international bowel ULTRASOUND GROUP

KUWAIT GASTROENTEROLOGY ASSOCIATION
رابطة الجهاز الهضمي والكبد الكويتية

Kuwait City, Kuwait, November 21st – 22nd,2025

IUS in non-complicated CD

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NHS
Frimley Health
NHS Foundation Trust

UCL CMI Centre for Medical Imaging

Disclosure

Central reader	Alimentiv (2021 – current)
Radiology lead	Motilent (2023 – current)
Share options	Motilent, Fetch Health
Patent	P295276.US.02, SYSTEM TO CHARACTERIZE TOPOLOGY AND MORPHOLOGY OF FISTULAE FROM MEDICAL IMAGING DATA.
Honorarium	IBUS Virtual education project funded by Helmsley (2025)

Intended Learning Outcomes

By the end of this session, the learner will be able to:

1. Apply bowel wall thickness (BWT) measurements according to standard and research criteria.
2. Identify and describe mural and extramural IUS signs suggestive of inflammation in Crohn's disease.
3. Integrate and weigh the importance of multiple individual IUS signs to form a comprehensive assessment of Crohn's disease activity and potential complications.
4. Evaluate the overall diagnostic and monitoring performance of IUS for Crohn's disease assessment against established reference standards (e.g., endoscopy, cross-sectional imaging, histology).
5. Understand the relative time course over which different IUS parameters typically respond to effective treatment in Crohn's disease.
6. Define different IUS response and remission definitions used in Crohn's disease assessment and explain how they can be used to predict and monitor disease activity over time.

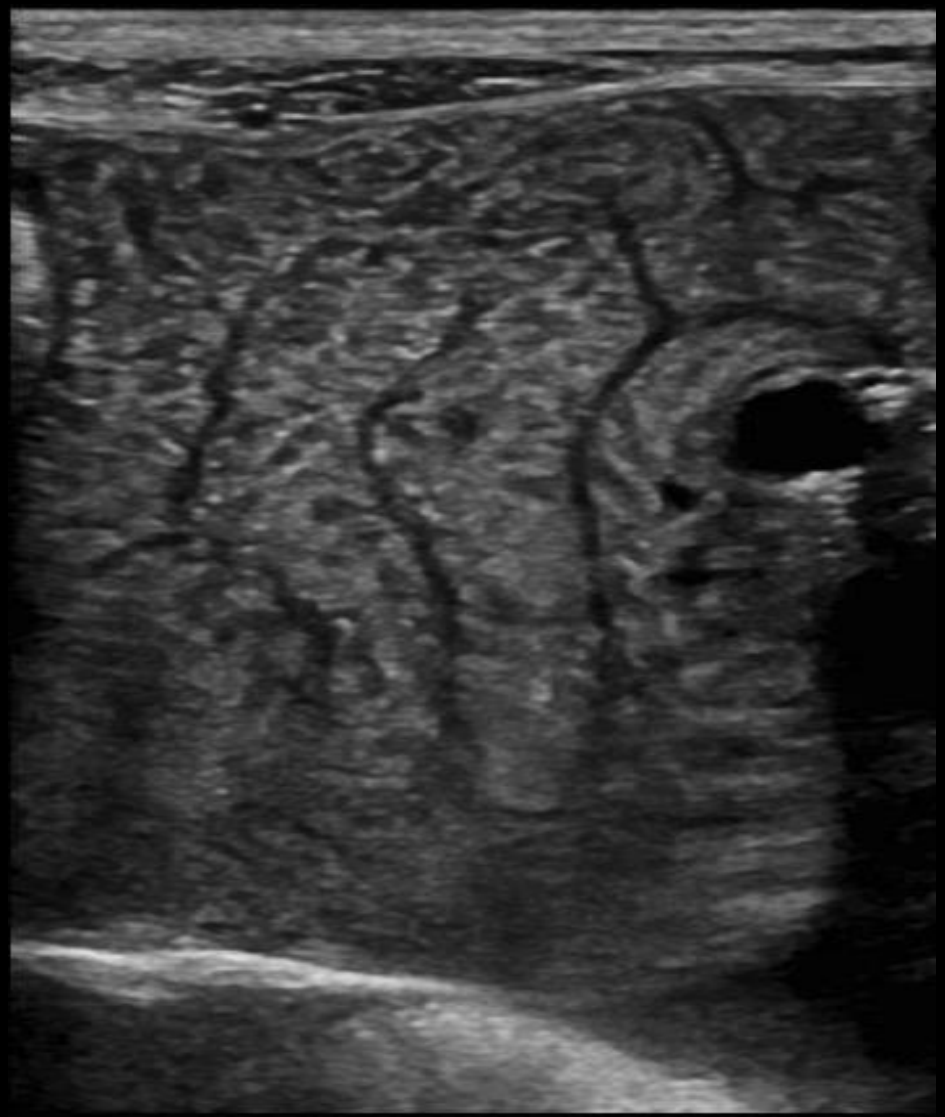
The state of IBD care

Overview

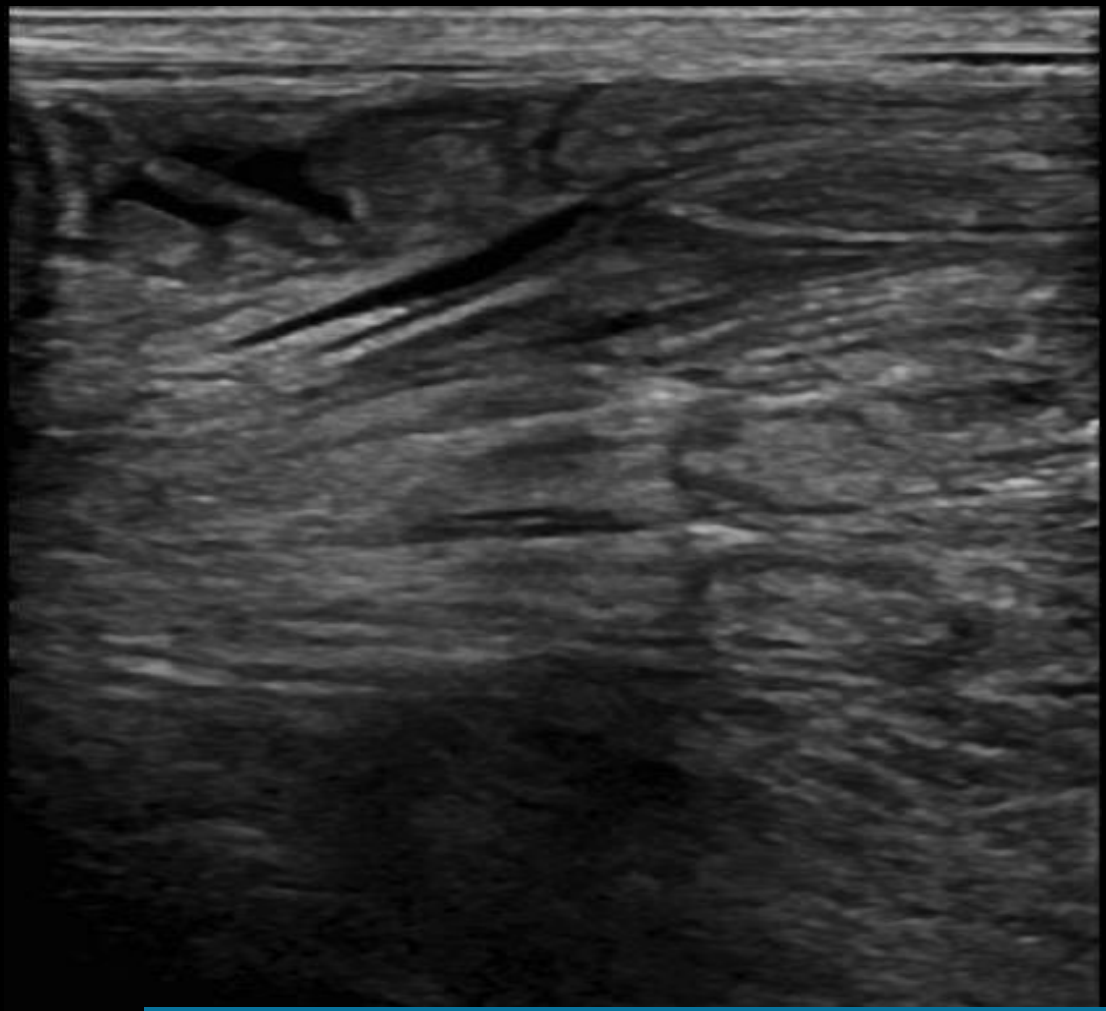
To provide an overall assessment of IBD care in 2023, people with IBD were asked how they would rate the quality of their care over the past 12 months, what aspects of IBD care are most important to them and what areas of care require significant improvement. Roughly one in three adults (35%) rated their care as ‘fair’ or ‘poor’, a higher proportion than in 2019. A higher proportion of children and adolescents with IBD rated their care quality more favourably compared with adults, but one in seven (14%) still rated it as ‘fair’ or ‘poor’.

Results indicated that people want to be seen quickly and for it to be simple and convenient for them to contact their IBD service. People with IBD also value care that considers their wider wellbeing and wish to see changes that ensure that their wellbeing is being considered.

IUS is a brilliant way of looking at the bowel !



6cm



Thanks to Dr Andrew Plumb

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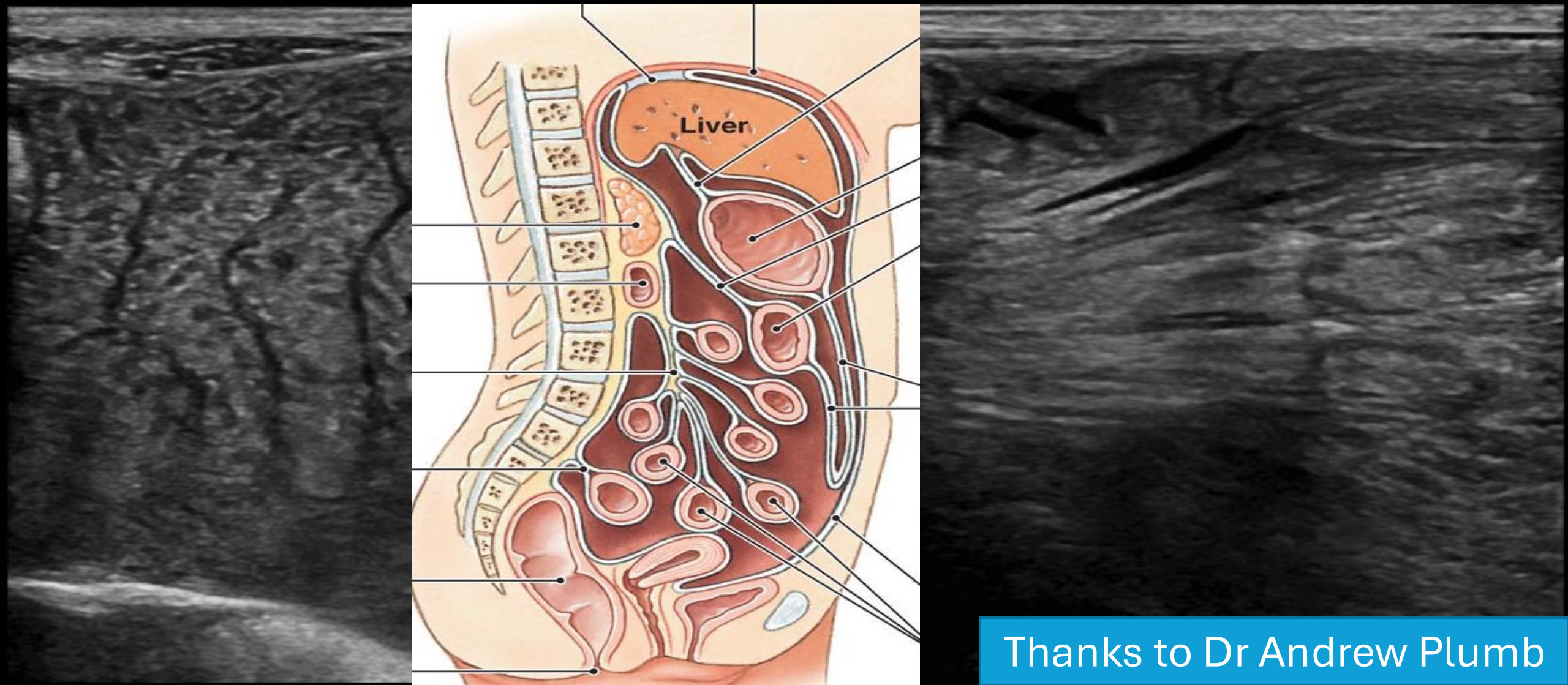

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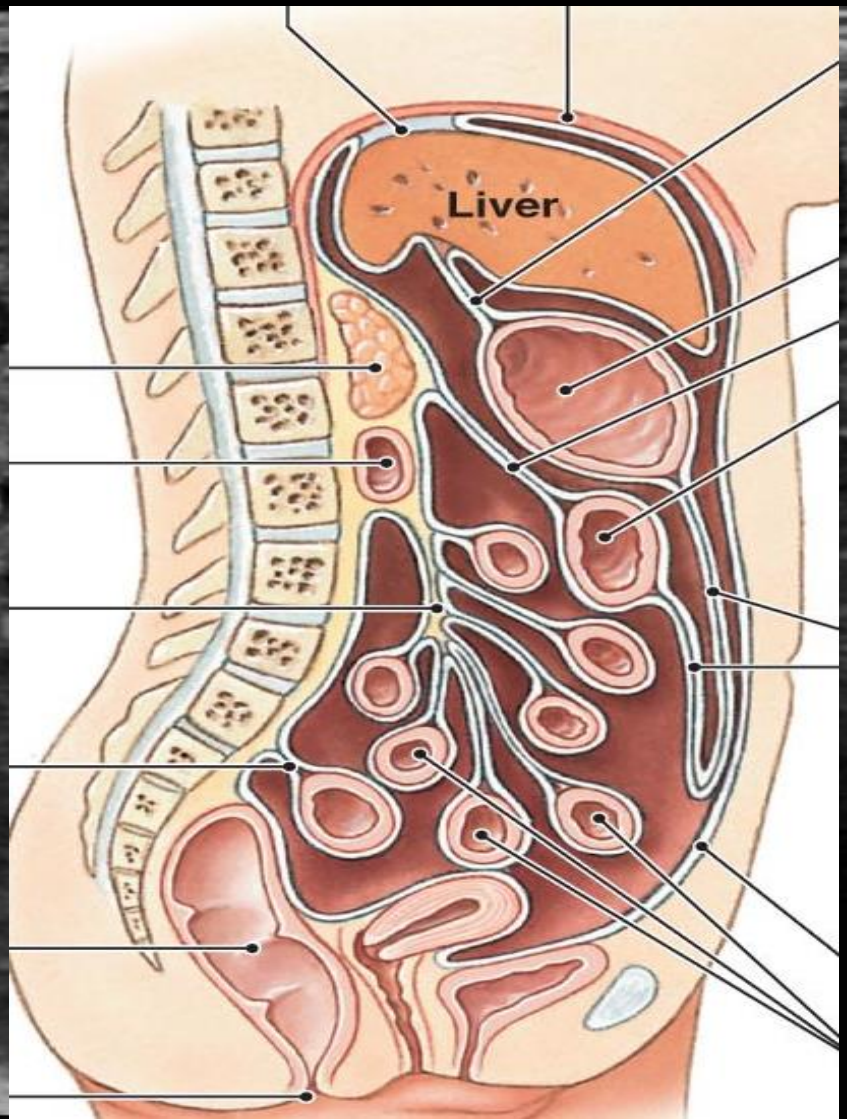

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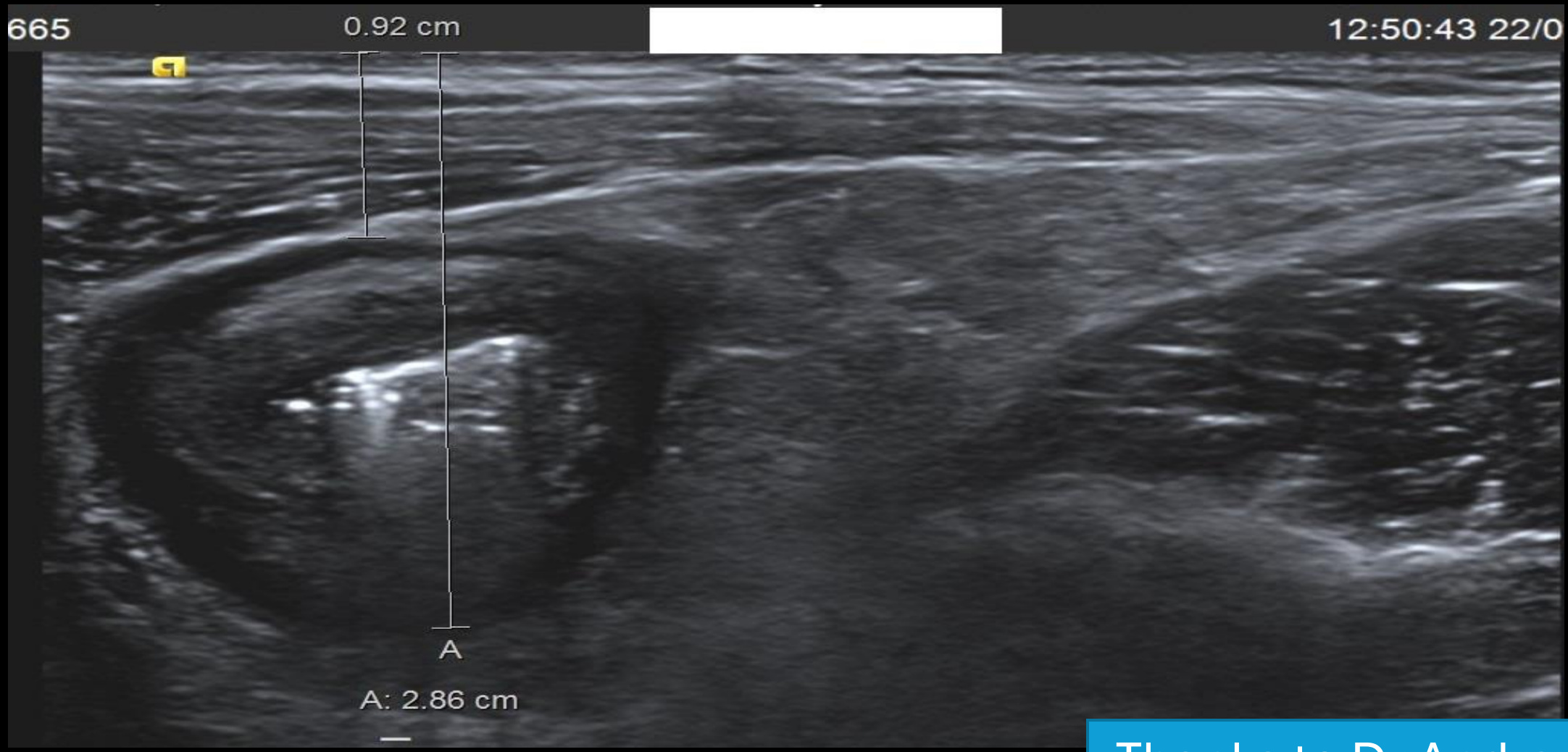

