Abstract PTU-021 Table 1

	Coeliac	Not Coeliac
TTG +ve	2	4
TTG -ve	0	32

210 patients (67.5%) had duodenal biopsies performed. Of these 178 (84.76%) had 4 or more duodenal biopsies.

Of 21 patients who had a negative TTG before endoscopy 12 (57.14%) had biopsies. None of these patients were found to have coeliac disease.

Conclusions This study demonstrates that the majority of patients receive 4 or more duodenal biopsies at endoscopy as recommended in the guidelines. In addition we have evidence that TTG serology appears a useful negative predictive test which is rarely available prior to endoscopy. Prior testing will help guide the endoscopist and may help avoid costly and unnecessary duodenal biopsies when investigating anaemia. Therefore the uptake of coeliac antibody testing should be encouraged in patients being investigated for anaemia.

PTH-116 BARRETT'S NEOPLASIA DETECTION: SYSTEMATIC OR TARGETED BIOPSY?

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Introduction

The role of systematic biopsy (i.e. random, four-quadrant biopsy) in Barrett's oesophagus surveillance has come under question given its drawbacks and the emergence of high-resolution endoscopy plus advanced imaging modalities. Our study aims to assess whether neoplastic pathology is typically diagnosed by systematic or targeted biopsy whilst using high-resolution endoscopy.

Methods A retrospective analysis of patients diagnosed with Barrett's oesophagus with dysplasia or neoplasia at a tertiary referral centre from 2008 onwards. Endoscopic and histopathologic data pertaining to the initial endoscopy in which pathology was diagnosed was extracted from the medical records. The most advanced histopathologic abnormality at initial diagnosis and within twelve months were noted. The corresponding endoscopic impression at initial diagnosis was used to group cases per type of biopsy – systematic or targeted. Pearson's chi-squared test of independence was used to analyse the relationship between the type of biopsy and diagnosis in twelve months, indication for endoscopy, endoscopist level and advanced techniques used.

Results Of the 222 patients involved in the study – a higher proportion were diagnosed through systematic biopsy (72.97%) than targeted biopsy (27.03%); No entity[2] (degrees of freedom [df]=2, n=222)=31.56, p<0.001. 90.91% of low-grade dysplasia (No entity[2] [df=2, n=88]=4.91, p=0.086), 71.43% of high-grade dysplasia (No entity[2] [df=2, n=70] =11.58, p=0.003) and 50% of intramucosal adenocarcinoma (No entity[2] [df=2, n=64]=5.18, p=0.075) cases were diagnosed by systematic biopsy. Across all grades of clinicians, patients were typically diagnosed through systematic biopsy; No entity[2] (df=3, n=215)=4.68, p=0.322. However, amongst specialist consultant endoscopists (n=10) the proportion was equal.

Conclusions Our findings strongly emphasise the importance of systematic biopsy in the detection of not only low-grade dysplasia, but also high-grade dysplasia and early invasive carcinoma as part of Barrett's oesophagus surveillance.

PTH-117 SEX HORMONE RECEPTOR EXPRESSION IN OESOPHAGEAL ADENOCARCINOMA AND RECURRENCE AND SURVIVAL: A RETROSPECTIVE COHORT STUDY

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Introduction The most striking epidemiological feature of Oesophageal adenocarcinoma (OAC) is its strong unexplained male predominance, suggesting a protective effect for oestrogens, but few studies have investigated expression of sex hormone receptors in OAC. In a retrospective cohort of OAC patients, we evaluated Oestrogen Receptor (ER) α and β and Androgen Receptor (AR) tumour expression and investigated associations with OAC recurrence and survival.

Methods We identified 148 OAC patients who underwent neo-adjuvant chemotherapy prior to surgical resection between 2004–2012 at the Northern Ireland Cancer Centre. Immunohistochemical expression of ERα, ERβ and AR was scored by two independent observers, blinded to the clinical data. Cox proportional hazards regression was used to calculate hazard ratios (HR) and 95% confidence intervals (CI) for associations between sex hormone receptor expression and overall survival, cancer-specific survival and recurrence-free survival. All analyses were adjusted for clinic-pathological and lifestyle factors including age at diagnosis, sex, pathological nodal stage, primary site, lymphovascular invasion, circumferential margin involvement, PET response and smoking. Sub-group analysis was conducted by Siewert classification.

Results Weak positive expression was identified for ERα (6/139) and AR (4/138) while moderate positive expression was observed for ERβ (43/138). After a mean follow-up of 3 years (max 9 years), no significant associations were observed for ERα, ERβ or AR expression and OAC recurrence or survival. ERβ expression however was associated with significant improvements in overall survival (HR 0.38, 95% CI 0.16, 0.88), cancer-specific survival (HR 0.36, 95% CI 0.15, 0.84) and recurrence-free survival (HR 0.28, 95% CI 0.12, 0.69) in patients with adenocarcinoma of the distal oesophagus (Siewert type I).

Conclusion In the largest study to date, we found little evidence of ERα or AR expression in OAC. We observed moderate expression of ERβ and suggestive evidence that its

expression was associated with reduced recurrence and death in patients with adenocarcinoma of the distal oesophagus. Further studies however are required to replicate our findings to determine if the ER system could be a potential prognostic biomarker in OAC.

