos. ($p<0.001$). Univariate Cox Regression analysis showed superior mOS based on their cluster (HR 1.2, 95% CI 1.2 – 1.5, $p<0.001$).

Conclusions/Discussion: Utilization of Machine Learning algorithms such as the K-Means clustering algorithm can help to create models that prognosticate and identify factors that may lead to increased patient survival. Further prospective trials should be conducted utilizing such models to better delineate their use in clinical practice.

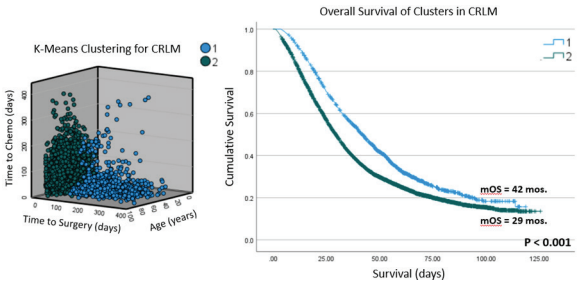

Figure 1: Scatter plot (left) demonstrating two cluster results from K-Means clustering, along with Kaplan-Meier (right) survival analysis based on designated cluster

SCREENING FOR MALNUTRITION USING GLIM CRITERIA IN COLORECTAL CANCER SURGERY PATIENTS.

eP827

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Purpose/Background: Background: The presence of preoperative malnutrition has been reported to increase postoperative complications in surgery. 2018 saw the development of the global malnutrition consensus GLIM criteria, but there have been few studies using the GLIM criteria. In this study, we examined whether the diagnosis of undernutrition using GLIM criteria could be useful in colorectal cancer surgery.

Methods/Interventions: Methods: Among colorectal cancer surgeries from 2018-2022, we included patients whose skeletal muscle mass was measured by the BIA method (Inbody S20) before and after surgery. The total muscle cross-sectional area and iliopsoas muscle area at the level of the third lumbar vertebra were measured by CT immediately before surgery, and the SMI (skeletal muscle index) and PMI (psoas muscle mass index) values by CT were calculated. i) The group judged by BMI alone, ii) The group judged by BMI and SMI by BIA method together in the GLIM criteria The relationship between postoperative complications and perioperative skeletal muscle loss was examined in four groups: i) group determined by BMI alone, ii) group determined by BMI plus SMI by CT, iii) group determined by BMI plus SMI by CT, and iv) group determined by BMI plus PMI by CT. In PMI, the sarcopenia criteria proposed by the Japan Society of Hepatology were used to define hyponutrition as 6.36 cm2/m2 or less in men and 3.92 cm2/m2 or less in women. Postoperative complications were defined as Clavien-Dindo classification grade I or higher.

Results/Outcome(s): Results: Thirty-nine patients (male:female = 29:10, mean age 71.64 (96-46), 6 complications, 14 patients with perioperative skeletal muscle index decrease of 10% or more) were evaluated using 4 criteria: i) 2 patients in the undernourished group, ii) 34 patients in the undernourished group, iii) 35 patients in the undernourished group, iv) 35 patients in the undernourished

group, and v) 5 patients in the undernourished group. The results showed i) 2 cases in the undernourished group, ii) 34 cases in the undernourished group, iii) 35 cases in the undernourished group, iv) 7 cases in the undernourished group. In terms of complication comparison, i) undernourished group: 0%, normal group: 16.7%; ii) undernourished group: 14.7%, normal group: 20%; iii) undernourished group: 17%, normal group: 0%; iv) undernourished group: 14%, normal group: 15.6%.

Conclusions/Discussion: The GLIM criteria are difficult to evaluate as a preoperative nutritional screening method. Further study is needed to determine how the GLIM criteria should be used in the perioperative period, including stratification of cut off values by age.

EFFECTS OF RACE AND INCOME ON ADENOMA DETECTION RATES (ADRS) IN SCREENING COLONOSCOPIES.

eP828

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Purpose/Background: Reliable estimates of Adenoma Detection Rates (ADRs) are needed to inform colonoscopic quality standards, yet little is known about how patient demographics such as race or socioeconomic status affect ADRs. Race has been shown to influence the risk of colorectal cancer while income-based disparities have been known to play a role in access to screening colonoscopies. The primary objective of this study is to compare the ADR between low-income and high-income patients as well as black and white patients undergoing screening colonoscopies in Western New York.

Methods/Interventions: Retrospective chart review was performed on patients 50 years of age and older undergoing screening colonoscopies by a single colorectal surgeon in Western New York between 2019-2021. Patient demographics (age, sex, race, address, marital status) and ADRs were collected. Median income for each patient was derived from zip code data according to 2019 US Census Data. Low income patients were defined as those making less than the median income of $41,620, which was the mean income of the cohort. Analysis was performed using Chi square tests for categorical variables and Student's t-tests for continuous variables.

Results/Outcome(s): A total of 515 charts were reviewed. The average age of the patients was 59 years old, 51% were male, 66.3% were low income. 52% of patients were black and 28% were white. Total ADR was 23.1%. The ADR was higher in men than women and increased with age. ADR in men was 30.7 % and in women was 15.2% (p=0.0003). ADR for age ranges 50-59 was 21.8%, and age ranges 60-69 was 25.9% (p =0.3). There was no difference in ADR among low income and high-income patients (22.87% and 22.98% respectively, p = 0.97). White patients had a higher ADR than the black patients (29.5 % and 21.5% respectively), however this difference was not significant (p=0.09) **(Table 1).**

Conclusions/Discussion: ADR, derived from screening examinations, is a recommended metric of the quality of colonoscopic examination. The overall ADR in this cohort is similar to national standard. In previous studies, advanced age as well as male sex has been associated with higher ADR. This finding was corroborated in this study with male ADR >female ADR and 60-69 age ADR >50-59 age ADR. When stratified by race, white patients had a higher ADR compared to black patients, however this difference was not significant. Interestingly, there was no difference in ADR between patients of lower and higher median incomes. This may be due to the fact that in this cohort, despite income differences, the patients with lower income had adequate access to screening colonoscopies. In this study, low-income patients presenting for screening colonoscopies were significantly younger than the high-income patients (mean age 58 vs 60 years respectively, p=0.02). Further studies are needed to investigate the effect of race and socioeconomic status on ADR in a larger general population.

Table 1: Patient demographics and Analysis of ADRs (Total 23.1%)

	No. of adenomas	No. screened (% total)	ADR %	P value (<0.05)
Age				
50-59	60	275 (53.8%)	21.8%	0.3 **
60-69	50	193 (37.7%)	25.9%	
>70	8	43 (8.4%)	18.6%	
Sex				
Male	81	264 (51%)	30.7%	0.0003
Female	38	252 (49%)	15.2%	
Income				
Low*	78	341 (66.2%)	22.87%	0.97
High	40	174 (33.8%)	22.98%	
Race				
Asian	5	21 (4%)	38.1%	0.09 ***
Black	41	265 (52%)	21.5%	
Unknown	6	71 (14%)	8.4%	
White	32	144 (28%)	29.5%	

*Low income defined as median income <$41,620 (mean income of cohort). ** This p value represents analysis of age ranges 50-59 vs 60-69 only (70-79 range not included). ***This p value represents analysis of Black vs White only (Asian and Unknown not included).

VALUE OF ROUTINE USE OF POSITRON EMISSION TOMOGRAPHY-COMPUTED TOMOGRAPHY FOR INITIAL STAGING AND MAKING TREATMENT PLAN OF COLON CANCER.

eP829

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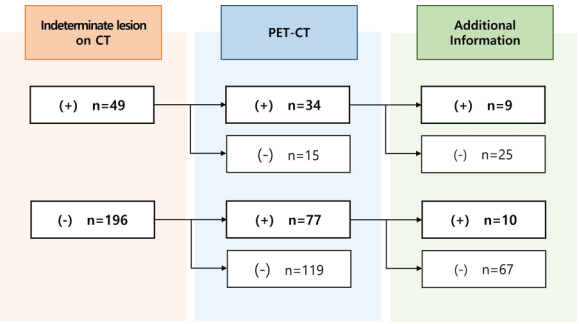
Purpose/Background: Positron emission tomography-computed tomography (PET-CT) is used to stage cancer and find hidden malignancies, but its role in preoperative diagnosis is uncertain. We aimed to evaluate the

value of PET-CT as a routine diagnostic and staging tool for colon cancer.

Methods/Interventions: We retrospectively analyzed the data of colon cancer patients who visited our institution between January and December 2017. We classified patients according to whether there were any indeterminate lesions on CT findings, and we also evaluated additional information on staging and treatment planning obtained with PET-CT.

Results/Outcome(s): Of 245 patients with colon cancer, 49 patients had indeterminate lesions on their CT scans and 196 patients did not. PET-CT was performed in 34 of the patients with indeterminate CT finding (group A) and in77 of the patients without indeterminate CT finding (group B) (69.4% vs. 39.3%, p<0.001). Of the patients underwent PET-CT, additional diagnostic information was confirmed in nine patients of group A and ten patients of group B (26.5% vs. 13.0%, p=0.143). With PET-CT, other cancers were additionally detected in one patient of group A and five patients of group B (2.9% vs. 6.5%, p=0.758). Except for the detection of other cancers, additional findings obtained by PET-CT to establish a treatment plan for colon cancer were found in eight patients of group A and five patients of group B (24.2% vs. 6.9%, p=0.029).

Conclusions/Discussion: The value of PET-CT as a routine diagnostic tool for all colon cancer patients is still uncertain. However, PET-CT could be useful for making treatment plan for the colon cancer patients who has indeterminate CT findings. Further prospective investigations will be needed.



COMPREHENSIVE ANALYSIS OF PROGNOSIS AND TME OF RELATED GENES FRO TRANSIENT RECEPTOR POTENTIAL CHANNEL IN COLORECTAL CANCER.

eP830

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Purpose/Background: The transient receptor potential channel is a widely concerned ion pathway that is associated with tumor progression, prognosis, and treatment response. However, the potential roles of TRP related genes (TRGs) in colorectal cancer (CRC) with the tumor microenvironment (TME) remain unclear.

Methods/Interventions: We described the alterations of TRGs in 620 CRC samples from transcriptome profiles. We identified two distinct molecular subtypes and found that multi-layer TRGs alterations were correlated with patient clinicopathological features, prognosis, and TME cell infiltrating characteristics. Then, a signature for TRGs was constructed and its predictive capability in CRC patients was validated.

Results/Outcome(s): Our comprehensive analysis of TRGs in CRC demonstrated their potential roles in the tumor microenvironment, clinicopathological features, and prognosis.

Conclusions/Discussion: These findings may widen our horizons of TRGs in CRC and discover a brand-new cutpoint for the development of more effective immunotherapy strategies and the prognostic stratification.

CLINICAL CHARACTERISTICS AND LONG-TERM ONCOLOGIC OUTCOMES IN YOUNG-ONSET COLORECTAL CANCER PATIENTS.

eP831

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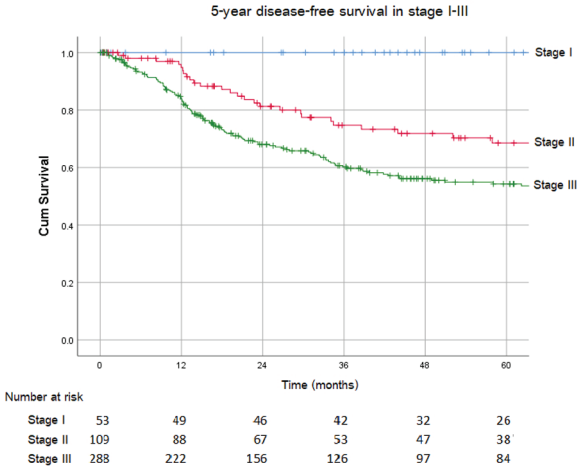
Purpose/Background: The incidence of young-onset colorectal cancer dramatically increased. It is believed that sedentary lifestyles and some genetic mutations correlate with this inclination. Data on colorectal cancer in young-onset patients, particularly from Asia, are limited. This study aims to review the clinical presentations, molecular characteristics, and long-term oncologic outcomes in young-onset colorectal cancer patients.

Methods/Interventions: We performed a retrospective chart review of patients diagnosed with colorectal cancer between 2010 and 2020 in our institute. The young-onset colorectal cancer patient was defined as a patient of age less than 50. Clinical presentations, molecular characteristics, and oncological outcomes of young-onset colorectal cancer patients were obtained and analyzed.

Results/Outcome(s): During the study period, we could retrieve 680 young-onset colorectal cancer patients who accounted for 12% of all age groups. However, there was no increased incidence of young-onset colorectal cancer patients in this study. The median follow-up time was 3.3 years [IQR: 1.6-6.3]. The median age was 44 years [IQR: 38-47]. The mean BMI was 22.62 kg/m^2 (SD 4.14). Patients with clinical stage I, II, III, and IV was 5.9, 8.9, 52.7, and 32.5 % respectively. 510 (75%) patients underwent curative-intent treatment. Most tumors were in the rectum (50.3%) and sigmoid colon (22.9%). Synchronous and metachronous cancers were 3.5 and 1.3% respectively. Common clinical presentations were bleeding (52.8%), abdominal pain (31.8%), weight loss (31.6%), and mucous

stool (29.1%). In the curative-intent group, local recurrence and distant recurrences were 10.4% and 30.3% respectively. Kaplan-Meier estimated 5-year disease-free survival for stage I, II, and III was 100%, 68.5%, and 55.2% respectively **(Figure)**. MSI-H or d-MMR tumor was found in 40 of 185 patients (21.6%). Apart from FAP and Lynch syndrome, other pathogenic gene mutations were BRCA, ATM, and PTEN gene mutations.

Conclusions/Discussion: Physicians should be aware and not reluctant to request for colonoscopy in young-onset patients presented with symptoms of left-sided colon or rectal cancer. To mitigate advanced-stage to early-stage colorectal cancer in young-onset patients, screening colonoscopy starting before age of 50 should be also considered in the Asian population.



