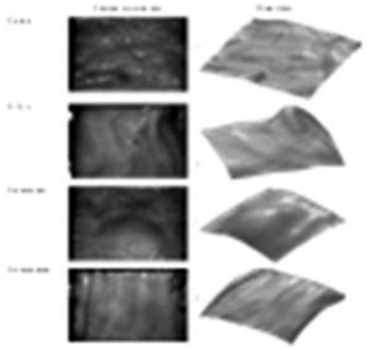

Abstract PTU-022 Figure 1

Innovations initiative has identified real time polyp diagnosis as one of the next major technology-driven changes in endoscopy.[1] A number of imaging techniques are presently being investigated in this area. The complex and demanding nature of the imaging environment, including issues relating to operation in a confined space, the presence of surface fluids and the highly reflective nature of the mucosa, renders 3D surfaccapture and analysis for the purpose of diagnosis an extremely challenging task. A novel Photometric Stereo (PS) imaging sensor has never been previously assessed for mucosal imaging. PS imaging requires the capture of the mucosal regions while illuminated using light from differing known directions and offers the potential for the recovery of high resolution 3D shape and topographic texture data. The captured PS images are then used to recover and analyse the 3D surface geometry.

Methods Using a porcine gut model, photometric images were captured using a six-light source PS setup. PS assumes diffuse reflectance from the illuminated surfaces. We use a least squares approximation approach to estimate the surface in the presence of the specular highlights. Several areas of the porcine gastrointestinal tract were scanned. For each area investigated six photometric images were captured. This data was then used to recover the depth information.

Results 3D reconstruction was obtained on all mucosal areas of the gastrointestinal tract that were studied (Figure 1). We observe that the recovered 3D surface retains the surface geometry in the captured areas and important structural information at a fine level of detail, even in the presence of numerous specular reflections. This is highly significant for automated processing and analysis of surface abnormalities.

Conclusion Using a novel sensor technology it was possible to obtain mucosal views and 3D surface reconstruction on all areas of the gastrointestinal tract using a porcine model. 3D geometric representations of the mucosal views were obtained, raising the possibility of automated computer analysis of endoscopic images. This novel technique needs to be explored further in human studies.

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Disclosure of Interest None Declared.

PTU-023 SEDATION IN THE ENDOSCOPY DEPARTMENT – DO WE NEED MORE TRAINING?

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Introduction The 2004 report of the National Confidential Enquiry into Patient Outcome and Death (NCEPOD) highlighted that only 35% of endoscopists surveyed were known to have attended courses on safe sedation. The report recommended that all those responsible for the administration of sedation in the endoscopy department should receive formal training and clear protocols for the administration of sedation should be made available and implemented.

Methods We undertook a paper survey of 40 gastroenterology trainees across 5 UK Deaneries during December 2013 to determine current practices of sedation and training in endoscopy as well as level of knowledge of the sedation agents.

Results All 40 of the trainees surveyed responded. 21 (53%) had received formal training in sedation for endoscopy with the most common setting for training being at local trust induction. 35 (88%) would value an introductory course in sedation as part of local trust induction.

Only 14 (35%) were aware of a sedation protocol in their department. 27 (68%) reported Fentanyl as the commonest first-line opioid used, although it was rarely administered in upper GI endoscopy. 28 (70%) trainees performed the majority of their upper GI endoscopies 'unsedated' with throat-spray only. These findings were similar in both sedation-trained and non-trained cohorts. For colonoscopy, 18 (90%) of those who had received formal training in sedation would administer an opioid first, before Midazolam, whereas 13 (72%) trainees without sedation training would use this sequence.

28 (70%) trainees stated correctly the maximum doses for Midazolam and Fentanyl as recommended by BSG guidelines, and were appropriately cautious about the initial dose of Midazolam administered to an elderly patient. 14(74%) of the trained cohort correctly said that Fentanyl takes 1–2 min to act, compared to 7 (39%) in the untrained cohort. All trainees surveyed knew the reversal agents for Midazolam and Fentanyl.

Conclusion 47% of trainees did not receive structured training in safe sedation, despite national guidelines advising this to be an essential part of the training program. The majority of trainees would value sedation training. We also identified some gaps in trainees' knowledge of the action of sedation agents. We propose that a formal training session in sedation or an e-learning module could be incorporated as part of a deanery or trust induction for gastroenterology and regularly reviewed thereafter.

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Disclosure of Interest None Declared.

PTU-024 NON-RADICAL, STEPWISE ENDOSCOPIC ABLATION OF BARRETT'S EPITHELIUM IN SHORT SEGMENT BARRETT'S OESOPHAGUS HAS LOW STRICTURE RATE

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Introduction Radical endoscopic ablation of Barrett's epithelium performing 4–6 endoscopic resections during the same

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endoscopic session has been shown to result in complete Barrett's ablation but has a high stricture rate (48–88%).[1–3] Therefore radiofrequency ablation is preferred for the ablation of Barrett's epithelium after endoscopic mucosal resection (EMR) of visible nodules.