PTH-118 HISTOPATHOLOGIST FEATURES PREDICTIVE OF DIAGNOSTIC CONCORDANCE AMONGST AN INTERNATIONAL SAMPLE OF PATHOLOGISTS DIAGNOSING BARRETT'S DYSPLASIA

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Introduction Histopathological diagnosis of dysplasia in Barrett's oesophagus (BO) is the gold standard for patient risk stratification, but is subject to significant interobserver variation. We investigated histopathologist features that predict diagnostic performance amongst a large international cohort of gastrointestinal (GI) pathologists.

Methods An online scoring environment was developed for GI-pathologists (n=55) from over 20 countries to grade a case set of 55 digitalised BO biopsies encompassing the complete spectrum from non-dysplastic Barrett's oesophagus (NDBO), indefinite, low and high-grade dysplasia (IND/LGD/HGD). Case interpretations were recorded before and after revealing P53 immunohistochemistry. Detailed histopathologist demographic data (experience, centre volume, fellowship training etc.) was obtained through an online questionnaire. A consensus gold standard diagnosis was obtained for the entire case set through a reference panel of four expert pathologists. Multivariate regression analyses was conducted to identify pathologist predictors of concordance.

Results We recorded over 6000 case diagnoses. Of 2,805 hour and E diagnoses, we found excellent concordance for NDBO (643 of 816 diagnoses; 79%) and HGD (544 of 765 diagnoses; 71%) and intermediate concordance for LGD (382 of 918; 42%) and IND (70 of 306; 23%), replicating known glass slide test characteristics. Major over or under-interpretations (i.e. NDBO overstaged as LGD/HGD, or LGD/HGD understaged as NDBO) were reported in 248 diagnoses (8.8%). Addition of p53 staining further improved diagnostic consensus, but had limited impact on major over or under-interpretations. Multivariate regression analyses revealed independent histopathologist predictors of expert level diagnostic performance, including; at least 5 years of experience, working within a teaching hospital, viewing 5–20 Barrett's cases per week, adherence to major guidelines, and an interest in digital pathology.

Conclusions Using this rich dataset representing a heterogeneous group of gastrointestinal pathologists working globally, we have quantified diagnostic performance for BO dysplasia diagnosis using digital case review. Our results reveal predictors of diagnostic performance at expert level, and will aid formulation of quality assurance criteria for guideline development.

PTH-119 INTERNATIONAL MULTICENTRE STUDY OF MALLORY WEISS TEAR RELATED GI BLEEDING: DEMOGRAPHICS, ENDOSCOPIC THERAPY AND OUTCOME

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Introduction Mallory Weiss tears (MWT) are relatively uncommon causes of upper GI bleeding (UGIB) and patients with these lesions are generally considered at low risk of poor outcome. However there are relatively limited data on this condition. In addition, there is uncertainty about which patients with MWT require endoscopic therapy and which modality should be applied. We aimed to describe an international cohort of patients presenting with UGIB secondary to MWT, including the endoscopic therapy undertaken. We also compared clinical outcomes between patients with MWT and other causes of UGIB.

Methods From an international dataset of consecutive patients undergoing endoscopy for acute UGIB at six hospitals in UK, Denmark, USA, Singapore and New Zealand, we assessed those patients with MWT bleeding, including the estimated Forrest classification and endoscopic therapy applied. We also compared baseline factors, rebleeding rates and 30 day mortality between patients with MWT, peptic ulcer bleeding (PUB) and all cause UGIB.

Results Patients with MWT bleeding were younger, with higher baseline pulse and Hb compared to those with PUB and all cause UGIB. Although the rebleeding rate was lower in MWT patients compared with PUB patients, mortality was similar (table 1).

Most MWT lesions were Forrest 1a or 3 at endoscopy (table 2). 42 (43%) MWT patients received endotherapy. 38 (90%) had adrenaline injection, 21 (50%) clips, and 5 (12%) thermal probe applied. 22 (52%) treated patients had combination therapy. Overall rebleeding rate for MWT patients was 4.1% (1.8% in those not treated and 7.1% in those treated with endotherapy).

Abstract PTH-119 Table 1 Comparison of patient characteristics & outcomes between MWT, PUB & all UGIB

	MWT	PUB	All UGIB
Number	98	571	2963
Mean Age (yrs)	58	**68 (p<0.001)**	**62 (p=0.014)**
Male%	76	**61 (p=0.006)**	**58 (p=0.001)**
Mean Hb (g/L)	119	**94 (p<0.001)**	**111 (p=0.034)**
Mean systolic BP (mmHg)	123	122 (p=NS)	127 (p=NS)
Mean pulse rate	97	**91 (p=0.034)**	**91 (p=0.0091)**
Mortality%	6.1	5.1 (p=NS)	7.0 (p=NS)
Re-bleed%	4.1	**11.4 (p<0.001)**	7.1 (p=NS)

Abstract PTH-119 Table 2 MWT group by Forrest Classification, endoscopic therapy & rebleeding rate; Forrest Class.

