or irradiation. Recent multicentre trials suggest a sensitivity of approaching 90% in detecting significant polyps[1 2] but there are no data regarding use in routine clinical practice.

Methods Alternative modalities of colonic investigation were discussed with all patients requiring investigation. Data were collected prospectively on those undergoing colon capsule endoscopy following a standard bowel preparation. Small bowel patency was confirmed in patients with Crohn's disease using the Agile patency system.

Results 86 patients (67F; median age 42 (range 18–95)) underwent CCE (CC1, n=34; CC2, n=52). 81.4% had refused (n=43) or had had incomplete (n=27) colonoscopy. Indications: symptoms without alarm features (n=31), symptoms with alarm features (weight loss, bleeding, condition associated with malignancy; n=14), Crohn's disease (n=17), symptoms with abnormal blood test results; n=15), anaemia (n=6), miscellaneous (n=3). CCE was complete in 79.5% (n=66), incomplete in 19.8% (n=17), 3.5% failed (one patient did not swallow the capsule; two provided no images). Median (range) time in the small and large bowel were 63.5 (0–424) and 121 (0–1020) min respectively and bowel cleanliness score 2 (1–4: excellent-poor). Findings were normal (31.4%), inflammatory bowel disease (IBD 25.6%: Crohn's disease, n=13; ulcerative proctitis, n=1; NSAID colopathy, n=1; inflammation of uncertain significance, n=7), polyps (22.1%), diverticulosis (12.8%), angioectasia (5.8%), miscellaneous (3.5%), no images (3.5%). These were considered relevant to the indications in 25.6% (n=22, 15 of which were IBD). Outcomes included discharge (47.7%) and management change based on the findings (37.2%, including commencing (16.3%) or cessation (2.3%) of IBD therapy, further investigation (14.0%), advice regarding polyp surveillance (3.5%) and other treatment (2.3%). Half of the 20 patients with incomplete or failed studies were offered further investigations, six studies were considered sufficient to exclude organic disease, three showed active Crohn's disease and one patient was too ill for further investigation. There were no complications.

Conclusion CCE is an alternative for patients who refuse or have incomplete colonoscopy and which provides both small and large bowel visualisation. Although one in five studies were incomplete, sufficient information was provided to enable discharge in almost half the patients with functional bowel disorders and the identification of IBD in one quarter.

Competing interests None declared.

REFERENCES

1. **Eliakim R**, Yassin K, Niv Y, *et al*. Prospective multicenter performance evaluation of the second-generation colon capsule compared with colonoscopy. *Endoscopy* 2009;**41**:1026–31.
2. **Spada C**, Hassan C, Munoz-Navas M, *et al*. Second-generation colon capsule endoscopy compared with colonoscopy. *Gastrointest Endosc* 2011;**74**:581–9.

PWE-220 HOW MANY BIOPSIES AT COLONOSCOPY ARE REQUIRED TO CONFIRM THE DIAGNOSIS HISTOLOGICALLY IN SUSPECTED COLORECTAL CANCER?

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Introduction Colorectal cancer (CRC) is the third most commonly diagnosed cancer worldwide. The prognosis depends to a large extent on the stage of disease at the time of diagnosis such that the early investigation of relevant signs and symptoms is encouraged. At present the gold-standard method for the investigation of CRC is endoscopy as it permits direct visualisation and biopsy of the lesion in question. There is little evidence on the number of biopsies needed to be obtained if a CRC is suspected macroscopically at the time of endoscopy but there is a suggestion that a minimum of six biopsies should be taken to increase the yield of an early positive diagnosis.[1] Patients in whom the endoscopy biopsy is non-diagnostic and cancer suspected, a repeat colonoscopy to obtain additional tissue sample is often recommended. The aims of this study were to assess whether the number of biopsies taken of suspected cancers at the time of endoscopy was proportional to the rates of positive diagnoses being made while reducing the need for a repeat endoscopic procedure to confirm or exclude cancer.

Methods A retrospective analysis of all patients with suspected CRC upon endoscopy at Chase Farm Hospital over a 1-year period (2009–2010) was performed. Data were obtained from endoscopy and histopathology reports. Statistical analysis was performed using the Student t test and Fisher's test using SPSS V.20.0 ($p<0.05$).

