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delayed bleeding all requiring endoscopic hemostasis. No perforation was seen.

Conclusions This early experience with SRS2 shows colorectal submucosal dissections are feasible with an acceptable safety profile. Resection times for lesions ≤ 4 cm were relatively quick and microwave coagulation appeared to be effective in most cases.

ATU-01 ENDOSCOPIC AMPULLECTOMY: HOW SAFE IS IT IN UK SETTINGS?

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Introduction Endoscopic ampullectomy is a minimally invasive technique of treating non-invasive lesions involving the ampulla of Vater, and offers an alternative to major surgical intervention. In this study, we describe the safety and outcome of this procedure from a large, tertiary centre.

Methods Data were prospectively collected on an electronic database. Parameters related to ampullectomy outcome and complications were retrospectively analyzed.

Results A total of 37 cases were included in this analysis, between 2009 and 2018. Average age was 66. Female represented 59.4% of patients. Mean duration of follow up was 62.3 weeks. 23 (62.1%) lesions were pure ampullary, and the remaining involved the duodenal wall as well. Lesions ranged from 5 to 80 mm in size, with average size of 21.58 mm. 5 patients (13.5%) had familial adenomatous polyposis FAP. Pre resection histology confirmed HGD in one patient (2.7%), and neuro-endocrine tumor NET in one case (2.7%). Post resection histology showed focal adenocarcinoma in 1 patient (2.7%).

Prophylactic PD stenting was performed in 26 cases (70.2%), adjunctive APC used in 7 cases (18.9%), and Submucosal injection in 27 cases (72.9%). En-bloc resection was achieved in 16 (43.2%), while piecemeal in 21 cases (56.7%). Recurrence observed in 9/37 cases (24.3%). Piecemeal resection and lack of submucosal injection were significantly associated with higher risk of recurrence ($P=0.0485$, $P=0.0471$, respectively). Early bleeding (including intra-procedural and bleeding within 24 hours of procedure) happened in 5 patients (13.5%), delayed bleeding (after 24 hours) in 2 cases (5.4%), all were successfully treated endoscopically. Only 1 patient (2.7%) had Pancreatitis, and one patient developed ampullary stenosis post procedure. There was no report of perforation, need for emergency surgery or 30 day mortality in this series.

Abstract ATU-01 Table 1 Outcomes and complications following endoscopic ampullectomy in a single UK tertiary endoscopy unit (Total number of patients =37)

Outcomes		
	En-bloc resection	16 (43.2%)
	Piecemeal resection	21 (56.7%)
	Recurrence	9 (24.3%)
Complications		
Bleeding	Early	5 (13.5%)
	Delayed	2 (5.4%)
Pancreatitis		1 (2.7%)
Ampullary Stenosis		1 (2.7%)
Perforation		0 (0%)

Conclusion Our series demonstrate the safety of this procedure in the UK setting. Piecemeal resection, and lack of submucosal injection seems to predict risk of recurrence, while size of the lesion did not significantly affect this outcome.

ATU-02 A PROSPECTIVE, COMPARATIVE STUDY OF PLENUV®, MOVIPREP® AND SENNA/CITRAMAG AS BOWEL PREPARATION FOR SCREENING COLONOSCOPY

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Introduction Efficacy and patient acceptability of bowel preparation are key components in colorectal cancer screening (CRC) populations. Plenvu is a new, 1 litre, low volume PEG-based product indicated for bowel cleansing in adults prior to colonoscopy. Two Phase III studies have demonstrated superior colon cleansing efficacy, with comparable safety and tolerability versus standard preparations.^{1 2}

Methods The aim was to assess the effectiveness and acceptability of Plenvu as compared to two different regimes for bowel preparation. A total of 68 consecutive patients attending day-case screening colonoscopy as part of the Bowel Cancer Screening Program were allocated either Plenvu (Norgine UK) ($n = 31$), Moviprep (Norgine, UK) ($n = 26$) or senna and Citramag (Sanochemia UK) ($n = 11$). An adapted split dosing regime was used for morning and afternoon appointments. Patients recorded their experience of the preparation on a questionnaire and one of two experienced endoscopists blinded to the preparation given, assessed bowel cleansing using the Boston Bowel Preparation Scale (BBPS). The volume of fluid aspirated from the colon (total amount in suction canister) and volume of fluid required for mucosal washing (including 50 ml syringes and automated irrigation pump use) was measured during each procedure.

Results All patients completed their prescribed dose of bowel preparation. A total of 55% of patients reported Plenvu as pleasant in taste; this was comparable to both Moviprep (59%) and senna/Citramag (45%). Plenvu provided superior bowel cleanliness in each segment of the colon with an average total BBPS score of 7.5 out of 9 as compared to Moviprep (6.4) and senna/Citramag (6.0) ($p=0.006$). The median volume of fluid aspirated from the colon was 400 mls for all three bowel preparations ($p=0.96$). The median volume required for mucosal washing was lowest in the Plenvu group (200 mls) compared to Moviprep (350 mls) and senna/Citramag (250 mls) ($p=0.04$).

