ACETIC ACID GUIDED BIOPSIES VERSUS MAPPING BIOPSIES FOR BARRETT’S SURVEILLANCE: THE ABBA STUDY

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Introduction Barrett’s surveillance traditionally requires mapping biopsies to identify neoplasia. Acetic acid (AA) allows only targeted biopsies, potentially reducing the number of biopsies required. This study aims to compare neoplasia detection with AA targeted biopsies and protocol guided non-targeted biopsies during Barrett’s surveillance.

Methods Multicentre randomised crossover feasibility study in UK secondary care. Patients under surveillance for Barrett’s metaplasia (>2 cm) with no history of dysplasia or cancer were recruited. All patients underwent two gastroscopies 8 weeks apart, one with AA guided biopsy of abnormal areas only (Portsmouth Protocol) and one with non-targeted mapping biopsies (Seattle Protocol). Neoplasia yield (low grade dysplasia LGD, high grade dysplasia (HGD) and cancer) from each strategy was evaluated and the number of biopsies recorded.

Results 200 patients recruited from 6 centres. Mean age 66 years. 145 were male. Mean length C4M6. 175 patients completing both procedures. The prevalence of LGD, HGD and cancer was 11/192 (5.8%). All HGD and cancer was found with both protocols and confirmed with definitive treatment. One LGD was found with Portsmouth protocol not found with Seattle. 5 LGD were found with Seattle protocol not found with Portsmouth. This difference was not significant (p=0.2188), and on follow up gastroscopy no neoplastic changes were found in any of the LGD cases. 2139 biopsies were taken using Seattle protocol at a cost of £1.25 987 (306 biopsies per neoplasia, £18,023). 226 biopsies with Portsmouth Protocol at a cost of £13 311 (75 biopsies per neoplasia, £6,656) a 4 fold difference. In terms of HGD/cancer, 1070 biopsies/neoplasia found using Seattle protocol and 113 biopsies/neoplasia using Portsmouth Protocol, a 9.5 fold difference.

Conclusions This is the first RCT comparing these techniques. No HGD or cancer was missed with either technique. There was a 4 fold reduction in biopsies per neoplasia detected with Portsmouth compared to Seattle protocol and a 9.5 fold difference when restricted to high risk neoplasia. If implemented nationally then this could lead to a massive reduction in histopathology workload costs. LGD remains controversial and we believe inflammation could have resulted in false positive LGD as subsequent OGD and biopsies did not reveal any LGD. This feasibility data would support a definitive trial of AA targeted biopsies in a surveillance population.

Endoscopy

OWE-001 SIGNIFICANCE OF BIOPSIES BEFORE LARGE COLORECTAL ENDOSCOPIC RESECTIONS AND HISTOPATHOLOGICAL FEATURES OF HIGH RISK LESIONS

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Introduction Guidelines on endoscopic resection (ER) of colorectal superficial neoplastic lesions (CSNL) recommend against biopsy sampling but many are extensively sampled prior to referral, despite the deleterious effect on ER, to exclude adenocarcinoma or high grade dysplasia (HGD), reflecting a lack of understanding of the incidence and nature of adenocarcinoma or HGD within different morphological sub-types. It is therefore important to define the significance of HGD on biopsy samples and place this in the context of the histopathological characteristics of high risk lesions.

Methods ERs of large (>2 cm) CSNL were included. Sensitivity and specificity of HGD on biopsy and higher risk morphology (laterally spreading tumour (LST) non-granular/LST mixed nodular type/Ile component) for diagnosing covert invasive adenocarcinoma and confirmed HGD after ER were calculated and compared (McNemar’s test). In addition, 50 high risk lesions (containing HGD or invasive adenocarcinoma) were subjected to more detailed histopathological analysis.

Results Results from prior biopsy sampling were available for 291 lesions (mean size 62.8 mm). Histopathology after ER revealed HGD in 85 (29%) and invasive adenocarcinoma in 26 (9%). Sensitivity and specificity of HGD on biopsy (n=60) for invasive adenocarcinoma were 50% (95% CI 32%–68%) and 82% (95% CI 77%–86%), and for confirmed HGD after ER were 47% (95% CI 37%–57%) and 90% (95% CI 85%–94%) respectively. Sensitivity and specificity of high risk morphology (n=124) for HGD after ER were 71% (95% CI 60%–79%) and 69% (95% CI 62%–75%) respectively. The sensitivity of high risk morphology was significantly higher than HGD on biopsy sampling (p=0.002).

Detailed histopathological analysis of high risk lesions revealed invasive adenocarcinoma in 40% but a further 18% had non-invasive areas with cyto logical and architectural features indistinguishable from invasive adenocarcinoma. HGD was multifocal in 56%. The mean size of the focus of HGD was only 5.6 mm, and of adenocarcinoma was 11.0 mm. Mean lesion size was 53.6 mm.

Conclusions This is the first RCT comparing these techniques. No HGD or cancer was missed with either technique. There was a 4 fold reduction in biopsies per neoplasia detected with Portsmouth compared to Seattle protocol and a 9.5 fold difference when restricted to high risk neoplasia. If implemented nationally then this could lead to a massive reduction in histopathology workload costs. LGD remains controversial and we believe inflammation could have resulted in false positive LGD as subsequent OGD and biopsies did not reveal any LGD. This feasibility data would support a definitive trial of AA targeted biopsies in a surveillance population.
COLD SNARE POLYPECTOMY IS SAFE YET UNDER-UTILISED: AN ANALYSIS OF 281,194 UK TRAINEE POLYPECTOMIES

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Introduction Multiple techniques exist for the management of colorectal polyps. Recent ESGE guidelines1 have defined an evidence based guide to the optimal technique for removing different sizes of polyps. Previously this decision often depended on an individual operator’s experience and training. We sought to examine current polypectomy practice amongst United Kingdom endoscopy trainees with to these guidelines.

Methods The ESGE polypectomy guideline1 suggests polyps<10 mm should be removed using cold snare polypectomy (CSP) or cold biopsy forceps (CBF) [53 mm only], 10–19 mm using endoscopic mucosal resection (EMR) or hot snare polypectomy (HSP) and ≥20 mm using EMR. The JETS database is a prospectively collected record of trainee colonoscopic procedures in the United Kingdom and its use during training is mandatory for accreditation. Data is entered by trainees on their own endoscopic procedures. Adverse events were classified as delayed bleeding or delayed perforation. We retrospectively analysed procedures entered into the JETS database from Jan 2008 to December 2017 for polypectomy technique and compared this to the 2017 ESGE guideline.

Results 2 91 778 polypectomies were performed in 1/76 569 and compared this to the 2017 ESGE guideline. 10 584 polypectomies were missing data. 2 81 194 polypectomies were analysed.

Of 2 50 783 polyps<10 mm in size removed, 29.5% were performed using CSP, 27.9% by CBF, 25.1% by HSP, 9.5% by HBF, and 8.0% by EMR. Of 26 605 polyps 10–19 mm in size, 55.3% were removed by HSP, 31.0% by EMR and 3.5% by CSP. 8.4% of lesions were biopsied and not removed. Of 3806 polyps≥20 mm in size, 39.4% were removed by EMR, 36.3% by HSP, 1.1% were removed by CSP and 21.9% of these lesions were biopsied and not removed. Overall, adherence to the ESGE guideline was observed in 1 54 948 polypectomies (55.1%). Nurse endoscopists were more adherent (61.7%), versus physicians (57.9%) versus surgeons (44.3%), p<0.001.

Of 219 (0.1%) adverse events reported amongst all polypectomies, 50.8% were amongst HSP, 19.2% EMR, 16.9% CSP and 12.7% after HBF p<0.001. Of 20 delayed perforations (event rate 0.01%), 55% were due to EMR, 30% to HSP and 15% to HBF. No perforations resulted from CSP.

Conclusions Cold snare polypectomy is under-utilised for diminutive polypectomy, despite its proven safety and efficacy; its use amongst trainees should be promoted in line with ESGE guidance. Trainees are likely to follow the example of their trainers and, as such, this study likely provides an insight into current polypectomy practice in the wider UK endoscopic community. Trainees in the United Kingdom predominantly remove diminutive polyps with extremely low rates of adverse events.


ISCOE IMPROVES DETECTION OF EARLY BARRETT S OESOPHAGUS ASSOCIATED NEOPLASIA IN TRAINEE AND EXPERT ENDOSCOPISTS

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Introduction The Seattle protocol for BE surveillance samples a small proportion of the mucosal surface area – risking a high miss rate of early neoplastic lesions. We assessed if the new iScan Optical Enhancement system (OE, Pentax) improves the detection of early BE associated neoplasia compared to high definition white light endoscopy (HD-WLE) in both expert and trainee endoscopists. Such a system may both improve early neoplasia detection and reduce the need for random biopsies.

Methods Patients undergoing endoscopic BE surveillance from Jan 2016-Nov 2017 were recruited from 3 international referral centres. Matched still images in both HD-WLE and iScan OE were obtained from HD videos of endoscopic examinations. Two experts, unblinded to the videos and histology, delineated known neoplasia – forming a consensus ‘gold standard’. 7 expert and 7 trainee endoscopists marked one position per image where they would expect a target biopsy to identify dysplastic tissue. Sensitivity, specificity and accuracy were calculated. Improvements in dysplasia detection in HD-WLE vs OE and interobserver agreement (IA) were assessed using McNemars test and Krippendorf’s alpha respectively.

Results Accuracy of neoplasia detection improved in all trainees using OE vs WLE (pooled 76% vs 63%) and in 6 experts (pooled 86% vs 78%). OE improved detection sensitivity compared to WLE in 6 trainees (pooled: 81% [62–94%] vs 71% [50–86%]) and 5 experts (pooled: 79.4% [62–92.5%] vs 65% [52–82%]). Specificity improved in 6 trainees using OE vs WLE (pooled: 71% [50–84%] vs 55% [40–91%]) and in 5 experts (pooled: 92% [78.5–100%] vs 90.3% [55.9–99.9%]). Trainees and experts made significantly more correct diagnoses using OE (pooled: 689 vs 570, p<0.001, pooled: 789 vs 699 p<0.001) and in both groups improved using OE and was fair and moderate for each group respectively (trainees OE vs WLE: 0.39 vs 0.23, experts OE vs WLE: 0.46 vs 0.39).

Conclusion iScan OE improves the diagnostic accuracy of expert and trainee endoscopists performing BE surveillance. OE significantly improves sensitivity and specificity of neoplasm detection. It does not meet the Preservation and Incorporation of Valuable Endoscopic Innovations guidelines (PIVI) but shows promise for use in the training environment or in a secondary care setting where cases of early BE neoplasia may be lower.
**Abstract OWE-005**

**PERFORMANCE INDICATORS IN COLONOSCOPY AFTER CERTIFICATION FOR INDEPENDENT PRACTICE: OUTCOMES AND PREDICTORS OF COMPETENCE**

Keith Siau, James Hodson, Steve Ward, Paul Dundonley, Joint Advisory Group, London, UK; Institute of Translational Medicine, University Hospital Birmingham NHSFT, Birmingham, UK; GI Surgery, Worcestershire Acute Hospitals NHS Trust, Worcester, UK; Department of Gastroenterology, Gloucestershire Royal Hospital, Gloucester, UK.

Introduction Robust real-world performance data of newly-independent colonoscopists are lacking. In the UK, provisional colonoscopy certification (PCC) often marks the transition from training to newly-independent practice. We aimed to assess changes in key performance indicators (KPIs) such as caecal intubation rate (CIR) in the periods pre- and post-PCC, with particular interest in rates and predictors of trainees exhibiting a drop in performance (DIP), defined as CIR <90% in the first 50 procedures post-PCC.

Methods A prospective UK-wide observational study of e-Portfolio colonoscopy entries (n=257,800) from trainees awarded PCC between July 2011–2016 was undertaken. Moving average analyses were used to study KPI trends relative to PCC. Pre-PCC trainee, trainer and training environment factors were compared between DIP and non-DIP cohorts to identify predictors of DIP.

Results 733 trainees from 180 centres were awarded PCC after a median of 265 procedures and 3.1 years. Throughout the early post-PCC period, average CIR was maintained above the national 90%+standard. Despite this, not all trainees achieved this standard in the post-PCC period, with DIP observed in 18.4%. DIP was not found to be influenced by trauma settings. On multivariable analysis, pre-PCC factors predictive of DIP included: lower CIR, higher polyp detection rate, and non-medical endoscopist predominant trainer specialty. Trainees with DIP also incurred higher post-PCC rates of moderate-severe discomfort and lower terminal ileal intubation. Overall, trainee KPIs met JAG standards in the lead-up to PCC, and generally remained stable or improved subsequently during the post-PCC period of newly-independent practice (figure 1).

Conclusions The current PCC requirements are suitable for diagnostic colonoscopy. It is possible to identify predictors of underperforming trainees, which may be of value to training leads to direct additional monitoring and support.

**Abstract OWE-006**

**SHOULD WE BE USING THE SHOCK INDEX TO ASSESS PATIENTS PRESENTING WITH UPPER GI BLEEDING?**

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Introduction Upper GI bleeding (UGIB) is a common cause of hospitalisation. The admission Rockall (ARS), Glasgow-Blatchford (GBS) and AIMS65 scores are validated pre-endoscopy risk assessment tools. The UK NCEPOD report into UGIB used Shock Index (SI=pulse/systolic blood pressure) to assess risk of poor outcome. However existing data on SI are mostly from trauma settings. The limited data in UGIB suggest SI<0.7, or SI>1 may predict need for endoscopic therapy or mortality. Our aim was to assess the accuracy of SI to predict clinical outcomes after UGIB.

Methods We collected demographic, clinical and laboratory data on consecutive patients admitted to six large hospitals across the UK, USA, Denmark, Singapore, and New Zealand over 12 months. We compared the SI, ARS, GBS, AIMS65 and the new international bleeding risk score (IBRS) in their ability to predict need for endoscopic therapy, need for major transfusion (≥4 units PRBCs) and death. We also assessed score thresholds for identifying patients at low or high risk of death, and whether adding the SI as a parameter to the IBRS improved its predictive accuracy.

Results 3012 patients (mean age 65 years; 58% men) were studied. 574 (19%) required endoscopic therapy and 396 (13.3%) needed major transfusion. 30 day mortality was 7%.

This table compares AUROCs of the scoring systems for predicting outcomes.

<table>
<thead>
<tr>
<th>Scoring System</th>
<th>Endoscopic Therapy</th>
<th>Major (≥4 units) Transfusion</th>
<th>30 day Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>SI</td>
<td>0.606</td>
<td>0.655</td>
<td>0.611</td>
</tr>
<tr>
<td>GBS</td>
<td>0.743*</td>
<td>0.836*</td>
<td>0.692*</td>
</tr>
<tr>
<td>AIMS65</td>
<td>0.621</td>
<td>0.692</td>
<td>0.785*</td>
</tr>
<tr>
<td>ARS</td>
<td>0.613</td>
<td>0.658</td>
<td>0.759*</td>
</tr>
<tr>
<td>IBRS</td>
<td>0.675*</td>
<td>0.726*</td>
<td>0.863*</td>
</tr>
</tbody>
</table>

*p<0.001 and †p<0.001 when compared to SI

For predicting need for endoscopic therapy or major transfusion, SI had lower accuracy than GBS and IBRS, but similar to AIMS65 and ARS. In contrast to SI≥1, GBS ≥7 correctly identified the majority of patients needing endoscopic therapy (80% vs 21%; p<0.001).

For predicting 30 day mortality, SI had lower AUROC than all other scores. GBS ≤1 was superior to SI<0.7 at predicting low-risk of death (mortality rate 0.35% vs 5.2%; p<0.001).

Patients with S≥11 had lower mortality than those with IBRS ≥8 (15.3% vs 34.1%; p<0.001) and IBRS correctly identified a greater proportion of those who died as being high risk (49% vs 28%; p<0.001). Adding SI to the IBRS did not improve its predictive accuracy (AUROC 0.864 vs 0.863).

Conclusions Existing pre-endoscopy risk scores are superior to the SI in predicting need for endoscopic therapy, major transfusion or mortality after UGIB. Most patients who reach these important clinical endpoints are classified as low risk by SI.
We introduced a nurse inpatient endoscopy coordinator (NIC) with the aim of improving efficiency and quality of our inpatient endoscopy service.

**Methods** The quality improvement project (QIP) was conducted at St. James’s University Hospital over a 3 month period between November 2017 and January 2018. We collected data for 180 inpatient endoscopy procedures of which 50 were seen by the NIC prior to the procedure. The role of the NIC was to ensure completion of the pre-endoscopy checklist, provision of written information regarding the procedure, ensure patient consent was obtained on the ward, and provide guidance to the ward staff with regards to fasting and/or bowel preparation if indicated.

**Results** Data was collected for 180 inpatient procedures. The table shows the comparison of the quality assessment outcomes if seen by the NIC compared with when the patient was not seen by the NIC.

<table>
<thead>
<tr>
<th></th>
<th>Was the pre-endoscopy checklist complete?</th>
<th>Was the sedation option explained to the patient?</th>
<th>Was consent signed prior to arrival in the endoscopy department?</th>
<th>Was IV access obtained on the ward (if indicated)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seen by NIC</td>
<td>49/49</td>
<td>49/49</td>
<td>49/49</td>
<td>43/43</td>
</tr>
<tr>
<td>Not seen by NIC</td>
<td>97/130</td>
<td>83/130</td>
<td>67/130</td>
<td>92/123</td>
</tr>
<tr>
<td>p-value</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

There were 7 procedures cancelled after arrival in the endoscopy department when not seen by the NIC versus no procedures cancelled when seen by the NIC (p=0.19). One procedure was cancelled by the NIC prior to arrival in the endoscopy unit as they were deemed too unwell to have the procedure undertaken.

A patient satisfaction questionnaire showed that 100% of patients seen by the NIC were ‘very satisfied’ in several aspects of their care, such as provision of verbal and written information, in being well informed about their procedure and that their procedure was completed in a timely manner.

**Conclusion** This QIP has shown that the introduction of a NIC can have a significant impact on improving efficiency and quality in an inpatient endoscopy service.
Introduction Experts are able to predict and differentiate between neoplastic and non-neoplastic colonic polyps with high accuracy and meet the PIVI (Preservation and Incorporation of Valuable Endoscopic Innovations) thresholds. However, this has not been replicated in non-experts and cannot be currently recommended in clinical practice. The aim of this randomised trial was to establish the optimum method of training to increase the diagnostic accuracy of diminutive/small colonic polyp histological prediction by trainee gastroenterologists.

Methods Gastroenterology trainees from the Midlands, UK, reviewed 78 videos (48 i-Scan-OE+30 NBI) of diminutive/small polyps. Participants were randomised to computer-based learning or didactic training. The 78 videos (randomised order) were re-assessed. The NICE (NBI International Colorectal Endoscopic) classification and SIMPLE (Simplified Identification Method for Polyp Labelling during Endoscopy) classification systems were used to classify diminutive/small polyps (figure 1).

Results 16 trainees (12 gastroenterology trainees and 4 naïve endoscopists) were randomised to receive either self-training (n=8) or didactic training (n=8). A higher proportion of high confidence predictions of polyps were made by the self-training group vs didactic group when using the SIMPLE classification 77.1% vs. 69.9% (p<0.005) and using the NICE classification 77% vs. 69.8% (p=0.006). When using NICE classification, the sensitivity of the self-training group was 72% vs. 83% p<0.0005, and the accuracy 66.1% vs. 69.1%. When using SIMPLE classification the sensitivity was 78% vs. 83% (NS) and accuracy 65.7% vs. 69% (table 1).

Conclusions Self-learning for the prediction of diminutive/small polyp histology is a method of training that can achieve results similar to the more labour intensive and expensive didactic training. The availability of adequate self-learning teaching modules that teach how to differentiate neoplastic vs non-neoplastic colonic polyps with high accuracy could enable more widespread implementation of optical diagnosis in clinical practice.

Table 1: Diagnostic performance to predict colonic polyp histology
that uses cycles of freezing and thawing to induce cell death by intra and extracellular ice formation, vascular injury, and apoptosis.

**Aim** Single centre study to evaluate the feasibility of the focal cryoablation device for the treatment of areas of refractory oesophageal neoplasia in patients who had undergone first line EET. Endpoints: CR-D and CR-IM at 3 month follow up. The rate of stenosis and adverse events were also studied.

**Method** A total of 16 cases (11 M,5 F) have been treated by a single experienced endoscopist. Baseline histology included 7 Low Grade Dysplasia LGD, 5 High Grade Dysplasia HGD, 2 Intramucous Cell Neoplasia IMC and 2 patients with Early Squamous Cell Neoplasia ESCN. All patients had residual neoplasia after sequential first line EET. The median length of dysplastic BE treated was 3 cm (Range: 1–10) in 14 cases and 3 cm of a visible lugols-voiding-mucosa in 2 patients with ESCN. An average of 10 ablations applied per patient (range 2–24). Each selected area of visible dysplasia received 10 s of ablation. Only 1 session of cryoablation per patient. Endoscopy and rebiopsy from the treated sites were taken at 3 months post ablation to assess for end points.

**Results** CR-D achieved in 75% (12/16) of all patients at first follow up. In those with BE the CR-D was 79% (11/14) and CR-IM 36% (5/14). 1 of the patients with ESCN did not respond to Cryoablation and was referred for radiotherapy. There was progression from LGD to HGD in 1 BE case that was treated with EMR. Technical difficulty due to challenging anatomy was noted in 1 case with tortuous and dilated oesophasus. There were no device malfunction or adverse events. Stenosis was noted in 6% of cases.

**Abstract ADWE-03 Table 1 Results summary**

<table>
<thead>
<tr>
<th>SUMMARY OF RESULTS</th>
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<tbody>
<tr>
<td>Technical difficulty due to Anatomy</td>
<td>6% (1/16)</td>
</tr>
<tr>
<td>torusus and dilated oesophasus</td>
<td></td>
</tr>
<tr>
<td>Technical difficulty due to the Cryoablation Device</td>
<td>0</td>
</tr>
<tr>
<td>Stenosis</td>
<td>6% (1/16)</td>
</tr>
<tr>
<td>No response</td>
<td>13% (2/16)</td>
</tr>
<tr>
<td>(1 case with SCC &amp; 1 case with IMC)</td>
<td></td>
</tr>
<tr>
<td>Progression</td>
<td>6% (1/16)</td>
</tr>
<tr>
<td>(Progressed from LGD to HGD)</td>
<td></td>
</tr>
<tr>
<td>CR-D</td>
<td>75% (12/16)</td>
</tr>
<tr>
<td>CR-IM</td>
<td>36% (5/14)</td>
</tr>
</tbody>
</table>

**Conclusion** In this single centre feasibility cohort study, Cryoaablation with the cryoballoon device appears to be a viable strategy in patients with refractory neoplasia after sequential first line EET. It is well tolerated and partially successful in obtaining CR-D and CR-IM in ‘treatment-refractory’ patients with BE dysplasia. Further trials of dosimetry, efficacy and safety in ‘treatment-naïve’ patients with randomised controlled trials is recommended and are underway.

**ADTH-03 MISOPROSTOL FOR THE HEALING OF ASPIRIN AND NSAID-RELATED SMALL BOWEL ULCERS IN OBSCURE GASTRO-INTESTINAL BLEEDING**

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**Introduction** The incidence of obscure GI bleeding has been rising. This condition is now accepted to mainly originate from small bowel lesions and to be related to the wide use of low-dose aspirin and NSAIDs. We aimed to assess the efficacy of misoprostol, a prostaglandin analogue, in the healing of small bowel ulcers and erosions in patients using aspirin/NSAIDs and presenting with obscure GI bleeding (MASTERS Trial).

**Methods and design** This was a prospective, randomised, placebo-controlled trial, comparing misoprostol 200 ug with placebo taken 4-times daily for 8 weeks, while continuing on low-dose aspirin and/or NSAIDs. Patients were screened if they had one or more of the following: iron deficiency anaemia; a drop in Hb level of 2.0 gm/dL or more; and/or positive faecal occult blood test. Those without a potential source of bleeding on their upper GI endoscopy and colonoscopy but then found to have small bowel ulcers and erosions, using video-capsule endoscopy (OMOM Endoscopy System, China), were considered for randomisation. Small bowel lesions were classified as modified from Maiden et al, Clin Gastroenterol Hepatol 2007. Patients were clinically assessed 4 weeks after randomisation and with repeat capsule endoscopy after 8 weeks to check for mucosal healing. Capsule images were examined by two blinded assessors, and any discrepancies were resolved by consensus. The primary endpoint was full healing of small bowel ulcers and/or erosions. Secondary endpoints were numbers of ulcers and erosions, and haemoglobin (Hb) level.

**Results** Of 232 patients screened, 102 eligible patients were randomised: 50 took misoprostol and 52 took placebo. Complete healing of ulcers and erosions was observed in 27 (54%) misoprostol patients and 9 (17%) in the placebo group (p=0.001). Viewed separately, similar results were seen for healing of ulcers (68% vs 17%, p<0.001) and erosions (56% vs 21%, p=0.001). There were no significant changes in Hb levels over the study period. Compliance did not differ significantly between the two arms (76% misoprostol vs 90% placebo took >75% of study drugs, p=0.065). Mild, moderate, or severe adverse events of interest (abdominal pain, nausea/vomiting, diarrhoea, or other events) were observed in 48% of misoprostol patients vs 44% placebo (p=0.84), but tended to be more severe in the misoprostol group (p=0.017). There were no serious adverse events.

**Conclusions** Misoprostol is effective in the healing of small bowel ulcers and erosions in patients with obscure gastrointestinal bleeding while using low-dose aspirin and NSAIDs.

**ADTH-04 POST COLONOSCOPY COLORECTAL CANCER IN THE ENGLISH NATIONAL HEALTH SERVICE BOWEL CANCER SCREENING PROGRAMME**

1Edmund Derbyshire, 2Claire Nickerson, 3Suzanne Wright, 4Eva Morris, 5North Tees and Hartlepool NHS Foundation Trust; 6Gloucestershire Hospitals NHS Foundation Trust; 7North Tees and Hartlepool NHS Foundation Trust

**Introduction** Despite the introduction of population-based screening, there is no evidence that colonoscopy reduces colorectal cancer incidence or mortality. Colonoscopy is an expensive test which is associated with significant patient and healthcare burden. We aimed to examine the completeness and quality of post-colonoscopy colonoscopy screenings in the English National Health Service Bowel Cancer Screening Programme (ENHBCSP) and identify whether patients were followed through the ENHBCSP to completion.

**Methods and design** We performed a retrospective analysis of the ENHBCSP colonoscopy database, containing 2,019,174 colonoscopies performed from 1 April 2010 to 31 March 2017. We compared the completeness and quality of the ENHBCSP colonoscopy database to the ENHBCSP screening database.

**Results** Of the 2,019,174 colonoscopies performed, 674,888 patients were identified as having had a colonoscopy. Of these, 261,546 were identified as having had a colonoscopy within the ENHBCSP. The completeness of the ENHBCSP database was 38.9% (96,290/249,821). The quality of the ENHBCSP database was 61.1% (96,290/157,635).

**Conclusions** The completeness and quality of the ENHBCSP colonoscopy database was lower than that of the ENHBCSP screening database. This highlights the need for improvements in the ENHBCSP colonoscopy database to ensure that the ENHBCSP is fully screened for colorectal cancer.