REFERENCE VALUES FOR SIX-MINUTE WALK TEST FROM PATIENTS WITH ABDOMINAL AND PELVIC CANCERS UNDERGOING SURGICAL RESECTION.

eP832

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Purpose/Background: The six-minute walk test (6MWT) has been increasingly used to assess functional capacity across various patient populations, including in patients undergoing surgical treatment for abdominal and pelvic cancers. However, the paucity of six-minute walk distance (6MWD) reference values from population-based sample of cancer patients limits interpretation of 6MWD data in this population. This study was performed to establish reference values for 6MWD in the abdominal and pelvic cancer population.

Methods/Interventions: 783 patients undergoing surgical treatment for abdominal or pelvic cancers were recruited from three centres – Royal Prince Alfred Hospital (Sydney, Australia), Peter MacCallum Cancer Centre (Melbourne Australia), and Unity Health (Toronto Canada). These patients underwent the 6MWT preoperatively, using a standardised protocol. Anthropometric data (age, gender, BMI) were also collected and included in a multiple linear regression model for 6MWD.

Results/Outcome(s): The median age of the population was 62 years, with a higher proportion of males (57%) compared to females (43%). The median 6MWD was 495 metres. Age ($r=-0.29$, $p<0.001$), gender ($r=-0.14$, $p<0.001$) and BMI ($r=-0.15$, $p<0.001$) were significantly correlated with preoperative 6MWD. Age also showed significant collinearity with gender ($r=-0.186$, $p<0.001$). Multiple regression showed the optimum reference value equation to be: 6MWD= 718.3-2.651*Age-2.766*BMI. The reference 6MWD values (475 [49.1]) were comparable with measured 6MWD (495 [55] $p>0.9$).

Conclusions/Discussion: This study is the first to propose a reference value equation for preoperative 6MWD in a large population sample of abdominal and pelvic cancer patients. The findings will help improve the evaluation of preoperative function, leading to strategies for optimisation.

THE CURRENT LANDSCAPE OF EARLY-ONSET COLORECTAL CANCER.

eP833

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Purpose/Background: Whilst early-onset colorectal cancer (EOCRC) incidence is increasing by 2.8% per annum, later-onset colorectal cancer (LOCRC) incidence is reducing by 2.2% per annum in Australia. Thus, there has been a paradigm shift in colorectal cancer literature to establish the unique features of EOCRC that differ from LOCRC.

Methods/Interventions: A narrative review was performed using articles obtained from electronic databases (MEDLINE, EMBASE and Cochrane Library) via the search terms "early-onset colorectal cancer" or "young-onset colorectal cancer".

Results/Outcome(s): Childhood and adolescent exposures resulting in gut dysbiosis have been linked to increased EOCRC risk. Studies demonstrated a dose-dependent risk with weight and alcoholic and sugary beverages. There is conflicting evidence regarding the role of antibiotics in EOCRC development. EOCRCs have more aggressive histopathological features (mucinous and signet-ring morphology, poorer differentiation, lymphovascular invasion, involvement of adjacent structures) in comparison to LOCRC. Although the germline mutation rate is higher in EOCRCs (10-30%), most EOCRCs are sporadic. EOCRCs have fewer sporadic mutations in genes associated with

LOCRC (KRAS, BRAF, APC) and increased mutations in genes that regulate cellular function, inflammation and DNA and histone repair. Despite red flag symptoms (rectal bleeding, changes to bowel habits), diagnosis is often delayed when compared with LOCRC resulting in more emergency presentations and advanced stages at the time of diagnosis. Studies demonstrate that EOCRC patients are more likely to undergo multiagent chemotherapy regimens at all stages when compared to their older counterparts. However, there is limited data regarding the surgical treatment patterns and outcomes of EOCRC. Data on EOCRC survival is conflicting.

Conclusions/Discussion: Preventative aspects (risk factor identification and molecular profiling) of EOCRC remain the most heavily researched areas in the current EOCRC literature landscape. However, there is a paucity of studies investigating the surgical management, postoperative and functional outcomes, quality of life and survival of EOCRC patients and thus, future research is warranted.

C REACTIVE PROTEIN AS PREDICTOR OF ANASTOMOTIC LEAK: A SINGLE CENTER EXPERIENCE IN CENTRAL AMERICA.

eP834

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Purpose/Background: Anastomotic leak (AL) is the most dreaded complication after bowel surgery. However, an early diagnosis is not always easy, guiding the diagnosis of AL with laboratory or imaging tests. C Reactive Protein is a low cost reliable marker of an abdominal complication after a surgery. The study investigated the value of daily C Reactive Protein during consecutive days in patients with a bowel anastomosis.

Methods/Interventions: Prospective observational cohort study with inclusion of adult patients with bowel anastomosis. The preoperative diagnosis: 27 patients with colorectal cancer (7 AL), 10 diverticular disease (1 AL), 17 bowel obstruction (6 AL), 15 apendicitis/cecum perforation (3 AL).

Results/Outcome(s): PCR samples were obtained from 69 patients, 17 patients with AL. The AL group had a median age of 51 years, 10 patients were male and 6 patients were classified overweight or with obesity. The most frequent surgeries: right hemicolectomy 25 (6 AL), left hemicolectomy 10 (AL 3), colostomy closure 7 (1 AL), sigmoidectomy 4 (0 AL). Only 1 surgery was laparoscopic. The majority of patients with AL had a right hemicolectomy. Four patients with AL had manual anastomosis. A comparison of the mean operative time between AL and non-AL patients was not significantly different. In 36% of the patients with AL a latero-lateral anastomosis was done. The diagnosis of AL was made between the 2th and 7th postoperative day (POD). The most frequent clinical sign of AL was purulent secretion from the surgical incision (OR 48.2 IC 2.4-49.7 P<0.0001). The AL group had a CRP value at POD 2 of 22.3 mg/dl (SD±8.3 range 11-36.5 p<0.0001). With a cutoff value of 10.9 mg/dl the sensitivity and specificity of AL prediction was 83.7% and 94.1% respectively. A CRP value at 1st POD of more than 10.9 mg/dl has an OR 5.6 (p<0.0001), 2th POD an OR 22.7 (p<0.0043) and 7th POD an OR 107 (p=0.0001). It is important to emphasize that 16 patients with AL at the 2th POD had a PCR of at least 10.9 mg/dl.

Conclusions/Discussion: CT abdomino/pelvic scan is the gold standard for AL. CRP test result can be in a very short time and has a very low cost. In the majority of hospitals of developing countries or even in world class hospitals without access of a 24 hours CT scan service is a useful test. Previous studies have used values of 14 mg/dl at POD 3. We know that an early diagnosis is important, a validated cutoff at 48 hours is useful in clinical practice. In this study 75% of the patients with AL had clinical signs and CT scan positive for a leakage; 25% the CT were inconclusive. In this study we demonstrated that a level of 10.9 mg/dl or higher is present in 90.6% of the patients with AL in the 2th postoperative day.

VARIABLE	Anastomosis leak		p (t Test/ U Mann-Whitney)
	YES	NO	
	n=16 *	(n=53) *	
CRP 1	14.2 ± 6 (4.8-30.2)	9.4 ± 9.6 (0.1-41.7)	0.0047**
CRP 2	22.3 ± 8.3 (11-36.5)	12.9 ± 7.5 (0.2-34.1)	<0.0001**
CRP 3	26.4 ± 10.8 (11.2-38.9)	13.1 ± 7.3 (1.5-36.4)	<0.0001**
CRP 4	27.5 ± 12.7 (10.5-41.3)	10.5 ± 7 (0.8-36)	<0.0001**
CRP 5	23.3 ± 12.6 (6.5-44)	8.4 ± 5.6 (0-23.1)	<0.0001**
CRP 6	22.5 ± 9.6 (5.7-36.2)	8.2 ± 6 (0-25.4)	<0.0001**
CRP 7	19.6 ± 8.6 (5.3-37.5)	5.6 ± 4.3 (0-16.7)	<0.0001**
* Average ± standard deviation (min-max)			
** Statistical significance			

THE POSTOPERATIVE OUTCOMES AND SURVIVAL OF EARLY-ONSET COLORECTAL CANCER PATIENTS.

eP835

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Purpose/Background: Early-onset colorectal cancer (EOCRC) incidence is rising in all developed countries with Australia at the forefront. Outcomes in this cohort are underreported because of its comparatively smaller size to later-onset colorectal cancer (CRC). This study reports on postoperative EOCRC outcomes and survival from a quaternary centre, which is also a referral centre for pelvic exenteration (PE) and cytoreductive surgery (CRS) and heated intraperitoneal chemotherapy (HIPEC).

Methods/Interventions: A retrospective study of EOCRC patients managed at the Royal Prince Alfred Hospital between January 2014-December 2021 was

performed. EOCRC was defined as CRC < 50 years. Patient demographics and outcomes were tabulated. Kaplan-Meier survival curves and log-rank tests assessed if disease-free survival (DFS) and overall survival (DFS) differed based on age, type of surgery and tumour location after matching for stage.

Results/Outcome(s): A total of 111 EOCRC patients were included. Stage IV disease was most common (40.0%, n=42/105). Most of the cohort underwent non-radical surgery (NRS) (72.1%, n=80/111) followed by CRS/HIPEC (15.3%, n=17/111), PE (11.7%, n=13/111) then combined CRS/HIPEC and PE (0.9%, n=1/111). There was a high complication rate (55%, n=61/111) of which the majority were graded Clavien-Dindo II (47.5%, n=29/61). Ten patients (9.0%) returned to theatre and there were no unexpected deaths < 30 days of surgery. More than half underwent ostomy formation (50.5%, n=56/111) and 40.5% (n=45/111) were admitted to the intensive care unit postoperatively. In EOCRC patients with stage IV disease, PE followed by CRS/HIPEC then NRS was associated with worse DFS (p < 0.001) and OS (p < 0.001) (Figure 1). DFS and OS were equivocal for all stages based on age and tumour location.

Conclusions/Discussion: Advanced disease was more common in EOCRC patients, with a high proportion undergoing radical surgical intervention. Treatment-related morbidity was higher than in current EOCRC literature which is due to our inclusion of PE and CRS/HIPEC patients. The impact of this on quality of life and functional outcomes warrants further investigation. For stage IV disease, the superior survival of patients undergoing NRS followed by CRS/HIPEC then PE, is due to the earlier-stage disease of NRS patients and the enhanced cytotoxicity of HIPEC in CRS/HIPEC patients. Future studies comparing stage-matched survival between LOCRC and EOCRC in an Australian cohort are necessitated.

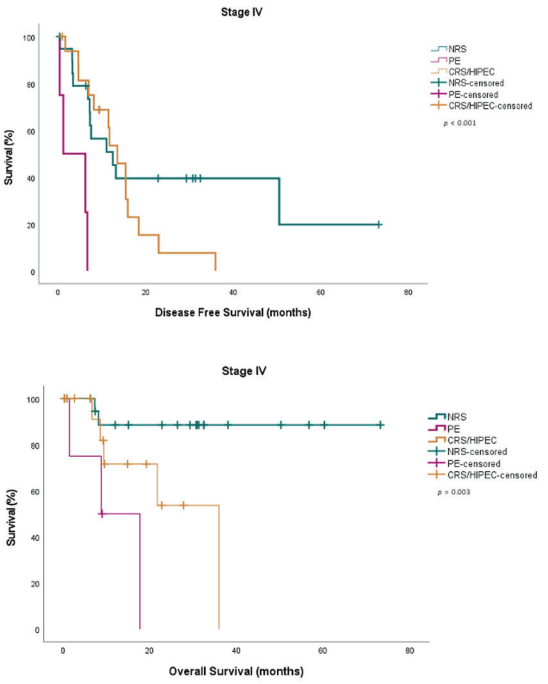

Figure 1. DFS and OS for stage IV EOCRC patients based on type of surgery

UK EXPERIENCE OF PRESSURISED INTRAPERITONEAL AEROSOLISED CHEMOTHERAPY (PIPAC) FOR COLORECTAL CANCER PERITONEAL METASTASES (NCT03868228).

eP836

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Purpose/Background: Peritoneal metastases continue to be associated with a poor prognosis. As such there is an unmet need for effective treatments for these patients. Pressurized intraperitoneal aerosolized chemotherapy (PIPAC) is a new technique that delivers chemotherapeutic regimens as a pressurised aerosol into the peritoneal cavity during laparoscopy. This is the first UK trial of PIPAC. It examined the effects of PIPAC alongside systemic chemotherapy on progression-free survival (PFS); quality of life; and, short-term complications.

Methods/Interventions: Prospective, single-centre trial with patients undergoing 8-weekly PIPAC with oxaliplatin from January 2019 till January 2022. Disease progression was assessed using peritoneal carcinomatosis index (PCI) on CT scan and at laparoscopy. Quality of life was assessed by questionnaire (EORTC QLQ-C30). Adverse events were graded by CTCAE and Clavien-Dindo criteria.

Results/Outcome(s): Five patients underwent a total of ten PIPAC administrations (median 2, range 1-4). Median PFS was 6.0 months. Quality of life was maintained across repeat PIPAC procedures but a decrease in social

functioning and increased fatigue were evident. Three incidences of grade 3 adverse events occurred but PIPAC was well tolerated.

Conclusions/Discussion: PIPAC is achievable and can be safely delivered for patients with colorectal cancer peritoneal metastases. Caution must be exercised given the vulnerable patient cohort and risk of adverse events. Systemic chemotherapy can be safely administered at a different unit to the PIPAC procedure if both groups have clear lines of communication and information sharing. Further trials are required to assess the efficacy of PIPAC with respect to progression-free survival.

DOES CONCURRENT FLEXIBLE SIGMOIDOSCOPY WITH CT COLONOSCOPY IMPROVE DIAGNOSTIC YIELD FOR COLORECTAL CANCER?

eP837

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Purpose/Background: The UK Bowel cancer Screening Guidelines for CTC state that CTC is a complete examination of the colon, thereby precluding the need for further endoscopic evaluation. However, concerns persist regarding the missed lesions in CTC especially in the left colon. Thereby, many centres perform flexible sigmoidoscopy in conjunction with CTC to overcome this. This study was conducted to ascertain the need for the same. The primary outcomes were cancer and polyp detection rates in CTC in relation to endoscopy. The secondary outcomes were to identify the lesions missed in CTC and to identify correlation between the different sites of the colon.

