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BRITISH SOCIETY OF GASTROENTEROLOGY

NewWave

The Official e-Newsletter of the Association of GI Physiologists

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April 2023

Welcome

Welcome to the **April 2023** edition of NewWave!
If you have any relevant articles or papers that you would like to be included in future editions, please email elisabeth.kirton@nhs.net

CONTENTS

Laborie

FOR DIGNITY. FOR LIFE.

GI

Please join us for an Advanced HRM and Impedance/pH Study Day at Woburn House

Sept 21st 9:30 - 16:00 | **Woburn House Conference Centre, London** | **Chaired by Prof Arjan Bredenoord**

09.30-09.55 - Registration

09.55-10.00 - Introduction

10.00-10.30 - 24hr Imp/pH - aerophagia, belching & vomiting **(Prof Arjan Bredenoord)**

10.30-11.00 - Clinical cases - aerophagia, belching & vomiting **(Prof Arjan Bredenoord)**

11.00-11.30 - 24hr Imp/pH + manometry - a cough study **(John Gallagher)**

11.30-12.00 - Coffee break

12.00-12.30 - Chicago Classification 4 protocol **(Jan-Willem Van Der Wal)**

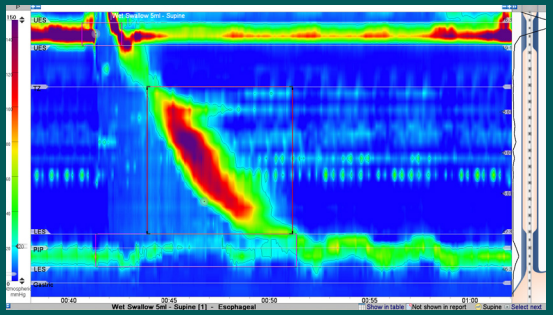
12.30-13.00 - Achalasia & Outflow obstruction in CC4 **(Prof Arjan Bredenoord)**

13.00-13.30 - Pitfalls and artefacts **(John Gallagher)**

13.30-14.15 - Lunch

14.15-16.00 - Case studies - discussion of patient cases submitted by delegates

16.00 - Meeting close



For more details please contact

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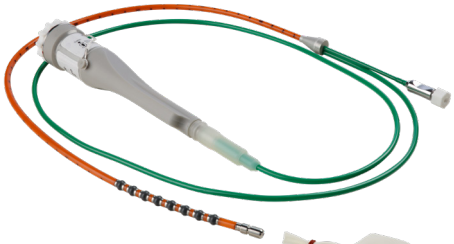
MALT is a unique compact and portable High Resolution Manometry System, in addition to the traditional short-term recordings it can also offer the option of performing long-term ambulatory high-resolution Oesophageal recordings lasting several hours – giving a unique insight into the functional processes of the gastrointestinal tract.

High-Resolution Oesophageal Manometry (HRM) from Standard Instruments allows assessment of the entire Oesophagus including sphincters immediately and in real time. The HRM catheter is very accurate, recording up to 36 channels of pressure and 15 channels of impedance.

Also available for High-Resolution Anorectal Manometry (HRAM) allowing assessment of the entire rectum and the pelvic floor muscles. Due to the topographic view, high and low pressures are immediately determined and diseases can be diagnosed earlier and more accurately.



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Accreditation for Physiology services is rapidly expanding and UKAS urgently need practising physiologists or consultants within Gastrointestinal Physiology to become assessors for the scheme. Participation will contribute towards your CPD portfolio.

The IQIPS standard has been developed by the Accreditation Clinical Advisory Group (ACAG) originally in partnership with The Royal College of Physicians as a patient focussed, nationally recognised measurement of quality for physiology services. It gives confidence to patients, purchasers, staff and managers about safety, effectiveness and sustainability of your physiology service. Physiological Science accreditation is recognised by the Care Quality Commission (CQC) as a valuable source of information to support its regulatory function.

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Ideally you should have at least four years practical experience, preferably at a senior level, in your specific physiology discipline.

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You will receive in depth training to prepare you for completing assessments. It also provides valuable insight into the accreditation process should your service be preparing for accreditation or is accredited. Training is funded and provided by UKAS.

Assessments

Each assessment consists of a 1-2 day(s) assessment either on site or remotely accompanied by 0.5- 1 day reviewing evidence and formulating a report annually.

UKAS contracts independent technical assessors on a day rate basis, either as self-employed contractors or through their current employer. The level of work is dependent on the needs of our customers and therefore UKAS cannot guarantee specific levels of work. Some travel in the UK and overnight stays may be required. And reasonable expenses are reimbursed.

Further information:

If you would like to discuss the role further, please contact Laura Booth, UKAS Senior Assessment Manager on 01784 429000

From the Editor

Welcome to the April 2023 issue of NewWave! I hope you're all enjoying the lighter days as we move into spring.

The AGIP Council is delighted to be awarding the Margaret Marples bursary to 9 lucky AGIP members, to support up to £400 towards the costs of attending BSG LIVE (2023) (Page 6). I look forward to including articles from the bursary holders in the July issue of NewWave.

In this issue, Gianni Raise has shared his experiences of setting up The Northern GI Physiology Working Group (NGIWG) (Page 7). I applaud Gianni following in Steve Perring's footsteps and the success of the South West GI Physiology Working Group. As a small profession, regional GI Physiology meetings can be an excellent source of local support and networking. I was fortunate to be able to attend the group's first meeting on 24th February 2023 with several of my colleagues; my review of the event can be found on Page 9.

