

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)