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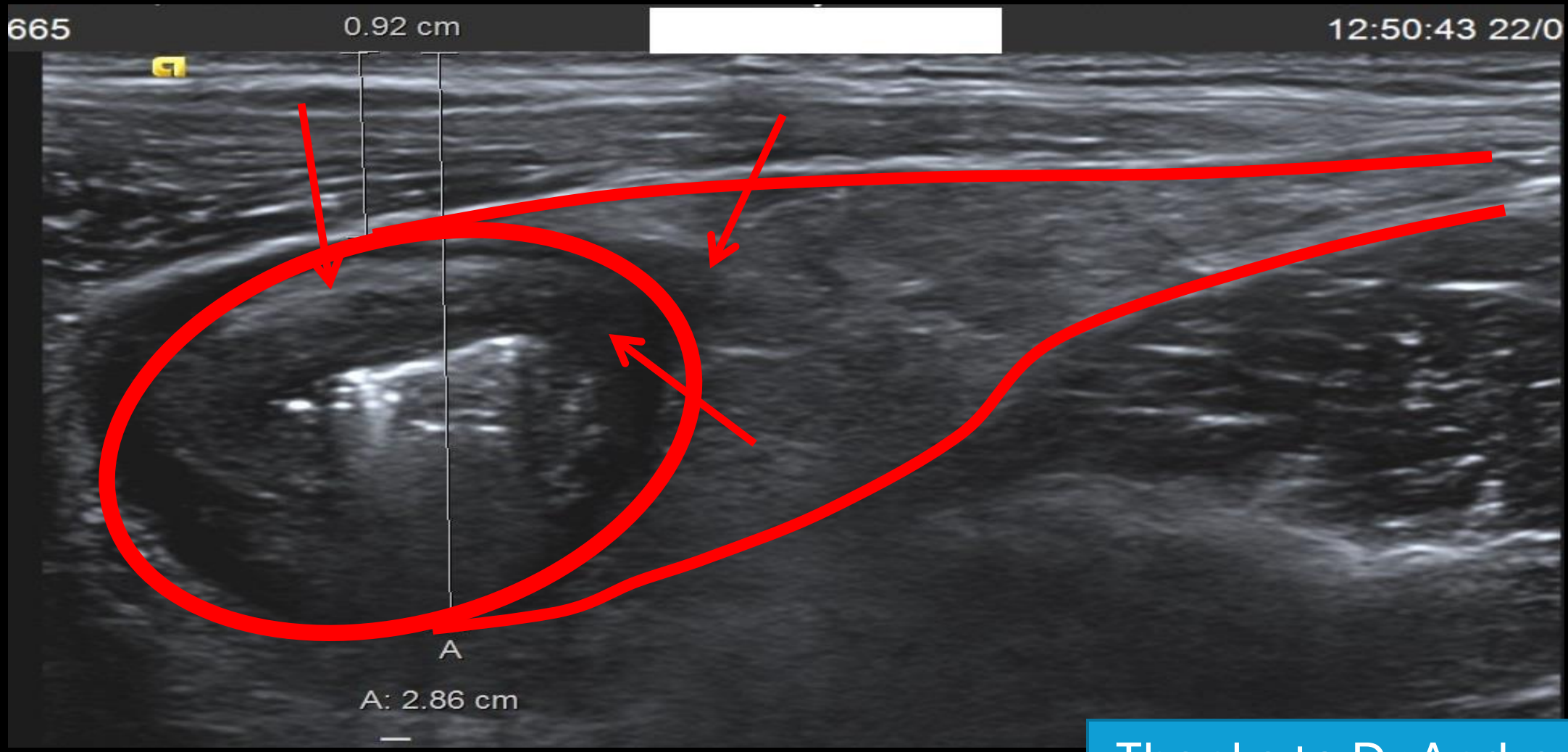

Thanks to Dr Andrew Plumb

IUS at diagnosis

Journal of Crohn's and Colitis, 2025, **19(7)**, jjaf106
https://doi.org/10.1093/ecco-jcc/jjaf106
Advance access publication 31 July 2025
ECCO Guideline/Consensus Paper

ECCO-ESGAR-ESP-IBUS Guideline on Diagnostics and Monitoring of Patients with Inflammatory Bowel Disease: Part 1

Part 1: initial diagnosis, monitoring of known inflammatory bowel disease, detection of complications

Torsten Kucharzik[1,*], Stuart Taylor[2], Mariangela Allocca[3], Johan Burisch[4,5,6], Pierre Ellul[7], Marietta Iacucci[8], Christian Maaser[9], Pamela Baldin[10], Gauraang Bhatnagar[11], Shomron Ben-Horin[12], Dominik Bettenworth[13], Mallory Chavannes[14], Ann Driessen[15], Emma Flanagan[16], Frederica Furfaro[17], Giovanni Maconi[18], Konstaninos Karmiris[19], Amelia Kellar[20,21], Isabelle De Kock[22], Konstantinos Katsanos[23], Uri Kopylov[24], Cathy Lu[25], Olga Maria Nardone[26], Nurulamin M Noor[27], Kerri Novak[28], Paula Borralho Nunes[29], Patrick van Rheenen[30], Jordi Rimola[31], Francesca Rosini[32], David Rubin[33], Martina Scharitzer[34], Jaap Stoker[35,36], Mathieu Uzzan[37], Stephan Vavricka[38], Bram Verstockt[39], Rune Wilkens[40], Nina Zidar[41], Alessandra Zilli[42], Henit Yanai[43,44], Roger Feakins[45,46]; on behalf of the European Crohn's and Colitis Organisation (ECCO), the European Society of Gastrointestinal and Abdominal Radiology (ESGAR), the European Society of Pathology (ESP), and the International Bowel Ultrasonography Group (IBUS)

Recommendation 1 The diagnosis of Crohn's disease and ulcerative colitis is based on a combination of clinical symptoms, laboratory tests, endoscopy, histology, and imaging (EL5). We recommend ileocolonoscopy with biopsies combined with imaging evaluation with intestinal ultrasound, magnetic resonance enterography, or both as first-line examinations in patients with suspected IBD (EL5). (94% agreement)

Recommendation 2 Small-bowel assessment should be performed in all newly diagnosed CD patients using MRE, IUS, or both (EL2). (85% agreement)

Update: Specific emphasis on MRE at baseline and the use of a complementary ultrasound

Diagnosis

Diagnostic accuracy of magnetic resonance enterography and small bowel ultrasound for the extent and activity of newly diagnosed and relapsed Crohn's disease (METRIC): a multicentre trial

Stuart A Taylor, Susan Mallett, Gaurang Bhatnagar, Rachel Baldwin-Cleland, Stuart Bloom, Antony Higginson, Ilan Jacobs, Sara McCartney, Anne Miles, Charles D Murray, Andrew A Plumb, Manuel Rodriguez-Justo, Zainib Shabir, Andrew Slater, Damian Tolan, Simon Travis, Alastair W on behalf of the METRIC study investigators*

Summary

Background Magnetic resonance enterography (MRE) and ultrasound are u comparative accuracy for assessing disease extent and activity is not kno

MAPPING – MRE is more sensitive and specific

Test	TP	FN	FP	TN	Sensitivity (95% CI)	Specificity (95% CI)
Small bowel disease extent						
MRE	171	62	5	46	80% (72–86)	95% (85–98)
Ultrasound	152	81	13	38	70% (62–78)	81% (64–91)
Small bowel disease presence						
MRE	210	23	5	46	97% (91–99)	96% (86–99)
Ultrasound	193	40	13	38	92% (84–96)	84% (65–94)
Colonic disease extent						
MRE	35	94	17	138	22% (14–32)	93% (87–97)
Ultrasound	29	100	17	138	17% (10–27)	93% (87–97)
Colonic disease presence						
MRE	76	53	17	138	64% (50–75)	96% (90–98)
Ultrasound	84	45	17	138	73% (59–83)	96% (90–98)

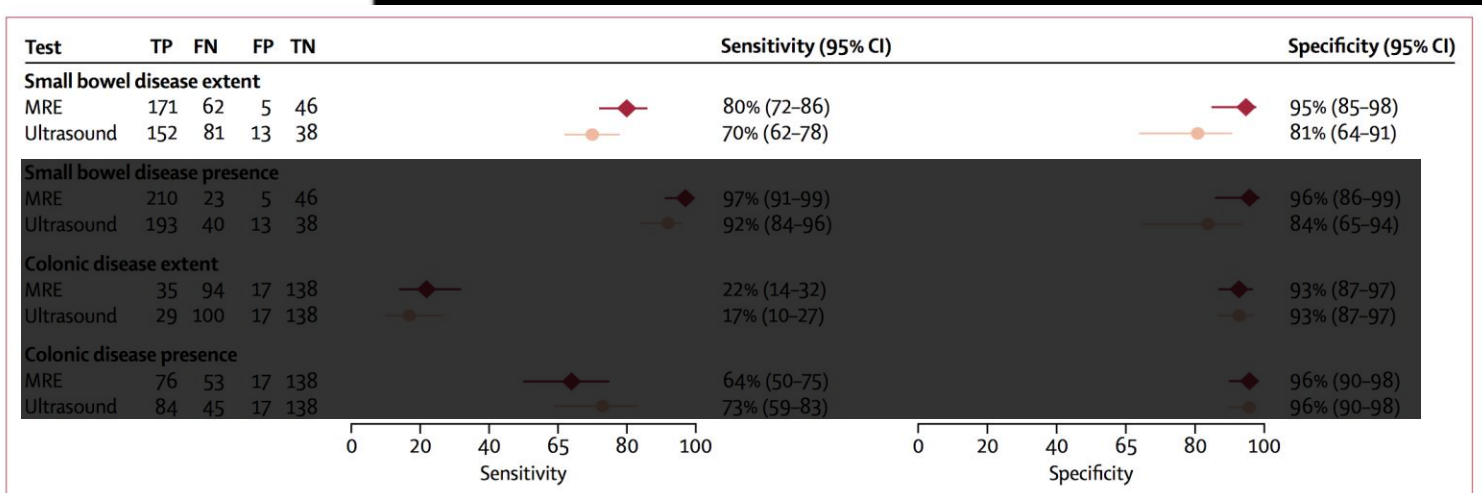

Figure 2: **Sensitivity and specificity of MRE and ultrasound for the extent and presence of small bowel and colonic disease against the consensus reference standard**

FN=false negative. FP=false positive. MRE=magnetic resonance enterography. TN=true negative. TP=true positive. Error bars represent 95% CI.

MRE was significantly more sensitive than ultrasound for ileal (84% [95% CI 67–93] *vs* 56% [38–73])

Update: Specific emphasis on MRE at baseline and the use of a complementary ultrasound

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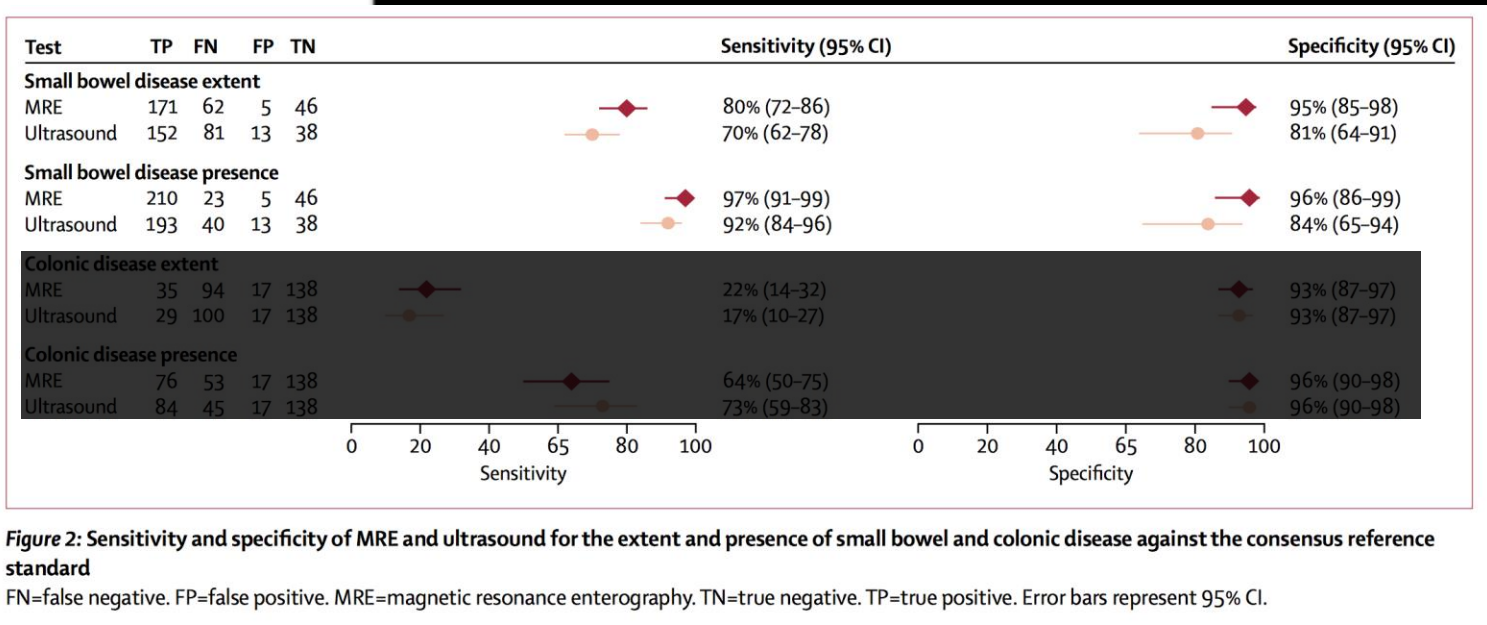
MAPPING – MRE was more sensitive and specific

Both are good but MRE was superior for detection



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Update: Specific emphasis on MRE at baseline and the use of a complementary ultrasound

Diagnosis

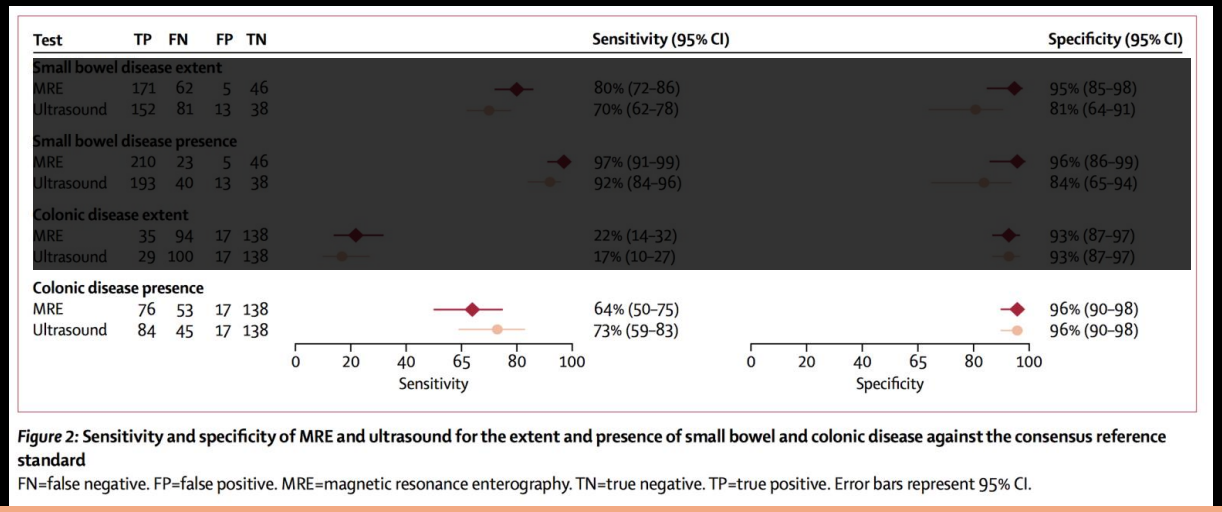
IUS is a valuable tool for diagnosing small bowel CD and assessing its complications and is probably superior to MRE in assessing the extent of UC.

