



international bowel
ULTRASOUND GROUP

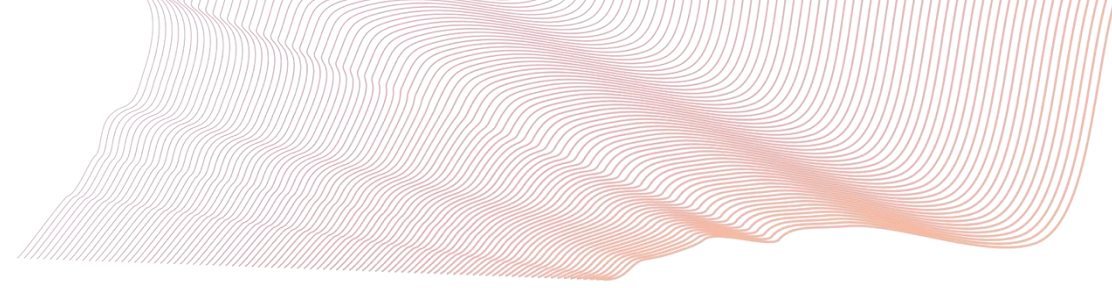
Standardised Documentation and Reporting

Dra. Paulina Nuñez F

Clinica Universidad de los Andes
Hospital San Juan de Dios.
Santiago, Chile.

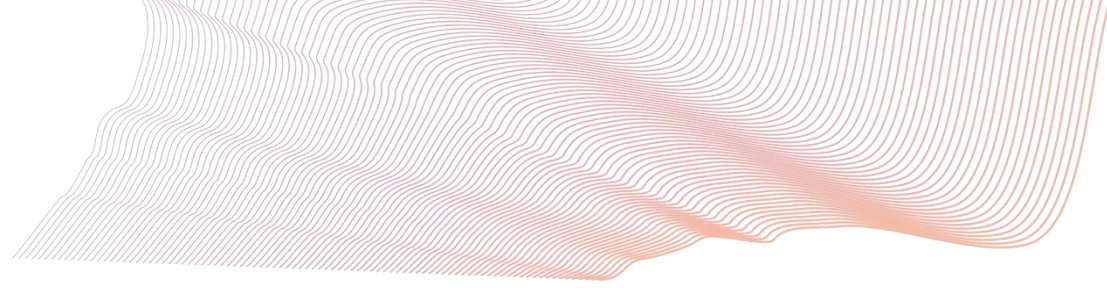


Panama City, Panama, August 18th – 19th, 2026



Thank you to all contributors who helped create this presentation:

Dr. Torsten Kucharzik
Dr. Frauke Petersen
Dr. Kayal Vizhi
Dr. Federica Furfaro



Intended Learning Outcomes (ILOs):

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

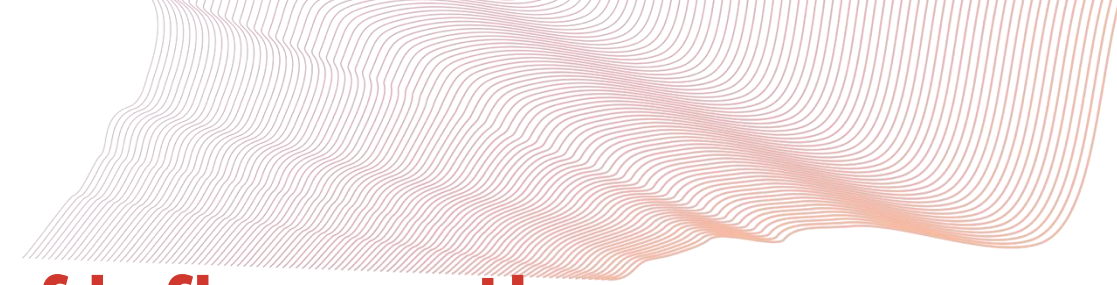
1. Recall the standard terminology and abbreviations used in documenting intestinal ultrasound (IUS) findings and construct a well-structured, standardized IUS report that clearly communicates relevant observations, measurements, and clinical impressions

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,Ⓜ}, Robert V. Bryant^g, Christine Hoeffel^h,
Isabelle De Kockⁱ, Christian Maaser^j, Giovanni Maconi^k, Kerri Novak^l,
Søren R. Rafaelsen^m, Martina Scharitzerⁿ, Antonino Spinelli^{o,t},
Jordi Rimola^{p,t,Ⓜ}