The first NGIWG meeting included a very interesting Lower GI Physiology case study of a patient with hereditary internal anal sphincter myopathy, presented by Caroline Race (Page 12). I was particularly interested in hearing about this condition, as it's not one I've come across before; I'd encourage anyone who performs Lower GI Physiology investigations to read Caroline's findings.

Finally, for this issue John Gallagher has also submitted a case study of a patient with rumination syndrome, signs of which were first noticed on a 24-hour pH-Impedance test (Page 15).

As always, please do get in touch (elisabeth.kirton@nhs.net) with any ideas for articles, or information you would like to share with the GI Physiology community via NewWave!

Any event reviews, patient case studies, research results or trainee experiences are all welcomed.

Elisabeth Kirton

Upcoming Events: 2023

May 2023	**Digestive Diseases Week® 2023** (Chicago + Virtual) Home Page - DDW 6th—9th May 2023
June 2023	**BSG LIVE 2023** (Liverpool) Home - BSG 2023 Live! 19th—22nd June 2023
September 2023	**Laborie Advanced HRM and Impedance/pH Study Day** (London) Laborie Study Day 21st September 2023
November 2023	**UEG Week 2023** (Copenhagen + Virtual) Week | UEG - United European Gastroenterology 14th—17th October 2023

News

'Margaret Marples' Bursary: 9 AGIP Members Awarded Bursaries

Following AGIP's email advertisement (14th March 2023), 9 lucky AGIP members have been awarded the 'Margaret Marples' Bursary' of up to £400 to go towards the costs of attending BSG LIVE 2023:

- Ismail Miah (Guys and St Thomas' NHS Trust)
- Meara Taylor (University Hospital Southampton NHS Foundation Trust)
- Samantha Hewitt (Hull University Teaching Hospitals NHS Trust)
- Warren Jackson (Hull University Teaching Hospitals NHS Trust)
- Rebecca Doyle (Oxford University Hospital NHS Trust)
- Naomi Rune (Oxford University Hospital NHS Trust)
- Tanya Miller (Oxford University Hospital NHS Trust)
- Kendra Hall (Sandwell and West Birmingham Hospitals NHS Trust)
- Elisabeth Kirton (Hull University Teaching Hospitals NHS Trust)

Well done all, and see you at BSG LIVE!

Introducing: The Northern GI Physiology Working Group (NGIWG)

Gianni Raise – Trainee Clinical Scientist
Sheffield Teaching Hospitals NHS Foundation Trust

After reading Steve Perring's article on the history of the South West GI Physiology Working Group (NewWave, April 2022), I felt motivated to set up a similar working group locally to Sheffield in the North.

I am currently a final year STP trainee based at Sheffield Teaching Hospitals NHS Foundation Trust, and throughout my training I have been interested in the differences between departments in which trainees are based. Discussing these differences with fellow trainees has allowed for the education and progression of individual and department practice. The Northern GI Physiology Working Group (NGIWG) aims to provide a safe space for departments to discuss practice, equipment, and research developments within the field of GI Physiology.

The key objectives of a working group as outlined by Steve are:

1. To encourage communication between groups performing GI Physiology services in different hospitals
2. To develop opportunities to learn from each other, and establish co-operation where appropriate

In order to set up the group, I reached out to local GI Physiology departments and planned to attend a South West Working Group meeting. I received positive responses from local departments, and I attended the South West Working Group meeting in December 2022. I am grateful to Steve and the Southampton GI Physiology department for allowing me attend. The South West meeting further solidified my motivation to replicate the group in the North. It was long day travelling to and from Southampton, but it proved to be well worth the trip. The working group provided a safe space to discuss work related issues and learn from the experiences of others in the field.

In order to make the event accessible and cost free, I set about obtaining sponsorship for the event, which Axonics kindly offered to cover. This helped to provide a venue and lunch free of charge for those who attended. The event was chaired by myself and my colleague Gemma Renwick, and the agenda included several guest speakers from other

departments (see agenda below). The idea was for the talks to promote discussion and act as seminars, rather than lectures.

NGIWG Agenda (24th February 2023 Meeting)

10:00 Introduction & Tea/coffee
10:45 LGI Case study - Caroline Race
11:15 LGI Biofeedback (open discussion)
11:45 Coffee break
12:00 STP to HSST – John Gallagher
12:30 Axonics Talk – SNS
13:00 Lunch
13:45 Alimetry Gastric Motility - Sydney Ensor
14:15 LPR testing – Charlotte Pitcher
14:45 Feedback and Plan for Next one
15:00/15:15 Close

The NGIWG plans to meet bi-annually, alternating the host department each time to share the workload. At the first NGIWG meeting which took place in February 2023, we had representation from: Hull University Teaching Hospitals NHS Trust; University Hospitals of Derby and Burton NHS Foundation Trust; University Hospitals Birmingham NHS Foundation Trust; The Functional Gut Clinic, and Sheffield Teaching Hospitals NHS Foundation Trust.

The next event will take place in Manchester hosted by the Functional Gut Clinic. If anyone in the local area is interested in being involved in the next meeting (planned for August) or has any questions, please don't hesitate to email me at gianni.raise@nhs.net.

