

appealing forms. There was limited research looking at physicians' or patients' perceptions of FMT in the UK, which would be useful in order to identify barriers to FMT treatment which are applicable to the UK.

### P312 INTRAOPERATIVE ASSESSMENT OF COLORECTAL ANASTOMOSES: A COMPARISON OF FLEXIBLE ENDOSCOPY VERSUS RIGID SIGMOIDOSCOPY

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**Introduction** Left sided and pelvic colorectal anastomoses are associated with a 6-12% risk of anastomotic leak which can have devastating consequences for the patient. Assessment of colorectal anastomoses (CRA) is therefore essential to reduce the risk and consequences of leaks.

A 2014 systematic review of intraoperative assessment of CRA integrity demonstrated moderate benefit for mechanical patency testing and endoscopic visualisation.

More recently (2018) an endoscopic mucosal grading was described for assessing CRA.

**Methods** Based on best available evidence on assessment of CRA since 2019 we changed our practice by introducing flexible endoscopy (FE) in assessment of pelvic CRA.

In this study we compared the information provided by flexible endoscopy versus traditional rigid sigmoidoscopy (RS) with respect to successful testing of mechanical integrity and visualisation of colonic mucosa.

The following data was recorded prospectively: 1) Ease of performing and quality of air leak test 2) Quality of visualisation of anastomotic staple line 3) Quality of luminal visualisation proximal and distal to anastomotic ring and feasibility of recording the mucosal grading score.

**Results** 32 consecutive pelvic CRA were included of which 10 were in the RS and 22 in the FE group. Eight RS cases were prior to change of practice and 2 during the same period due to unavailability of the flexible endoscope. There were 14 anterior resection (3 with diversion ileostomy) and 18 sigmoid colectomies and all procedures were laparoscopic.

With adequate planning for availability of equipment for flexible sigmoidoscopy, there was no significant difference in the time needed to complete the assessment between 2 groups. The FE was superior to RS in all criteria relevant to assessment of CRA and provided the additional benefit of video-recording of both intraluminal and abdominal views by the entire team.

**Abstract P312 Table 1 Results**

Assessment criteria	RS group	FE group	P value chi square
Air leak test (intraabdominal)	8/10	22/22	0.03
Staple line visualisation	6/10	22/22	0.008
Recording mucosal grading score	4/10	21/22	0.005

**Conclusions** FE provides a consistently superior assessment and documentation of integrity of pelvic CRA and should become standard practice in laparoscopic left sided colonic resections.

### P313 ELECTROCHEMICAL PROBE FOR SIMULTANEOUSLY TRACKING ANOECTUM MUCOSAL SIGNALLING TRANSMITTERS AND MUSCLE CONTRACTION

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**Introduction** Serotonin (5-HT) is a key signalling molecule within the mucosal epithelium of the intestinal wall and has been shown to be an important modulator of motility. At present, no single approach has been established for simultaneous dual measurement of 5-HT overflow and circular muscle contraction.

**Methods** We developed a 3D-printed carbon black/poly(lactic acid) (PLA) electrochemical sensor, which had a geometry suitable for *ex vivo* measurement in the guinea pig anorectum. Phasic changes in the current were used to track contractility, whilst basal changes were used to track changes in mucosal 5-HT signalling. Using amperometric detection, the sensitivity and stability of the device for 5-HT measurements was assessed. The device was compared with an isometric force transducer for tracking of anorectal contractions.

**Results** The 3D-printed electrochemical sensor had a linear range in physiological concentrations of 5-HT (1–10  $\mu$ M) present within the intestinal tract and a limit of detection of 540 nM. There was a significant correlation in the amplitude and duration of individual contractions when comparing the measurements using an isometric force transducer and 3D-printed electrochemical sensor ( $p < 0.001$ ,  $n = 7$ ). Finally, in the presence of 1  $\mu$ M fluoxetine, the sensor was able to monitor a reduction in contractility ( $p < 0.001$ ,  $n = 7$ ) as well as an increase in 5-HT overflow ( $p < 0.001$ ,  $n = 7$ ). The sensor was stable for 5-HT measurement following *ex vivo* tissue measurements.

**Conclusions** The 3D-printed sensor can simultaneously measure 5-HT overflow and contractility in the anorectum. This single device will have significant potential for clinical measurements of anorectum function and signalling that can direct therapeutic management of patients with lower bowel disorders.

### P314 UNDERSTANDING THE ROLE OF MELATONIN ON COLONIC FUNCTION

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**Introduction** Melatonin is synthesized from 5-HT by the enzyme hydroxyindole-O-methyltransferase and the EC cells maybe a site of synthesis and release of mucosal melatonin. Although the presence of melatonin in the gastrointestinal tract is not disputed its role in regulating gastrointestinal motility and its mechanism of action are still debated.

**Methods** We used electrochemical and chromatographic methods to detect the regulation of mucosal melatonin release from intact segments of 3 month old C57BL/6 murine colon. Colonic migratory motor complexes (CMMC) were recorded in the presence of melatonin, MT<sub>2</sub> receptor antagonist 4-PDOT and MT<sub>1/2</sub> receptor antagonist luzindole. Functional bioassays were carried out to study how varying concentrations of melatonin influenced electrical field stimulated (EFS)

colonic contractions. The influence of melatonin on faecal pellet was explored.