Methods/Interventions: This study was conducted at a tertiary care centre in the UK. Prospectively maintained data was collected retrospectively regarding patients undergoing CTVCs along with FS/ Colonoscopy from 2019 to 2022. This cohort included outpatients referred to the colorectal clinic on the two-week-wait pathway, patients under polyp/ cancer surveillance and patients who had these investigations following inpatient admission. The following patients were excluded : Patients who had CTC following failed endoscopy, Patients who have had endoscopic evaluation for biopsies etc., following positive findings in CTC.

Results/Outcome(s): A cohort of 480 patients was included for analysis. Polyp or cancer follow up was the most common indication for this investigation (31.87%). The sensitivity and specificity of CTC for detection of malignancy in relation to histology were 93.33% (95% CI 77.93%, 99.18%) and 98.67% (95% CI 97.1%, 99.51%) respectively. The sensitivity of endoscopy for detection of malignancy was slightly higher at 96.67% (95% CI 82.78%, 99.92%), specificity 98.44% (95% CI 96.82%, 99.37%). The sensitivity and specificity of CTC in detection of significant polyps (>5mm) in relation to histology were 73.96% (95% CI 64.00%, 82.38%) and 94.79% (95% CI 92.07%, 96.79%) respectively. Whereas the sensitivity of endoscopy was 95.83% (95% CI 89.67%, 98.85%) and specificity was 94.79% (95% CI 92.07%, 96.79%). The relative sensitivity and specificity of CTC with respect to endoscopy was 77.68% (95% CI 68.84%, 85.00%) and 98.91% (95% CI 97.24%, 99.70%). 25/96 (26.04%) significant polyps were missed on CTC, in relation to endoscopy. The overall incidence of missed polyps in CTC from the left colon is 2.5%.

Conclusions/Discussion: Our study does not demonstrate any additional benefit in performing flexible sigmoidoscopy with CTC in diagnosis of colorectal cancer, in order to avoid missing left sided lesions.

IDENTIFYING THE "BAD ACTORS" IN COLORECTAL PERITONEAL METASTASIS.

eP838

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Purpose/Background: Cytoreductive surgery (CRS) and Heated Intraperitoneal Chemotherapy(HIPEC) are the mainstay treatment of isolated colorectal peritoneal metastases (CPM). Over the last decade, studies have shown an overall survival benefit in CPM patients. However, identifying those "bad actors" that have early treatment failure is challenging. This study evaluated the impact of clinicopathological variables on survival outcomes within a prospective cohort of patients.

Methods/Interventions: Data was collected from consecutive patients undergoing CRS/HIPEC for CPM at a quaternary cancer centre over a twelve-year period. Using a prospective database and further individual chart review, each patient's demographic, clinicopathologic, operative, morbidity and survival datapoints were collated. Using a Mann-Whitney rank, those features that were associated with poorer survival outcomes (Median & 5-yr OS) were identified.

Results/Outcome(s): Between 2010-2022, 220 patients were included; 127 (57.8%) females and median(SD) age 56(12)years. The majority of patients (n=174, 79%) had a complete cytoreduction(CC0). Features associated with poorer survival included; evidence of poor differentiation (29 vs. 40 months in well-differentiated, *p=0.01), presence of perineural invasion (43 vs. 29 months, *p=0.03) and those with lower peritoneal carcinoma index (PCI) scores (42 vs. 15 vs. 12 months in those with PCI <15, 15-19 and >20 respectively, *p=<0.0001). Most strikingly, PCI had the greatest bearing on 5-yr OS being 59.7% vs. 6% vs.0% for the aforementioned groups. Interestingly, the presence of signet ring, mucinous and BRAF did not have a significant impact on survival outcomes.

Conclusions/Discussion: In the contemporary era of improved survival outcomes following CRS/HIPEC, identification of key prognostic factors will help stratify patients, facilitate judicious patient selection and help inform regarding expected outcomes.

THE HEALTH-RELATED QUALITY OF LIFE OR EARLY-ONSET COLORECTAL CANCER PATIENTS.

eP839

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Purpose/Background: Early-onset colorectal cancer (EOCRC) patients present with advanced disease and undergo more aggressive chemoradiotherapy and extended surgical resections. However, minimal evidence investigates the implications of this on the quality of life (QoL) of EOCRC patients. This is imperative given that EOCRC patients are more likely to place greater value on returning to baseline function due to the expected social roles of raising a family and the need to return to paid employment.

Methods/Interventions: A cross-sectional study was performed on EOCRC patients treated at the Royal Prince Alfred Hospital between January 2014-December 2020. For patients undergoing either pelvic exenteration (PE) or cytoreductive surgery and hyperthermic intraperitoneal chemotherapy (CRS/HIPEC), SF-36 questionnaires are collected at 6-monthly intervals from the date of surgery as part of the prospectively maintained PESQI and PREMIER databases. In this study, the most recent survey response was used for PE and CRS/HIPEC patients. For patients undergoing non-radical surgery (NRS), SF-36 questionnaires were mailed. Surgical characteristics and SF-36 domain-specific scores were tabulated. Independent T-tests and one-way ANOVA tests were used to assess if QoL differed significantly based on surgical variables.

Results/Outcome(s): A total of 32 EOCRC patients were included. Most patients has stage IV disease (56.25%, n=18/32). Physical and mental health component summary scores were low at 67.51 ± 20.59 and 67.93 ± 19.59, respectively. Role limitations secondary to emotional problems differed based on surgery type ($F(2,29) = 9.394$, $p < 0.001$), with PE patients feeling the most limited (44.05 ± 33.58) followed by CRS/HIPEC (78.26 ± 23.38) then NRS patients (94.44 ± 19.25). Patients that had a complicated postoperative course scored lower in physical functioning (89.67 vs 76.55, $p = 0.019$), vitality (60.17 vs 52.01, $p = 0.027$) and social functioning (73.55 vs 67.74, $p = 0.033$) domains. Interestingly, patients with stomas experienced fewer physical limitations in their day-to-day roles (72.06 vs 67.45, $p = 0.019$). Domain-specific scores did not differ based on the stage at diagnosis and the interval from surgery (1-3 vs > 3 years).

Conclusions/Discussion: Poorer physical and mental QoL in patients who experienced surgical complications has been established in the literature for a variety of other cancers including later-onset colorectal cancer (LOCRC). Role limitations due to emotional problems in PE patients are likely due to the nature and chronicity of the complications associated with pelvic surgery (sexual dysfunction, infertility, chronic pain). The correlation between ostomy formation and fewer physical limitations may reflect poorer urinary and bowel continence in EOCRC patients with primary/secondary anastomoses. Thus, studies comparing the QoL and functional outcomes of EOCRC to LOCRC patients are needed.

STRATIFICATION OF PERITONEAL CARCINOMA INDEX IN A SERIES OF 220 PATIENTS WITH RESECTABLE COLORECTAL PERITONEAL METASTASES.

eP840

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Purpose/Background: Cytoreductive surgery(CRS) and Heated Intraperitoneal Chemotherapy(HIPEC) are the mainstay treatment of isolated colorectal peritoneal metastases (CPM). Over the last decade, studies have shown an overall survival benefit in CPM patients, especially in patients with a Peritoneal Carcinoma Index (PCI) less that 15. This study aims to stratify survival and recurrence by subgroups of PCI scores.

Methods/Interventions: Data was collected from 220 consecutive patients undergoing CRS/HIPEC for CPM at a quaternary cancer centre over a twelve-year period using a prospective database and chart review to obtain demographic, operative, morbidity and survival records. Three subgroups were formed based on intraoperative PCI scores (0-5, 6-9, 10-15) and 3-year, 5-year overall survival and disease-free survival was determined using a Kaplan-Meier survival analysis.

Results/Outcome(s): Between 2010-2022, 177 patients with a PCI<15 underwent CRS/HIPEC; 71 patients(40.1%) were male and median age(SD) was 57(11.4) years. The median overall survival (OS) of patients with PCI<15 was 42 months, with a 3-year and 5-year OS over 59.7% and 62.1%, respectively. Comparatively, those with a PCI>15 had a significantly lower median OS of 14 months and 5-year OS of 6%, *p<0.0001. Further stratification of patients into the three subgroups – PCI 0-5, PCI 6-9 AND PCI 10-15 – demonstrated a 5-year OS of 59.5%, 28% and 19.6%, respectively, *p=0.0004. Disease-free survival (DFS) of 11, 10 and 9 months, respectively was also corelated with increasing PCI score, *p=0.0432.

Conclusions/Discussion: It is known that lower PCI scores are associated with favourable survival prognoses.

Stratification of patients within the lower PCI thresholds demonstrates significantly improved survival, warranting future research to stratify patients similarly in order to identify other prognostic markers within each subgroup.

A RARE CASE OF ADULT INTUSSUSCEPTION AND MALROTATION.

eP841

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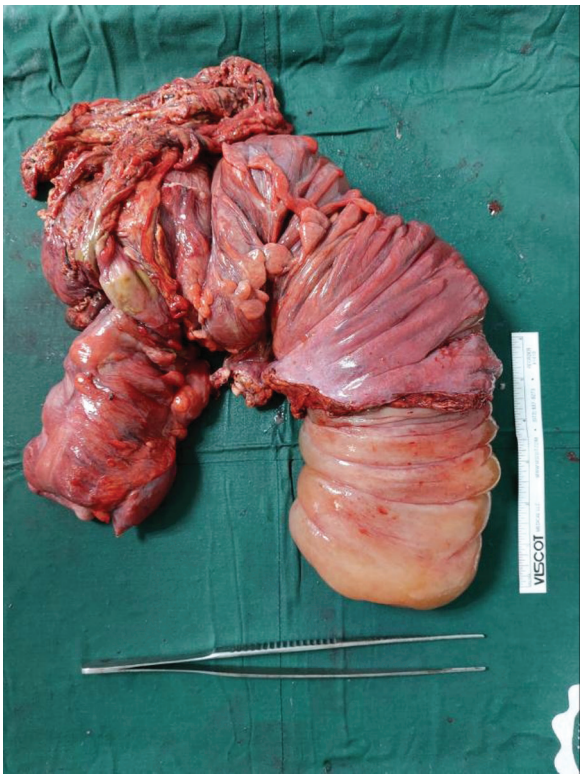
Purpose/Background: Intussusception in adults is a rare phenomenon, however, unlike idiopathic cause in children, it usually suggests a pathologic point, which is likely malignant. We present a case of a 61-year-old male who complained of a two-week history of diffuse abdominal pain and loose bowel movement, not completely relieved with medications. Patient eventually developed a palpable fullness in the left lower quadrant, with associated direct tenderness. CT scan revealed a long segment intussusception in the ano-rectal area involving the sigmoid, descending and transverse colon.

Methods/Interventions: Laparotomy revealed purulent peritoneal fluid, the hepatic flexure unattached and malrotated to the left side and the ileocecal segment was adherently inter-looping with the transverse and descending colon. There was a perforation in the transverse colon segment adherent to the ileum, with fecaloid output and a firm palpable mass in the transverse colon. Total colectomy was done with ligation of the right colic and ileocolic vessels and proximal resection at the terminal ileum. Inferior mesenteric vessels were also ligated, however, due to the severely dilated and edematous sigmoid colon precluding exposure of the planned distal resection, enterotomy to decompress and reduction of the intussusception of the descending colon into the rectosigmoid segment were done. Due to severe bowel dilatation and edema, fecal spillage from the a perforation and nutritional status of the patient, closure of rectal stump and end Ileostomy was done instead of a primary anastomosis.

Results/Outcome(s): Patient had good recovery period with resumption of clear liquids on day 2 post-op, soft diet and removal of NGT on day 3 post-op, and was discharged on day 6 post-op. Histopathology showed a transverse colon mucinous adenocarcinoma stage IIA (T3N0M0). Patient was also referred to medical oncology for evaluation and possible adjuvant treatment.

Conclusions/Discussion: This case describes that surgical reduction and resection of bowels was a safe and feasible approach to intussusception in adult patients, with acceptable oncologic resection in the face of a possible malignant lead point. High index of suspicion must be employed in patients with vague abdominal symptoms not relieved by medical management, to be able to plan an appropriate and timely surgical treatment.



INTRAOPERATIVE AND POSTOPERATIVE COMPLICATIONS AFTER TOTAL MESORECTAL EXCISION BY TRANSANAL APPROACH (TaTME) DURING OUR LEARNING CURVE.

eP850

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Purpose/Background: The use of the transanal approach for Total Mesorectal Excision (TME) has been discussed due to the serious complications associated with the technique that have been described, such as urethral injury. These complications have been associated with the learning curve. The taTME was described for the first time in 2010, in our center it was implemented in 2013. After 10 years from the beginning of the technique we reviewed the first operated patients, which correspond to the learning curve.

Methods/Interventions: In our center, 250 patients with rectal cancer have been operated by simultaneous transanal and transabdominal approach with two teams. In this analysis, the immediate and acute postoperative complications of the first 100 patients operated on using this technique are reviewed.

Results/Outcome(s): The analysis includes 100 patients, 68 men, and 32 women, with a mean age of

66.77 years (29-91). In the first 100 patients of the series, there were no visceral injuries during the intervention or intraoperative complications. In the postoperative period, 31 patients presented a postoperative complication. Most of the complications (24 patients) were mild and did not require surgical treatment (Clavien Dindo I and II, corresponding to wound infections or paralytic ileus). There was one patient with Clavien Dindo IIIa due to intra-abdominal abscess who was treated with percutaneous drainage; 4 patients required surgical reintervention due to problems with the ileostomy. There were only two serious complications, one ICU admission due to respiratory failure and one reoperation due to postoperative hemorrhage. There was no case of death during the 30 postoperative days. Regarding readmissions, 9 patients were readmitted, 3 due to kidney failure, 3 due to rectal bleeding, 2 due to intestinal obstruction and 1 due to anastomosis leak. Of these patients, only the one with the anastomotic leak required reintervention, which was performed by Hartmann.

Conclusions/Discussion: taTME is a safe surgery, without serious complications associated with the technique, if it is performed by expert surgeons in laparoscopy and with experience in rectal surgery.