We investigated whether non-radical, stepwise endoscopic mucosal resection with maximal 2 endoscopic resections per endoscopic session also resulted in complete remission of Barrett's epithelium.

Methods We analysed our database of patients undergoing oesophageal EMR for early neoplasia in Barrett's oesophagus from 2008 to 2013. Patients undergoing surgery or palliative therapy after staging EMR showing poorly differentiated cancer or advanced cancer (>T1sm) were excluded. In patients suitable for further endoscopic therapy, EMR was performed using maximal two band ligation mucosectomies per endoscopic session. Patients were endoscopically followed up 3 monthly and EMR was repeated as required for Barrett's ablation. If no dysplasia was detected after a year, the follow up interval was increased to 6 months. Only patients with circumferential Barrett's length of more than 5 cm underwent radiofrequency ablation.

Results 83 patients underwent staging EMR for early Barrett's neoplasia. Subsequently, 25 patients underwent surgery/chemotherapy due to submucosal or more advanced tumour stages or were managed conservatively depending on patient's fitness, comorbidities and choice. 58 patients with HGD (21), intramucosal (22) or submucosal cancer (5) in the resected nodule underwent further endoscopic therapy with a mean follow-up of 24 months (8–36 months IQR). Remission of dysplasia/neoplasia was achieved in 96.5%. Stepwise endoscopic Barrett's resection resulted in complete Barrett's ablation in 28 patients (48.3%) in a median of 4 sessions (IQR 2–5). 31 patients (53.4%) had a short Barrett's segment (<3 cm). In this group, repeated EMR achieved complete Barrett's ablation in 87%. Only two patients developed a stricture (3.4%), there were no perforations.

Conclusion Stepwise, non-radical endoscopic Barrett's resection at the time of scheduled endoscopy follow up allows complete Barrett's ablation with very low stricture rate in patients with short Barrett's segment.

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Disclosure of Interest None Declared.

PTU-025 ENDOSCOPY IN PATIENTS HAVING LONG-TERM ORAL ANTICOAGULANT THERAPY. CHALLENGE OR ROUTINE DAILY PRACTICE?

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Introduction While oral anticoagulant therapy increases the possibility of bleeding, withholding it could cause thromboembolic complications. The BSG provides guidance regarding endoscopy and anticoagulation. Patients may be considered as having a high thromboembolic risk depending on the indication for anti-coagulation. The endoscopic procedures can be classified as high or low risk for bleeding.

Aim To assess the number of significant bleeding events and thromboembolic events in patients undergoing gastrointestinal endoscopy and are being administered anticoagulants.

Methods Patients who had an endoscopy at Mater Dei Hospital from January 2011 to December 2012 and were on oral anticoagulants were identified through the endoscopy database. Their endoscopy report and their clinical case notes were reviewed.

Results 130 patients were recruited. 55% were female. The mean age was 68.6 years (SD +/- 11 years; range 14–89 years). The main indication for anticoagulation with warfarin was atrial fibrillation (56.3%). 44.1% of all procedures involved conditions of high thromboembolic risks. Table 1 demonstrates the indication for anticoagulation and the procedure risk stratification.

53.8% of all patients had a colonoscopy. 22.9% of procedures were classified as high risk for bleeding.1 patient (1.4%) had haemorrhoid banding. The other has polypectomy (>1cm).

43.1% of patients had an OGD. 10.7% had high risk procedures for bleeding – 1 patient (1.8%) had a gastric polypectomy and 8.9% had variceal banding.

3.1% (4 patients) of patients had a flexible sigmoidoscopy. 2 patients had a polypectomy (>1cm) and the other 2 had haemorrhoid banding (all classified as high risk for bleeding).

1 patient developed a pre-retinal haemorrhage and a vitreal haemorrhage within 30 days post-procedure. This patient had a transcatheter aortic valve implantation and AF (high risk for thromboembolic events). This patient had an OGD where a small angioectatic vessel was coagulated with APC. The INR before and after the procedure was always within therapeutic range. There were no other thromboembolic or significant bleeding events recorded in these patients.

Conclusion Our results demonstrate that adherence to the BSG guidelines on anticoagulation is highly important as to prevent any significant bleeding or thromboembolic complications. However, a new challenge for endoscopists will be the introduction and the wider availability of the new oral anticoagulants.

Disclosure of Interest None Declared.

Abstract PTU-025 Table 1

Clinical indication for anticoagulation	Percentage of patients with low thromboembolic risk	Percentage of patients with high thromboembolic risk
AF	39.3	0
AF + acquired thrombophilic conditions	0	17
AF + metallic valve replacement	0	10
AF + PE	0	4.3
AVR	6	0
MVR	0	3.4
MR + MS	0.8	0
Venous thromboembolism	9.0	9.4
DVT prophylaxis due to ACTH secreting tumour	0.8	0

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