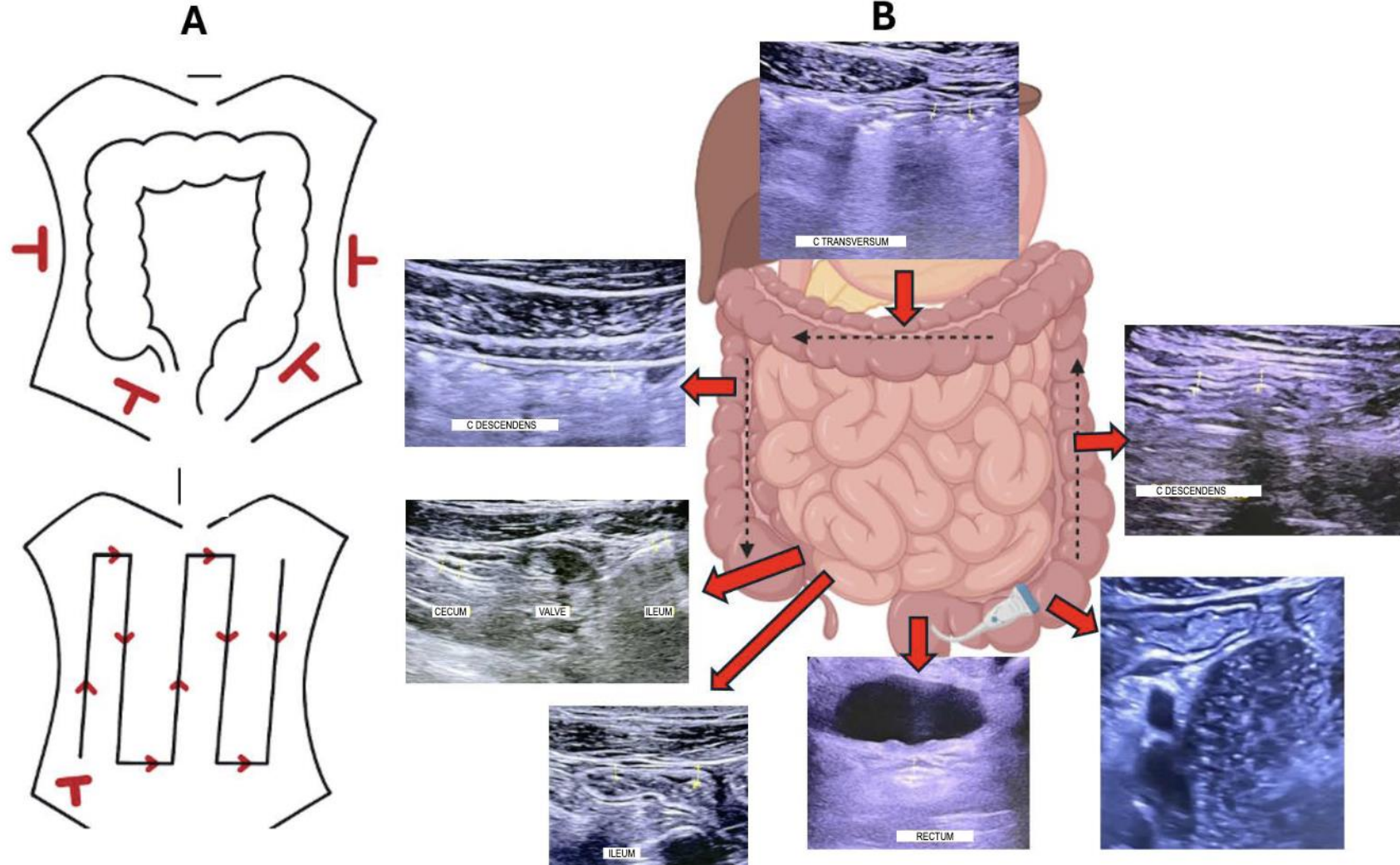
IUS: Assessment and reporting of inflammation

Current practice position 3

The **number and anatomical location** of intestinal segments with imaging findings of mural inflammation should be reported, including skip lesions. An estimate of the total **affected length** and length of all individual pathological areas of the small bowel is preferred. Segment(s) exhibiting the **most severe mural inflammation** should be reported in detail to guide therapeutic decision making



Location



Key quality indicators for a good report in cross-sectional imaging in IBD

DOMAIN	ITEMS THAT SHOULD BE REPORTED
 Pre-procedure features	Indication for the examination. Disease characteristics: phenotype, current symptoms, current and former treatments, and surgical history. Fasting period prior to the examination.
 Technical features	Imaging modality used (MRE, CTE, or intestinal ultrasound [IUS]). Equipment (vendor/model). Probes (IUS, PUS, EAUS). Relevant device settings and technical parameters.
 Specific features for MRE/CTE	Oral contrast: volume administered CT. MRE(minimum 500 mL). Bowel distension: optimal, suboptimal, or insufficient. Anti peristaltic medication: drug, dose, and route of administration. Scan coverage: abdomen and pelvis, including perianal region when indicated. Missing segment(s) due to prior surgery.
 Specific features for intestinal ultrasound (IUS)	Use of intravenous contrast medium: type and volume (if applicable). Use of oral contrast: type and volume (if applicable).

INTRA-PROCEDURE FEATURES*



1. Examination extent

(point of care examination or complete bowel/abdominal scan)



2. Technical limitations



Intestinal gas or faeces
[MRE/CT, IUS]



Motion artefacts [MRE/CT]:

- Peristaltic motility
- Breathing
- Foreign bodies
[e.g., prosthesis]



Body status

- Obesity [IUS]
- Lack of fat space
between bowels [MRI]



3. Disease activity (optional activity scores)[#]



4. Complications of disease[#]



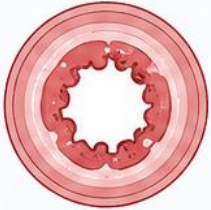
5. Extraintestinal findings

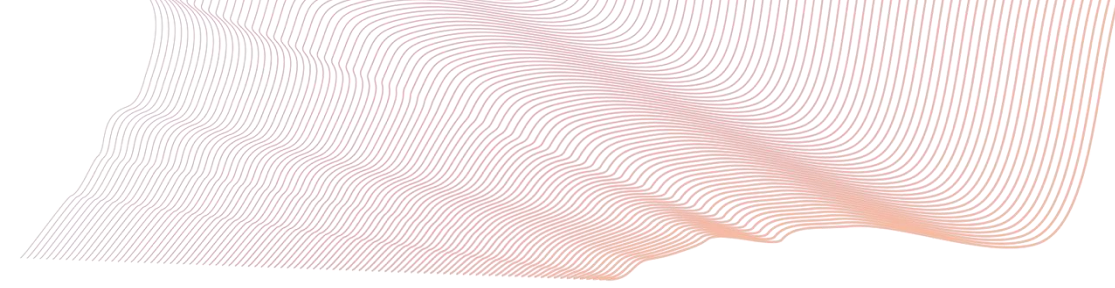


6. Examination quality/diagnostic confidence



Relevant findings for inflammation/complications that should be described

SEGMENT-BASED FINDINGS	
BOWEL WALL ABNORMALITIES	
	• Wall thickness • Edema • Vascularity • Ulcers • Perienteric inflammatory changes
ADDITIONAL FEATURES	
	• Motility
	• Restricted diffusion*
COMPLICATIONS	
	Stricture
	Fistula and/or sinus
	Mesenteric masses/abscesses**
	Vascular complications***