IMPACT OF LIPOSOMAL BUPIVACAINE TAP BLOCKS ON PATIENT OUTCOMES IN MINIMALLY INVASIVE COLORECTAL SURGERY.

eP851

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Purpose/Background: As part of enhanced recovery after surgery protocols, there has been an increased interest in the optimization of analgesic techniques. This study compares the efficacy of liposomal bupivicaine transverse abdominis plane (TAP) blocks to traditional infiltration in their outcomes in minimally-invasive colorectal surgery patients. Traditional methods such as epidural anesthesia present an unfavorable side effect profile, while TAP blocks with conventional anesthetics have a short half-life and sub-optimal pain control. Liposomal bupivicaine (Exparel) is a longer-acting slow release anesthetic that has shown promise in pain control following colorectal surgery, particularly in the field of minimally invasive procedures.

Methods/Interventions: A retrospective study was done using patients who had undergone minimally-invasive (MIS) colorectal surgery, to study the effect of perioperative liposomal bupivicaine TAP block on postoperative outcomes. The parameters studied include length of stay, opioid consumption, and post-operative pain score. Patients aged 18 to 89 who were admitted for surgery between January 1, 2017 and September 20, 2019 were recruited in the study, and there were a total of 241 patients retrospectively included. The control group consisted of patients who underwent MIS colorectal surgery without receiving liposomal bupivicaine TAP block, and received a short-acting local anesthetic instead.

Results/Outcome(s): Liposomal bupivicaine TAP blocks in our study population showed statistically significant decreases in both length of stay and in the need for adjunct use of non-steroidal anti-inflammatory (NSAID) drugs for additional post-operative analgesia. The mean length of stay in the control group was 4.79 days, while in the liposomal bupivicaine group it was 4.14 days with a p-value of 0.011. The data additionally showed that 77% of patients in the control group required NSAIDs for pain control, as contrasted to only 45% of the Exparel, with a p-value of <0.001. While the Exparel also had decreased opioid and acetaminophen use, this requires a larger study population and additional investigation as it did not reach a level of statistical significance in our study. Pain scores and post-operative complication rates were similar between the two groups.

Conclusions/Discussion: This study shows that liposomal bupivicaine TAP blocks significantly improved several post-operative outcomes in minimally invasive colorectal surgeries. These Exparel TAP blocks not only decreased the average length of stay for patients, but also decreased their need for additional analgesics. Future research could continue to investigate the potential benefits in additional parameters such as Acetaminophen and Opioid use post-operatively.

SARCOPENIA AS A RISK FACTOR FOR MORBIDITY AND ANASTOMOTIC LEAK AFTER TOTAL MESORECTAL EXCISION (TME).

eP852

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Purpose/Background: Improvements in treatment, surgical technique and critical support have changed outcomes to patients with cancer. Still, surgical treatment of patients with rectal cancer may result in significant morbidity. Sarcopenia is considered a marker of frailty and is associated with postoperative complications in many types of surgeries. However, it is not yet clear if sarcopenia is a risk factor for surgical complications in the subgroup of patients with rectal cancer submitted to surgical resection. The purpose of this study was to evaluate if sarcopenia assessed by psoas area on CT scan is associated to surgical complications and especifically anastomotic leak in patients with mid or low rectal cancer.

Methods/Interventions: Patients were included retrospectively from a prospective database. Patients had a diagnosis of rectal cancer and underwent rectal resection. CT scans were performed with multislice equipment before

and after iodine contrast injection with portal venous phase acquisition. In the most recent CT scan before surgery an axial slice at the level of the third lumbar vertebra (L3) with both transverse processes visible was used for measurement of the total psoas area. A manual trace delineating the psoas was performed using Carestream View and the area was estimated (mm^2). The area was normalized for patient height to calculate the total psoas index (area/height^2). A cut off value of <385mm^2/m^2 was adopted for women and of <545mm^2/m^2 was adopted for men to classify patients as sarcopenic.

Results/Outcome(s): From May 2016 to October 2021, 117 patients were included. All patients were submitted to a low anterior resection with or without anastomosis. All patients who had an anastomosis done also had a diverting stoma. Patients were divided in two groups: no sarcopenia (group 1) 73 patients (62.4%) and sarcopenia (group 2) 44 patients (37.6%). Age and BMI were significantly different between groups (p=0.0009 and p=0.007), with patients from group 2 being older (66 vs 62yo) and with lower BMI (23 vs 26Kg/m2). Eight-six patients (68.2%) had neoadjuvant radiation or radiochemotherapy (p=0.388). Overall morbidity occurred in 35 patiens in group 1 (47.9) and 26 (59.1) in group 2, without difference between groups, p=0.258; severe complication (Clavien 3+) was seen in 22 patients (18.8%), respectively 12 (16.4) and 10 patients (22.7) (p=0.46). Among 107 patients that had a colorectal or coloanal anastomosis done, anastomotic leak occurred in respectively 10 (14.9) and 6 patients (15%), without significant difference between groups (p=0.6).

Conclusions/Discussion: In our sample, sarcopenia was seen in 37.6% of patients and had no influence on the occurrence of overall morbidity, severe morbidity or anastomotic leak. Possibly results in the literature are conflicting due to difference between studies in how to measure and classify sarcopenia.

	Total (n=117)	No sarcopenia (n=73)	Sarcopenia (n=44)	P value
Age	62 (29-88)	60 (29-88)	66 (41-80)	0.0009
BMI	24,65 (16,6-48,4)	26,22(19,04-48,4)	23,5 (16,6-36,4)	0.007
Neoadjuvant CRT	86 (68,2%)	56 (76,7)	30 (68,2)	0,388
Interval between CRT and surgery >20weeks	56 (51,4%)	39 (57,4)	17 (41,5%)	0,118
Laparoscopy	116 (99,2)	73 (100)	43 (97,7)	0,376
Length of surgery	235 (120-425)	235 (130-425)	230 (13-425)	0,71
Complication	61 (52,1)	35 (47,9)	26 (59,1)	0,258
Clavien >=3	22 (18,8)	12 (16,4)	10 (22,7)	0,46
Anastomotic leak **	16 (14,9)	10 (14,9)	6 (15)	0,6
Length of hospital stay	4 (2-110)	4 (2-24)	4,5 (2-110)	0,71

THE TEST OF TIME: IS CONSOLIDATION TOTAL NEOADJUVANT THERAPY FOR RECTAL CANCER SUPERIOR TO INDUCTION WHEN CONTROLLING FOR TIME BETWEEN RADIATION AND SURGERY?

eP853

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Purpose/Background: Total neoadjuvant therapy (TNT) for locally advanced rectal cancer can be delivered either through an induction approach with systemic chemotherapy followed by chemoradiation, or a consolidation approach with chemoradiation followed by systemic chemotherapy. Recent trials have suggested a better response to a consolidation approach when organ preservation is the goal. However, current data is confounded by the different time points between the completion of radiation and the assessment of response. This timing is significant in that longer intervals between completion of radiation and assessment of clinical response yields better results. Utilizing National Cancer Database (NCDB) retrospective data we were able to control for this time interval between radiation and surgery to examine the impact of induction versus consolidation TNT on pathologic complete response (pCR).

Methods/Interventions: Patients with clinically staged locally advanced rectal cancer who underwent TNT followed by resection from 2004 to 2019 were extracted from the NCDB. These patients were divided into 2 groups: Induction TNT, defined as initiation of multiagent chemotherapy prior to radiation, or consolidation TNT, defined as radiation initiation before multiagent chemotherapy. The primary outcome measure was pCR. A multivariable regression analysis was performed to analyze the effect of induction vs. consolidation TNT on pCR and the impact of time between completion of radiation and pCR.

Results/Outcome(s): A total of 26,653 patients met inclusion criteria. Of those, 32.5% received an induction approach, and 67.5% were treated with a consolidation approach. Patients treated with consolidation TNT were more likely to have clinical T4 disease (p<0.05) and clinical N2 disease (p<0.05). The proportion of pCR for induction TNT was 13.3%, compared to 10.9% for consolidation TNT (OR=1.26; p<0.001). Univariable regression analysis revealed that a longer interval from radiation to surgery, as well as longer interval from diagnosis to surgery, was associated with higher pCR. The association between induction TNT and pCR remained virtually the same after adjustment for time from radiation to surgery (OR=1.24; p<0.001). When adjusting for time from diagnosis to surgery, the difference between induction and consolidation goes away (OR=1.04; p=0.38).

Conclusions/Discussion: When controlling for time from completion of radiation to surgery and time from initial diagnosis to surgery, induction and consolidation

TNT yield similar rates of pCR. Based on these findings we recommend a patient specific case by case approach to TNT for locally advanced rectal cancer, focusing not on a universal adoption of consolidation or induction to increase the odds of pCR, but on the interval between radiation and assessment of response.

TEXTBOOK ONCOLOGICAL OUTCOMES FOR ROBOTIC COLORECTAL CANCER RESECTIONS: AN OBSERVATIONAL STUDY OF FIVE HIGH VOLUME ROBOTIC COLORECTAL UNITS.

eP842

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Purpose/Background: The quality of care of patients receiving colorectal cancer resections has conventionally relied on individual metrics. When discussing with patients in the outpatient setting what these outcomes mean, they often find them confusing or overwhelming. Textbook oncological outcome (TOO) is a composite measure that summarizes all the 'desirable' or 'ideal' postoperative clinical and oncological outcomes from both a patient's and doctor's point of view. As far as we are aware there are a paucity of studies examining the TOO of robotic colorectal cancer resections. This study aims to evaluate the incidence of TOO in patients receiving robotic colorectal cancer surgery in five high-volume robotic colorectal units and investigate the risk factors associated with failure to achieve a TOO in these patients.

Methods/Interventions: All consecutive patients receiving robotic colorectal cancer resections from five centres between 2013 and 2022 were identified from prospectively collated databases. Patient characteristics and short-term clinical and oncological data were collected. A TOO was achieved when all components were realized and is expressed as a percentage. The components were: no conversion to open, no complication, Clavien-Dindo (CD) ≥ 3, LOS ≤ 14, no 30-day readmission, no 30-day mortality and R0 resection.

Results/Outcome(s): A total of 501 patients were identified. From these, 388 (77.4%) achieved a TOO. Four patients were converted to open (0.8%), 55 patients (11%) had LOS>14 days, 46 patients (9.2%) had a CD≥3 complication, 30-day readmission rate was 6% (30 patients), 30-day mortality was 0.2% (1 patient) and 480 patients (95.8%) had an R0 resection. Univariate and multivariate logistic regression analysis showed abdominoperineal resection (APER) was a risk factor for not achieving a TOO. (Univariate: OR 0.462, 95% CI 0.258-0.827, p=0.009; multivariate: OR 0.400, 95% CI 0.209-0.764, p=0.006).

Conclusions/Discussion: Robotic colorectal cancer surgery in high volume robotic centers achieves a high textbook outcome rate. APER is a risk factors for failure to achieve a textbook outcome. This measure may be used in future audits and to inform patients clearly on success of treatment.

Table 1. Individual and cumulative parameter percentages for TOO

	Individual (n, %)	Cumulative (n, %)
Total population	501	
no conversion	497 (99.2%)	497 (99.2%)
No mortality	500 (99.8%)	496 (99.0%)
No CD ≥ 3 complication	455 (90.8%)	451 (90.0%)
LOS≤14 days	446 (89.0%)	420 (83.8%)
No readmission	471 (94.0%)	403 (80.4%)
R0	480 (95.8%)	388 (77.4%)
TOO	388 (77.4%)	

Table 2. Cohort characteristics of patients achieving and not achieving a TOO

	No TOO	TOO achieved	p value
Age	66 (58-75.75)	68 (59-76)	0.951 m
BMI	26.8 (23.2-29.0)	27 (23.9-30)	0.203 m
Sex			
▪ Male	76 (67.3%)	238 (61.3%)	0.252 c
▪ Female	37 (32.7%)	150 (38.7%)	
ASA score			
▪ 1-2	61 (76.3%)	234 (77.5%)	0.815 c
▪ 3-4	19 (23.8%)	68 (22.5%)	
Neoadjuvant radiotherapy	19/84 (22.6%)	81/309 (26.2%)	0.502 c
Procedure name			
▪ Anterior resection	70 (61.9%)	272 (70.1%)	0.024 c
▪ APER	21 (18.6%)	37 (9.5%)	
▪ Right hemicolectomy	13 (11.5%)	60 (15.5%)	
▪ Left colectomy	2 (1.8%)	8 (2.1%)	
▪ Transverse colectomy	0	2 (0.5%)	
▪ Sigmoid colectomy	0	1 (0.3%)	
▪ Panproctocolectomy	2 (1.8%)	3 (0.8%)	
▪ Subtotal	5 (4.4%)	3 (0.8%)	
▪ Hartmen's	0	2 (0.5%)	
Rectal cancer resection	93/113 (82.3%)	304/388 (78.4%)	0.362 c
Distance for anal verge in cm	7 (5-9)	8.5 (5.45-13.7)	0.015 m
pT stage			
▪ T0-2	34 (41%)	129 (42.4%)	0.810 c
▪ T3-4	49 (59%)	175 (57.6%)	
pN stage			
▪ N0	19 (27.9%)	65 (26.9%)	0.859 c
▪ N1-2	49 (72.1%)	177 (73.1%)	

Table 3. TOO parameters for colon and rectal resections

THE IMPACT OF THE COVID-19 PANDEMIC ON STOOL TESTING FOR COLORECTAL CANCER SCREENING.

eP843

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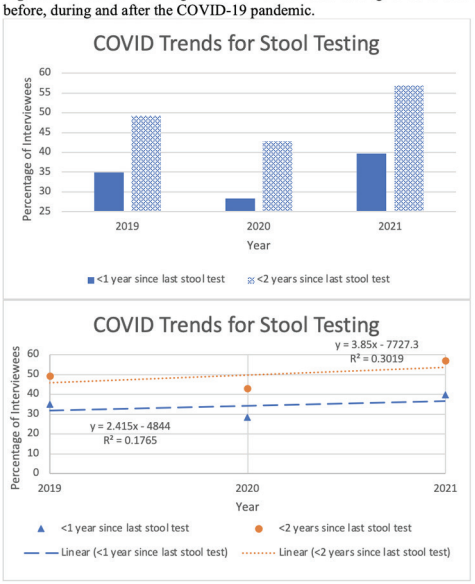
Purpose/Background: Colorectal cancer (CRC) is the second leading cause of cancer deaths yet is preventable and curable if identified early through regular screening. The COVID-19 pandemic caused significant issues with access to health care which is hypothesized to have impacted the rates of CRC screening.