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**ADTH-05 SCREENING FOR TYPHLOIDIC COLON CANCER IN THE ENGLISH NATIONAL HEALTH SERVICE BOWEL CANCER SCREENING PROGRAMME**

1Edmund Derbyshire, 2Claire Nickerson, 3Suzanne Wright, 4Eva Morris, 5North Tees and Hartlepool NHS Foundation Trust; 6Gloucestershire Hospitals NHS Foundation Trust; 7North Tees and Hartlepool NHS Foundation Trust

**Introduction** Despite the introduction of population-based screening, there is no evidence that colonoscopy reduces colorectal cancer incidence or mortality. Colonoscopy is an expensive test which is associated with significant patient and healthcare burden. We aimed to examine the completeness and quality of post-colonoscopy colonoscopy screenings in the English National Health Service Bowel Cancer Screening Programme (ENHBCSP) and identify whether patients were followed through the ENHBCSP to completion.

**Methods and design** We performed a retrospective analysis of the ENHBCSP colonoscopy database, containing 2,019,174 colonoscopies performed from 1 April 2010 to 31 March 2017. We compared the completeness and quality of the ENHBCSP colonoscopy database to the ENHBCSP screening database.

**Results** Of the 2,019,174 colonoscopies performed, 674,888 patients were identified as having had a colonoscopy. Of these, 261,546 were identified as having had a colonoscopy within the ENHBCSP. The completeness of the ENHBCSP database was 38.9% (96,290/249,821). The quality of the ENHBCSP database was 61.1% (96,290/157,635).

**Conclusions** The completeness and quality of the ENHBCSP colonoscopy database was lower than that of the ENHBCSP screening database. This highlights the need for improvements in the ENHBCSP colonoscopy database to ensure that the ENHBCSP is fully screened for colorectal cancer.

10.1136/gutjnl-2018-BSGAbstracts.13
Introduction
PCCRC rate is a key quality indicator of colonoscopy. The Word Endoscopy Organisation has reached consensus agreement to use one method for calculating 3 year PCCRC rates (termed PCCRC-3 y) to enable benchmarking of rates.\(^1\) This methodology, used previously by Morris et al.\(^2\), showed a PCCRC-3 y rate of 8.6% across the English National Health Service (NHS) from 2001–2007.\(^2\) with a rate of 7.3% in 2007. This study aimed to determine the rate of PCCRC-3 y in the English NHS Bowel Cancer Screening Programme (BCSP).

Methods
Data from each colonoscopy in the BCSP is entered into a national database, the Bowel Cancer Screening System. All colorectal adenocarcinomas, within and outside the BCSP, are validated and registered by the National Cancer Registration and Analysis Service. This retrospective observational study interrogated these databases to identify those BCSP colonoscopies detecting colorectal cancers within 6 months (true positive colonoscopies) and those BCSP colonoscopies in patients who subsequently developed a colorectal cancer 3 years after the colonoscopy (false negatives) between 2006 and 2013.

Results
Of the 249 PCCRCs, 164 were detected at a subsequent BCSP procedure and 85 detected outside the BCSP.

Conclusions
1. The overall English NHS BCSP PCCRC–3 y rate from 2006–2010 is 3.1% – less than half the 7.3% PCCRC rate seen in the symptomatic English NHS for 2007, providing further evidence that high quality colonoscopy, such as that performed by screening-accredited colonoscopists in the BCSP, results in a lower rate of PCCRC.\(^1\) \(^4\)
2. Despite the high quality of colonoscopy in the BCSP, PCCRCs still occur, showing the importance of vigilance during all colonoscopies.

Abstract ADTH-05 Table 1

<table>
<thead>
<tr>
<th>Age</th>
<th>M/F</th>
<th>Indication for cholangioscopy</th>
<th>Reason for Percutaneous approach</th>
<th>Outcome</th>
<th>Complications</th>
<th>Procedure time (including anaesthetic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>54</td>
<td>F</td>
<td>IHD stones</td>
<td>Hepaticojjunostomy with anastomotic stricture</td>
<td>EHL and stone clearance</td>
<td>None</td>
<td>120 mins</td>
</tr>
<tr>
<td>52</td>
<td>M</td>
<td>IHD stones</td>
<td>Bilroth II</td>
<td>EHL and stone clearance</td>
<td>None</td>
<td>130 mins</td>
</tr>
<tr>
<td>75</td>
<td>M</td>
<td>IHD stones</td>
<td>Bilroth II</td>
<td>EHL and stone clearance</td>
<td>None</td>
<td>110 mins</td>
</tr>
<tr>
<td>71</td>
<td>M</td>
<td>IHD stones</td>
<td>Hepaticojjunostomy with anastomotic stricture</td>
<td>EHL, stone clearance and stricture dilatation</td>
<td>None</td>
<td>44 mins</td>
</tr>
<tr>
<td>31</td>
<td>F</td>
<td>IHD stones</td>
<td>Hepaticojjunostomy with anastomotic stricture</td>
<td>No stones seen</td>
<td>None</td>
<td>75 mins</td>
</tr>
</tbody>
</table>

ADTH-05 PERCUTANEOUS TRANSHEPATIC CHOLANGIOSCOPY IN THE TREATMENT OF BILARY DUCTAL STONES

Abstract ADTH-04 Table 1

<table>
<thead>
<tr>
<th>Year</th>
<th>True Positive Colonoscopies</th>
<th>False Negative Colonoscopies</th>
<th>To year end</th>
<th>PCCRC-3 y Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-2011</td>
<td>2288</td>
<td>55</td>
<td>2009-2011</td>
<td>2.34% (95% CI 1.8–3.0)</td>
</tr>
<tr>
<td>2008</td>
<td>2303</td>
<td>81</td>
<td>2011</td>
<td>3.40% (95% CI 2.7–4.2)</td>
</tr>
<tr>
<td>2009</td>
<td>3180</td>
<td>113</td>
<td>2012</td>
<td>3.43% (95% CI 2.8–4.1)</td>
</tr>
<tr>
<td>2010</td>
<td>3180</td>
<td>113</td>
<td>2013</td>
<td>3.10% (95% CI 2.7–3.5)</td>
</tr>
<tr>
<td>Total</td>
<td>7771</td>
<td>249</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Of the 249 PCCRCs, 164 were detected at a subsequent BCSP procedure and 85 detected outside the BCSP.

REFERENCES
the IHD stones had cleared since the index PTC. There were no recorded procedural complications.

Conclusion In this small case series direct visualisation of the biliary tree using percutaneous SpyGlass cholangioscopy was safe, successful and expanded the therapeutic capabilities of PTC. This technique could also be used to enhance the investigation and treatment of post-surgical biliary anastomotic stricturing, where retrograde endoscopic access is not feasible.

ADTH-06 MICROSCOPIC RESIDUAL LESION AFTER APPARENT COMPLETE EMR OF LARGE LESIONS: EVIDENCE FOR MECHANISM OF RECURRENTNESS

Andrew Emmanuel, Shraddha Gujati, Monica Oterndt, Margaret Burt, Bu Hayee, Aynm Hajj. King’s College Hospital, London, UK
10.1136/gutjnl-2018-BSGAbstracts.15

Introduction Endoscopic mucosal resection (EMR) of large colorectal superficial neoplastic lesions (CSNL) is associated with significant recurrence and the risk of recurrence is significantly higher with piecemeal EMR (pEMR). The mechanism for recurrence has not been proven but has postulated to occur as a result of microscopic areas of residual adenoma left between areas of sequential snare capture during pEMR. We aimed to determine the incidence of residual microadenoma in apparently normal mucosa left at the margin of the defect following EMR.

Methods Following EMR/pEMR of 31 large CSNLs, the base and margin of the resulting defect were examined with magnification chromoendoscopy and NB/BLI to ensure complete resection. The apparently normal mucosa at the defect margin was then resected using the EndoRotor® device, removing and sampling the full extent of the defect margin. Areas of submucosal fibrosis or diathermy artefact at the base were also sampled if present. Data on the lesion characteristics, resection technique, number of pieces for pEMR, histopathology findings of the lesion and the mucosa at the margin were collected.

Results Mean lesion size was 46.7 mm (range 32 mm-130 mm). Mucosa at the defect margin was sampled in all cases and 100% of the margin was achieved in 28 (90%). Final histopathology of resected lesions was adenoma in 27 (87%) and adenocarcinoma in 2. Microscopic residual lesion was detected in the margin of apparently normal mucosa in 4 cases (13%). In 3 cases this was adenoma with low grade dysplasia and in one case a serrated lesion with no dysplasia was found in at the margin of a resected tubular adenoma. Microscopic residual lesion was detected in the base in 4 cases: 1 was microadenoma, 2 were serrated lesions without dysplasia in the base of resected adenomas and 1 was residual adenocarcinoma. There was no association with pEMR in >3 pieces and residual microscopic lesion or pEMR ≥3 pieces (OR 0.89, 95% CI 0.16–4.8, p=0.89). There were no complications.

Conclusions To our knowledge, this is the first series examining the findings after continuous sampling of the full circumferential margin of apparently normal mucosa left at the defect after EMR of large CSNL. Despite examination with magnification suggesting complete resection, microscopic residual lesion at the margin was present in 13%. This study provides evidence that microscopic residual lesion left after EMR underlies the pathophysiology of recurrence and lends support for techniques that continuously resect or ablate the circumferential margin of the defect to reduce recurrence.

ADTH-07 DEEP LEARNING BASED CLASSIFICATION OF INTRAPAPILLARY CAPILLARY LOOPS FOR DETECTION OF EARLY OESOPHAGEAL SQUAMOUS NEOPLASIA

1Martin Everson*, Luis Garcia Perez Herrera1, Wendi Li1, Ianan Luengo Munton1, Omer Ahmad1, David Graham1, Matthew Banks1, Laurence Lou1, Tom Vercauteren2, Seb Dursell3, HP Wang4, Warren Wang4, Reihan Haidy1. 1Surgery and Interventional Science, University College London, University College Hospital London, London, UK; 2Wellcome/EPSRC Centre for Interventional and Surgical Sciences (WEISS), UCL, London, UK; 3E-Da Hospital, Kaohsiung, Taiwan
10.1136/gutjnl-2018-BSGAbstracts.16

Introduction Narrow band imaging with magnification endoscopy (ME-NBI) allows detailed assessment of microvascular patterns within early squamous cell neoplasia (ESCN). The Japanese Endoscopy Society (JES) AB classification describes ESCN and predicts invasion depth based on the intrapapillary capillary loop (IPCL) pattern. Early lesions are amenable to endoscopic therapy (EET). We have designed a novel deep convolutional network (CNN) able to classify IPCL patterns as normal (A) or abnormal (B1/B2/B3), in order to alert endoscopists to abnormal areas in ESCN during lesion assessment.

Methods 17 patients were recruited at a referral centre in Taiwan. Endoscopies were performed using ME-NBI (Olympus). IPCLs were classified for each video by 2 experts as normal (type A), or abnormal (type B1/B2/B3), using the JES classification. Matched tissue was obtained by ESD for histologic evaluation of invasion depth. Images were quality controlled to remove uninformative (blurred) images. Our full dataset consisted of 7046 images. A CNN was developed with five-fold cross validation. On average, each fold used 3962 images for training, and 1637 unseen images (846 normal and 791 abnormal) for testing. Accuracy, F1 scores, sensitivity and specificity for abnormal IPCL detection were calculated.

Results 17 patients were included (10 had early neoplasia (1 high grade intra-epithelial neoplasia (HGIN) 4 carcinoma in situ (CIS) invading to the lamina propria, 4 to the muscularis mucosa and 1 to the submucosa) and 7 were normal). Our algorithm operates at video rate and had an accuracy for differentiating abnormal IPCL patterns (type B1, B2, B3) from normal (type A) of 93.69%. The average F1 score for identifying abnormal areas of ESCN based on IPCL classification was similarly high at 92.2%. Our network also achieved a sensitivity and specificity for abnormal IPCL detection of 89.3% and 98% respectively.

Conclusion We introduce a novel application of deep learning by developing a real-time CNN, with promising results in classifying squamous mucosa as normal or neoplastic based on the JES IPCL classification. Our system demonstrates impressive accuracy, sensitivity and specificity for differentiating type A from type B1/B2/B3 IPCLs. Further work is underway to develop a multiclass classifier to distinguish between the subtypes of IPCL patterns. Such a validated system could be used in vivo to alert endoscopists to the presence of ESCN and direct planning of appropriate EET.
Introduction Gastroscopy (OGD) is invasive and not always well tolerated. The NaviCam® (Ankon Technologies Co. Ltd., Shanghai, China) combines capsule endoscopy technology with external robot magnetic control. Operator joysticks command the robot to steer the capsule within the stomach. Real-time visualisation is displayed on two workstation monitors. When compared to OGD, the NaviCam® has already demonstrated high sensitivity and specificity for identifying focal gastric lesions. The focus of this study was to grade imaging quality and patient tolerance of the NaviCam®.

Method Patients with dyspepsia were recruited. Patients swallowed 100 mls of water (containing 10 mls simethicone) 15 min prior to 1L of water followed by the NaviCam®. Clarity of views and adequacy of gastric distension were assessed (1, poor; 2, reasonable; 3, good), as was completeness of views of the oesophagogastric mucosa (1, >75% obscured; 2, >50% obscured; 3, <50% obscured; 4, <25% obscured; 5, 100% visualised). Patient tolerance scores were collected (worst-best=0–10). All patients subsequently had OGD and tolerance scores were compared to those of the NaviCam®.

Results Eighteen participants were included (mean age 53 ±16.1 years, 27.8% male). The NaviCam could be held stationary within the stomach (resisting peristaltic waves) and could cartwheel over rugal folds to a chosen proximal location using a preset programme activated by a ‘shoot’ button on the joystick. Mean examination duration was 25 ±3.4 mins. Mean clarity (2.3±0.7) and distension scores (2.9±0.3) were good. Complete views (5±0) for all areas of the gastric body (greater and lesser curvature, anterior and posterior wall) and distal stomach (antrum and pylorus) were achieved. Views of the oesophagus (4.3±1.3) and proximal stomach (cardia, 4.9 ±0.2; fundus, 4.8±0.3) were also good. Duodenal images were not assessed real-time (but are provided after the capsule traverses the pylorus). Tolerance scores for anxiety, discomfort and pain were all lower with MACE compared to OGD (2.2 ±1.4 vs 5.8±3.1, 1.3±1 vs 4.9±3, 2.4±2.4 vs 3.4±2.3, respectively; p<0.05 for all). Tolerance scores for undesirable symptoms associated with upper gastrointestinal (GI) endoscopy, namely gagging, choking and bloating were also more favourable with MACE compared to OGD (1.4±1.6 vs 5.4±3.3, 1.3 ±1.2 vs 4.8±3.3, 1.2±0.5 vs 2.9±2.0, respectively; p<0.05 for all).

Conclusion The NaviCam® demonstrates excellent oesophagogastric views. The NaviCam® is extremely well tolerated compared to OGD and patients experience significantly fewer undesirable symptoms associated with upper GI endoscopy.

REFERENCE
**Abstract ADTH-10**

**Efficacy and Safety of 1L-Peg and Ascorbate Bowel Preparation NER1006 versus 2L-Peg with Ascorbate**

Richard Ng, Raf Bischofs, Jonathan Manning, Marco Antonio Alvarez Gonzalez. Norgine. Harefield, UK

10.1136/gutjnl-2018-BSGAbstracts.19

**Introduction** PEG based preparations are traditionally seen as the gold standard in cleansing, but they all require a high total fluid intake. NER1006 is the first 1L-PEG 3350 and ascorbate bowel preparation.

**Methods** This phase 3, randomised, multicentre, colonoscopist-blinded, non-inferiority study assessed the efficacy, safety and tolerability of NER1006, administered either as a 2 day overnight (N2D) or 1 day morning (N1D) split-dosing regimen versus a 2L-PEG 3350 with ascorbate 2 day overnight split dosing regimen (2LPEG) in patients undergoing a colonoscopy. Two alternative primary endpoints were evaluated: overall bowel cleansing efficacy and ‘Excellent or Good’ cleansing rate in the ascending colon and caecum using the Harefield Cleansing Scale (HCS). Secondary endpoints included hierarchical evaluation of lesion detection rates (key), and cleansing assessment using the Boston Bowel Preparation Scale (BBPS; supportive). Patient tolerability, acceptability and compliance were assessed using questionnaires. Safety was monitored through adverse events and clinical laboratory evaluation. The threshold for statistical significance in this study was \( p<0.025 \) and a 10% margin was used to demonstrate non-inferiority in this study was.

**Results** Compliance rates were high in all treatment groups. There were no deaths. NER1006 was not associated with any serious treatment-emergent adverse events (TEAEs). The most frequently reported related TEAEs for NER1006 were nausea and vomiting; and for 2LPEG, nausea and abdominal pain.

**Conclusions** When administered as either a 2 day overnight or 1 day morning split-dosing regimen, and compared to 2LPEG, NER1006 was non-inferior in overall bowel cleansing success. It also demonstrated a superior ‘Excellent or Good’ cleansing rate in the ascending colon and caecum. As a 2 day overnight split dosing NER1006 demonstrated a superior polyp detection rate in the ascending colon and caecum. The overall tolerability and safety profile of NER1006 was comparable to that of 2LPEG; most TEAEs were mild or moderate in severity and reflected the expected safety profile of the respective treatments.

---

**Abstract ADTH-10 Table 1**

(mFAS Population)

<table>
<thead>
<tr>
<th>Groups</th>
<th>NER1006 N2D</th>
<th>NER1006 N1D</th>
<th>2LPEG N2D</th>
<th>NER1006 N1D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients, N</td>
<td>275</td>
<td>275</td>
<td>272</td>
<td></td>
</tr>
<tr>
<td>Primary Endpoints:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Successful Overall</td>
<td>253</td>
<td>245</td>
<td>238</td>
<td>–4.00%<em>, –6.91%</em></td>
</tr>
<tr>
<td>Bowel Cleansing (92.0%)</td>
<td>(89.1%)</td>
<td>(87.5%)</td>
<td>[0.055]</td>
<td>[0.328]</td>
</tr>
<tr>
<td>(HCS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excellent/Good cleansing in the Ascending Colon/Caecum (31.6%)</td>
<td>87</td>
<td>93</td>
<td>41</td>
<td>8.11%<em>, 10.32%</em></td>
</tr>
<tr>
<td>(33.8%)</td>
<td>(15.1%)</td>
<td></td>
<td>[0.001]</td>
<td>[0.001]</td>
</tr>
<tr>
<td>Key Secondary Endpoints:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADTR Ascending 11.6%</td>
<td>11.6%</td>
<td>8.1%</td>
<td>–4.80%/12.00%</td>
<td>–4.80%/12.00%</td>
</tr>
<tr>
<td>Colon/Caecum **, [0.106] **, [0.106]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADTR 26.6%</td>
<td>27.6%</td>
<td>26.8%</td>
<td>–8.74%/8.02%</td>
<td>–7.65%/9.11%</td>
</tr>
<tr>
<td>Overall Colon **, [0.455]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBTR Ascending 23.3%</td>
<td>18.6%</td>
<td>16.2%</td>
<td>–1.41%/15.47%</td>
<td>–6.12%/10.82%</td>
</tr>
<tr>
<td>Colon/Caecum **, **</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBTR 44.0%</td>
<td>45.1%</td>
<td>44.5%</td>
<td>–8.85%/8.00%</td>
<td>–7.78%/9.09%</td>
</tr>
<tr>
<td>Overall Colon **, [0.579] **,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* 97.5 1-sided CI, ** 95% 2-sided CI, ——=not applicable

*Adenoma Detection Rate (ADR), Polyp Detection Rate (PDR)
in 4 (4%) patients – mucosal tear in 2 cases and perforation in 2 cases. The duration of hospital stay was 1 day in 136 (85%), 2 days in 16 (10%) and 3 or more days in 8 (4%) of cases.

**Conclusion** FBO resolves spontaneously in around half of cases. Endoscopic therapy has a high success rate for the remaining patients, but is associated with a small risk of complications.

**PHT-002 COLONOSCOPY AFTER BOWELSCOPE (BS) FLEXIBLE SIGMOIDOSCOPY (FS) – URGENT OR ROUTINE?**

*1Anwar Suleiman Abusrewil*, 1Muntaz Hayat, 1Heather Dixon, 2Karen Rowell, 1David Nylander, 1Northumbria NHS Healthcare Trust, North Shields, UK; 2North of Tyne Screening Centre, Newcastle upon Tyne, UK; 3Newcastle upon Tyne Foundation Trust, Newcastle upon Tyne, UK

10.1136/gutjnl-2018-BSGAbstracts.21

**Introduction and aims** The implementation of BS (1 off FS for 55 year olds) has led to significant pressures on endoscopy units with large numbers of procedures. In addition patients with certain findings (which include number, size, dysplasia and villous component degree of adenomatous polyps) will require colonoscopy (FC). This has to be done within 2 weeks. The North of Tyne screening centre serves a population >8 60 000. ‘Roll out’ of BS started in 2014 and now covers patients enrolled in 50% of our regional GP practices.

At this ‘halfway stage’ we aimed to assess:

- Attendance and findings in those invited
- Proportion of patients who require FC after FS and significance of proximal pathology
- Incidence and sites of any malignancy
- The proportion with neoplasia after colonoscopy requiring future surveillance

**Method** Data was collected on all patients who had FC after FS in the BS program for the 12 months from 1/1/2017 (obtained from the central database and crosschecked with local records). We reviewed all endoscopy and histology reports to obtain patient demographics, FC indication, findings and all histology. The extent of each FS was accurately recorded with aid of Olympus imager (scope guide)

**Results** 2698 of the 3629 who responded to the written invitation attended for FS.

130 (4.8%) of attenders) met criteria for FS – Main reasons: ≥10 mm poly (34%); ≥3 polyps (21.5%); villous histology (21.5%); anticoagulant/antiplatelet use (4.6%)

After colonoscopy, 54 have neoplasia requiring for future surveillance – 33 high risk category (1 year); 21, intermediate risk (3 years)

4 patients had malignancies: 1x rectal polyp cancer; 1x sigmoid cancer (T2N0); 1x descending colon cancer (T3N1M1); 1 splenic flexure cancer (T4N1)

At colonoscopy, 37 patients had adenomas proximal to the splenic flexure but all were <10 mm with low-grade dysplasia

**Conclusions**

- 74% of patients who initially showed interest attended for FS
- Almost 53% of patients attending for BS require FC; of these 41.5% will have intermediate or high risk neoplasia requiring future surveillance
- A small proportion (1.5/1000 screened) of attenders were found to have a cancer
- 28.5% had neoplastic lesions beyond the splenic flexure, none with high grade dysplasia/cancer

Therefore if the colon is examined to the splenic flexure at FS during BS screening, our data suggests that FC can be safely booked as routine (within 6 weeks). This will ease some of the pressure on endoscopy units

**PHT-003 QIP: IMPROVING QUALITY OF PHOTODOCUMENTATION AND LESION REPORTING IN UPPER GASTROINTESTINAL ENDOSCOPY**

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10.1136/gutjnl-2018-BSGAbstracts.22

**Introduction** The gold standard investigation for upper gastrointestinal (GI) symptoms is oesophago-gastro-duodenoscopy (OGD). The British Society of Gastroenterology (BSG) released a position statement of quality standards in upper gastrointestinal endoscopy in August 2017, including the recommendation to photodocument 8 anatomical sites in the upper GI tract to optimise mucosal inspection and lesion recognition. We aimed to assess and improve the quality of OGD photodocumentation and lesion recognition in line with this recommendation.

**Methods** 184 OGD reports were audited from three one-week audit cycles. Cycle 1: immediately following guideline release and prior to intervention; cycle 2: immediately following intervention (departmental teaching and poster display of recommended photos in endoscopy procedure rooms); cycle 3: 2 weeks after intervention. Total number of photos taken per procedure, number of anatomical sites photodocumented, and number of lesions detected were recorded.

**Results** From cycle 1 (pre-intervention) to cycle 2 (post-intervention) the mean number of photos per OGD increased from 5.3 to 8.6 respectively (p=0.095) and mean number of anatomical sites documented increased from 3.8 (47%) to 6.9 (86%) (p<0.001). The mean number of lesions documented per OGD increased from 0.5 to 1.2 (p=0.230). Improvement in practice was sustained through audit cycle 3 (2 weeks after intervention): mean photos 8.5, mean required sites documented 7.4 (92%) and 0.7 diagnoses per OGD.

**Conclusions** Immediately following release of BSG quality standards in upper GI endoscopy, departmental adherence to recommendations for photodocumentation was poor. A simple intervention of departmental teaching and poster displays resulted in a significant improvement in the quantity of photodocumentation and a trend towards improvement in detection of lesions. Improvement in quality was sustained at re-audit.

**PHT-004 DEEP LEARNING FOR REAL-TIME AUTOMATED POLYP LOCALISATION IN COLONOSCOPY VIDEOS**

*1Omer F Ahmad, 1Manol Luengo, 2Luis Garcia Encarna Hernandez, 3Patrick Brandao, 4Wenqi Li, 5Martin Eversen, 6Rehan Haidy, 7Roser Vega, 8Ed Seward, 9Tom Vercuilen, 10Laurence B Lovat. 1Welcome/EPSRC Centre for Interventional and Surgical Sciences, University College London; 2Gastrointestinal Services, University College London Hospital

10.1136/gutjnl-2018-BSGAbstracts.23

**Introduction** Colonoscopic polypectomy can prevent colorectal cancer. Polyp detection rates vary considerably due to human
error and missed adenomas may contribute to interval colorectal cancers. Automated polyp detection using deep learning may avoid these problems. Previous work focused on detecting the presence of polyps in individual frames captured from videos. Our aims in this pilot study were to extend this to video sequences and to explore future-proofing by using algorithms trained on old image processors to locate polyps found using newer endoscopic technologies.

**Methods** We trained and validated a Convolutional Neuronal Network (CNN) on 18 517 frames created by merging research colonoscopy datasets (CVC-Clinic, ASUMayo, ETIS, CVC-VideoDB and CVCColon) from the Medical Image Computing and Computer-Assisted Intervention Society challenges. 75% of frames contained polyps in both standard and high definition (HD) from older processors including Olympus Exera II (160/165 series) and Pentax EPKi 7000 (9i series). Our test set consisted of 11 HD videos featuring polyps in white light collected using the latest Olympus 290 endoscopes at a UK tertiary centre. Estimated median polyp size was 4 mm (range 2–15) and morphology included (Paris Classification Ia=4, Ia=6 and Ia+Ils LST-G=1). Images were manually annotated by drawing bounding boxes around polyps and quality controlled by removing uninformative frames (e.g. blurred). A total of 2611 polyp-containing frames were analysed in the test set. A true positive was scored if the computer-generated segmentation mask overlap was greater than or equal to 0.5 with the bounding box. A false positive indicated a non-overlapping location (more than one can occur per frame).

**Results** Our network operated at real-time video rate. F1-score accuracy was 92.5%. Sensitivity for polyp localisation was 98.5% and per-frame specificity 75.4%. Positive predictive value was 90.1%. Incorrect segmentation mask locations were 98.5% and per-frame specificity 75.4%. Positive predictive value was 90.1%. Incorrect segmentation mask locations were predominantly limited to 3 videos and were generated by artefacts not represented during training.

**Conclusion** We demonstrate through analysis of video frames that a CNN can locate polyps with high accuracy in real-time. The algorithm was trained using multiple endoscopy processors and worked with HD images from a new processor. This suggests that the CNN could remain useful as new endoscopic technologies are introduced. Further work will train our model on larger datasets including complete colonoscopy procedures. This should improve accuracy further. Such a system could be used as a red-flag technique to reduce missed adenomas during colonoscopy.

**PTH-005**

**DYSPEPSIA IN 2017: ARE WE ADHERING TO GUIDELINES?**

Fiza Ahmed, Kalpesh Besherdas.
Royal Free London NHS Foundation Trust, LONDON, UK

10.1136/gutjnl-2018-BSGAbstracts.24

Dyspepsia in 2017: are we adhering to guidelines?