Number	Endoscopic therapy applied. Number (%)	Rebleeding rate. Number (%)	
1a	8	8 (100)	0
1b	26	15 (58)	3 (12)
2a	4	4 (100)	0
2b	19	13 (68)	0
2c	8	1 (13)	0
3	25	0	1 (4)
data missing	8	1 (13)	0

Conclusions Although patients presenting with MWT were younger, with lower rebleeding rate compared with PUB, their mortality was similar to that of patients with PUB and all cause UGIB. Endoscopic therapy was applied to 43% MWT patients, with adrenaline injection, followed by clips, the most common modalities employed.

The LINX reflux management system

PTH-120 PREDICTIVE VALUE OF PRE-OPERATIVE OESOPHAGEAL PHYSIOLOGY TESTING ON POST-OPERATIVE OUTCOMES

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Introduction The LINX reflux management device (Torax Medical) augments lower oesophageal sphincter function via implantation of magnetic beads around the gastro-oesophageal junction. There are specific instructions for use which require oesophageal physiology testing to ensure patients are suitable for surgery. Whilst these parameters mainly focus on peristaltic amplitudes being sufficient to open the beads, the predictive value of physiological parameters on symptom outcomes are uncertain. We therefore retrospectively assessed this relationship in the UK's largest cohort of single surgeon cases.

Methods A LINX device was implanted laparoscopically into 69 patients (40 male, mean age 49.5). Symptoms were assessed prior to and 6 months following surgery using a combined Gastroesophageal Reflux Disease Health Related Quality of Life score and Reflux Symptom Index score. Potential patients underwent high resolution impedance manometry and 24 hour pH/impedance monitoring prior to surgery. Patients with a major motility disorder were contra-indicated for surgery. Overall symptom improvement was tracked, and individual physiological parameters were assessed for ability to significantly improve outcome.

Results There were no cases of LINX explant from the studied cohort. Data were assessed with Wilcoxon signed-rank and Mann-Whitney U tests. The combined symptom score improved from a mean of 43.77 to 11.86 ($p<0.001$). To see if motility can affect symptom improvement, patients were each split into two groups; normal vs. weak. These groups were then compared against the symptom improvement (pre-operative scores minus post-operative scores), where a Distal Contractile Integral (DCI) of $\geq$450 mmHg.s.cm is considered a normal swallow, a Mean Distal Amplitude (MDA) of $\geq$30 mmHg is a LINX device precaution, and an Impedance Bolus Clearance (IBC) of $\geq$70% of swallows is considered normal. Reflux was also assessed using percentage Acid Exposure Time (AET) and acid/non-acid Reflux Events (RE) using impedance.

Abstract PTH-120 Table 1

Parameter		Mean Symptom Improvement	P Value
DCI:	Normal	22.33	
	Weak	27.62	0.208
MDA:	$\geq$30 mmHg	26.21	
	<30 mmHg	24.88	0.816
IBC:	$\geq$70%	21.44	
	<70%	25.04	0.396
AET:	$\geq$4.2%	21.41	
	<4.2%	16.88	0.327
RE:	$\geq$73	25.7	
	<73	24.38	0.748

Conclusion We summarise that using a pre-operative protocol where patients undergo oesophageal physiology tests allows for good patient selection and ensures excellent outcomes with significant improvement in symptoms post-operatively. In the absence of a major motility abnormality, those patients with weak motility, low MDA, or reduced IBC, do not experience significantly worse symptoms post-operatively. Those with reflux symptom correlation but where increased exposure was not noted on 24 hour monitoring may still benefit from the LINX

PTH-121 REFERRAL PATHWAY AND AGE INFLUENCE THE LIKELIHOOD OF BIOPSY TO EXCLUDE EOSINOPHILIC OESOPHAGITIS IN DYSPHAGIA

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Introduction Dysphagia is a common cause for 2 week wait (2 WW) referral for endoscopy, where the primary goal is to exclude malignancy. Non-malignant pathology such as Eosinophilic Oesophagitis (EO) can present with similar symptoms. As EO may have little in the way of endoscopic features, it is recommended that biopsies be taken to exclude this condition where no endoscopic cause is found. It is unknown whether this strategy is appropriate in the rapid access population.

Methods We performed a database review of all OGDs performed to investigate dysphagia, during the 12 month period of 1 st July 2016 – 30th June 2017, within three large teaching hospitals serving a population of 3.2 million. Demographic information, endoscopic diagnosis and histology results were evaluated. Biopsy practice and outcomes were compared according to referral pathway and patient age.

Results During this period of time 3052 patients underwent an OGD for dysphagia, of which 2387 (64%) were investigated on the 2 WW pathway and 665 (17.9%) as routine referrals. In cases where no cause for dysphagia was identified

on endoscopy, biopsy to exclude EO was more likely in patients under routine referral compared to those on the 2 WW pathway (table 1). EO was over three times more commonly diagnosed in the routine referral cohort. Patient age also influenced the likelihood of taking biopsies, with a negative correlation between biopsy acquisition and patient age (table 2). Overall, there were 68 histologically confirmed diagnoses of EO with mean age of 42 years and M:F ratio of 2:1.