Conclusions Plenvu appears to be an effective and palatable bowel preparation, providing superior cleanliness and a reduced requirement for washing. It is currently the lowest volume PEG based solution available and an important alternative for patients unable to tolerate higher volume preparations.

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ATU-03 REVIEW OF ENDOSCOPIC DIAGNOSIS AND MANAGEMENT OF SMALL RECTAL NEUROENDOCRINE TUMOURS IN A TERTIARY CENTRE

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Introduction The incidence of neuroendocrine tumours (NETs) is increasing with a heightened awareness of the malignant potential of rectal NETs. There is a need to improve the endoscopic recognition of NETs at earlier stages but there is a lack of data to compare the available endoscopic interventions.

Methods A review was undertaken using a prospectively collected database of all patients undergoing endoscopic treatment for rectal NETs between January 2010 and January 2019. Demographics and procedural data including histology reports were retrieved and reviewed.

Results 24 patients (10 female; median age 56 [range 33–73]) underwent endoscopic treatment for 24 rectal NETs. The median size, estimated during endoscopy was 5 mm (range 2–15 mm). Ten NETs (42%) were incidentally detected at bowel cancer screening procedures. During index procedures, 7 (29%) lesions were correctly described as submucosal tumours (SMT) and 3 (12%) as NETs. The remaining 14 (59%) were described as polyps.

Biopsies were taken in 15 cases, of which histological diagnosis was made in 12/15 (80%). The 3 remaining biopsies were reported as normal colonic mucosa. Endoscopic therapy was attempted during 14 index procedures; cold biopsy (5), hot snare (3), endoscopic mucosal resection (EMR) (6). All 14 NETs were incompletely resected (R1) and subsequently had ESD as definitive therapy (R0). In 2 cases EMR was attempted as definitive therapy following index procedure, however also required subsequent ESD to achieve R0 resection. The 8 remaining NETs were successfully resected (R0) with endoscopic submucosal dissection (ESD) (7) or ligation-assisted EMR (Duetto® Multi-Band Mucosectomy device, Cook Medical Ltd) (1).

All patients were referred to the surgical NET specialist team for ongoing management and monitoring. Surveillance endoscopy has been performed in 18 patients (median 16.5 months [range 6–81]) with no endoscopic evidence of recurrence.

Conclusions Ten (42%) rectal NETs were discovered early due to bowel cancer screening programs. Endoscopic recognition of SMTs can be improved by confirming a type 1 Kudo pit pattern and firmness to palpation. With careful endoscopic assessment of SMTs, biopsies were not essential for diagnosis, despite a high positive rate. We recommend biopsying suspected lesions if unsure. Small rectal NETs should be treated

with either ESD or ligation-assisted EMR for complete resection.

ATU-04 ANATOMICAL FACTORS AFFECTING EASE OF COMMON BILE DUCT CANNULATION AND EFFICACY OF SPHINCTEROTOMY DURING ERCP

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Introduction During ERCP (Endoscopic Retrograde Cholangiopancreatography), endoscopists make an initial assessment of the major duodenal papilla (MDP) to determine the optimal approach for common bile duct (CBD) cannulation and a safe limit for sphincterotomy. Cannulation requires initial engagement followed by an angular adjustment, the step angle, to attain deep cannulation. This angle plays an important role in determining the ease of CBD cannulation. A sphincterotomy should be long enough to effectively open the ampullary orifice to allow passage of instruments and extraction of duct calculi whilst avoiding the complication of retroperitoneal perforation. This study correlates MDP morphology with the step angle and intramural CBD length to assist endoscopists in predicting ease of cannulation and safe extent of sphincterotomy.

Methods Analysis of 100 videos of successful CBD cannulation yielded a novel classification based on increasing prominence of the MDP. Four types were defined: I, flat (flush with duodenal wall); II, prominent (elevated on duodenal wall); III, infundibular (has an infundibulum); and IV, dependent (mobile with inferior facing orifice). After the MDPs in 40 cadaveric specimens had been classified as above, the step angles were measured using wire cannulation and intramural CBD lengths were measured following dissection. Correlations between these parameters were assessed using paired t-tests and one-way analysis of variance.

Results An increasing mean step angle from MDPs of Types I to IV was identified. A significant angular adjustment was required in Types II, III and IV ($P < 0.05$) but not in Type I. The mean intramural CBD length was also found to increase with MDP Type: I (5.53 ± 3.08 mm), II (7.51 ± 2.64 mm), III (9.79 ± 1.58 mm) and IV (11.19 ± 2.56 mm). These results corroborate the progressive nature of the proposed classification system. Of note, non-consecutive MDP types were found to have significantly different intramural CBD lengths.

Conclusions The above results demonstrate that MDP morphology may be of value in predicting a safe extent of sphincterotomy and could also allow endoscopists to predict whether an angular adjustment would be required during CBD cannulation. Our findings also indicate the need for further studies to explore the relationship between MDP morphology and specific challenges during ERCP.