Methods/Interventions: The 2019-2021 data was queried from the publicly available, annually published Behavior Risk Factor Surveillance System (BRFSS), an annual interview with over 400,000 US adults. Overall trends were observed, and linear regression analyses were performed to analyze trends in percentage of interviewees who underwent stool testing for CRC screening in 2019, 2020 and 2021. These analyses were performed for those who underwent stool testing within 1 year and within 2 years. 2 years was chosen as the cutoff as this was the amount of data available since the pandemic began. 2019 is considered pre-pandemic, 2020 mid-pandemic, and 2021 post-pandemic.

Results/Outcome(s): Compared to pre-pandemic rates, there was a 6.62% decrease (34.94% to 28.32%) in stool testing rates during the pandemic and a 4.83% increase (34.94% to 39.77%) in stool testing rates after the pandemic for those who underwent stool testing for CRC screening with in the last 1 year. Similarly, compared to pre-pandemic rates, there was a 6.29% decrease (49.20% to 42.91%) in stool testing rates during the pandemic and a 7.70% increase (49.20% to 56.90%) in stool testing rates after the pandemic for those who underwent stool testing for CRC screening with in the last 2 years.

Conclusions/Discussion: Initially, CRC screening rates with stool testing decreased during the pandemic. Thankfully, these rates have since recovered and even increased from pre-pandemic levels. The increase may be explained by a surplus of patients needing screening in 2021 who missed screening in 2020 due to access issues and the increased use of telehealth appointments. Understanding trends in CRC screening with stool testing relating to the COVID-19 pandemic will assist in better addressing evolving health maintenance needs of patients to provide appropriate screening tests in a post-pandemic setting.

Figure. Trends and linear regression for rates of stool testing for colorectal cancer screening before, during and after the COVID-19 pandemic.



ILEOCOLIC INTUSSUSCEPTION IN ADULTS: A CASE SERIES.

eP844

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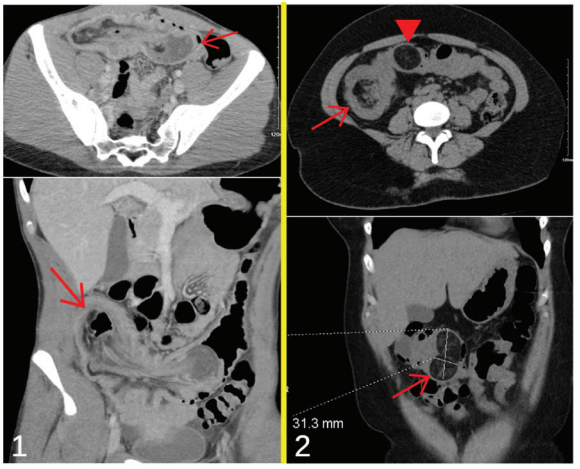
Purpose/Background: Colonic Intussusception is a rare cause of intestinal obstruction in adults. Unlike in children, 75% of cases are due to a malignant tumor.

Methods/Interventions: We present two cases of acute abdominal pain in adults with similar presentation/imaging findings but differing outcomes. Both patients had imaging findings of ileocolic intussusception due to presumed ileal mass and underwent an exploratory laparotomy.

Results/Outcome(s): A 31-year-old (y.o) female with 2 days of sudden onset, sharp periumbilical pain. The pain initially started as a colicky associated with one episode of non-bilious vomiting and dark currant jelly bloody stools. Initial vitals were notable for low normal blood pressure and bradycardia. Lactate and WBC were within range. A CT abdomen/pelvis showed intussusception of the ileum into the mid-transverse colon, with a 4.5 x 4.3 cm mass in the distal ileum as the lead point (Fig 1). The patient was taken for Exploratory laparotomy which reveal a cecal tumor. A right hemicolectomy with primary anastomosis was performed. The Post-op course was uncomplicated. Pathology revealed invasive adenocarcinoma, T2 N1. Post-op course was uncomplicated and the patient was referred to Oncology for further treatment. A 36 y.o female with a history of ectopic pregnancy presented to the ED with 5 days of worsening upper abdominal pain. The pain was intermittent, cramp-like, severe, and associated with nausea and diarrhea for 3 days (with two bloody stools). Initial vitals were notable for hypertension. She had epigastric and periumbilical tenderness. Labs showed leukocytosis (13) and a positive fecal occult blood test. A CT abdomen/pelvis was done which showed ileocolic intussusception with a bilobed lipoma visualized in the proximal transverse colon measuring 6 x 3 cm (Fig 2). The patient was taken for Exploratory laparotomy which reveal a soft mass inside the intussuscepted segments of the colon. A right hemicolectomy with primary anastomosis was performed. The post-op course was uncomplicated. Pathology confirmed the lesion to be a lipoma, with no other abnormal pathology in the specimen

Conclusions/Discussion: Colonic Intussusception although common in children is a rare cause of acute intestinal obstruction in adults. Adult intussusception accounts for only 5%-10% of all reported cases, with the ileocolic variant accounting for 15% of all intussusceptions. The causative lesion is usually in the ileum. The classical triad of abdominal pain, palpable mass, and bleeding per rectum (red currant jelly stools) are rarely seen in adults. Length of the intussusceptum determines its transient or static nature where telescoping of > 3.5cm on CT was indicative of true intussusception Surgery is recommended for adults (as opposed to simple reduction) due to the presence of a causative lesion with a high risk of malignancy. However, the procedure to be adopted is controversial, whether it is formal oncologic resection as opposed to localized resection such as ileocecectomy.



THERAPEUTIC EFFECTS OF GINSENG AND GINSENOSIDES ON COLORECTAL CANCER.

eP845

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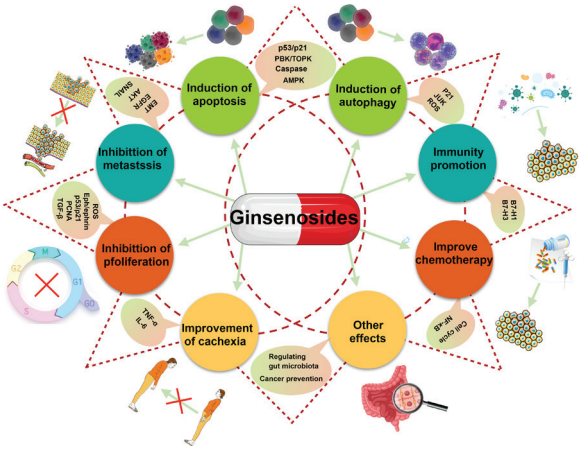
Purpose/Background: Colorectal cancer (CRC) is among the most common malignant diseases. Ginseng and its extracts, ginsenosides, have been used to treat many diseases for thousands of years. Various ginsenosides have been used in anticancer research, and the results suggested that they were effective antitumor drugs. Therefore, the roles of ginseng and ginsenosides in the treatment of CRC were summarized in this review.

Methods/Interventions: Various ginsenosides have been used in anticancer research, and the results suggested that they were effective antitumor drugs. However, subtypes of ginsenosides, even those extracted at different parts of ginseng, have distinct anticancer functions through different mechanisms.

Results/Outcome(s): In this review, we documented the antitumor effects of various ginsenosides in CRC. Various anticancer functions were summarized, including antiproliferation, the regulation of apoptosis and autophagy, metastasis suppression, combination chemoradiotherapy, etc.

Conclusions/Discussion: Both ginseng and various ginsenosides was capable of significantly inhibiting CRC development by suppressing tumor cell proliferation, viability, invasion and metastasis, inducing tumor cell death, regulating immune responses, and improving chemoradiotherapy efficacy.



SHORT-TERM OUTCOMES OF SURGERY IN ELDERLY PATIENTS WITH COLORECTAL CANCER.

eP846

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Purpose/Background: Background: Surgery remains the mainstay of treatment for colorectal cancers. The implications of the use of surgery in elderly patients are not clear. **Aim:** To assess the effect of surgery on short-term outcomes in elderly patients with colorectal cancer.

Methods/Interventions: Methods: Colorectal cancer patients undergoing surgical resection from December 2017 - September 2022 were identified from charts and retrospectively examined. Patients were grouped using a cut-off of 65 years into two groups. Demographic and clinicopathological variables, surgery type, and short-term outcomes were compared between the two groups.

Results/Outcome(s): Results: One hundred six patients were included in the study (55 age <65 and 51 age ≥ 65). The two groups were similar in the patient's characteristics. In the elderly group, the median age was 72 years (65 to 94 years). The mean number of in-hospital days and major complication rate did not differ between groups (p=0.24; p=0.83, respectively). In elderly patients, the 30-day postoperative mortality rate was 12% as compared to 0% in younger patients (p = 0.009). On univariate analysis, the only factor associated with 30-day postoperative mortality was advanced age (p = 0.01).

Conclusions/Discussion: Limitations: This study was limited because of its retrospective nature and single center. **Conclusion:** According to our study, colorectal cancer patients over the age of 65 who undergo surgery have considerably higher mortality rates related to their advanced age. To develop a complete CRC treatment strategy, one of the elements we must consider is aging.

Table. Patient and tumor characteristics

	Age <65years N=55	Age ≥65 years N=51	P value
Age Median(range)	57(23-64)	72(65-94)	
Sex Male	30 (55%)	30 (59%)	0.65
BMI Mean (SD)	26±8	24±5	0.09
Charlson Comorbidity Index			0.05
< 5	34 (62%)	22(49%)	
≥ 5	21 (38%)	29(51%)	
ASA score			0.1
I	24 (44%)	11 (22%)	
II	26 (47%)	32 (63%)	
III	4 (7%)	7 (14%)	
IV	1 (2%)	1 (2%)	
Tumor Site			0.63
Right colon	9 (16%)	10 (20%)	
Left colon	30 (55%)	24 (47%)	
Rectum	15 (27%)	17 (33%)	
Tumor stage			0.65
I	4 (9%)	7 (16%)	
II	7 (16%)	8 (17%)	
III	13 (30%)	9 (21%)	
IV	19 (44%)	19 (44%)	
Type of Surgery			0.6
Right Hemicolectomy	9 (16%)	10 (20%)	
Left Hemicolectomy	5 (9%)	7 (14%)	
Sigmoid Colectomy	1 (2%)	1 (2%)	
Anterior Resection	21 (38%)	18 (35%)	
Hartmann Procedure	6 (10%)	9 (17%)	
Abdominoperineal Resection	1 (2%)	2 (4%)	
Subtotal Colectomy	3 (5%)	0	
Multivisceral Resection	7 (13%)	3 (6%)	
Others	1 (2%)	2 (4%)	

AN EXPLORATORY PROTEOMICS STUDY OF POSTOPERATIVE BIOMARKERS IN PATIENTS WITH PERITONEAL INFECTION AFTER COLORECTAL CANCER SURGERY.

eP847

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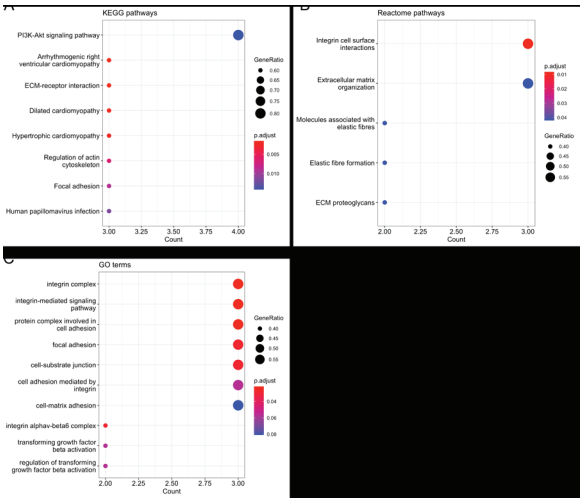
Purpose/Background: Peritoneal infection after colorectal cancer surgery cause alterations in circulating proteins, often associated with inflammation, in the postoperative period. Our aim was to evaluate whether perturbations in such protein concentrations and related signalling pathways persist long after surgery, and whether they might be involved in risk of cancer recurrence and mortality.

Methods/Interventions: In this exploratory study, we used a matched 1:1 cohort of 104 patients operated for colorectal cancer with an anastomosis. Each case suffered a postoperative peritoneal infection (anastomotic leakage or intra-abdominal abscess), and were paired with a control who had a complication-free postoperative stay. Serum was extracted at the patients' first postoperative visit and after one year. We analyzed predefined protein panels with assays involved in inflammatory, immune response and oncological processes, as well as a few target proteins including C-reactive protein. Serum protein concentrations were compared between groups with multivariate projection methods and corrected for multiple testing. Differentially expressed proteins were then examined with functional enrichment and network analyses and the top 10 ranked hub proteins were identified. Cancer recurrence and survival were evaluated with Kaplan-Meier curves and Cox regression.

Results/Outcome(s): Some 72 proteins were upregulated and five downregulated at the first postoperative visit, out of 280 proteins tested in total. None of the target proteins were differentially expressed. These alterations were all normalized after one year. Some of the highest-ranking hub proteins were interleukin-6, an actor both regarding inflammation and immune response; C-X-C motif ligand 8 which functions as a neutrophil chemotactic factor and a promoter of angiogenesis; and integrin alpha V, of which the overexpression in the setting of primary colorectal cancer is related to a decreased overall survival, whereas integrins are also known to partake in cardiovascular disease. The functionally enriched pathways were related to cardiomyopathy and the extracellular matrix organisation and cell adhesion. Overall survival was worse in the infected group [19 vs 12 deceased (hazard ratio 2.04; 95% confidence interval: 0.90-4.62)] including cardiovascular mortality (7 vs 3 deceased), but cancer recurrence was similar between the groups.