Diagnostic accuracy of magnetic resonance enterography and small bowel ultrasound for the extent and activity of newly diagnosed and relapsed Crohn's disease (METRIC): a multicentre trial

Stuart A Taylor, Susan Mallett, Gaurang Bhatnagar, Rachel Baldwin-Cleland, Stuart Bloom, Arun Gupta, Peter J Hamlin, Alba L Hart, Antony Higginson, Ron Jacobs, Sara McCartney, Anne Miles, Charles D Murray, Andrew A Plumb, Richard C Pollok, Shonit Punwani, Laura Quinn, Manuel Rodriguez-Justo, Zainib Shabir, Andrew Slater, Damian Tolan, Simon Travis, Alastair Windsor, Peter Wylie, Ian Zealley, Steve Halligan, on behalf of the METRIC study investigators*

Summary

Background Magnetic resonance enterography (MRE) and ultrasound are used to image Crohn's disease, but their



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FN=false negative. FP=false positive. MRE=magnetic resonance enterography. TN=true negative. TP=true positive. Error bars represent 95% CI.

For patients with clinical features suggestive of CD who have negative colonoscopy and imaging results, capsule endoscopy [CE] of the small bowel is recommended.

Update: Specific emphasis on MRE at baseline and the use of a complementary ultrasound

Diagnosis

Diagnostic accuracy of magnetic resonance enterography and small bowel ultrasound for the extent and activity of newly diagnosed and relapsed Crohn's disease (METRIC): a multicentre trial

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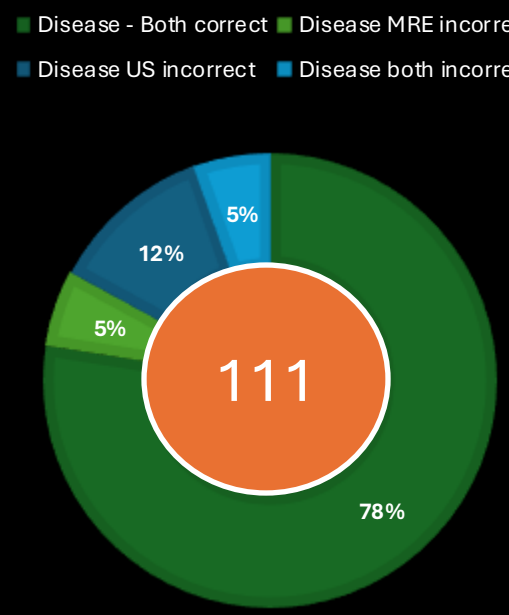
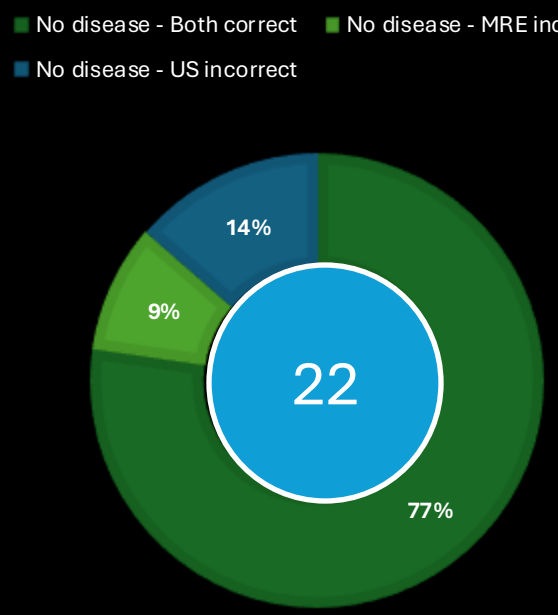
METRIC - NEW DIAGNOSIS: YES SMALL BOWEL DISEASE



METRIC - NEW DIAGNOSIS: NO SMALL BOWEL DISEASE



Two tests are better than one!

Update: Specific emphasis on MRE at baseline and the use of a complementary ultrasound

Diagnosis

Alimentary Pharmacology & Therapeutics WILEY

Effect of point-of-care gastrointestinal ultrasound on decision-making and management in inflammatory bowel disease

Antony B. Friedman[1] | Anil Asthana[1,2] | Simon R. Knowles[1,3] | Aphra Robbins[4] | Peter R. Gibson[1]

Those who underwent IUS at clinic:

- better understanding of their disease
- better understanding of their disease symptoms
- more confident in their ability to make informed decisions about managing their IBD
- Clinicians changed the management plan for 41 (56%) patients because of the ultrasound result
- There was a clear trend for patients with active IBD who had undergone ultrasound to report less reduction over time in adherence to their drug regimen

Update: Specific emphasis on MRE at baseline and the use of a complementary ultrasound

Diagnosis

IUS benefits:

- interaction between patients and treating physicians
- facilitating the patient to comprehend disease activity and management decisions
- improved treatment adherence and potentially an improved clinical outcome.
- No further workup may be needed after IUS, patients experience reduced overall waiting and examination times.

Diagnosis

Start

IUS to monitor disease activity

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https://doi.org/10.1093/ecco-jcc/jjaf106
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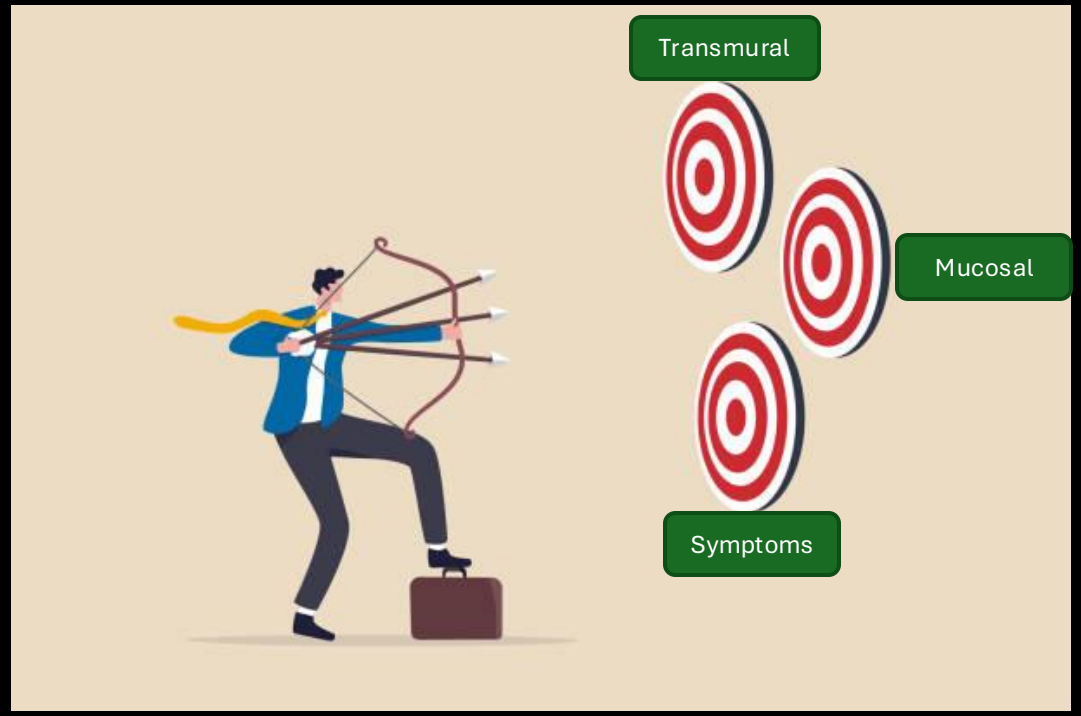
Recommendation 11 Patients with CD in need of treatment initiation or optimization should be assessed clinically and biochemically (EL1) and by endoscopy (EL1), cross-sectional imaging (IUS or MRE), CE (EL3), or combinations thereof, at baseline. (95% agreement)

Recommendation 12 In patients with CD following treatment initiation or optimization, we recommend early (within 12 weeks) clinical (EL1), biochemical (EL1), and cross-sectional imaging (IUS [EL2] or MRE [EL2]) assessment of response. Endoscopic response assessment should be performed within 12 months (EL1). Results should be interpreted based on prior baseline assessment. (89% agreement)

Recommendation 13 Transmural remission independent of endoscopic remission in CD is associated with better long-term outcomes (EL3). Patients with UC with histological disease activity despite endoscopic remission have a higher risk of relapse (EL4). Treatment adjustment and re-evaluation to achieve these goals might be considered (EL5). (92% agreement)

Recommendation 14 In patients with CD in clinical remission, we suggest proactive monitoring for subclinical inflammation by PROs and objective markers of disease activity (biomarkers and cross-sectional imaging [IUS or MRE]) every 6–12 months (EL3). (86% agreement)

What are the treatment targets and why?



Received: 14 October 2018 | First decision: 11 November 2018 | Accepted: 22 January 2019
DOI: 10.1111/apt.15190

WILEY APT Alimentary Pharmacology & Therapeutics

One-year clinical outcomes with biologics in Crohn's disease: transmural healing compared with mucosal or no healing

Fabiana Castiglione[1] | Nicola Imperatore[1] | Anna Testa[1] | Giovanni Domenico De Palma[2] | Olga Maria Nardone[1] | Lucienne Pellegrini[1] | Nicola Caporaso[1] | Antonio Rispo[1]

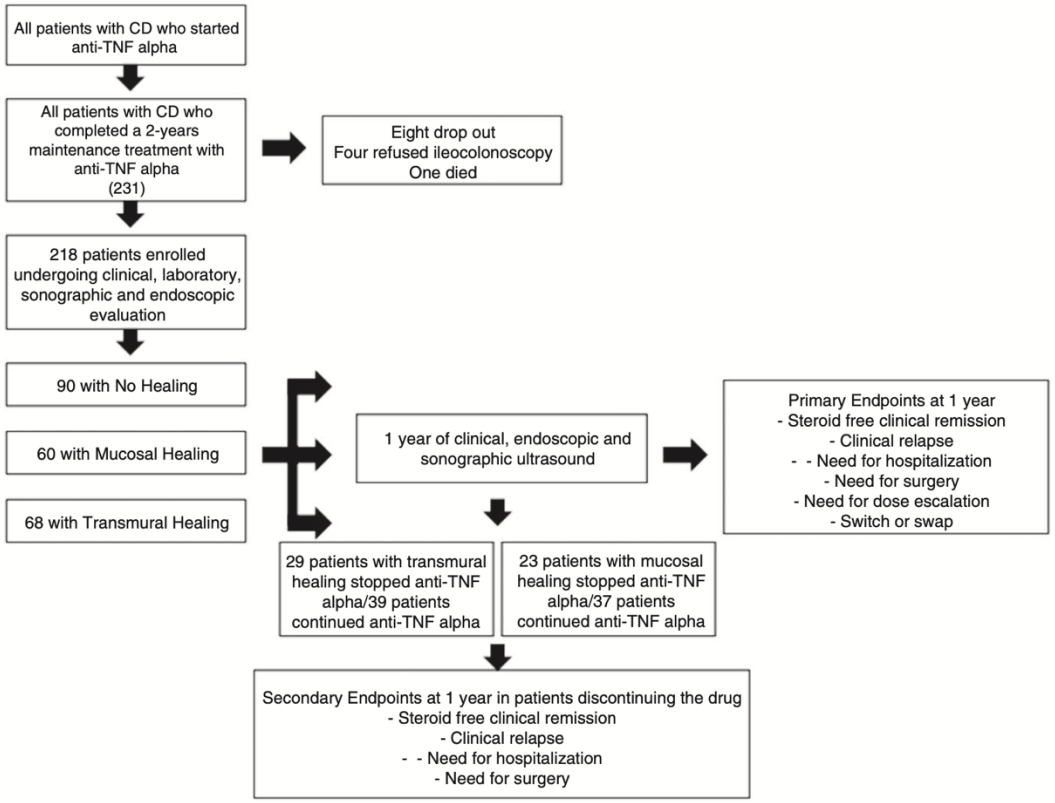
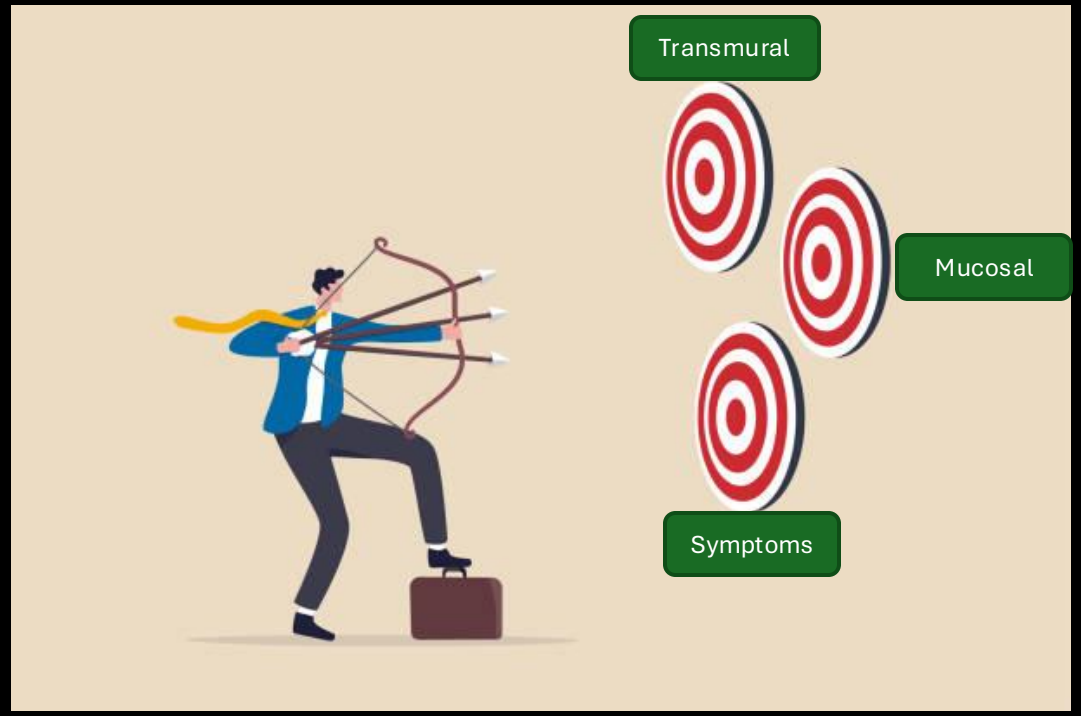


FIGURE 1 Study protocol flow-chart

What are the treatment targets and why?



What are the treatment targets and why?

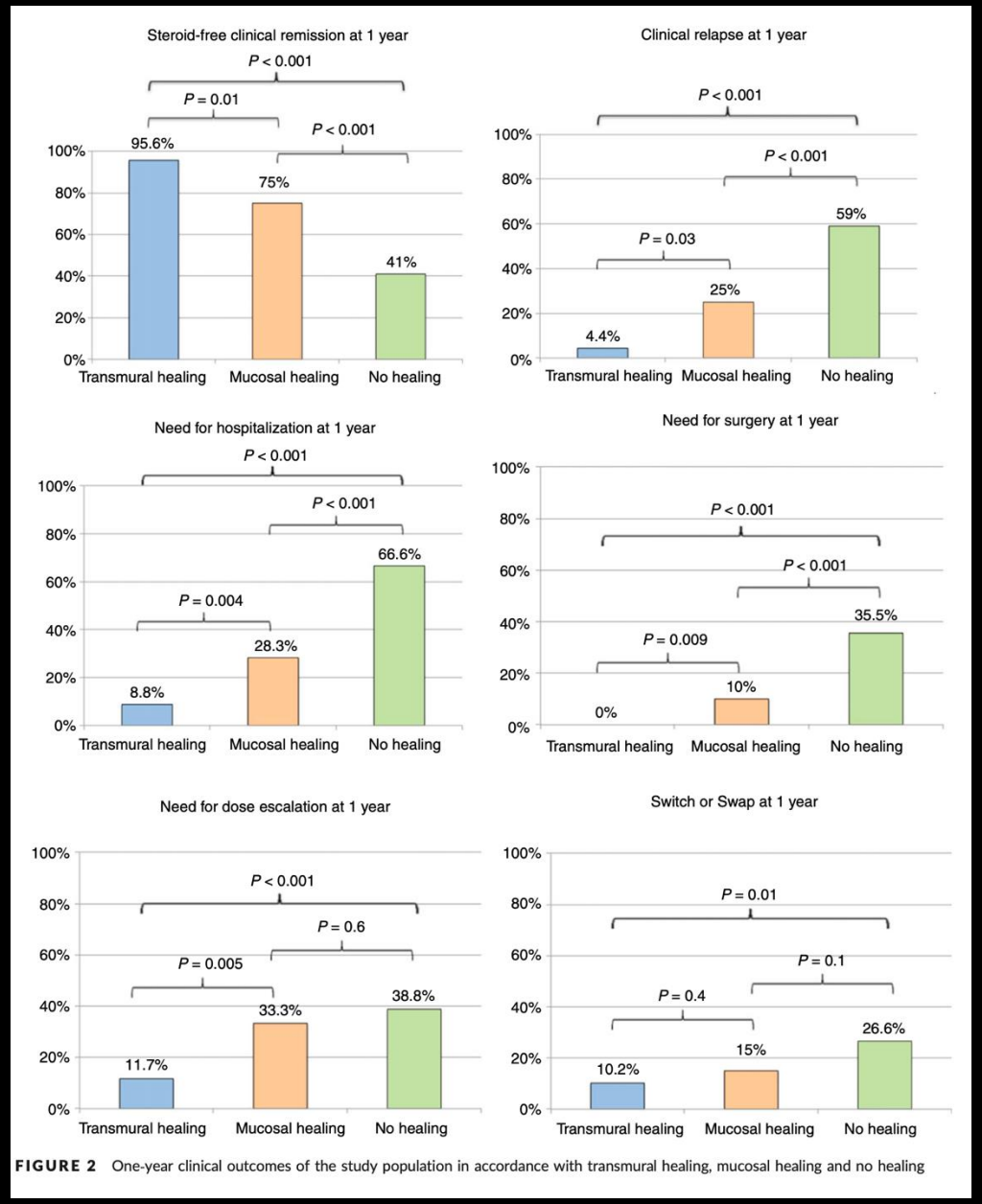
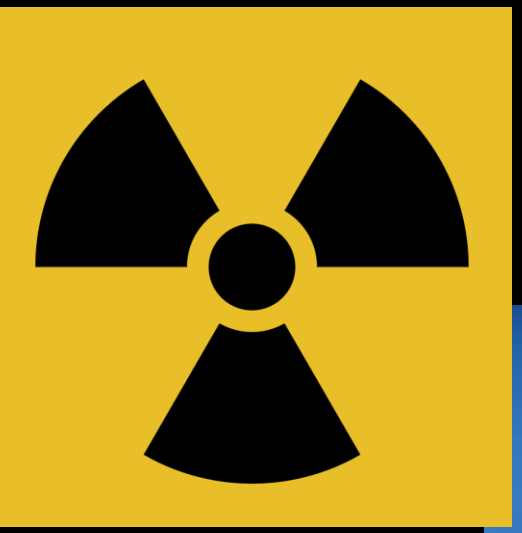