Results 80 patients (37 male), median age 71.5 years were investigated over the audit period. Histology revealed adenocarcinoma (ACA) 52 (65%), high-grade dysplasia (HGD) 20 (25%), normal 5 (6.3%) and other 3 (3.7%). The median number of biopsies taken of suspected cancers for the whole cohort was 6 (1–12) and 44 (55%) had six or more biopsies taken. 16 (20%) patients required at least one repeat endoscopic procedure for diagnostic purposes (initial histology was HGD in 10, 62.5%, of these patients) and histology upon repeat endoscopy demonstrated ACA in 14 (87.5%) of these patients. Patients requiring repeat endoscopy had significantly fewer biopsies (median 4.5) taken at the time of initial endoscopy compared to those who did not (median 5.5), t (76)=2.54, $p<0.05$ using the Student t test. Patients requiring a repeat endoscopic procedure were more likely to have had less than six biopsies taken initially (11, 68.7%) compared to patients who had six or more biopsies taken (5, 31.3%) although the difference was not significant ($p=0.05$).

Conclusion Patients who have fewer biopsies are more likely to require repeat endoscopy for histological confirmation with subsequent delays in diagnosis. We recommend obtaining a minimum of six endoscopic biopsies in patients with suspected macroscopic CRC to confirm the diagnosis histologically and prevent a repeat endoscopy.

Competing interests None declared.

PWE-221 ENDOSCOPIC ULTRASOUND GUIDED FINE NEEDLE ASPIRATION (EUS-FNA) IN SUSPECTED SARCOIDOSIS—A 4-YEAR EXPERIENCE FROM A SINGLE CENTRE

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Introduction EUS-FNA allows access to the posterior mediastinum and tissue acquisition under real-time ultrasound guidance through the oesophageal wall. There is ample evidence for effectiveness of EUS-FNA in staging lung cancer but data on its utility in the diagnostic work up of sarcoidosis is limited. The aim of this study was to report our experience of mediastinal EUS-FNA as a whole and its diagnostic yield in sarcoidosis in particular.

Methods The study included all patients who underwent mediastinal EUS-FNA in our institution from January 2008 to December 2011. Data on patient demographics, mediastinal lesion characteristics and EUS-FNA details were collected from endoscopy reports. Cytology reports and microbiology culture results were analysed. Final clinical diagnoses made during the follow-up were obtained from medical records. We calculated sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of mediastinal EUS-FNA for individual diagnoses.

Results 195 patients (n=195, males 65%, mean age 58.6) underwent mediastinal EUS-FNA during the study period. Mean size of the lesions was 15.82 mm (range 3.9–43) in short axis and 28.23 mm (range 8–60) in long axis. Sub-carinal lymph nodes (LN) were the commonest (145/195, 70.3%) target lesions. Mean number of needle pass was 3.18 (range 1–6) and 22G (53.5%) was the commonest needle used. There were no procedure related complications or deaths. Of the 195 patients, FNAs were positive for malignancy in 61 (61/195, 31.2%), sarcoidosis in 40 (20.5%) and tuberculosis (TB) in 15 (7.6%) patients. Of the 64 (31.7%) cases where FNA was reported normal, 42 (65.6%) were accurate and 22 (34.3%) were inaccurate (final diagnosis: 8 cancer, 9 sarcoidosis and 5 TB). In 4 (2%) patients, FNA showed other diagnoses (3 anthracotic LNs, 1 sinus histiocytosis). Abstract PWE-221 table 1 Overall and condition specific results of mediastinal EUS-FNA.

Abstract PWE-221 Table 1

	EUS-FNA result (n)	Final clinical diagnosis (n)	Sensitivity (%), (95% CI)	Specificity (%), (95% CI)	PPV (%)	NPV (%)
Malignancy	61	74	82.4 (71.4 to 89.9)	100	100	90.2
Sarcoidosis	40	49	83.3 (69.2 to 92)	99.3 (95.7 to 99.9)	97.5	94.8
Tuberculosis	15	24	62.5 (40.7 to 80.4)	98.8 (95.3 to 99.7)	88.2	94.9
Other diagnosis	4	6	–	–	–	–
Overall	120	153	79.4 (71.8 to 85.5)	93.8 (82.1 to 98.4)	97.4	60.5

Conclusion Our large series on mediastinal EUS-FNA shows that it is an important and useful tool for the assessment of mediastinal lymphadenopathy of unknown aetiology and has overall high sensitivity (≈80%) and high specificity (≈94%). For sarcoidosis in particular, sensitivity (≈83%) and specificity (≈99%) of EUS-FNA is comparable to those for cancer.

Competing interests None declared.