**Introduction** Recent NICE guidance advocates a test-and-treat strategy for H. pylori in the management of dyspepsia without red-flag features (simple dyspepsia). In addition, NICE recommends trialling symptomatic management with proton pump inhibitors (PPI) or histamine receptor antagonists (H2RA). Upper gastrointestinal (UGI) endoscopy is recommended only if symptoms persist despite these strategies.

The aim of this study was to assess degrees of adherence to current guidelines across various UGI endoscopy referral pathways (for example, GP direct access and gastroenterology clinics).

**Methods** A single-centre, retrospective analysis was performed for patients who underwent endoscopy from 2016–2017, at a large district general hospital in North London. Data was obtained from Unisoft Endoscopy Reporting Tool software, alongside electronic patient records. Patient data was scrutinised for the following features prior to endoscopy:

- Presence of red-flag symptoms
- Endoscopy referral pathway type
- H. pylori investigations and treatment
- Management with PPI or H2RA

**Results** Data was collected for 250 patients who underwent UGI endoscopy for dyspepsia.

- 53% were simple dyspepsia cases. 15% had clear red-flag symptoms warranting urgent endoscopy. 4% had symptoms warranting non-urgent endoscopy. 28% had no data available regarding red-flag symptoms.
- The majority of patients were referred for endoscopy either from gastroenterology clinics (47%) or GP direct access (43%). Other sources included surgical clinics and 1-stop clinics (10%).
- 60% of patients underwent H. pylori investigations prior to endoscopy. 35% had not been tested by the time of endoscopy. 5% had no data available regarding investigations.
- 33% of patients did not trial management prior to endoscopy. Of simple dyspepsia cases, 21/133 had not trialled management (11 had been referred from gastroenterology clinics, 6 from general surgery clinics, and 4 by GP direct access).
- Additionally, 51/133 of simple dyspepsia cases had not undergone H. pylori stool testing prior to endoscopy. The majority of these patients had been referred from gastroenterology clinics or GP direct access.

**Conclusions** The majority of patients (53%) included in the study had no symptoms warranting urgent endoscopy. However, over 33% of patients had no H. pylori testing prior to endoscopy – furthermore, 15% had no trial of treatment. Lack of adherence to guidelines was present across all referral pathways.

For an endoscopy service to function effectively, it must not be overloaded with inappropriate referrals; failure to follow guidelines increases this burden. Despite widespread availability of these guidelines, implementation remains poorly practised. Thus, NICE endoscopy referral guidance requires better implementation, by means such as increasing awareness in both primary and secondary care.

**PTH-006**

**SHOULD WE PERFORM COLONIC POLYPECTOMY IN PATIENTS OVER 80?**

Jabeed Ahmed*, Jonathan Landy, West Hertfordshire NHS Trust, Watford, UK

10.1136/gutjnl-2018-BSGAbstracts.25

**Introduction** Previous studies highlight the increased risks attendant with colonoscopy in the elderly population. Case reports and reviews also suggest avoidance of polypectomy for <2 cm polyps in patients ≥85 years of age. We aimed to assess the outcomes of polypectomy in patients ≥80 at our trust with five years of follow-up.

**Methods** Colonoscopic data was analysed from the endoscopy reporting system for patients aged ≥80 who had colonoscopy...
and polypectomy performed in 2011 and 2012. Endoscopy reports, histology reports and patient notes were reviewed. Mortality and cause of death within 5 years of the procedure date were also recorded from the patient mortality coding database. Patients with a synchronous cancer at index procedure were excluded from 5 year colorectal cancer (CRC) mortality analysis.

Results 180 patients (median age 83; range 80–92) were identified with 313 polyps removed. The median ASA grade was 2 (range 1–4) with hypertension, COPD, Cardiac disease and Diabetes the most frequent co-morbidities. 224 (72%) polyps removed were < 10 mm in size, 58 (19%) 10–19 mm, 20 (6%) >20 mm (range 20–50 mm) and size was not documented in 9 (3%). In polyps <10 mm in size, 99% had histology showing low grade or no dysplasia. 1% had high grade dysplasia (HGD) and there were no polyp cancers. For polyps 10–19 mm, histology showed low grade or no dysplasia in 81%, HGD in 14% and cancer in 5%. For polyps >20 mm; 38% (6%) had HGD and 4% (1) cancer on histology.

There were 3 (1.6%) peri-procedure complications identified (desaturation and bleeding post polypectomy) none requiring admission. 42 (23%) of the patients died within 5 years of the procedure date. The commonest causes of patient mortality were pneumonia, heart failure and stroke. CRC was the cause of death in 1 patient (0.6%) and in this case the index polypectomy was a polyp cancer.

Conclusions The rate of significant complications in patients ≥80 undergoing colonic polypectomy is low. However, mortality at 5 years is high in patients ≥80 undergoing colonic polypectomy due to co-morbid diseases other than CRC and no significant pathology is seen in diminutive (<10 mm) polyps in this age group. The number of polyps >10 mm in our cohort was small. We would recommend that polypectomy should be avoided for polyps <10 mm in patients ≥80 rather than ≥85 as previously suggested and that polypectomy of polyps >10 mm should only be considered after careful deliberation with the patient.

REFERENCES

CONTEMPORARY STRETTA THERAPY FOR GASTROESOPHAGEAL REFLUX DISEASE IN LIGHT OF PPI CONCERN FRIEND OR FOE?

1Mazin Aljabiri, 2Kate Shamsheer, 3Omar Rathore, 4Iea Medidia, 5Aishwarya Pradeep, 6Antonette Santos, 7Evelyn Daual, 8Chaminaine Villananda, 9Doreen Rabon, 10Lysander Ipo, 11Myra Concepcion, 12Joyce Villanueva, 13Trinity Lazaro, 14Annela Balzaco, 15Gesina George, 16Steph Dewasy, 17Almain Elsim, 18Asra Suralal, 19Andrea Kahnenberg, 20Hanna Gattner, 21Kate McCombe, 22Kavita Mordani, 23Majid Abdulla, 24Mohamed Aboukafa, 25Murielle Bertin, 26Salim Sherifah, 27Ziad Nennes. 1Mediclinic City Hospital, Dubai, United Arab Emirates; 2Mediclinic Wekare Hospital, Dubai, United Arab Emirates; 3Mediclinic Dubai Mall, Dubai, United Arab Emirates.

10.1136/gutjnl-2018-BSGAbstracts.26

OUTCOMES FROM AN INTERNATIONAL MULTICENTRE HEMOSPARY REGISTRY

1Duraiy Alzoubaidi, 2Radu Rusu, 3Jason Dunn, 4Johannes W Rey, 5Shardhda Gulati, 6Bu’Hussain Hayee, 7Selena Dixon, 8Suleman Moreea, 9Duncan Naper, 10John Anderson, 11Martin Dahan, 12Max Hu, 13Patricia Duarte, 14Phil Boger, 15Alberto Murino, 16Sina Jameel-Oskoei, 17Edward Despott, 18Cora Steinheber, 19Martin Groitz, 20Sharmila Subramaniam, 21Pradeep Bhandari, 22Laurence Lovat, 23Emmanuel Coron, 24Ralf Kieslich, 25Rehan Haider, 26Gloustershire Hospitals NHS Foundation trust, UK; 27Guy’s and St Thomas Hospital, London, UK; 28University Hospital of Nantes, France; 29University Hospital Southampton, UK; 30Royal Free Hospital, London, UK; 31Tibingen University Hospital, Germany; 11University of Portsmouth, UK.

10.1136/gutjnl-2018-BSGAbstracts.27

Introduction Acute gastrointestinal bleeding (AGIB) carries poor outcomes unless prompt endoscopic haemostasis is achieved. Hemospary is a novel intervention that creates a mechanical barrier over bleeding sites when applied endoscopically. Primary aim of this international prospective multicentre registry is to collect outcomes of patients with AGIB after endoscopic Hemospary application. Secondary outcomes of rebleeding, disease and procedure specific outcomes are also collected.
### Abstracts

**Method** Prospective data (Jan 2016–Jan 2018) from 11 centres across UK, France and Germany collected. Hemospray used as mono therapy, dual-therapy with standard haemostatic techniques or rescue therapy once standard methods failed. Immediate haemostasis defined as cessation of bleeding within 5 min after application of Hemospray. Rebleeding defined as subsequent drop in Hb (≥2 g/L), haematemesis, persistent melaena with haemodynamic compromise post therapy.

**Results** 275 cases recruited worldwide (203 M and 72 F). Median pretreatment Blatchford score (BS) 11 for all cases. 246 patients (89%) achieved immediate haemostasis after endoscopic therapy with Hemospray (Table 1). Similar haemostasis rates noted in the Hemospray monotherapy (92%), combination therapy (90%) and rescue therapy (85%) group. Peptic ulcer bleed was the most common pathology (53%) and forrest Ib the most common lesion type (66%). 29 patients did not achieve immediate haemostasis. Median BS was higher in this group at 13 (IQR 11–16, p<0.05). Forrest Ib was the most common lesion type in this group (76%, p<0.05). 28 cases of rebleeding reported after successful haemostasis. The median BS in these was higher at 13 (IQR 10.25–14.75, p<0.05). Forrest Ib was the most common bleed in this group (50%, p<0.05).

![Abstract PTH-008 Figure 1](image)

**Conclusion** These data show high rates of immediate haemostasis (89%). Forrest Type Ib lesions have a higher rate of unsuccessful haemostasis and increased risk of rebleeding after therapy. Patients with rebleeding and unsuccessful treatment had higher BS at baseline. The expansion of this international registry will provide data on the efficacy of Hemospray in various disease and patient types over the coming years.

**References**


**PTH-009** AVOIDABLE FACTORS ARE IDENTIFIED IN 70% OF POST COLONOSCOPY COLORECTAL CANCERS (PCCRCS)

Rebecca Anderson, Roland Valori. Gloucestershire Hospitals NHS Foundation Trust, Cheltenham, UK

10.1136/gutjnl-2018-BSGAbstracts.28

**Introduction** PCCRC is cancer arising 6–36 months after a negative colonoscopy. PCCRCS arise from incompletely or unresected lesions, or are missed or new lesions. PCCRC rates are a key quality marker for colonoscopy. The aim of this study was to test the utility of the World Endoscopy Organisation (WEO) algorithm for categorising avoidable factors leading to PCCRC (1).

**Methods** All PCCRCs diagnosed between 01/06/10 and 31/12/16 at one trust were identified by cross-referencing coding and endoscopy data. A root-cause analysis was undertaken for each using the WEO algorithm (Fig 1).

**Results** 27 PCCRCs were reviewed (age 37–85, median 70). 5 patients had inflammatory bowel disease (IBD), 20 diverticulosis and 1 Lynch syndrome. Chromoendoscopy was used in 1 IBD patient. Adenomas had previously been seen in the cancerous bowel segment in 8 cases (29.6%); 3/8 arose from resected lesions; and 5/8 from unresected lesions. 2/5 unresected lesions were deliberately not investigated further (patient/MDT decision). Bowel preparation was poor in 6 colonoscopies (22.2%). 24 were reported as complete, but only 12 had adequate caecal photographs (44.4%). Overall, follow-up procedures were delayed or not requested in 11 cases (40.7%).

**Conclusions** Although the WEO algorithm is a useful tool for PCCRC categorisation, a category for conservatively managed cases is missing. Further, a judgement is still required to conclude whether a PCCRC was avoidable or unavoidable. In this cohort, 70% of PCCRCs (19/27) were probably avoidable; 5 possibly avoidable and 3 likely unavoidable. The following are influencing factors and possible means of addressing them:

- PCCRC rates are high in patients with existing colon pathology. Rates would reduce in certain groups with greater vigilance and use of chromoendoscopy.
- Surveillance timeframes were often breached. Effective processes should reduce delays.
- Bowel preparation was often poor. If these colonoscopies are not repeated, the decision should be recorded.
- Some adenomas were overlooked while endoscopists focussed on large polyps. Early repeat colonoscopy should be considered after complicated procedures.
- Photodocumentation was adequate in 44.4% of cases. Inadequate photos may be a marker for other shortcomings and repeat colonoscopy considered if caecal documentation is incomplete.

These findings indicate that PCCRC rates could be reduced by up to 70% if avoidable factors are addressed. There is a need for quality improvement studies targeting these factors to quantify their impact on PCCRC rates.

**PTH-009 Table 1** Distribution of PCCRC origins

<table>
<thead>
<tr>
<th>Category</th>
<th>No (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>likely incomplete resection 3 (11.1)</td>
</tr>
<tr>
<td>B</td>
<td>lesion not resected 5 (18.5)</td>
</tr>
<tr>
<td>C</td>
<td>possible missed lesion, exam adequate 7 (25.9)</td>
</tr>
<tr>
<td>D</td>
<td>possible missed lesion, exam inadequate 12 (44.4)</td>
</tr>
</tbody>
</table>

**References**


**PTH-010** CECAL WITHDRAWAL TIME: ASSESSING STANDARDS OF COLONOSCOPY IN DISTRICT GENERAL HOSPITAL

Usama Aslam, Mehreen Mudassar, Syed Anjum Gardezi. Hywel Dda Health Board, Carmarthen, UK; Hywel Dda Health Board, Carmarthen, UK

10.1136/gutjnl-2018-BSGAbstracts.29

**Introduction** The British Society of Gastroenterology, the UK Joint Advisory Group on GI Endoscopy, and the Association of Coloproctology of Great Britain and Ireland have developed quality assurance measures and key performance indicators for the delivery of colonoscopy within the UK. However,
studies have suggested that high variations in the quality of colonoscopy among different endoscopists are reflected in surrogate measures such as adenoma detection, cecal intubation rates, withdrawal times, and incidence of complications. This document identifies the unacceptable variation in practice and measures adopted to improve quality of care.

Method A prospective, observational colonoscopy practice audit was conducted of cecal withdrawal time at Glangwili General Hospital, Carmarthen for patients who presented for colonoscopy between August 2017 to January 2018. Diagnostic procedures were included in the study comprising two cycles 8 months apart. Patients with history of colonic surgery were eliminated. Same endoscopy nurse manually collected the data from 5 different endoscopist using stopwatch without them knowing. Both the cycles were 3 months apart during which different measures were taken to improve withdrawal time including sending individual feedback to endoscopists, one to one discussions between endoscopy consultant lead and involved endoscopist and keeping a timer in endoscopy room to keep track of time.

Results We reviewed 10 colonoscopies performed by each endoscopist in each cycle of audit and mean cecal withdrawal time is shown below.

After taking appropriate measure to improve quality of care following results were obtained.

Following graph shows variation in mean withdrawal time between two cycles compared against set standards.

Below shows the comparison of 1st and 2nd cycle showing rectal retroflexion performed and imaging of cecal landmarks recording done by each endoscopist

Conclusion Practice among endoscopists varied with majority providing good standard of care. Weak points identified during 1st stem of audit cycle and changes implemented lead to improvement in quality of care but still there is further room for improvement. Regular audits are important to make sure that colonoscopy practice meets key performance indicators outlined by JAG and BSG in order to increase polyp detection rate.

REFERENCES
1. UK key performance indicators and quality assurance standards for colonoscopy - the British Society of Gastroenterology, the Joint Advisory Group on GI Endoscopy, the Association of Coloproctology of Great Britain and Ireland.

Abstracts

**PTH-011 ROLE OF THE NEW-GENERATION CHOLANGIOSCOPY IN THE DIAGNOSIS OF INDETERMINATE BILIARY LESIONS: A MULTI-CENTRE STUDY**

1Noor Bekkali, 2Nick Church, 3Alison Winstanley, 4George Goodchild, 5Sham Dinakar, Kofi Oppong, 2George Webster, 2HPB Unit, Freeman Hospital, Newcastle, UK; 2Pancreatobiliary unit, UCLH, London, UK; 3gi department, Royal Infirmary, Edinburgh, UK; 4Department of Histopathology, UCLH, London, UK

10.1136/gutjnl-2018-BSGAbstracts.30

Background Accurate diagnosis in patients with indeterminate biliary strictures remains challenging. Advances in cholangioscope design might facilitate improved visual and pathological diagnosis.

Objective To compare the diagnostic yield between brushings, cholangioscopy-directed Spybite biopsies (SB) and visual impression at cholangioscopy in patients presenting with indeterminate strictures referred for cholangioscopy.

Methods Prospective audit data was collected from 3 tertiary centres between June 2015-August 2017. Continuous data was expressed in mean values with 95% confidence intervals (CI) and categorical data was analysed using chi-square test.

Results 76 (41 M) patients, mean age 57 years (95% CI 53–62), had cholangioscopy for indeterminate strictures. Six patients were excluded from analysis as they were lost to follow-up (n=3) or were awaiting further investigations (n=3). Seven patients (10%) had strictures in association with stones. Of 69 (90%) with indeterminate strictures 40 (53%) had had previous negative brush cytology, 9 (11.8%) had had non-diagnostic FNA, and one had negative intraductal biopsies. Brushings were repeated at cholangioscopy in 31 patients, with sensitivity and specificity of 33% (95%CI 12%–62%) and 100% (95%CI 79%–100%) for malignancy, respectively. Cholangioscopy guided SBs were taken in 58 patients and SB were not taken in 12 patients due to: stones mimicking strictures n=7, normal mucosa n=3, Mirrizi n=1, scope impassable due to stricture n=1. The SB had sensitivity and specificity of 44% (95%CI 23%–66%) and 100% (95%CI 90%–100%), respectively. Overall, a mean number of 4.6 (95% CI 3.7–5.5) SB samples were taken per patient with median size 2.2 mm (range 0.9–7). There was no difference in size between reported sufficient 1.5 (0.5–2.4) mm or insufficient 1.9 mm (1.5–2.3) biopsies. Pathologist reported insufficient (PANC-1) SB biopsies in 6 patients (10%) and these correlated with more false negative (FN) findings compared to sufficient biopsies (p=0.001). Cholangioscopic views were excellent in all patients and had sensitivity and specificity of 73% (95%CI 50%–89%) and 67% (95%CI 51–80), respectively. Sensitivity and specificity for SB were significantly different between those for visual impression (p=0.0004).

Conclusion The new generation cholangioscope has acceptable diagnostic yield, where visual impression exceeds the conventional SB confirmation. Despite excellent visualisation of indeterminate strictures a definitive visual diagnosis remains.
challenging. It is hoped that further improvements in tissue acquisition technologies might advance pathological diagnosis.

### Abstract

**Abstract Table 1** Diagnostic outcome of biliary brushings, Spybite biopsies (SB) and visual impression at cholangioscopy.

<table>
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<tr>
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<th>Brush n=31</th>
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<td>90% (95%CI)</td>
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<td>73% (95%CI)</td>
<td>83% (95%CI)</td>
<td>77% (95%CI)</td>
</tr>
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<td>Mean DAP (Gy/cm²)</td>
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<td>1912±382</td>
<td>53±70</td>
<td>74±83</td>
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**Conclusion** Cholangioscopy for stones adds considerably to procedure duration and total radiation dose compared to ERCP alone for stone disease. This likely reflects the high complexity of stone cases necessitating cholangioscopy. Of note, the radiation exposure/minute for ERCP with cholangioscopy in stone disease is no different to conventional ERCP. Our data on cholangioscopy in stricture assessment suggests that this may enhance diagnostic information (ie direct visualisation) without adding procedure time or radiation exposure.

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**Abstracts**

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**PTH-012**  **THE IMPACT OF CHOLANGIOSCOPY ON RADIATION EXPOSURE IN ERCP**

1Noor Bekkali, 2Anisha Bhagwanani, 3Manil Chouhan, 4MG Keane, 5George Webster.
1Pancreatobiliary and 2Radiology departments, University College London Hospitals.

**Introduction** Endoscopic retrograde cholangio-pancreatography (ERCP) remains the standard tool for biliary stone extraction, biliary drainage and intraductal stricture assessment. Cholangioscopy allows direct intraductal visualisation without requiring fluoroscopy. Therefore, the aim of this study was to assess radiation dose during ERCP in patients with stones or strictures with or without cholangioscopy.

**Methods** Data from patients referred for cholangioscopy between June 2015 and December 2016, for difficult biliary stones (following failed stone extraction with conventional ERCP), or to acquire tissue diagnosis for indeterminate strictures was prospectively collected. In all patients with stones, first conventional ERCP was attempted, using mechanical lithotripsy and or sphincteroplasty combined with balloon trawls before cholangioscopy was attempted.

**Results** Radiation exposure was indirectly measured using total dose area product (DAP) measured in Grey per square cm (Gy/cm²). Continuous variable differences were assessed using Student t-tests.

**Discussion** The mean DAP in group I was 85±661 compared to 1912±382 Gy/cm² in group II; p=0.003. Radiation dose for conventional ERCP radiation for stones was comparable to the dose (857±921 Gy/cm²) needed for stricture assessment for group III; p=0.98. The mean duration of the procedure (minutes) was 48±20 in group I, vs 72±27 in group II; p=0.0001. For strictures necessitating cholangioscopy, 49±19 min were needed for assessment which was comparable to group I; p=0.92. Radiation dosages per minute were persistently higher in group I compared to group II; 17±12 vs 29±24 Gy/cm²/min (p=0.02). As only 1 patient had stricture not necessitating cholangioscopy, no comparison was made between group III for above findings.

**Conclusion** Cholangioscopy for stones adds considerably to procedure duration and total radiation dose compared to ERCP alone for stone disease. This likely reflects the high complexity of stone cases necessitating cholangioscopy. Of note, the radiation exposure/minute for ERCP with cholangioscopy in stone disease is no different to conventional ERCP. Our data on cholangioscopy in stricture assessment suggests that this may enhance diagnostic information (ie direct visualisation) without adding procedure time or radiation exposure.

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**PTH-013**  **A VALIDATED COMFORT SCORE FOR GASTROSCOPY TOLERATION**

F Betteridge, E Saunsbury, I Materacki, K Yong, D Murugiah, B Colleypriest. Royal United Hospital, Bath, UK.

**Introduction** Whilst comfort scoring is an auditable standard for quality in colonoscopy, there is currently no widely accepted comfort score for gastroscopy. We developed a five point gastroscopy toleration score (GTS) and validated correlation of scoring between endoscopists, patients and nursing staff.

**Methods** A GTS was developed via consensus on a gastroscopy list (figure 1). Final 1 of the finalised ‘Bath GTS’ involved a double blind collection from the endoscopist and two nurses during 47 gastroscopies to determine inter-observer correlation between staff. Trial 2 involved a double blind collection from the endoscopist, nurse and unsedated patient during 50 additional cases. Krippendorff’s alpha(α) coefficient was calculated to assess inter-rater reliability. We then analysed sub-group matches between endoscopist-nurse, endoscopist-patient and nurse-patient.

**Results** A total of 97 gastroscopies were included in the analysis. In Trial 1 the inter-rater correlation between nurses and endoscopist was excellent (Krippendorff’s α=0.811 (95%CI 0.73–0.88)). There were no matched scores in 1 case (2.1%), at least two matched scores in 46 cases (97.9%) and three matched scores in 34 cases (72.3%).

**Discussion** Trial 2 demonstrated at least two matched scores in all 50 cases (100%) and three matched scores in 39 cases (78%) with excellent correlation between raters (α=0.833 (95%CI 0.75–0.90)). Subgroup analysis demonstrated that of the gastroscopies with only two matched scores, endoscopist-nurse matches totalled 8 cases (72.3%), endoscopist-patient matches totalled 2 cases (18.2%) and nurse-patient matches 1 case (9.1%). Krippendorff’s α for these subgroups were 0.930 (95% CI 0.84–1.00), 0.800 (95%CI 0.63–0.93) and 0.774 (95%CI 0.60–0.92) respectively. Final analysis comparing endoscopist-nurse matched scores from all 97 gastroscopies showed significant agreement (κ=0.838 (95%CI 0.81–0.91)).
Conclusions We have presented a simple yet effective GTS which was validated for inter-observer correlation between endoscopists and nurses with statistically significant agreement. Furthermore, there is excellent correlation when the GTS from unsedated patients is compared with that of staff ($\alpha = 0.833$ (CI 0.75–0.90)). Given the agreement between unsedated patients and staff regarding procedure toleration, this scoring system could be applied to sedated patients. We would suggest that the Bath GTS is adopted as a validated national auditable outcome for gastroscopy with further work in progress to determine the standard.

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**Bath Gastroscopy Tolerated Score (GTS)**

0- Still throughout, may retch at intubation

1- Minimal retching (<25% of procedure time)

2- Frequent retching (>25% of procedure time)

3- Attempts to handle and/or remove gastrocope

4- Extubates themselves or withdraws consent

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**Abstract PTH-014 Figure 1** Surveillance episodes by year

70% of those attending PPS were male. 44% were aged 60–64 at the time of index screening, 43% aged 65–69, and 10% aged 70–74. The oldest age group had a higher proportion (68%) of HR individuals than in the younger groups.

Screening risk category varied with gender. Overall, 40% of females and 51% of males were HR (figure 2).

---

**Abstract PTH-014 Table 1** Outcome of 1st PPS episode, by risk group at screening

<table>
<thead>
<tr>
<th>Outcome at 1st PPS</th>
<th>No adenoma</th>
<th>LR</th>
<th>IR</th>
<th>HR</th>
<th>CRC</th>
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</thead>
<tbody>
<tr>
<td>HR at screening</td>
<td>proportion</td>
<td>0.39</td>
<td>0.37</td>
<td>0.15</td>
<td>0.08</td>
</tr>
<tr>
<td>(95% CI)</td>
<td></td>
<td>(.386–.396)</td>
<td>(.145–.155)</td>
<td>(.075–.082)</td>
<td>(.0039–.0058)</td>
</tr>
<tr>
<td>n</td>
<td></td>
<td>8225</td>
<td>7821</td>
<td>3161</td>
<td>1651</td>
</tr>
<tr>
<td>IR at screening</td>
<td>proportion</td>
<td>0.56</td>
<td>0.32</td>
<td>0.08</td>
<td>0.03</td>
</tr>
<tr>
<td>(95% CI)</td>
<td></td>
<td>(.555–.568)</td>
<td>(.317–.329)</td>
<td>(.073–.080)</td>
<td>(.0036–.0053)</td>
</tr>
<tr>
<td>n</td>
<td></td>
<td>12 869</td>
<td>7422</td>
<td>1766</td>
<td>755</td>
</tr>
</tbody>
</table>

Conclusions PPS accounts for an increasing proportion of endoscopy workload in the BCSP and more broadly in the UK and internationally. These results demonstrate a low...
proportion of CRC or IR or HR adenomas diagnosed at PPS in the BCSP.

Individuals with HR adenomas at screening more often had further adenomas detected at first PPS when compared to those with IR adenomas at screening. HR individuals also had a higher probability of IR or HR adenomas at first PPS. CRC diagnosis at first PPS was low in both groups (≤0.5%).

Further evaluation of the BCSP database is ongoing in order to identify subgroups most likely to benefit from PPS.

Introduction

The novel oral anticoagulants (NOACs), are increasingly favoured over conventional anticoagulants given their convenience and reduced drug interactions. Although NOACs have a favourable safety profile, the innate risk of haemorrhagic complications, including upper gastrointestinal bleeding (UGIB) is still a concern in high-risk patients. In light of this, we reviewed the outcomes of UGIB in patients on NOACs in our institution and compared them to patients not receiving any anticoagulation.

Methods

We identified inpatients on NOACs from a prospectively collected audit of 680 consecutive gastroscopies performed in 600 patients with UGIB between 1 August 2016 to 30 November 2017.

Results

NOAC (patients)

42 patients (avg age 76.8 years, range 36–91, 50% female) on NOACs underwent a gastroscopy for UGIB, 32 on Apixaban and 10 on Rivaroxaban. Nine (21.4%) were co-prescribed antiplatelet agents. Most common indications for anticoagulation were atrial fibrillation (78.6%) followed by thromboembolic disease (21.4%).