Conclusions/Discussion: Patients with a postoperative peritoneal infection experienced alterations of many serum protein concentrations at the first postoperative visit. These differences were normalized after one year, and no effect on cancer recurrence was seen. Pathways related to extracellular matrix organisation and cell adhesion as well as cardiomyopathy were affected. Furthermore, a higher incidence of cardiovascular mortality was noted in the infected group – a possible link which needs to be validated in larger cohorts.



Functional enrichment analysis of downregulated proteins

DIFFERENT ONCOLOGIC OUTCOMES IN EARLY-ONSET AND LATE-ONSET SPORADIC COLORECTAL CANCER: A REGRESSION ANALYSIS ON 2073 PATIENTS.

eP848

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Purpose/Background: The incidence of Colorectal Cancer (CRC) is increasing in the population aged less than 50 years old (Early-Onset Colorectal Cancer-EOCRC). Recent studies highlighted the biological and clinical differences between EOCRC and Late-Onset Colorectal cancer (LOCRC). This study aims to explore the effect of age of onset on the oncological outcomes of patients undergoing colorectal resection.

Methods/Interventions: Based on an institutional prospectively maintained database, patients operated at our institution for sporadic CRC from January 2010 to January 2022 were allocated to the EOCRC (patients aged 49 or younger at diagnosis) and LOCRC (50 years old or older at the time of diagnosis) groups. Exclusion criteria included surgical indication for benign lesions, any histology different from adenocarcinoma, concomitant diagnosis of inflammatory bowel diseases and genetic syndromes. The primary endpoint was the rate of disease progression and recurrence.

Results/Outcome(s): Between January 2010 and January 2022, 2073 patients were included: 423 EOCRC and 1650 LOCRC. Female gender (50% vs 41%; p=0.003) and smoking habit (23% vs 16%; p<0.0001) were more represented in the EOCRC group. EOCRC were more located in the left colon (32% vs 22%; p<0.0001) and metastatic at diagnosis (34% vs 15%; p<0.0001). Accordingly, more EOCRC underwent neoadjuvant therapy, with a worse response (37% vs 51%; p=0.005). More EOCRC underwent an emergency (4% vs 1%; p=0.002) and open surgery (28% vs 18%; p<0.0001). Ninety-days complications were lower in the EOCRC (22% vs 29%; p=0.010). Lymphovascular invasion was more reported in LOCRC (33% vs 27%; p=0.026). The rate of mutations (BRAF/KRAS/NRAS/Pi3KCa) was higher in the EOCRC (51% vs 13%; p<0.0001). At Cox-regression analysis, eartly age of onset, tumoral stage, signet ring cells phenotype, extramural/perineural/lymphovascular invasion, preoperative treatment and the open approach were independent risk factors for progression and recurrence. Interestingly, at sub-group analysis stage I EOCRC had an increased rate of recurrence compared with LOCRC (p=0.014) (Fig.1). The Cox-regression analysis performed only for Stage I patients confirmed early age of onset as an independent predictor for recurrence.

Conclusions/Discussion: EOCRC were more likely to present with advanced disease at diagnosis, possibly due to reduced risk perception, leading also to more emergecy and open surgeries. However, the significantly worse outcomes of stage I EOCRC suggest a potentially more aggressive tumoral phenotype in younger patients. In fact, early age of onset resulted an independent predictor for disease progression/recurrence overall and an independent predictor for recurrence in Stage I patients. These findings warrant a deeper insight as, if confirmed, alternative treatment strategies and targeted therapies might be required for EO patients.

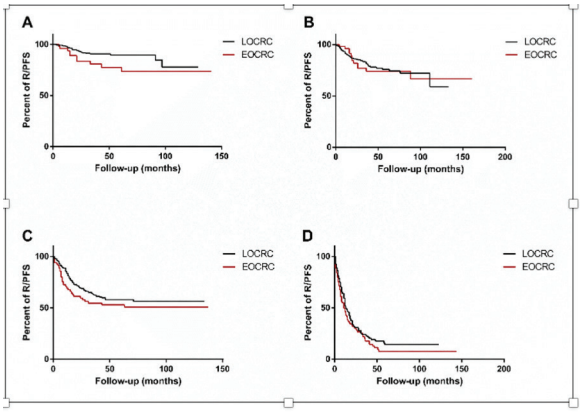

Figure 2. R/PFS (Recurrence/Progression-free survival) of EORC (Early-onset colorectal cancer) and LORC (Late onset colorectal cancer) patients according to the preoperative tumoral stage. A) R/PFS of EOCRC (red line) and LOCRC (black line) patients diagnosed with tumoral **stage I** were compared with Kaplan-Meier analysis and Log-rank (Mantel-Cox) test (HR=2.68; 95% CI: 1.07-6.72; p=0.035). B) R/PFS of EOCRC (red line) and LOCRC (black line) patients diagnosed with tumoral **stage II** were compared with Kaplan-Meier analysis and Log-rank (Mantel-Cox) test (HR=0.98; 95% CI: 0.53-1.83; p=0.955). C) R/PFS of EOCRC (red line) and LOCRC (black line) patients diagnosed with tumoral **stage III** were compared with Kaplan-Meier analysis and Log-rank (Mantel-Cox) test (HR=1.43; 95% CI: 0.92-2.20; p=0.108). D) R/PFS of EOCRC (red line) and LOCRC (black line) patients diagnosed with tumoral **stage IV** were compared with Kaplan-Meier analysis and Log-rank (Mantel-Cox) test (HR=1.25; 95% CI: 0.93-1.67; p=0.103).

CLOSE MARGIN OF ADVERSE HISTOLOGIC FACTORS WITH A NEGATIVE PRIMARY TUMOR MARGIN IS NOT ASSOCIATED WITH INCREASED LOCOREGIONAL RECURRENCE IN COLON CANCER.

eP849

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Purpose/Background: Modern studies report the rate of locoregional recurrence of colon cancer up to 10%. Locoregional recurrence (LR) after resection of colon cancer is increased when the primary tumor margin is positive (<1 mm). Data is limited regarding the risk of LR when there is a close margin (<1 mm) of other pathologic factors, such as intravascular tumor invasion, intranodal tumor extension, tumor deposits, or extranodal extension. We hypothesized that close margin of these factors would not result in an increase in locoregional recurrence.

Methods/Interventions: A retrospective review of all colon cancer surgical resections for adenocarcinoma from 2007-2020 within a quaternary referral center was performed. The institutional pathology database was

queried to look for specimens with a negative primary tumor margin but a close margin of adverse histologic factors, defined as follows: <1 mm margin of intravascular tumor invasion, intranodal tumor extension, tumor deposits, or extranodal extension. These cases were then reviewed for evidence of LR.

Results/Outcome(s): There were 4,435 pathology reports reviewed; 45 (1%) of cases met inclusion criteria. Average duration of follow-up was 38 months. The close margin was the mesenteric margin in 34 (76%) patients and the circumferential resection margin in 11 (24%). The close margin was identified as intranodal tumor in 24 (53%) cases, intravascular tumor in 8 (18%), tumor deposit in 5 (11%), and more than one pathologic feature in 6 (13%). There were 10 (22%) patients who were stage IV at time of surgical resection. Of the 45 patients, there were 9 (20%) recurrences; 6 (13%) of these patients had distant recurrences only (liver=2, lung=1, lung & liver= 3), 2 (4%) patients had LR only, and 1 (2%) patient had both LR and distant (spine) recurrence. All patients with recurrence completed postoperative adjuvant chemotherapy. All three locoregional recurrences were in patients who underwent colectomy (one right and two sigmoid) for node positive disease. All recurrences were in regional lymph nodes discovered on cross sectional imaging after 14, 17, and 40 months, respectively. The close margin in these three patients was intravascular in two and both intravascular and intranodal in one. In these patients no intraluminal recurrence was detected.

Conclusions/Discussion: Patients with close (<1mm) margin of intravascular tumor, intranodal tumor, tumor deposits, or extranodal extension occur infrequently. Based on our results, we do not have evidence that <1 mm margin of these factors are associated with increased risk of locoregional recurrence. Close margins of these factors are often associated with preexisting stage IV disease. Further study into these factors is needed to better assess if close margin is associated with adverse outcomes. Future research may specifically target close margin of intravascular tumor; as seen in all our LR.

MINIMALLY INVASIVE ABDOMININVASIVE ABDOMINOPERINEAL RESECTION WITH EXTRAPERITONEAL END-COLOSTOMY IS FEASIBLE AND PREVENTS PARASTOMAL HERNIAS.

eP850

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Purpose/Background: Parastomal hernias affects up to 50% of patients with permanent end colostomy following abdominoperineal resection (APR). The extraperitoneal colostomy technique (ECT) has been used in open procedures to decrease hernia complication rates when compared to conventional intraperitoneal colostomy technique (ICT). However, there are a paucity of studies on the technical feasibility and outcomes of ECT in the setting of minimally invasive surgery. This study aimed to assess the differences in stoma related complications, specifically parastomal hernias, between minimally invasive ECT and ICT in patients who underwent APR.

Methods/Interventions: This was a single-institution, retrospective study involving consecutive patients who underwent minimally invasive APR with permanent end colostomy from February 2018 to April 2022. Patients were stratified into ICT or ECT groups. ECT involves tunneling the descending colostomy through the preperitoneal space, creating a peritoneal flap, prior to entering the fascial aperture. The primary outcome was postoperative rates of parastomal hernias. The secondary outcomes included length of stay, ED visits within 30 days, hospital readmission, 30-day morbidity, and other stoma related complications.

Results/Outcome(s): Thirty-three patients who underwent minimally invasive APR were identified, including 19 ECT and 14 ICT patients. The two groups had comparable baseline characteristics, including hernia risk factors, as seen in Table 1. The ECT and ICT groups had median follow up of 13 (range 7-38 months) and 10 months (range 6.5-32 months), respectively. No patient in the ECT group and 50% (7/14) of the ICT group developed parastomal hernias during follow up ($p<0.01$), confirmed by both most recent CT imaging and physical exam. There was no significant difference in the occurrence of other stoma related complications. The ECT group was found to have significantly lower rates of ED visits within 30 days (10.5% vs 42.9%, $p=0.05$) when compared to the ICT group. Overall morbidity was lower for ECT (15.8% vs 50%, $p=0.06$), and there was no significant difference in rates of postoperative ileus, surgical site infection, intraabdominal abscess, and unplanned reoperation within 30 days.

Conclusions/Discussion: In this study, the creation of an extraperitoneal colostomy resulted in no parastomal hernia formation in all patients. The intraperitoneal and extraperitoneal techniques were comparable related to other stoma related complications including stricture and prolapse. Longer term follow-up will help define the role for ECT in limiting post operative morbidity related to permanent colostomy following minimally invasive APR.

Table 1. Characteristics of Patients Who Underwent Minimally Invasive APR According to Colostomy Technique Group

Characteristics	All Patients (n = 33)	Intraperitoneal Colostomy (n = 14)	Extraperitoneal Colostomy (n = 19)	p-value
Mean (std) age, years	64 (12)	67 (9.9)	61 (13)	0.18
Sex				0.99
Female	8 (24)	3 (21%)	5 (26%)	
Male	25 (76)	11 (79%)	14 (74%)	
BMI, mean (std)	28 (7.6)	30 (9.7)	27 (5.4)	0.21
ASA Classification				
Class I	0 (0%)			0.23
Class II	11 (33%)	3 (21%)	8 (42%)	
Class III	20 (61%)	9 (64%)	11 (58%)	
Class IV	2 (6.1%)	2 (14%)	0 (0%)	
Class V	0 (0%)			
Tobacco use/Smoker	11 (33%)	5 (36%)	6 (32%)	0.99
Previous Abdominal Surgeries	16 (48%)	9 (64%)	7 (37%)	0.17
History of Type 2 Diabetes	6 (18%)	4 (29%)	2 (11%)	0.36
History of Inflammatory Bowel Disease	3 (9.1%)	2 (14%)	1 (5.3%)	0.56
History of COPD	4 (12%)	2 (14%)	2 (11%)	0.99
Current Immunosuppression use	0 (0%)			
Steroid Use for Chronic Condition	1 (3.0%)	0 (0%)	1 (5.3%)	0.99
Neoadjuvant Chemotherapy	24 (73%)	8 (57%)	16 (84%)	0.12
Adjuvant Chemotherapy	13 (39%)	3 (21%)	10 (53%)	0.09
Neoadjuvant Radiation	25 (76%)	10 (71%)	15 (79%)	0.70
Adjuvant Radiation	2 (6.1%)	0 (0%)	2 (11%)	0.50
History of Myocardial Infarction	1 (3.0%)	1 (7.1%)	0 (0%)	0.42
Laparoscopic Approach	25 (76%)	11 (79%)	14 (74%)	0.99
Robotic Approach	8 (24%)	3 (21%)	5 (26%)	0.99
Total Operative Time, mean (std)	339 (134)	387 (145)	304 (116)	0.08
Intraoperative Blood Loss - mean EBL (std)	188 (258)	266 (371)	130 (101)	0.20

DEMOGRAPHIC RISK FACTORS FOR NEW COLORECTAL CANCER DIAGNOSIS IN THE EMERGENCY DEPARTMENT.

eP860

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Purpose/Background: Colorectal cancer remains the fourth most common cancer in the US, and the second leading cause of cancer-related death. While overall rates are decreasing, the rate of distant disease has remained relatively stable. Distant disease not only decreases 5-year survival, it also has higher rates of emergent surgical needs. An estimated 30% of colorectal cancers present requiring emergent surgery. Due to many socioeconomic issues, our institution sees higher-than-average rates of multiple diseases, including colorectal cancer. Healthcare disparities, like lack of consistent preventative care, create a situation where patients' first diagnosis of colorectal cancer frequently occurs due to an ED visit. We seek to identify demographic risk factors for late-stage presentation or need for urgent/emergent (U/E) surgery in the hopes of targeting these for future public health outreach.

Methods/Interventions: This is a single center, retrospective study conducted at a safety net hospital in New Orleans, LA. Emergency Department data with associated ICD-10 codes concerning for colorectal cancer or symptoms was evaluated over a 5-year period. Patients found to receive a new colorectal cancer diagnosis were then evaluated. Patients with previous colorectal cancer diagnosis were excluded.