Gianni Raise and Gemma Renwick introducing The Northern GI Physiology Working Group (NGIWG) (photo by Elisabeth Kirton)

Event Review: The Northern GI Physiology Working Group (NGIWG) Meeting (24th February 2023)

Elisabeth Kirton – Clinical Scientist
Hull University Teaching Hospitals NHS Trust

Along with several of my colleagues, I was delighted to attend the first ever meeting of the Northern GI Physiology Working Group (NGIWG) on Friday 24th February 2023. The meeting was planned and hosted by Gianni Raise and the GI Physiology department at Sheffield Teaching Hospitals NHS Foundation Trust.

The event ran very smoothly, a testament to the work of the team who organised it. The staff members from Sheffield (Gianni Raise, co-chair Gemma Renwick and Caroline Race) were very welcoming, and made it clear that they intended the meeting to include a series of friendly open discussions (rather than formal lectures). The event was kindly sponsored by Axonics, who provided a generous lunch for all attendees.

Caroline Race presenting a Lower GI Physiology case study (photo by Elisabeth Kirton)

It was great to see attendees from a wide range of GI Physiology units, including University Hospitals of Derby and Burton NHS Foundation Trust, University Hospitals Birmingham NHS Foundation Trust and The Functional Gut Clinic. In a post-COVID world of online connections and meetings, it's always nice to be able to meet in person and put faces to names.

After introductions and coffee, Caroline Race opened the day with very interesting case study of a patient diagnosed with hereditary internal anal sphincter myopathy, a rare cause of familial anal pain. Caroline's case study is summarised on Page 12; it's certainly worth keeping in mind for patients experiencing this specific anal pain, and I encourage anyone who performs Lower GI Physiology investigations to read this case study. The presentation was paused at 11:00, to acknowledge a one minute silence marking 1 year since Russia's invasion of Ukraine.

John Gallagher presenting "STP to HSST" (photo by Elisabeth Kirton)

The case study presentation led nicely on to an open discussion about Biofeedback Therapy. Topics of conversation included the respective benefits of bowel management advice versus "on screen" Biofeedback Therapy, suggested time periods for follow up appointments, the patients most likely to benefit from Biofeedback Therapy and managing patient expectations. There was also discussion around the role of psychological support, as well as the wording used to explain manoeuvres during "on screen" Biofeedback Therapy.

After a coffee break, John Gallagher from Hull University Teaching Hospitals NHS Trust gave an insight into the HSST programme. Following successful completion of the STP programme in 2021, John started the GI Physiology HSST in September 2022. His presentation gave a clear overview of the application process and how the programme works, as well as "myth busting" for prospective GI Physiology HSST applicants.

Gemma Renwick followed John's presentation with additional information about the process for applying for HSST equivalence. The final session of the morning was a sacral neuromodulation presentation by Claire Hampton from Axonics.

Following a delicious lunch, Syndey Ensor from Alimetry provided a presentation about Gastric Alimetry. Charlotte Pitcher from The Functional Gut Clinic followed with a talk about Laryngopharyngeal Reflux (LPR), presented on behalf of Jordan Haworth. The informative presentation included details about the mechanism of LPR, the RYAN score and salivary pepsin testing.

The meeting concluded with the group agreeing a plan for the next meeting (to be hosted by The Functional Gut clinic in August 2023). Regional meetings are a great way to socialise and share practice with other departments, particularly in a relatively small specialism like GI Physiology. Well done to Gianni, and the NGIWG!

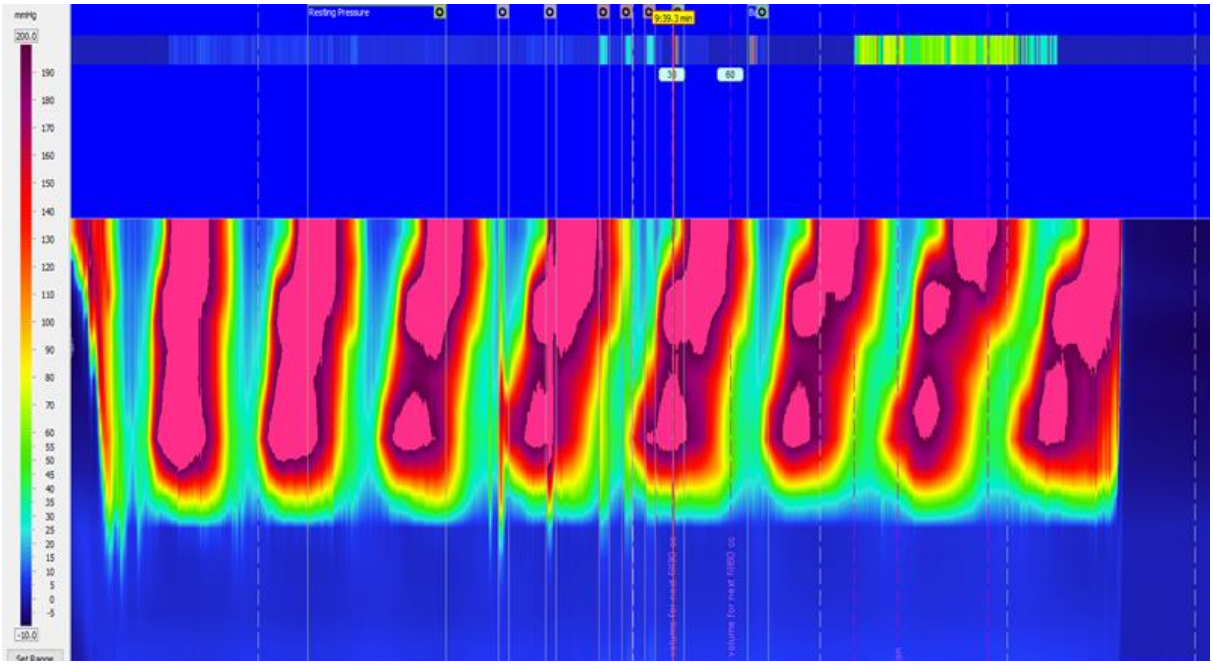
Case Study: Hereditary Internal Anal Sphincter Myopathy