FIGURE 2 One-year clinical outcomes of the study population in accordance with transmural healing, mucosal healing and no healing

Transmural inflammation is observed with cross-sectional imaging techniques

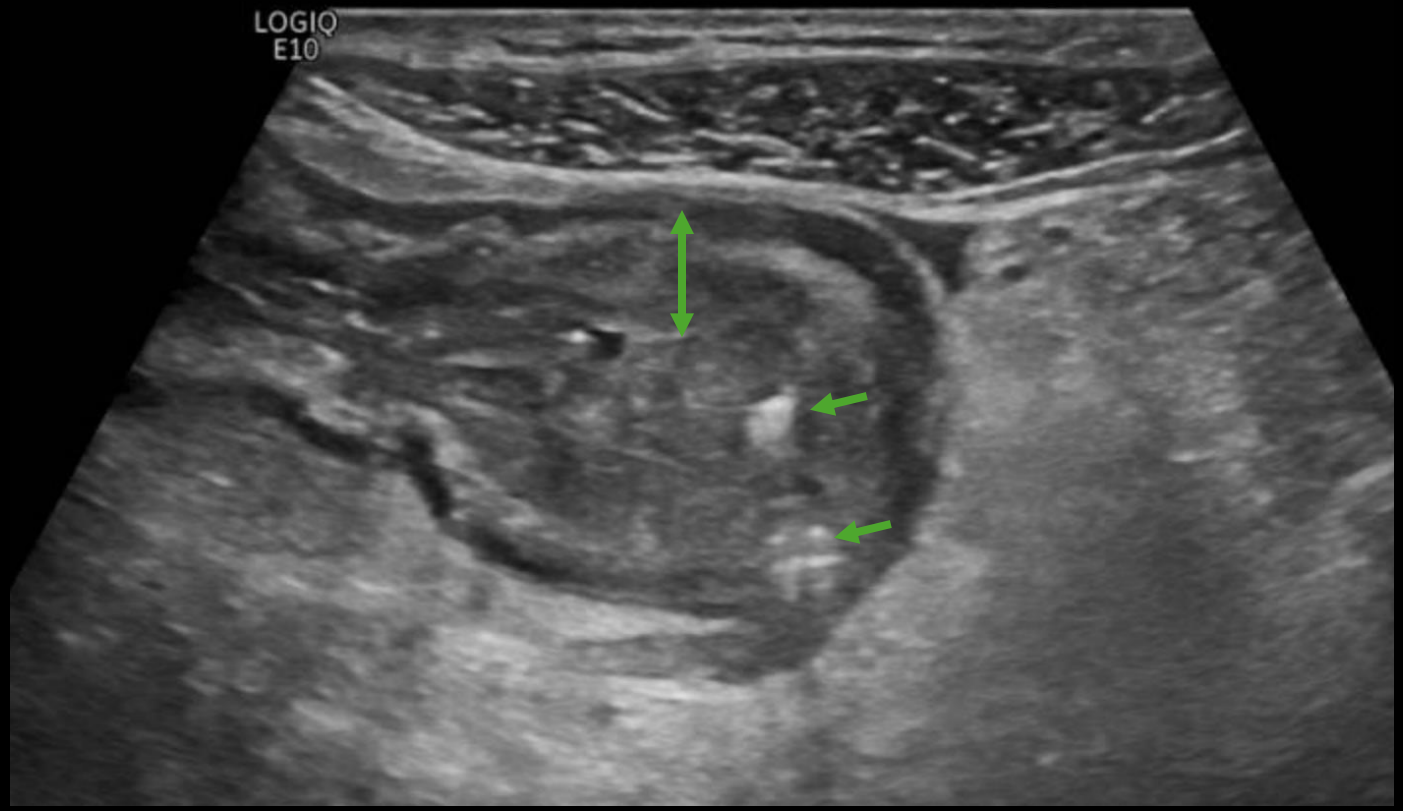


- CT is not recommended for routine monitoring or follow up of treatment response given radiation exposure
- It should be limited to emergency situations

- MRE exhibits high accuracy and can be used for measuring treatment response
- Its drawbacks are: limited access, long waits and high cost
- It is very energy inefficient and bad for the environment
- The need for preparation (oral and intravenous) contributes to diminished patient preference and limits the use of MRE for frequent and short-term follow up

- IUS does not require any preparation
- It is less time and cost intensive than MRI
- It is a very “Green” imaging modality
- It can be performed in a point-of-care setting directly by an engaged radiologist or the treating gastroenterologist which has been shown to improve the patient-clinician relationship resulting in better satisfaction, understanding, empowerment and drug adherence

IUS Activity features



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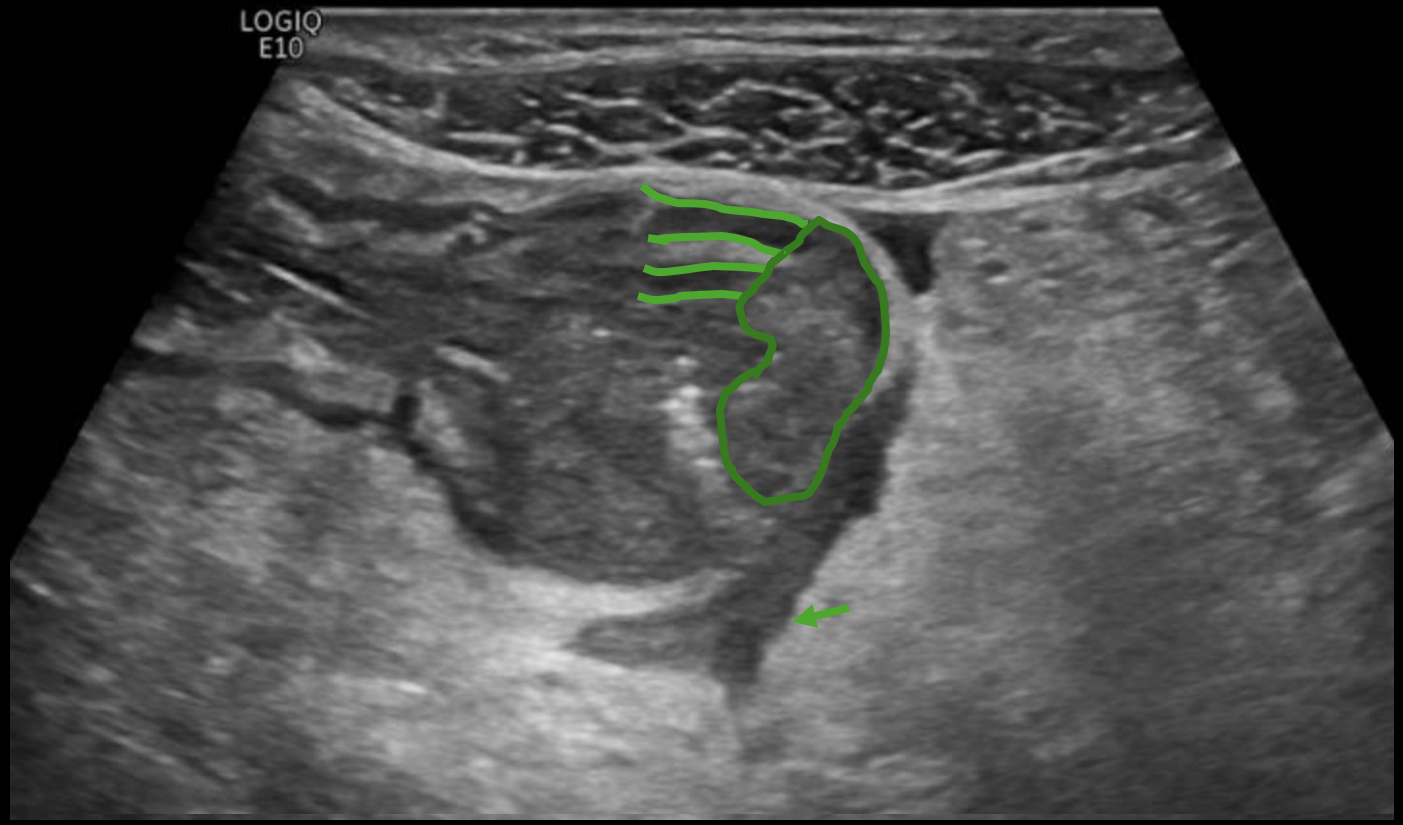

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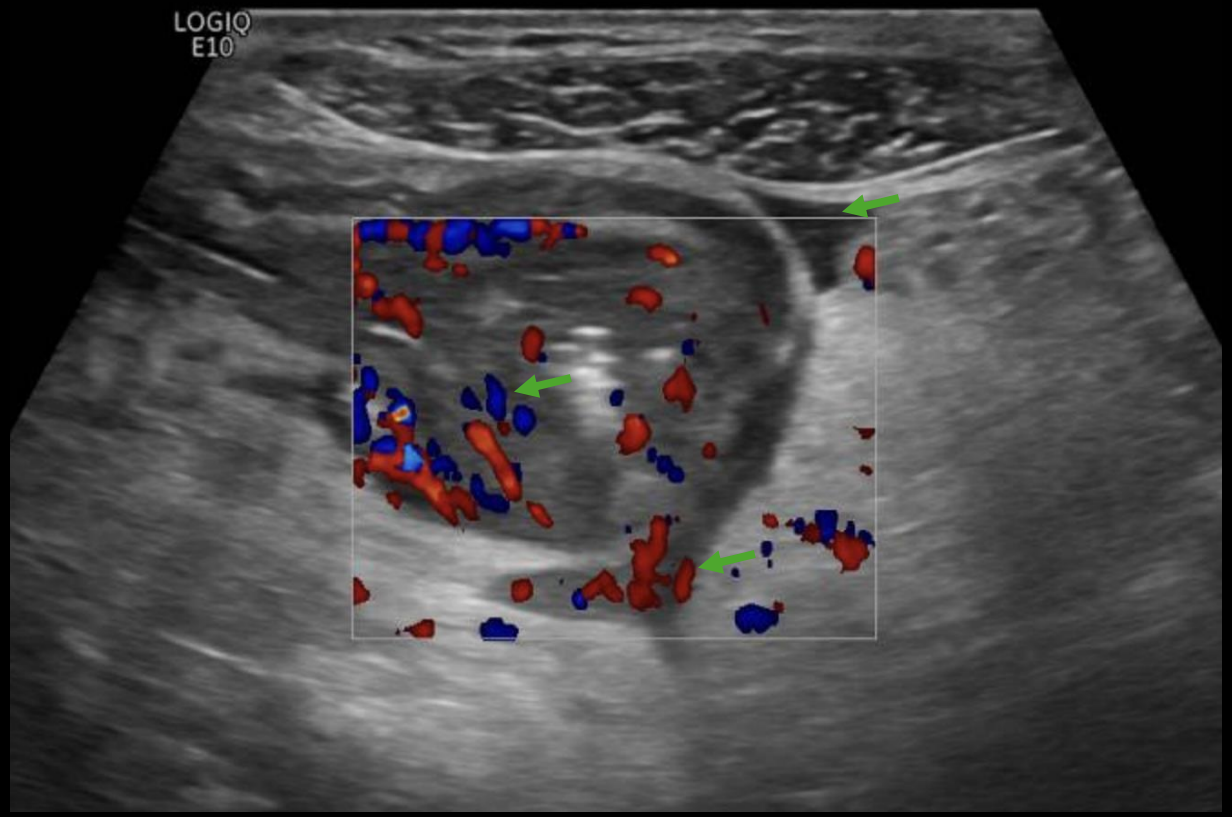

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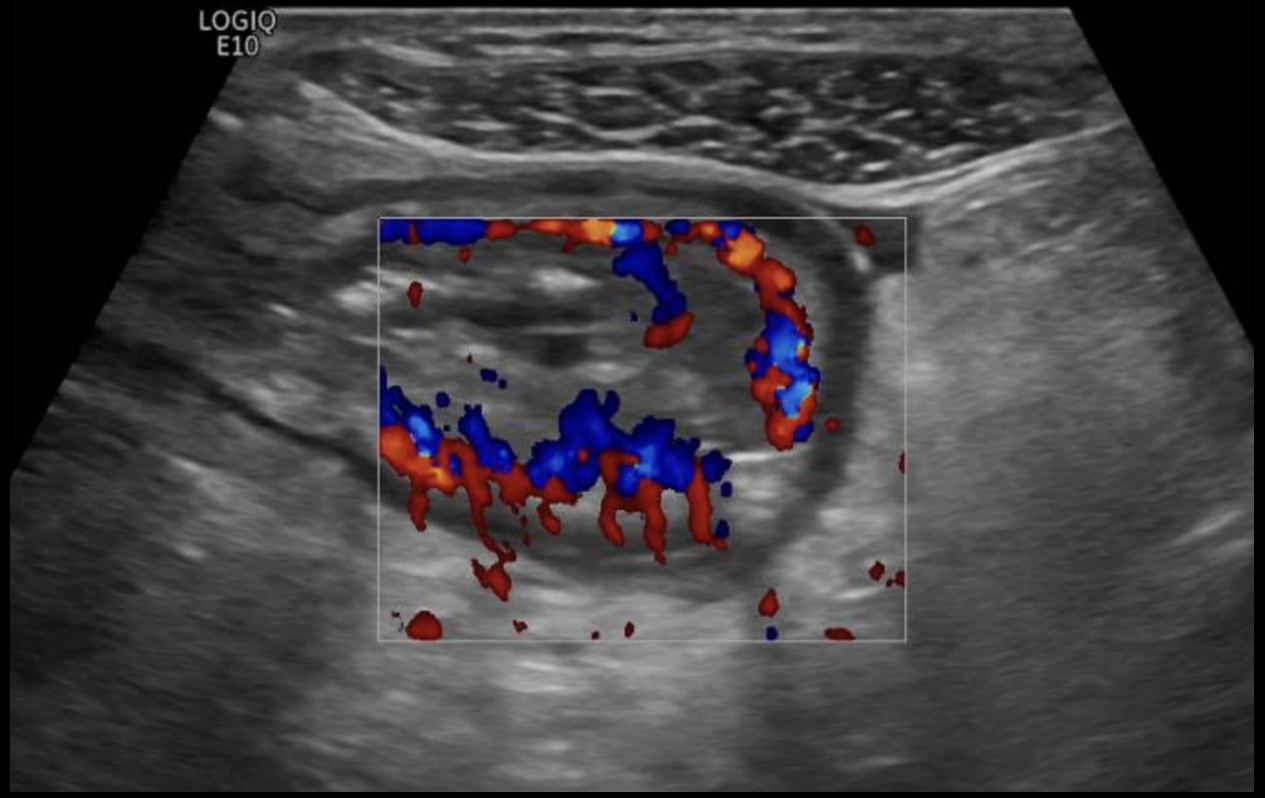

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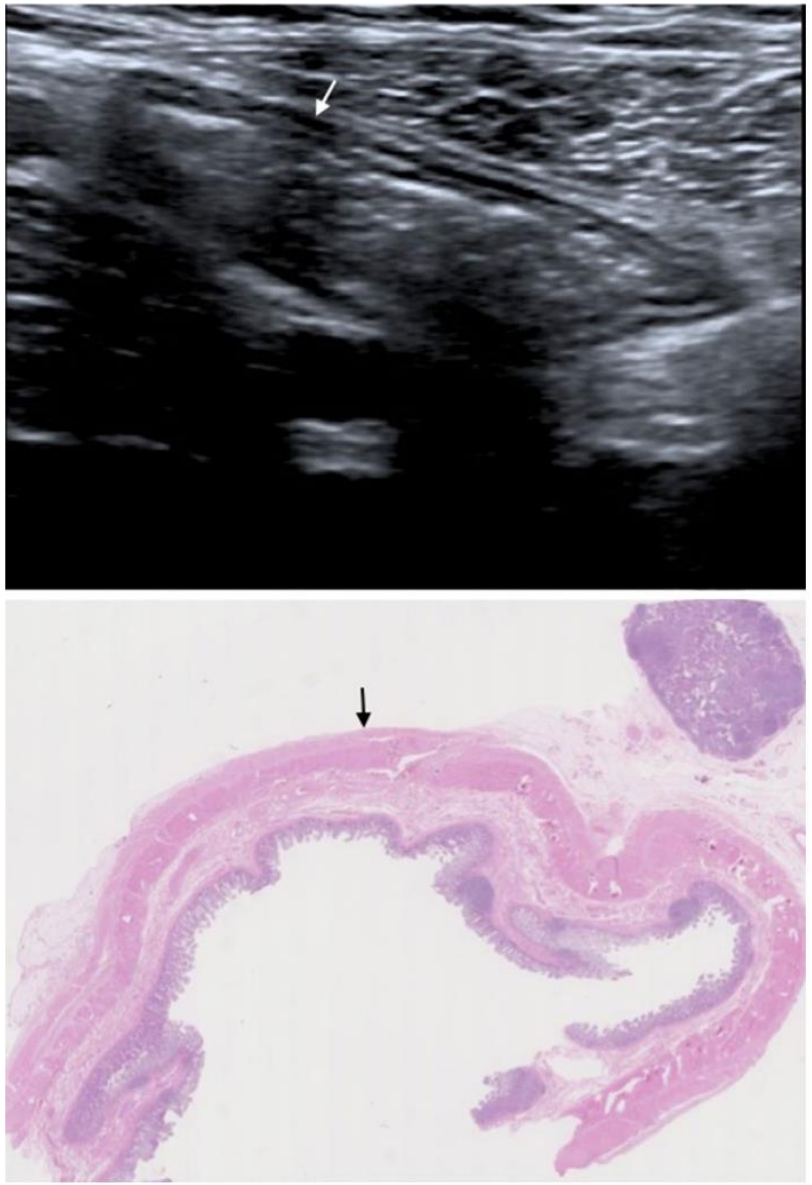

