oesophagus, 4 of 7 (57.1%) oesophageal squamous lesions and 6 of 39 (15.3%) gastric lesions. All patients were discussed at a multidisciplinary meeting and those patients who were fit were offered radical surgery or chemoradiotherapy. Six patients who were offered radical surgery opted for conservative management with endoscopic follow-up. 14 patients proceeded to radical surgery; six of these had no residual cancer in surgical specimen and eight had residual cancer present. 11 of the 14 are currently in disease free survival, two died of recurrence and one died of post-operative complications. Two patients received radical chemoradiotherapy; one is in disease free survival, the other died of advanced adenocarcinoma. One patient received radical radiotherapy and remains free of recurrence. Nine patients received conservative/endoscopic management; of these seven had disease free survival, two died of metastatic adenocarcinoma. Mean follow-up was 32 months.

Conclusion Our results show that submucosal invasion is found in a significant proportion of patients undergoing upper gastrointestinal ER. Management of SM invasive cancer following ER remains challenging and our series shows a wide variation in management outcomes. Further research to guide the optimum management of this group of patients is required.

Competing interests None declared.

PWE-025 POST-RADIOTHERAPY PHARYNGEAL/PROXIMAL OESOPHAGEAL STRICTURES IN HEAD AND NECK MALIGNANCY: OUTCOME OF ENDOSCOPIC BOUGIE DILATION

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Introduction Chemo-radiotherapy is the standard of care for most patients with head and neck malignancy. Radiotherapy may lead to dysphagia due to pharyngeal/proximal oesophageal strictures. Endoscopic management of these strictures with antegrade dilation by using Savary Gilliard bougie dilators is described in literature.[1 2] Our aim was to review the outcome in patients referred for bougie dilation for radiotherapy induced strictures.

Methods It is a retrospective case notes review.

Results 11 patients underwent bougie dilation of radiotherapy induced strictures in last 4 years. Nine male, two female patients with median age of 71 years. Five patients had laryngeal cancer and six had oropharyngeal cancer. All patients had radiotherapy where four had concurrent chemotherapy. Five patients required flouroscopy and seven patients required nase endoscope. Median size of initial bougie size was 11 mm and final bougie size was 17 mm. Mean number of procedures per patient was 4. No complications noted. While three patients had good response, six had borderline and two had none. Median interval from completion of radiotherapy to index procedure was 2.5 years with range from 2 months to 12 years.

Conclusion Savary Gilliard bougie dilation appears to be safe and well tolerated method for dilating pharyngeal/proximal oesophageal strictures secondary to radiotherapy treatment for head and neck cancer. While symptom improvement varied among patients probably early intervention might benefit the patient.

Competing interests None declared.

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PWE-026 INFRARED SPECTROSCOPY ACURATELY DETECTS BARRETT'S MUCOSA BIOPSY SPECIMENS EX VIVO

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Introduction Oesophageal cancer (OAC) arises in Barrettt's oesopahgus (BE) and carries a poor prognosis. Early mucosal neoplasia arising in BE can be treated successfully with minimally invasive endotherapy. Fourier transform infrared spectroscopy (FTIR) can detect specific molecules from their unique vibrational absorption spectra in complex materials like human tissue. There is growing literature on it's medical diagnostic uses in the mid-infrared (MID-IR) range of 1800—900 cm^{-1}.

Methods 98 biopsy specimens were obtained from 21 patients undergoing endoscopy for BE surveillance over 3 months. 30 were from squamous epithelium, at least 2 cm above the squamocolumnar junction & remainder from visible BE mucosa. At each site a biopsy was taken for MID-IR analysis. A matched biopsy was taken from the same site for histopathological grading. FTIR spectra were recorded on biopsies at room temperature with a Bruker IFS 66/S spectrometer fitted with a liquid nitrogen-cooled MCT-B detector and an Attenuated Total Reflection silicon microprism. For each spectrum, 1000 interferograms (approximately 2 min accumulation time) were averaged before Fourier transformation. Spectra were converted to second derivatives to remove baseline artefacts and improve signal resolution. An automated programme was used to quantify specific characteristic features and normalise them relative to intensities of the protein amide II band in the same spectrum. The results were used to calculate their correlation with presence of glandular mucosa in BE.

Results Normal squamous mucosa and BE could be differentiated with a sensitivity of 82% and specificity of 96% by analysing variations in the 1180—1000 cm^{-1} region of second derivative of spectra. Bands in this region responsible for the observed differences arise from variations in levels of glycogen or a related material within the tissues. BE tissue appear to have at least 50% lower concentrations compared to the squamous epithelium.

Conclusion FTIR spectroscopy can accurately differentiate between the columnar mucosa of BE and normal squamous oesophagus. Further work is underway to examine the accuracy of this technique in differentiating different states of dysplasia in BE. IR spectroscopy provides a fast and effective means of detecting BE ex vivo and presents an exciting avenue of future research with a view to incorporating IR spectral analysis into existing technologies to capture real time spectral data at endoscopy to help guide endotherapy to these high risk patients.

Competing interests None declared.

PWE-027 HALO RADIOFREQUENCY ABLATION FOR SQUAMOUS HIGH GRADE DYSPLASIA AND EARLY SQUAMOUS CELL CARCINOMA: OUTCOMES FORM THE UK HALO RADIOFREQUENCY ABLATION REGISTRY

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Introduction Squamous Cell Cancer (SCC) of the oesophagus has a poor prognosis with 5-year survival at 10%. Squamous high grade dysplasia (HGD) is the precursor lesion to SCC. Risk of progression to SCC with Squamous HGD can be 65% at 5 years. Radiofrequency ablation (RFA) is a minimally invasive ablation technique with proven efficacy for early neoplasia in Barrett's Oesophagus.

