Results Total number of achalasia patients selected was 67 (F:M=45:43, aged 1–7 years) and achalasia subtypes 1, 2 and 3 based on CC were respectively 39.8%, 60.2% and 0%. The solid swallow outcomes for achalasia subtypes 1 and 2 are in table 1.

Abstract PWE-094 Table 1 Outcome of achalasia subtypes when challenged with solid bolus

Water swallows outcome	Type 1 (n=29)	Type 2 (n=38)
Solid swallows outcome	11 (type 1)	1 (type 1)
	15 (type 2)	38 (type 2)
	3 (peristalsis observed)	2 (peristalsis observed)

In 62.1% of patients with primary type 1 achalasia diagnosis on liquid swallow have shown inconsistent features on solid bolus swallow (>20% panoesophageal pressurisation or peristalsis) whereas 86.8% patients with type 2 achalasia diagnosis on primary diagnosis from liquid swallow also showed panoesophageal pressurisation on solid bolus swallows ($p=0.0002$). There was evidence of peristalsis on solid swallows in type 1 achalasia and type 2 achalasia by 10.2% and 2.63% respectively.

Conclusion Type 2 achalasia mostly remains unchanged from liquid swallows to solid swallows. The oesophageal body motility in type 1 achalasia seems to change in >50% when challenged with solid bolus. It is unknown which swallow test method offers the best prognosis for achalasia treatment.

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PWE-095 SANDIFER SYNDROME: PRESENTATION, INVESTIGATION AND MANAGEMENT

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Background Sandifer syndrome is a rare complication of gastro-oesophageal reflux disease (GORD) when a patient presents with extraesophageal symptoms, typically neurological. Although its pathophysiology is not completely understood, one explanation is that neurological manifestations are the consequence of vagal reflex with the reflex centre in nucleus tractus solitarius. The goal of this study was to review the existing literature and describe a typical presentation and most appropriate investigations and management for the Sandifer syndrome.

Methods A comprehensive literature search was performed via PubMed, Cochrane Library and NHS Evidence databases. 27 cases and observational studies were identified.

Results The literature demonstrates that presenting symptoms of Sandifer's may include any combination of abnormal movements and/or positioning of head, neck, trunk and upper limbs, seizure-like episodes, ocular symptoms, irritability, developmental and growth delay, iron-deficiency anaemia.

In terms of diagnostic procedures, 24-hour oesophageal pH monitoring was positive in all the cases of Sandifer's where it

was performed, while upper GI endoscopy +/- biopsy and barium swallow were diagnostic only in a subset of cases.

A range of treatment options were applied in the reviewed literature, including dietary changes, pharmacological management, enteral tube feeding, and surgical approach. These treatment options are consistent with the 2015 NICE guidelines on the management of GORD in children and young people.

Successful treatment of the underlying gastro-oesophageal pathology led to a complete or near-complete resolution of the neurological symptoms in all of the cases.

Discussion As Sandifer syndrome is driven by the underlying gastro-oesophageal reflux, it is not surprising that its investigations and management showed to be consistent with those of GORD. It is evident from the literature that many patients were originally misdiagnosed with various neuropsychiatric diagnoses that led to unnecessary testing and ineffective medications with significant side effects. Earlier diagnosis of Sandifer's would have allowed to avoid them.

PWE-096 RECTAL HYPERSENSITIVITY IN IBS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction Rectal hypersensitivity is defined as being an exaggerated response to painful rectal stimuli and is thought to occur in Irritable Bowel Syndrome (IBS) although it is not a universal observation. The aim of this systematic review and meta-analysis is to confirm the presence and determine how common rectal hypersensitivity is in IBS and to determine if there are other factors such as IBS criteria, age, gender and IBS subtype that affect the presence of rectal hypersensitivity. Secondary aims were to see if rectal hypersensitivity was present in IBD to see if inflammation plays a key role in rectal hypersensitivity hence a second meta-analysis was performing assessing rectal hypersensitivity in IBD.

