developed for gastroenterology and surgical trainees and consists of a series of one day training events spread over several months to supplement departmental colonoscopy training and uses a variety of classroom based and simulation training. To facilitate the teaching of NTS we developed a video of a simulated case to form the basis of discussion.

Methods A video was made of a simulated case that could be used to highlight NTS. As the attached video demonstrates the video highlighted a case where the use of non-technical skills could be optimised. This was used as a starting point for discussion with delegates.

Pre and post course confidence ratings were collected on a variety of areas including human factors, mean ratings were calculated and mann-whitney U test applied.

Results Eight candidates completed the course, four surgical and four gastroenterology trainees. Six had already the JAG basic skills course. Confidence rating in human factors improved from a mean of 5.9 (out of 10) to 8.12 (p 0.03)

Conclusions Emphasis on non-technical skills training is imperative to improve and ensure patient safety and minimise adverse events. The teaching of non-technical skills may not always be explicit within working departments. Whilst simulation can be a useful teaching tool for NTS it can be time consuming. This video demonstrates a resource-low method by which this could be taught as part of a wider endoscopy course. Whilst we only measured self ratings rather than assessing performance trainees confidence rating in human factors significantly improved suggesting this is a useful teaching tool.

PTH-070 SEVERE MIDGUT BLEEDING FROM JEJUNAL DIVERTICULA TREATED BY DOUBLE-BALLOON ENTEROSCOPY

¹Alberto Murino, ¹Nikolaos Lazaridis*, ¹Nikolaos Koukias, ¹Andrea Telese, ¹Deborah Costa, ¹Claudia Coppo, ^{1,2}Yoshikazu Hayashi, ¹Edward J Despott. ¹The Royal Free Unit for Endoscopy, The Royal Free Hospital And University College London (UCL) Institute For Liver And Digestive Health, London, UK; ²Division of Gastroenterology, Department of Medicine, Jichi Medical University, Shimotsuke, Japan

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Introduction Small bowel diverticula are a rare cause of gastrointestinal (GI) bleeding. Their pathogenesis is still unclear and can be found in up to 1–2% of the general population. Although these lesions are usually asymptomatic, mid-gut bleeding from diverticula in the jejunum or ileum could lead to a life-threatening situation, warranting emergency invasive therapy and often abdominal surgery.

Aims and Methods Our aim was to demonstrate the usefulness of the double-balloon enteroscopy (DBE) in the setting of an acute, severe small bowel diverticular bleed. A 79-year-old woman with hypertension and type II diabetes mellitus was referred to our institution with melaena and severe anaemia requiring urgent, repeat blood transfusions. Bidirectional conventional endoscopy did not reveal the cause of bleeding. Small bowel capsule endoscopy (SBCE) showed multiple diverticula within the jejunum and ileum. Emergency computed tomography (CT) mesenteric angiography demonstrated a faint 'blush' at one of the jejunal lesions.

Results Once the patient was haemodynamically stable, emergency antegrade DBE was performed under general anaesthesia (GA) in our main operating theatres. The enteroscope was inserted into the jejunum, approximately 1.5 meters post-

pylorus. The culprit cause of the bleeding was identified within a large (5 cm orifice) diverticulum, where a large, adherent, pulsating blood clot was seen. In the first instance, peri-lesion, quadrantic injection of a total of 20 mls of adrenaline solution (1 in 10,000 dilution) was performed. The clot was then cautiously removed with a long endoclip to reveal the actively bleeding vessel which was then promptly clipped. A total of 3 clips were placed for effective haemostasis and a submucosal tattoo was placed adjacent to the bleeding point for future reference. The patient remained stable after the procedure and did not require any further blood transfusion.

Conclusion DBE facilitated endotherapy is a precise, safe and minimally invasive approach to the effective management of severe bleeding caused by small bowel diverticula.

PTH-071 COMBINED ENDOSCOPIC CLOSURE OF COLOVESICAL FISTULA

Faisal Nawaz*, Hemant Ojha, Monzur Ahmed. Good Hope Hospital, Birmingham, UK

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Introduction Colovesical fistulas (CVFs) occur as a complication of diverticulitis, cancer, or Crohn's disease. The sigmoid colon is the most frequently involved segment. The most common presenting symptoms are pneumaturia and dysuria, followed by faecaluria, abdominal pain and, rarely, haematuria. The diagnosis is usually made clinically but can be confirmed by cystoscopy, sigmoidoscopy, barium enema, CT scan, MRI, or virtual colonoscopy. The usual management for symptomatic patients is colonic resection (which can be performed laparoscopically) but this approach is associated with morbidity and mortality. Only a few cases of endoscopic management by clip closure, using through-the-scope (TTS) or over-the-scope (OTS) clips have been described in the literature. Here, we present a case of a CVF, which was managed with multiple TTS clips, thus avoiding surgical intervention.

Methods A frail 84 year old man had a background history of coronary artery bypass graft, aortic valve replacement (tissue valve), dialysis dependent chronic renal failure and sigmoid diverticular disease. He was investigated for pneumaturia and recurrent urinary tract infections 12 months ago and was diagnosed on CT scan as having CVF secondary to sigmoid diverticular disease. He developed faecaluria. He was referred by the colorectal surgeon for endotherapy as he was considered too frail for any surgical intervention. A combined simultaneous cystoscopy and flexible sigmoidoscopy (using a gastroscope) was undertaken under conscious sedation. The cystoscopy identified a fistula in the dome of the bladder (on left side). The sigmoid colon was carefully examined and revealed diverticular disease but no obvious fistula was visible. Hence, indigocarmine solution (16 mg/litre), warmed to body temperature, was instilled into the bladder via the cystoscope and the blue solution was eventually seen to emerge in the sigmoid colon through the fistula. This site was marked with a Resolution 360 clip (Boston Scientific). After this, 4 further clips were placed onto the fistula in order to close it. Finally, the site was marked with a tattoo, in case a repeat procedure was needed in the future.