Presented at the first Northern GI Physiology Working Group (NGIWG) meeting by: Caroline Race – Clinical Scientist
Sheffield Teaching Hospitals NHS Foundation Trust

Patient Background:

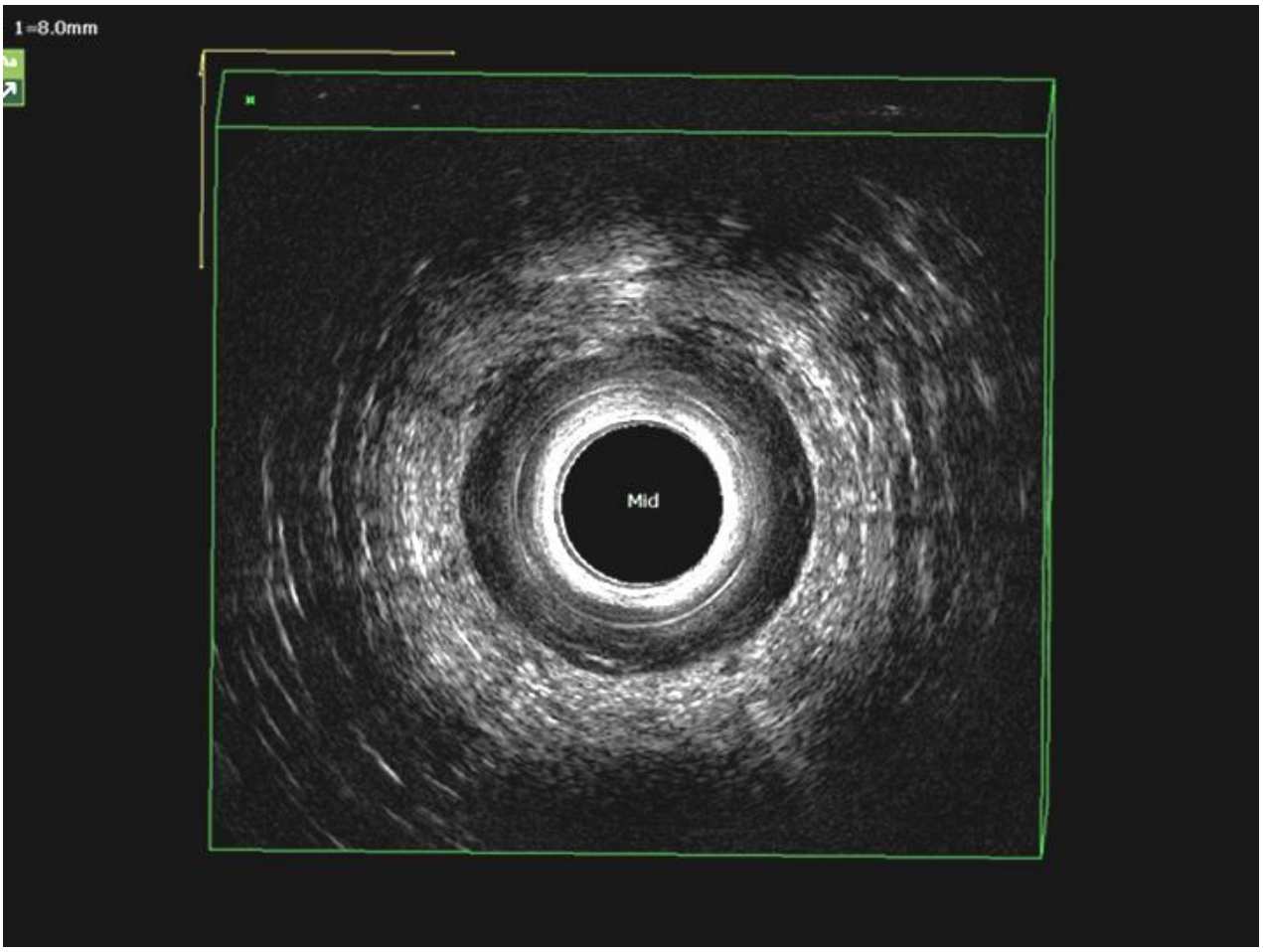
- 60 year old female patient
- History of severe attacks of anal pain for most of her life and constipation
- Presented in 2019 under 2 Week Wait with PR bleeding. EUA sigmoidoscopy showed small haemorrhoids, otherwise NAD (patient was discharged)
- Re-presented in 2022 with worsening frequency and intensity of pain. The pain attacks lasted 5 to 7 minutes, and occurred at night every hour. The pain was severe, and she woke numerous times at night
- The patient reported numerous family members on the paternal side having the same problem (her father had a stoma, due to severe impaction)
- Referred for Anorectal Manometry (ARM), Endoanal Ultrasound (EAUS) and Biofeedback Therapy (BFB)