Conclusions Our data suggest that despite no significant differences in demographics, those referred via the 2 WW were less likely to be investigated for EO than those referred routinely. Patient age appears to influence the investigation of EO, despite proven cases in older patients. These disparities in practice may result in under diagnosis of EO in older patients or patients referred through the 2WW pathway.

Abstract PTH-121 Table 1 Patient characteristics and outcomes as per referral route

Comparison	2 WW referral (n=2387)	Routine referral (n=665)
Mean age (range)	65.3 (23–101) years	57.9 (21–93) years
M:F ratio	0.83	0.89
Malignancy (% of total)	136 (5.7%)	12 (1.8%)
Benign cause of dysphagia (% of total)	564 (23.6%)	211 (31.7%)
No endoscopic cause of dysphagia (% of total)	1681 (70.4%)	443 (66.6%)
Cases biopsied to exclude EOE (% of cases without endoscopic cause of dysphagia)	573 (34.1%)	221 (49.9%)
EOE cases (% of total)	**35 (1.5%)**	**33 (5.0%)**

Abstract PTH-121 Table 2 Biopsy acquisition as per patient age

Age group (yrs)	Cases biopsied/normal endoscopies	EO cases/total endoscopies
17–35	98/155 (63.2%)	26/198 (13.1%)
36–55	275/608 (45.2%)	37/853 (4.3%)
56–75	396/1105 (35.8%)	14/1698 (0.8%)
76–101	154/600 (25.7%)	6/963 (0.6%)

PTH-122 ENDOSCOPIC MANAGEMENT OF EARLY NEOPLASIA IN BARRETT'S OESOPHAGUS – AN OUTCOME ANALYSIS FROM NORTH-EAST ENGLAND

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Background Barrett's Oesophagus (BO) is a pre-malignant condition associated with progression to dysplasia and oesophageal adenocarcinoma (OAC) and surveillance startegies are aimed at detecting early neoplasia (low and high grade dysplasia), which can be treated by endoscopic resection(ER) and radiofrequency ablation(RFA). The British Society of Gastroenterology Guidelines for management of Barrett's Oesophagus (Gut 2014) and NICE pathway (2014) recommend that all units carrying out these procedures should audit their performance to national standards. The North-east of England is an area of high prevalence and poor outcomes related to OAC.

Aim of this study This study was aimed at analysing the combined outcomes of the treatment of Barrett's related early neoplasia in the two centres that provided this treatment in 2015–2016. The population covered by these two centres is approximately 3.0 million, with two regional tertiary MDTs.

Methods A retrospective review of endoscopy, MDT and case notes for all patients with Barrett's related early neoplasia (defined as either low grade (LGD) or high grade (HGD) dysplasia) between January 2015- December 2016 was undertaken. All histology was reviewed by two specialist GI Pathologists, and endoscopic resection and RFA treatment carried out by two endoscopists (AD, DN). A limited number of endoscopic resections in the early phases were carried out by surgical endoscopists. RFA was done using the HALO 360 or 360 express balloons for circumferential ablation or the HALO 90 or TTS devices for focal ablation. 12 month outcomes for complete response for intestinal metaplasia (CE-IM) were analysed.

Results A total of 49 patients with Barrett's oesophagus related dysplasia were treated, median age 68 years (range 43–85), M:F=3.5:1. 56% patients were current smokers and 15% ex-smokers. 4% patients had a family history of OAC. 52% patients were not obese. 71% pts had a Barrett's segment <8 cm long. 24 pts (52%) had high grade dysplasia, 17 of which were in a Barrett's segment of <8 cm length. Of 22 patients with LGD, only 7 pts had a Barrett's segment of >8 cm. 3/12 pts with LGD were treated by EMR followed by RFA, while 9 pts received RFA alone (the remaining LGD pts were either downgraded or kept on surveillance). In the HGD group, after MDT discussion, 4 pts opted for oesophagectomy, 7 had EMR and RFA and 7 had RFA alone. Post EMR histology confirmed dysplasia in 83%, and intramucosal adenocarcinoma in 5%. CE-IM was achieved in 15 pts (78%) at the end of 1 year, with 2 pts (9%) showing LGD and 1 (4%) showing HGD and 1 indefinite for dysplasia.

Conclusions In this real world analysis of Endotherapy for Barrett's oesophagus in an area of high prevalence of OAC, we have shown that EMR rates are 50% for HGD and 25% for LGD and CE-IM rates of 78% achieved at 12 months. This is comparable to national outcomes, although the EMR rates for LGD are considerably lower

Chronic Cough and GORD

PTH-123 THE TIP OF THE ICEBERG?

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Introduction Chronic cough affects 9%–33% of European and US populations.[1] Gastro-oesophageal reflux disease (GORD) has emerged as an important cause,[2] with high resolution manometry (HRM) and 24 hour pH monitoring a vital diagnostic tool.

Methods We retrospectively audited referrals from respiratory physicians for chronic cough from February 2015-November 2016. 105 patients were referred, with 85 undergoing HRM/

pH studies which were performed using Sandhill Scientific equipment.