PWE-222 AUDIT OF UPPER GI CANCER DIAGNOSIS BY ENDOSCOPY: ARE DIAGNOSES BEING MISSED?

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Introduction Gastric and oesophageal cancers have a high mortality rate, particularly if diagnosed at a late stage. We aimed to determine whether Upper Gastrointestinal (UGI) cancers are being missed either endoscopically or histologically in Leeds, and the reasons for any delays identified.

Methods As part of our rolling annual audit programme, histopathology records were gathered for all UGI cancers detected between September 2009 and August 2010 at Leeds Teaching Hospitals Trust. The endoscopy database was searched for endoscopies in the previous 3 years and the Trust Patient Pathway Manager reviewed for possible delays to diagnosis. Patients were classified into <1 month (m) from most recent endoscopy (delay not significant) and >1 m (possible significant delay). Previous biopsies were reviewed by a consultant histopathologist.

Results 211 cases of UGI cancers were detected (range 25–94 years, mean 70 years, 1.89:1 M:F) representing malignancy in 6.1% of 3460 endoscopies with gastric/oesophageal biopsy. Excluded from further study were: no endoscopy report (13); follow-up of previous diagnosis (38); not primary adenocarcinoma (12). 16/148 (10.8%) cases had had endoscopy within the last 3 years, 6/16 (37.5%) had repeat endoscopy within 1m (mean delay 16.2 days). Reasons included: (2) suspicious endoscopy without histological confirmation of malignancy, (1) previous failed intubation, (1) follow-up of oesophageal ulcer. Of the 10 cases with previous endoscopy >1 m earlier, preventable delays were identified in six cases: Bleeding GU not biopsied at index endoscopy (42 days); failure to biopsy GOJ nodule due to triple anti-platelet therapy (91 days); a patient with known High Grade Dysplasia awaiting cardiology opinion before repeat under general anaesthetic (192 days); delayed surveillance interval for Barrett's Oesophagus (1035 days from previous endoscopy). Only in two cases was the cancer likely to have been missed on the first endoscopy: delayed follow-up after EMR, synchronous gastric carcinoma in separate site (180 days) and repeat endoscopy for symptomatic dysphagia (SCC in high oesophagus) (526 days). The other 4 cases had endoscopies unrelated to the subsequent diagnosis more than 2 years earlier and the delay was considered unavoidable. Review of previous biopsies, including further stains, showed that no malignant diagnosis had been missed.

Conclusion 6/148 (4.1%) patients had significant potentially avoidable delays to diagnosis of upper GI cancer. This is commensurate with audits in other centres. Most delays are systematic problems with bookings and appointments rather than endoscopic misses. We believe this simple rolling audit should be adopted as a mandatory Quality Assessment tool for MDTs and/or endoscopy units in order to improve delays in the diagnosis of UGI cancer in all hospitals.

Competing interests None declared.

PWE-223 GASTROENTEROLOGY INVESTIGATIONS FOR IRON DEFICIENCY ANAEMIA (IDA) IN PATIENTS WITH ACUTE CORONARY SYNDROME AWAITING CARDIAC INTERVENTIONS. HOW GOOD ARE OUR CARDIOLOGY COLLEAGUES?

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Introduction Anaemia is associated with increased risk of morbidity and mortality in patients with ischaemic heart disease (IHD) and heart failure. Incidental anaemia in patients awaiting coronary interventions is common particularly in our elderly populations. Currently there are no clear guidelines how to investigate these patients. The elderly patients have a higher RR of having occult GI malignancy and endoscopy is the gold standard to identify early disease. Majority of the physicians refer patients with anaemia to gastroenterologists routinely to exclude GI pathology. Endoscopic investigations are however not without complications and generally contraindicated during acute coronary syndrome.

Methods This is a retrospective analysis of patients with anaemia admitted with acute coronary syndrome to our hospital. Information was collected from patient records and endoscopy reporting database over a period of 2 years (January 2009–December 2010). We analysed all the investigations, outcomes/diagnosis of these patients. The data were analysed by Standard statistical methods.

Results A total of 230 patients were identified by the coding department with anaemia and IHD who were admitted over a period of 24 months. However, only 61 (26.5%) patients were investigated for anaemia. The mean age was 70±19 years with 77% (47/61) were more than 60 years of age. Serum Ferritin was checked in only 50% (31/61) of these patients before referral, out of which 71% (22/31) patients had low levels. Coeliac serology was done in only 5% (3/61) patients, which was normal. 75.5% (46/61) of the