Anorectal Manometry (ARM):



- Painful procedure
- No measurable manoeuvres due to ultraslow waves (0.5/min)
- Significant hypertensive contractions (pressure ranged from 0 to 321 mmHg)
- Hint of slight paradoxical contraction on bear down
- Rectal hyposensitivity (maximum tolerated value not reached)
- Balloon Expulsion Testing was abandoned (unable to tolerate further intubation)

Endoanal Ultrasound Scan (EAUS):



- Normal subepithelium
- Normal external anal sphincter
- Grossly thickened internal anal sphincter (IAS) at >7mm
- Thickened longitudinal muscle (associated with longstanding straining)

Diagnosis: Hereditary Internal Anal Sphincter Myopathy

- A rare cause of familial anal pain
- Causes a specific type of pain; episodic and variable duration, with increasing intensity over time
- Attacks most common during the night, patients often report hourly attacks
- Associated with constipation and obstructed defaecation syndrome
- Only a handful of case studies have been reported in the literature (7 on PubMed)
- Onset usually occurs between the third and fifth decade of life
- Autosomal dominant inheritance
- Spasmodic IAS with high pressure resulting in bulked muscle mass (increases pressure and pain)

Characterised by:

- Thickening of the IAS smooth muscle (>4 mm) on EAUS
- Increased tone, with rhythmic high pressure waves every 1 to 2 minutes (or episodic increments lasting several minutes around every hour) on ARM
- Decreased IAS compliance
- Vacuolar polyglucosan inclusion bodies and disarranged fibres on electron microscopy

Treatment pathway:

Initial BFB techniques did not help (symptoms worsening). Referred to Pelvic Floor Multi -Disciplinary Meeting, trialling Nifedipine 20 mg BD.

Take Home Messages:

- **Colorectal surgeon was unaware of this condition, as are many others**
- **Get a good description of the pain, as this differs significantly from other causes**
- **If you see these features on ARM or EAUS, suggest Hereditary Internal Anal Sphincter Myopathy**
- **Biofeedback Therapy is unlikely to be helpful**
- **Interestingly… The patient's father's anal pain completely resolved following a colectomy and stoma**

Further Reading:

Pantagiatopoulou, I.G., Miller, R., Powar, M.P., Chan, J.Y.H., Davies, R.J., (2018) Proctalgia and constipation secondary to hypertrophic polyglucosan inclusion body myopathy of the internal anal sphincter: a case report, *Journal of Medical Case Reports,* 12:315

Zbar, A.P., de la Portilla, F., Borrero, J.J., Garriques, S. (2007) Hereditary internal anal sphincter myopathy: the first Caribbean family, *Tech Coloproctol,* 11:60-63

Martin, J.E., Swash, M., Kamm, M.A., Mather, K., Cox, E.L., Gray, A., (1990) Myopathy of internal anal sphincter with polyglucosan inclusions. *Journal of Pathology,* Vol. 161:221-226

KAMM, M.A., Hoyle, C.H.V., Burleigh, D.E., Law, P.J., Swash, M., Martin, J.E., Nicholls, R.J., Northover, J.M.A., (1991) Hereditary internal anal sphincter myopathy causing proctalgia fugax and constipation. *Gastroenterology, 100:*805-810

König, P., Ambrose, N.S., Scott, N., (2000) Hereditary internal anal sphincter myopathy causing proctalgia fugax and constipation: further clinical update and histological characterization in a patient. *European Journal of Gastroenterology & Hepatology* 12:127-128

De la Portilla, F., Borrero, J.J., Rafel, E., (2005) Hereditary vacuolar internal anal sphincter myopathy causing proctalgia fugax and constipation: a new case contribution. European Journal of Gastroenterology & Hepatology. 17:359-361

Guy, R.J., Kamm, M.A., Martin, J.E., (1997) Internal anal sphincter myopathy causing proctalgia fugax and constipation: further clinical and radiological characterization in a patient

Case Study: Rumination Syndrome found on 24-hour pH-Impedance

John Gallagher – Clinical Scientist
Hull University Teaching Hospitals NHS Trust

This is a case study of a 38 year old man who presented to the GI Physiology department at Hull University Teaching Hospitals NHS Trust complaining of epigastric pain, liquid acid regurgitation and back pain. He did not report any specific pattern to his symptoms or any regurgitation of food. He had been suffering these symptoms for a number of years, and found little benefit when taking PPIs. As a result, he was very keen to pursue anti-reflux surgery.

High Resolution Oesophageal Impedance Manometry (HRiM) was performed, during which 80% of the water swallows demonstrated normal oesophageal motility. There was also an evident hiatus hernia (Figure 1). However, only 20% of the solid bolus swallows were classified as effective contractions by the Chicago Classification v4.0 (Figure 2).

