

**Methods** High definition video recordings were collected from patients with non-dysplastic (ND-BE) and dysplastic (D-BE) BE undergoing endoscopy at UCLH. A protocol was used to record areas of interest after which a matched biopsy was taken to confirm the histological diagnosis. In a blinded manner, videos were shown to 3 expert endoscopists who interpreted them based on their M and V patterns, presence of nodularity, ulceration and suspected diagnosis. Acetic acid (ACA) was used in some cases. Data was inputted into the WEKA package to construct a decision tree for dysplasia prediction.

**Results** Videos from 47 patients (13 before and after ACA) were collected (24 ND-BE, 23 D-BE). Cases in which ACA was used, 7 had ND-BE and 6 D-BE. Experts' average accuracy for dysplasia prediction was 72.2% (66.7–76.7%). ACA did not improve dysplasia detection. In 5 cases all 3 experts failed to detect D-BE.

Using ML, the most important attribute was the lesions' V pattern. If this was reported abnormal (irregular, dilated vessels) by more than one doctor, the lesion was D-BE (accuracy 79%). If D-BE was predicted despite the V pattern being reported abnormal by one or fewer experts, the lesion was still D-BE and vice versa.

**Conclusion** Experts can diagnose D-BE in up to three-quarters of cases using i-Scan. ML can define rules learnt from expert opinion that predict dysplasia with a similar level of accuracy and are easier to learn than conventional classification systems. They could be used to train non-expert endoscopists in dysplasia detection and then used for blinded assessment of accuracy.

**Disclosure of Interest** None Declared.

#### PTU-059 COMPARISON OF BIPOLAR RADIOFREQUENCY CUTTING AND MONO POLAR CUTTING FOR ENDOSCOPIC SUBMUCOSAL DISSECTION (ESD) IN A PORCINE MODEL

<sup>1</sup>ZP Tsiamoulos\*, <sup>2</sup>C Hancock, <sup>3</sup>PD Sibbons, <sup>1</sup>BP Saunders. <sup>1</sup>Wolfson Unit for Endoscopy, St Mark's Hospital/Academic Institute, London, UK; <sup>2</sup>Department of Electronic Engineering, Bangor University, Bangor; <sup>3</sup>Department of Surgical Sciences, Northwick Park Institute for Medical Research, London, UK

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**Introduction** Current endoscopic knives utilise mono-polar energy to incise the mucosa, dissect the submucosa and coagulate bleeding vessels. Monopolar devices have proven efficacy but remain technically challenging to use with the risk of major complications.

**Methods** A new bipolar endoscopic device "Speedboat-RS2, (S-RS2) Creo Medical Ltd, UK" was compared to a standard mono-polar endoscopic device (Flush-knife-BT/F-BT/Fujifilm, Japan) for endoscopic submucosal dissection (ESD) in the porcine colon. The S-RS2 blade delivers bipolar radio frequency (RF-400 KHz) cutting and microwave coagulation (5.8 GHz) for hemostasis, and contains a retractable needle for submucosal

injection/tissue irrigation. It also has an insulated hull to prevent thermal injury to the underlying muscle layer. ESD was performed in a random order and video recorded on 5 consecutive 60kg pigs. The following parameters were measured: time taken to complete resection, complications encountered and histological assessment. Two animals were recovered for one week and four animals for four weeks.

**Results** Ten consecutive resections were performed in the colorectum (2 per animal), 5 with S-RS2 and 5 with F-BT. Median time for S-RS2 to complete a resection was 44 min using RF cutting 30W, and for F-BT was 52min using monopolar cutting for mucosal incision (80W) and for submucosal dissection, monopolar forced coagulation 30W. Median flap size for S-RS2 was 36.8mm and for F-BT was 43mm. Microwave coagulation was applied for either minor bleeding or visible vessels on 25 occasions with S-RS2. Monopolar coagulation was applied 14 times with F-BT, mean energy 30W. The Hemostatic Coagrasper was used 7 times to control arteriolar bleeding during S-RS2 dissection when microwave was not sufficient and only once during Flushknife-RS2 dissection. Endoclips were placed to treat deep muscle injury in the resection base on 10 occasions in the F-BT resections (15clips placed) and on 3 occasions (3 clips) for the S-RS2 resections. There was only one study perforation – F-BT group, where urgent peritoneal decompression was required and the resection was abandoned. Histology (S-RS2 resections) showed an intact muscle layer in four resection bases and in one there was slight muscle alteration but muscle cell viability was retained. The muscle layer was absent in two F-BT resection bases and moderately altered in one.

**Conclusion** Compared to Flush knife-BT ESD colonic resections (monopolar) the Speedboat-RS2 was associated with less muscle injury and need for endoscopic clipping. However Speedboat-RS2 resections produced more intraprocedural bleeding requiring the haemostatic forceps.

**Disclosure of Interest** Z. Tsiamoulos Consultant for: Creo Medical Ltd, C. Hancock Shareholder of: Creo Medical Ltd, P. Sibbons Paid instructor for: Creo Medical Ltd, B. Saunders Consultant for: Creo Medical Ltd, Paid instructor for: Olympus KeyMed.

## Inflammatory bowel disease I

#### PTU-060 VACCINATING PATIENTS WITH IBD-STILL TO BEGIN, AT THE BEGINNING...

<sup>1</sup>A Goel\*, <sup>2</sup>CJ Hill, <sup>2</sup>T Johnson, <sup>3</sup>JK Limdi. <sup>1</sup>Gastroenterology, Blackpool Teaching Hospitals NHS Trust, UK; <sup>2</sup>Fylde and Wyre CCG, Blackpool, UK; <sup>3</sup>Gastroenterology, Pennine Acute Hospitals NHS Trust, Bury, UK

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**Introduction** Evolving definitions of disease control over the last decade have translated into earlier and often combined use of immunomodulatory (IM) therapy with the aim of achieving deep

**Abstract PTU-060 Table 1** Data on Vaccinations administered to patients on immunomodulators

	Aza (IBD patients) n = 7	Aza (non IBD patients) n = 65	Metx (IBD patients) n = 31	Metx (non IBD pts) n = 415	6MP (IBD pts) n = 6	6MP (non IBD pts) n = 7	Total patients on IM n = 594
Influenza vaccine.	37 (52.9%)	49 (75.4%)	23 (74.2%)	317 (76.4%)	2 (33.3%)	2 (28.6%)	430 (72.4%)
Hepatitis B vaccine	5 (7.1%)	18 (27.7%)	2 (6.5%)	21 (5.1%)	0	0	46(7.7%)
HPV vaccine (females)	2 (6.8%)	2 (4.7%)	0	4 (1.3%)	1 (50%)	0	9(2.3%)
MMR vaccine	16 (22.9%)	5 (7.7%)	1 (3.2%)	12 (2.9%)	1 (16.7%)	1 (14.3%)	36 (6.1%)
Pneumococcal vaccine	28 (40.0%)	43 (66.2)	18 (58.1%)	259 (62.4)	2 (16.7%)	3 (42.9%)	353 (59.4%)