Results/Outcome(s): Of 4049 patients with qualifying ICD-10 codes, we identified 121 patients with newly diagnosed colorectal adenocarcinoma primarily residing in the Greater New Orleans area. While our overall diagnosis rate of distant disease was greater than the national average, this did not approach significance. The same is true for rates of U/E resection. Patients who did not speak English were significantly more likely to present with distant disease and require U/E resection (RR 3.66, CI 1.68-7.96; RR 2.16, CI 1.06-4.42). When compared to both national and local rates, Medicare/Medicaid patients had higher rates of distant disease and U/E resection (RR 4.86, CI 2.28-10.35; RR 3.58, CI 1.84-6.99). Uninsured patients also had higher rates of distant disease (RR 3.56, CI 1.63-7.76). While commercially insured patients had lower rates compared to national data (likely due to the smaller sample size of these patients), when compared within the data set patients with private insurance had higher rates of distant disease than Medicare/Medicaid and uninsured patients (RR 1.69, CI 1.38-2.07; RR 1.41, CI 1.19-1.67).

Conclusions/Discussion: While the healthcare disparities within our community are certainly multi-factorial, given the increased rates of late-stage disease amongst our patients regardless of insurance status, health literacy likely plays a significant part in these trends. Additionally, the trends among non-English-speaking patients underscore the importance of inclusivity in our public outreach. Moving forward, we plan to work with local health agencies to better tailor public outreach and education regarding colorectal cancer screening and prevention.

ROBOTIC COLECTOMY IN THE EMERGENCY SETTING IS SAFE AND ASSOCIATED WITH IMPROVED CLINICAL OUTCOMES, INCLUDING REDUCED CONVERSION RATES.

eP861

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Purpose/Background: Robotic colectomy has been associated with improved clinical outcomes when compared to laparoscopic and open colectomies. As robotic adoption has grown, the utilization of robotics in the emergency setting has emerged. Our aim was to analyze if the benefits of robotics observed in the elective setting are persistent in the emergency setting for colectomies.

Methods/Interventions: Methods/Interventions: We analyzed files of patients who underwent minimally

invasive surgery (laparoscopic or robotic) and open colectomy collected by the American College of Surgeons National Surgical Quality Improvement Program (NSQIP) from 01/2016 to 12/2020. We used Poisson Regression models to calculate relative risks (RR) surgical and medical outcomes by surgical techniques, after adjusting for age, weight, ASA scores, mechanical and antibiotics bowel preparation, race, gender, smoking status, hypertension and diabetes mellitus. We abstracted 5 cohorts of patients, including robotic, laparoscopic, open, standard of care (laparoscopic and open), and minimally invasive (robotic and laparoscopic).

Results/Outcome(s): Outcomes: We analyzed the following outcomes: 30-day mortality, medical related morbidity, operative time, ileus, anastomotic leak, hospital length of stay (LOS) and conversion rate. Results: 22,074 patients underwent colectomy in the emergency setting, including 17,417 in the open surgery cohort, 1,789 in the laparoscopic group and 76 in the robotic group. Minimally invasive approaches to emergency colectomy procedures increased significantly from approximately 5% in 2016 to 10% in 2020 ($p<0.001$). Minimally invasive approach was associated with a robust reduction in 30 day mortality, when compared to open surgery, even after adjusting for multiple confounders (RR 0.24, 95 % CI {0.18-0.33}, $p<0.001$ When compared to laparoscopic, robotic approach was associated with a robust and significant reduction in rate of conversion to open surgery (adjusted RR: 0.54, 95%CI: {0.34 - 0.86 }, $p>0.010$). In addition, emergency robotic colectomy was also associated with a significant reduction in medical related morbidity (RR: 0.53, 95%CI: {0.31-0.92}, $p<0.05$) and ileus (RR: 0.55, 95%CI: {0.31-0.94}, $p<0.05$) when compared to the standard of care cohort.

Conclusions/Discussion: Robotic colectomy in the emergency setting was associated with significant reduction of 30-day morbidity and ileus when compared to the standard of care. In comparison to laparoscopy, robotic approach to emergency colectomy was associated with a significant reduction in conversion rate. Considering the expansion of robotic surgery in emergency cases, our results contribute to the rationale and applicability of the robotic approaches in this setting.

SHORT-TERM AND LONG-TERM OUTCOMES OF ROBOTIC TRANSANAL MINIMALLY INVASIVE SURGERY: A SINGLE CENTER EXPERIENCE.

eP862

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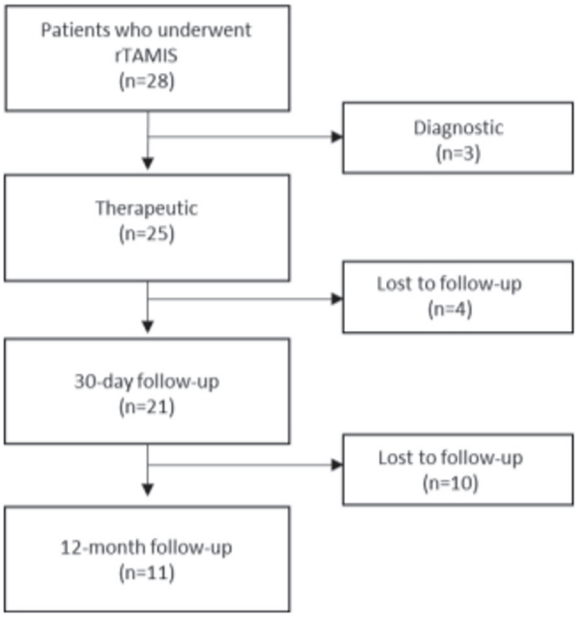
Purpose/Background: Robotic transanal minimally invasive surgery (rTAMIS) is a novel technique for local excision of mid to low-rectal lesions. This procedure has become increasingly adopted by colorectal surgeons due to its cost-effectiveness, ergonomic versatility, and adequate oncologic results. The aim of this study is to assess the short and long-term clinical outcomes of patients who underwent rTAMIS at a single, community-based, institution.

Methods/Interventions: We retrospectively analyzed a cohort of 28 rTAMIS procedures performed between April 2018 and May 2022 at a community hospital, and evaluated the clinical outcomes within 30 days and 12 months post-operatively.

Results/Outcome(s): A total of 28 patients underwent rTAMIS by a single surgeon between April 2018 and May 2022. Mean age of patients was 63.1 +/- 13.9 years. Most cases (92.9%, n=26) were performed in the prone jackknife position. Sixty percent of lesions were in the distal rectum (n=17) and 39.3% were in the middle rectum (n=11). Negative margins were seen in 100% of the excision cases, and 100% of the specimens were intact. Final pathologies demonstrated invasive adenocarcinoma in 28.6% (n=8) of all cases. Twenty-five patients underwent rTAMIS for therapeutic purposes; of these, 21 patients (84%) were followed for at least 30 days, and 11 patients (44%) for 12 months. Mean follow-up time was 5.9 months (range 0-29 mo). Eight out of 21 patients (38%) had follow-up colonoscopy within 12 months from surgery. Ten patients (47.7%, n=10/21) described post-operative complaints during the first 30 days, including: rectal pain (n=7), rectal bleeding (n=3), urgency (n=2), stool incontinence (n=2), rectal drainage (n=2), and urinary retention (n=1). Amongst the patients followed for 30 days (n=21), 2 patients required re-admission to the hospital, and 2 required re-operative re-intervention. At 3-month follow-up, only three patients (14%) experienced persistent symptoms (pain, bleeding, or drainage). At 12 months, only one patient (4%) had persistent bleeding, ultimately requiring abdominoperineal resection.

Conclusions/Discussion: R-TAMIS is a safe, feasible, and effective technique for the surgical treatment of rectal lesions. It provides adequate oncologic outcomes with minimal short and long-term morbidity.



DIVERTING LOOP ILEOSTOMIES: CONSIDERATION OF COSTS IN OPERATIVE DECISION MAKING.

ePoster 863

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Purpose/Background: Diverting loop ileostomies (DLI) for fecal diversion after colon and rectal anastomoses are frequently created as a means of protection against anastomotic leaks. However, these are not without complications, impact on quality of life, and increased costs, especially given the advances in the management of anastomotic leaks. Recent literature has advocated for DLI to be used more selectively. We hypothesize the protective effect of DLI may be overestimated while incurring a significantly increased cost.

Methods/Interventions: This is a propensity matched, retrospective case-control study. Patients undergoing a colorectal resection alone (CRRA) or with an ileostomy (CRRDI) from 1/2012-3/2021 were analyzed using local financial and NSQIP data. Patients undergoing pelvic anastomoses <6cm from the anal verge and/or previously irradiated were excluded. Patients undergoing CRRA were then propensity matched using a genetic matching algorithm in a 2:1 ratio with patients undergoing CRRDI for demographics, operative characteristics, with a standard absolute difference of <0.1. Hospitalization costs (index and post-discharge) and 30d NSQIP outcomes were analyzed. Data was analyzed using univariate analysis as well as multivariate analysis.

Results/Outcome(s): 1614 patients were evaluated and included in the study, including 1442 CRRA and 172 CRRDI. Subsequently, 344 CRRA were matched with 172 CRRDI with similar preoperative and intraoperative factors, though those undergoing CRRDI had longer operative duration (215 vs. 196 min, p=0.04). Patients with CRRDI had significantly longer length of stay (10.3d vs, 8.0d, p=0.008), and those with CRRA had significantly higher rate of superficial surgical site infections (SSI) (7.3% vs. 2.3%, p=0.036). Otherwise, the groups had similar outcomes, including rates of deep and organ space SSI, anastomotic leak, post-operative (PO) organ failure, unplanned readmission and return to the operating room (OR), PO ileus, and PO sepsis/septic shock. Despite similar outcomes, patients with CRRDI had significantly higher inpatient floor costs (7920 vs. 6190, p = 0.005) and procedure costs (27000 vs. 22500, p = 0.047) compared to their matched CRRA counterparts, though follow-up costs and direct costs were not significantly different. Further, patients undergoing CRRDI were 13% more likely to have higher index hospital costs in the matched group when compared to the CRRA patients.

Conclusions/Discussion: Patients with CRRDI incur significantly increased healthcare costs with greater resource utilization despite similar outcomes. Though creation of DLI remains dependent on surgeon judgment given clinical scenarios, healthcare resource utilization and cost should be considered in this decision-making process, and diversion should be done selectively.

	Mean Cost Outcomes, Matched Data			
	Variable	Colorectal Resection with Ileostomy (N=172)	Colorectal Resection Alone, Matched (N=344)	P-Value
(Days)	Mean Length of Stay (SD)	10.3 (9.68)	8.02 (8.26)	**0.008**
Comorbidities and Complications (patients)	Presentation			
	Elective	132 (76.7%)	275 (79.9%)	0.263
	Urgent	29 (16.9%)	41 (11.9%)	
	Emergent	11 (6.4%)	28 (8.1%)	
	Superficial Incision SSI	4 (2.3%)	25 (7.3%)	**0.036**
	Deep Incision SSI	2 (1.2%)	9 (2.6%)	0.451
	Organ Space SSI	16 (9.3%)	25 (7.3%)	0.527
	Renal Failure or Insufficiency	7 (4.1%)	4 (1.2%)	0.067
	Anastomotic Leak	10 (5.8%)	17 (4.9%)	0.834
	Ileus	36 (20.9%)	63 (18.3%)	0.553
	Sepsis/Septic Shock	13 (7.6%)	33 (9.6%)	0.548
	Unplanned Return to OR	12 (7.0%)	23 (6.7%)	>0.999
	Unplanned Readmission	20 (11.6%)	45 (13.1%)	0.743
	Follow-Up ED Visit	8 (4.7%)	15 (4.4%)	>0.999
Cost Analysis (US Dollars)	Encounter Total Direct Costs (SD)	17000 (17900)	14000 (12200)	0.053
	Encounter Total Indirect Costs (SD)	10100 (9270)	8450 (7710)	**0.048**
	OR Costs (SD)	5040 (2380)	4770 (2350)	0.217
	Floor Costs (SD)	7920 (6980)	6190 (5430)	**0.005**
	ICU Costs (SD)	2130 (6130)	1770 (5580)	0.508
	Supply Costs (SD)	5690 (3380)	5120 (3860)	0.086
	Total Follow Up Cost (SD)	1890 (7170)	1820 (5220)	0.905
	Total Procedure Costs (SD)	27000 (26800)	22500 (19700)	**0.048**

RISE OF MINIMALLY INVASIVE SURGERY: TRENDS AND PREDICTORS OF LAPAROSCOPY AND ROBOTIC SURGERY IN RECTAL CANCER.

eP864

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Purpose/Background: The use of minimally invasive surgery (MIS) has been progressively increasing, including the use of MIS for rectal cancer. However, two 2015 landmark studies, ACOSOG Z6051 and ALaCaRT, used non-inferiority trials to demonstrate that outcomes from MIS did not reach the quality standards of open proctectomies for rectal cancer, calling into question the use of MIS. This analysis sought to determine whether these high-quality data altered the use or predictors of MIS surgery for rectal cancer.

Methods/Interventions: The ACOSOG trial was used to guide patient selection from the NCDB between 2012 to 2014 and 2016 to 2018. The year of ACOSOG publication, 2015, was excluded from the analysis. Patients with stage II, IIIa, and IIIb rectal adenocarcinoma were included. Patients were grouped by years of diagnosis and categorized as Pre-ACOSOG (2012 to 2014) and Post-ACOSOG (2016 to 2018). The proportion of MIS procedures were compared against the number of open surgical resections by year, both pre- and post-ACOSOG. Univariate and multivariable logistic regression analyses were then performed to evaluate for predictors of use of minimally invasive surgery among this cohort.

