Abstract PTH-018 Figure 1

Conclusion This pilot study suggests that both E-nose and FAIMS offer a different and non-invasive approach with high potential to identify those with CRC.

Disclosure of Interest None Declared.

PTH-019 COLONIC STENTING IN A DGH WITHOUT A RADIOLOGIST SUPPORT

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^{1,2}R K Mehmood, ¹P Kirkbride, ¹E Jehangir. ¹Colorectal Surgery, West Cumberland Hospital, Whitehaven, UK

Introduction The aim of this study is to assess our outcomes of colonic stenting for colorectal malignancies in a DGH where we provide stenting without the support of interventional radiologist. NICE guidelines recommend facilities and services should be established to provide stenting for patients with intestinal obstruction, particularly those with serious co-morbidity to avoid emergency surgery¹. We run a colorectal laparoscopic unit adequately according to NICE recommendations although we do not have support of interventional radiologist

Methods It is retrospective study of all stents which were inserted in a DGH by a surgeon between 2004 and 2012. All patients had presented with acute bowel obstruction caused by malignant colorectal diseases and structuring. Data was collected prospectively by the colorectal specialist nurse on a pre-designed database format.

In the stent insertion no support of interventional radiologist was available. However all stents were inserted by a surgeon with the help of endoscopes and fluoroscopy in X-ray department.

Results Out of 54 patients 51 had successful stenting initially. However on three occasions stenting was not successful. Out of 51 who had successful stenting in three of them stents were not found adequately relieving obstruction so they ended up having stoma. The complete success rate in 48 patients was 88%. The indications of stenting were for relief of acute bowel obstruction, palliation and as a bridge to surgery. Complications were noted in

Seven cases (14.58) including one perforations and one migration, one obstructive symptoms persisted and four had growth of the tumour at the lower end of the stents where restenting was not successful. There were no incidents of acute or delayed haemorrhage in any patients.

Conclusion This study demonstrated that stenting for obstructing colorectal cancers is a safe and effective method of relieving acute and impending bowel obstruction. It is also a preferred method of converting an acute surgery into an elective surgery by "bridging to surgery" in order to optimise patient's condition before surgery.

Our study also showed that stenting can be provided safely and effectively in a district general hospital by a trained surgeon without the help of interventional radiologist.

Disclosure of Interest None Declared.

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PTH-020 FACTORS INFLUENCING ABNORMAL GLAND MORPHOGENESIS IN COLORECTAL CANCER (CRC) - TRANSLATIONAL STUDIES

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^{1,2}R Topley, ²A Fatehullah, ³R Deevi, ⁴I Jagan, ¹J Eves, ⁵M Loughrey, ¹K Arthur, ⁵M Stevenson, ¹F C Campbell on behalf of Campbell Cancer Morphogenesis Group. ¹CCRCB, Queen's University Belfast, Belfast; ²College of Life Sciences, University of Dundee, Dundee, UK; ³Cell Biology Lab, University College Cork, Cork, Ireland; ⁴UHN Toronto, Toronto, Canada; ⁵Queen's University Belfast, Belfast, UK

Introduction Disruption of colorectal gland formation characterises high grade, aggressive CRCs but causal mechanisms remain unclear. Glandular morphogenesis can be modelled in three-dimensional (3D) culture systems that enable investigation of specific oncogenic signals. We have shown that the tumour suppressor PTEN regulates 3D glandular morphogenesis in a Caco-2 colorectal organotypic model system through effects on the Rho-GTPase cdc42. Cdc42 is activated by specific guanine nucleotide exchange factors (GEFs) and influences gland lumen formation by regulation of apical membrane (AM) assembly. PTENknockdown inhibits cdc42, disrupts AM integrity and induces a vacuolar, multilumen glandular phenotype evocative of high grade CRC. While PTENhas catalytically -active or -inactive functional domains relevant to phosphatidylinositol 3-kinase (PI3K) activity, Caco-2 gland development was unaffected by PI3K signalling.