Results HRM/pH studies showed a mean upper oesophageal sphincter pressure of 34.7 mmHg, with 47% having a hypotensive UOS. Mean lower oesophageal sphincter pressure was 19.1 mmHG, with 33% having a hypotensive LOS. Mean percentage upright oesophageal acid exposure was 5.3%, with 24% having excessive exposure (>6.3%). Mean supine oesophageal acid exposure was 4.4%, with 32% having excessive exposure (>1.2%). The mean DeMeester score was 17.6, with 28% having a positive score (>14.7). See table 1 for full physiology results.

14.3% patients were referred for anti-reflux surgery (ARS) after HRM. 60% had hypotensive UOS, 67% hypotensive LOS, 47% upright acid exposure >6.3%, 60% supine acid exposure >1.2%, 67% DeMeester score >14.7% and 60% positive symptom association.

There were no statistically significant differences between those undergoing ARS and those not for sex, age, BMI or UOS pressures. However LOS pressure,% upright/supine acid exposure and DeMeester score were significantly different ($p=0.03, <0.01, <0.01, <0.01$ respectively).

Conclusions GORD is a potentially important cause of chronic cough, affecting 24%–32% of patients by supine/upright acid exposure or DeMeester score. 47% have a hypotensive UOS, suggesting the cough may represent pharyngeal dysfunction and/or non-acid reflux. ~15% underwent ARS, a higher conversion rate than the colorectal 2-week-wait pathway (5%–10%), despite mixed evidence of the effectiveness of ARS for extra-oesophageal manifestations of GORD.[3 4]

Abstract PTH-123 Table 1

HRM/pH study parameter (normal range/cut off)	Mean (SD)	% positive
UOS pressure (30–118)	34.7 mmHg (28.4)	47% hypotensive UOS
LOS pressure (10–45)	19.1 mmHg (15.9)	33% hypotensive LOS
% upright acid exposure (<6.3%)	5.3% (5.7)	24%
% supine acid exposure (<1.2%)	4.4% (7.6)	32%
DeMeester score (<14.7)	17.6 (20.4)	28%
Symptom association	-	41.2%

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PTH-124 ENDOSCOPIC RESECTION OF EARLY OESOPHAGEAL ADENOCARCINOMA WITH SUBMUCOSAL INVASION: OUTCOMES FROM A SINGLE CENTRE

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Introduction Endoscopic mucosal resection (EMR) for early oesophageal adenocarcinoma (EOA) is an established and accepted therapy with the outcome for cancers invading the submucosal layer (T1b) dependent upon histological risk factors of the malignancy. The aim of this study was to assess the outcomes in patients with T1b EOA in our institution.

Methods We retrospectively assessed all patients who underwent an upper GI EMR from January 2009 to December 2017 using the audit tool of UNISOFT Medical Systems – GI reporting tool (version14). We collected data regarding the histological characteristics from our ICE laboratory reporting system. Patients who were identified as having a T1b EOA were reviewed for their subsequent management and outcome using electronic hospital records and the Somerset Cancer Registry.

Results A total of 333 patients underwent 391 upper GI EMR procedures. Of these, 170 were oesophageal EMR of which 18 had EOA with submucosal invasion. All 18 were male with a mean age of 68.6 years. The EMR was en-block in 4 cases and piecemeal in the remainder. The median number of resections per procedure was 3 (IQR 1–4). The median follow up was 37 (IQR 23–56) months. No patient had complications of bleeding or perforation. Twelve of the lesions were sub-classified as SM1, 4 as SM2 and 2 as SM3. Further endoscopic and histological characteristics can be seen in table 1. Eleven patients underwent surgical resection following their initial EMR (table 2). Five are still alive, 2 died from metastatic oesophageal cancer (after 7 and 39 months respectively) and 4 died from causes unrelated to oesophageal cancer (34, 44, 58 and 67 months later). Three of the patients who underwent surgery had no residual cancer or lymph nodes found in the surgically resected specimen; one was found to have high grade dysplasia. In the remaining 7 patients not undergoing surgery, 2 were palliated and died 4 and 7 months later. The other 5 patients had either radiotherapy alone (3), chemo-radiotherapy (1) or oesophageal radiofrequency ablation (1) and are all alive to date after a median follow up of 32 (IQR 13–48) months.

Conclusion The management of patients who are found to have EOA with submucosal involvement needs to be individualised. The majority of our patients underwent further treatment. Surgical resection revealed no residual tumour in some but metastatic disease occurred in others. Treatment decisions should be taken through a multi-disciplinary approach depending upon the histological characteristics and the comorbidities of the patient.