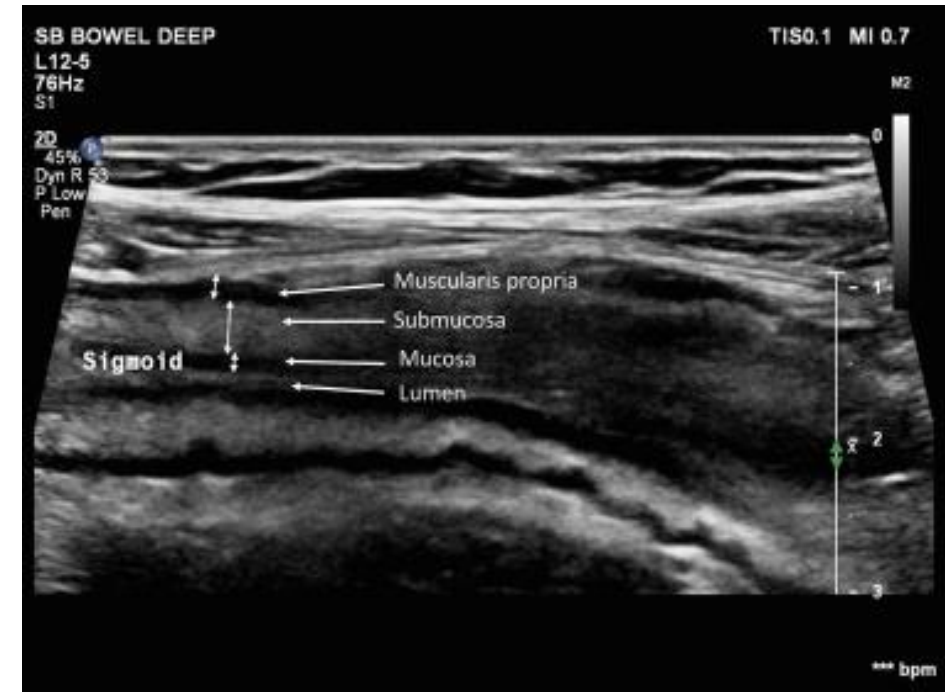
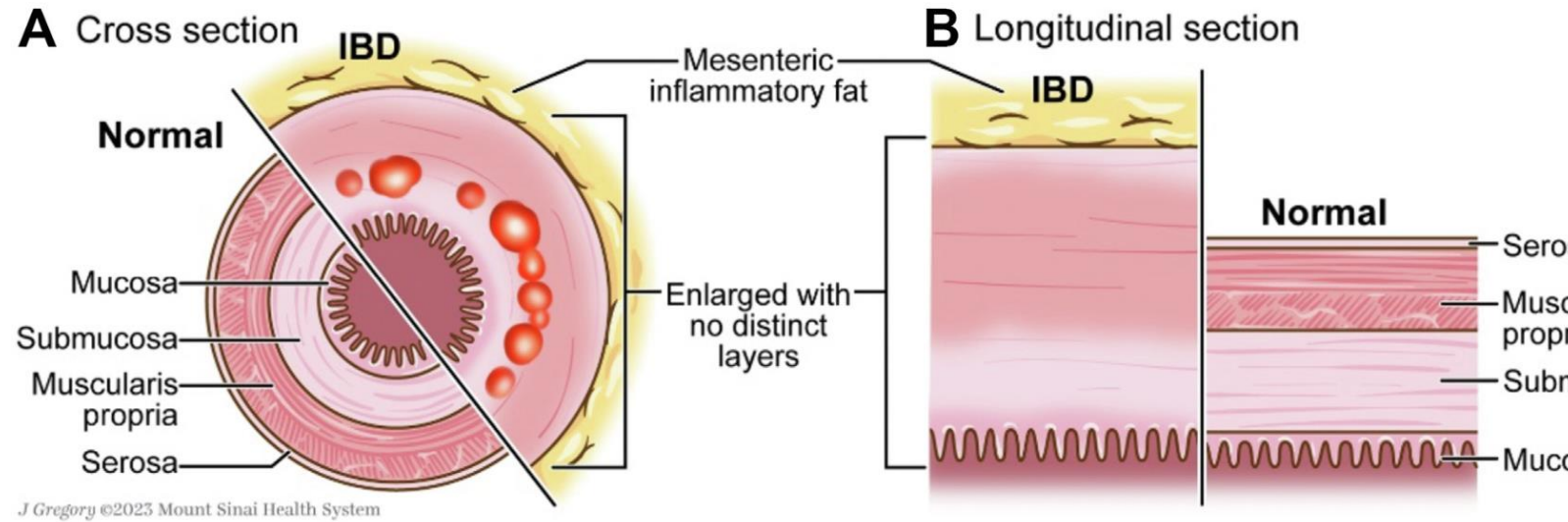


Bowel wall thickness

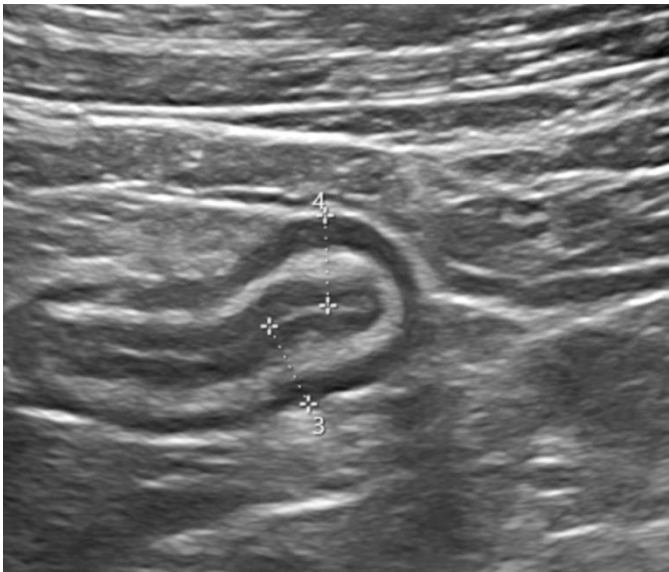
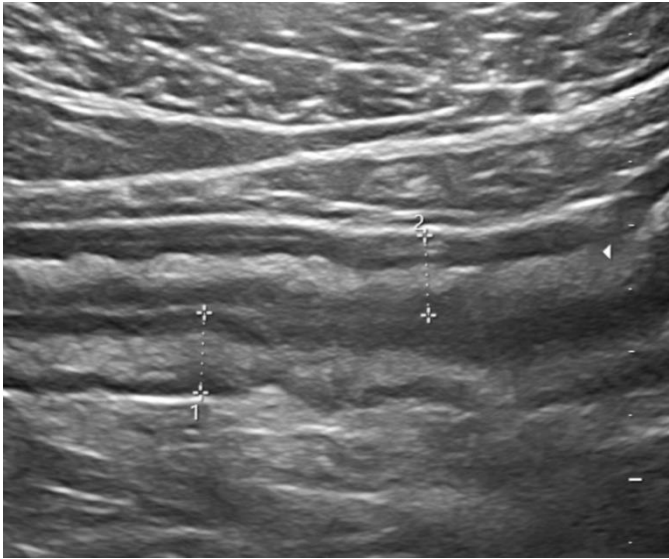
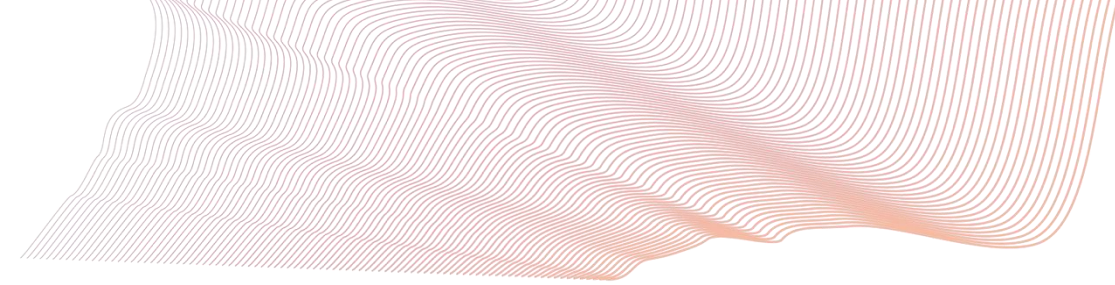
Current practice position 4

