Methods Patients with UC were prospectively recruited from 11 international centres. Participating endoscopists experienced in IBD received training on PICaSSO before starting the study. The rectum and sigmoid were examined using iScan 1,2&3 (Pentax, Japan) and inflammatory activity was assessed using Mayo, UCEIS and PICaSSO. Biopsies were taken for histological assessment using Robarts Histological Index (RHI), Nancy, ECAP, Geboes and Villanacci. Follow up data was obtained at 12 months.

Results A total of 307 patients were recruited.The interobserver agreement for the PICaSSO score was 0.879 (95% CI 0.826–0.924). The PICaSSO total and PICaSSO mucosal scores strongly correlated with histology scores and was statistically better than MES and UCEIS as show in figure 1. When using a PICaSSO total score of ≤3 the AUROC to predict MH by RHI (≤3 + absence of neutrophils) was 0.90 (95% CI 0.86–0.94) and when we compare the AUROC of Picasso vs Mayo p was =0.06. When using the Nancy score (≤1) the AUROC was 0.816 (95% CI 0.77–0.87). A Kaplan-Meier curve shows a significant favourable survival probability without relapse with a PICASSO score of ≤3 Likelihood ratio test=26.41, p<0.0000.

Conclusions This real-life validation study shows the electronic chromoendoscopy score, PICaSSO, can predict accurately histological healing and long-term remission and can be a useful tool in the management of UC.

05 BOUGIECAP DILATATION DEVICE: NOVEL ENDOSCOPIC METHOD FOR TREATMENT OF OESOPHAGEAL STRICTURES-RESULTS FROM A MULTICENTRE STUDY

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Introduction A novel dilatation device, BougieCap (Ovesco, Germany), allows both tactile and optic feedback of the dilatation procedure without the need for fluoroscopy. The aim of this study was to assess the safety and efficacy of this device in a prospective cohort of patients.

Methods Patients with benign oesophageal strictures and symptoms of dysphagia were recruited from 3 centres in the UK and Germany for planned dilatation with the BougieCap. The device is a single-use transparent conical cap which is fixed to the tip of the endoscope. Once in place, the endoscope is inserted and positioned in front of the stricture and by pushing forward and rotating with the endoscope, enables the conical cap to dilate the mucosa. The primary outcome measure was the technical success of dilatation. Secondary outcome measures were improvement in symptoms of dysphagia, assessed by the Dysphagia Handicap Index (DHI) before and 14 days after the procedure, and adverse events.

Results 104 patients with benign oesophageal strictures underwent BougieCap dilatation between February 2018 to September 2019. Aetiology of strictures were peptic 63%, radiation 15%, anastomotic 7%, caustic 6%, EoE 5%, post-ESD/EMR 4%. Mean diameter of strictures was 5 mm (±2.3). Bougienage was successful in 97%. In 3 cases, with a long narrow stricture, bougienage failed because of high resistance at the site of the stricture causing buckling of the endoscope in the pharynx. Symptoms of dysphagia improved after bougienage (53 points Day 0 v 21 points day 14, p< 0.01). No severe adverse events were reported.

Conclusions Endoscopic treatment of benign strictures using the BougieCap is highly successful and safe. It enables direct visual and tactile control of the bougienage procedure with control of mucosal damage within the strictured area. This might help to adapt treatment more precisely to the stricture. Symptoms of dysphagia are improved in short-term follow-up.

06 ARTIFICIAL INTELLIGENCE USING CONVOLUTIONAL NEURAL NETWORKS FOR DETECTION OF EARLY BARRETT'S NEOPLASIA

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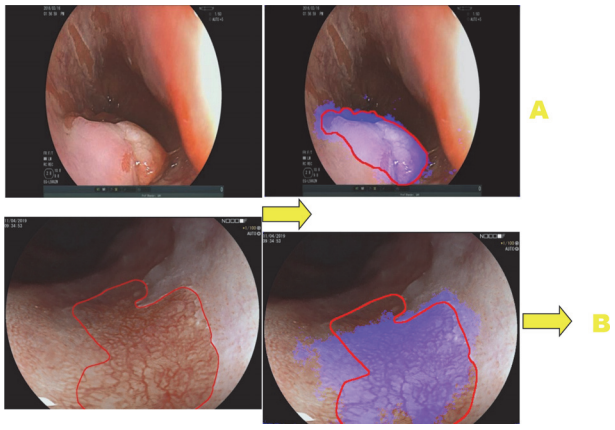
Initial results from ***THE PAIGE PROJECT*** ***P***ortsmouth's Project on ***A***rtificial ***I***ntelligence in ***G***astrointestinal ***E***ndoscopy

Introduction Endoscopic detection of early Barrett's neoplasia remains very challenging, with significant inter-observer variation in identifying and assessing these lesions. Artificial intelligence is proposed to help with computer aided detection in this field and could have significant clinical and cost implications. We aim to develop and validate a deep learning (DL) algorithm using Convolutional Neural Networks (CNN) for detection of Barrett's neoplasia.

