application of a sodium alginate solution is able to protect mucosal biopsies against impairment of oesophageal mucosal integrity when exposed to acidic solutions shortly after application. The durability of this protection is unclear.

We aimed to assess the protective effect and physical location of a topically applied sodium alginate solution 1 h after application.

Methods 3 mucosal biopsies were taken from the distal oesophagus (3 cm above the z-line) in 10 patients attending the Royal London Hospital for gastroscopy. Biopsies were transferred immediately to Krebs buffer pH 7.4. The luminal surfaces of 2 biopsies were coated with 200 µl of either a sodium alginate solution (Gaviscon Advance, Reckitt Benckiser, Hull, UK) or a viscous control solution (of same viscosity, but without alginate). The biopsies were mechanically washed with 5 ml Krebs, then each placed in an Using chambers and bathed in pH 7.4 solution for 1 h. The luminal aspect of the biopsy was then exposed for 30 min to an acidic solution pH 2 + 1 mg/ml pepsin + 1 mM taurodeoxycholate. Percentage changes in TER from baseline at the end of exposure were recorded. For the 3rd biopsy sodium alginate solution containing fluorescein-labelled alginate was used, and after 1 h bathing in pH 7.4 solution the biopsy was fixed for immunohistological detection of the alginate.

Results Our previous experiments have demonstrated that exposure of *unprotected* biopsies to the acidic solution results in a –14.4 ± 2.9% change in TER from baseline. 1 h after protection with alginate solution the same exposure caused a –8.2 ± 4.2% change in TER compared to –15.9 ± 3.0% change after protection with the viscous control ($p < 0.05$).

Labelled alginate could be seen coating the luminal surface after 1 h in all cases.

Conclusion *In vitro*, alginate solutions can adhere to the oesophageal mucosa for up to 1 h and exert a topical protectant effect against refluxate-like solutions. This suggests that durable topical protectants can be further explored and developed as first-line/add-on therapies for GORD.

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PTU-170 MISSED UPPER GASTROINTESTINAL (UGI) CANCERS AT ENDOSCOPY: A DISTRICT GENERAL HOSPITAL EXPERIENCE

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Introduction Despite advances in the staging and treatment, the prognosis of upper gastrointestinal tract (UGIT) cancer in the UK remains poor, often presenting insidiously at a late stage. However, in contrast to our understanding of missed colorectal cancer rates following colonoscopy, relatively few studies have been published addressing the frequency of missed UGIT malignancies. Depending on the population studied this ranges from 6.7 to 25.8%. The aim of this study was to identify how frequently oesophagogastroduodenoscopy (OGD) may have failed to detect cancer at Prince Charles Hospital, a District General Hospital in South Wales, with a stable population of 150000, in the 36 months preceding a confirmed histological diagnosis.

Methods All patients between 1st January 2010 and 31st December 2012 who underwent an OGD and were subsequently diagnosed with cancer were identified using endoscopic records and the cancer service database. Patients who had undergone a prior endoscopy within 3 years of diagnosis were then identified and their records reviewed to analyse the previous endoscopic and histological findings.

Results 5454 endoscopies were performed during this time period, and a total of 134 patients (2.4%) with UGI cancer were identified. 77 (57%) were oesophageal, 49 (37%) gastric and 8 (6%) duodenal. The mean age was 69 years (range 24–91), with a higher proportion of males to females (3:1). Of these, 9 patients (6.7%) had undergone at least one previous endoscopy in the 36 months leading up to a confirmed UGIT cancer diagnosis, with 44% of these being within the preceding 12 months. The mean interval was 15months. The majority (55%) of patients had only one prior endoscopy (range 1– 5). 8 patients (89%) were found to have pathology at a preceding endoscopy at the site of a subsequently detected cancer. 6 patients were felt to have insufficient biopsy sampling (<4 or none) and 3 had inadequate surveillance or follow up of identified pathology (of which two had both inadequate sampling and surveillance).

Conclusion These findings, whilst similar to those previously reported in the literature have highlighted the importance of careful and thorough examination of the UGI tract, in particular with regard to adequate tissue sampling and surveillance. Consideration should be given to dedicated lists for surveillance of Barrett's and the use of additional techniques such as narrow band imaging and chromoendoscopy in order to enhance diagnostic accuracy.

Disclosure of Interest None Declared.

PTU-171 RECURRENCE AFTER SUCCESSFUL RADIOFREQUENCY ABLATION FOR BARRETT'S RELATED NEOPLASIA IS MORE LIKELY IN MALES: DATA FROM THE UNITED KINGDOM PATIENT REGISTRY

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Introduction Barrett's oesophagus (BE) can lead to oesophageal adenocarcinoma (OAC). BE is more prevalent in males. Endoscopic mucosal resection (EMR) for visible lesions followed by Radiofrequency ablation (RFA) have become first line treatment for patients with BE related neoplasia. Recurrence after treatment can occur in up to 25% of patients. Risk factors for recurrence are unclear.

Methods We examine prospective data from United Kingdom (UK) registry of patients undergoing RFA/EMR over past 5 years. We examine if recurrence after treatment is influenced by gender, baseline histology, BE length and prior EMR. Before RFA, visible lesions were removed by EMR. Thereafter patients underwent RFA 3 monthly. Biopsies were taken at 12 months and outcomes for clearance of dysplasia (CR-D) and BE (CR-IM) were assessed. After successful treatment patients were followed up 3 monthly for the first year, 6 monthly for second year and annually thereafter. Biopsies were taken from 1cm below neo z-line and previously treated BE segment.