Thickness of the most involved small bowel and/or colonic segment, defined as bowel wall thickness (BWT), should be measured and reported. A threshold of 3 mm is the recommended cut-off for presence of mural inflammation for both small and large bowel

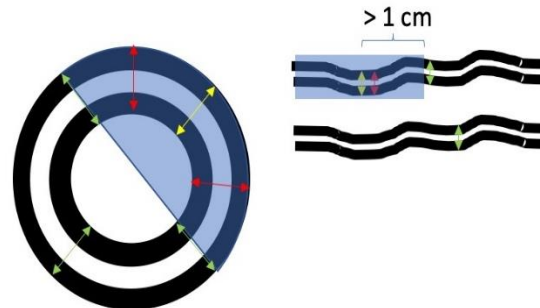
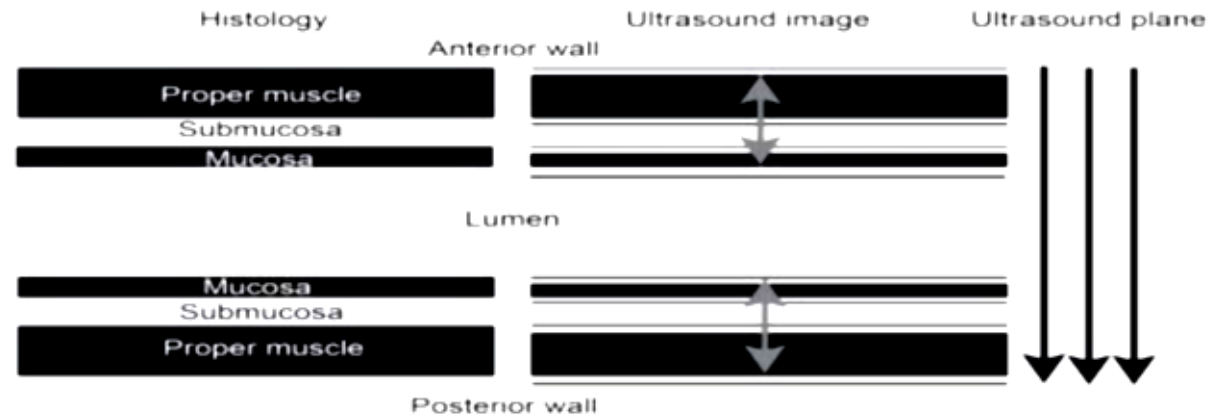
Bowel wall thickness



Bowel wall thickness



Segment with the most prominent pathology
2x transversal + 2x longitudinal/4



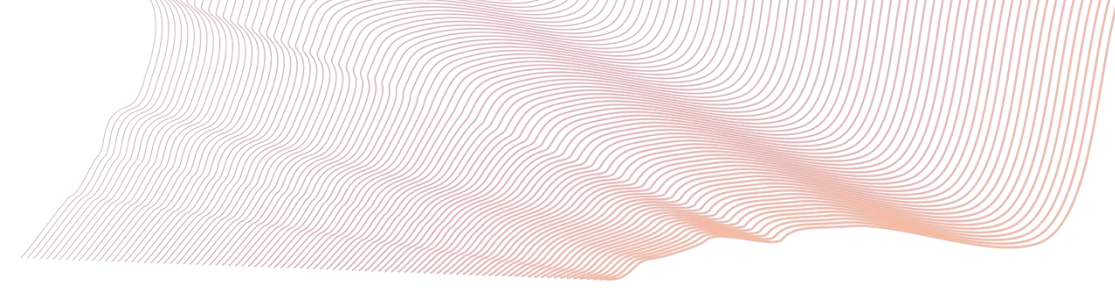
Interobserver variability

$k = 0.72-1$

Fraquelli M et al. Dig Liver Dis 2008

$k = 0.96$

Novak K et al. JCC 2021



Vascularization - Doppler signal

Current practice position 6

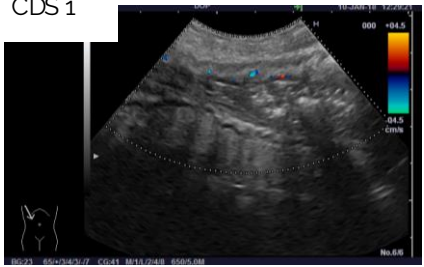
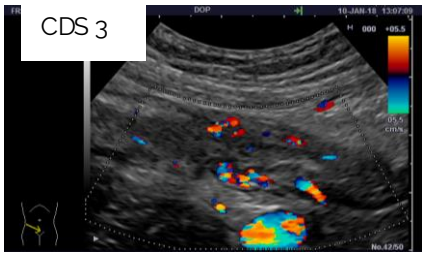
Intestinal vascularization should be assessed by a semi-quantitative grading of intra- and extramural blood flow in abnormal bowel segments (colour Doppler on IUS). For MRE/CT, a qualitative impression of increased contrast hyperenhancement should be reported