12 patients (28.6%) required endotherapy, with the most commonly encountered pathology being duodenal ulceration, followed by gastric ulceration. Four patients re-bleed, all of whom underwent repeat gastroscopy where definitive haemostasis was achieved.

Six patients (14.3%) died within 30 days of their gastroscopy (avg age 82.2 years, range 73–88), 3 as a direct result of an UGIB. All deaths occurred in patients with multiple comorbidities.

Comparison to group without anticoagulation

Patients on NOACs were older (76.8 years vs 63.9 years, p-value 0.0001), had slightly higher rebleed rates (9.5% vs 8.3%) and had a trend to higher UGIB related 30 day mortality rate (7.1% vs 2.4%).

Conclusions

- A portion of patients on NOACs died as a direct consequence of GI bleeding.
- All deaths occurred in elderly patients with multiple comorbid illnesses emphasising the importance of robust patient selection in NOAC prescription.
- To date Dabigatran is the only NOAC with a licenced reversal agent, Idarucizumab. Until reversal agents are available for the other NOACs perhaps Dabigatran should be preferentially considered in high risk patients despite its limitations and bleeding risk.

P-017

LONG-TERM OUTCOMES FOR RFA IN EARLY BARRETT’S-ASSOCIATED NEOPLASIA — ARE WE SUCCEEDING?

Yuthieshan Krishnamoorthy, Paul Brennan, Elaine Henry, University Of Dundee, Dundee, UK; NHS Tayside, Dundee, UK

10.1136/gutjnl-2018-BSGAbstracts.36
**Introduction** Minimally invasive, endoscopic therapies (radio-frequency ablation (RFA) with/without endoscopic resection (ER)) are widely performed for early Barrett’s-associated neoplasia (dysplasia or intramucoal carcinoma) and appear to be effective in the short term. There is however, a paucity of longer term outcomes including overall survival, in a cohort of patients who are often significantly co-morbid or increasingly elderly. We aim to study and overall survival (OS) in a cohort of patients with early neoplasia in Barrett’s oesophagus (BO-EN) treated since 2008.

**Methods** A retrospective audit of a cohort of patients receiving RFA for BO-EN, of any length, at the Ninewells Hospital and Medical School was analysed. Between December 2008 and January 2018; 39 patients were undergoing/completed treatment and engaged in active surveillance.

These patients were assessed for baseline demographics, duration of follow up and mortality, with a future directive being the assessment of complete resolution of both BO-EN and Barrett’s Oesophagus – Intestinal Metaplasia (BE-IM).

**Results** In total, we have a completed cohort of 39 patients with absolute dataset who have undergone treatment. Of our population; 27 (69%) are male with the remaining 12 (31%) being female with a median age of 67 (Range 44–82 years). Patients were followed up for a median of 42 months (Range 1–172).

A total of 39, 27 and 17 patients were included in the baseline (<1 year post therapy), 3 year and 5 year analyses, respectively. The presenting histology was Low-Grade Dysplasia (LGD) – 8 (21%), High-Grade Dysplasia (HGD)- 22 (56%) and Carcinoma In-Situ – 9 (23%).

Overall survival at 1, 3 and 5 years was 100%, with no progression to overt invasive malignancy demonstrated within this population.

**Conclusions** RFA (with/without ER) appears to be effective at controlling BO-EN and preventing progression to invasive adenocarcinoma, with a sustained effect appreciable to at least 5 years and possibly beyond.

Not unsurprisingly men appear to develop higher grades of dysplasia; at younger ages, this is consistent with known risk bias within the published literature (Average age at diagnosis; M=65 years vs F=81).

Our data suggests that despite the considerable comorbidity of these individuals, the intervention is well tolerated, with minimal deleterious sequelae and good survival prospects, albeit in a small sample size.

We aim to continue to expand the dataset prospectively and actively record the capability for RFA treatment to completely reverse underlying intestinal metaplasia in this group.

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**Abstract PTH018 Table 1**

<table>
<thead>
<tr>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>23</td>
</tr>
<tr>
<td>GORD</td>
<td>22</td>
</tr>
<tr>
<td>EOE</td>
<td>4</td>
</tr>
<tr>
<td>Barretts (BE)</td>
<td>5</td>
</tr>
<tr>
<td>Oesophageal ulcer</td>
<td>1</td>
</tr>
</tbody>
</table>

Final diagnosis for all patients who had no structural lesion (6 months after initial OGD): 64 (59.3%) had no diagnosis, 26 (24.1%) had GORD, 5 (4.6%) had a dysmotility disorder, 4 (3.7%) had EoE and 6 (5.6%) had BE

**Conclusion** Two thirds of patients had no visible cause of dysphagia identified at endoscopy, but only half of these patients had oesophageal biopsies taken as recommended by the BSG. Where there were taken the most common finding was normal histology (41.8%), while 40.0% had GORD and 7.3% had EoE.

Nearly 60% of patients with dysphagia who are referred for endoscopy have no formal diagnosis made 6 months after initial endoscopy.

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**Abstract PTH019**

**‘MISSED’ OESOPHAGO- GASTRIC Cancers ON GASTROSCopy: ARE WE REALLY MISSING THEM ALL?**

Subashini Chandrapalan, Jessica Green, Francisco Perez, Ahmed Mukhtar, Deepak Kejariwal. University Hospital Of North Durham, Durham, UK

**Introduction** Oesophago-Gastric (OG) cancer usually present late with consequent poor prognosis. The failure to detect early stage OG cancer at endoscopy may contribute to poor prognosis. A recent meta-analysis reported miss rates of 11.3% for OG cancers at endoscopy up to 3 years prior to diagnosis (1). We looked at our data in the Trust to quantify how often opportunities to diagnose cancer at an earlier stage are missed.
Abstracts

**Method** A retrospective review was carried out, on the medical records of newly diagnosed gastro-oesophageal cancer patients at County Durham and Darlington NHS Trust between the period 01/08/2014 – 31/07/2017. The data was extracted on patients who had standard light gastroscopy within a period of 3 years prior to the diagnosis. Endoscopic images were reviewed by a panel of 3 consultant gastroenterologists.

**Results** A total of 181 patients were diagnosed as having gastro-oesophageal cancers during the study period, of whom 12 had gastroscopy within three years. Amongst them, 3 had gastroscopy within one year prior to the diagnosis. The index endoscopy was performed by consultant gastroenterologist in 6 patients, nurse endoscopist in 4 and others in 2 patients.

The overall incidence of cancers in patients who had gastroscopy within 3 years and 1 year were 6.6% and 1.6% respectively. Amongst those, 8 were oesophageal, 3 were gastric and 1 of them was junctional cancer. Endoscopic photo documentation was fully retrievable for 6 patients who had endoscopy within 3 years and the review confirmed normal looking mucosa at the anatomical area concerned. (50%).

**Conclusion** Our study shows, incidence of the oesophageal cancer was high in comparison to gastric or junctional tumours for those who had gastroscopy within 3 years prior to the diagnosis. The normal endoscopic photo documentation in 50% of the patients, suggests interval cancers rather than ‘missed’ cancers. This raises suspicion on whether we are increasingly dealing with rapidly progressing tumours as suggested by emerging evidence that many cancers develop rapidly by punctuated and catastrophic genome evolution (2). Serial photographic documentation of important anatomical landmarks in accordance with latest BSG guidance (3) and further studies on interval cancers are important for future cancer interception.

**PTH-020 ENDOSCOPIC MUCOSAL RESECTION: EVALUATION OF A SINGLE CENTRE OUTCOME**

Subashini Chandrapalan*, Tracy Wood, James Coobie, John Painter. City Hospital Sunderland, Sunderland, UK

10.1136/gutjnl-2018-BSGAbstracts.39

**Background** EMR has been well accepted as one of the management options for superficial colorectal tumours requiring minimal invasion, better patient tolerance and significantly lower morbidity compared to surgery. However, lesions ≥20 mm can be tricky.

**Method** Retrospective medical record analysis was performed for a period of 24 months between Jan 2015 – Dec 2016. The data was collected on patient demographics, polypt characteristics, complications and follow up endoscopy at the 3 months and 12 months intervals where applicable.

**Results** A total of 212 patients had 264 procedures. The mean age of the population was 68. All of the procedures were performed by experienced endoscopists using hot/cold snare and Methylene blue/Volplex solution. 22 (8%) of all polypectomies were ≥40 mm in size. The rate of complications in accordance with polyp size and colonic sites are illustrated below (table 1 and 2).

**Abstract PTH-020 Table 1**  Complications for different sizes of the polyps

<table>
<thead>
<tr>
<th>Complications</th>
<th>Polyp size&lt;20 mm</th>
<th>Polyp size 20–39 mm</th>
<th>Polyp size&gt;40 mm</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n,%)</td>
<td>(n,%)</td>
<td>(n,%)</td>
<td>(n,%)</td>
</tr>
<tr>
<td>Immediate bleeding</td>
<td>8 (206,4%)</td>
<td>1 (36,3%)</td>
<td>2 (22,9%)</td>
<td>11 (264,5%)</td>
</tr>
<tr>
<td>Delayed bleeding</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Perforation</td>
<td>0</td>
<td>1 (36,3%)</td>
<td>0</td>
<td>1 (264,0.4%)</td>
</tr>
<tr>
<td>Recurrence at 3/12</td>
<td>0</td>
<td>0</td>
<td>3 (22,14%)</td>
<td>3 (264,1%)</td>
</tr>
<tr>
<td>Recurrence 12/</td>
<td>0</td>
<td>0</td>
<td>1 (12,8%)</td>
<td>1 (109,0.9%)</td>
</tr>
</tbody>
</table>

**Abstract PTH-020 Table 2** Complications at different sites of the colon for all the polyp sizes.

<table>
<thead>
<tr>
<th>Complications</th>
<th>Caecum</th>
<th>Ascending colon</th>
<th>Transverse colon</th>
<th>Descending colon</th>
<th>Sigmoid colon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate bleeding</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Delayed bleeding</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Perforation</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Recurrence at 3/12</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

The perforation was managed with endoclips and required a day of admission. The immediate bleeding had been managed with clipping ± adrenaline injection. The overall 30 days mortality was zero. 9 (4%) patients had prophylactic endoclips.

The adenocarcinoma detection rate was 2.8% (6) and all of them had had either repeat scope at the 3 and 12 months intervals or had surgery. 12 (5.6%) had tubular/tubulovillous adenoma with high grade dysplasia. 8 (66%) of these patients had repeat scope at 3 months, whilst 1 (8%) underwent surgery and 3 (25%) made an informed choice to not have further colonoscopic examination.

Our recurrence rate for the polyp size ≥20 mm at 3 months and 12 months was 69% and 78% respectively. The main reasons for not having the scope were either patient choice or having surgery/other forms of cancer treatment.

**Conclusions** EMR is an effective and safe approach in the expert hands for the management of colonic polyps. The role of prophylactic endoclips is still unclear in reducing the risk of post-procedural bleeding and it is highly dependent on the operator’s preference and experience.

Total character count 2817.
CANCER AND ADENOMA DETECTION RATE IN 2-WEEK WAIT COLONOSCOPY AND CT COLONOGRAPHY- TERTIARY CENTRE EXPERIENCE

1Sardar Chaudhary, 2Jay Pancholi, 3Catalin Ivan, 4Rutan Vema, 5Mosheir Elabassy, 6Richard J Robinson, 7James A Stephenson, 8Digestive Diseases Centre, UHL, Leicester, UK; 9Gastrointestinal Imaging Group, UHL, Leicester, UK

Introduction Computed Tomography Colonoscopy (CTC) is increasingly being used as an alternative to optical colonoscopy (OC). The SIGGAR trial and COCOS study have shown CTC to be an accurate and safe alternative to OC for diagnosis of colorectal cancer (CRC) and large polyps. Our aim was to compare various performance indicators between CTC and OC in the lower GI straight to test (STT) 2 week wait (2 WW) pathway.

Methods The investigation of choice for the lower GI 2 WW STT cohort between Nov 2014 and Oct 2015 was OC with CTC being the first-line test between Jan 2016 and Dec 2016. We retrospectively analysed 12 months' data for both cohorts. Outcomes included completion rate, polyp detection rate (PDR), adenoma detection rate (ADR) and CRC detection rates.

Results 1135 patients attended for OC versus 1829 for CTC. Significantly more OC were cancelled on the day compared to CTC (6.5% v 2% p=0.0001). OC had a completion rate measured by caecal intubation of 86% versus 100% of CTC (p=0.0001). The diagnostic study rate measured by adequate bowel preparation/fecal tagging and distension was 89.3% at OC (adequate preparation) versus 98.4% for CTC (p=0.0001).

CRC detection rate was 4.5% (95% CI 3.43% to 5.95%) in the OC group versus 4.9% (95% CI 3.97% to 5.95%) in the CTC group (p=0.005).

The PDR was significantly higher in the OC group compared to the CTC group (25.1% (95% CI 22.95% to 27.32%) v 13.5% (95% CI 11.95% to 15.11%) p=0.0001). However, 61.7% of the polyps detected at OC were ≤5 mm which are not routinely reported on CTC. PDR for polyps >5 mm at OC was 9.6% (95% CI 7.98% to 11.54%) versus 13.5% at CTC (p=0.0024).

The ADR at OC was significantly higher than in the CTC group (16.5% (95% CI 14.38% to 18.85%) versus 9.8% (95% CI 8.53% to 11.29%) p=0.0001).

The non-CRC detection rate in the CTC group was 4.3%. Conclusions CTC and OC have comparable CRC detection rates for patients referred via the 2 WW STT lower GI pathway. However, the PDR and ADR are higher with OC, this data is skewed by the number of diminutive polyps identified at OC that are not routinely reported at CTC. Also, a number of cases with 5–10 mm polyps at CTC did not progress to OC. Long term follow up data is required to compare interval cancer detection rates in these cohorts to assess the impact of not reporting/identifying sub 5 mm polyps.

From a service delivery perspective, the on the day cancellation rate, completion rate and diagnostic study rate for CTC were significantly better than OC in the STT patient.

An additional benefit of CTC is the diagnosis of non-colonic cancers, the rate of which was comparable to the CRC rate.
Barrett’s surveillance in a district general hospital: do we follow guidelines for non-dysplastic Barrett’s?

K Christodoulou*, AR Farooqi, KT Shaw, IR Sargeant, DL Morris. East and North Hertfordshire NHS Trust, Stevenage, UK

Introduction BSG 2013 guidelines for diagnosis and management of Barrett’s oesophagus (BE) recommend surveillance intervals based on the length of BE, histology, and presence of intestinal metaplasia. Practice for BE surveillance varies nationally. East and North Hertfordshire NHS Trust is a district general hospital with a population of approx. 600,000. Since the 2013 guidelines most BE surveillance is done by 2 consultants and a specialist nurse.

Methods A retrospective review of all gastroscopies performed for the indication of BE surveillance from 1/1/16 – 31/12/16. These were audited against BSG 2013 guidelines specifically looking at use of Prague criteria (PC), histology and selection of surveillance intervals. All endoscopies were performed using high definition video-endoscopes.

Results 207 OGDs for BE surveillance were reviewed (median age 68 [29–90], 75% males). 144 (70%) recorded BE length using the PC. 23 (11%) had either no or minimal Barrett’s (<1 cm), of whom 15 (65%) were discharged. In the remaining 40 OGDs (19%) length of BE was unclear in 11 reports, able to be partially deduced from the free text in 20 cases, and fully deduced in 9 cases.

Analysis of surveillance intervals was performed only on the 144 OGDs where length of BE was documented fully using PC. Amongst these were 17 cases of dysplasia (12%: 6 indefinite for dysplasia, 7 low grade dysplasia, 4 high grade dysplasia). The remaining 127 cases (88%) were non-dysplastic. Distribution of length of BE is displayed in Figure 1.

Of the non-dysplastic cases, 46 (36%) had a BE length of <3 cm of whom 20 (43%) had surveillance interval of 3–5 years, 18 (40%) were discharged and 8 (17%) had a surveillance interval of 2 years. 81 (64%) had a BE length of ≥3 cm, of whom 74 (92%) had surveillance interval of 2–3 years, 1 (1%) for 1 year, 4 (5%) for 4–5 years, 1 (1%) was discharged and 1 (1%) died.

Conclusions Whilst we reported 70% of our BE length using PC, a measure now recommended as a quality standard, a further 19% could have been reported this way. Our data show that only 10% (13) of our 127 non-dysplastic BE cases had an incorrect surveillance interval chosen, less than the figures suggested by JAG who estimate that 30% of patients undergo surveillance at incorrect intervals or where not indicated at all. Of the 207 OGDs analysed, 135 (65%) were carried out by one of our 2 consultants with specialist interest in BE or our BE specialist nurse endoscopist. We therefore support the advice that BE surveillance should be performed on dedicated lists in order to improve endoscopic quality reporting and choice of correct surveillance interval.

Risk factors for bleeding during endoscopic resection for visible lesions in Barrett’s oesophagus

Jennifer Clough, Sebastian Zeki, Sabina DeMartino, Jason Dunn. Guys And St. Thomas’ NHS Trust, London, UK

Introduction Endoscopic resection (ER) is the preferred initial treatment for early cancer and dysplasia with visible lesions arising in Barrett’s oesophagus (BE). An intra-procedural bleeding risk of 10% is typically quoted, with most controlled by endoscopic intervention. There is little data on risk factors for bleeding during oesophageal piecemeal ER.

Studies on colonic polypectomy have shown older age and the presence of depressed lesions are associated with increased bleeding risk. Previous studies on gastric ESD have shown lesion size was the main risk factor. We sought to identify variables associated with an increased risk of bleeding.

Methods Data were collected retrospectively for patients who had undergone ER for BE at a tertiary endotherapy centre between November 2012 – October 2017. Age, anticoagulant use, Paris classification of the lesion, number of ER specimens resected, and histology of the resected tissue were recorded. From 2015 an e-noting system was used to collect blood pressure readings pre, during and post procedure, and the highest mean arterial pressure (MAP) was calculated. Bleeding was classified as mild (controlled by snare tip), moderate (controlled by coagulation graspers/clips), or severe (necessitating admission). Patients who had a moderate or severe bleed were grouped for comparison.
Results A total of 212 EMR procedures were performed in the study period. 144 were used for analysis as blood pressure recordings were available. Mean age was 71, and 76.4% were male. 28 patients bled during the procedure (19.4%), of which two had a bleed requiring admission (1.4%).

There was no difference between the MAP in patients who bled during the procedure and those who did not. The mean number of ER specimens resected in total was 2.7 (range 1–12), with a greater number of resections in patients who suffered a moderate-severe bleed (3.4 vs 2.6, p=0.034).

Both depressed lesions (Paris III) and pedunculated lesions (Paris Ip) conferred an increased risk of bleeding (p=0.002 and 0.011 respectively). Oesophageal cancers with a stage greater than T1b were associated with an increased bleeding risk (p=0.004).

Conclusions In this study, bleeding risk was associated with the area of the ER, with a greater risk when more ER specimens were resected. Paris type Ip and III lesions conferred an increased risk of bleeding, as did resection of an oesophageal cancer with a stage greater than T1b. This may reflect increased angiogenesis associated with lymphovascular invasion.

Age, sex, anticoagulant use and intra-procedural MAP made no difference to the risk of bleeding. Importantly all bleeds were controlled by endoscopic measures and mortality was zero.

In Conclusion, in patients where a wide field ER is anticipated, caution with regards to bleeding and appropriate planning for cessation of haemorrhage with endoscopic techniques should be exercised.

**PTH-025 ARE ENDOSCOPISTS PLANNING ON ADHERING TO BSG QUALITY STANDARDS IN UPPER GI ENDOSCOPY GUIDANCE**

Freddie Betteridge, Luke Materacki, Karl Yong, Dushen Murugich, Ben Colleypriest. Royal United Hospital, Bath, UK

10.1136/gutjnl-2018-BSGAbstracts.44

Introduction The BSG and AUGIS recently published a position statement, ‘Quality Standards in upper gastrointestinal endoscopy’, outlining minimal standards in diagnostic gastroscopy. These new standards may represent a significant change of practice for some endoscopists and would need to be adopted by a majority to enforce change. The purpose of this survey was to determine how much of a change in practice these standards represent and to gauge the initial likely acceptance.

Methods Six simple questions were selected from the new recommendations to determine current and future practice in a multiple choice design. A questionnaire was sent to 467 UK based endoscopists using Survey Monkey.

Results The response rate was 31.7%(148) and the majority (78%) of the respondents were Gastroenterologists.

Conclusions Our results demonstrate that a number of the recommendations are contentious and are currently not being planned to be adopted by a significant proportion of endoscopists. Some of the recommendation such as biopsies for eosinophilic oesophagitis in the context of dysphagia are current practice for the majority of endoscopists and are planned to be adopted by the remainder. Whilst other standards such as recording inspection time for surveillance procedures and gastric antral biopsies for iron deficiency anaemia are only currently practiced in the minority and the majority are not planning to adopt. Interestingly the current adherence, planned uptake and no planned change in practice mirrored the strength of evidence behind the standard and the strength of recommendation. Such that the most contentious standards with largest percentage of endoscopists not planning to adopt had weak evidence and were weak recommendations. Whilst it is important to improve training and practice in gastroscopy and develop minimal acceptable standards this survey would suggest that standards with weak recommendation and with weak evidence may need revision.

**PTH-026 IMPROVEMENT OF AN ERCP SERVICE IN PRACTICE**

Wendy Dowdles. NHS Tayside, Dundee, UK

10.1136/gutjnl-2018-BSGAbstracts.45

Introduction The NHS Tayside ERCP service performs around 450 procedures per annum, serving a population of 550,000. A review of our service identified that whilst responsive for...
abstracts

emergency inpatient (IP) procedures we had a nine week wait for an elective out-patient (OP) procedures. We wish to describe the review and redesign of our service.

**Method** The patient pathway was mapped with key stakeholders and areas of variation were identified. A test of change was undertaken over 7 weeks to promote a more consistent approach as below:

- 1 A&C processes: A single point of booking for ERCP outpatients was created. Lists were adapted to support IP and OP demand. The ERCP referral form was updated.
- 2 Patient flow: Lists were distributed evenly throughout the week having been previously weighted at the start of the week. Defined ERCP beds were secured in our Clinical Investigations Unit (CIU) rather than clinical wards. Patients from external hospitals are also now booked into CIU.
- 3 Same day discharge: A 24 hour Stay Core Data Set was implemented and included criteria for Nurse Led Discharge and a Discharge Checklist enabling same day discharge of out-patients.
- 4 Patient information: The ERCP Patient Information Booklet was updated supporting postal consent.
- 5 All outpatients have a full medical clerk-in pre-procedure supported by a Physician’s Associate.
- 6 An Endoscopy RN visits in-patients the day before their procedure. Out patients were given a patient satisfaction questionnaire.

**Results**

- Waiting times: The wait for both IP and OP ERCP has reduced from 9 weeks to zero weeks. All patients are now booked ‘real-time’.
- Savings/efficiencies: 34 patients were booked into CIU. 21 were discharged home the same day. No patients were booked to come into hospital the day before the procedure. This resulted in a total saving of 40 overnight stays.
- Patient experience: Patient Satisfaction Questionnaires were returned from 14 patients booked into CIU. Feedback was mainly positive. There have been no serious complications. 3 patients had mild pain post procedure but this did not prevent same day discharge.
- Procedural Change: Patients no longer telephone pre admission to enquire about bed availability, patient admission time has changed from 8 am to 10 am for patients on the pm list, OPs receive an ERCP report and reports are sent to GP.
- Impact and other services: Streamlining of the patient pathway has supported appropriate use of acute in-patient beds and avoided/reduced cancellations.
- Impact on staff: It has encouraged disciplines to work together with exceptional staff engagement.

**Conclusion** An overview of an established service identified inefficiencies at several points which were rectified. The cumulative effect of these changes has transformed the patient journey and released resource in other areas.

**Abstract PTH-028**

### Table 1

<table>
<thead>
<tr>
<th>Therapeutic procedure at endoscopy</th>
<th>PPI pre-endoscopy</th>
<th>No PPI pre-endoscopy</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>94 (16%)</td>
<td>43 (24%)</td>
<td>137</td>
</tr>
<tr>
<td>No</td>
<td>491 (84%)</td>
<td>135 (76%)</td>
<td>626</td>
</tr>
<tr>
<td>Total</td>
<td>585</td>
<td>178</td>
<td>763</td>
</tr>
</tbody>
</table>

**Conclusion**

Use of PPI pre-endoscopy is not detrimental to patient outcomes and our data supports the existing evidence base suggesting a reduction in the need for endoscopic intervention. Further study is needed to evaluate the cost effectiveness of PPI use pre-endoscopy.

**REFERENCES**

1. NICE guidelines – [https://www.nice.org.uk/guidance/cg141/chapter/1-Guidance](https://www.nice.org.uk/guidance/cg141/chapter/1-Guidance)

**PITH-029**

**UGI CANCERS – ARE WE LOOKING?**

Vivek Goodboy, Lian Hodges, Benjamin Crooks, Mark Murgatroyd, Helen White, Tom Butler, Javid Iqbal. Manchester University NHS Foundation Trust, Manchester, UK

10.1136/gutjnl-2018-BSGAbstracts.47

**Introduction**

Oesophago-gastric (OG) cancers in the UK often present at an advanced stage, and hence reduced chance of curative therapy. A recent meta-analysis involving 3787 patients with OG cancer has shown that 11.3% OG cancers are missed at endoscopy 3 years before diagnosis. Recent guidelines from the BSG recommend that endoscopy units should audit for potential missed pathology in those diagnosed who have undergone an endoscopy in the preceding 3 years.

**Methods**

This was a retrospective audit at a regional upper gastrointestinal centre reviewing all cases presenting with OG cancer over a 2 year period between Sept 2015 and Sept 2017. Data was collected from the electronic database, case notes and the GI reporting tool, in all patients to ascertain if
an OGD was performed within 3 years prior to diagnosis. This included site of cancer, stage, endoscopist, probable reason for missed pathology and assessment of certain KPI’s pertaining to the endoscopy.

**Results** 105 patients were diagnosed with OG cancers during this period. Median age 74 years; M:F 69:31; Oesophageal 60%; stomach 40%. Twenty-two patients (21%) had an OGD in the 3 years prior to their index (diagnostic) OGD; 11 (10.5%) were deemed ‘not missed’ cancers because there were valid reasons for repeating an endoscopy; and 11 (10.5%) were thought to represent ‘missed’ opportunities of diagnosing cancer in the preceding 3 years. The median time interval between the 1st OGD and index OGD were 20 and 270 days for ‘not-missed’ and ‘missed’ groups respectively. Possible reasons for missed cancer were lack of lesion recognition (5/46%), dual pathology (1.9%), technical limitations of OGD (1/9%) or a combination of factors (4/36%). Adequacy of mucosal visualisation was not photo-documented in 64% of cases. The main reason for early repeat endoscopy in the ‘not-missed’ group was a high index of suspicion of pathology on initial OGD without any histological confirmation.

**Conclusions** A missed cancer rate of 10.5% in a regional upper GI centre is similar to published rates in recent meta-analysis but does not achieve the minimal standard of <10% set by the BSG. These results were discussed at the EUGM and various measures being undertaken to reduce this include: modifications to optimise visualisation (simethicone pre-procedure), rigorous photo-documentation, dedicated surveillance lists eg. Barretts. This will be re-audited in 3 years.