Results/Outcome(s): 8,267 patients were included in this analysis. In this population the proportion of MIS rose from 39.5% in the pre-ACOSOG period to 60.5% in the post-ACOSOG period (P<0.001), peaking at 75.2% in 2018 (Figure 1). Multivariable logistic regression demonstrated that patients diagnosed in the post-ACOSOG years were two times more likely to receive an MIS procedure (OR: 2.13, 95% CI: 1.94 - 2.35). Hospital facility type, location, and insurance were also found to significantly impact odds for MIS procedures. Patients treated at comprehensive community cancer hospitals, academic facilities, and integrated network cancer programs were at least twice as likely to receive MIS than patients treated at community hospitals (OR: 2.01 to 2.64, 95% CI: 1.57 - 3.41). Patients in the East and West South-Central regions were 47% and 39% less likely to undergo MIS than other regions (OR: 0.53 and 0.61, 95% CI: 0.39 - 0.82). Also less likely were uninsured patients, as compared to those with private insurance (OR: 0.67, 95% CI: 0.52 - 0.87), with the South-Central states containing a greater percentage of uninsured than all other regions (8.5% vs. 2.9%, P<0.001).

Conclusions/Discussion: The use of MIS approaches has been on the rise for the past several decades, undeterred by high quality data that has demonstrated a failure of MIS to meet non-inferiority criteria when compared to open proctectomies. This analysis demonstrates that MIS continues to increase for rectal cancer, even after the publication of the 2015 ACOSOG Z6051 study. These data question how, why, and when surgeons incorporate evidence into clinical practice.

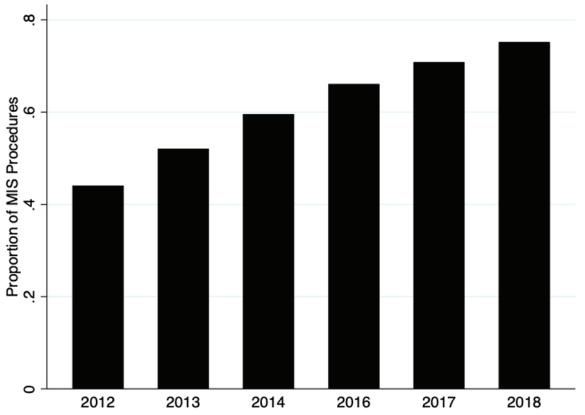

Figure 1: Proportion of MIS to open surgical resections by year.

COVID VS PRE-COVID COLORECTAL ERAS OUTCOMES AND COMPLIANCE.

eP865

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Purpose/Background: Enhanced Recovery After Surgery (ERAS) is a multidisciplinary approach to the care of surgical patients aimed at reducing physiologic surgical stress. Protocol compliance, continuous auditing, and adequately trained staff are essential to harness the beneficial effects of ERAS. The COVID epidemic has negatively impacted both access to care as well as the delivery of care in the United States. While the benefits of ERAS in pre-COVID conditions are well established, the impact of COVID on ERAS delivery, compliance and surgical outcomes have yet to be qualified. This retrospective single center study assesses the impact of COVID on surgical outcomes for patients undergoing elective colorectal surgery in a robust colorectal program with a well established ERAS program.

Methods/Interventions: Patients undergoing surgery between March 1, 2020 and June 1, 2022 (n=318) were classified as "COVID" patients and compared to the most recent 318 patients undergoing colorectal surgery prior to March 1, 2020, classified as "Non-COVID" patients. Information was collected from data entered into Encare's ERAS© Interactive Auditing System. 30 day complications, readmission, mortality, length of stay, and ERAS compliance were compared. Nursing administrational data was also collected. Baseline characteristics, outcomes, and administrative variables were analyzed for differences in patient populations.

Results/Outcome(s): The baseline characteristics of "COVID" and Non-COVID" patient groups were

comparable. There were differences in the indication for surgery, with diverticulitis being significantly more common in the COVID population. There was no significant difference in cancer stage at presentation between the two groups. 30 day complication rate was significantly higher in the COVID population (15% and 8.2% p=.017). Readmission was higher in the COVID group, but did not reach statistical significance (12% and 7.2%, p=.077). There was no difference in length of stay, reoperation rate, or mortality. Compliance with post-operative ERAS elements was significantly lower in the COVID population. Nursing turnover was significantly higher and volume of nursing staff was significantly lower during the COVID period.

Conclusions/Discussion: The ERAS program that had hitherto COVID been highly effective in reducing surgical complications lost efficacy. A stressed hospital workforce can translate into decreased delivery of services, time with patients, continuity of care, and staff that is unfamiliar or improperly suited to our specific surgical population. While the cause of COVID's negative impact on surgical outcomes is multifactorial, the quantifiable impact of COVID on hospital staff provides some actionable explanation. As hospitals throughout the US undergo challenges in staffing, it is important to assess the delivery of postoperative care and outcomes. ERAS education and close surveillance of the ERAS program will be necessary to continue to derive the benefits of ERAS.

Post-op Complications			
Postoperative Complication/Outcome	Covid, (%)	Non-Covid, (%)	p value
30 Day Complication	46 (14.5)	26 (8.2)	0.017
30 Day Mortality	1 (0.31)	0 (0)	NA
30 Day Readmission	37 (11.6)	23 (7.2)	0.077
30 Day Reoperation Rate	7 (2.2)	7 (2.2)	1.000
Hospital Length of Stay (HLOS), Median (IQR)	3.0 (2.0-5.0)	3.0 (2.0-5.0)	0.7536
ERAS Compliance			
Preop			
Nutrition Assessment	316 (99.4)	317 (99.7)	1.000
Supplement for Malnourished Pts	1 (25.0)	0 (0.0)	0.576
Smoking Cessation	10 (27.8)	4 (18.2)	0.407
Alcohol Cessation	4 (50.0)	4 (80.0)	0.279
Anemia Assessment	318 (100.0)	318 (100.0)	1.000
Iron for Anemic Pts	35 (100.0)	15 (93.8)	0.135
ERAS education	316 (99.4)	315 (99.1)	1.000
Preop Carb Load	316 (99.4)	318 (100.0)	0.499
Antibiotic Prophylaxis	316 (99.4)	317 (99.7)	1.000
DVT Prophylaxis	318 (100.0)	317 (99.7)	1.000
Intraop			
Abd/pelvic drain used	5 (1.6)	4 (1.3)	1.000
Multimodal PONV ppx for high risk pts	308 (96.9)	313 (98.4)	0.296
Forced air heater used	300 (94.3)	312 (98.1)	0.020
<3L IVF given for colon/small bowel rsxn	46 (83.6)	39 (76.5)	0.355
<3.5L IVF given for rectal rsxn	256 (97.3)	265 (99.3)	0.088
Postop			
Duration of IVF > 48 hrs	265 (83.3)	232 (73.0)	0.002
Mobilization	104 (32.7)	218 (68.6)	0.000
Foley catheter removed > 48 hrs post op	263 (82.7)	240 (75.5)	0.032
30 day follow up	318 (100.0)	318 (100.0)	NA
Narcotic use			
Day of surgery	252 (79.3)	256 (80.5)	0.767
Day 1	215 (67.6)	246 (77.4)	0.008
Day 2	184 (57.9)	223 (70.1)	0.002
Day 3	132 (41.5)	156 (49.1)	0.067

Table 1: Post operative complications and ERAS compliance

THE ROLE OF 2D AND 3D TUMOUR MEASUREMENTS IN DETERMINING NEOADJUVANT TREATMENT RESPONSE AND LONG-TERM DISEASE OUTCOME IN LOCALLY ADVANCED RECTAL CANCER.

eP866

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Purpose/Background: In locally advanced rectal cancer (LARC), response to neoadjuvant therapy (nCRT) is heterogenous with absence of reliable biomarkers of radio-sensitivity. Importantly, degree of nCRT response impacts long term outcome. Current nCRT allocation is based on clinical staging criteria. 2/ 3-dimensional tumour measurements are not considered. We investigate whether Primary Gross Tumour Volume (pGTV) and Tumour Length (TL), play a role in determining nCRT response and long term disease outcome in LARC.

Methods/Interventions: LARC patients undergoing curative intent nCRT +/- resection were identified between 2016-2021. pGTV(cm^3) and craniocaudal TL(mm) were obtained from radiotherapy planning CT and staging MR scans. Measure of systemic inflammatory response (SIR) was accessed from lab results at the time. Response was evaluated as pathological (pCR) or clinical complete response (cCR) vs incomplete response, pathological tumour regression grading (TRG), and Neoadjuvant rectal (NAR) scoring.

Results/Outcome(s): 303 LARC patients were included (median pGTV 79.71cm3, median TL 48mm). 26.4%, 37.3%, and 16.8% achieved cCR/pCR, TRG 0-1, and NAR <8 respectively. Larger pGTV and TL related to higher cT and cN stages, EMVI, extramesorectal nodes, and mucin on MRI (all p<0.05). Only pGTV related to CRM involvement (p=0.011). Larger pGTV and TL related to higher pre-treatment CEA, presence of anaemia and a pre-treatment SIR (CRP, mGPS), (all p<0.05). Similarly larger pGTV and TL also related to post-treatment SIR (CRP, mGPS, anaemia, NLR) and CEA levels (all p<0.05). Smaller pGTV was associated with pCR/cCR (p=0.001) and TRG 0-1 (p=0.006) but not NAR (p=0.250). Smaller TL significantly associated with pCR/cCR (p=0.001) and TRG 0-1 (p=0.001) but not NAR (p=0.148). Evidence of post-treatment SIR (elevated CRP/mGPS) but not pre-treatment SIR related to incomplete response or TRG2-3. High pre and post treatment CEA levels were associated with incomplete response. On multivariate binary logistic regression for incomplete response, TL category (p=<0.001), and post treatment CEA (p=0.007) were independent predictors. High TL related to worse 3yr DFS (p=0.021), with a non-significant trend for high pGTV (p=0.223). On analysis of high NAR (>16) pts alone, high pGTV related to worse 3yr DFS (p=0.024).

Conclusions/Discussion: 2 and 3-dimensional tumour measurements provide additional predictive information for nCRT response beyond clinical staging criteria. Larger pGTV and TL associate with other advanced tumour characteristics which affect DFS. The systemic inflammatory response and CEA relate closely to tumour size and nCRT response. Further research to better understand the underlying molecular and immune subtypes of larger volume LARCs and their interaction with the circulating inflammatory/ immune response is required in order to aid development of more successful treatment strategies.

ANTIBIOTIC STEWARDSHIP IN THE TREATMENT OF INTRABDOMINAL INFECTIONS.

eP867

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Purpose/Background: Vancomycin serves as an important antibiotic to treat methicillin resistant staph aureus (MRSA), which is often found in hospital associated infections. In septic patients, with unknown pathogen, vancomycin is often prescribed in concert with other antimicrobials to provide broad spectrum coverage until the specific pathogen is isolated. Unfortunately, vancomycin administration has significant side effects, such as renal toxicity and risk of resistance. Therefore, we hypothesize post operative surgical patients with an intrabdominal source of infection have low rates of MRSA and low utility for vancomycin administration.

Methods/Interventions: Following institutional review board approval, patients with intrabdominal infections were queried from the medical record using international classification diagnosis codes from 2010-2018. Patient variables such as age, length of stay, comorbidities, and location of abdominal infection were collected. Additionally, outcomes such as culture speciation were reported.

Results/Outcome(s): 1045 patients met inclusion criteria and experienced an intrabdominal infection. Intraperitoneal abscesses accounted for 908 patients, 56.4% (n= 513) were from diverticular disease. Post procedural retroperitoneal infection was found in 101 cases, and pelvic abscess in 2 patients. Cultures with bacteria present were obtained in 303 cases, whereby MRSA was isolated in 23 positive cultures (7.5%). However, 56% of patients with an intrabdominal infection (n=586) recieved vancomycin.

Conclusions/Discussion: MRSA infection has a low prevalence in the surgical patient with intra abdominal infections. Therefore, a careful risk-benefit analysis should be employed before starting patients on vancomycin for an intrabdominal infection.

RECOMMENDING ROBOTICS: HOW DO COLORECTAL SURGEONS DECIDE? A PILOT SURVEY.

eP868

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Purpose/Background: Despite growing evidence demonstrating disparities in access to minimally invasive colorectal surgery for minority and underinsured patients, our understanding regarding how surgeons determine surgical approach is limited. We aim to gain insight regarding the factors impacting colorectal surgeons' decision to offer robotic surgery.

Methods/Interventions: Twenty-eight colorectal surgeons from various institutions, geographic regions and years of experience responded to an anonymous online survey. Questions included surgeon demographics and factors that inform their surgical approach. The Harvard Implicit Association Test (IAT) was also included.

Results/Outcome(s): Twelve female and 16 male surgeons participated; 55.6% were White, 40.7% Black and 3.7% Asian. Most surgeons were >5 years out from training (89.3%), performed >20 robotic surgeries (82.1%) and worked at a teaching hospital (85.7%). Patient race/ethnicity (100%), perceived income (100%), perceived education level (96.2%), insurance status (92.35%), gender (85.2%), perceived health literacy (80.8%), need for interpreter (76.9%) and social support (70.4%) were reported to "not at all" influence the decision to offer robotics. Less unanimously, most surgeons reported that immunosuppression (57.7%), nutritional status (57.7%), age (51.9%), presence of stoma (46.2%), cancer location (36%), functional status (34.6%) and type of assistance available (30.8%) also did "not at all" inform their decisions. Most frequently, surgeons reported their robotic volume (40.7%), wait time to schedule, (34.6%), prior abdominal surgery (53.8%) and comorbidities (34.6%) "moderately influenced" their decision to offer robotics. BMI and type of robot available were "highly important" for 37.0 and 33.0% of surgeons, respectively. Of the 28.6% of surgeons who completed the IAT, only one surgeon had no automatic preference and all other surgeons had a slight to strong preference for White over Black people.

Conclusions/Discussion: The decision to recommend robotics is multifactorial and varies between colorectal surgeons. Accessibility and experience appear to play an important role in their recommendations as does patient-related factors, such as BMI, prior abdominal surgery and comorbidities. Consistently, surgeons reported that race/ethnicity, socioeconomic factors and insurance status have no impact on decision-making, yet, lower access to robotics for minority and underinsured patients

remains. In this small pilot study, implicit bias may help to explain some disparities in access to surgical innovations like robotic surgery. If a larger national survey reflects similar results, interventions such as creation of a robotic approach calculator or implicit bias training may help to address these disparities.