Vascularization - Doppler signal

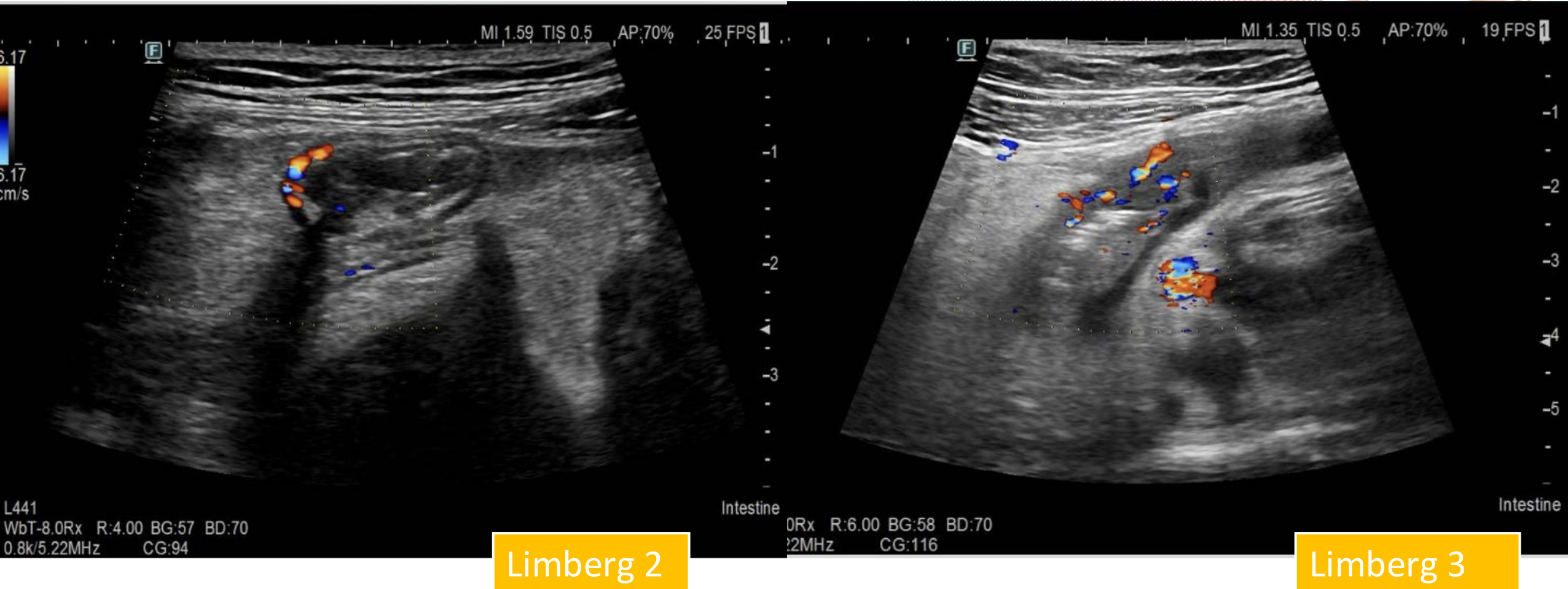
set velocity range: 5-7 cm/s

- 0 – absent
- 1 – short signals
- 2 – long signals inside bowel
- 3 – long signals inside & outside bowel

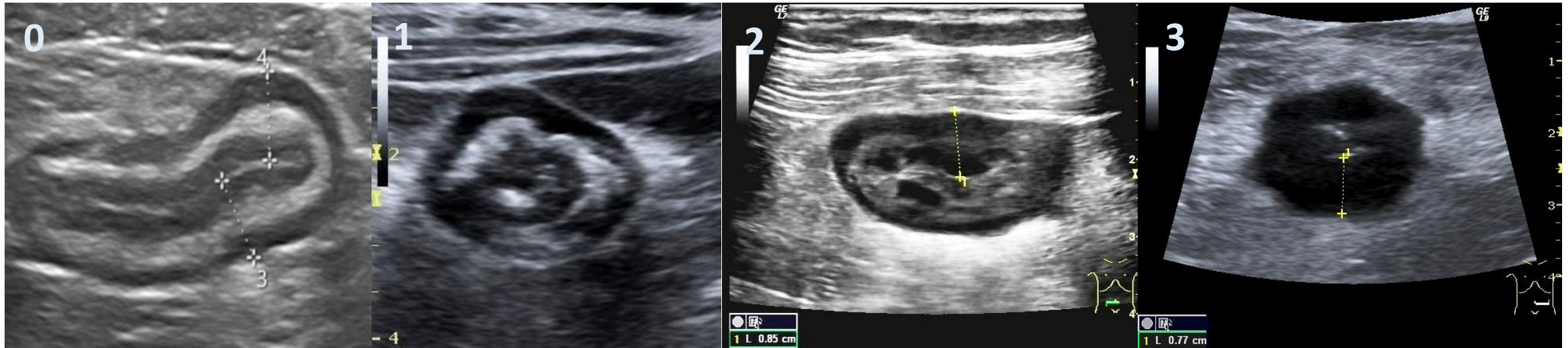
ICC = 0.62

	Longitudinal scan	Transversal scan
Limberg 1		
Limberg 2		
Limberg 3		
Limberg 4		

Doppler signal



Echostratification

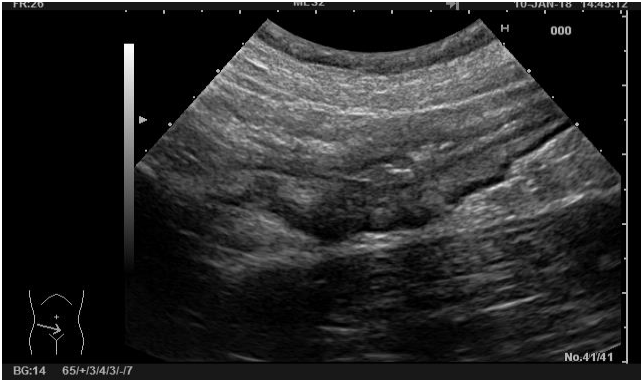


Categories

- 0: Normal/preserved echostratification
- 1: Uncertain
- 2: Focal disruption (< 3 cm)
- 3: Extensive disruption (> 3 cm)