Abstract PTH-124 Table 1 Patient characteristics

Oesophageal EMRs reviewed	170
T1b adenocarcinomas	18
Mean Age	68.6
Male sex	18(100%)
Median follow up (months)	37
Enblock resections	4
2 Piece EMR	4
3 Piece EMR	4
4 Piece EMR	4
5 Piece EMR	0
6 Piece EMR	1
7 Piece EMR	1
Clear Deep Margin on EMR sample	5
SM1	12
SM2	4
SM3	2
Well differentiated	3
Moderately differentiated	9
Poorly differentiated	6
Lymphovascular involvement on EMR sample	6
Surgical resections	11
Lymphovascular involvement on Surgical sample	2
Positive Lymphnodes on Surgical Sample	2

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Abstract PTH-124 Table 2 Histological characteristics of EMR & subsequent surgical resection

	Number	Surgical resection (%)
SM1	12	8 (66.6%)
Well differentiated	3	1 (30%)
Moderately differentiated	5	3 (60%)
Poorly differentiated	4	4 (100%)
Clear Deep margin on EMR	4	4 (all had LVI +ve)
Lymphatic or vascular involvement	4	4 (100%)
SM2	4	1(25%)
Well differentiated	0	n/a
Moderately differentiated	3	1(33%)
Poorly differentiated	1	0
Clear Deep margin on EMR	1	0
Lymphatic or vascular involvement	2	1(50%)
SM3	2	2(100%)
Well differentiated	0	n/a
Moderately differentiated	1	1(100%)
Poorly differentiated	1	1(100%)
Clear Deep margin on EMR	0	n/a
Lymphatic or vascular involvement	0	n/a

PTH-125 VARIATION IN THE INVESTIGATION AND DIAGNOSIS OF EOSINOPHILIC OESOPHAGITISIN DAILY CLINICAL PRACTICE

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Introduction Eosinophilic oesophagitis (EO) is a recognised cause of dysphagia, with an estimated annual incidence of 6–13 cases/100,000 persons. Endoscopic features may be subtle or absent and as such societal guidelines advocate the acquisition of six non-targeted oesophageal biopsies, where a cause has not been identified. We aim to determine whether these recommendations are adhered to in clinical practice.

Methods We performed a database review of all diagnostic OGDs performed to investigate dysphagia or food bolus obstruction, during the 12 month period between 1 st July 2016–30th June 2017 within three large teaching hospitals (Cambridge University Hospital, Sheffield Teaching Hospitals and Nottingham University Hospital). Endoscopy reports were reviewed to determine endoscopic findings. Histology reports were examined to establish the number of biopsy samples received and whether a diagnosis of EO was made.

Results During this time period a total of 25,495 OGDs were performed, of which 4056 (16%) were carried out as part of the investigation of dysphagia. Failed and repeat procedures were excluded leaving a total study population of 3712. An endoscopic diagnosis potentially causing dysphagia was observed in 1286 patients (oesophagitis/ulceration 583 (15.7%), benign stricture 311 (8.4%), malignancy 188 (5.1%) or other causes 156 (4.2%). In the remaining 2468 patients (66.5%) an endoscopic cause of dysphagia was not identified. Biopsies to exclude EO were taken during 923 (37.4%) of these non-diagnostic procedures. A reason for not taking biopsies was documented in 19 cases. The recommended 6 biopsies were received by histopathology in 87 patients. A diagnosis of EO was considered in 42 patients based on endoscopic features, of which 68% went on to be confirmed with histology. During the 12 month period a total of 83 histologically confirmed cases of EO were diagnosed. Endoscopy had a sensitivity and specificity for the diagnosis of EO of 33.7% and 96.8% respectively. Physician endoscopists were more likely take biopsies, acquiring these in 46.4% of procedures where this would be appropriate, compared to surgical endoscopists who took these in 13.3%. Physicians consequently diagnosed 77 (93%) of confirmed cases.

Conclusions This study demonstrates variable adherence to recommendations for the investigation of EO. The hospitals included serve a combined population of approximately 3.2 million, giving rise to a below expected incidence of 2.6 cases per 1 00 000 per year

PTH-126 NEOPLASIA PROGRESSION IN BARRETT'S OESOPHAGUS WITH BASELINE LOW-GRADE DYSPLASIA UNDERGOING RADIOFREQUENCY ABLATION

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Introduction Barrett's oesophagus (BO) with low-grade dysplasia (LGD) can progress to high-grade dysplasia (HGD) and oesophageal adenocarcinoma (OAC). For this reason confirmed LGD has been recently approved by NICE as an indication for radiofrequency ablation (RFA). We aimed to evaluate the progression rate among LGD patients undergoing RFA and thus corroborate the importance of the ablative treatment in this scenario.

Methods Review of the RFA database in a tertiary referral centre over the period 2008–2018 was done. Demographics, BO characteristics and RFA treatment features were collected

and included for analysis. Patients with an indication for RFA other than BO with LGD were excluded. Only endoscopies done during the RFA or exit-biopsies period were taken into consideration.

Results 41 patients were included for analysis: 31 males (75.6%), mean age 66(SD=10), median BO length 6.6 (SD=3.2). In 34 patients (82.9%) LGD was detected through random biopsies and was confirmed by 2 expert pathologists within an interval of 6 months. 7 patients (17.1%) presenting a visible lesion were diagnosed following endoscopic mucosal resection (EMR).

11 patients (26.8%) completed the RFA treatment with a median number of 2.5(SD=1) sessions achieving complete eradication of dysplasia and intestinal metaplasia. 1 patient (2.3%) abandoned the treatment after developing severe comorbidities. 12 patients (29.2%) who finished the RFA were awaiting exit-biopsies and 17 (41.4%) still continuing ablative treatment.