**Abstracts**

**PTH-030**

**CONVENTIONAL VERSUS VIRTUAL CHROMOENDOSCOPY FOR COLITIS SURVEILLANCE: DYSPLASIA DETECTION, FEASIBILITY AND PATIENT ACCEPTABILITY (CONVINCCE)**

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Introduction Chromoendoscopy (CE) is the recommended surveillance technique for dysplasia in colitis, but uptake has been limited. Virtual CE (VCE) by Fujinon Intelligent Colour Enhancement digitally reconstructs mucosal images in real-time, without the technical challenges of CE. The literature provides limited information on patient experience (PE); imperative to adherence to surveillance programmes. We performed a multi-faceted randomised crossover trial to evaluate acceptability of study design and obtain preliminary comparative procedural performance data and PE using CE vs VCE.

Methods Patients 18–75 y.d.c. surveillance colonoscopy were randomised to undergo CE or VCE first. After 3–8 weeks, participants underwent colonoscopy with the second technique, performed by an endoscopist blinded to the results of the first. Patient recruitment/retention, missed dysplasia by VCE/CE, endoscopist’s prediction of dysplasia and contamination (endoscopists memory/sampling of the 1st procedure) were recorded. PE was assessed by validated questionnaires. This abstract presents independent research funded by the NIHR under its Research for Patient Benefit Programme (PB-PG-0614-34040). The views expressed are those of the authors and not necessarily those of the NHS, the NIHR or the Department of Health.

Results 60 patients were recruited (recruitment rate 80%) over an 11 month period. 48 patients completed the trial (retention rate 80%); 23 (11F, 48.4±14.6 y) received VCE and 25 (9F, 41.4±12.3 y) CE first. Examination time for CE vs VCE was 20±7 vs 14±4 mins respectively (p<0.001; CI 3.5–8). There were no episodes of contamination. 11 dysplastic lesions were detected in 7/48 (14.5%). Per-lesion analysis: VCE missed 1 lesion (miss rate 9.1%), CE missed 2 lesions in 2 patients (miss rate 18.2%). Per-patient analysis: miss rate for dysplasia using VCE was 1/48 (2.1%) VCE and CE 2/48 (4.2%). Diagnostic accuracy for dysplasia using VCE 93.94% (85.2–98.32) vs CE 76.9% (66.9%–98.2%). Visual analogue scale for pain experienced using VCE and CE were 27.4 ±17.5 mm and 34.7±18 mm respectively. Patient preference for VCE was 67% (n=31) vs CE 33% (n=15) in n=46, p<0.001.

Conclusions This is the first study to incorporate PE in a colitis surveillance trial and has demonstrated feasibility of the trial design itself. VCE is safe, appears technically less challenging, quicker and more comfortable procedure for patients with dysplasia detection at least as good as CE, thus overcoming many of barriers to the wider adoption of CE. This trial forms the successful foundation to inform a multicenter trial to confirm the value of VCE for colitis surveillance.

**PTH-031**

**THE OUTCOMES OF ERCP FOR COMMON BILE DUCT GALLSTONES IN ENGLAND BETWEEN 2003 AND 2015**

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Introduction The BSG ERCP standards suggest duct clearance should be achieved in >85% of ERCPs for common bile duct gallstones. However recent data on ERCP for palliation of malignant biliary obstruction demonstrated significant variation in outcomes between providers related to procedure volume. We have therefore examined outcomes of ERCPs for common bile duct gallstones.

Methods Hospital Episode Statistics (HES) include diagnostic and procedural data for all hospital attendances in England. All subjects undergoing their first ERCP with the ICD10 code K80 (cholelithiasis) were included. Subjects with a relevant cancer diagnosis 2 years before, or after ERCP were excluded. Associations between demographics, co-morbidities and unit ERCP volume were examined by logistic regression analysis. Not needing to undergo repeat ERCP within 90 days was considered a surrogate for successful duct clearance.

Results 98 887 subjects were included, 65.5% were female, their median age was 68(IQR 52–79) and 72.3%, 13.8% and 13.9% had a Charlson co-morbidity score of 0, 1–4 and >4 respectively. Approximately half were elective procedures(50.8%). 86.6% did not require repeat ERCP within 90 days; 12.1% required 1 repeat; and 1.3% required 2 or more repeats. The following factors were associated with not needing a repeat ERCP; Charlson co-morbidity score >4 (OR 0.83 (95% CI:0.78–0.88),p<0.001), age >81 (0.82(0.77–0.88),p<0.001), and outpatient procedures (0.80 (0.76–0.84),p<0.001).

Provider volume, (volume knot 1 (1.00(1.00–1.00), p=0.135), knot 2 (1.00(1.00–1.00),p=0.523), knot 3 (1.00 (1.00–1.01),p=0.333)), year of procedure and emergency
admission type were not associated with needing a repeat ERCP within 90 days.

Needing a repeat ERCP was associated with: Asian ethnicity (1.18 (1.06–1.31), p=0.002), Black ethnicity (1.22 (1.03–1.45), p=0.023), mixed ethnicity (1.51 (1.14–2.01), p=0.005), age quintile 47–62 (1.10 (1.04–1.17), p=0.001), age 63–72 (1.09 (1.03–1.16), p=0.004) and male gender (1.12 (1.02–1.45), p<0.001).

Conclusions The BSg key performance indicator for stone clearance at first ERCP (>85%) appears to be achieved overall, assuming that no repeat ERCP within 3 months is a marker of successful stone clearance. Not needing a repeat ERCP for common bile duct stones was associated with outpatient procedures, very old and co-morbid subjects.

Increased ERCP volume and year of ERCP (2003–2015) did not change the apparent success rate of stone clearance at ERCP.

**Abstracts**

**PTh-032 MORTALITY FOLLOWING ERCP FOR BENIGN SPYGLASS: A FOUR YEAR EXPERIENCE**

1Phil Harvey, 2Simon Baldwin, 3Jemma Mytton, Ben Coupland, Felicity Evison, Prashant Patel, Nigel Trudgill. 1Phil Harvey, 2Simon Baldwin, 3Jemma Mytton, Ben Coupland, Felicity Evison, Prashant Patel, Nigel Trudgill. 1Phil Harvey, 2Simon Baldwin, 3Jemma Mytton, Ben Coupland, Felicity Evison, Prashant Patel, Nigel Trudgill. 1University Hospital Birmingham, Birmingham, UK; 2Gloucestershire Royal Hospital, Gloucester, UK; 3Bristol Royal Infirmary, Hepatobiliary Unit, Bristol, UK.

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**Introduction** Recent data on ERCP for the palliation of malignant biliary obstruction demonstrated high mortality and significant variation in outcomes between providers. We have therefore examined ERCP outcomes for in benign pathology.

**Methods** Hospital Episode Statistics (HES) include diagnostic and procedural data for all hospital attendances in England. HES is linked to the Office for National Statistics to provide mortality data. All subjects undergoing their first ERCP between 2003 and 2015 were included. Subjects with a relevant cancer diagnosis 2 years before, or after ERCP were excluded. Associations between demographics, co-morbidities, unit ERCP volume and mortality were examined by logistic regression analysis.

**Results** 201851 subjects were included. 64.2% were female, median age 67 (IQR 51–79), 70.0%, 13.9% and 16.1% had a Charlson Co-morbidity score of 0, 1–4 and >4 respectively. A majority were during emergency admissions (53.5%).

7 day, 30 day and 12 month mortality was 0.8%, 2.3% and 8.0% respectively. 30 day mortality was 3.5% in emergency cases compared to 0.8% in elective. The re-admission rate within 30 days was 11.7%. Repeat ERCP was required within 90 days in 13.9%.

30 day mortality was positively associated with: male gender (OR 1.24 (95% CI 1.17–1.32), p<0.001), Black ethnicity (1.55 (1.12–2.14), p=0.008), Charlson co-morbidity score 1–4 (1.18 (1.06–1.31), p=0.002), score >4 (3.55 (3.31–3.81), p<0.001), increasing age quintile 47–62 (1.43 (2.65–4.44), p<0.001), age 63–72 (7.01 (4.85–8.97), p<0.001), age 73–81 (11.50 (9.95–14.62), p<0.001) and age >81 (20.31 (16.03–25.74), p<0.001). Factors associated with reduced mortality included; elective rather than emergency admission (0.37 (0.33–0.40), p<0.001), and day case procedures (0.86 (0.74–0.99), p=0.031). Advanced year of procedure 2004/05 (1.01 (0.87–1.18), p=0.859, 2009/10 (0.71 (0.61–0.83), 2014/15 (0.61, 0.53–0.71, p<0.001) was also associated with reduced mortality. Provider volume was not associated with mortality.

**Volume knot 1 (1.00 (1.00–1.00), p=0.445), knot 2 (1.00 (1.00–1.01), p=0.253), knot 3 (0.99 (0.98–1.01), p=0.288).

Conclusions** 30 day mortality following ERCP for benign pathology is associated with advancing age, increasing co-morbidity and male gender. Outpatient elective procedures were negatively associated with mortality. Mortality has reduced in recent years, but no variation in mortality was observed based upon provider volume.

**PTh-033 SPYGLASS: A FOUR YEAR EXPERIENCE**

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**Introduction** Diagnostic and therapeutic single operator cholangioscopy (SOC) has increased in importance for stricture assessment and management of cholelithiasis. The technique is often employed under general anaesthetic but can be performed using conscious sedation. The primary aim of this study was assessment of diagnostic accuracy of histology taken for stricture assessment and stone clearance rates during SOC.

**Methods** A single centre retrospective analysis was performed of consecutive SOCs over 4 years at BRI (tertiary referral centre for South West England and South Wales), including fibroptic (Spyglass Legacy) and high resolution digital systems (Digital Spyglass). Recorded parameters included sedation/general anaesthetic (GA) dosages, stone clearance, use of electrohydraulic lithotripsy (EHL), histology, complications, final diagnosis and correlation with histology.

**Results** Between 2013–2017, 164 patients (mean age 65.4 years (range 22–91); 79 females; 85 males) had 206 SOC procedures, referred from 12 hospitals. 15 SOCs were performed in 2013 compared to 64 in 2017. 54% of patients were referred for stricture assessments, 43% for SOC+EHL; 5 patients had assessment of an indeterminate lesion on imaging. 7 patients had SOC under GA. 97% of patients had conscious sedation: average midazolam dose was 7 mg; fentanyl 141 mcg; buscopan 24 mg.

Macroscopic assessment of strictures and indeterminate lesions correlating with malignancy had a sensitivity, specificity and accuracy of 90% (95%CI 79–97), 83% (95% CI 71–96) and 86% (78.5%–92%) respectively. Histological correlation with final diagnosis increased over the study, from 77% in 2015 to 87% in 2017. Complete stone clearance rose from 50% in 2014 to 85% by 2017. 70% of patients had complete stone clearance at 1st attempt. 43% of patients developed complications post SOC. Post-ERCP pancreatitis (PEP) was the commonest adverse event (2.4%; n=5/206).

**Conclusions** The role of SOC in tertiary centres for identification of biliary lesions and management of difficult cholecholithiasis continues to grow. The South West service is centralised to one centre with a clear improvement in diagnostic accuracy for malignancy and stone clearance rates. Diagnostic accuracy rates mirror figures quoted in literature, most recently Japanese data in 2017. Adverse events were lower than those widely reported, but PEP remains the commonest cause. SOC under conscious sedation is both safe and effective.
Introduction Faecal Calprotectin (FC) often helps clinicians to decide the need for colonoscopy in patient with variety of bowel symptoms. Many clinicians are uncomfortable with intermediately raised FC and tend to opt for colonoscopies to avoid the risk of missing an organic disease. The aim of this audit is to assess the influence the FC level on the rate colonoscopies and pathology found.

Methods Data were collected from Northampton General Hospital database for all FC specimens tested between April 2015 and March 2016. We excluded all IBD patients and patients aged 18 and under. We compared patients who had an intermediately raised FC (IRFC) results (51–150), patients with significantly raised FC (SRFC) results (≥151) and a selected manageable sample with negative FC (≤50).

Results 2169 patients were tested for FC. 501 had raised FCs. 79 known IBD patients were excluded. The remaining were 2169 patients were tested for FC. 501 had raised FCs. 79 known IBD patients were excluded. The remaining were 1262 patients. Of these, 217 patient had IRFC and 205 with SRFC. 111 of the FC negative group from August 2015 were studied.

Colonoscopies were done in 91 patients (42%) of the IRFC group, compared to 119 patients (58%) of SRFC. 24 patients (22%) with negative FC had colonoscopy.

Age and gender had no influence on the colonoscopy rate, but FC significantly influenced the rate of colonoscopy referral (Pearson χ² test, p<0.0001).

Figure 1: Effect of faecal calprotectin on colonoscopy rate of patients aged 42 and 55 who had weight loss or rectal bleeding. In the SRFC group, 70/121 (58%) had normal colons. 30 patients (25%) were newly diagnosed with IBD and 21 patients were found to have other colonic pathologies including 6 cancers.

Conclusions Faecal calprotectin significantly influences the rate of colonoscopy referral and outcome. There was good evidence to support colonoscopy in patients with FC >150, but 86% of patients had normal colons with FC of 51–150 and a repeat FC in the absence of warning symptoms would be reasonable, particularly in younger patients.

Introduction Coffee ground vomit is vomit that looks subjectively like coffee grounds. It is thought to occur due to the presence of coagulated blood in the vomit and hence is a common indication for inpatient admission and thereafter endoscopy. In an increasingly stretched inpatient endoscopy service it is important not to over burden it with endoscopies that could be performed safely as an outpatient.

Therefore, our aim is to evaluate the need for inpatient gastroscopy in patients who are deemed to have coffee ground vomiting. We hypothesise that patients with coffee ground vomiting do not have significant upper gastro intestinal bleeding requiring endoscopic intervention.

Methods A single centre, retrospective analysis was performed on patients endoscoped for the primary indication of coffee ground vomiting. Data was collected and scrutinised from the Electronic Patient Records (EPR) and Unisoft endoscopy-reporting tool at Barnet and Chase Farm Hospitals, Royal Free London for 12 months of 2017. Gastroscopy reports were studied to see whether endoscopic therapy was required (defined as use of adrenaline injection, banding, clips, haemopry or gold probe). EPR was subsequently used to assess whether these patients had a significant drop in their haemoglobin (Hb) defined as a Hb drop ≤20 g/dl. Two independent researchers carried this out.

Results There were 2618 gastroscopies during the study period. Of these, 37 were indicated due to coffee ground vomiting with 29 being performed as an inpatient. Of these 29 patients, 27 (93%) had a significant drop in their Hb level prior to gastroscopy. One (3%) patient required endoscopic therapy. This patient had significant co-morbidity of ischaemic heart disease, hypertension, aortic valve replacement as well as a drop in Hb.

In total, 12 patients had a diagnosis of oesophagitis, 3 had erosive gastritis, 3 non erosive gastritis, 1 oesophageal ulcer, 3 duodenal ulcers, 3 non erosive duodenitis, 1 pyloric ulcer and 1 hiatus hernia. 4 gastroscopies were completely normal. There were no patients with cancer diagnosis. Each diagnosis was reported separately if the report contained more than one diagnosis.

Conclusions From this study we conclude that in the majority of patients endoscoped for coffee ground vomit do not require intervention during endoscopy. This study confirms our hypothesis and adds weight to the notion that patients with coffee ground vomiting do not necessarily require inpatient gastroscopy despite a significant Hb drop. If findings from this study were to be repeated in other centres we may be able to discharge stable patients with coffee ground vomiting to early OPD endoscopy thus reducing length of stay and pressure on already stretched inpatient emergency workload.
Cholangiopancreatography (ERCP) methods have failed. Because of the length and complexity of these cases, a general anaesthetic is often the preferred choice of sedation. Herein, we describe our early experience of using the SpyGlass DS cholangioscopy system (Boston Scientific, Malborough, MA, USA) in a tertiary centre to treat difficult stones under conscious sedation, assessing whether this affected efficacy and safety of POC.

Methods A retrospective analysis was performed of all cases where POC was used for difficult biliary stones from September 2016 to December 2017 at a teaching hospital. Cases performed under general anaesthesia were excluded. All patients received periprocedural prophylactic antibiotics, usually intravenous Ciprofloxacin 400 mg. Rectal non-steroidal anti-inflammatory drugs were administered in all patients unless contraindicated and 3 days of oral antibiotics were given after the procedure. Sedation use, success rates and complications were documented.

Results 26 cases were identified, including referrals from other centres. Median age of patients undergoing POC was 77 years old (range 60–95). Patients had a median of 2 previous ERCPs (range 0–11) prior to POC. The median dose of midazolam administered was 4 mg (range 2–9 mg) and of pethidine was 50 mg (range 0–125 mg). None of the patients required the administration of reversal agents (flumazenil or naloxone).

Indications include extrahepatic stones (73%), intrahepatic stones (23%) and cystic duct stone (4%). Successful duct clearance was achieved in 20/26 (76%) cases, with the use of EHL and subsequent extraction balloon. 4/26 cases required additional mechanical lithotripsy post EHL and 1 case required sphincteroplasty.

We did not achieve intended therapy in 6/26 cases. Reasons for this include: partial stone clearance only (3/6), technical difficulty (stones in second order ducts and inability to apply EHL) (2/6) and equipment failure (1/6). With regards to partial stone clearance cases, 1 patient had a successful repeat procedure with EHL, with the other 2 patients awaiting repeat procedures.

There were no complications recorded.

Conclusions Our data of performing POC under conscious sedation has shown success rates in stone clearance and safety comparable to published outcomes of cases performed under general anaesthesia. Conscious sedation for POC remains a viable option, especially in an increasingly high-risk anaesthetic population and where a dedicated anaesthetist is not readily available for such cases.

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**Abstract PTH037 Table 1**

<table>
<thead>
<tr>
<th>Patient baseline characteristics</th>
<th>Malignant (n=142)</th>
<th>Benign (n=19)</th>
<th>Indeterminate (n=5)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean age (range)</strong></td>
<td>77 (44–101)</td>
<td>55 (28–95)</td>
<td>84 (78–89)</td>
</tr>
<tr>
<td>Male gender, n(%)</td>
<td>84 (59.1%)</td>
<td>15 (80.5%)</td>
<td>1 (20%)</td>
</tr>
<tr>
<td><strong>No. of ERCPs prior</strong></td>
<td>90</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8.0</td>
<td>42</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>9.1</td>
<td>7</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>10.2</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>11.3</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>12.4</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>13.&gt;5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mean no of days between last and current ERCP, n(range)</strong></td>
<td>113 (4–963)</td>
<td>164 (9–1325)</td>
<td>58 (34–82)</td>
</tr>
</tbody>
</table>

n=number of patients

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**PTH-037** HIGH STENT MIGRATION RATES DESPITE ANCHORING: A BOURNEMOUTH EXPERIENCE IN BILIARY SELF-EXPANDABLE METAL STENTS

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**Introduction** Endoscopic biliary drainage is effective in 90 percent of all attempted cases of biliary strictures and 80 percent of malignant biliary strictures. It carries lower morbidity compared to surgical and radiological approaches. Our aim is to review our practice of biliary self-expandable metal stents (SEMs) insertion in a high endoscopy volume district general hospital looking into stent related complications and benign biliary stricture remodelling.

**Methods** 185 endoscopic retrograde cholangiopancreatography (ERCP) with biliary SEMs insertion were performed in 166 patients at the Royal Bournemouth Hospital between January 2010 and November 2016. We retrospectively reviewed the indications of biliary SEMs insertion, early and late stent related complications. Early complication is defined as adverse events and stent occlusion or migration within the first 7 days of stent deployment.

**Results** Out of 185 ERCPs, 153 were done in 142 patients with malignant strictures, 27 done in 19 patients with benign strictures and 5 done for 5 patients with indeterminate strictures. 122 uncovered SEMs (UCSEMs) were inserted in malignant strictures whereas 30, 22 and 4 fully covered SEMs (FCSEMs) inserted in malignant, benign and indeterminate strictures respectively. Early complications from SEMs insertion include biliary infection (3.24%), pancreatitis (1.08%), bleeding (1.08%), perforation (0.54%), and failure of initial ERCP requiring repeat procedure (1.08%) across all biliary strictures. Rate of stent dysfunction in UCSEMs, FCSEMs and combined plastic and FCSEMs were 17.1%, 37.5% and 33.3% respectively. 12 out of 17 patients had benign strictures remodelled, with mean time from index ERCP to remodelling being 50.5 months (range 21.1–137.8 months). Benign stricture remodelling rate were 100% (4/4) in stone disease, 100% (1/1) in post-cholecystectomy related stricture and 58.3% (7/12) in chronic pancreatitis.

**Conclusions** Our data appears comparable to larger studies. In our cohort there is a clear contrast in stent dysfunction between FCSEMs and UCSEMs. Biliary sepsis post SEMs insertion seems higher than the published European data and this probably reflects the change in practice in our hospital for advocating against antibiotic prophylaxis. Plastic stent within FCSEMs did not significantly reduce the risk of stent migration.
Abstracts

Abstract PTH037 Table 2  Adverse events

<table>
<thead>
<tr>
<th></th>
<th>Malignant (n=153)</th>
<th>Benign (n=27)</th>
<th>Indeterminate (n=5)</th>
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<tbody>
<tr>
<td>Early</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>14. Biliary infection</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>15. Pancreatitis</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>16. Bleeding</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>17. Perforation</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>18. Repeat ERCP within 7 days</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>19. Others</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Late</td>
<td>25</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>20. Stent occlusion</td>
<td>10</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>21. Stent migration</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>22. Biliary infection but patent stent on ERCP</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</table>

n=number of ERCPs

Abstract PTH037 Table 3  Stent dysfunction in malignant strictures

<table>
<thead>
<tr>
<th></th>
<th>Malignant (n=153)</th>
<th>FCSEMs (n=30)</th>
<th>UCSEMs (n=122)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stent occlusion</td>
<td>5</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Stent migration</td>
<td>8</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

n=number of ERCPs

* plastic stent inserted for anchoring purposes to prevent stent migration

Abstract PTH037 Table 4  Stent dysfunction in benign strictures

<table>
<thead>
<tr>
<th></th>
<th>Benign (n=27)</th>
<th>FCSEMs (n=22)</th>
<th>UCSEMs (n=0)</th>
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</thead>
<tbody>
<tr>
<td>Stent occlusion</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Stent migration</td>
<td>7</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

n=number of ERCPs

* plastic stent inserted for anchoring purposes to prevent stent migration

P-TH-038 MANAGEMENT OF BILIARY COMPLICATIONS FOLLOWING LIVER TRANSPLANTATION: 10 YEARS EXPERIENCE

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Introduction Biliary complications after liver transplantation (LT) are common and some risk factors have been identified. Optimum endoscopic management including use of fully covered self-expanding metal stents (fcSEMS) in patients following LT requires evaluation. We aimed to identify risk factors for biliary complications following LT and present our experience of endoscopic management.

Methods Retrospective analysis of adult LT’s performed at our centre. Patient demographics, donor characteristics, transplantation data (including graft type; donation after brain death (DBD) or cardiac death (DCD)), biliary complications and subsequent management were recorded and the DRI calculated. The cohort consisted of all LT performed between 2007 and 2016. Univariate and multivariable analysis was used to identify risk factors for biliary complications and ascertain factors associated with biliary stricture resolution.

Results A total of 353 (n=322 DBD and n=31 DCD) patients were included of which 80 (22.7%) patients developed biliary complications. DCD patients had a higher prevalence of biliary complications compared to DBD patients (16/31 vs 64/322, OR 4.3, 95% CI 2.0–9.2, p=0.0002). Biliary leak was not significantly different (DCD 9.7% vs DBD 8.1%) but biliary strictures were more common in DCD patients compared to DBD (12/31 vs 36/322, OR 5.0, 95% CI 2.3–11.2, p=0.0001). Biliary strictures were also associated with higher DRI (1.97 vs 1.76, p=0.015). Hepatic artery thrombosis rate was the same in both groups (9.3% vs 7.2%, p=0.74). Multivariable analysis showed that only DCD was independently associated with biliary strictures (adjusted OR 4.6, 1.9–11.2, p=0.0007). 21/80 with biliary complications underwent surgical (n=8), radiological (n=8) or conservative (n=5) management. The remainder underwent ERCP; 42 patients had 116 procedures for strictures. 19 patients had 35 procedures for biliary leak and 12 had 20 procedures for stone disease (some multiple indications). There were no differences in stricture resolution between DCD and DBD (6/10 vs 21/32, p=ns). Per stent analysis showed higher stricture resolution rates following fcSEMS insertion compared to plastic stents (18/20 (90%) vs 17/69 (24.6%) respectively, p<0.0001).

Conclusion Biliary complications are associated with DCD livers. Endoscopic management of biliary complications leads to high resolution rates but patients undergo a high volume of procedures for strictures. fcSEMS had a higher stricture resolution rate compared to plastic stents.

PTH-039 ENDOSCOPIC MUCOSAL RESECTION OF DUODENAL ADENOMAS: SUCCESS, COMPLICATIONS, RECURRENCE, SURGERY-FREE OUTCOMES IN A UK TERTIARY-CENTRE


10.1136/gutjnl-2018-BSGAbstracts.57

Background Duodenal adenomas consist of sporadic and familial adenomatous polyposis (FAP) associated adenomas. Endoscopic mucosal resection (EMR) is the recognised technique when considering endoscopic removal of these lesions, but outcomes from large studies are lacking. Leeds Teaching Hospitals (LTHT) is a large tertiary centre that has a local catchment area of more than 800000 people, and to our knowledge this is the largest UK cohort assessing duodenal EMR outcomes.

Methods Retrospective data collection was performed of all patients who underwent duodenal EMR over a 17 year period at LTHT. We collected data on patient demographics, lesion characteristics and outcomes including significant complications, recurrence and surgery-free survival. Procedures were performed by a single advanced therapeutic endoscopist or an endoscopy fellow under supervision.

Results A total of 98 patients underwent EMR (sporadic n=23, FAP n=75). Median adenoma size was 12.5 mm (IQR 9.0–30.0 mm), with 46.9% removed en-bloc. Standard EMR was performed in 87 procedures, and ‘pull-within snare’ technique in the remaining 11 procedures. Final lesion histology was TA/TVA with LGD (n=80), TA/TVA with HGD (n=12), intra-mucosal cancer (n=3) and in 3 cases data was missing.
Patients with FAP were significantly younger with a median age of 49 years (p<0.001).

The overall complication rate was 12.4%. One (1.0%) patient had an intra-procedural bleed which could not be managed endoscopically, delayed bleeding occurred in 6 cases (6.2%) and perforation occurred in 5 cases (5.2%), 3 (3.1%) of which could not be managed endoscopically. Following univariate analysis, ‘pull-within snare’ technique (p=0.03), piecemeal resection (p=0.002), and increasing polyp size (p=0.003) were significantly associated with complications. Adenoma recurrence at first follow up was 25.0%.

Surgery was required in 6 patients (6.2%) within 24 months of their EMR, 4 (4.1%) cases for adenomas>30 mm, 2 (2.0%) cases for 10–29 mm and no cases for adenomas<10 mm.

Conclusion This is the largest cohort in the UK pertaining to duodenal EMR outcomes, with success, recurrence and complications similar to other world leading endoscopy centres. Adverse outcomes are associated with increasing lesion size, piecemeal resection and EMR technique.

Results A total of 11 patients (n=5 female, 58±11 years) were treated with DMR at UCLH from May 2015 – Dec 2017. Mean (±SEM) change in HbA1c at 3 months post DMR was 0.5% (±0.2) for all patients and –0.7% (±0.2 when one patient was excluded for whom gliclazide had to be stopped due to symptomatic hypoglycaemia in the month following DMR. A total of 5/11 patients completed 6 and 12 months of follow up with mean changes in HbA1c of –1.3% and –1.5% respectively. Favourable directional changes were also observed in HOMA-IR and hepatic transaminases. Patients tolerated the procedure well and no SAEs or UADEs were reported. Two of the eleven patients (18%) patients experiencing transient constipation.