Methods We collected 132 high definition white light endoscopy images from 46 lesions of histologically confirmed Barrett's neoplasia. These images were marked and annotated using specially designed software, and reviewed by two experts on advanced assessment and management of Barrett's neoplasia. Another 119 images of non dysplastic Barrett's were collected from 20 patients and used as control. Both dysplastic and non dysplastic images were divided into three datasets and used for training, validation and testing of CNN algorithm. We used SegNet segmentation architecture. Graphic processing unit used was 'GeForce RTX 2080 Ti. We collected metrics on processing speed,



Abstract O6 Figure 1 Two examples of the algorithm prediction in (A) a raised adenocarcinoma lesion, and (B) a flat subtle HGD lesion. The red line is expert marking of the lesion (ground truth), while the blue coloured patch is the algorithm delineation of the lesion.

sensitivity, specificity and global accuracy at different score thresholds.

Results Image processing speed by the algorithm was 33 ms/image. This is much faster than the average human visual response latency which is estimated at 70–100 ms. The algorithm was able to detect Barrett's neoplasia with sensitivity of 93%, specificity of 78% and global accuracy of 83% (see figure (1) below for examples of algorithm detection).

Conclusions We developed and validated an early AI algorithm with high sensitivity and reasonable specificity when compared with PIVI criteria. The ultra short image processing time would suggest this algorithm may be suitable for real time detection of Barrett's neoplasia. We will develop this model further for use during real time endoscopy.

07 OUTCOMES FROM THE UK ENDOSCOPIC SUBMUCOSAL DISSECTION (UK ESD) REGISTRY- WHAT HAVE WE LEARNT?

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Introduction The practice of endoscopic submucosal dissection (ESD) for treatment of early gastrointestinal neoplasia has been increasing in the West, however, the uptake has been slow due to a long learning curve and higher complication rate. We aim to analyse UK ESD practice through the development of the first UK national ESD registry.

Methods The UK ESD registry was established in 2016 with 4 major tertiary referral centres which was extended to 6 centres by 2019. Data on different parameters ranging from patient demographics to procedural details were collected on a national web based electronic platform and analysed.

Results A total of 309 ESDs were performed with a completion rate of 99.2%. Standard ESD was performed in 73.5% whereas hybrid ESD was performed in 26.5% cases. The mean lesion size was 38 mm (range 10 – 130 mm).

The overall en bloc resection rate was 86.5%, whereas the R0 resection rate was 72.5%.

There were 12 (3.8%) cases with complications (7 significant bleeds and 5 perforations).

Majority of the colorectal lesions showed a resection histology of LGD (71%) with cancer demonstrated in roughly 10% of the lesions, whereas upper GI lesions showed a higher percentage of atleast SM1 invasive cancer (stomach -61% and oesophagus- 67%).

The mean duration between procedure and first follow up endoscopy was 212 days, with visible recurrence occurring in 23 cases (7.4%).

Further details comparing standard ESD technique and hybrid ESD have been outlined in table 1.

Conclusions We therefore conclude that En bloc resection rates were higher in standard ESD, than in hybrid ESD, however, the latter was involved with fewer complications. Recurrence rates were higher in hybrid ESD compared with standard ESD, however, still lower than for EMR with similar complication rates (specially for colorectal lesions). Although associated with a lower en bloc resection rate and greater recurrence than ESD, hybrid ESD could be an attractive learning step for western endoscopists to be fully competent in standard ESD.

Inflammatory bowel disease

08 RANDOMISED CONTROLLED TRIAL OF ANTIBIOTIC/HYDROXYCHLOROQUINE COMBINATION VERSUS STANDARD BUDESONIDE IN ACTIVE CROHN'S DISEASE (APRICOT)

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Introduction Mucosal *E. coli* are increased in Crohn's disease (CD). They replicate within macrophages and are then inaccessible to penicillins and gentamicin. Hydroxychloroquine is used with doxycycline to treat Whipple's disease. It raises macrophage intra-vesicular pH and inhibits replication of bacteria that require acidic pH. Ciprofloxacin and doxycycline are also effective against *E. coli* within macrophages.

Methods Adult patients with active CD (CDAI>220 plus CRP≥5 mg/l and/or faecal calprotectin >250 ugram/g) were randomised to receive (open label) either oral budesonide

Abstract 07 Table 1

	Standard ESD			Hybrid ESD		
	En bloc	**Complication**	**Recurrence**	**En Bloc**	**Complication**	**Recurrence**
Oesophageal (N=88)	76/78=**97.4%**	Bleed: 2/78 **(2.6%)** Perforation: 0	11/78=**14%**	10/10=**100%**	Bleed: 0 Perforation: 0	2/10= **20%**
Gastric (N=87)	76/77=**98.7%**	Bleed: 1/77 **(1.3%)** Perforation: 0	1/77= **1.3%**	9/10=**90%**	Bleed: 0 Perforation: 0	1/10= **10%**
Duodenal (N=6)	1/1= **100%**	Bleed: 0 Perforation:0	0	4/5= **80%**	Bleed: 0 Perforation : 1/5 (20%)	1/5= **20%**
Colorectal (N=128)	68/70=**97.1%**	Bleed: 3/70 **(4.3%)** Perf: 2/70 **(2.9%)**	3/70= **4.2%**	20/58=**34.5%**	Bleed: 1/58 **(1.7%)** Perf: 2/58 **(3.4%)**	4/58=**6.9%**