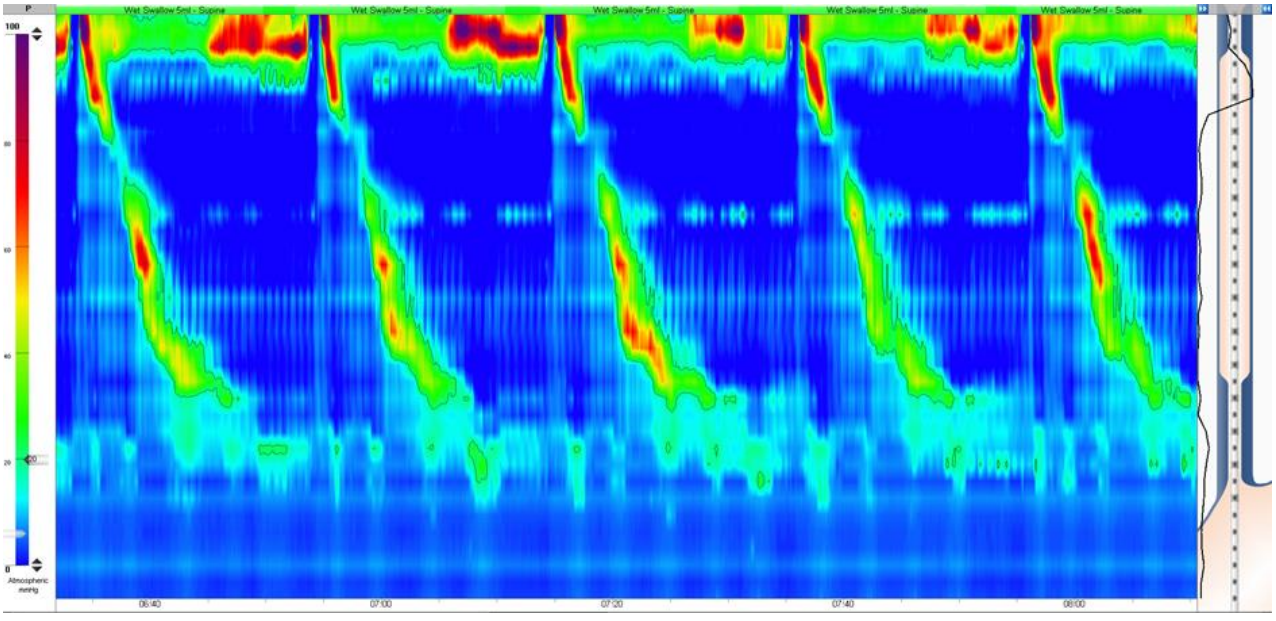


Figure 1. A section of the patient's HRiM study during the water swallows (impedance channels removed for clarity). The image shows normal motility during the water swallows, as 80% of the swallows returned a DCI >450 mmHg.s.cm

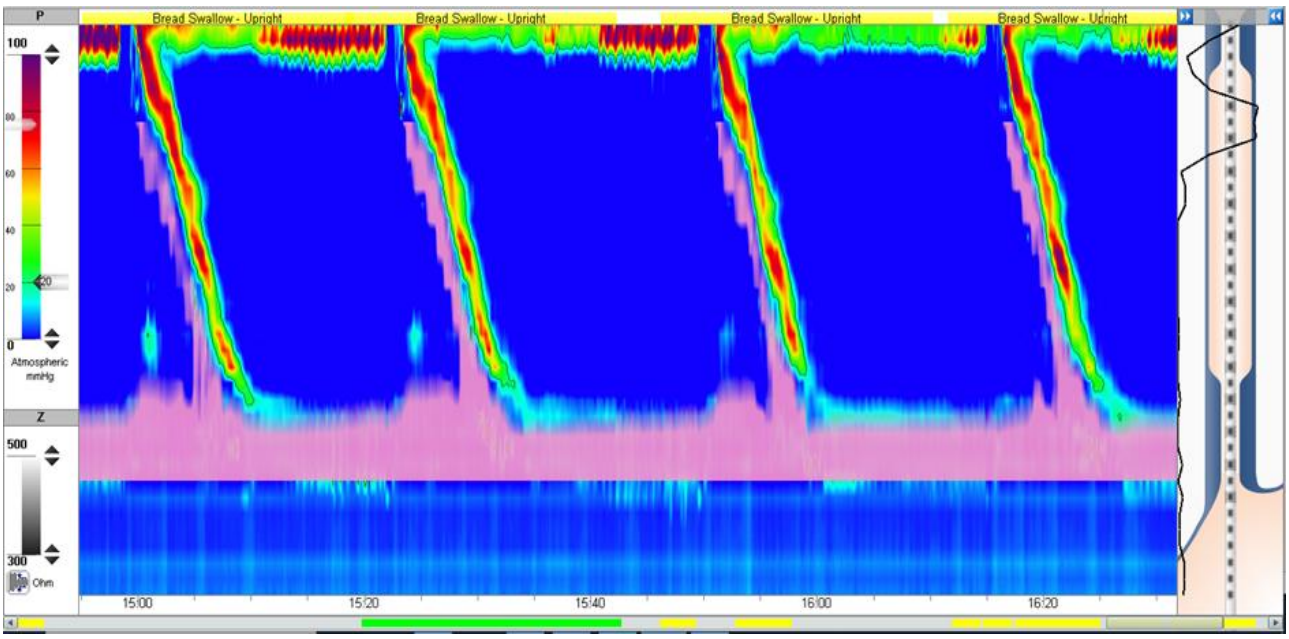


Figure 2. A section of the HRiM study during the solid bolus swallows (bread swallows). As only 2 swallows achieved a DCI >1000mmHg.s.cm, this did not reach the minimum threshold of normal according to the Chicago Classification v4.0.

