with the remainder predominantly due to unexplained anaemia (18%). Only 50% (25/50) of inpatient bowel preparation was rated as "excellent" or "good," compared with 86% overall for the same period (p<0.001 by χ² analysis). Among endoscopists with individual overall caecal intubation rates of >90%, the inpatient caecal intubation rate was only 74% (37/50). Out of the 13 failed inpatient intubations, 7 (54%) were due to poor bowel preparation. The remainder were due to patient discomfort (3), difficult angulation (2), and malignancy (1). In addition, the overall inpatient success rate was only 66% (53/80). In four cases (8%), although caecal intubation was achieved, poor bowel preparation meant a small lesion could not be excluded.

**Conclusion** This audit has demonstrated that the failure rate for inpatient colonoscopy is greater than outpatient procedures. The majority of these failures are due to poor bowel preparation. The reasons for this are complex, but may include reduced mobility and poorer adherence to bowel preparation and oral hydration. Deferring colonoscopy until after discharge from hospital is therefore advised whenever possible.

**Competing interests** None declared.

**REFERENCES**


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**PTU-232**

**EVALUATING THE ROLE OF CAPSULE ENDOSCOPY IN EQUIVOCAL COELIAC DISEASE?**

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**Introduction** Demonstration of villous atrophy (VA) on small bowel biopsy and positive serology (endomyosal antibody (EMA) and/or tissue transglutaminase (tTG)) is the current gold standard for diagnosing coeliac disease. Difficulty in establishing the diagnosis may arise for several reasons. A minority may have antibody negative disease. Some individuals may have positive antibodies with histological changes that fall short of VA (Marsh Grade 1 and 2 [MG1-2]) or are unable to tolerate gastrosopy. In addition, not all VA seen is caused by coeliac disease. The aim of this study was to assess the value of capsule endoscopy (CE) in equivocal coeliac disease.

**Methods** Data from all patients with equivocal coeliac disease who underwent CE between 2004 and 2011 in a tertiary gastroenterology department were analysed. Patients were subdivided into five main groups: Group 1—antibody negative VA; Group 2—MG1-2; Group 3—positive coeliac serology with normal duodenal biopsy; Group 4—miscellaneous including strong family history and non-gastrointestinal presentation of probable coeliac disease; Group 5—failed or refused gastroscopy. Demographic data, indication for CE, serology and histology were recorded prospectively. Videos were analysed by two experienced gastroenterologists blinded to the clinical data. Markers of coeliac disease such as scallingo, mosaic pattern and loss of folds were assessed. A diagnosis of coeliac disease was further supported by not only CE appearances but also combinations of HLA typing (DQ-2 or DQ-8), gluten challenge/response to a gluten free diet and in some cases repeat duodenal biopsy.

**Results** 102 patients, 72 female, median age 49 years, (range 18–89 y) underwent CE. 17/102 (16%) had features of coeliac disease on CE, with a further three cases of Crohn’s disease identified (Abstract PTU-232 table 1). In patients with coeliac antibody negative VA, CE secures a diagnosis of coeliac or Crohn’s in 9/32 (28%) significantly more than in other groups where previous gastroscopy was undertaken (p=0.04). In 57% (4/7) of patients with positive coeliac serology who either failed or refused gastroscopy, CE helped establish the diagnosis.

**Abstract PTU-232 Table 1**

<table>
<thead>
<tr>
<th>Antibody</th>
<th>Normal CE (n)</th>
<th>Features of coeliac</th>
<th>Other CE diagnosis (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>–ve VA (n=32)</td>
<td>23</td>
<td>7</td>
<td>2 Crohn’s</td>
</tr>
<tr>
<td>MG1-2 (n=29)</td>
<td>26</td>
<td>2</td>
<td>1 Crohn’s</td>
</tr>
<tr>
<td>+ve antibody, normal biopsy (n=10)</td>
<td>9</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Miscellaneous (n=24)</td>
<td>21</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Failed/refused gastroscopy (n=7)</td>
<td>3</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

**Conclusion** CE may have a role in the assessment of patients with coeliac antibody negative VA and in antibody positive patients where previous gastroscopy has been failed or refused. Its routine use is not supported in other causes of “equivocal” coeliac disease.

**Competing interests** None declared.
ENDOSCOPIC ULTRASOUND GUIDED FINE NEEDLE ASPIRATION FOR THE DIAGNOSIS OF PANCREATIC CYSTIC NEOPLASMS: A META-ANALYSIS

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Introduction
Pancreatic cystic neoplasms consist of mucinous cystic neoplasms (MCNs) and serous cystic neoplasms (SCNs). MCNs have significantly greater malignant potential, and if resected early the prognosis is excellent, although mortality is 2%–3%. Endoscopic ultrasound is a minimally invasive and well tolerated procedure. EUS with fine-needle aspiration (EUS-FNA) provides samples for cytology and fluid analysis, a major advantage over other techniques. However the diagnostic accuracy of EUS-FNA is highly variable in published studies.