Methods We used wild type PTEN-expressing Caco-2 cells and isogenic stable PTENknockdown Caco-2 (KD) clones in two- (2D) and three-dimensional (3D) cultures as model systems. Cell membrane localization of specific cdc42 GEFs was investigated by cell fractionation and immunoblot. Effects of catalytically -active or -inactive PTENmutants on cdc42 activity and/or AM integrity during 3D morphogenesis were investigated by transfection and confocal microscopy. Apical membrane integrity was assessed in human CRCby semiquantitative score of the AM marker, NHERF-1. CRCgland morphology was assessed by a validated grading system.

Results PTENexpression enhanced cell membrane recruitment of cdc42 GEFs with a specific role in 3D morphogenesis (Tuba, ITS2). PTENmutants containing an intact catalytically-inactive C2 domain enhanced cdc42 activity, restored AM integrity and rescued defective morphogenesis of 3D PTEN-KD Caco-2 cultures. Conversely, a C2 domain construct mutated at its CBR3 lipid-binding motif was ineffective. Fundamental attributes of the model system viz, associations between AM integrity and gland morphology were conserved and had prognostic significance in human CRC.

Conclusion PTENdeficiency impairs GEF membrane recruitment, cdc42 activation, apical membrane assembly and CRCglandular morphogenesis in a predictive colorectal cancer model system.

PTEN-cdc42 regulatory pathways influence AM integrity and colorectal glandular morphogenesis. Dissection of these networks may identify molecular targets for novel therapy, aimed at high grade CRC.

Disclosure of Interest None Declared.

PTH-021 MAGNETIC ANAL SPHINCTER – A NOVEL SURGICAL OPTION FOR MANAGEMENT OF FAECAL INCONTINENCE

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^{1,2}R Tevlin, ¹A Hanly, ¹J Larkin, ^{1,3}R O'Connell. ¹Colorectal Surgery, St. Vincent's University Hospital; ²Royal College of Surgeons in Ireland; ³Department of Surgery and Surgical Specialities, University College Dublin, Dublin, Ireland

Introduction Faecal incontinence (FI) is a common and distressing problem with diverse aetiology and a significant economic burden^{1,2}. First-line therapy includes dietary modification, medication and bio-feedback. Surgical options include sphincteroplasty, artificial bowel sphincter insertion, sacral nerve stimulation and stoma formation³.

Recently, magnetic sphincter augmentation has been used successfully in gastro-oesophageal reflux disease⁴. A magnetic anal sphincter (MAS) (Torax Medical, Mn, USA) have been developed to reinforce an incompetent anal sphincter in FI. The MAS device consists of magnetic cores hermetically sealed within a series of titanium beads inter-linked on independent titanium wires, forming a ring that rests around the external anal sphincter. The force required to separate the beads is approximately 100g, equivalent to normal defaecatory force⁵.

Methods Three multiparous females (47–54 years) with severe FI had MAS devices implanted under general anaesthesia. Two had failed neuromodulation, one had a failed sphincteroplasty and one incontinence after neo-chemoradiotherapy and colo-anal anastomosis for cancer. A curved, anterior perineal incision allowed creation of an extrasphincteric circumanal tunnel. Under fluoroscopic guidance and with fastidious antiseptic technique, the appropriate size MAS was inserted. All were discharged the same day.

Results Two patients with obstetric aetiologies reported significant improvement in continence at 6 weeks (St. Mark's Score 19 to 4 and 14 to 5 (24 = max worst score). The third patient, with anterior resection syndrome, developed a recalcitrant wound infection with subsequent device extrusion and explantation.

Conclusion MAS insertion is a novel, promising technique for management of FI. Further study is required prior to making definitive conclusions.

Disclosure of Interest None Declared.

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PTH-022 RECTAL IRRIGATION IN FUNCTIONAL BOWEL SYMPTOMS: PROSPECTIVE AUDIT OF PATIENTS ATTENDING A NOVEL TERTIARY SERVICE (THE HEALTHY BOWEL CLINIC)

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¹S Blythin, ¹C Molyneux, ²K Bodger, ³P Skaife. ¹Healthy Bowel Clinic (Digestive Diseases Unit), Aintree University Hospital; ²Department of Gastroenterology, Institute of Translational Medicine, University of Liverpool; ³Department of Surgery (Digestive Diseases Unit), Aintree University Hospital, Liverpool, UK

Introduction Rectal irrigation was developed to treat patients with neurogenic bowel dysfunction. More recently its application in the management of functional bowel disorders has increased but published outcome data are scarce. Our pelvic floor unit offers a novel tertiary referral service (the Healthy Bowel Clinic) and has employed rectal irrigation within a Bowel Care Pathway for the last 6 years to treat a variety of functional bowel symptoms, including constipation, faecal incontinence and obstructive defecation syndromes (ODS). As part of our service evaluation we aimed to audit patient-reported outcome using a postal questionnaire survey.