Results A total of 412 males and 95 females have been treated with no statistical difference in baseline BE length, histology or

prior EMR in both groups. CR-D in Males was 84% and CR-IM 80%. In females CR-D was 86% and CR-IM 64% and not significantly different (p = 0.61 and p = 0.22, respectively). Progression to cancer was 3% in both cohorts at 12 months. There were 21 patients from both groups with recurrent dysplasia on follow up biopsy after successful treatment. Median time to recurrence in these after successful RFA was 380 days (IQR 177–615). Twenty recurrences were in males compared to one in female group which was statistically significant (p = 0.04). There were 11 recurrences of IM alone in patients who had confirmed CR-IM at 12 months. All were in male patients (median time to recurrence of 626 days, IQR 237–822). Baseline BE length, histology, prior EMR did not influence risk of recurrence of dysplasia or IM.

Conclusion RFA for BE related neoplasia is equally effective in both males and females. Recurrence of neoplasia after successful eradication although uncommon overall is more common in males. The much lower recurrence rate in women raises the possibility that they could be discharged from follow up after successful treatment or have prolonged surveillance intervals compared to men. This could reduce the burden of surveillance endoscopy on overstretched services. *All collaborators of UK RFA registry are acknowledged for their contributions to this work.*

Disclosure of Interest None Declared.

PTU-172 TREATMENT OUTCOMES FOR BARRETT'S OESOPHAGUS RELATED NEOPLASIA HAVE IMPROVED OVER TIME WITH CHANGES IN ENDOSCOPIC PRACTICE: FIVE YEAR EXPERIENCE FROM THE FIRST FIVE HUNDRED PATIENTS IN THE UNITED KINGDOM REGISTRY

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Introduction Barrett's oesophagus (BE) is the recognised pre-cursor to oesophageal adenocarcinoma (OAC). Combined endotherapy with endoscopic mucosal resection (EMR) and Radiofrequency ablation (RFA) have emerged as alternatives to surgery for curative treatment of patients with BE related neoplasia over the past 5 years.

Methods We examine prospective data from United Kingdom (UK) registry of patients undergoing RFA/EMR for early neoplasia arising in BE since the launch of the registry in 2008. Primary outcomes for clearance of dysplasia (CR-D) and BE (CR-IM) at 12 months were assessed over two time periods, between 2008–2010 and from 2011–2013. In addition durability of successful treatment, progression to invasive OAC and changes in endoscopic practices were also analysed between the time periods. Before RFA, visible lesions were removed by EMR. Thereafter patients underwent RFA every 3 monthly and biopsies were taken at 12 months. New lesions appearing during RFA treatment were removed by rescue EMR. This treatment algorithm has remained unchanged over past 5 years.

Results We report on 510 patients who have completed treatment with 12 month histology over past 5 years. CR-D and CR-IM have improved significantly between the former and later time periods from 77% and 56% to 91% and 82% respectively (p < 0.0001). The use of EMR for visible lesions prior to initiating RFA has also increased from 48% to 60% (p = 0.013). Conversely need for rescue EMR has decreased significantly to 3% over the last two and half years compared to 13% during initial time period (p < 0.0001). Progression to invasive OAC is not significantly different (2.8% in 2011–2013 vs. 4% 2008–2010, p = 0.56).

Conclusion We report one of the largest series of patients undergoing RFA for BE neoplasia. Clinical outcomes have improved significantly over the past 5 years as endoscopists have more experience with improved lesion recognition, and more attention to resection of all visible lesions before RFA. As a result the requirement for rescue EMR during RFA has reduced. Although rate of progression to OAC is lower in the later part of the registry experience, this is not statistically significant and implies that despite advances in endoscopic imaging and technique the rate of progression remains in the region of 2–4% in these high risk patients. *All collaborators of the UK RFA registry are acknowledged for their contributions to this work.*

Disclosure of Interest None Declared.

PTU-173 LONG TERM FOLLOW UP AFTER SUCCESSFUL RADIOFREQUENCY ABLATION FOR BARRETT'S RELATED NEOPLASIA IS ESSENTIAL TO DIAGNOSE RECURRENT DISEASE: DATA FROM THE UNITED KINGDOM PATIENT REGISTRY

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Introduction Radiofrequency ablation (RFA) for patients with Barrett's oesphagus (BE) related mucosal neoplasia has been shown to be safe and effective. Endoscopic mucosal resection (EMR) for visible lesions followed by RFA is now recommended practice for these patients. Although success rates are high for disease reversal at 12 months it is appreciated that recurrence after eradication of dysplasia and intestinal metaplasia (IM) can occur in up to 25% of patients. There is still debate as to what are the optimum endoscopic follow up intervals after successful treatment.

Methods We examine prospective data from United Kingdom (UK) registry of patients undergoing RFA/EMR for BE related neoplasia over the past 5 years. We aim to establish the frequency and time of recurrences after successful treatment. Before RFA, visible lesions were removed by EMR. Thereafter patients underwent RFA every 3 months. Biopsies were taken at 12 months for clearance of dysplasia (CR-D) and BE (CR-IM). Durability and recurrence for those with successful eradication was analysed. After successful treatment patients were followed up at 3 monthly for the first year, 6 month intervals for second year and annually thereafter. Biopsies were taken from 1cm below the neo z-line and from the previously treated BE segment.

Results A total 508 patients have been treated. At 12 months CR-D was 85% (428/508) and CR-IM 70% (354/508). For those with successful outcomes at 12 months who remain in follow up, median time to their most recent biopsy is 20 months from start of treatment (range 2–72). Kaplan Meier survival statistics predict that at 5 years 75% of patients are likely to be free of dysplasia and 74% free of IM. Median time to recurrence for dysplasia is 380 days (IQR 177–619), and IM 573 days (IQR 237–816). There were 21 patients with recurrent dysplasia, 48% occurred within the first year after successful treatment, 29% in