Fig. 3 B-mode US image (TOP) with matched histological section. Normal mural thickness and mural echogenicity pattern (white arrow) on US. Histologically there are no significant levels of acute or chronic inflammatory markers or features of fibrosis (AIS 0, CIS 2 and fibrosis 0 (black arrow))

Abdominal Radiology (2021) 46:144–155
https://doi.org/10.1007/s00261-020-02603-6

HOLLOW ORGAN GI

Inflammation and fibrosis in Crohn's disease: location-matched histological correlation of small bowel ultrasound features

Gauraang Bhatnagar[1] · Manuel Rodriguez-Justo[2] · Antony Higginson[3] · Paul Bassett[4] · Alastair Windsor[5] · Richard Cohen[5] · Steve Halligan[1] · Stuart A. Taylor[1]

IUS Activity features

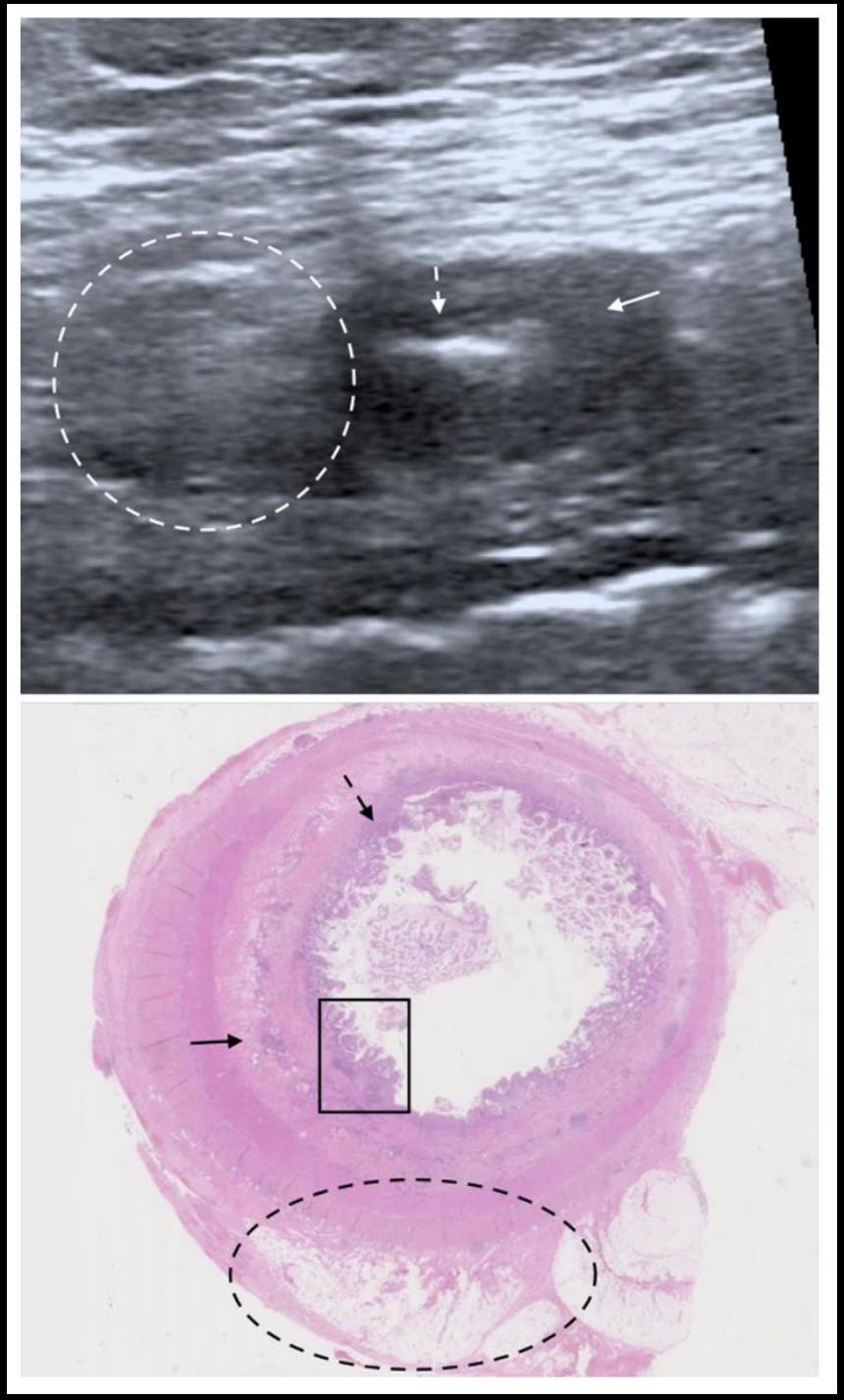

Fig. 4 B-mode US image (TOP) with matched histological section. Acute, chronic and fibrotic sonographic and histopathological findings. Sonographically, there is hyperechoic mesenteric fat without fat wrapping (white dashed oval), a thickened, ill-defined submucosal layer of homogenously reduced echogenicity (solid white arrow) and a thickened mucosal layer (dashed white arrow). Histologically, there is mild congestion of the mesenteric fat (dashed black oval), the submucosa demonstrates oedema and inflammatory cell infiltrate (solid black arrow). There is a thickened muscularis mucosae (dashed black arrow). In the mucosa there is ulceration, crypt architectural changes and acute inflammatory infiltrate (black rectangle). AIS 14, CIS 4, fibrosis 1

S Activity features

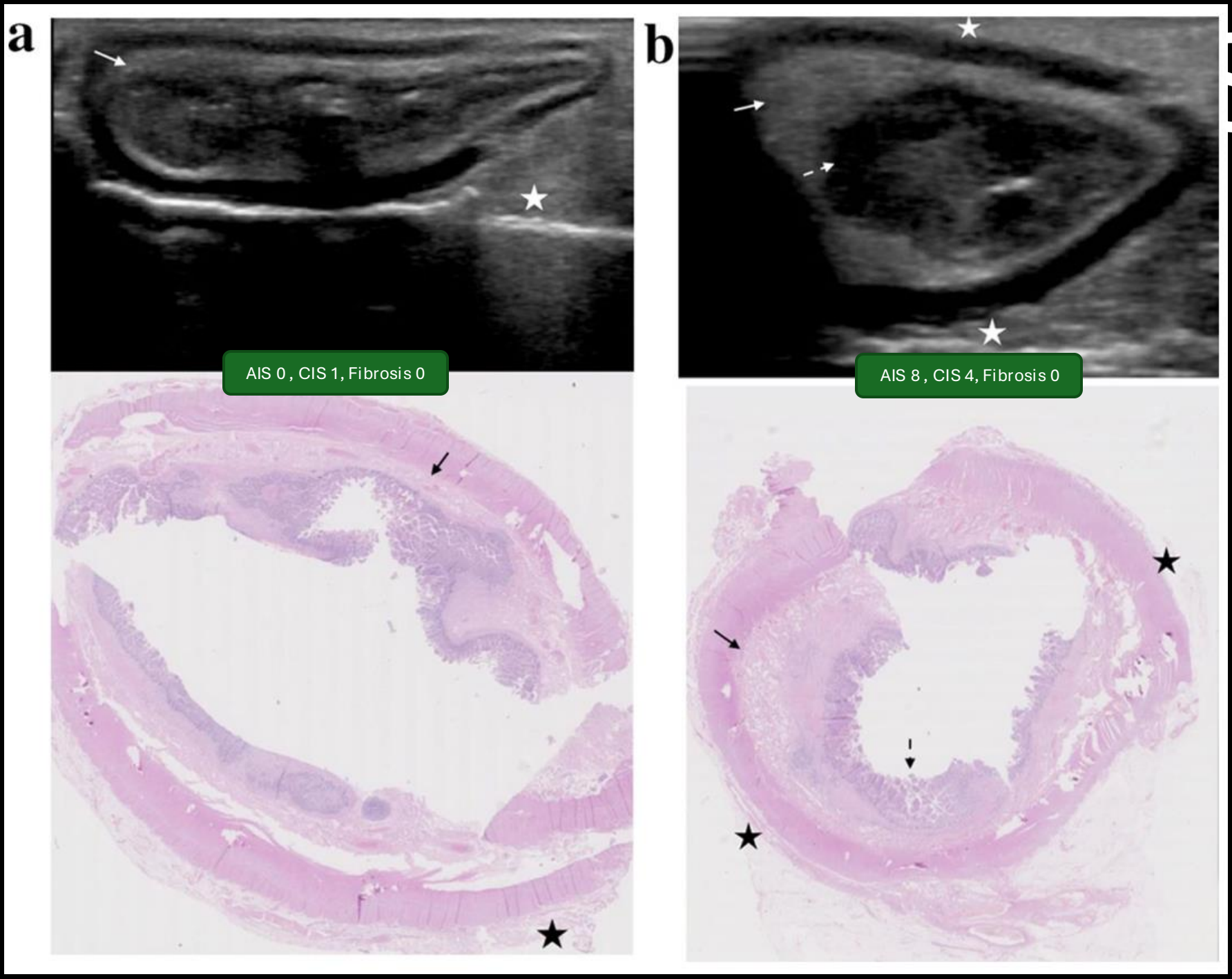

Fig. 5 B-mode US images (TOP) with matched histological sections demonstrating the importance of fat wrapping and mucosal thickening in evaluating active inflammation. **a** A histologically normal segment (AIS 0, CIS 1, fibrosis 0) presents with hyperechoic mesenteric fat without fat wrapping (white star for US and black star for histology), a prominent, well defined, homogenous submucosa (white arrow for US and black arrow for histology) and a normal mucosa. **b** Histologically demonstrated fat wrapping (black stars showing extent), mild submucosal oedema (black arrow) and mild active mucosal inflammation (dashed black arrow) (AIS 8, CIS 4, fibrosis 1). Sonographically, there is hyperechoic mesenteric fat with fat wrapping (white stars showing extent), a thickened, well defined, homogenous submucosa (white arrow) and mucosal/muscularis mucosa thickening (dashed white arrow). Both images are acquired from the same patient

Disease activity in IUS

Journal of Crohn's and Colitis, 2025, **19(2)**, jjaf023
https://doi.org/10.1093/ecco-jcc/jjaf023
Advance access publication 4 February 2025
Original Article

Assessment of activity and severity of inflammatory bowel disease in cross-sectional imaging techniques: a systematic review

Arianna Dal Buono,[1,2] Francesco Faita,[3] Alessandro Armuzzi,[1,2] Vipul Jairath,[4] Laurent Peyrin-Biroulet,[5] Silvio Danese,[6,7] Mariangela Allocca[6,7,*]

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[2]Department of Biomedical Sciences, Humanitas University, Pieve Emanuele, Milan, Italy
[3]Institute of Clinical Physiology, Italian National Research Council, Pisa, Italy
[4]Division of Gastroenterology, Department of Medicine, Western University, London, ON, Canada
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- Overall, 47 studies investigated the detection of disease activity through IUS in a total of 3936 IBD patients
- The core items for defining IUS activity of disease were
    1. Bowel wall thickness (BWT),
    2. Colour Doppler signal (CDS),
    3. Hypoechogenic appearance of the bowel wall.
- Additional inflammatory parameters were mesenteric hypertrophy, mesenteric reactive lymph nodes, complications (strictures, abscess/fistula), and intravenous contrast enhancement (qualitative and quantitative evaluation) during contrast-enhanced US (CEUS)

Journal of Crohn's and Colitis, 2025, **19(2)**, jjaf023
https://doi.org/10.1093/ecco-jcc/jjaf023
Advance access publication 4 February 2025
Original Article

Assessment of activity and severity of inflammatory bowel disease in cross-sectional imaging techniques: a systematic review

Arianna Dal Buono,[1,2] Francesco Faita,[3] Alessandro Armuzzi,[1,2] Vipul Jairath,[4] Laurent Peyrin-Biroulet,[5] Silvio Danese,[6,7] Mariangela Allocca[6,7,*]

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Disease activity in IUS

- The pooled sensitivity of IUS for the detection of disease activity ranged from 62% to 95.2%
- The pooled specificity in the range of 61.5% to 100%
- Overall accuracy ranging from 69% to 95%

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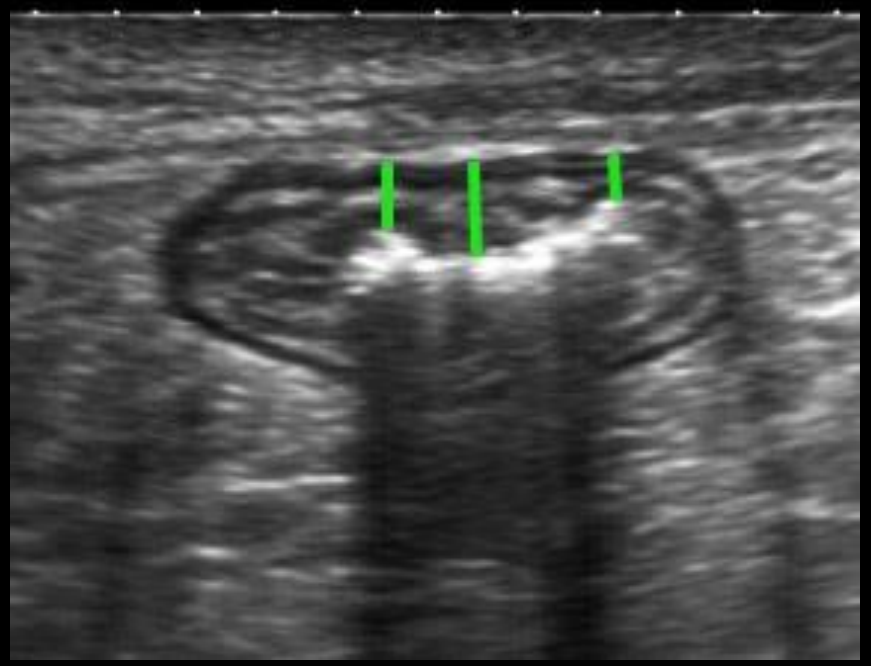
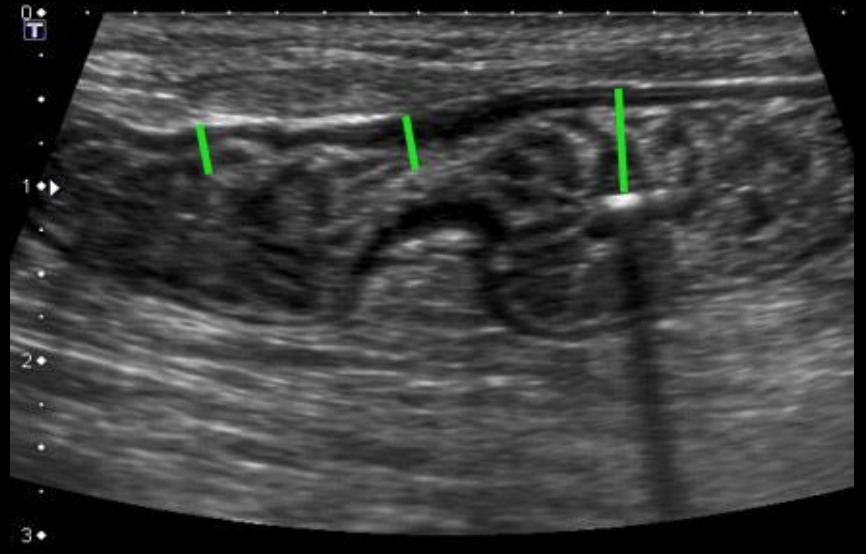
Bowel wall thickness

- Bowel wall thickness demonstrated the best correlations with disease activity as evaluated by:
  - endoscopy,17,20,27–29,33–35,37-39, 47, 48, 54, 55, 57, 63, 64, 75, 113, 141, 145, 146, 166, 168, 169, 172, 175, 177, 179, 180, 184–186, 188–190, 192, 194, 195
  - as well as by MRE and/ or histopathology 17, 19, 20,27–29, 31,33–35,37–39,64,126,189,196
  - The cut-off of BWT as defining intestinal activity was:
    - ≥3 mm 29,39,55,64,113,168,175,185,188 and
    - ≥4 mm,38,57,141,166,172,184,186,189,190 irrespective of small or large bowel.





