

from 61.1% (baseline), to 68.8% (active) and fell again in the inactive period (59.4%, $p=0.53$ across groups). PD rates were 70.4% vs 77.9% vs 78.1%, respectively ($p=0.57$).

MAP rose significantly from 1.22 to 1.84 then dropped to 1.47 ($p=0.03$). Withdrawal time (WT; minutes) was 11.5 vs 17.0 vs 13.5 ($p=0.02$ for baseline vs active only).

More adenomas >10 mm were detected in the active phase: 13 vs 39 vs 9 ($p=0.03$), but smaller lesions were not, with significantly more found in the transverse and left hemi-colon ($p=0.01$ and 0.04 , respectively, accounting for almost all the excess detection rate).

Conclusions In this pilot study MAP significantly increased in an AI-dependent manner, most notably in colonoscopists with an established high baseline ADR. The study was underpowered to detect a difference in ADR ($n=541$ required). PDR remained elevated even after the machine was switched off, suggesting a 'learning' effect. Surprisingly, more adenomas >10 mm were detected, with most 'additional' lesions being detected in the transverse and left hemi-colon. The origin of these effects is not clear as the AI module studied has no additional functions other than aiding PD.

Further work is required to understand the interacting relationship between humans and AI and whether the magnitude is dependent on experience or baseline ADR. This will have intriguing implications for colonoscopy training to drive further improvements in ADR.

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THE RISK OF PATHOLOGICAL ACID REFLUX FOLLOWING PER-ORAL ENDOSCOPIC MYOTOMY FOR THE TREATMENT OF ACHALASIA

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Introduction Per-oral endoscopic myotomy (POEM) is a proven, effective treatment for patients with achalasia, but there are concerns regarding the risk of developing post procedure acid reflux with published studies reporting conflicting results. This study aims to determine the risk of acid reflux and related complications following POEM and influencing factors. **Methods** This was a single centre, retrospective study. As part of the routine patient pathway, all patients following POEM were offered oesophageal pH testing at 3 months, symptom screening at each follow-up appointment (validated GORD HRQL questionnaire) and surveillance gastroscopy 2–3 years post POEM. Outcomes of interest included abnormal acid exposure time (AET>4.2%), DeMeester Score (>14.72), GORD-HRQL scores and endoscopic findings at surveillance gastroscopy (reflux oesophagitis, Barrett's oesophagus and malignancy) indicating acid reflux related complications.

Results 130 POEM procedures were included in analysis (mean age: 47.4 years, 55 female and median disease duration = 3.0 years). Oesophageal pH results were available for 47 patients; 13/47 (27.7%) had an abnormal AET and 12/47 (25.5%) had a positive DeMeester score. Mean GORD-HRQL symptom scores were lower in patients with abnormal AET (3.1 vs 5.8) but was not statistically significant ($p=0.15$). Comparing patients with abnormal and normal AET there was no significant difference for history of prior therapy ($p=0.79$), prior myotomy ($p=0.80$), disease duration ($p=0.49$) and total myotomy length ($p=0.14$). 4/20 (20.0%)

of surveillance gastroscopies demonstrated evidence of reflux oesophagitis; there were no cases of Barrett's oesophagus or malignancy.

Conclusions This study demonstrated a prevalence of 27.7% for abnormal acid exposure following POEM based on pH studies, this is at the lower limit of published research. No factors influencing the development of abnormal AET were identified. Symptom scores were lower in patients with abnormal AET but not statistically significant. Although, it is reassuring that acid reflux may be lower following POEM than previously thought, clinicians must remain vigilant and continue to offer routine pH testing and surveillance gastroscopy. Especially, as symptoms of acid reflux are a poor correlate with abnormal AET. Long-term surveillance should continue in this patient group to truly determine the long-term risks of post POEM acid reflux and associated sequelae.