Methods Prospective multicenter registry of patients undergoing RFA for Squamous HGD and early carcinoma in situ (CIS) from eight UK centers. Nodular lesions were removed by endoscopic mucosal resection before RFA. Treatment consisted of a single ablation at 12 J/cm^2. Patients were followed-up 3 monthly and repeat biopsies taken. Those with residual dysplasia underwent RFA 3 months later until 12 months where they were assessed for treatment success or failure.

Results 25 patients have undergone ablation for squamous HGD/CIS. We report on 17 patients to have completed protocol. Mean length of dysplastic epithelium ablated was 5 cm (1–14). Mean time to protocol completion was 8.7 months. CR-HGD was seen in 59% of patients and CR-D in 47% at end of protocol biopsy with mean of 1.4 RFA treatments (1–3). All those with successful outcomes remain free of dysplasia at most recent biopsy, median follow-up 10.6 months (2–36) from first treatment. At protocol completion, six of 17 patients (35%) had progressed to invasive cancer and referred for surgery or chemo-radiotherapy. Three patients (18%) required dilatations for oesophageal structuring after first treatment. Two of these patients have required serial dilatations thereafter with an average of four dilatations per patient.

Conclusion Squamous HGD and CIS are very aggressive pathologies as evidenced by the fact a third of patients progressed to invasive disease despite RFA. The role of RFA in these patients remains unclear. In our series 47% of patients responded to RFA & have reassuringly remained free of dysplasia at last follow-up. These figures are lower than limited published data to date but in our series an emphasis was placed on restaging carefully after each treatment to assess for progression. As our experience grows with confidence in identifying these lesions more accurately and increasing the frequency and number of ablations administered over the protocol period, dysplasia reversal rates will be expected to increase.

Competing interests None declared.

PWE-028 HALO RADIOFREQUENCY ABLATION FOR HIGH GRADE DYSPLASIA AND EARLY MUCOSAL NEOPLASIA ARISING IN BARRETT'S OESOPHAGUS: INTERIM RESULTS FORM THE UK HALO RADIOFREQUENCY ABLATION REGISTRY

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Introduction Barrett's oesophagus (BE) is the pre-cursor to oesophageal adenocarcinmoa (OAC). High grade dysplasia (HGD) and early mucosal neoplasia in BE has historically been treated with surgery. Recently there is a shift towards minimally invasive endotherapy with endoscopic mucosal resection (EMR) and Radiofrequency ablation (RFA).

Methods Prospective registry from 14 UK centers to audit RFA outcomes in patients with HGD and early neoplasia in BE. Prior to RFA, any visible lesions were first removed by EMR. Patients then underwent RFA 3 monthly until all visible BE was ablated or cancer developed. Biopsies were taken at the end of this protocol.

Results 216 patients have completed protocol, mean age 68.6 years (40–90), 81% male. Mean time to protocol end 11.3 months (IQR 8–14.3), median 2 ablations and mean of 2.4 (2–6) during protocol with mean 1.4 circumferential ablations and 1.2 focal ablations performed during protocol. Mean length BE segment ablated is 5.8 cm (1–20). CR-HGD was achieved in 83% patients at protocol end biopsy. CR-D was 76% and CR-BE 50% at this point. CR-D was more likely in short segment BE (<5 cm) at protocol end (82% vs 54%, p<0.0001, Fisher's exact test). Patients who required EMR during RFA protocol were less likely to achieve CR-D than those who had RFA alone (52% vs 79%, p=0.002, fishers exact test). 3.7% patients progressed to invasive cancer at protocol end. Complications include one perforation and 1% incidence of superficial tears. 37 patients have at least 12 months or more follow-up after successful completion of protocol (range 12–42), median 16.2 months. Durability in these is excellent with 95% dysplasia free at most recent biopsy.

Conclusion This is the largest series to date of patients undergoing RFA from 14 UK centers. End of protocol CR-D is satisfactory at 76% and successful eradication appears to be durable. Patients with short segment BE are likely to respond better. Our data represent real life outcomes of integrating minimally invasive endotherapy into demanding endoscopy service commitments.

Competing interests None declared.

PWE-029 OBJECTIVE ASSESSMENT OF PHYSICAL ACTIVITY AS A MEASURE OF FUNCTIONAL RECOVERY AND QUALITY OF LIFE FOLLOWING OESOPHAGO-GASTRIC CANCER RESECTION

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Introduction Functional recovery following surgery is determined by the interaction between pre-operative performance, post-operative catabolism, nutritional status, and mood. Physical activity (PA) is an important domain of health-related quality-of-life (HRQL), and may be a useful objective index of recovery. We aimed to use an accelerometer-based activity metre (ActivPAL) to monitor post-operative PA in oesophago-gastric (OG) cancer patients undergoing surgery with curative intent.

Methods PA measures, including step count, time spent in various body positions, and energy expenditure of activity, were assessed over 7-day periods in patients undergoing oesophagectomy or gastrectomy (n=16). Nutritional status, HRQL (FAACT, FACIT-F and EORTC-QLQC30 questionnaires), and mood (HADS questionnaire) were also assessed. Time-points were pre-operatively and 1–2 weeks, 5–6 weeks, 3 months and 6 months post-operatively.

Results Compared with pre-operative results, PA measures were decreased by 23–89% (p<0.05) 1–2 weeks post-operatively, and were still decreased by 15–57% (p<0.05) 5–6 weeks