How to measure BWT

Measuring a single BWT is frought with unreliability:

- **Peristalsis, Bowel contents and degree of compression**
- **Longitudinal measurements can be false due to volume averaging**

How to measure BWT

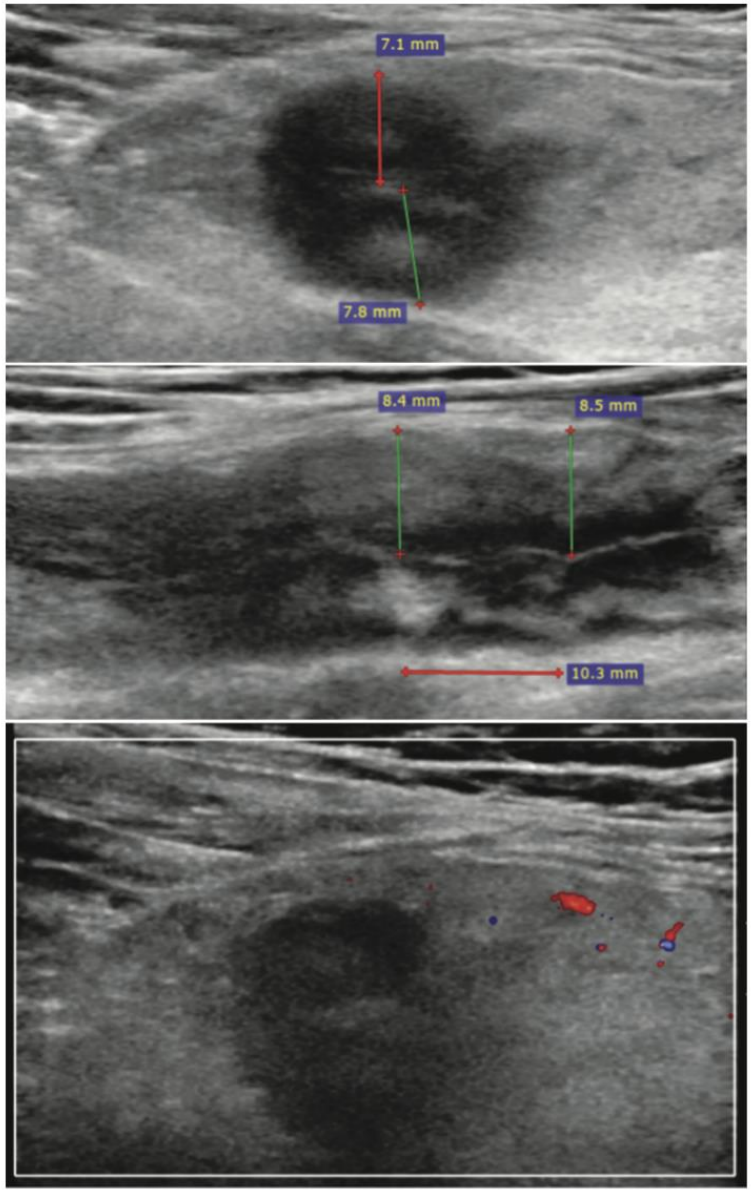


Figure 4. Application of the segmental activity and severity scores. Applying the scores: Bowel wall thickness [BWT] = [7.8 + 7.1 + 8.5 + 8.4] / 4 = 7.95 ≈ 8.0. Blood flow/ colour Doppler signal [CDS] = 0 [no signals]. Inflammatory fat [i-fat] = 2 [certain]. Bowel wall stratification [BWS] = 2 [focal disruption <3 cm]. International Bowel Ultrasound [IBUS] Segmental Activity Score [SAS] = 8 · 4 + 2 · 15 + 0 · 7 + 2 · 4 = 70.

Journal of Crohn's and Colitis, 2021, 609–616
doi:10.1093/ecco-jcc/jjaa216
Advance Access publication October 24, 2020
Original Article

OXFORD

JCC

Original Article

Expert Consensus on Optimal Acquisition and Development of the International Bowel Ultrasound Segmental Activity Score [IBUS-SAS]: A Reliability and Inter-rater Variability Study on Intestinal Ultrasonography in Crohn's Disease

Kerri L Novak,[a] Kim Nylund,[b,c] Christian Maaser,[d] Frauke Petersen,[e] Torsten Kucharzik,[e] Cathy Lu,[a] Mariangela Allocca,[f,g] Giovanni Maconi,[h] Floris de Voogd,[i,o] Britt Christensen,[j,o] Rose Vaughan,[j] Carolina Palmela,[k] Dan Carter,[l] Rune Wilkens[m,n,o], IBUS Group

Colour Doppler

Journal of Crohn's and Colitis, 2025, **19(2)**, jjaf023
https://doi.org/10.1093/ecco-jcc/jjaf023
Advance access publication 4 February 2025
Original Article

Assessment of activity and severity of inflammatory bowel disease in cross-sectional imaging techniques: a systematic review

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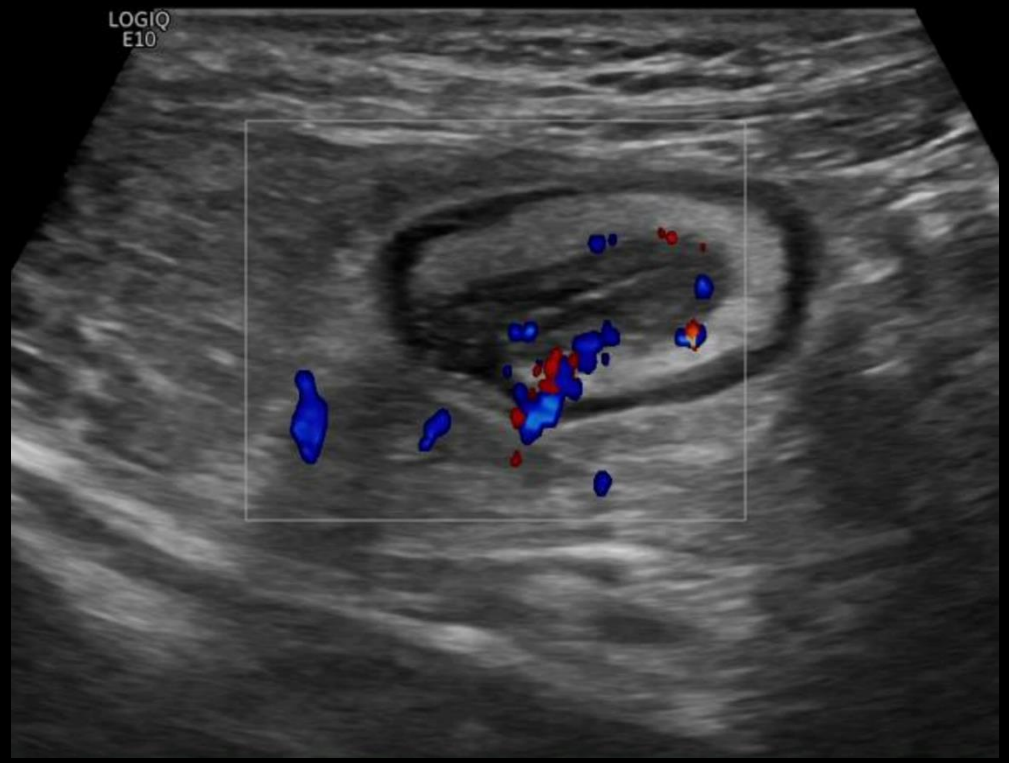
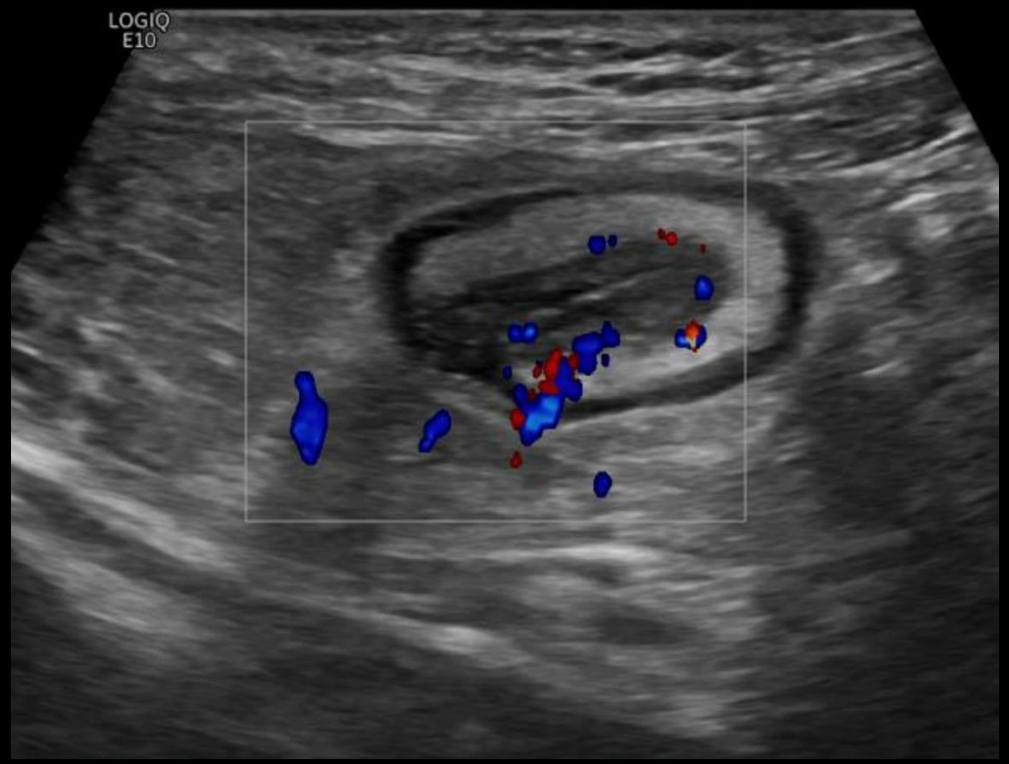
[*]Corresponding author: Mariangela Allocca, IRCCS Ospedale San Raffaele, Gastroenterology and Endoscopy, Milan, Italy (allocca.mariangela@hsr.it).

- Twenty-nine of 47 studies used CDS for the detection of active disease, correlating the angiographic vascularization pattern to active intestinal disease.[17, 19, 20, 27–29, 31, 33–35, 37, 39, 47, 55, 57, 64, 72, 75, 93, 110, 126, 145, 146, 168, 169, 175, 177, 195]
- In detail, high CDS (Limberg score 3 or 4 or modified Limberg 2-3) was significantly associated with active inflammation in most studies.[19, 37, 64, 110, 123]



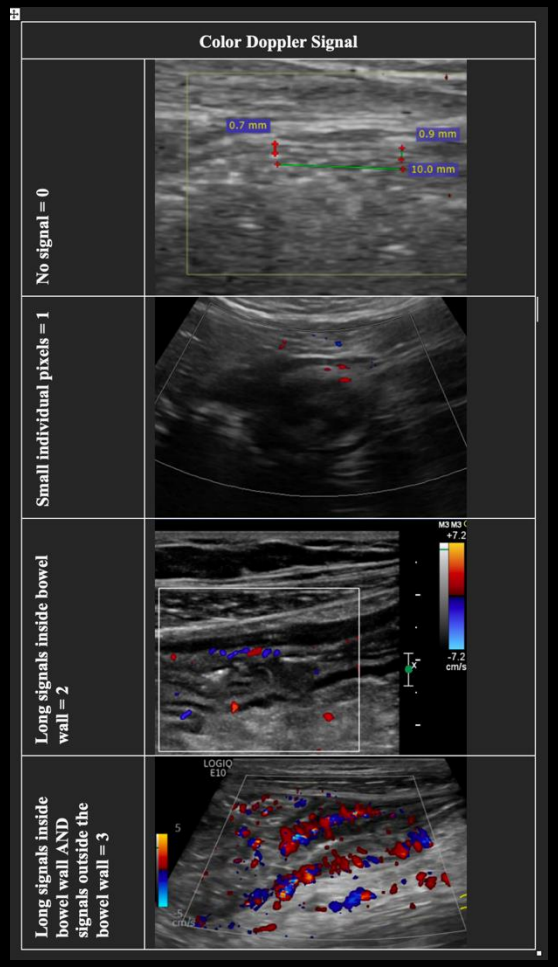
How to measure colour doppler

1. Box sufficiently covers the bowel with room to evaluate the mesentery
2. Flow scale set for 5-8cm/s
3. Short clip of 5-10 seconds
4. Breath hold
5. Hand still



How to measure colour doppler

Modified Limberg Score:
[0] absent
[1] small spots (single vessels) within the wall
[2] long stretches within the wall
[3] long stretches within the wall extending into the mesentery



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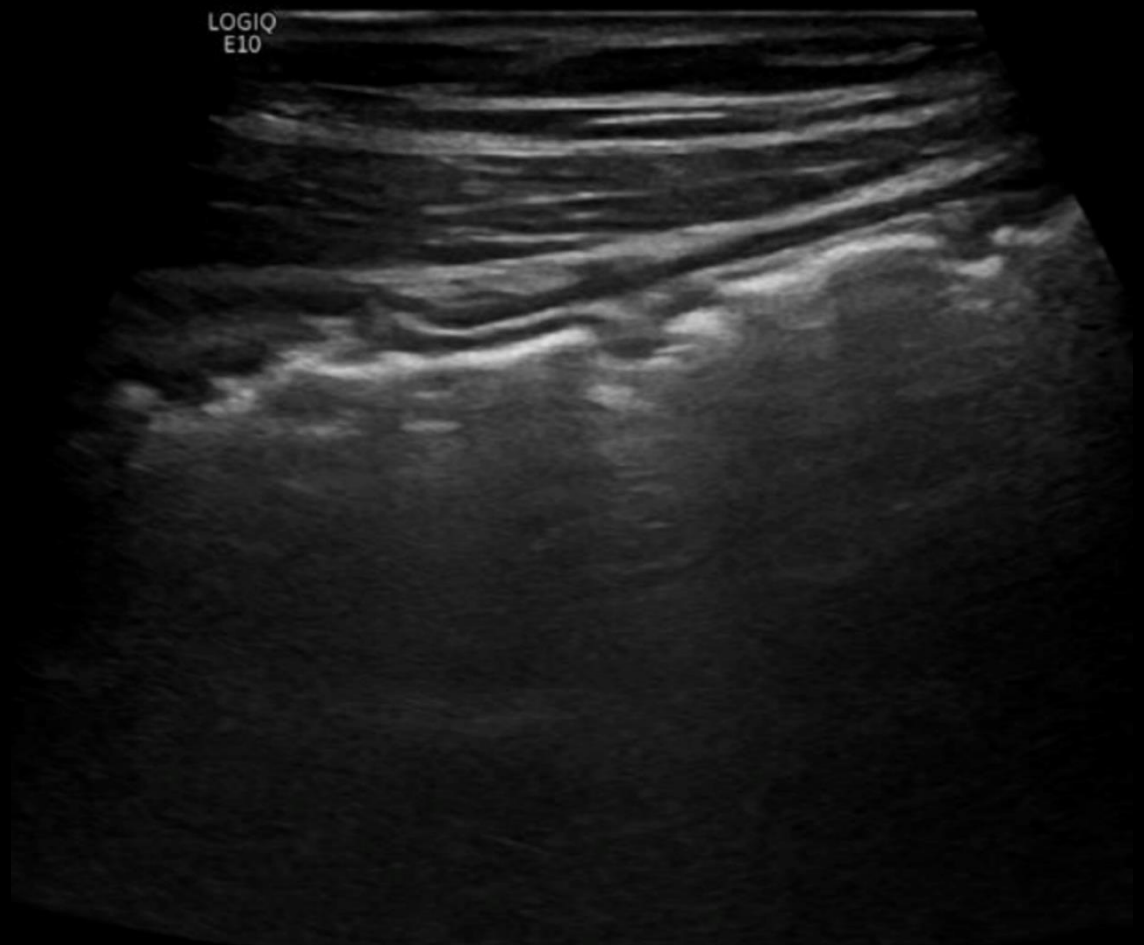
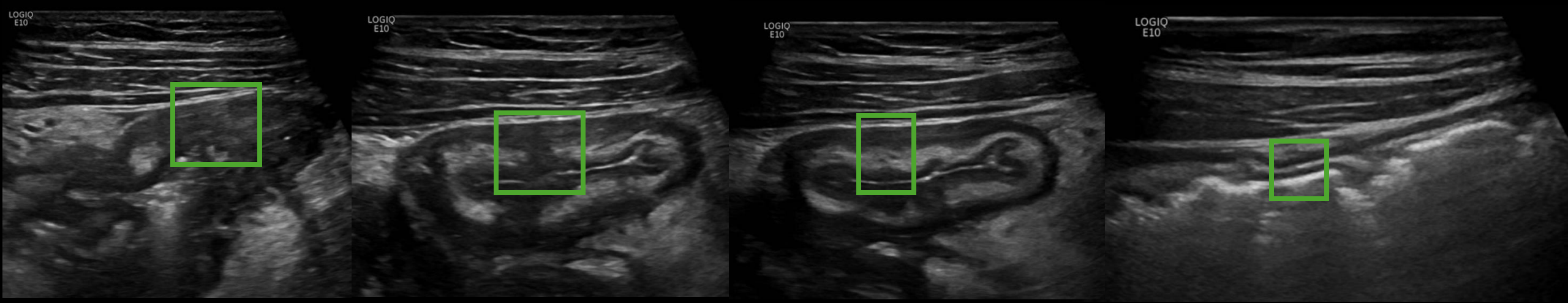
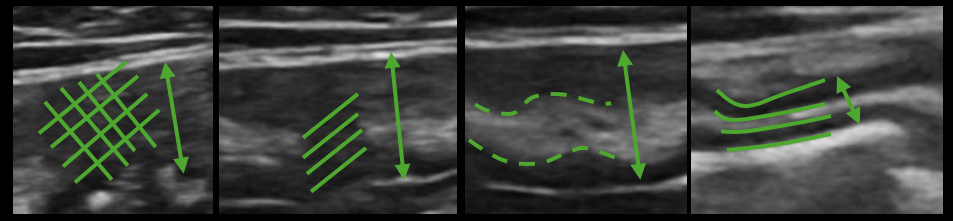


Thanks to Dr Christian Greer @ Frimley Health

Bowel wall stratification





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Bowel wall stratification

Disease activity in IUS

Journal of Crohn's and Colitis, 2025, **19(2)**, jjaf023
https://doi.org/10.1093/ecco-jcc/jjaf023
Advance access publication 4 February 2025
Original Article

Assessment of activity and severity of inflammatory bowel disease in cross-sectional imaging techniques: a systematic review

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[*]Corresponding author: Mariangela Allocca, IRCCS Ospedale San Raffaele, Gastroenterology and Endoscopy, Milan, Italy (allocca.mariangela@hsr.it).