ICC = 0.50

Inflammatory mesenteric fat

	Longitudinal scan	Transversal scan
Present		
Absent		

Categories

0: absent
1: uncertain
2: present

$k = 0.14-0.69$

Fraquelli M et al. Dig Liver Dis 2008

$s = 0.43$

Calabrese E et al. IBD 2018

ICC = 0.51

IUS Core Activity Parameters

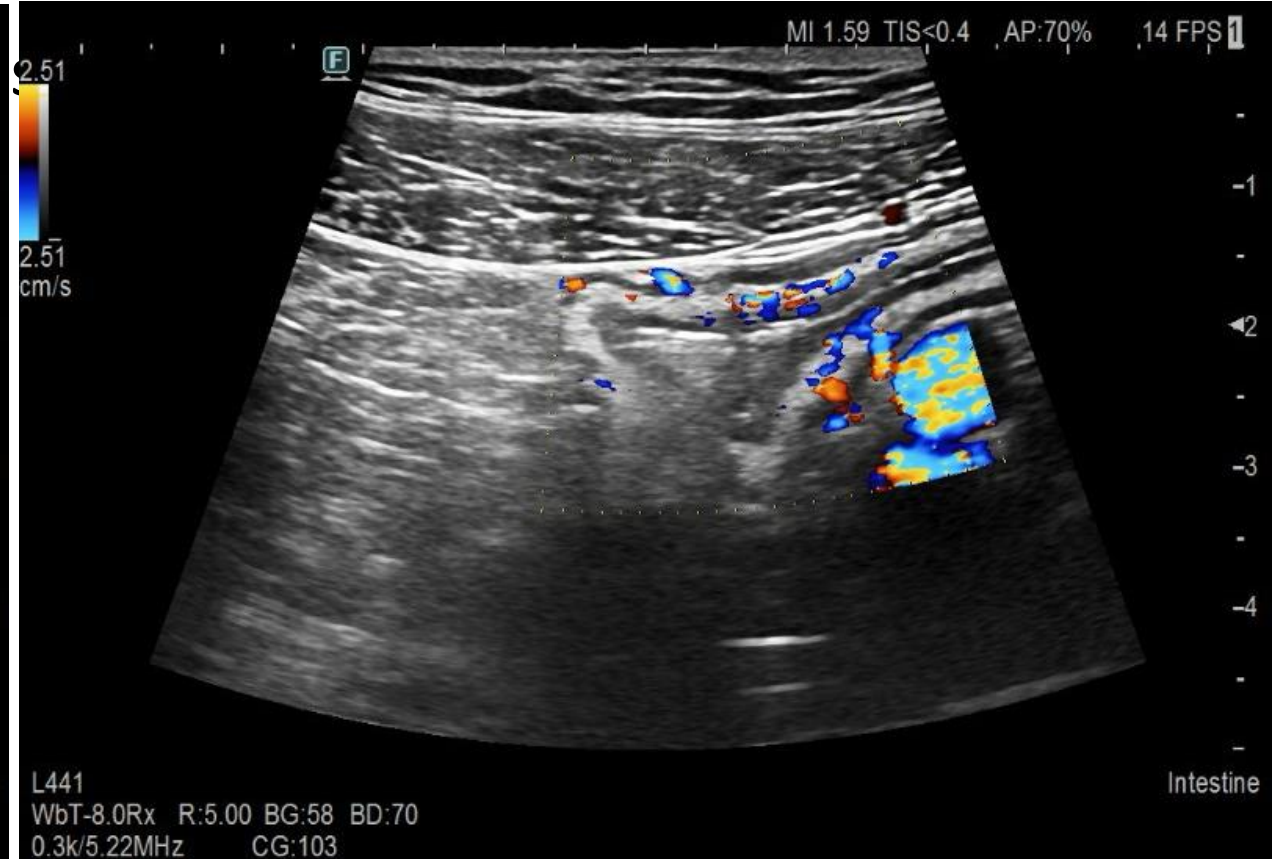
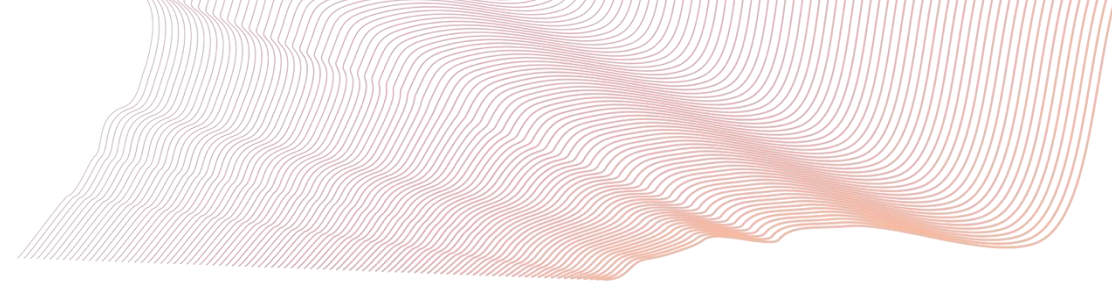
Table 2. Core activity parameters, Delphi grading consensus

	Normal	Uncertain	Activity	
BWT	≤3 mm	NA	>3 mm	
i-fat	0 = Absent	1 = Uncertain	2 = Present	
CDS	0 = Absent [none]	1 = Short signals	2 = Long signals inside bowel	3 = Long signals inside & outside bowel
BWS	0 = Normal	1 = Uncertain	2 = Focal [≤ 3 cm]	3 = Extensive [>3 cm]

BWT, bowel wall thickness; i-fat, inflammatory fat; CDS, colour Doppler signal; BWS, bowel wall stratification; NA, not applicable.