Conclusion Based on our centre’s experience, DMR appears to provide a safe and effective method of improving glycaemic control in patients with T2DM. We continue to enrol patients in the REVITA-2 trial and the results of this study will be crucial in determining the effectiveness and durability of DMR.

**P10-040**

**ENDOSCOPIC DUODENAL MUCOSAL RESURFACING IN TYPE 2 DIABETES – A SINGLE CENTRE EXPERIENCE**

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**Introduction** Evidence from bariatric surgical procedures (e.g. Roux-en-Y gastric bypass) suggests that the duodenum plays a crucial role in glycaemic control in patients with Type 2 Diabetes (T2DM). Duodenal mucosal resurfacing (DMR), a novel endoscopic therapy that resurfaces the duodenal mucosa via hydrothermal ablation, exerts an insulin-sensitising effect likely to modification of nutrient-mucosa signalling. DMR involves placing a catheter in the proximal duodenum distal to the papilla under endoscopic and fluoroscopic guidance. The duodenal mucosa is injected with saline to ‘lift’ it and a balloon is inflated with water and heated to 90°C to circumferentially ablate the mucosa for 10 cm. We describe the first series of patient cases from the UK treated with DMR at at University College London Hospitals (UCLH).

**Methods** Cases were derived from two clinical studies: REVITA 1 a single arm, open-label multi-centre in T2DM, and the open-label phase of REVITA-2 an international, multi-centre, randomised, double-blinded, sham controlled study in T2DM. Eligible patients were adults with T2DM and HbA1c of 7.5%–10.0% on ≥1 oral glucose lowering medication. Baseline blood tests were collected and following a 4–6 week run-in period, patient’s were treated with the DMR procedure. Patients received dietary advice were given a specific 2 week post procedure diet. Blood tests were analysed at regular intervals following the procedure to assess changes in HbA1c over time. Hepatic transaminases were also measured and calulations were made for Homeostasis Model Assessment index (HOMA-IR) – a measure of insulin resistance. Information on adverse events was recorded at each visit.

**Results** Of which could not be managed endoscopically. Following uni-variate analysis, ‘pull-within snare’ technique (p=0.03), piecemeal resection (p=0.002), and increasing polypl size (p=0.003) were significantly associated with complications. Adenoma recurrence at first follow up was 25.0%.

Surgery was required in 6 patients (6.2%) within 24 months of their EMR, 4 (4.1%) cases for adenomas>30 mm, 2 (2.0%) cases for 10–29 mm and no cases for adenomas<10 mm.

Conclusion This is the largest cohort in the UK pertaining to duodenal EMR outcomes, with success, recurrence and complications similar to other world leading endoscopy centres. Adverse outcomes are associated with increasing lesion size, piecemeal resection and EMR technique.

**P10-041**

**PROSPECTIVE STUDY OF THE DIAGNOSTIC YIELD FROM 20G FNB NEEDLE IN ROUTINE UPPER GI AND HPB LESIONS**

Nazer Adam*, 1 Eleanor Liu, Sameer Shaktawat, Venkat Mahesh. Blackpool Victoria Hospital, Blackpool, UK

**Introduction** Improvements in the EUS FNA and FNB needle design and optimisation of tissue acquisition techniques have resulted in better diagnostic yield (DY). In addition, recently there has been considerable interest in histological processing of tissue acquired using newer ‘core’ FNA needles. At BSG 2016 we provided preliminary data on DY of tissue acquired using standard FNA needle. We hereby present data on yield of 20G Cook EchoTip Procore™ FNB needle.

**Aim** To compare the diagnostic yield of 20G FNB needle and compare the incremental yield of histological over cytological preparation of tissue acquired.

**Methodology** Prospective non-blinded randomised study All patients undergoing EUS guided FNA/FNB from January 2016 to January 2018, for all upper GI and HPB lesions were included. FNB was performed using Cook Echotip Procore 20GTM needle, Olympus EU-ME2TM processor and linear echoendoscopes was used. All patients had 2 or 4 passes done with the same needle, specimens from each pass were randomly collected in BD Cytorich™ or Formalin. Each preservative had either 1 or 2 passes of material. Only C5 malignancy diagnosis from the primary pathologist or from second expert opinion with MDT acceptance was considered positive for cancer, other non-malignant conditions was considered as positive for statistical purposes only when clear diagnosis was offered by pathologist.

**Results** In total, 147 patients had EUS guided sampling and 111 patients had EUS FNB with 20G FNB needle. 68 M: 43 F. Average age was 66.7 years (±11.3). Of these, 102 had samples both for cytology and histology. Final diagnosis was made in 92 (90.2%) patients. Pancreatic cancer was seen in 52 (51%) patients, cholangiocarcinoma in 7 (6.7%), NET/GIST in 11 (10.8%), Lymphoma in 11 (10.8%), malignant nodes in 6 (5.9%), other cancers (e.g. rhabdomyosarcoma) in 6 (5.9%), benign (e.g. chronic pancreatitis, autoimmune
pancreatitis, paranglioma, reactive nodes etc) in 8 (7.7%), and no diagnosis was made in 10 (9.8%). Histological processing provided answers in 87 (78.3%) patients with combined cytological and histological processing providing diagnosis in the rest of 15 (13.5%) with overall diagnostic yield of 91.9% (102 patients).

Conclusion Our study results show that adequate samples can be obtained for histological processing with Cook Procore™ FNB needles with good cumulative diagnostic yield (92%) and significant diagnostic yield from preferentially processing samples for histological assessment rather than standard cytology, possibly due to better preservation of tissue architecture and cell morphology. Limitations include non-specialist reporting cytopathologist and non-randomised retrospective design.

**Abstracts**

**PTH-042 COLORECTAL STENTING AS A BRIDGE TO SURGERY: A DECADE OF SINGLE CENTRE SUCCESS**

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10.1136/gutjnl-2018-BSGAbstracts.60

**Introduction** Colonic stenting in obstructing left sided colorectal cancer (CRC) using self-expanding metallic stents has been utilised as a conservative management intervention, as well as a bridge to definitive surgery. Despite high reported success rates technically and clinically of stent deployment, as well as improved rates of primary anastomosis, controversy remains about the use of this procedure as a bridge to surgery. We report on a decade of single centre experience.

**Methods** Retrospective analysis of patients requiring urgent colorectal cancer stenting as a bridge to surgery between 2006 and 2017. Primary outcomes measured were clinical and technical success. Secondary outcomes recorded were survival, complications, primary anastomosis and stoma formation.

**Results** 36 patients underwent CRC stenting with the intention of being a bridge to elective surgery, of whom 44% were female. Mean age was 65.7 years. The majority of cases (84%) were undertaken by one of the 3 main operators. At staging, 9 patients (25%) were T3; 17 (47.3%) T4. 25% of patients were ASA 3. Technical success was reported in 89% of cases and clinical success 86%. At elective surgery primary anastomosis was achieved in 61%. 5 reported early complications, including 2 clinical perforations and 2 radiological perforations. Mean survival post stenting procedure was 24 months (range 3–55 months), with death due to metastatic CRC. There were no deaths within 30 days.

**Conclusions** We demonstrate excellent technical success with this treatment modality. By temporising patients using endoscopic stenting, patients are optimised for elective surgery by colorectal surgeons with good primary anastomosis rates, and excellent post procedure mortality.

**PTH-043 ADULT COELIAC DISEASE REMISSION ASSESSMENT: DOES A D1 BIOPSY INCREASE THE DETECTION OF VILLOUS ATROPHY?**

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10.1136/gutjnl-2018-BSGAbstracts.61

**Introduction** The duodenal bulb (D1) has been shown to be a sensitive site for detecting villous atrophy (VA) in newly diagnosed coeliac disease (CD), however there is a scarcity of data from those with established CD. In patients with established CD, we aim to establish whether D1 biopsies improved the identification of VA compared to biopsies from the second part of the duodenum (D2) alone.

**Methods** 251 patients with established CD were prospectively recruited from the endoscopy department at the Royal Hallamshire Hospital between 2013 and 2017. These patients were undergoing repeat gastroscopy to assess dietary adherence. All patients underwent a gastroscopy, with one biopsy taken from the duodenal bulb and four from D2. Biopsies were classified according to Marsh criteria. We assessed concordance of histology between the D1 and D2 sites, and 95% confidence intervals were calculated for all results using a binomial distribution.

**Results** 251 patients were recruited (70.5% female, age range 17–81 years, median age 53 years) having been on a gluten-free diet for a median duration of 6 years. Concordant results: 35.1% (n=88, 95% CI=29.16–40.96) had normal duodenal biopsies in both D1 and D2; 32.3% (n=81, 95% CI=26.49–38.05) had VA in D1 and D2; 18.3% (n=46, 95% CI=13.54–23.11) had raised intra-epithelial lymphocytes (IELs) only in both D1 and D2. Discordant results: 4.4% (n=11, 95% CI=1.85–6.91) had VA in D1 but not D2; 2.4% (n=6, 95% CI=0.50–4.28) had raised IELs in D1 but normal histology in D2. 2.8% (n=7, 95% CI=0.75–4.83) had VA in D2 but normal histology in D1; 4.8% (n=12, 95% CI=2.14–7.42) had IELs in D2 but normal histology in D1.

**Conclusions** VA was confined to the duodenal bulb in 4.4% of patients with established CD. Thus a D1 biopsy in addition to distal duodenal biopsies increases the likelihood of detecting VA, although the significance of isolated VA in the bulb in patients on a gluten-free diet is yet to be determined.

**PTH-044 IMPROVING SAFETY AND REDUCING ERROR IN ENDOSCOPY (ISREE) – A JAG INITIATIVE**

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10.1136/gutjnl-2018-BSGAbstracts.62

**Introduction** JAG is committed to providing universal high quality and safe endoscopy as embedded in the Global Rating Scale. This requires acknowledgement that error is common, may not result in harm or complications, but that addressing latent risk can prevent patient safety incidents. Many errors relate to failures in human factors, ENTS and teamwork, which require training and assessment.

**Medical error is more prevalent in situations of complexity. Though generally safe, endoscopy is a complex task, performed in teams. As population demographics evolve, straightforward pathways become embedded and complex therapeutic options extended; endoscopists need to develop a proactive culture towards safety and learning from error.**

**Aims** JAG aims to develop a work stream to Improve Safety and Reduce Error in Endoscopy (ISREE). A 1 day workshop was designed to develop an implementation plan to achieve this goal.
Abstracts

Methods 35 multi-disciplinary clinicians and a patient with specific expertise in this area were invited to ISREE workshop. Participants were asked to recall as many endoscopy adverse events or errors as possible.

Key presentations highlighted the background to medical error, how to investigate it, development of non-technical skills frameworks (anaesthetics and endoscopy), safe sedation, human factors training and implementation science. A patient recounted her experiences of endoscopy.

Facilitated group sessions focused on 5 key areas – improving training in ENTS and human factors, error prevention, reporting error, learning from error and managing underperformance (endoscopists, teams or units). Wider discussion synthesised a list of feasible actions that JAG could prioritise for staged implementation.

RESULTS Multiple errors were reported by all delegates and recurrent themes were common. Examples related to wrong patient for procedure (n=4), histology mislabelling (n=5), drug errors (n=3) and failure to follow MDT advice (n=1). 23 key priorities were agreed and formulated an implementation strategy for JAG (table 1):

SUMMARY JAG plans to develop a 5 y ISREE Implementation Strategy reflecting the identified priorities to 1) improve endoscopists training in effective error reporting and learning and 2) implement system level approaches to safety and performance improvement. JAG also aims to improve its communication to disseminate learning and support endoscopy services in the UK.

Abstract PTH045 Table 1

<table>
<thead>
<tr>
<th>Frequency of procedures &lt;6 min</th>
<th>5 min</th>
<th>4 min</th>
<th>3 min</th>
<th>2 min</th>
<th>1 min</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total procedures with withdrawal times &lt;6 min</td>
<td>138</td>
<td>10</td>
<td>10</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

Overall average withdrawal times ±SD (minutes) 10.1 ± 7.0

Total procedures performed by gastroenterologists

Procedures <6 min | Procedures <6 min
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<tr>
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<tbody>
<tr>
<td>58.7% (n=82)</td>
<td>41.4% (n=56)</td>
</tr>
</tbody>
</table>

Mean withdrawal time for gastroenterologists ±SD (minutes)

Mean withdrawal time for surgeons ±SD (minutes)

11.7 ± 7.9

8.1 ± 4.9

Range of withdrawal times (minutes) & Range of withdrawal times (minutes)

40 to 2 & 30 to 1

Only 1 procedure performed by a bowel cancer screening colonoscopist was <6 min

Conclusion In 138 colonoscopy procedures performed in a large Trust, 21% did not adhere to the minimal withdrawal time of 6 min as recommended in the best practice guidelines. If this finding were replicated across the UK, a significant amount of pathology may be missed, increasing risks to our patients.

Abstract PTH046

Methods Over a period of two weeks in 2017, endoscopy nurses across the three hospitals recorded withdrawal times from the caecum to the rectum for all colonoscopy procedures. The endoscopists were unaware that withdrawal times were being recorded.

RESULTS 138 colonoscopies were performed. 29 were less than 6 min (21%) (table 1)

Abstract PTH046 Table 1

<table>
<thead>
<tr>
<th>Priority</th>
<th>Safety</th>
<th>Champion</th>
<th>Error</th>
<th>Reporting</th>
<th>Use of endoscopy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>Error</td>
<td>Reporting</td>
<td>Pre and post procedure to identify specific 360-degree tool to capture errors</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Use of endoscopy to optimise use of current IT systems to ensure error reporting e.g. NED</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Optimise use of current ERS to optimise use of endoscopy</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Anæsthetic lead for every endoscopy service</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Error in every unit</td>
</tr>
</tbody>
</table>

Conclusion Small bowel varices (SBV) are a rare consequence of portal hypertension and could lead to life-threatening mid-gut bleeding. Radiological intervention (RI) is usually considered first line management (e.g. Trans-jugular intrahepatic portosystemic shunting (TIPS), stenting of occluded mesenteric
Microscopic colitis (MC) characteristically presents with chronic watery diarrhoea and is diagnosed in 0.1% of TWW patients. MC appears to be a relatively common diagnosis and from our cohort of patients it was mainly seen in elderly females. It should be considered in patients with chronic diarrhoea undergoing colonoscopy for suspected malignancy.

**Methods**
Retrospective review of DBE facilitated cyanoacrylate injection of SBV.

**Results**
Ten DBEs were performed in 6 patients (4 women, median age: 68.5 years). Five patients had previous surgery (hemi-hepatectomy (n=2); SB resection (n=2); appendicitis with peritonitis (n=1)); one patient had a history of intra-abdominal sepsis in childhood causing portal vein thrombosis and one had cryptogenic thrombosis of the portal and the mesenteric vein. No radiological or surgical options were deemed feasible in any case. SBV were diagnosed at capsule endoscopy and triple phase CT mesenteric angiography. At DBE, a total of 13 nests of SBV were identified and injected with cyanoacrylate glue. There were no haemorrhagic or embolic complications but 1 patient developed an infection of a congenital urachal cyst, which was treated successfully with antibiotics. All patients underwent DBEs via the antegrade route, 2 patients required bi-directional DBE for treatment of both proximal and distal SBV and in total 2 patients required a repeat DBE for further treatment of SBV. At 30 day follow-up posttherapy, only 1 patient had experienced a mild recurrence of mid-gut bleeding treated conservatively. One patient presented with acute gastrointestinal bleeding 7 months later and a repeat DBE with cyanoacrylate injection therapy was successfully performed. One patient was lost to follow-up. The remaining patients had 12 months of follow-up without any recurrent gastrointestinal bleeding.

**Conclusion**
Cyanoacrylate injection therapy of SBV at DBE appears to be a safe and effective management strategy for this condition when other first-line options are not feasible.

**Introduction**
Chronic diarrhoea is an indication for referral on the Colorectal two week wait (TWW) pathway for suspected malignancy. Microscopic colitis (MC) characteristically presents with chronic watery diarrhoea. The frequency of MC diagnosed in TWW patients has not been systematically evaluated, but from available literature it is diagnosed in 0.1%–2.8% of patients. We sought to define the incidence of MC in our cohort of patients who underwent colonoscopy for chronic diarrhoea on TWW pathway.

**Methods**
All colonoscopies performed in a single NHS District General Hospital over a 4 year period (1/1/12 – 31/12/15) under the TWW pathway with one of the indications for investigation listed as chronic diarrhoea were identified from the electronic endoscopy database. Information on patient demographics, endoscopy reports and histological diagnoses were collected. For patients with histology definitive or suspicious for MC, the slides were re-reviewed by a single Histopathology Consultant with an interest in gastrointestinal disease. Further clinical information from case notes was obtained for definitive cases of MC.

**Results**
Colonooscopy was performed in 533 patients in this time period, with a median age of 62 years, 55.2% were female. Out of these, 91.2% had colonic biopsies taken, and 84.2% had colonic biopsies from macroscopically normal mucosa, to exclude the diagnosis of MC. 21 patients (3.9% of all patients) were diagnosed with MC (6 with collagenous colitis, 15 with lymphocytic colitis). This subgroup had a median age of 76 years, 76.2% were female. 48% were on proton pump inhibitors, 19% had a diagnosis of hypothyroidism, 10% had a known malignancy (non colorectal).

**Conclusions**
In our experience, random colonic biopsies were taken in the majority of patients referred on the TWW pathway with chronic diarrhoea in order to assess for MC. MC is a relatively common diagnosis and from our cohort of patients it was mainly seen in elderly females. MC should be considered in patients with chronic diarrhoea undergoing colonoscopy for suspected malignancy.

**Introduction**
Indeterminate biliary strictures (BS) may be identified in symptomatic patients or incidentally on imaging. Patients need investigation to exclude cholangiocarcinoma or other significant pathology. The first line investigation is with Magnetic Resonance Cholangio-Pancreatography (MRCP) however this is not always diagnostic. Such cases are all reviewed through our tertiary Multi-disciplinary team (MDT) meeting for further evaluation. Diagnostic Endoscopic Retrograde Cholangio-Pancreatography (ERCP) is often used to further investigate these abnormalities but carries a risk of complications.

**Methods**
A retrospective analysis was performed of patients reviewed through our regional HPB MDT from October 2014 to December 2016. Patients with indeterminate BS with no mass lesion were identified from our MDT database. Following MDT discussion, all patients were investigated with ERCP ±cholangioscopy (POC). Liver Function Tests (LFTs) and details of suspected BS were obtained from the medical records. Diagnoses were obtained from the endoscopy database and histopathology reports, where applicable.

**Results**
66 patients were identified with a mean age of 63.7 (SD 14.5). 47% were male. 82% of patients had abnormal LFTs, 35% had jaundice and 61% had upstream dilatation on radiological imaging. 31 (47%) required POC in addition to ERCP. 85% of patients (n=56) had an abnormal diagnosis. 8 (12.1%) had malignancy, 13 (19.7%) PSC or other cholangiopathy and 10 (15.2%) stone disease. In our centre, complications associated with these ERCPs were low: pancreatitis: 1 (1.6%); cholangitis: 1 (1.6%); bleeding: 1 (1.6%). There were 2 delayed bleeds (peptic ulcer and varicelal). Upstream dilatation was shown to be a predictor of abnormal diagnosis on both univariate (p=0.004) and multivariate analysis (p=0.01)
with a sensitivity of 72.5%, specificity of 72.7%, positive predictive value of 92.5% and negative predictive value of 36.4%.

Conclusions Of those with suspected BS on imaging, 85% had pathology demonstrated on direct cholangiography ± POC. 15.2% of those reviewed through a tertiary HPB MDT had stone disease evident at ERCP that was not diagnosed on review of MRCP and other imaging modalities. Diagnostic ERCP in appropriate centres still has a role to play in the evaluation of indeterminate biliary strictures following specialist MDT review when non-invasive imaging is inconclusive.

REFERENCES

**PTH-049** CLINICAL OUTCOMES OF ENDOscopic SUBMUCOSAL DISSECTION FOR COLORECTAL NEOPLASMS: A SINGLE UK REFERRAL CENTRE EXPERIENCE

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10.1136/gutjnl-2018-BSGAbstracts.67

Introduction There is limited experience of endoscopic submucosal dissection (ESD) for resection of colorectal lesions in the West and outcome data tends to be worse than that reported from Japanese centres. We report the outcomes of ESD in a single, tertiary UK referral centre.

Methods A prospective database was analysed including 165 consecutive patients (mean age: 64.6 ± 12.6 years, 62.4% males) with 173 colorectal neoplasms resected by ESD between 3/2012 and 12/2017. Two experienced colonoscopists performed all procedures.

Results The median (IQR) lesion size was 3.5 cm (2–5), and 140 (80.9%) were located in the rectum. Overall, 49.7% were granular-type laterally spreading tumours (LST), 19.7% were non-granular LST, and 30.6% were polyloid lesions. In 29 (16.7%) cases a flexible endosurgical platform was used to assist ESD of complex rectal polyps [median(IQR) size: 6 cm (5–8)] by dynamic trans-anal retraction (Trans-Anal Submucosal Endoscopic Resection; TASER). Histology showed low-grade adenoma/dysplasia in 83 (47.9%), high-grade adenoma/dysplasia in 52 (30%), T1 cancer (<1000 μm) in 17 (9.8%), and T1 cancer (>1000 μm) in 17 (9.8%) lesions. The en bloc, histological complete and curative (R0) resection rates were 97.7%, 80.3% and 76.3% respectively. Three (1.7%) cases of delayed bleeding occurred, with one case requiring transfusion. Perforation occurred in 2 (1.2%) cases: one was recognised and treated intraoperatively with endoclips; the other one was followed up and managed conservatively. Sixty (34.7%) patients were electively admitted to hospital post procedure, for a median duration of 1 day (range 1–5). Twenty patients (12.1%), at risk of lymph node metastasis, underwent additional radical surgery. Eighty-nine (51.4%) ESD cases had endoscopic follow-up data over a median duration of 12 months (range 3.4–51.3). The local recurrence rate was 4/89 (4.5%); all recurrent cases were managed endoscopically. The recurrence rate was lower in cases with en bloc compared with piecemeal resection (3.4% vs 50%, p=0.08), histological complete compared with histologic incomplete resection (2.5% vs 22.2%, p=0.05), and R0 compared with non-R0 resection (2.5% vs 20%, p=0.06). After a median follow up of 14.6 months (range: 3–55.8), the overall and disease-specific survival in the study population was 98.8% and 100%, respectively.

Conclusions The current study demonstrates favourable clinical outcomes of selected colorectal ESD in a Western endoscopy setting. Further studies addressing the cost-effectiveness of ESD and comparing its long-term outcome with endoscopic mucosal resection in the West are needed.

**PTH-050** RADIOFREQUENCY ABLATION AND ARGON PLASMA COAGULATION ENDOSCOPIC TREATMENT FOR SYMPTOMATIC RADIATION PROCTITIS TO IMPROVE ANAEMIA

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10.1136/gutjnl-2018-BSGAbstracts.68

Introduction Radiation proctitis is a late effect of pelvic radiotherapy – which is commonly used to treat prostate cancer and female pelvic malignancy – and causes rectal bleeding, anaemia, diarrhoea and incontinence. Rectal bleeding post radiotherapy causes worry about bowel cancer and symptoms can force patients to become house bound with increased anxiety. Topical therapy with formaldehyde and argon plasma coagulation (APC) is time consuming and formaldehyde can damage healthy tissue (Andreyev HJN et al 2015). Radiofrequency ablation (RFA) can be used to treat large areas of neo-vascularisation (Zhou et. al. 2009). We treated a large cohort with symptomatic rectal bleeding to evaluate if ablative endotherapy is effective in treating anaemia in radiation induced proctitis.

Methods A retrospective review of 37 consecutive male patients treated for rectal bleeding from radiation proctitis were identified; their haemoglobin before and after therapy was used. Those who were anaemic (Hb <130 g/dL) were further analysed to see if haemoglobin improved after endotherapy.

Endoscopic therapy was delivered with either APC (ERBE) or RFA (HALO, Medtronic). Large areas were treated with RFA and smaller areas with APC. APC probes are much more expensive than APC probes. Endoscopic therapy was repeated on an outpatient basis at 3–4 monthly intervals until all vessels were ablated or the patient was asymptomatic.

Results Small areas were treated with APC, RFA was used for APC treatment failure, heavy bleeding requiring transfusion iron therapy, or intolerable bleeding.

37 patient’s results showed an average increase in haemoglobin by 20.9 g/dL, a rise of 17.58%. Sub-group analysis looked at who were anaemic before the start of therapy and after treatment (Hb <130 g/dL), mean follow up was 8.97 ± 1.5 months (range 1–38).

No side effects were noted. No clinically significant strictureing was experienced.
Discussion Endoscopic ablative therapy increases haemoglobin in patients with radiotherapy induced neovascularisation. Improvement is most marked in those who are anaemic with a 30% increase in haemoglobin. Reversing anaemia removes the need for ongoing iron therapy or blood transfusions, as well as increasing patient’s wellbeing. Reducing or stopping bleeding as evidenced with a sustained reversal of anaemia, will increase quality of life.

We have used a pragmatic approach of combining RFA and APC to maximise treatment area and limiting therapy costs. There were no long term complications, although patients may experience a slight increase in bleeding in the initial 24–48 hours post-therapy. Treatment seems to be enduring with the reversal of anaemia being maintained for a mean of 8.97 months and up to 38 months.

Abstract PTH-050 Table 1

<table>
<thead>
<tr>
<th>Overall Mean Hb (n=37) (g/dL)</th>
<th>Anaemic Mean Hb (n=23) (g/dL)</th>
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<tr>
<td>Mean Prior Hbs S.E.M.</td>
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<tr>
<td>Mean End Hbs S.E.M.</td>
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<tr>
<td>Differences S.E.M.</td>
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<tr>
<td>P Value</td>
<td>&lt;0.0001</td>
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<tr>
<td>% Rise</td>
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Introduction Cholecystectomy, the definitive treatment for symptomatic gallbladder disease, is precluded in many patients by a high operative risk. Endoscopic transpapillary gallbladder stenting (ETGS), first reported in 1990, is described as an effective treatment for cholecystitis and symptomatic choledocholithiasis in patients who are not candidates for surgery. The technical success of ETGS is largely limited by the ability to pass a guidewire through the cystic duct (76%–90%). Despite adoption internationally ETGS has not been used widely in the UK.

Method Prospective case series of ETGS at a single centre. All patients were referred for ETGS by an Upper GI surgeon. First ETGS inserted November 2015. Thereafter, 2 of the 13 (15%) of patients with ETGS continued to experience gallstone related complications. We have used a pragmatic approach of combining RFA and APC to maximise treatment area and limiting therapy costs. There were no long term complications, although patients may experience a slight increase in bleeding in the initial 24–48 hours post-therapy. Treatment seems to be enduring with the reversal of anaemia being maintained for a mean of 8.97 months and up to 38 months.

Conclusions Hitherto, this is the largest prospective UK case series of ETGS for patients with symptomatic gallbladder disease in whom cholecystectomy is precluded. Whereas procedure related complications were not noted in our case series, 2 patients continued to experience gallstone related complications. Given the recent introduction of endoscopic ultrasound-guided transmural gallbladder drainage, we recommend further studies to compare the use of these 2 endoscopic modalities in this group of patients.

REFERENCES

Abstract PTH-051 Table 1

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<th>Liver cirrhosis</th>
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ASA Grade

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Mean duration

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Guidewire

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Conclusion Biliary anastomotic strictures (AS) occur in 5%–15% of liver transplant (LT) recipients and cause graft dysfunction and morbidity. The main alternative to surgical reconstruction is stenting at endoscopic retrograde cholangiopancreatography (ERCP), using plastic polyethylene or fully-covered self-expanding metal stents (fcSEMS). We retrospectively reviewed outcomes after ERCP for biliary AS, aiming to assess rates of success and complications.