**Results** Melatonin release was shown to 2-fold greater than serotonin, when released from the colon (n=6). Melatonin release occurred on demand during mechanical stimulation but was not released by a chemical stimulus, the bile salt deoxycholic acid. EFS of isolated colon segments caused contraction at lower frequencies but relaxation at higher frequencies. In the proximal colon, 5 µM melatonin facilitated contraction at all EFS frequencies (p<0.05, n=6), however this was not altered in the distal colon. In the presence of tetrodotoxin (TTX), melatonin did not alter KCl stimulated muscle contraction. Melatonin caused a reduction in CMMC amplitude in the proximal colon (p<0.01, n=5) but did not influence the distal colon. Melatonin did not influence the velocity of CMMCs (n=5). Melatonin significantly decreased colonic transit times of an artificial faecal pellet (p<0.001, n=5), however luzindole significantly increased colonic transit times (p<0.01, n=5).

**Conclusions** Our findings highlight that melatonin is present and released from the colonic mucosa and has an important functional role in influencing muscle contraction. Therefore, melatonin signalling pathways may serve to be important targets to direct therapeutic development.

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#### MEASURES TO REDUCE POST-POLYPECTOMY BLEEDING IN PEDUNCULATED POLYPS – DOES A CLIP HELP?

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**Introduction** Immediate and delayed post-polypectomy bleeding (PPB) are serious complications after endoscopic removal of large pedunculated polyps. Options to decrease the risk of bleeding include injecting the stalk with adrenaline, placing endoscopic clips across the stalk (before or after the polypectomy) and placement of a nylon loop around the stalk. The principle of closing a defect to reduce complications is well established but the cost effectiveness of prophylactic clipping remains controversial. There are currently no consensus guidelines.

**Methods** We aimed to investigate the use of endoscopic clips during polypectomy of pedunculated polyps >10 mm and assess its association with PPB. We performed a large retrospective study across two sites at a tertiary London-based hospital Trust. Endoscopy software (Unisoft GI reporting tool) was used to identify pedunculated polyps >10 mm in size during a 5 year period (January 2014 to March 2019). Patients that did not undergo polypectomy were excluded.

**Results** 657 polypectomies were performed for pedunculated polyps during the study period (mean age 65.2 (range 22 - 94), Female 240 (36.5%)). Mean pedunculated polyp size 16.4 mm (10 - 60 mm). 431 (65.6%) in sigmoid colon. 636 (96.8%) hot snare polypectomy; 264 (40.2%) injected with adrenaline. Endoscopic clip used in 191 (29%). Total immediate (< 6 hrs) and delayed bleeding (6 hrs to 2 weeks) events were 11 (1.7%) and 14 (2.1%), respectively.

**Conclusion** Endoscopic clip use was associated with more immediate bleeding events suggesting that it is being used as a treatment strategy (not prophylactically) to achieve haemostasis in high risk patients. Endoscopic clips are being deployed

#### Abstract P315 Table 1 Bleeding complications according to use of endoscopic clip

	Endoscopic Clip (n = 191)	No Endoscopic Clip (n = 466)	p value*
Size (mm)	18.1	15.7	0.0002
Hot Snare (%)	183 (95.8)	453 (97.2)	0.35
Adrenaline injection (%)	115 (60.2)	149 (32.0)	<0.0001
Immediate bleeding (%)	9 (4.7)	2 (0.4)	0.0001
Delayed bleeding (%)	4 (2.1)	10 (2.1)	0.97

more often with larger polyps and in combination with adrenaline injection. Overall PPB rates in our cohort remain low. There remains considerable variation in practice and the type/size of clip to use and the method of clipping remain unanswered questions. Whilst there is clear guidance from national and international bodies on how to remove sessile polyps, the optimal technique for resection of pedunculated polyp is less clear and this may account for the variability in clinical practice.

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#### HOW IS FIT BEING USED IN THE COLORECTAL TWO WEEK WAIT PATHWAY?

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**Introduction** Faecal Immunochemical Testing (FIT) has been proposed by NICE to be used in patients fulfilling DG30 criteria ('low risk but not no risk' of colorectal cancer, i.e. 0.1-3% colorectal cancer risk). A positive FIT test result necessitates a 2 week wait (2ww) referral. FIT is not currently supported by NICE for NG12 patients, in other words those individuals with >3% risk of colorectal cancer (CRC) are referred based on symptoms. FIT testing was introduced in our referral population in mid-2019. We would like to explore how FIT has affected referral patterns and whether it was being used in accordance with NICE guidance.

**Methods** We extracted the 2ww colorectal referrals from November 2019 to February 2020 and compared demographic and clinical data for those patients referred as FIT positive (FIT group) to those referred based on symptoms alone (symptoms alone group). Outcomes for CRC and presence of polyps were recorded. Two-tailed t-test and Fisher's exact test were used to assess for a significant difference between the two groups.

**Results** 502 referrals were received in the three month period, of which 22 were excluded as no information regarding FIT could be found. 72 patients (15%) were referred on the basis of their FIT result, 22 of whom have negative FIT results. 39 patients from the FIT group (54%) had NG12 compliant symptoms, rendering a FIT unnecessary. Mean age in the FIT group was lower than the symptoms alone group (58.2 vs 62.2, p = 0.03). There was no significant difference between the FIT and symptoms alone groups in CRC rate (3.2% vs 1.9%) or polyp detection rate (27.1% vs 24.2%), but there are fewer cancer diagnoses in the FIT group (n = 2 in FIT group, n = 6 in symptoms alone group). Mean FIT value