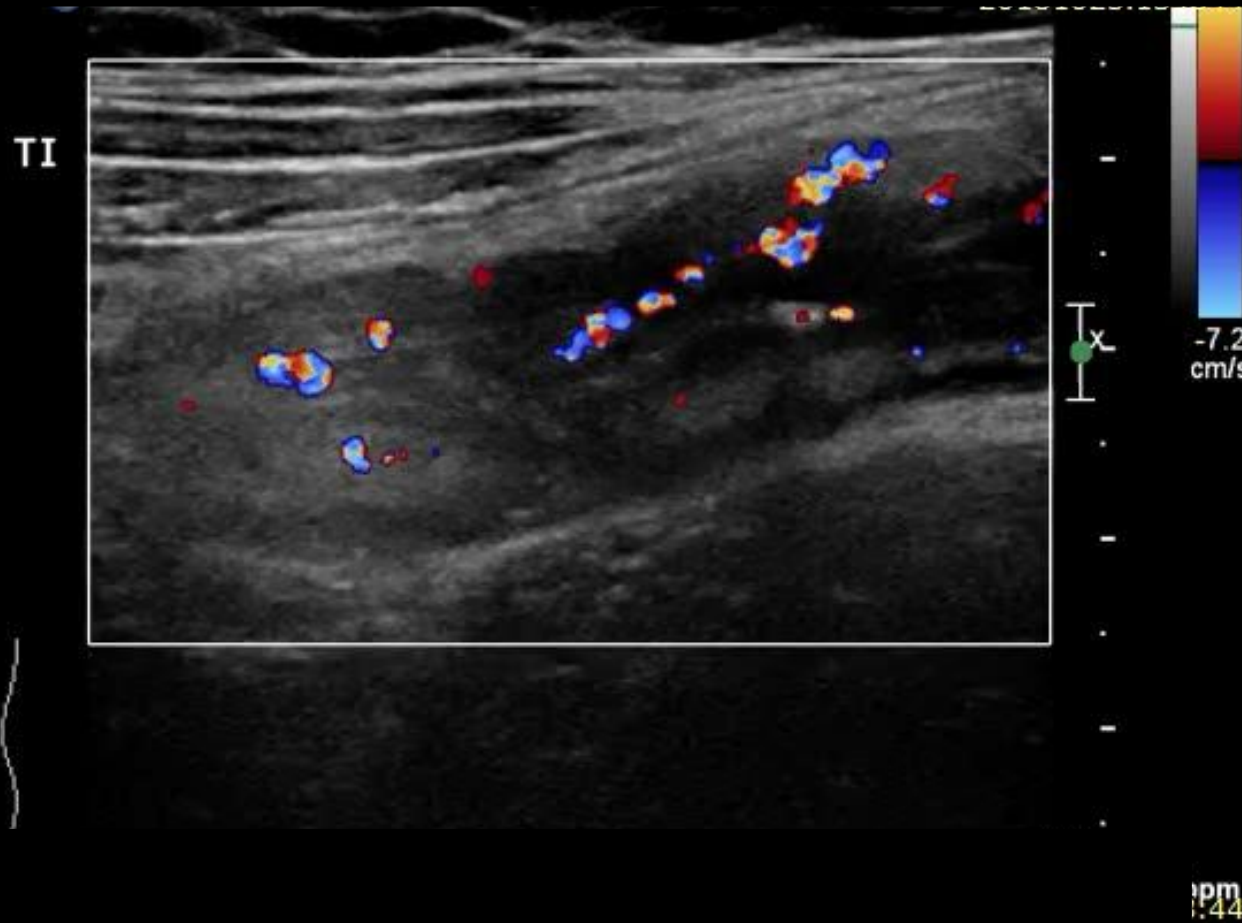


Real time evaluation





Scoring of Disease Activity - IBUS SAS-Score



Active CD L1B1

- BWT (8 mm)
- Vascularization (CDS 2)
- Echostratification (extensive=3)
- Mesenteric fat (present=2)

IBUS SAS-Score: 88

IBUS - SAS (0-100) = $4 \cdot \text{BWT} + 15 \cdot \text{i-fat} + 7 \cdot \text{CDS} + 4 \cdot \text{BWS}$



Motility



Normal motility - small bowel



Dysmotility in mucosal
small bowel CD



Absent peristalsis in Crohn's
ileitis (L1B1)