Methods Records for all patients undergoing ERCP post LT between 2013–16 were reviewed. AS were classified as early or late (<3 or ≥3 mths post LT) and cases of diffuse cholangiopathy excluded. Data collected included graft characteristics, timing/nature of ERCPs and complications. Stricture resolution was determined from graft function, imaging and ERCP findings.

Results In total 252 ERCPs were performed (median 4/patient, range 2–10) in 62 patients, 72.6% male, age at LT 54 years.
(range 20–71). 48 grafts (77.4%) were donations after brain death, 13 (21.0%) after cardiac death and 1 live donor. At first endoscopy 53 (85.4%) had a native papilla. Median time from LT was 28 days (4–75) in early AS (n=29, 46.7%), 9 presenting with bile leak) vs 11.5 mths (3.4–251) in late AS (n=33, 53.2%). Biliary stents were placed in 172 ERCPs (63.4% plastic vs 36.6% fcSEMS) and AS dilated in 68 (27.0%; 60 in conjunction with stenting).

Stricture resolution was achieved endoscopically in 47/55 patients with complete outcome data (85.5%). Plastic stents were placed at index ERCP in 23/26 of early AS, in whom sequential plastic ‘upstenting’ was ultimately successful in 9 (39.1%) and 12 (52.2%) proceeded to fcSEMS (stricture remodelled in all). Of late AS, 9/29 were managed with fcSEMS (88.8% successfully), 8 plastic ‘upstenting’ (75% success), 8 fcSEMS after initial plastic stent (all successful) and 2 resolved with dilatation only.

The overall rate of post-ERCP pancreatitis (PEP) was 7.1% (none severe by Cotton criteria) and was higher after fcSEMS (15.9%) than plastic stenting (5.5%, p=0.024), despite similar use of NSAID prophylaxis. Compared with plastic stents, fcSEMS were more likely to migrate (36.5% vs 12.8%, p<0.001) and embed (6.3% vs 0%, p=0.008) but stent occlusion was numerically lower (0% vs 4.6%, p=0.084). Of 8 endoscopic failures (14.5%), 3 (5.5%) required percutaneous stenting and 2 (3.6%) biliary reconstruction, one after duodenal perforation by a migrated plastic stent.

Conclusions Endoscopic management is effective in treating 85% of biliary AS. fcSEMS appear superior to sequential plastic stenting and 2 (3.6%) biliary reconstruction, one after duodenal perforation by a migrated plastic stent.

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The number of scopes reported to have food present were looked at for each indication for endoscopy and the results were as follows: abnormal investigations (3.8%), vomiting (2.4%), reassessment (1.9%), GI bleed (1.5%), dysphagia (1.5%), dyspepsia (1.3%), anaemia (1.0%), weight loss (0.7%), tumour (0%), stent removal (0%).

53 (44.9%) of patients reported to have food present were re-scoped: 5 (9.4%) as emergencies and 48 (90.6%) as elective scopes. Of the elective re-scopes, 44 (91.7%) were reported to have no food present and 4 (8.3%) had food reported for a second time. Of the successful re-scopes 3 (6.8%) were given a different time slot, 21 (47.7%) were given further patient education in regards to starvation advice and 7 (15.9%) received both a different time slot and patient education.

Conclusions From this service evaluation the following Conclusions can be drawn: evening scopes were noted to have a higher rate of presence of food, age did not influence presence; indications can be drawn: evening scopes were noted to have a higher rate of presence of food, age did not influence presence.

**Conclusions**

This large real-world data review highlights complication rates of SEMS in a heterogeneous population with multiple operators over 7 years of both emergency and planned procedures for malignant colonic strictures. Colonic SEMS is aand relatively safe therapeutic option for the palliative management of colonic malignancy with obstruction.
Abstracts

be impractical. More studies with larger numbers are needed to add to the evidence base.

Abstract PTH056 Table 1

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<th>Diagnosis</th>
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<tr>
<td>Duodenal ulcer</td>
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<td>Oesophageal/gastric ulcer</td>
<td>4 (9%)</td>
</tr>
<tr>
<td>Malignancy related</td>
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<tr>
<td>Iatrogenic bleeding</td>
<td>7 (15%)</td>
</tr>
<tr>
<td>Other including unclear cause of bleed</td>
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Introduction Buried Bumper Syndrome (BBS) is an uncommon, yet potentially serious complication of percutaneous gastrostomy tube (PEG) placement with a quoted incidence of 1%. Usually identified during routine nursing assessment, release of a buried bumper can be achieved via external manipulation, endoscopically or via surgery.

Aim Review the frequency and success of endoscopic treatment of BBS.

Methods At Basildon University Hospital a 4-level stepwise approach was adopted for management of Buried Bumper Syndrome, with each level representing an escalation of therapy.

• 29. Level 1– Release achieved by external manipulations by a nurse or radiologist.
• 30. Level 2– Endoscopic if the internal bumper can be seen through a relatively wide tract it may be pulled through by graspers or snare.
• 31. Level 3– Sometime the tract is narrow and may require quadrantic incisions (3a) or subsequent balloon dilations (3b) before release.
• 32. Level 4– Cannot be endoscopically released and require surgery.

Retrospective review of endoscopy records held on Unisoft from August 2009 to Jan 2018 by a bespoke Access query. Endoscopy and clinical records were reviewed of the identified patients. By definition no Level 1 cases would be identified.

Results 27 incidences of BBS requiring 30 endoscopic procedures in 18 patients were identified. 4 (22%) patients had repeated distinct episodes of BBS (2–5). 18 episodes of BBS were successful resolved endoscopically (67%). Interventions were 4x Level 2, 9x level 3a, 5x Level 3b.

Endoscopic treatment of 9 episodes of BBS were unsuccessful (Level 4). 4/9 patients had a surgical removal, though one precipitated a 2 month admission complicated by an ITU stay. The other 5 patients were deemed unfit, though one patient continued to suffer from septic episodes related to the bumper.

The PEG insertion date was unknown many patients (e.g out of area, pre-2009) but for 12 patients the time from insertion to attempted release of BBS was known. 2 episodes<12 months, 3 occurred at 12 months, 3 at 21–25 months, 4 at 31–33 months. The only short (2 months) interval was in a patient with previous PEG.

Conclusion This is a relatively infrequent endoscopic dilemma with only 27 instances over a 8.5 year study period. However with rare scenarios the referral pathway can be unclear. Only one endoscopist managed Level 3 releases and by default they became the routine destination for Nutrition team referrals. This allowed a 66% success rate but disappointingly 22% of the patients had recurrent episodes. Recommendations 1) Education of the institutions caring for these patients. 2) Single endoscopists to develop expertise in each centre 3) If successful, attempt to site a new PEG in a second area despite the difficulty.

Abstract PTH-057

ENDOSCOPIC MANAGEMENT OF BURIED BUMPER SYNDROME

Angad Singh, Andrea Cartwright, Rizwan Kassam, Javaid Subhani. Basildon University Hospital, Basildon, UK

10.1136/gutjnl-2018-BSGAbstracts.75

**Abstract PTH-058**

SMART COLONOSCOPY: USING BIG-DATA TO IDENTIFY PREDICTORS OF NORMAL COLONOSCOPIC EXAMINATIONS

Matt Stammers, Sreedhari Thalasekaran, Pradeep Bhandari. Queen Alexandra Hospital, Portsmouth, UK

10.1136/gutjnl-2018-BSGAbstracts.76

**Introduction** Endoscopy workload is increasing at a faster pace than available resources. The NHS has a wealth of data, which if used properly can improve resource allocation in future.

The aim of this study was to review mass colonoscopy data to identify those factors most associated with a normal examination, in order to help rationalise future resource utilisation.

**Methods** We constructed a standardised, anonymised database, containing all colonoscopies performed locally between 01/01/2010 and 10/12/2016. The records were then histology matched.

The data was then analysed using the AnacondaTM 3 distribution of Python, using numpy, pandas, matplotlib and seaborn to clean and prepare, plot and perform statistical analysis on the data.

**Results** 23 837 colonoscopies were performed on 18 489 individual adults during the study period.

544 procedures had to be excluded as they lacked an NHS number and couldn’t be histology matched. 23 293 procedures remained.

50.4% of the procedures were performed on females. The median age was 64. Across all the procedures, 25.46% were performed on females. The median age was 64. Across all the procedures, 25.46% were reported as entirely normal by the endoscopist. 3.04% of procedures contained a histologically confirmed cancer.
Common ile uct (CBD) stones 10%–20% of patients with gallstone disease. Endoscopic retrograde cholangio-pancreatography (ERCP) was used to select results from HospitalEpisode Statistics (HES) data for the years 2013/14 – 2016/17. Episodes were excluded where there were episodes with one or more of these codes for the previous 2 financial years to censor patients already on a CBD pathway.

Results There were 1 40 890 patients identified, of which 91 178 (64.72%) were female Mean age at first admission was 70. Of the 1 40 890 individual patients, 1 02 072 (72%) had an emergency first admission. The incidence of cases in each year was 33,537, 35,053, 33,621 and 36,659 respectively, were performed on 48,306 patients in this cohort over the study period Of the 48,306 individuals who had an ERCP, 39,192 (65%) had only one procedure, 7,105 (1%) had two procedures and 2009 (%) had three or more.

For the identified CBD cohort 60 793 holecystectomies were performed over the study period with 17 063 patients having had both an ERCP and holecystectomy.

Abstracts

**PTH-059** ANALYSIS OF 140,000 PATIENTS WITH BILE DUCT STONES PRESENTING TO ENGLISH ACUTE TRUSTS, 2013–2016

1Maxime Delvlecourt, 2Jodi Carter, 3Keith Badger, 4George Webster, 5Richard Sturgess.
2Aintree University Hospital NHS Trust, Liverpool, UK; 3Methods Analytics, London, UK; 4University College London Hospital Trust, London, UK

10.1136/gutjnl-2018-BSGAbstracts.77

**Introduction** Oesophagogastroduodenoscopy (OGD) is the accepted gold standard investigation for upper GI symptoms although quality has rarely been assessed. In this study, quality of OGD and the effects of sedation, procedural tolerance and duration of examination were investigated.

**Methods** Consecutive out-patients undergoing OGD were recruited. Patients scored (none-severe: 0–10) procedural distress, abdominal discomfort (AD) and pain (AP). Video recordings of the OGDs were reviewed, scoring the views (score 1–5: <25%, 25%–50%, 50%–75%, >75% and 100% of mucosa seen) of eight upper GI stations and time spent in retroflexion and in the duodenum. Scores and times are reported as mean (SEM).

**Results** OGD was performed on forty patients (58% female; 62.5% male, 25% sedated) by one of three endoscopists. There was a significant difference between visualisation scores (oesophagus, 4.5 (No entry); stomach, 4.1 (No entry); fundus, 3.7 (No entry); upper body, 3.8 (No entry); distal body, 4.1 (No entry); incisura, 4.0 (No entry) and antrum, 4.9 (No entry). Kruskal-Wallis H Test: H(7) = 60.2; p<0.001). Post-hoc analysis shows that the antrum was better visualised compared to all other gastric stations (p<0.001). When composite scores of fundus, antrum and upper body are compared to the distal body, incisura and antrum, views in the distal half of the stomach are significantly better visualised (No entry = 520, p=0.006). Procedural distress, AD and AP were 4.9 (No entry), 2.8 (No entry) and 1.3 (No entry) respectively; none correlated with views in any station apart from those with more procedural AD who had poorer views of the distal gastric body (r=-0.36 p=0.017). Sedation had no effect on distress, discomfort or views of any station. Procedure time was 5 m 41 s (No entry) with 55 s (No entry) spent in retroflexion and 58 s (No entry) in the duodenum, none of which correlated with any visualisation scores. Time spent in the duodenum correlated with increasing procedural AP (r=0.415, p=0.009). Patients (25%) who said they would decline repeat OGD reported significantly greater AP (3.0 (No entry) vs 0.7 (No entry), p=0.03) and procedural distress (7.7 (No entry) vs 4.0 (No entry), p=0.06), but their visualisation scores, procedural times or use of sedation did not differ from those who would have a repeat test.

**Conclusion** Visualisation at OGD is variable, with excellent antral but comparatively poorer proximal gastric and incisura views. OGD is the cause of significant distress to patients, rather than discomfort or pain, although duodenal examination may be painful in some. There was little correlation of quality of views with sedation, tolerance or duration of examination.
Abstracts

**PTH-061** MISSED OESOPHAGOgastric CANcer CORRELATES WITH HIGHER LIST INTENSITY BUT NOT RATES OF SEDATION
David FW Tai, Andrew Hopper, Mark McAlindon. Sheffield Teaching Hospitals NHS Trust, Sheffield, UK

Introduction Oesophagogastric (OG) cancers diagnosed within three years of an unremarkable oesophagogastroduodenoscopy (OGD) can be considered a failure to earlier diagnose the OG cancer, or post-OGD upper GI cancer (POUGIC). Retrospective studies suggest that they comprise up to 11% of OG cancer diagnosis [Menon, Endosc Int Open 2014] and auditing rates of POUGIC is a recent quality standard for endoscopy units [Beg, Gut 2017]. We examined whether patient sedation or procedural burden affects the rate of POUGIC.

Methods Cases of OG cancer diagnosed at OGD between Jan 2013 and Dec 2016 at Sheffield Teaching Hospitals were identified from our upper GI cancer database. OGD performed up to three years prior to diagnostic OGD were reviewed to identify cases of POUGIC. Rates of sedation and number of procedural points (one for OGD; two for colonoscopy; plus one for therapeutics) on lists were compared in three groups: a) the index procedures, b) the diagnostic procedures and c) age, sex and endoscopist matched patient control procedures in which focal (mucosal or vascular) lesions (FL) were identified. FL were approximated in size and location (oesophageal or gastric) as a surrogate for an early neoplastic lesion.

Results A total of 553 patients (64.2% male, mean age 72 No entity; 1, 50.4% gastric) were diagnosed with OG cancer. Forty (7.2%, mean age 74 No entity; 2, 55% male, 55% gastric,) patients had 47 non-diagnostic procedures up to three years prior to diagnosis. Mean time from index to diagnostic OGD was 486 No entity; 55 days. In 42.5% OGD was performed within one year of diagnosis. There was no difference in the age, gender and rates of sedation (25 vs 28.5%) between patients at index and diagnostic procedures. At index OGD the sedation rates were higher (44.7 vs 26.3% p=0.049) than at diagnostic OGD but there was a greater number of procedural points on the list (7.9 vs 9.3 p=0.007). Control patients (n=38, mean age 72 No entity; 2, p=0.64 compared to POUGIC patients) with FL had OGD done a median of 33 days (~357 to 728 days) from the index OGD. No suitable controls were identified in 2 patients. There was no difference in the sedation rates (25.0 vs 26.3% p=0.89) but there was a trend towards a higher number of procedural points (9.3 vs 8.7 p=0.057) between the index OGD for POUGIC patients and their controls.

Conclusions The local POUGIC rate is 7.2%. No differences in sedation rate between index, diagnostic or control procedures with representative FL suggest use of sedation may not help detection of early neoplastic lesions. However, endoscopy lists with OGDs which miss OG cancer seem to have a heavier burden than ones that diagnosed cancer and other FL suggesting that reduced list intensity may reduce the likelihood of missed pathology.

**PTH-062** CLINIC BASED OUTPATIENT TRANSNASAL ENDOSCOPY: IMPLEMENTATION AND EVALUATION OF AN INNOVATIVE ENDOSCOPY SERVICE

1Nilanjan Tewari*, 1Adolfo Parra-Blanco, 1Samad Sami, 1Shiv Budihal, 1Nina Lewis, 1James Catton, 1Kish Ragurath. Nottingham University Hospitals NHS Trust, Nottingham, UK; 2Nottingham Digestive Diseases BRI, Nottingham, UK

Introduction There is increasing evidence that Transnasal endoscopy (TNE), performed with an ultrathin HD scope, is well tolerated with minimal cardiorespiratory stress and better patient experience than standard endoscopy. We report preliminary results from a new outpatient TNE service developed in a university teaching hospital which is a tertiary referral centre for gastroenterology and upper gastrointestinal surgery.

Methods After local governance approvals, TNE was introduced and performed by 5 experienced endoscopists. All procedures were performed in an outpatient clinic adjacent to the endoscopy recovery area over a 6 month period. Patients were assessed as suitable for TNE based on local guidelines and if agreeable, underwent TNE using Pentax EPK-i7000 HD video endoscopy processor and EG16-K10 Transnasal endoscope (outer diameter 5.4 mm, 2.0 mm instrument channel) under topical anaesthetic plus anti-cangestant applied to nostril. An antifoam/mucolytic drink was given 15 min prior to procedure. If the nose could not be intubated, the patient was offered the procedure using the narrow endoscope trans-orally. Preliminary data was collected in a pilot study in which patients were asked to complete a visual analogue score (VAS) and questionnaire. Data on all patients undergoing TNE was collected prospectively and retrospectively analysed from the hospital computer records.

Results Since its introduction, 113 patients have been assessed as suitable for TNE. 67 females and 46 males (median age 62, IQR 52.5–70 years) underwent TNE. The first 17 patients were part of the pilot study. Of 96 subsequent patients, 66 were direct to test referrals on the cancer pathway, 10 other referrals on the cancer pathway, 13 routine, 3 planned surveillance, 1 urgent and 3 urgent inpatients. The most common indications were dysphagia (55 patients) and dyspepsia (36 patients). Endoscopy was completed trans-nasally in 92 patients (81.4%), trans-orally in 16 patients (14.1%) and failed in 5 patients (4.4%). Reasons for performing trans-orally were narrow nasal passages in 7 patients, 2 patients on warfarin with high INR, 2 patient choice and 7 didn’t tolerate scope in nose. Duodenal intubation was successful in 107/113 (94.7%). There were no abnormal findings in 57 patients, inflammation was seen in 36 patients and 8 cancers of the oesophagus/oesophago-gastric junction were found. Biopsies were taken in 63 procedures and all were adequate for histology. Procedures were tolerated well with no immediate complications. Median (range) VAS was 9 (5–10) and of those who had previous OGD, 71% expressed a preference for TNE and 29% preferred neither.

Conclusions TNE delivered in an outpatient clinic setting with immediate access to endoscopy unit is a safe and effective method of investigating upper gastrointestinal tract symptoms. This innovative service delivery has the potential to reduce traditional diagnostic gastroscopy and increase capacity.
**PTH-063 ENDOSCOPIC RESECTION OF DYSPLASTIC LESIONS IN COLITIS**


**Introduction** Cumulative colon cancer risk is estimated at 2%–18% depending on duration of colitis. Management of flat neoplasia in colitis remains controversial. BSG guidelines recommend colectomy if complete endoscopic resection isn’t guaranteed. Aim of this study was to assess need for surgery in the management of flat neoplasia in colitis.

**Methods** A multicentre cohort study of all flat neoplasia endoscopically resected in colitis in 5 tertiary European centres from 2008–2017.

**Results** 101 flat neoplasia were resected in 85 patients at 5 European centres. Mean age 61 years (range 28–82). Mean size of lesions 34 mm (range 8–120 mm).

| Lesion Location | KAR Colon (26) KAR Rectum (13) EMR Colon (54) EMR Rectum (9) Total (101) |
|-----------------|-----------------------|---------------------|---------------------|-----------------|-----------------|
| Recurrence      | 2 0 5 0 7             |                     |                     |                 |                 |
| Complications   | 5 0 2 0 7             |                     |                     |                 |                 |
| En-bloc         | 14 11 33 5 63         |                     |                     |                 |                 |

| Fibrosis        | KAR Fibrosis (26) KAR No Fibrosis (13) EMR Fibrosis (15) EMR No Fibrosis (47) Total (101) |
|-----------------|-----------------------------------------------|-----------------|-----------------|----------------|
| Recurrence      | 1 1 0 5 7                                  |                 |                 |                 |
| Complications   | 5 0 1 1 7                                  |                 |                 |                 |
| En-bloc         | 15 10 8 30 63                               |                 |                 |                 |

| Lesion Size     | KAR 0–20 mm (26) KAR >20 mm (13) EMR 0–20 mm (54) EMR >20 mm (9) Total (101) |
|-----------------|-----------------------------------------------|-----------------|-----------------|----------------|
| Recurrence      | 0 2 3 2 7                                  |                 |                 |                 |
| Complications   | 0 5 1 1 7                                  |                 |                 |                 |
| En-bloc         | 4 21 37 1 63                                |                 |                 |                 |

40% of the lesions were treated by KAR. There was no difference in lesion location between EMR and KAR. Lesions >20 mm in size were removed more by KAR than EMR. More lesions removed by KAR (26) had fibrosis compared to EMR (15). 7 complications occurred in the cohort; 3 cases of bleeding and 4 perforations. Bleeding was controlled endoscopically. 3 perforations were managed endoscopically and 1 required surgery. 7/86 (8.1%) lesions with follow up data had recurrence. Multi-variate regression analysis concluded:

- 33. EMR leads to higher recurrence rates, irrespective of size, location and fibrosis (p-value of 0.048)
- 34. KAR leads to higher complication rates in the colon as compared to rectum (p-value of 0.045)
- 35. KAR shows a trend towards better en–bloc resection (p-value 0.063)

5 lesions underwent surgery; 3 due to cancer; 1 due to perforation; 1 due to failure of endoscopic resection. Histology: 88 adenoma (low-grade dysplasia), 6 adenoma (high-grade dysplasia), 3 cancers and 4 sessile serrated polyps

**Conclusions** This is the largest reported cohort of endoscopic resection of flat neoplasia in colitis. We demonstrate that both KAR and EMR are feasible in colitis with only 5% of patients requiring surgery. Fibrosis is very common in colitis. Recurrence is higher with EMR and complications higher with KAR. Our data shows that lesions with fibrosis are best treated by KAR, and those with fibrosis and <20 mm can be managed by EMR.

**PTH-064 ANATOMICAL FEATURES OF THEileoCAecal JUNCTION AND THEIR IMPLICATIONS FOR PROOF OF COLONOSCOPY COMPLETION**


**Introduction** A completion rate for colonoscopy in excess of 90% is a Joint Advisory Group quality assurance standard; although images of the appendix orifice, tri-radiate fold and ileo-caecal junction (ICJ) are conventional markers for this, numerous studies have shown a lack of specificity confounded by variations in human anatomy. Terminal ileal intubation, with images of villiform mucosa, provides irrefutable evidence of completion but cannot always be achieved. We aimed to study the anatomy of the ICJ to determine the factors that may be relevant to documentation of proof of completion.

**Methods** The features of 69 embalmed cadaveric ICJ specimens were assessed, including gross morphology and the ileocaecal angle. In addition, 100 consecutive colonoscopy videos performed by a single Bowel Cancer Screening colonoscopist showing ileal intubation were reviewed to determine ICJ morphology, time taken for ileal intubation and difficulties encountered.

**Results** The morphology of all cadaveric ICJs was categorised, with all except 2 being labial or papillary in type. The average angle of ileal entry into the caecum was 106 degrees (range 59–180). Both major ICJ types had on average a greater distance from the posterior caecal wall to the tip of the top lip compared to the distance to the lower lip, giving the ICJ an inferior tilt. In nearly half of the labial-type valves, the top lip overhung the bottom lip. On average, labial-type valves had thinner lips and a narrower vertical opening than papillary-type valves. These features could render a labial-type valve more difficult to visualise and intubate at colonoscopy.
Abstracts

In the colonoscopy videos, over a third of ICJs could not be fully visualised or categorised, with these having a lower rate of initial successful intubation than categorised valves. The median time taken for intubation was shorter for papillary compared to labial-type valves. Ileal intubation was faster in categorised valves when the appendix was visualised. It was also achieved more quickly in patients who were given buscopan pre-procedure.

Conclusions Appreciating the anatomical features of the ICJ should assist endoscopists to approach ICJs which can be difficult to navigate. Administering buscopan as pre-medication and visualising the appendix prior to attempting ileal intubation have both been shown to decrease the time taken for successful intubation.

PTH-065 SINGLE CENTRE EXPERIENCE OF SIMTOMAX, A POINT-OF-CARE TEST FOR COELIAC DISEASE, TO AVOID DUODENAL BIOPSIES

Introduction The British Society of Gastroenterology (BSG) guidelines recommend screening for coeliac disease in patients with iron deficiency anaemia (IDA) with coeliac serology; but states that if it hasn’t been carried out or if the result is unavailable, duodenal biopsies should be taken if the patient is undergoing a gastroscopy. As the prevalence of coeliac disease in the UK is around 1% and 5% in IDA, majority of duodenal biopsies are negative. As biopsies are costly we have been investigating ways to avoid doing them without missing the diagnosis of coeliac disease. Simtomax is a finger prick test for coeliac disease that provides immediate results, hence shown to be valuable as a negative predictive test.

The aim was to evaluate the value of Simtomax pre-endoscopy to reduce the number of duodenal biopsies without missing the diagnosis of coeliac disease in our local population.

Methods Between May-December 2016 we obtained informed consent and performed 106 Simtomax tests on patients attending for a gastroscopy (OGD) with an indication of anaemia/weight loss prior to their endoscopy. Using our databases, we collected the following: patient demographics, coeliac serology (anti tTG/EMA) if done, OGD findings and duodenal biopsy histology.

Results 106 patients (M=38, mean age 62, age range 34–91; F=68, mean age 62, age range 18–93) had both a Simtomax test and an OGD. 101/106 had duodenal biopsies (endoscopist’s discretion) and 52 (49%) had coeliac serology (anti tTG). With histology as the gold standard for the diagnosis of coeliac disease, prevalence of the disease in these patients with IDA/weight loss was 3%. The negative predictive value (NPV) of a negative Simtomax test was 96% and the NPV of a negative Simtomax AND negative coeliac serology was 97%. The positive predictive values were 11% and 33% respectively for these 2 tests. The sensitivity and specificity of Simtomax were 33% and 96%.

Conclusions In the current NHS climate every saving is welcome as long as patient care isn’t compromised. Our study shows that around 50% of patients attending for an OGD for IDA/weight loss didn’t have coeliac serology available at the time of the procedure, therefore requiring duodenal biopsies as per BSG guidelines. Using a point of care test with a high negative predictive value would save more patients from having biopsies, save money and valuable time of endoscopists, nurses and histopathologists. Our study confirms the high NPV of the point of care test Simtomax and would save biopsies in 96% of patients who haven’t had coeliac serology prior to endoscopy (a saving of around £100 per set of duodenal biopsies).

REFERENCE

PTH-066 ASPIRIN, NSAIDS, AND DYSPLASTIC COLONIC POLYPS – LESSONS FROM BOWEL CANCER SCREENING

Introduction Studies on bowel cancer chemoprevention have been limited by the failure to distinguish between the activities of low-dose aspirin and standard non-steroidal anti-inflammatory drugs (NSAIDs). Also, little is known about the activities of these agents in bowel cancer screening programs. We, therefore, aimed to assess the numbers and sizes of polyps/cancers detected in bowel cancer screening of patients using low-dose aspirin (75-mg/day), NSAIDs, and controls.

Methods Guaiac peroxidase faecal occult blood test kits were sent to 71 026 local residents, aged 50–74 years, over the 12 calendar months of 2016: 38 799 subjects filled in and returned the kits. Those with positive kits (n=849) were interviewed and invited for colonoscopy. Their colonoscopic findings were classified according to their use of aspirin, NSAIDs, or neither. Only dysplastic or cancerous lesions were analysed. The Mann-Whitney test and Fisher’s exact test were used as appropriate. Odds ratios were adjusted for age and sex by logistic regression.

Results

DEMOGRAPHY 528 subjects were colonoscoped at one single centre. The aspirin group (n=112) had 74 (66%) males and a median age of 68 years. The NSAID group (n=46) had 23 (50%) males and a median age of 58 years. The control group, not using either of these agents (n=370), had 207 (56%) males and a median age of 63 years (p<0.001 vs aspirin users; p=0.012 vs NSAID users).