- The highest sensitivities in detecting disease activity were found for:
  - terminal ileum and sigmoid/descending colon,[169,186]
  - while rectum, duodenum, and proximal jejunum were evaluated with lower accuracy (<50% for the rectum, ≤80 for the proximal small bowel).[169,177,186,188]

- Inter-observer agreement was assessed in 10 (21.3%) of the 47 included studies, [19, 27, 34, 38, 47, 48, 54, 63, 64, 172] and substantial agreement was found (agreement coefficient ranging from 0.78 to 0.96); particularly, BWT was shown as the most reproducible parameter.[27,38]
- In most studies, a combination of IUS parameters resulted in a more accurate overall assessment of disease activity in IBD patients.[19,27–29,39,63,64,197]


12 weeks
12
Start
Baseline

Timelines for treatment response

IUS response assessment

Journal of Crohn's and Colitis, 2022, **16**, 1598–1608
https://doi.org/10.1093/ecco-jcc/jjac072
Advance access publication 26 May 2022
Original Article

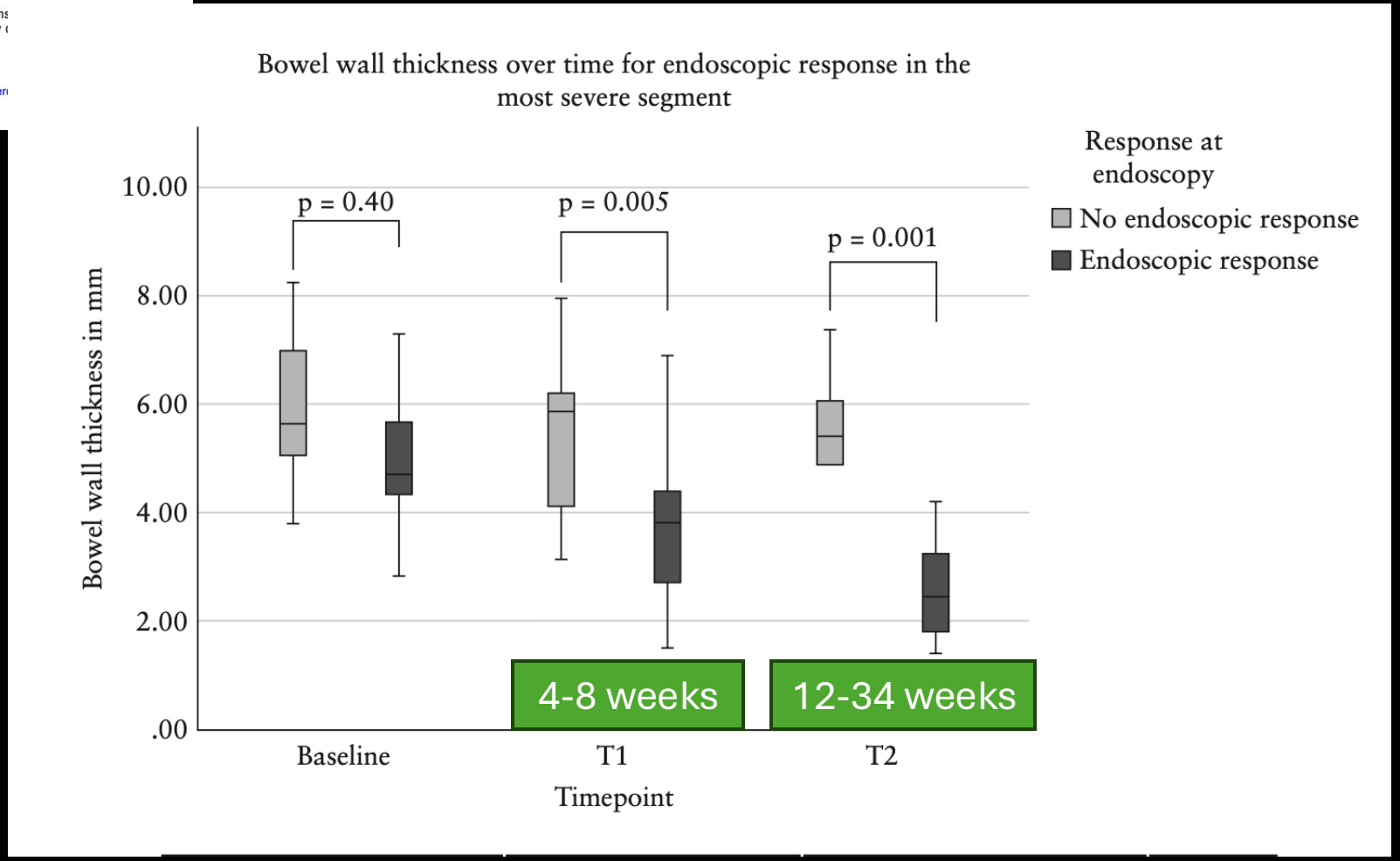
Intestinal Ultrasound Early on in Treatment Follow-up Predicts Endoscopic Response to Anti-TNFα Treatment in Crohn's Disease

F. de Voogd,[a,b,*] S. Bots,[a,*] K. Gecse,[a] O. H. Gilja,[c,d] G. D'Haens,[a] K. Nylund[c,d]

[a]Department of Gastroenterology and Hepatology, Amsterdam University Medical Center, Location AMC, Ams
[b]Amsterdam Gastroenterology Endocrinology Metabolism Research Institute, Amsterdam UMC, University
Netherlands
[c]National Centre of Ultrasound in Gastroenterology, Haukeland University Hospital, Bergen, Norway
[d]Department of Clinical Medicine, University of Bergen, Bergen, Norway

Corresponding author: Floris de Voogd, Meibergdreef 9, 1105 AZ Amsterdam, The Netherlands; Email: f.a.devoogd@amster
*Both first authors.

A total of 40 patients were included: 14 reached endoscopic remission and 17 endoscopic response. At T1 (3.1 mm [1.9–4.2] vs 5.3 mm [3.8–6.9], p =0.005) and T2 (2.0 mm [1.8–3.1] vs 5.1 [3.0–6.3] mm, p=0.002)



Timelines for treatment response

IUS response assessment

4-8 weeks

Abstract citation ID: jjae190.0679
P0505
Use of intestinal ultrasound in a tight monitoring approach in Crohn's disease patients treated with anti-TNFα therapy: a multicentre prospective study

C. Palmela[1], J. Revés[1], C. Frias-Gomes[1,2], B. Morão[1], C. Neto[1], A. Bargas[1], L. Glória[1], M. Cravo[3], F. Dias de Castro[4], T. Cúrdia Gonçalves[4], J. Cotter[4], R. Coelho[5], A. Caldeira[6], J. Torres[1,2,3]

[1]Hospital Beatriz Ângelo- Unidade Local de Saúde Loures/Odivelas, Gastroenterology, Loures, Portugal [2]Universidade de Lisboa, Faculdade de Medicina, Lisboa, Portugal [3]Hospital da Luz Lisboa, Gastroenterology, Lisboa, Portugal [4]Unidade Local de Saúde do Alto Ave, Gastroenterology, Guimarães, Portugal [5]Centro Hospitalar de São João, Gastroenterology, Porto, Portugal [6]Hospital Amato Lusitano, Gastroenterology, Castelo Branco, Portugal

Methods: This multicentric prospective longitudinal study enrolled adult patients with active CD starting anti-TNF. IUS and ileocolonoscopy were performed at baseline and at 54 weeks. Additionally, IUS was performed at week (W) 14 and 30. The primary outcome was the predictive value of ultrasound remission (normalization of bowel wall thickness (BWT), bowel wall stratification, vascularization and inflammatory fat) for long-term endoscopic remission at 54 weeks (segmental SES-CD=0). The International Bowel Ultrasound Segmental Activity Score (IBUS-SAS) was also calculated and its optimal cut-point to detect ER was identified using ROC analysis. Univariable/multivariable analysis including clinical, biomarkers and ultrasonographic parameters was performed to identify independent predictors of ER.

Results: 63 patients with CD were included, of those 57 (90%) were followed-up until week 54. After one year of therapy, 32% achieved ER and 42% IUS remission. Following therapy initiation there was a positive evolution of all IUS parameters. The reduction of BWT and IBUS-SAS was significantly more pronounced in the first 14 weeks of therapy (BWT: W0-14 vs W14-30, p=0.010; IBUS-SAS: W0-14 vs W14-30, p=0.003; W0-14 vs W30-54, p=0.005). Patients with endoscopic response and endoscopic remission had a significantly lower median IBUS-SAS score at all timepoints (Figure 1). The best predictor for endoscopic remission was IBUS-SAS score at W14 (AUC 0.805, cut-off value 52.3). On multivariable analysis, IBUS-SAS at W14 <52.3 was the only independent predictor for ER (OR 7.40; 95% CI 1.20-45.47; p=0.031). Additionally, BWT showed consistent moderate correlation with fecal calprotectin values across all timepoints (ρ=0.44-0.49, p=0.001).

Conclusion: Early assessment of ultrasonographic remission at week 14 can help predict endoscopic remission after 1 year of therapy and offers an opportunity for early therapy optimization. Using a combination of IUS parameters (IBUS-SAS) performed better than BWT alone to predict endoscopic remission. Our results support the use of IUS in a tight monitoring strategy to predict treatment response in CD.


Journal of Crohn's and Colitis, 2022, 523–543
https://doi.org/10.1093/ecco-jcc/jjab180
Advance Access publication October 10, 2021
ECCO Topical Review

ECCO Topical Review

ECCO-ESGAR Topical Review on Optimizing Reporting for Cross-Sectional Imaging in Inflammatory Bowel Disease

Torsten Kucharzik[a,*], Jeroen Tielbeek[b,*], Dan Carter[c], Stuart A. Taylor[d], Damian Tolan[e], Rune Wilkens[f,g], Robert V. Bryant[g], Christine Hoeffel[h], Isabelle De Kock[i], Christian Maaser[j], Giovanni Maconi[k], Kerri Novak[l], Søren R. Rafaelsen[m], Martina Scharitzer[n], Antonino Spinelli[o,†], Jordi Rimola[p,†,*]

IUS response assessment

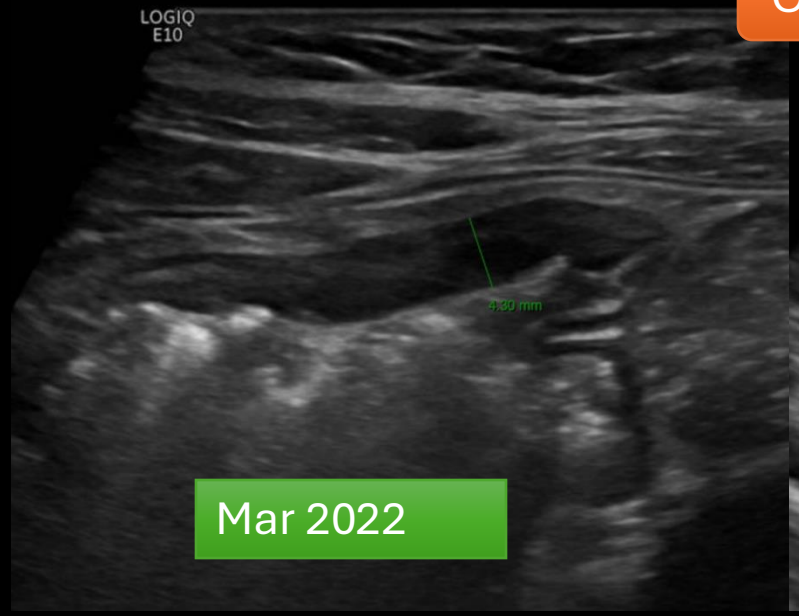
Current practice position 9

For follow-up examinations, reporting should focus on changes from the previous examination and should be categorized as transmural remission or significant transmural response, stable disease, or progression of inflammation. Changes in responsive features, including BWT, colour Doppler signal, BWS [IUS], ulcers, oedema [MRE], and perienteric inflammatory changes, should guide treatment response categorization

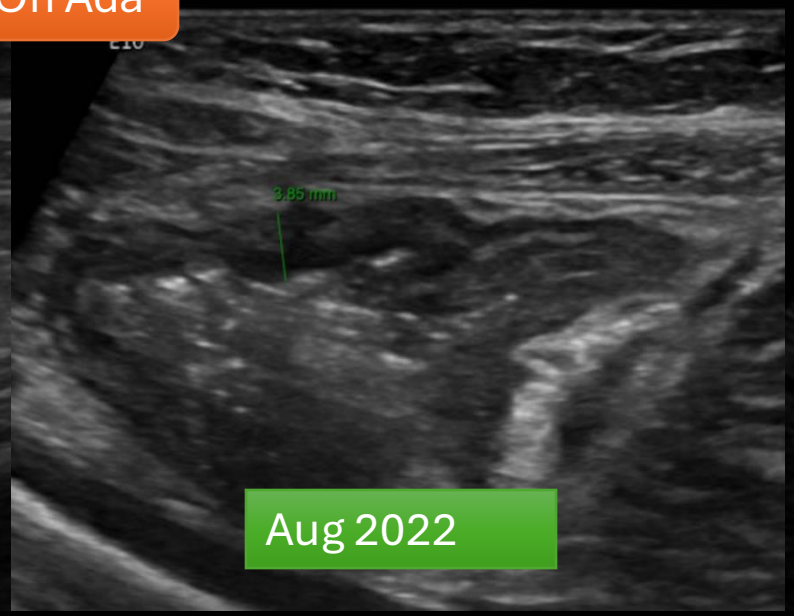
- Transmural remission
- Significant transmural response
- Stable disease
- Progression

IUS response assessment

On Ada

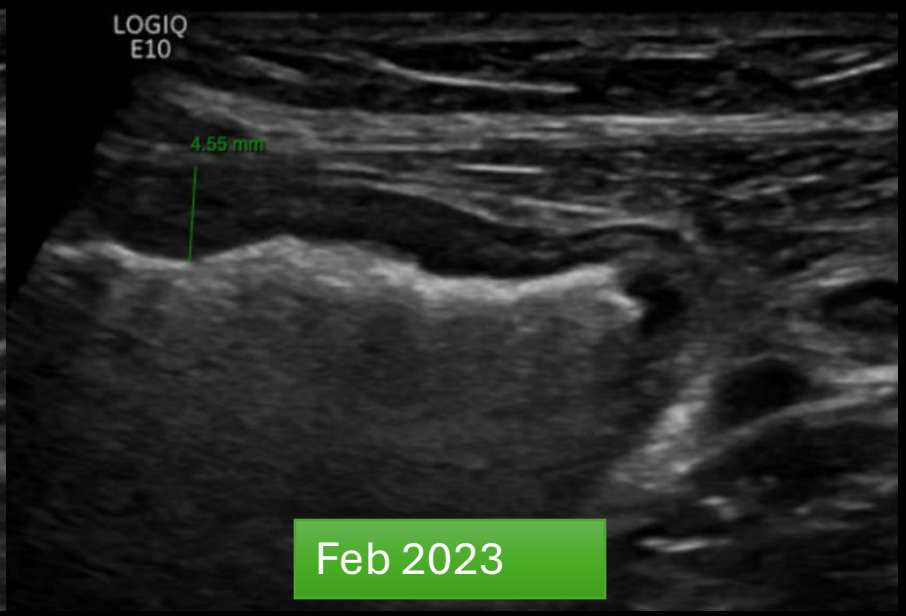


Mar 2022



Aug 2022

Stable disease



Feb 2023

Stable disease

32 F CD 2009 IC resection 2010

IUS response assessment

On Ada

Feb 2023

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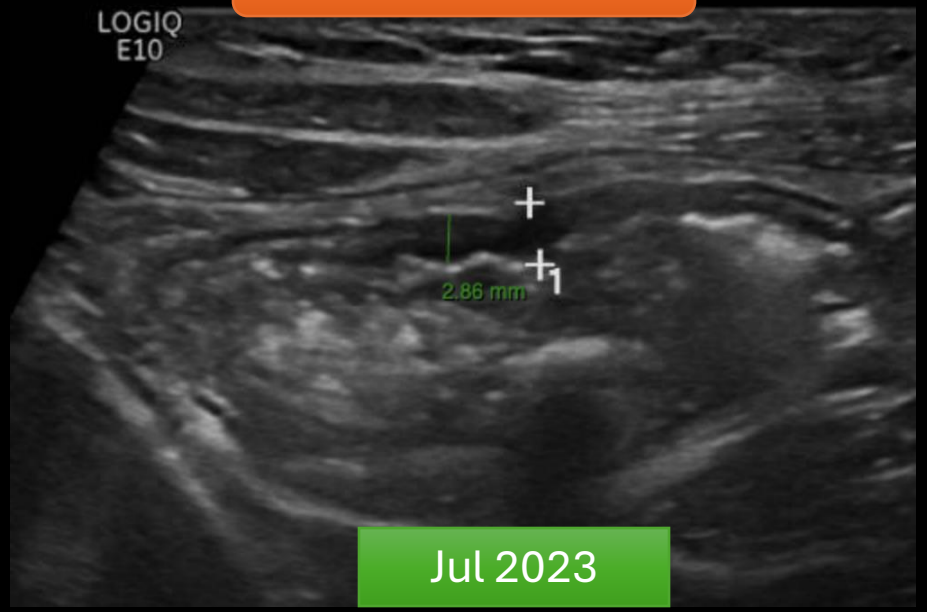
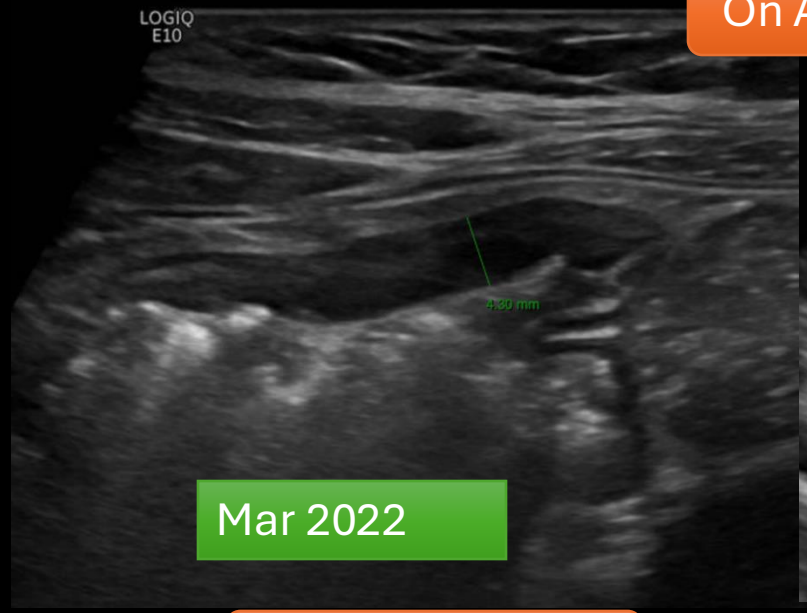