Methods A systematic review of the literature from MEDLINE and EMBASE databases (1970-Present) was carried out. Only prospective studies were included that compared pain or discomfort thresholds to mechanical rectal stimuli in an IBS and a control population. The second review looked at studies that measured pain or discomfort thresholds to mechanical rectal stimuli in an IBD and a control population. Data was pooled for both meta-analyses and Hedges g effect sizes were calculated with 95% confidence intervals (CIs). This review is registered with PROSPERO (CRD42018095687).

Results The search strategy identified 684 studies of which 70 were deemed relevant and 31 studies met the inclusion criteria. Rectal sensitivity was greater in an IBS population compared to controls. The effect size calculated was 0.966 95% CIs (0.76–1.166) ($p<0.0001$). Significant heterogeneity was seen ($I^2 = 77.2\%$). Secondary analysis revealed that gender, IBS subtype and IBS criteria did not have a significant impact upon the presence of rectal hypersensitivity. When comparing adult and paediatric IBS populations there was a significant difference. There was no statistically significant difference between IBD and healthy controls 0.456 95% CIs (-0.20–.119) ($p=0.178$) ($I^2=87.6\%$). However, a significant difference when comparing those with active flares of their IBD against those studies that used quiescent IBD was found.

Abstract PWE-096 Figure 1

Conclusions Rectal hypersensitivity is more common in an IBS population compared to controls. This indicates that pain sensation is altered in an IBS population and confirms that an altered rectal pain threshold is a marker of IBS. Rectal hypersensitivity is not a phenomenon normally present in IBD except during active flares of the diseases. The mechanisms behind rectal hypersensitivity are not fully understood but are likely due to a combination of peripheral and central factors that require further study to develop mechanism-based management approaches. However, it is unlikely that rectal hypersensitivity that likely occurs in IBS is due to the low-grade inflammatory burden.

PWE-097 MACHINE LEARNING CAN ACCURATELY CLASSIFY CHRONIC CONSTIPATION PATIENTS BY SYMPTOM BURDEN USING PAIN MEASURES ALONE

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Introduction The Patient Assessment of Constipation Symptoms (PAC-sym) is a widely validated questionnaire that numerically quantifies symptom burden in patients with constipation. PAC-sym evaluates various domains, including pain, bloating, tenesmus, rectal bleeding, straining and the quality of the bowel movement by volume or hardness of stool passage.

Machine learning presents an opportunity to assist gastroenterology practice¹. We investigated if machine learning could accurately classify patients with a high or low total symptom burden, using *only* self-reported pain severity and frequency.

Methods 768 patients attending with chronic constipation to a tertiary service underwent quantification of symptom measures in a prospective cohort study design. We used the PAC-sym questionnaire to quantify overall symptom burden, and patients were stratified to high or low symptom burden by a total score of >2.5 or <2.5, respectively. Pain severity and frequency were further quantified separately, and a coarse Gaussian support vector machine (SVM) model was developed, using 70% of patient data for training, 5-fold cross-validation, and the remaining samples model performance testing.

Results The SVM accurately stratified patients into high and low symptom groups with an area under the receiver operator characteristic curve (AUROC) of 0.72 (Figure 1). The predictive metrics of this model were as follows: low total symptom burden – true positive rate (TPR) 87%, false negative rate (FNR) 13%, positive predictive value (PPV) 70%, false discovery rate (FDR) 31%; high total symptom burden – TPR 44%, FNR 56%, PPV 69%, FDR 31%.

Conclusions A machine learning model was able to predict with >70% accuracy whether an individual would belong to a 'high' or 'low' total symptom burden subgroup, using pain severity and frequency *alone*. This adds weight to the importance of evaluating pain in patients with chronic constipation. Moreover, in a clinical setting when quantifying symptom burden in chronic constipation, the most important questions to assess is how severe and frequent a patient's pain is.

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