LGD progression was detected in 4 patients (9.75%) with 3 confirmed cases of HGD and one OAC. The median time for progression was 16.7(SD=4.5) months since the confirmed diagnosis. The most common location was the gastro-oesophageal junction, GOJ (75%). 3 of these cases, including the OAC, presented with a visible lesion and were treated endoscopically (2 EMR; 1 endoscopic submucosal dissection, ESD). 2 additional RFA sessions were applied to the GOJ progression presented as non-visible lesion.

Conclusions The progression rate among BO patients with confirmed LGD undergoing RFA in our series was 9.75%. This data emphasises the high risk of progression presented by this subgroup and supports its indication for ablative treatment.

Abstract PTH-126 Table 1 Basline characteristics of the patients with progression

Abstract PTH-126 Table 2 Appearance and treatment of each progression case

Case	Treatment stage when detected	Time-interval to progression	Location	Visible lesion	Histology	Treatment
1	Exit-biopsies	18mo	GOJ	Yes	HGD	EMR
2	RFA	19mo	Tubular oesophagus	Yes	HGD	EMR
3	Exit-biopsies	20mo	GOJ	No	HGD	RFA
4	Exit-biopsies	10mo	GOJ	Yes	OAC	ESD

PTH-127 STUDIES OF SALIVARY PEPSIN IN PATIENTS WITH REFLUX DISEASE

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Introduction Salivary pepsin has been proposed as a non-invasive diagnostic marker of reflux disease but results have been conflicting. Our aim was therefore to study the optimal timing of salivary sampling.

Methods Asymptomatic volunteers and patients with reflux symptoms being considered for antireflux surgery were studied by structured questionnaire, oesophageal pH (modified to alarm with proximal reflux events), HRM, oesophageal impedance and multiple timed salivary samples after reflux symptoms, when the proximal reflux alarm was activated, on rising and after the evening meal. After an initial pilot, utilising only Peptest analysis, samples were coded and split for analysis by Peptest and in-house ELISA.

Results Twenty volunteers (6 males, aged 21–56 years) and thirty patients (18 males, aged 20–72 years) were studied. Volunteers had normal acid exposure (1.0, 0–3.5%) and impedance values. Patients had increased acid exposure (7.3, 0.2–39%) and 23 had values in excess of the normal range and were classified as true reflux. A further three had significant non-acid reflux and the final four were excluded from further analysis. In patients with true acid reflux, 20 reported symptoms during the 24 hour period and in 12 the proximal reflux alarm was triggered.

Peptest analysis of 276 samples from the 20 volunteers revealed detectable levels in 102 samples (37%). 75% of volunteers had at least one positive sample (range 1–18). Peptest analysis of 458 samples from patients with true reflux revealed positive results in 41% of samples. 84% of patients had at least one positive result. The indirect ELISA of samples from volunteers revealed detectable levels in 87%. All volunteers had at least one positive sample. ELISA of samples from patients with true reflux revealed positive results 79%. All patients had at least one positive result.

Peptest gave a significant difference in concentration between the control and reflux groups, but with controls giving the higher readings (t-test, $p<0.01$). In contrast, there was no significant difference in the average ELISA score for pepsin concentration in each group. Peptest quantitations were not significantly different between patients and volunteers on rising but were significantly lower in patients post-prandially ($p<0.05$). Peptest results showed no difference in salivary pepsin following the reflux alarm and symptomatic individuals having lower values than volunteers.

Conclusions Salivary pepsin does not discriminate between volunteers and patients with reflux disease. Furthermore, we demonstrate inconsistencies between an in house validated ELISA for salivary pepsin and commercially available Peptest.

PTH-128 BRAVO WIRELESS PH MONITORING CAN SAVE TIME WHEN INVESTIGATING PATIENTS WITH EOSINOPHILIC OESOPHAGITIS

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Introduction The incidence of eosinophilic oesophagitis (EoE) is increasing. Following diagnosis, the initial therapy is to place patients on protein pump inhibitors (PPI) and repeat oesophageal biopsies, as 30% of patients will be PPI responsive. As acid reflux is known to cause eosinophilic oesophagitis, pH impedance and manometry is also carried out to aid management. This is usually carried out as a separate hospital visit. An alternative test is wireless pH monitoring with a BRAVO device during which a pH monitoring chip is attached to the distal oesophagus at the same time as a gastroscopy. This is also an opportunity to take the repeated biopsies to assess PPI response; pH monitoring could therefore be integrated into the repeated endoscopic pathway and avoid the extra appointment for standard pH impedance. The fragile 'crêpe-paper' mucosa of EoE has been raised as a potential source of early detachment of BRAVO capsules thereby limiting their use in this condition.

Aim To assess whether there is any difference in the detachment day of the BRAVO capsule in patients with EoE when

compared to other conditions and thereby determine its use in the pathway for the investigation of EoE patients.

Method The electronic records of patients with EoE who also had a BRAVO were examined retrospectively between June 2008 and January 2018 at a single centre. The total time of recording of the BRAVO capsule was noted and whether reflux was significant. In addition the number of eosinophils per high power field on the oesophageal biopsies taken prior to or at the same time as the BRAVO study was recorded.