Jul 2023

Significant transmural response

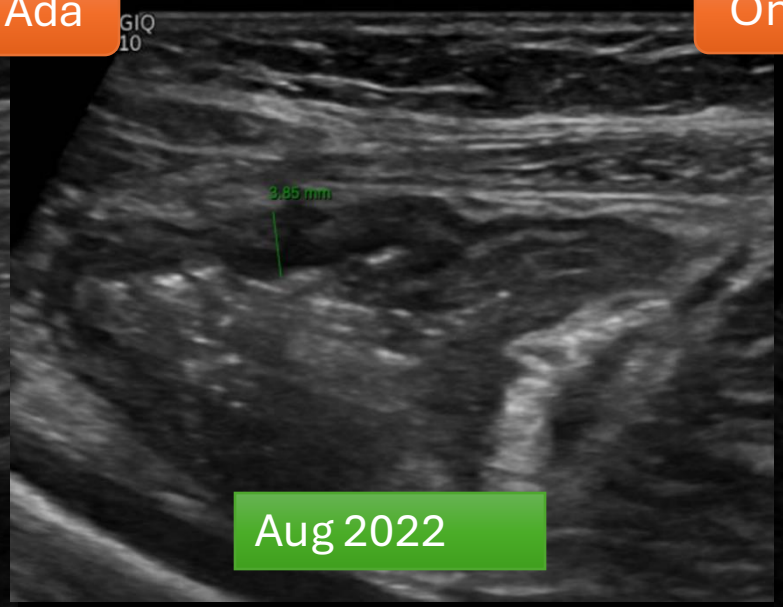
32 F CD 2009 IC resection 2010

On Ada

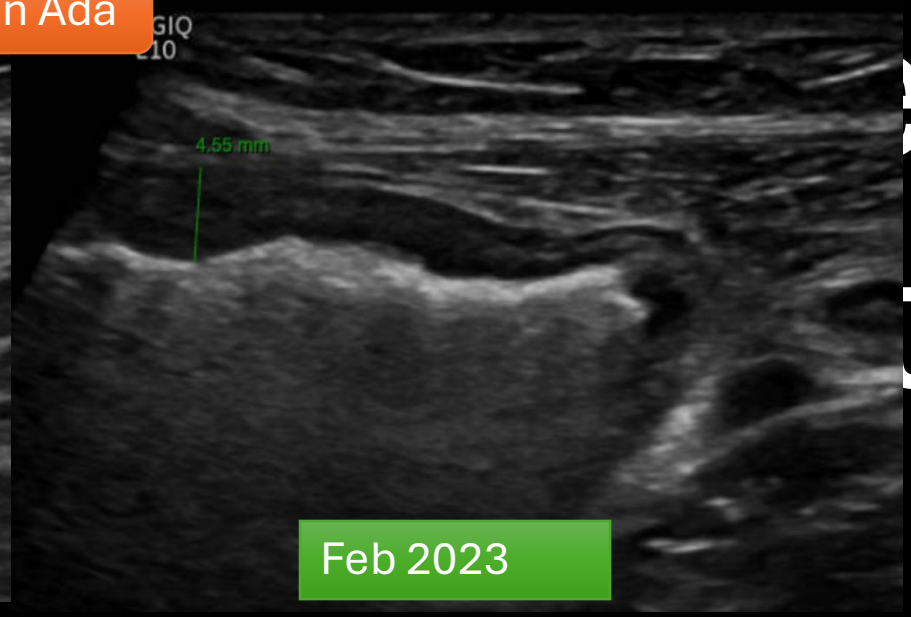


Mar 2022

On Ada



Aug 2022



Feb 2023

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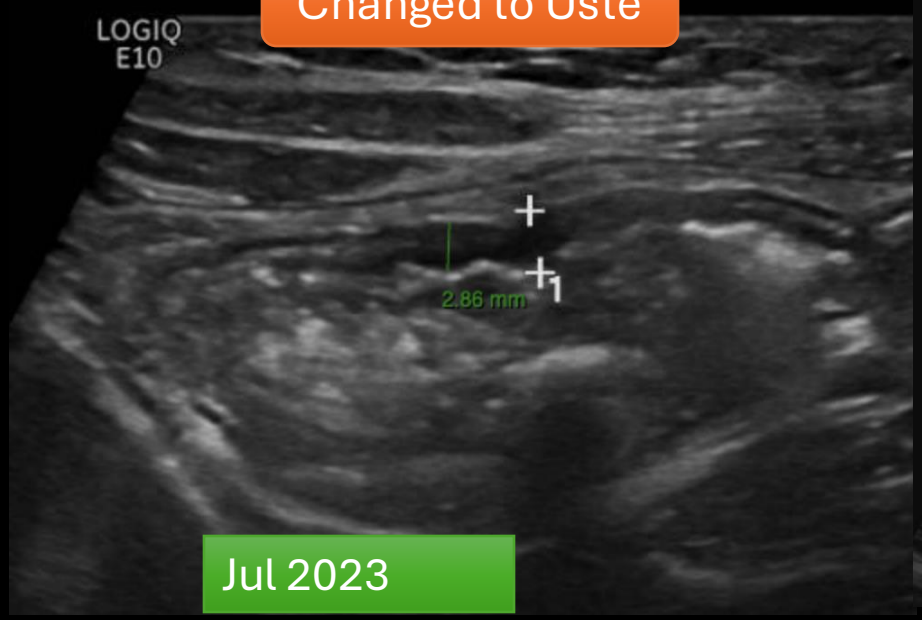
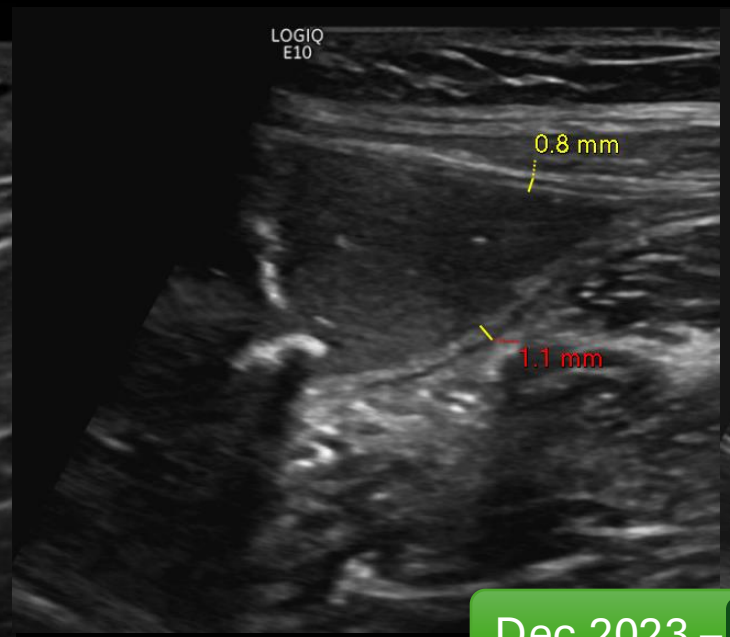


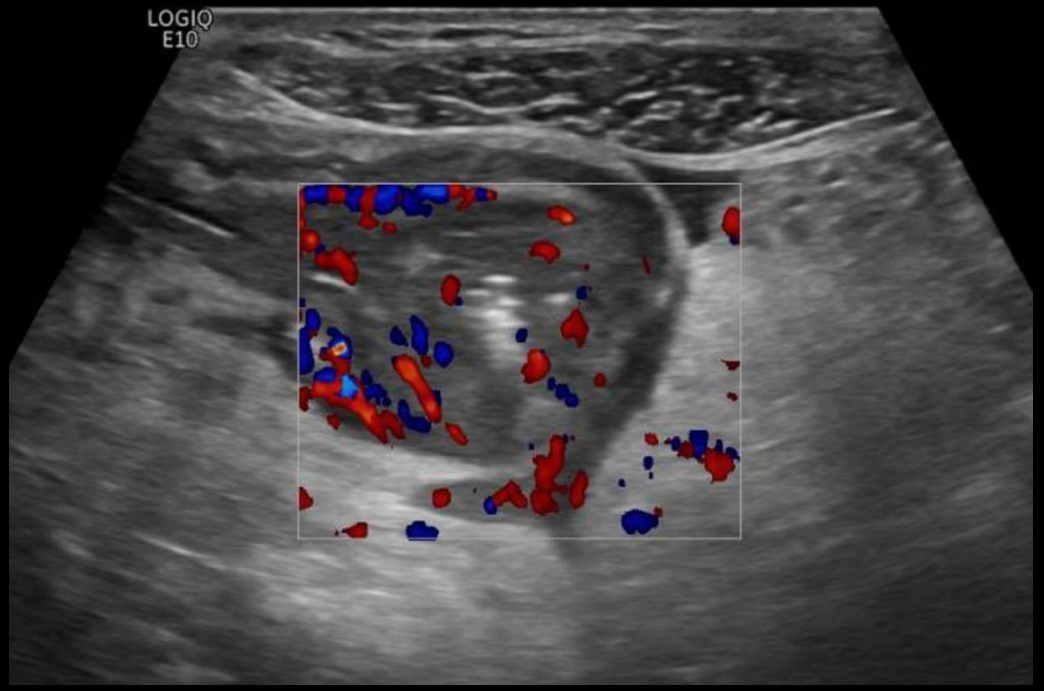
Jul 2023



Dec 2023 – Transmural remission

32 F CD 2009 IC resection 2010

What the patient's think



What the patient's think

"Intestinal ultrasound has been transformative for me."

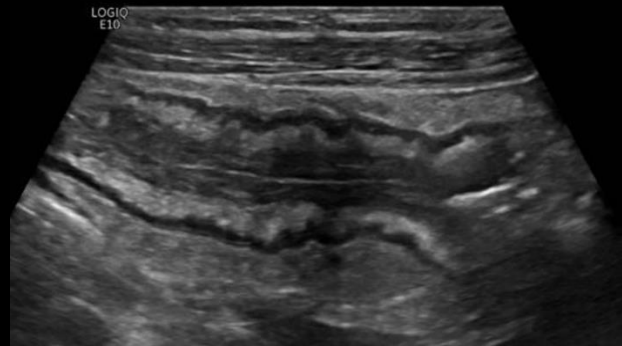
"…more tolerable and practical."

"There's no need for unpleasant bowel prep which is not comfortable with active disease."

"…removed much of the anxiety and physical strain associated with more invasive or delayed investigations."

"Ultrasound…gave me confidence that I was being closely and safely monitored, especially at a time when my disease was very aggressive."

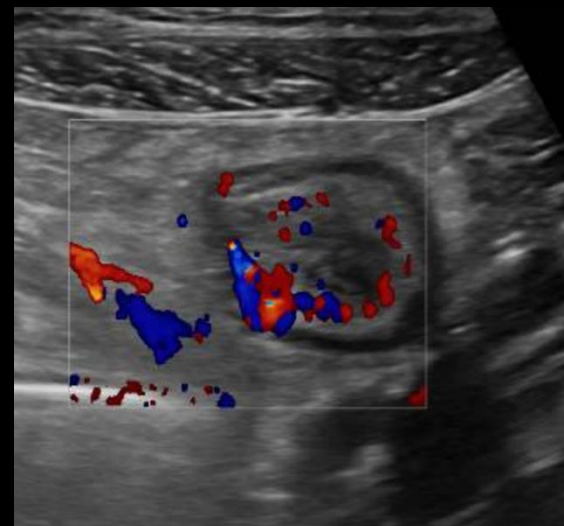
"I am sure, I was more able to be more disciplined when I could see the impact my choices were having in my scans."



What the patient's think

"Seeing the images and having them explained in real time gave me a level of understanding I'd never had before. I began to connect what I was feeling with what was happening inside my body, how inflammation, phlegmons and strictures correlated with symptoms. This knowledge was empowering, it reduced fear of the unknown and helped me make informed decisions about my care..."

"Intestinal ultrasound has given me both agency and peace of mind. It turned disease monitoring from something invasive and anxiety-inducing into something collaborative and educational. I now feel like an active participant in my care, not just a passive recipient."



Intended Learning Outcomes

By the end of this session, the learner will be able to:

1. Apply bowel wall thickness (BWT) measurements according to standard and research criteria.
2. Identify and describe mural and extramural IUS signs suggestive of inflammation in Crohn's disease.
3. Integrate and weigh the importance of multiple individual IUS signs to form a comprehensive assessment of Crohn's disease activity and potential complications.
4. Evaluate the overall diagnostic and monitoring performance of IUS for Crohn's disease assessment against established reference standards (e.g., endoscopy, cross-sectional imaging, histology).
5. Understand the relative time course over which different IUS parameters typically respond to effective treatment in Crohn's disease.
6. Define different IUS response and remission definitions used in Crohn's disease assessment and explain how they can be used to predict and monitor disease activity over time.

international bowel ULTRASOUND GROUP

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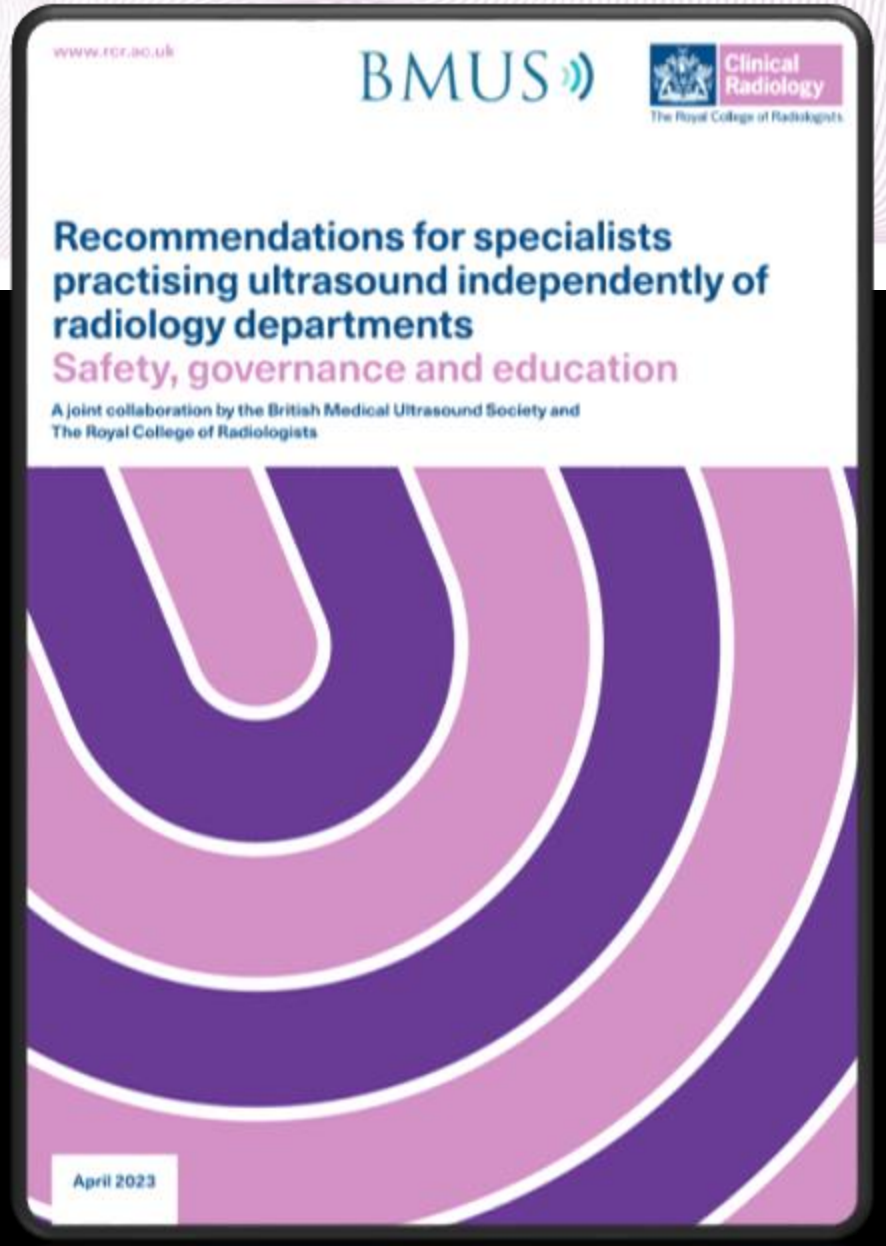
- Understand basic ultrasound physics and machine controls
- Adhere to current safety guidelines regarding acoustic output in relation to safety indices
- Adhere to best practice regarding secure data storage
- Seek appropriate training and education
- Maintain CPD and perform regular audit
- Avoid working in isolation
- Where possible, engage with imaging specialists



IUS in non-complicated CD

Please offer IUS to your IBD patients

Thank you to Dr Heba Al Fahran, Kuwait Gastroenterology Association and IBUS

Thank you all for listening

Any questions are welcome

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Prof Julien Puylaert
Dr Andrew Plumb
Dr Christian Greer