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HYBRID BIOPSY EMR: NOVEL SIMPLE TECHNIQUE FOR FLAT COLORECTAL LESIONS WITH SLIPPAGE OR POOR LIFTING

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Introduction Polyp resection techniques which use a hybrid of endoscopic mucosal resection (EMR) and endoscopic submucosal dissection (ESD) are well described. They facilitate lesions that may be difficult to remove due to snare slippage for very flat lesions or poor lifting due to fibrosis. However, endoscopists with little experience of cutting with a snare tip or dedicated endoscopic knife may not feel comfortable to perform this technique safely.

Methods Hybrid biopsy EMR involves submucosal injection with a lifting solution, then taking sequential bites around the polyp with a biopsy forceps to make a semi or full circumferential gutter. The lesion may need further lifting, before being snared with cold or hot technique, with either en-bloc or piecemeal fashion.

Results This case series includes 17 patients and 19 lesions: 8 females, 4 males with a mean age of 73.1 years (± 8.67 SD, range 53–89). Lesions were located in the ascending colon ($n=8$), transverse colon ($n=6$), sigmoid colon ($n=2$), rectum ($n=2$) and caecum ($n=1$). Polyp size was small ($n=2$), intermediate ($n=8$), large ($n=6$) and fragments of large ($n=3$). Polyp type was laterally spreading tumour (LST) ($n=6$; granular mixed= 1, non-granular pseudo-depressed= 2, non-granular flat= 5), small sessile adenoma ($n=3$), sessile serrated lesion ($n=7$) and hyperplastic ($n=1$).

The indication for hybrid technique was actual or expected slippage ($n=10$) and actual or expected poor lifting ($n=9$). Resection was performed piecemeal ($n=12$) or en-bloc ($n=7$), with the assistance of underwater in 5 patients. Histology showed tubular adenoma ($n=11$); with high grade dysplasia in 3 patients), sessile serrated lesion ($n=7$) and hyperplastic ($n=1$). Excision was histologically complete in 7 patients. A follow up endoscopy has been performed in 7 patients with 9 lesions and there has been no evidence of recurrence. There was one perforation which occurred with an attempted resection of a 30 mm LST-G mixed lesion. We suspect this was

due to submucosal fibrosis as the lesion had previously been biopsied and tattooed under the lesion.

Conclusion Hybrid-biopsy EMR is a simple method, requiring a widely available and inexpensive device used in every-day practice. The procedure can be performed safely by endoscopists inexperienced in ESD. Using a rotatable biopsy forceps will make this even easier to perform.

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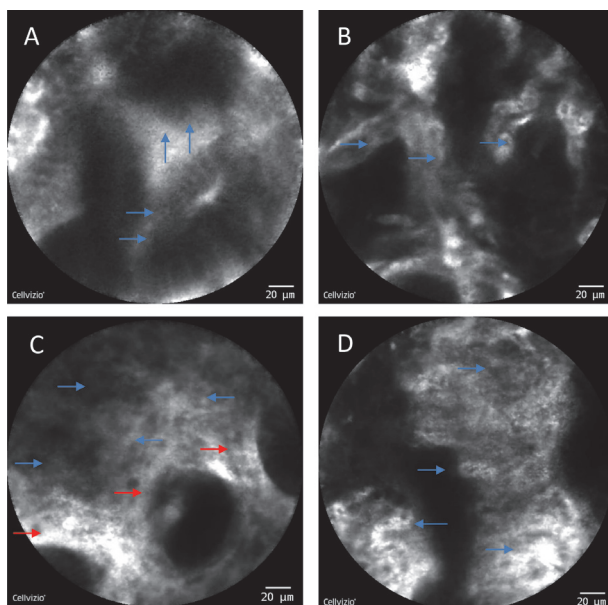
PROBE-BASED CONFOCAL LASER ENDOMICROSCOPY AS A NOVEL TECHNIQUE FOR DIAGNOSIS OF SIGNET RING CELL CARCINOMA

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Introduction Hereditary diffuse gastric cancer (HDGC) syndrome, which is related to germline CDH1 mutation, confers a 70% lifetime risk of gastric cancer. Endoscopic surveillance is an alternative to prophylactic gastrectomy in patients that want to delay surgery. Endoscopic diagnosis of early signet ring cell carcinoma (SRCC) is challenging on either standard or enhanced imaging, due to the inconspicuous nature of SRCC foci. Probe-based confocal laser endomicroscopy (pCLE) has not previously been evaluated for diagnosis of SRCC. In this study, we aimed to develop endomicroscopic diagnostic pCLE criteria for early SRCC in individuals with HDGC syndrome.