A 24-hour pH-Impedance test was performed, finding a DeMeester score of 9.25 and an Acid Exposure Time of 3.0% (both within their respective normal ranges). However, the total number of impedance reflux events was 110, significantly higher than the upper limit of normal. In addition, the 24-h bolus exposure and the proximal extent of reflux were both elevated in the upright position.

Interestingly, there was a significant increase in the frequency of reflux events following breakfast on the second day of the test (Figure 3).

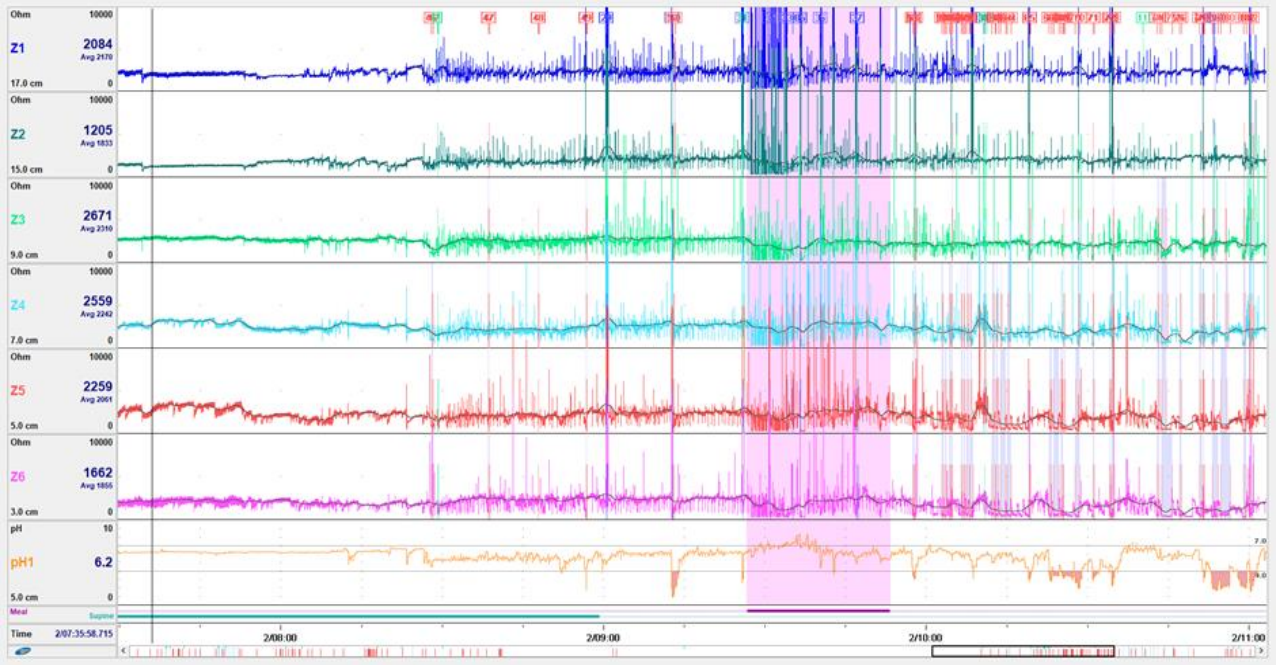


Figure 3. A section of the 24-hour pH-Impedance study showing the frequency of reflux events before and after the patient's breakfast at the beginning of day two. Although the patient did not press the symptom marker, there was a significant increase in the frequency of reflux events following the meal. It could be argued that the amount of reflux was reduced prior to the meal due to the patient's supine position. However, the increased activity towards the end of the marked "supine period" suggests that the patient simply may have recorded the end time of his supine period incorrectly.

There was a consistent pattern to these reflux events; each was followed by a swallow which cleared the refluxate, and there was very little time between each reflux event, with one ending and another almost immediately beginning (Figure 4). This began around 5 minutes after the patient finished his meal, and continued for approximately 40 minutes.