Results Ten patients with EoE underwent 12 BRAVO studies (M: F 1:1, age range 18–56). One study detached within one day, three after two days and eight after four days. The patient whose capsule detached early went on to have a second BRAVO study lasting 4 days. Detachment times were compared to those for non-EoE in our department for a single calendar year (December 2016-December 2017). There was no significant difference in detachment rates between these two groups ($p<0.1$). The range of eosinophils per HPF was 20 to 71 (average 38.1, standard deviation 20.5).

Conclusion Bravo pH manometry is a useful investigation in patients with EoE and beneficial to the patient; reducing the number of invasive procedures by allowing the attachment of the BRAVO capsule at the same time as taking post-PPI biopsies. The detachment was not significantly greater in patients with EoE although the numbers are small. There was no correlation between eosinophil count per HPF and attachment times. The only drawback is that patients are expected to stop PPI 7 days prior to the BRAVO being placed with a theoretical risk of a recrudescence of oesophageal eosinophilia in that time although the standard time for redevelopment of EoE is around 6–8 weeks.

Can you give a more precise definition of outcomes such as

Primary outcome: surface regression at 3/12

Secondary outcomes: stricture rate and EoT CRD and CRIM

Pancreas

OTU-017 DOES IGG4 LEVEL AT THE TIME OF DIAGNOSIS CORRELATE WITH OUTCOME IN IGG4-RELATED DISEASE?

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Introduction IgG4-related disease (IRD) is a multisystem disease where raised serum IgG4 may predict relapse and multi-organ involvement.[1] The aim of this study was to compare demographics, multi-organ involvement, response to treatment, relapse rate and end organ damage in patients with versus those without a raised serum IgG4 level at the point of diagnosis.

Methods Patients diagnosed with IgG4 disease between January 2005 and September 2016 according to the ICD Criteria formed the study population. Patients were divided into two groups – Group 1: patients with elevated serum IgG4 and Group 2: normal serum IgG4. Patients' demographics, other organs involvement, response to steroid treatment, relapse rate and long-term complications (organ dysfunction, exocrine and endocrine insufficiency) were compared between the 2 groups. For this study, we analysed the data based on 2 levels of IgG4 A:>than upper limit of normal and B: Twice the upper limit of normal as reported in literature.[1] The patients were followed up for at least 12 months from the time of diagnosis.

Results Of the 47 patients identified, 31 (66%) patients had elevated serum IgG4 at diagnosis. There was no statistically significant difference between the 2 groups in age (median age 66 vs 63, $p=0.116$) and sex (male 85.7% vs 58.8%, $p=0.072$); other organs involvements (85.7% vs 94.1%, $p=0.635$), response to steroids (92.6% vs 87.5%, $p=0.062$), relapse rate (32.1% vs 11.8%, $p=0.165$) and organ dysfunction (10.7% vs 5.9%, $p=1.0$).When the serum IgG4 cut-off was twice the upper limit of normal (ULN), more patients had exocrine insufficiency (78.9% vs 46.2%, $p=0.035$). However other organs involvement (89.4% vs 88.5%, $p=1.0$), response to steroids (94.4% vs 88.0%, $p=0.628$), relapse rate (36.8% vs 15.4%, $p=0.160$), organ dysfunction (10.5% vs 7.5%, $p=1.0$) and endocrine insufficiency (42.1% vs 46.2%, $p=0.973$) showed no statistically significant difference. Median follow-up was 40 months (range 12–140 months).

Conclusions This single centre observational study shows that a raised serum IgG4 at the point of diagnosis greater than ULN did not affect prognosis in patients with IRD. However a raised serum IgG4 greater than two times the ULN was significantly associated with pancreatic exocrine insufficiency and relapse in patients with IgG4-RD. Larger multicentre studies with longer follow-up are required to corroborate these findings and define the role and cut-off value of serum IgG4 in outcomes of IgG4-RD.

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OTU-018 ENDOSCOPIC ULTRASOUND FINE NEEDLE BIOPSY IS SUPERIOR TO FNA FOR ASSESSING PANCREATIC NEUROENDOCRINE TUMOURS

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Introduction Pancreatic neuroendocrine tumours (PanNET) are a distinct tumour type with outcomes dependent, in part, upon grading by Ki67. Endoscopic ultrasound (EUS) guided fine needle aspiration (FNA) shows variable accuracy to determine Ki67 or grading. Our aim was to assess whether Ki67 and grade can be more accurately determined using fine needle biopsy (FNB) compared to FNA using surgical excision histology as the gold standard.

Methods Retrospective analysis of all pancreatic pathology for neuroendocrine tumours was performed for the period Jan 2009 – Jun 2017. Patients were included if they had undergone EUS guided sampling of the lesion prior to surgical resection. Patient demographics, lesion size and location were noted. FNA and FNB results were examined and Ki67 and grade recorded. Surgical histology reports were examined and time from EUS to surgery, operation performed, Ki67 and grade recorded and compared using correlation coefficient and Cohen's Kappa.