Aim
To determine the diagnostic accuracy of EUS-FNA to differentiate mucinous vs non-mucinous cystic lesions with morphology, and cyst fluid analysis for cytology and carcinoembryonic antigen (CEA) via a meta-analysis of published studies.

Methods
Relevant studies were identified using MEDLINE and included if they used a reference standard of definitive surgical pathology or clinical follow-up (≥6 months). Study quality was assessed using the STARD (STAndards for the Reporting of Diagnostic Accuracy) initiative criteria. Data were analysed using MetaDiSc© v.1.4, which generated pooled estimates for sensitivity, specificity and summary ROC curve. Subgroups, determined a priori, were used to assess heterogeneity: prospective vs retrospective, location, number of centres and patients, 19G or 22G needle and STARD score.

Results
24 studies published between 2001 and 2011 were included, a total of 1703 patients. The median number of patients in each study was 53 (range 18–197) and the median study length was 54 (12–144) months. The pooled sensitivities (95% CI) and specificities (95% CI) were 55% (49–61%), 65% (57–72%) and 0.74 (0.095); EUS morphology 55% (49–61%), 65% (57–72%) and 0.74 (0.095); Cytology 54% (50–59%), 93% (90–95%) and 0.95 (0.040); and CEA 63% (59–67%), 88% (83–91%) and 0.79 (0.034). Subgroup analysis indicated that retrospective design, low STARD score and study location outside Europe were significant sources of heterogeneity.

Conclusion
Fine-needle aspiration has moderate sensitivity but high specificity resulting in good overall diagnostic accuracy for MCNs. Morphology alone is inadequate for distinguishing cystic lesions but may contribute to the assessment of more advanced lesions. The moderate sensitivity of FNA (54%) means a significant proportion of MCNs will not be detected. However, the high specificity (93%) means that a positive result is strongly indicative of a MCN. Thus, EUS-FNA is a useful diagnostic tool for correct identification of MCNs and may be the gold standard for pre-operative assessment.

Competing interests None declared.

SUCCESS OF SINGLE STENT ENDOSCOPIC ULTRASOUND (EUS) GUIDED PANCREATIC CYSTOGASTROSTOMY

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Introduction
Current accepted practice for EUS-guided stent insertion for drainage of pancreatic pseudocysts (PP) involves placement of two or more double-pigtail stents. There has been little work into whether a single stent would provide an equal outcome without increasing complications. Rates of successful drainage without surgical or percutaneous intervention are 88–64% with complication rates at 52–14%. We present a case series comparing outcomes of single stent insertion against these.

Methods
Retrospective analysis of cases, identified by searching the electronic endoscopic database, in a DGH providing tertiary HPB and EUS service between August 2005 and December 2011 was performed. All procedures were performed by the same experienced endoscopist. All patients had a radiographically proven PP and received a single 7 cm 7Fr double-pigtail stent with prophylactic antibiotics.

Results
24 patients underwent cystogastrostomy. 1 patient died from unrelated causes in the days post-procedure, therefore is not included in the analysis. 20 of 23 patients (86.9%) were successfully drained without any surgical or percutaneous intervention. One patient had a pre-existing infected PP; only recognised on fluid analysis after the procedure, required laparotomy for excision and surgical cystogastrostomy. With hindsight more than one stent may have resulted in a better outcome. There were two procedure related complications (8.6%). One suffered pneumoperitoneum 2 days post-procedure. Emergency surgery revealed the pancreatic lesion to actually be a mucinous cystadenoma, despite radiographically and endoscopically (including pre-stent insertion aspirate) behaving as a PP. This misdiagnosis and complication was unavoidable due to this unusual behaviour. The other patient developed sepsis 26 days post-procedure, and had a CT guided drain. Culture of aspirated cyst fluid revealed candida, possibly a post-insertion complication or an incidental finding; patient responded to fluconazole. Two further patients were re-admitted with pyrexia 3 and 5 days respectively post-procedure. They improved with antibiotics, required no intervention, and imaging revealed PP improvement.

Conclusion
This data suggests that efficacy and complication rates for single-stented EUS-guided cystogastrostomy in simple PP are comparable with data from studies using two or more stents. This would result in shorter procedure time and reduced risks from insertion thereby improving patient safety, and reduced costs. Single stenting is not recommended for infected or complex PP.

Competing interests None declared.

ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY (ERCP) METAL BILIARY STENT INSERTIONS: OUTCOME AND COMPLICATIONS

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Introduction
Endoscopic retrograde cholangiopancreatography (ERCP) is an established technique for palliative stenting and