Results The procedure took almost two hours and was successfully performed. The patient was discharged on the same day.

Conclusion Although there are many surgical options available for management of CVF, only a few case reports exist regarding non-surgical management of CVF. We recommend that combined endoscopic management of CVF should be considered in patients who are too frail for surgery or have multiple co-morbidities.

PTH-072 ENDOSCOPIC MANAGEMENT OF PHYTOBEZOAR IN PATIENT WITH PRADER-WILLI SYNDROME

Faisal Nawaz*, Nasima Ali, Monzur Ahmed. *Good Hope Hospital, Birmingham, UK*

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Introduction Prader-Willi syndrome (PWS) was first described in 1956 and is now recognised as a multisystemic complex genetic disorder caused by lack of expression of genes on the paternally inherited chromosome 15. Clinical features include hyperphagia, obesity and diabetes. A phytobezoar is a type of bezoar, or trapped mass in the gastrointestinal tract, that consists of indigestible plant material. We report a case of phytobezoar due to hyperphagia in a patient with PWS, which was successfully treated endoscopically.

Methods A 22 year old man with PWS was admitted with a one day history of severe abdominal pain associated with distention and nausea but no vomiting. He was opening his bowels and passing wind. He had a history of anxiety and had spinal surgery for scoliosis at age 10 years. He was a vegetarian and had been living in a residential home for three years where his meals were regulated. On examination, he was not obese (BMI 20 kg/m²) and had a distended, tender abdomen. Routine blood tests (FBC, U+E) were normal. Initial abdominal x-ray showed a very distended stomach containing food material. An abdominal CT scan confirmed these findings and worryingly the report mentioned 'imminent danger of perforation.' The surgeons reviewed the patient and referred him for possible endotherapy prior to considering surgery. Hence, a gastroscopy was performed under conscious sedation using a twin channel gastroscope (Olympus GIF 2T200). A large phytobezoar was seen in the stomach. There was no gastric necrosis or pyloric obstruction and the duodenum was normal. The phytobezoar was softened with water and fragmented into smaller pieces with a 3 cm Trapezoid basket (Boston Scientific). The smaller pieces of the phytobezoar were sucked out slowly using the large channel gastroscope. Eventually the entire phytobezoar was removed in this manner; the whole procedure taking 90 minutes.

Results The patient tolerated the procedure well and was discharged after a day of observation.

Conclusion Gastric bezoars can cause outlet obstruction, ulceration, and subsequent bleeding, whereas small intestinal bezoars present with small bowel obstruction and ileus. The currently available treatment options for a gastric phytobezoar include dissolution of the bezoar by Coca-Cola®, removal by endoscopic devices, laparotomy, and laparoscopic surgery. Gastric rupture and necrosis are a known cause of mortality in patients with PWS. Hence, timely endoscopic management can help avoid these complications and the need for surgery.

PTH-073 SUCCESSFUL ENDOSCOPIC CLOSURE OF DUODENAL PERFORATION USING OTSC IN A FRAIL PATIENT UNSUITABLE FOR SURGERY

Mathilda Sutherland*, Kohilan Gananandan, Cameron Green, Sudeep Tanwar. *Whipps Cross University Hospital, Barts Health NHS Trust, London, UK*

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Introduction Endoscopic closure devices continue to be used successfully to close iatrogenic perforations within the GI tract. However, only a handful of cases describe successful closure of a spontaneous duodenal perforation. We present the first UK case to demonstrate successful endoscopic closure of perforated duodenal ulcer using over-the-scope clips in a patient unfit for surgery.

Methods The case involved an 85-year-old bedbound female patient with COPD, mild dementia, hypertension, hypercholesterolaemia and three previous cardiac arrests. She attended hospital unwell after passing melaena and experiencing abdominal pain. Her abdomen was markedly tender and subsequent CT imaging confirmed a full thickness perforation at the duodenal bulb. Due to her multiple medical comorbidities she was not an operative candidate and the perforation would be managed conservatively with bowel rest and broad spectrum antibiotics. The patient was referred to the gastroenterology team who considered high risk endoscopic closure after a discussion with the patient's family. After transfusion and fluid resuscitation, gastroscopy with CO₂ insufflation was performed under conscious sedation (1 mg midazolam and 50 mcg fentanyl). A deep ulcer with evidence of recent bleeding was identified in the duodenal bulb, through which the full thickness perforation site could be observed. Two OTSC clips were applied successfully to close the defect.

Results Following OTSC clip deployment the patient was kept nil by mouth. Seventy-two hours post endotherapy an interval CT identified a reduced volume of pneumoperitoneum with no extraluminal leakage of contrast confirming successful closure. The patient was then allowed to eat and drink normally. A repeat gastroscopy on day seven demonstrated full closure of the duodenal perforation. The patient was commenced on H. pylori eradication and discharged eleven days after initial presentation.

Conclusions Surgical repair remains the gold standard treatment for the repair of a spontaneous enteric perforations. Candidacy for surgical repair does however require candidacy for general anaesthesia which is often not the case amongst our increasingly aging and comorbid population. This is one of a handful of cases worldwide and indeed the first ever reported case in the UK of a spontaneous duodenal perforation being successfully repaired using an endoscopic closure device. The key determinant for success in this case were the use of CO₂ insufflation and the prompt timing of endoscopic repair which obviated gross peritoneal contamination. Whilst this proof of concept case confirms that endoscopic repair is possible in this context, further studies are required to determine if this modality has any role in patients in whom surgical repair is not contraindicated.