Methods This pilot prospective phase study was conducted in patients with HDGC undergoing endoscopic surveillance at a single tertiary referral centre. First, white light endoscopy and narrow band imaging (NBI) were used to inspect the gastric mucosa in order to pinpoint pale areas. After fluorescein



Abstract P62 Figure 1 pCLE features characteristic of SRCC: A - glands with attenuated margins (arrows); B - glands with irregular or spiculated shape (arrows); C - heterogenous granular stroma with sparse glands (blue arrows show heterogenous granular stroma and red arrows indicate sparse glands); D - enlarged vessels with tortuous shape and turbulent flow (arrows)

injection pale area lesions as well as negative control areas were assessed by pCLE, using coagulation marking to ensure correspondence between pCLE and biopsy location. Finally, pCLE videos were analysed off-line by an expert gastrointestinal pathologist and an endoscopist experienced in pCLE diagnosis, in an unblinded fashion in order to identify characteristic features of SRCC.

Results Overall, 16 patients received pCLE on a total of 50 endoscopic locations, of which 4 areas with confirmed SRCC on biopsies. A total of 113 video sequences were screened, of which 8 derived from areas with confirmed SRCC on biopsies. These were assessed together with 12 negative control areas, using histological slides as morphological reference. We identified 4 pCLE diagnostic criteria for SRCC. These were: glands with attenuated margins, glands with irregular or spiculated shape, heterogenous granular stroma with sparse glands, enlarged vessels with tortuous shape and turbulent flow (figure 1).

Conclusions We have identified four pCLE features characteristic of SRCC. These novel diagnostic criteria are being validated prospectively in the ongoing second phase of the clinical study.

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UREA TREND IS SUPERIOR TO ABSOLUTE UREA CONCENTRATIONS AT PREDICTING ACUTE UPPER GASTROINTESTINAL BLEEDING

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Introduction Serum urea concentration is a well-established marker of acute upper gastrointestinal bleeding (AUGIB) and is used to risk-stratify patients requiring emergency endoscopy. However, the utility of absolute urea concentrations is limited due to its non-discriminative ability to differentiate AUGIB from acute and chronic kidney disease, which often co-exist. We aimed to evaluate the diagnostic value of the urea trends in the assessment of severe AUGIB compared to absolute urea concentrations.

Methods A retrospective analysis of patients who underwent emergency gastroscopies in theatres for suspected acute upper gastrointestinal bleeding from September 2018 and May 2019 was conducted at a district general hospital. Baseline demographics, clinical characteristics, blood test results and endoscopy reports were extracted from medical records. Baseline urea concentrations were obtained from historical records where available. Active bleeding was defined as the need for therapeutic endoscopic intervention. Statistical analyses were performed using SPSS software and were considered statistically significant if the p value was <0.05.

Results 158 consecutive cases of AUGIB were identified; the median age was 72 years and 102 (65%) were male. Melaena was the most common presentation (n=87, 55%), followed by coffee-ground emesis (n=37, 23%), frank haematemesis (n=22, 14%), haematochezia (n=16, 10%) and anaemia without overt bleeding (n=16, 10%). 35 (22%) required emergency endoscopic intervention. The median haemoglobin and serum urea levels at presentation were 91 g/L (IQR 72–119) and 10.7 mmol/L (IQR 6.1–18.1), respectively. 22 (14%) had acute kidney injury, of whom 8 required endoscopic intervention; while 46 (29%) had chronic kidney disease.