POLYPS ASPIRIN vs CONTROLS. Polyps>5 mm were found in 21 (19%) subjects taking aspirin vs 99 (27%) controls [odds ratio, OR, 0.57; 95% confidence intervals, CI, (0.33–0.98); p=0.042]. Polyps>5 mm or cancer were found in 24 (21%) aspirin users vs 118 (32%) controls [OR, 0.50; 95% CI (0.30,0.84); p=0.009].

POLYPS NSAIDs vs CONTROLS. Polyps>5 mm were found in 5 (11%) subjects taking NSAIDs vs 99 (27%) controls [OR, 0.36; 95% CI (0.14–0.86); p=0.036]. Polyps>5 mm or cancer were found in 6 (13%) NSAID users vs 118 (32%) controls [OR, 0.35; 95% CI (0.14–0.86); p=0.022].

Conclusions (1) In this bowel cancer screening program, subjects taking low-dose aspirin were older while those taking NSAIDs were younger than controls not using either of these agents. (2) After adjusting the odds ratios for age and sex, the use of aspirin or NSAIDs was associated with lower prevalence of dysplastic colonic polyps or cancers.
These results provide further evidence for the potential use of aspirin or NSAIDs for bowel cancer chemoprevention.

**Abstract**

**PTH-067**  
**HIGH QUALITY COLON CLEANSING WITH NOVEL 1L PEG-BASED BOWEL PREPARATION NER1006 VERSUS CURRENT ALTERNATIVES**

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**Introduction**  
Effective colonoscopy requires successful bowel cleansing. A segmental score of 2 on the Boston Bowel Preparation Scale (BBPS) is considered adequate for the detection of polyps >5 mm [1]. New data indicate however that lesion detection rates may improve further at higher levels of cleansing [2].

**Methods**  
The NER1006 phase 3 studies had randomised patient populations and treatment-blinded central readers for standardised BBPS assessment in the overall colon [3–5]. This post hoc analysis of all three phase 3 trials compares high versus adequate cleansing quality with NER1006 versus its comparators, using the per protocol (PP) population. Patients (n=1521) aged 18–85 years took their bowel preparations either on the day before colonoscopy (DAYB), as overnight split dosing (NOCT and MORA), or in the morning of the day of colonoscopy (MORA).

**Results**

All analyses were carried out using the statistical package R v3.1.3. Confidence intervals and t-test for each mean difference and two-sided P-values were calculated using Fisher’s exact test.

**Conclusions**  
These results confirm previous findings that NER1006 is a more effective bowel preparation than NaP +MgCit and 2L PEG +Asc. If used routinely in large populations, the higher level of cleansing obtained with NER1006 will likely contribute towards increased lesion detection rates.

**REFERENCES**


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**Abstract**

**PTH-068**  
**ENDOSCOPIC CLOSURE OF ANTERIOR RESECTION ANASTOMOTIC DEHISCENCE USING PADLOCK CLIPS**

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10.1136/gutjnl-2018-BSGAbstracts.86

**Introduction**  
Anastomotic leakage is one of the serious complications after anterior resection. The risk of colonic anastomotic leak after anterior resection has been reported to be as high as 23% in some published series. Herein, we present a...
case of successful endoscopic closure of anastomotic dehiscence using Padlock clipping system, which was used alongside the drainage of pelvic collection.

**Method** 43 days after developing anastomotic dehiscence post anterior resection, endoscopic Padlock clips were used to successfully close a 2 cm full thickness defect.

**Results** 73 years old male patient underwent laparoscopic anterior resection operation for moderately differentiated recto-sigmoid adenocarcinoma. He developed colonic anastomosis dehiscence on day 5 post-operatively. Emergency laparotomy was performed where drains were inserted with ileostomy formation while through-the-scope endoscopic clips deployed intraoperatively by the surgical team, were unable to successfully close the anastomotic defect. Patient was given parenteral nutrition post-procedure.

Two weeks later, faeculent fluid was noted in one of the drains, which suggested on-going leak. Repeat scan showed persistent extra-luminal leakage of the contrast with collection.

A flexible sigmoidoscopy was performed which identified a large 2 cm anastomotic site defect. This was then closed by the deployment of three Padlock clips along with three through-the-scope Resolution clips.

**Conclusion** Traditionally, surgical ‘divert and drain’ technique has been the mainstay of treatment for anastomotic leakage. Whereas endoscopic clips have been used successfully for the closure of anastomotic leaks, this case highlights that the Padlock system can be used successfully to close a chronic full thickness defect.

**PTh-070** CORRELATION OF THE RECORDED IMAGE QUALITY INDEX (RIQI) SCORE WITH EXISTING COLONOSCOPY KEY PERFORMANCE INDICATORS

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**Introduction** The RIQI score (scale 0–10) has been validated as a measure of the quality of image recording during endoscopic examination. A high RIQI score (9–10) provides good clinical utility of the images to support clinical decision-making e.g. in MDTs. Taking high quality images requires good tip control to hold the correct focal length and time spent cleaning the mucosa. We aimed to assess the correlation between median RIQI scores and existing colonoscopy key performance indicators (KPIs) including the Caecal Intubation Rate (CIR), Polyp Detection Rate (PDR) and median colonoscopic withdrawal time (WDT).

**Methods** 80 datasets of clinical images were reviewed by 3 assessors yielding a median RIQI score from 30 observations for 8 independently practising colonoscopists. This was correlated against annual KPI data for each colonoscopist – including CIR (%), PDR (%) and median WDT (mins). Pearson Rank correlation was performed.

**Results** Median RIQI scores for the 8 colonoscopists ranged from 2 to 10 (<5 = poor; 6–8 = moderate, 9–10 = high image quality). Unadjusted CIR ranged from 81.6% to 95.0%; PDR from 24.2% to 64.5% and median WDT from 7 to 19 min. Median RIQI scores had a moderate to good positive correlation with existing KPIs – correlation values: CIR \( r = 0.59 \); PDR \( r = 0.53 \); WDT=0.54.

**Conclusions** The RIQI score is a novel KPI assessing the recording of image quality. This is a surrogate marker of both tip control and ability to identify, wash and assess lesions. We have demonstrated that the RIQI score shows positive correlation with other commonly used KPIs in colonoscopy and...
OUTCOMES OF ENDOSCOPIC RESECTION OF LARGE COLORECTAL LESIONS IN VERY ELDERLY (>85 YEARS) PATIENTS

Andrew Emmanuel, Shraddha Gulati, Margaret Burt, Bu Hayee, Amyn Haji. King's College Hospital, London, UK

Background Endoscopic resection (ER) provides organ conserving treatment for large colorectal superficial neoplastic lesions (CSNL), allowing many patients to avoid surgery. Although ER is widely practised, little is known about outcomes in very elderly patients who may benefit the most from avoiding major surgery. The few studies examining outcomes in the elderly originate from eastern expert centres using ESD or use a relatively young definition of elderly. We aimed to compare outcomes of ER in very elderly compared to younger patients.

Methods Colorectal ERs of large (≥2 cm) CSNL performed at a tertiary institution were included. ER was performed for all lesions without overt invasive cancer regardless of size or location. Surveillance colonoscopy was performed at 3 months (SC1) and 12 months (SC2). Very elderly was defined as age ≥85 years. Outcomes were compared between patients aged ≥85 years and those <85 years.

Results 570 ERs of lesions ≥2 cm were included. Very elderly patients (n=57) had a mean age of 88 years vs 70 years for younger patients. There were no significant differences in mean lesion size (61 mm vs 52 mm, p=0.19) or location (p=0.74). The proportion of ERs using ESD/Hybrid ESD was similar (2.5% versus 26%, p=0.81). More patients ≥85 years had covert invasive adenocarcinoma, although this was not significant (12% vs 7%, p=0.13).

More patients ≥85 years experienced post procedure bleeding (8% vs 1%, p<0.001), but there was no difference in perforation rates (3% vs 3%, p=0.83) and no patients ≥85 years required surgery for a complication. Recurrence was similar (15% vs 13%, p=0.79). Similar proportions underwent surgery for covert invasive adenocarcinoma (3.5% vs 2.9%, p=0.79) and for recurrence (2.4% vs 1.3%, p=0.55). Although they were equally likely to complete SC1 (p=0.42), patients ≥85 years were significantly less likely to complete SC2 (OR 0.43, p=0.013), probably because of a lack of medical fitness or unwillingness to undergo further surveillance (OR 24.3, p=0.001) but not necessarily due to death (OR 1.13, p=0.87).

Conclusions ER for large CSNL is safe and effective in very elderly patients, who can be treated using similar techniques to younger patients with similar short term recurrence. Serious complications are rare. If surgery is indicated for covert adenocarcinoma or recurrence, it appears very elderly patients are equally likely to undergo surgery. However, significantly fewer very elderly patients are eligible for long-term follow up and therefore treatment should be tailored according to each patient’s specific lesion characteristics, symptoms and physiological fitness.

TRAINING FUTURE INTERVENTIONAL ENDOSCOPISTS: OUTCOMES OF TRAINEE PERFORMED COLORECTAL COMPLEX EMR/PEMR IN A TERTIARY CENTRE

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Introduction Despite the widespread use of endoscopic mucosal resection (EMR) and piecemeal EMR (pEMR) to treat large colorectal superficial neoplastic lesions, training and competence in complex endoscopic resection (ER) in western centres takes place almost exclusively during specialist practice after the completion of residency. There are no accredited western training programs in advanced ER and no reports of outcomes of complex EMR performed by trainees. However, as the use of advanced ER to treat CSNL increases, it is conceivable that training in complex EMR takes place during residency for selected trainees. Our tertiary referral unit has been training 2 residents in advanced colorectal lesion assessment and EMR since January 2016. We evaluated the outcomes of complex EMR performed by trainees during this period.

Methods All EMR and pEMR of large (≥2 cm) CSNL performed from January 2016 to October 2017 were included. Lesions resected using ESD were excluded. ER were performed by 2 specialist interventional endoscopist trainers and 2 residents. The residents were already accredited for independent practice for diagnostic colonoscopy and polypectomy <2 cm. Patient and lesion characteristics were described and outcomes including failed ER, complications and recurrence for EMR performed by residents and trainers were compared.

Results 238 ER of colorectal lesions ≥2 cm were performed during the study period. After excluding procedures for recurrent lesions (n=16) and procedures using ESD/Hybrid ESD (n=78), 144 lesions resected using EMR/pEMR were included. 60 ER were performed by residents (42%). The mean patient age was 69.5 years (male=40). The mean size of resident performed EMR was 34.3 mm ±10.7 mm (range 20 mm-60 mm) versus 52.6 mm ±32.3 mm for ER performed by trainers (p<0.001). Lesions were located in the right colon (n=33), left colon (n=20) and rectum (n=7). Compared to ER performed by trainers, there were no differences in failure to achieve endoscopic clearance (p=0.09), complications (p=0.67), intraprocedural bleeding (p=0.32) or recurrence (p=0.42).

Conclusions These results show that, in a specialist unit with experienced trainers, it is safe to train residents in complex EMR/pEMR who can perform the techniques safely in large CSNL with good outcomes. Significant prior experience in diagnostic colonoscopy is important but the skills for advanced assessment and EMR can subsequently be acquired in the right setting.
Abstracts

**PTH-073** RADIODICAL STAGING INVESTIGATIONS BEFORE ENDOSCOPIC RESECTION OF LARGE COLORECTAL LESIONS: SIGNIFICANT BURDEN WITH NO BENEFIT

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Introduction Endoscopic resection (ER) is increasingly used for curative treatment of large colorectal superficial neoplastic lesions (CSNL). Experts believe that accurate lesion assessment and in vivo diagnosis should guide treatment decisions for such lesions, however in western practice skills in lesion assessment are less robust and patients frequently undergo biopsy sampling and pre-procedure radiological staging investigations as for any suspected colorectal cancer. For large rectal lesions, many consider pelvic MRI obligatory. The value of such investigations in this context is not clear.

Methods All ER of large (>20 mm) CSNLs referred to a tertiary unit were included. Data was collected from clinical letters, endoscopy and radiology reports from the referring department as well as the lesion assessment, treatment and final histopathology at our institution. Details of the findings of computed tomography (CT) scans, need for subsequent imaging and potential staging of rectal tumours by MRI were recorded.

Results 579 CSNLs>20 mm were treated with ER. 177 patients (31%) had received a staging CT of the thorax, abdomen and pelvis prior to referral. Of 163 rectal tumours, 67 (41%) had received a staging MRI. The findings of the CT scan did not change the management of the CSNL in any patients. Incidental findings were reported in 28 patients (16%). As a result 25 (89%) went on to require further imaging or referral to other clinicians which resulted in treatment for only one patient who required a ureteric stent for an asymptomatic obstructing stone. No MRI was reported as less than T1 and 31 (30%) were reported as at least T2 or greater, of which only 3 had invasive adenocarcinoma: 2 were T1 with minimal submucosal invasion and one was recognised during the ER as having deep invasion but was unfit for surgery. MRls in 10 patients were reported as N1–2 (positive lymph node metastases), only 3 had proven adenocarcinoma of which only one eventually agreed to surgery: there was a T3N2 adenocarcinoma but surgery was performed more than 3 years after the initial MRI.

Conclusions Traditional staging radiological investigations have no value in the management of either colonic or rectal large CSNL assessed as likely non-invasive using endoscopic assessment. Instead, they are a significant burden on resources, expose patients to unnecessary radiation, are likely to contribute to unfounded increased anxiety for patients and clinicians and lead to a significant number of additional investigations or specialist consultations without meaningful outcome.

**PTH-074** SMSA SCORE NOT AN INDEPENDENT PREDICTOR OF OUTCOMES IN A LARGE SERIES OF ENDOSCOPIC RESECTIONS

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Introduction A predictive score to stratify the difficulty of endoscopic resection (ER) of large colorectal superficial neoplastic lesions (CSNL) and predict outcomes would be valuable. The SMSA score assigns a numerical score based on size, morphology, site and ease of access and stratifies lesions into 4 groups of increasing complexity. It has been recommended in several guidelines on colorectal ER and SMSA level 4 is reportedly associated with incomplete resection and increased complications. Despite this, it has not been widely validated in large series of ER for large CSNLs using standardised techniques. We applied the SMSA score to a large series of ER of lesions≥2 cm at a tertiary centre.

Results ER of large (≥2 cm) CSNL were included. Surveillance colonoscopy was performed at 3 months and 12 months. SMSA score was calculated and SMSA level 4 compared with level 2–3 for outcomes including failed ER,≥2 ER to achieve clearance, complications and recurrence. Multivariate logistic regression was performed to determine independent predictors of complications and recurrence.

Conclusion SMSA level 4 was associated with recurrence (OR 10.8, 95% CI 2.59–45.2, p<0.001), as was either large lesion size or difficult access (OR 6.35, 95% CI 2.47–16.33, p<0.001). On multivariate logistic regression only large size/difficult access (p<0.001), prior heavy manipulation (p=0.03), and ESD/Hybrid ESD (p=0.02) were independently associated with complications but not SMSA level 4 (p=0.06).

Conclusions Traditional staging radiological investigations have no value in the management of either colonic or rectal large CSNL assessed as likely non-invasive using endoscopic assessment. Instead, they are a significant burden on resources, expose patients to unnecessary radiation, are likely to contribute to unfounded increased anxiety for patients and clinicians and lead to a significant number of additional investigations or specialist consultations without meaningful outcome.

**PTH-075** LONG-TERM OUTCOMES AFTER ENDOSCOPIC RESECTION OF LARGE COLORECTAL SUPERFICIAL NEOPLASTIC LESIONS IN AN EXPERT CENTRE

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Introduction There are very few western data describing the long term outcomes of endoscopic resection of large colorectal superficial neoplastic lesions (CSNL) beyond 12–18 months. The best available data suggests most recurrence occurs early whereas late recurrence (after 3–6 months) is rare and not a significant problem. Given the widespread and increasing use of advanced endoscopic resection techniques, it is important to define the long term outcomes beyond the first year of surveillance.
Methods We analysed endoscopic resections (ER) of large (≥2 cm) CSNL performed at a tertiary referral centre. Surveillance is conducted according to a standardised protocol involving magnification chromoendoscopy and NBI performed at 3–6 months and 12 months, followed by standard adenoma surveillance again at 3 years. Recurrence rates at <6 months, 12–23 months, 24–35 months and ≥36 months follow up were calculated. Recurrence rates at each interval were only calculated for patients in whom no prior recurrence had been detected at an earlier interval. A non-parametric test was used to determine factors significantly associated with early recurrence (<12 months) and late recurrence (≥12 months).

Results 588 ER of large CSNL were performed (mean size 52.5 mm). After relevant exclusions, 425 patients had undergone at least the first surveillance endoscopy, of which 259 had undergone 12 month follow up, 90 had undergone ≥24 months follow up and 51≥36 months follow up. Recurrence at <6 months occurred in 34 (8%), 15/235 (6.4%) patients had recurrence at 12 month surveillance. 7/70 (10%) had recurrence from 24–35 months follow up and 4/35 (11.4%) developed recurrence after ≥36 months follow up. Factors significantly associated with recurrence were similar for both early and late recurrence (size >40 mm, piecemeal resection, EMR vs ESD, prior heavy manipulation, use of APC). However, of patients followed up ≥36 months (n=51), 93% had successful ER (including treatment of recurrence) and have remained free from recurrence at last follow up.

Conclusions These data demonstrate that recurrence after apparent successful ER of large CSNL continues to occur after 2 and even 3 years of follow up, despite subsequent normal initial surveillance. Although recurrence at 12 months was similar to large published series, significant proportions of patients continue to develop recurrence with longer term follow up. Nevertheless, ER in an expert centre is safe and highly effective for the vast majority.
Abstracts

(GIF-H290, Olympus, Japan), short ST hood (Fujifilm, Japan) and a 2.5 mm FlushKnife (Fujifilm, Japan) were used. Carbon dioxide (CO₂) insufflation was used during the initial incision and submucosal trimming on the anal side of the lesion. The CO₂ insufflator was then turned off, gas was aspirated from the lumen and the lesion was submerged in physiological saline using the water-jet function. SITE-facilitated ESD was then performed using NearFocus mode. Saline-immersion eliminated any fluid-gas interfaces obviating the need for suction. The use of saline-immersion with NearFocus also facilitated more precise, minimal contact dissection and enhanced pre-emptive visualisation of submucosal vessels, for avoidance of intra-procedural bleeding. Once the submucosa was successfully dissected, the remaining lateral and oral incisions were completed successfully for en-bloc resection; histopathology confirmed R0 resection.

Conclusion SITE-facilitated ESD appears to be a useful, safe and effective technique. In our experience, it appears to confer several potential advantages which include: improved endoscopic visualisation (with augmented magnification), minimal contact dissection (likely due to the superior electrical conductivity of saline) and also reduced tissue friability (due to the isotonic nature of physiologic saline vis-à-vis water-immersion).

REFERENCE

ADTU-01 FIRST REPORT OF A SECONDARY AORTO-JEJUNAL FISTULA DIAGNOSED BY DOUBLE-BALLOON ENTEROSCOPY

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Introduction Aorto-jejunal fistula (AJF) is a very rare, life threatening condition which may result in catastrophic gastrointestinal (GI) bleeding. Secondary AJF is usually associated with a history of previous surgical repair of an abdominal aortic aneurysm (AAA).

Methods An 86-year-old woman with intermittent severe obscure-overt GI bleeding (with negative upper and lower GI endoscopies) was transferred as a tertiary referral to our institution for further investigation and management. Small bowel capsule endoscopy (SBCE) had shown active bleeding within the proximal jejunum. The patient’s history of AAA Dacron-graft repair 9 years previously, raised our suspicion of a possible aorto-enteric fistula (AEF).

Results Although cross-sectional imaging (CT) had demonstrated close proximity of a jejunal loop to the aortic Dacron graft, the scan was deemed to be inconclusive. In light of the history, we proceeded to perform an urgent anterograde double-balloon enteroscopy (DBE) for direct endoscopic assessment of the small bowel. Our suspicions were confirmed and a definitive diagnosis of an AJF was clinched when the external surface of part of the Dacron graft was seen to bulge through the jejunal wall at an estimated insertion depth of 60 cm post-pylorus (video).

Conclusions Secondary AEFs affect up to 1.6% of patients who undergo AAA repair; the jejunum is involved in only about 9% of these cases. In view of the associated mortality that ranges between 22%-100%, prompt, definitive diagnosis remains critical. To the best of our knowledge, this is the first report of AJF identified by DBE and highlights the effectiveness of this endoscopic modality in providing an irrefutable diagnosis of an AEF when this lies beyond the duodenum.

Snare Tip Anchor Polypectomy

Snare Tip Anchor Polypectomy

PITH-077 RESECTION OF GIANT PEDUNCULATED POLYPS USING A SCISSOR FORCEPS; A RESCUE POLYPECTOMY

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Introduction Lumen filling giant pedunculated polyps can be challenging to resect and in some instances can be impossible leading patients to have surgery. Difficulties in polypectomy include an unstable position, large polyp head, unclear views and thick stalks. Here we describe an endoscopic technique which salvaged a challenging polypectomy.

Methods A 62 year old lady attended after presenting with per rectal bleeding and passage of mucous. Initial colonoscopy showed a large pedunculated polyp with a pit pattern of type 4/5 which was thought to be malignant. CT scan was normal. On repeat colonoscopy there were no clear signs of malignancy.

Results Despite numerous attempts it was impossible to capture the polyp with conventional snare even after applying volume reduction. Finally the polyp was resected by cutting the stalk using a SB Junior Knife (Scissors forceps). Three prophylactic clips were applied. Patient did not have any complications. Histology revealed a tubulovillous adenoma with low grade dysplasia.

Conclusions This technique provides a useful option for performing polypectomy in challenging stalked polyps and should form part of every endoscopist’s armamentarium.

A 67 year old lady presented to our institute with an altered bowel habit and was found to have a flat polyp in the sigmoid colon on colonoscopy.

PITH-078 A USEFUL TECHNIQUE TO ACHIEVE EN-BLOC RESECTION

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Introduction Flat colonic polyps can be challenging to resect due to difficult position, unstable scope or slipping of the snare. Here we demonstrate a previously reported endoscopic technique from Taiwan which facilitates easier placement of the snare thereby achieving en-bloc resection.

Methods A 67 year old lady presented to our institute with an altered bowel habit and was found to have a flat polyp in the sigmoid colon on colonoscopy.
Results Standard injection as per conventional endoscopic mucosal resection was initially performed. Then a suitably sized snare was selected and the snare tip was used to make a single incision with cut current lateral to the polyp. The snare tip was then anchored at the site of the incision and then the snare was slowly opened and simultaneously positioned around the polyp. Once the snare was adequately placed the polyp was resected. Histology revealed a tubulovillous adenoma with low grade dysplasia which was excised completely.

Conclusions This technique provides an easy and safe way to resect en-bloc flat, large and challenging colonic polyps.

**PTH-079**

Fully covered metal stent insertion for the treatment of refractory post endoscopic sphincterotomy bleeding

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**Introduction** Bleeding is a common complication of endoscopic sphincterotomy (ES), occurring in 4% of cases. Fully covered metal stents (FCMS) are mainly indicated in the treatment of biliary strictures, bile duct leaks and biliary stones. Recent studies have shown the value of fully covered metal stent placement in the management of post ES haemorrhage after failure of primary endoscopic interventions.

Treatment options have previously been limited to arterial embolisation or surgery in cases where conventional endoscopic therapy has failed. FCMS placement provides a less invasive means of achieving haemostasis through mechanical tamponade and may be a suitable option in patients whose bleeding has not been controlled with first line endoscopic management.

**Methods** We report a case of post ES bleeding refractory to conventional therapy, where haemostasis was achieved through placement of a temporary FCMS. A 27 year old man underwent therapeutic ERCP for choledocholithiasis in which precut sphincterotomy (with needle knife) resulted in bleeding. Initial management with local injections of adrenaline, endoclips and heater probe therapy were unsuccessful in achieving prolonged haemostasis and the patient became haemodynamically unstable, with melaena and Hb drop from 103 g/L to 56 g/L. The patient underwent a repeat ERCP in which a fully covered (10 mm/6 cm) metal stent (Wallflex, Boston) was inserted across the ampulla to tamponade the site of bleeding. The stent remained in situ and was removed 6 weeks post initial insertion, with no residual bleeding. Of note, the patient developed acute cholecystitis 48 hours post stent insertion, requiring urgent cholecystectomy. There were no post-operative complications.

**Results** Our case demonstrates the successful management of post ES bleeding with the use of FCMS placement, avoiding the need for arterial embolisation or surgery. Despite achieving haemostasis, our patient developed acute cholecystitis following stent placement, requiring urgent cholecystectomy. This has been reported in up to 10% of patients with FCMS for all indications. The patient remained well post operatively and stent was removed with no residual bleeding.

**Conclusion** Our case supports the proposed use of FCMS placement as second line management in post ES bleeding refractory to conventional endoscopic therapy. In applying this technique we avoided the use of arterial embolisation and its associated risks and complications, of particular importance in a young patient such as ours. There is a risk of cystic duct outflow obstruction in the application of covered metal stents, as our case highlights, and it is important to recognise this when considering this treatment modality.

**Abstracts**

**PTH-080** A MULTIMODALITY ENDOSCOPIC APPROACH FOR MANAGEMENT OF BURIED BUMPER SYNDROME

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**Introduction** Buried bumper syndrome (BBS) is a rare, long-term complication of percutaneous endoscopic gastrostomy (PEG) placement, occurring in 2%–6% of the cases. BBS is thought to occur due to prolonged compression of the tissue between the external and internal fixators, leading to ‘burying’ of the PEG bumper into the gastric wall. Consequences of BBS include tube obstruction and more rarely bleeding, abscess formation, and perforation. Several endoscopic techniques are described for the management of BBS and these may be complimentary when used in combination.

**Methods** A 32-year-old woman with diabetes, chronic kidney disease, a history of hypoglycaemic brain injury and gastropa-rhesis, requiring a venting PEG, presented with abdominal pain. PEG tube obstruction led to the suspicion of BBS and abdominal computerised tomography confirmed this.

**Results** At upper gastrointestinal endoscopy under general anaesthesia, the internal bumper was found to be completely buried by granulation and fibrotic tissue. A 2.5 mm FlushKnife (Fujifilm, Saitama, Japan) was initially used to partially dissect the overgrown gastric tissue in order to achieve insertion of a biopsy forceps down the external aspect of the PEG tube and through the dissected orifice. This manoeuvre opened a track in the overgrown tissue for insertion of a sphincterotome mounted on a JagWire (Boston Sci., MA, USA) through the external PEG tube. The sphincterotome was then flexed completely and several radial incisions on the overgrown tissue were performed using external traction on the sphincterotome. Finally, a 6 mm endoscopic balloon dilator was passed through the scope and pulled into the PEG tube by the biopsy forceps inserted through the external end of the tube. The balloon was then fully inflated within the PEG tube and traction was applied to the balloon and endoscope for release of the buried bumper and PEG tube remnant from the dissected overgrown tissue into the stomach. The dissected orifice was then closed using endoscopic clips. The procedure was performed under antibiotic prophylaxis.

**Conclusion** To the best of our knowledge, this is the first use of a complimentary, multimodality endoscopic approach for the effective, minimally invasive, safe management of BBS.

**IBD**

**OTU-001** IDENTIFICATION OF A NOVEL THERAPEUTIC AGENT FOR TREATING IBD GUIDED BY SYSTEMS MEDICINE

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**Introduction** There remains an unmet need in the treatment of IBD. The SysmedIBD project established a multi-disciplinary