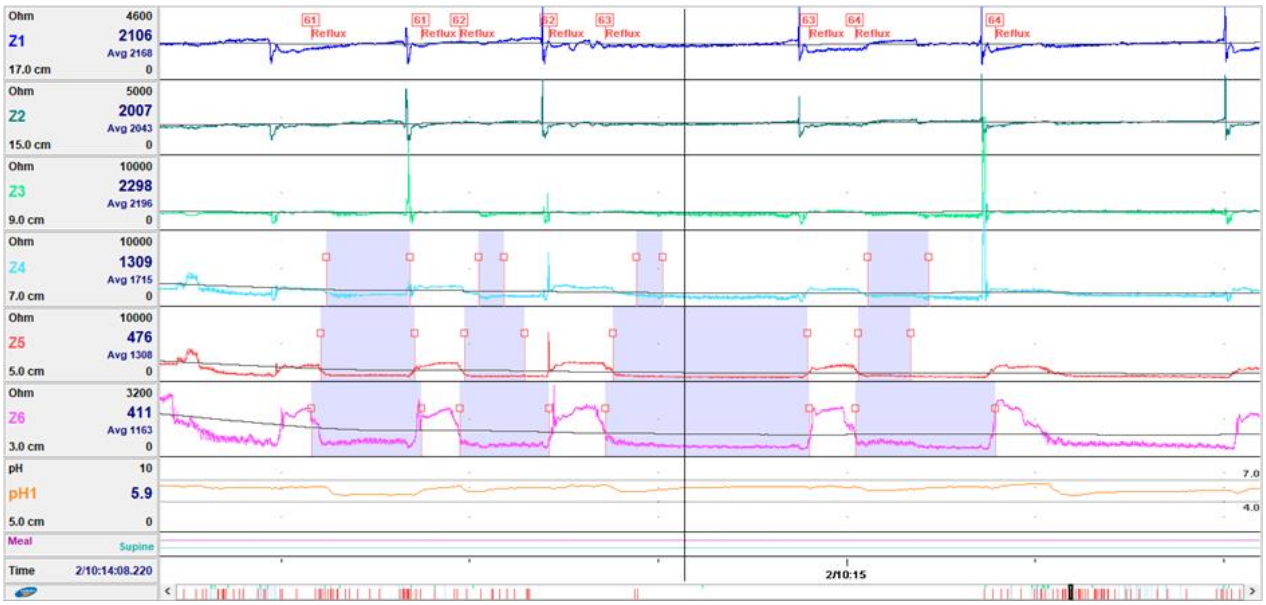


Figure 4. A section of the 24-hour pH-Impedance study following the patient's breakfast, showing a pattern of reflux and swallowing following the meal (there were no significant drops in pH).

Although the reflux did not reach the most proximal sensor, the pattern was consistent with rumination syndrome. However, without manometry to associate gastric contractions with the reflux events, this diagnosis could not be conclusively made. In light of these results, the patient was contacted again to enquire further about his symptoms. On this occasion, the patient divulged that he often regurgitates food following big meals. Due to this symptom and the pH-Impedance study findings, we asked him to return for HRiM with a solid test meal.

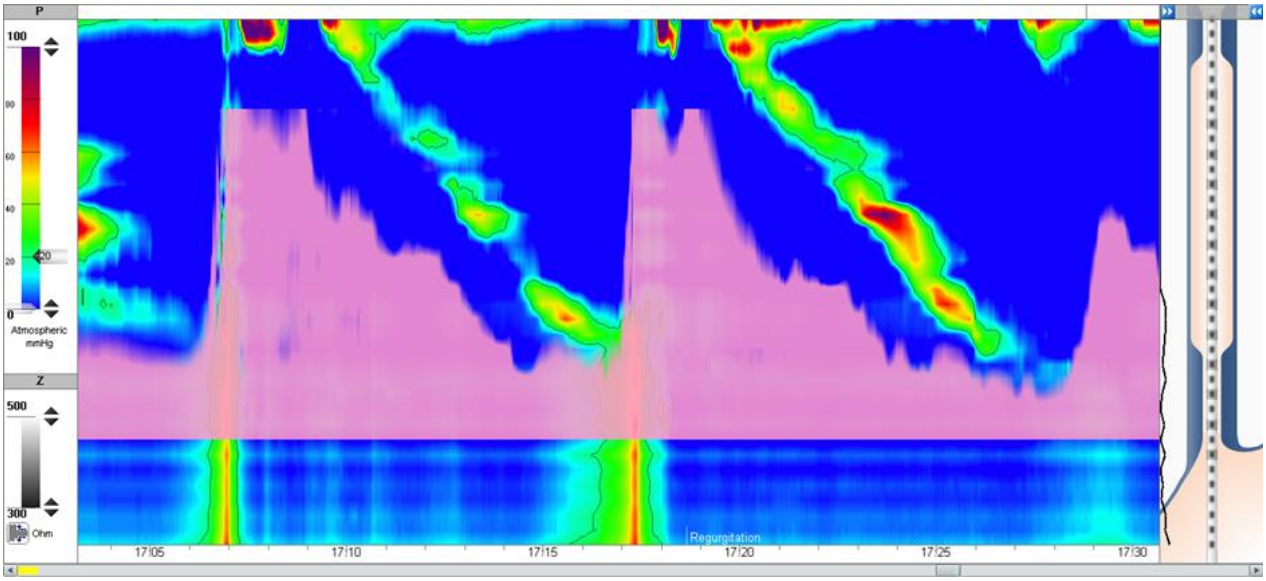


Figure 4. A section of the 10 minute observation period following the test meal during the patient's second HRiM study. This image demonstrates gastric contractions which triggered reflux events (visualised by the light purple impedance trace) which were then cleared by voluntary swallowing. In addition to this, the patient reported regurgitation of food.

Figure 5 shows a snippet of the solid test meal that was performed during his second HRiM study. As suspected, during the 10 minute observation period following the test meal there were marked abdominal contractions which caused gastric contents to reflux into the oesophagus. These were followed by swallowing, clearing the contents of the oesophagus. This repeat HRiM showed a clear case of primary rumination.
To conclude, close inspection of this patient's pH-Impedance study suggested the possibility of rumination syndrome which warranted further investigation by a solid test meal during HRiM. This provided conclusive evidence of rumination syndrome.

It has been suggested that rumination syndrome may not be as rare as is thought, and may be under-diagnosed. Closely analysing the patterns of reflux on pH-Impedance studies in patients who report any regurgitation may prevent some of these cases from being missed. As rumination syndrome does not respond well to anti-reflux surgery, this approach may improve outcomes for patients with rumination syndrome.