Methods We identified a cohort of 101 consecutive patients (85 female; 16 male) who had commenced rectal irrigation and attended the service for at least 12 weeks (mean: 55 weeks; range 12–70). The

cohort included 45 with predominant constipation, 27 with faecal incontinence and 29 with ODS. A cross-sectional postal survey was undertaken using a questionnaire which first asked whether irrigation was continuing at this time or not. Patients reporting continued use were asked to record it's frequency, water volume and a pre- and post-treatment symptom score (VAS Scale:0–10). Those reporting cessation of treatment were asked to indicate their reasons for stopping. Reasons for discontinuation of irrigation were recorded.

Results 68 of 101 patients (67.3%) reported continuing use of rectal irrigation. Of the patients still irrigating, 24 were in the constipated group, 18 were in the faecal incontinence group and 26 were in the ODS group. Their mean (sd) pre-treatment symptom score was 9.1 (1.5), confirming a high symptom burden among patients selected for treatment, and the post-treatment rating of current symptoms was significantly improved at 4.2 (2.3) ($p < 0.001$). The mean irrigation volume was ~800 mls (range: 150–2000) and 41 patients (60%) reported daily use. Of 33 patients who stopped using irrigation, 11 (33.3%) cited a failure to address symptoms as the reason for cessation (Constipation: 21; Faecal Incontinence: 9; ODS: 3).

Conclusion The results show that rectal irrigation is a viable treatment option for patients presenting with a range of functional bowel symptoms. Efficacy was achieved across a variety of sub-groups. It was acceptable and well-tolerated as indicated by frequent and prolonged use in many patients. Further research is needed to identify clinical criteria to guide patient selection and predictors of success.

Disclosure of Interest None Declared.

PTH-023 SCREEN DETECTED COLORECTAL CANCER: BENEFITS AND CHALLENGES OF CATCHING THEM YOUNG

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¹S Ganapathi, ¹N Katsoulas, ¹R Hagger, ¹D Melville, ¹D Kumar. ¹St. George's Hospital, London, UK

Introduction The bowel cancer screening programme (BCSP) is known to detect majority of colorectal cancer (CRC) at an earlier stage. We aimed at determining the outcome of screen detected CRC (SDCRC).

Methods 165 patients diagnosed with CRC through BCSP were compared to a control group, which included 179 age matched patients diagnosed with CRC before the implementation of BCSP. Survival analysis was performed at a median follow up of 36 months.

Results The SDCRC and control groups were similar with respect to gender distribution and vascular invasion (VI). SDCRC were more likely to be detected at an earlier Modified Dukes' stage ($p < 0.001$). The stage distribution of SDCRC was similar to the national pilot (1) except for a higher percentage with metastatic disease (9% v 1%). During the follow up of SDCRC, 23 patients developed recurrent CRC and 19 patients died. While the overall survival (OS) was significantly better in SDCRC ($p < 0.001$), the recurrence free survival (RFS) in SDCRC was similar to the control group ($p = 0.798$). Left sided tumours ($p = 0.022$, HR-5.3) and VI ($p = 0.004$, HR-8.3) had an independent adverse influence on RFS in SDCRC. VI had a significant influence on RFS in both polyp ($p = 0.006$) and non-polyp cancers ($p = 0.012$) among SDCRC.

Conclusion While the OS was significantly better in the SDCRC, there was no significant difference in the RFS between the two groups. While the benefits of screening are clear, we need to be aware of the challenge posed by the expanding group of aggressive early CRC. Longer follow up is necessary to carefully quantify the survival and economic benefits achieved through NHS BCSP.

Disclosure of Interest None Declared.

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