Complications - stenosis



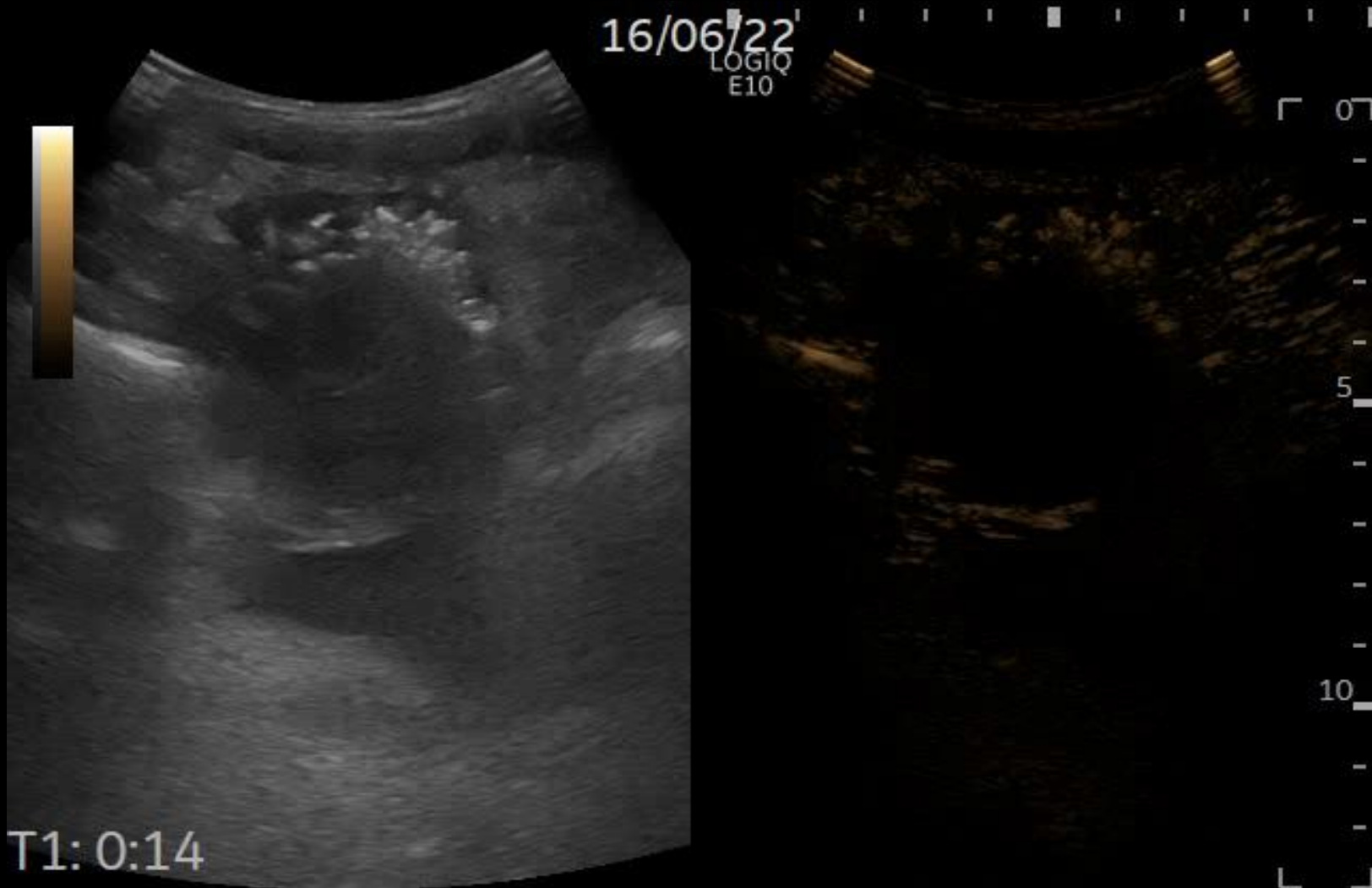
Stenosis - IUS criteria

- Increased bowel wall thickness
- Stiff bowel wall, loss of motility
- Narrowing of the lumen
- Prestenotic dilatation (> 2.5 cm)



Describe your findings!

Complications – abscess/fistula



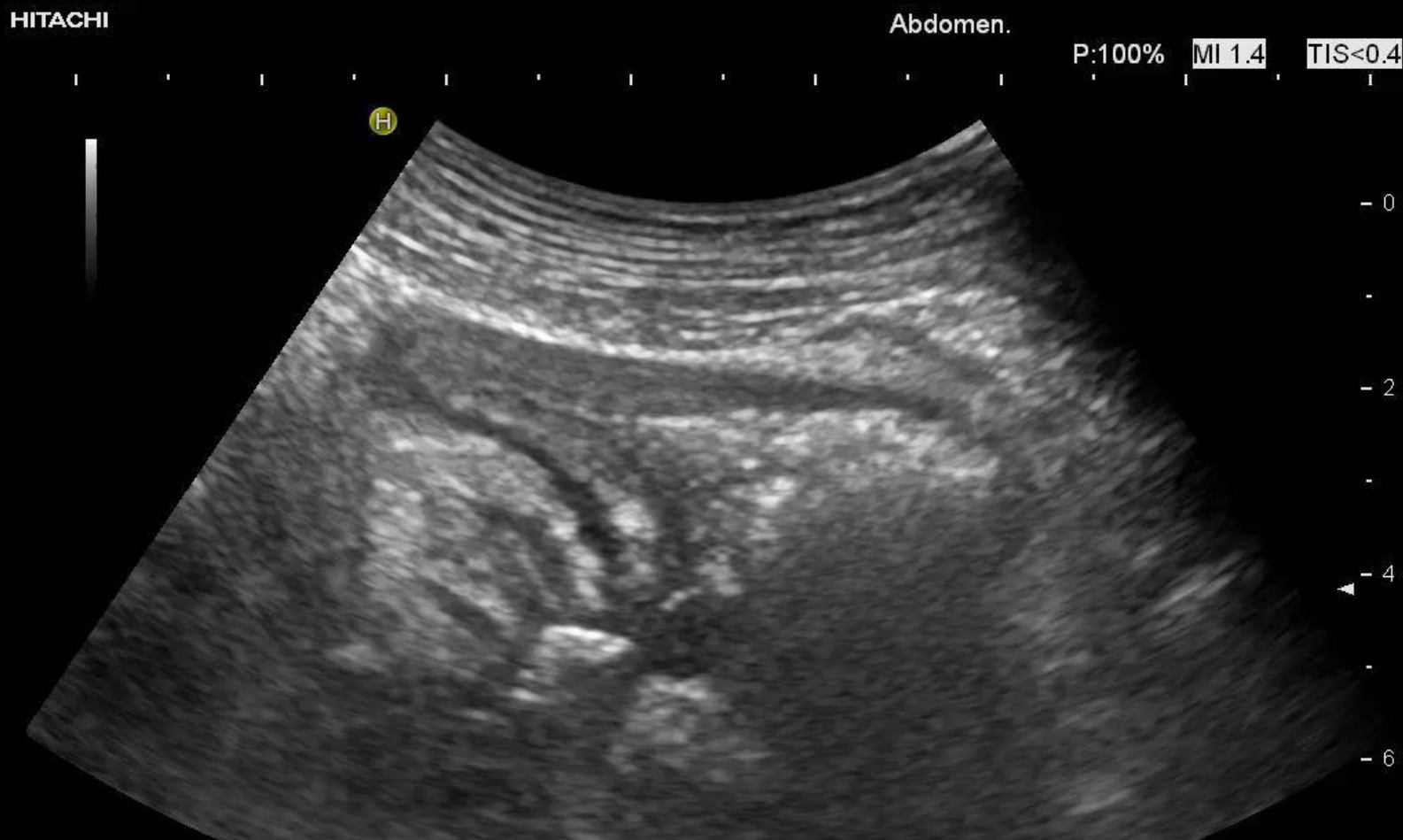
IUS criteria - abscess

- Hypo- or anechoic lesion with fluid and gaseous artefacts
- Posterior echo enhancement
- Irregular margins
- Frequently surrounded by mesenteric fat
- **CEUS:** absence of vascularization in the mass



Describe your findings!

Complications – abscess/fistula

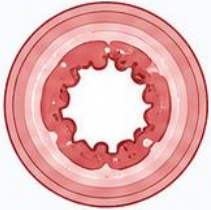


IUS criteria - fistula

- Hypo- or anechoic extension from bowel wall filled with fluid and/or gaseous artefacts
- Irregular margins
- Frequently surrounded by mesenteric fat



Relevant findings for inflammation/complications that should be described

SEGMENT-BASED FINDINGS	
BOWEL WALL ABNORMALITIES	
	• Wall thickness • Edema • Vascularity • Ulcers • Perienteric inflammatory changes
ADDITIONAL FEATURES	
	• Motility
	• Restricted diffusion*
COMPLICATIONS	
	Stricture
	Fistula and/or sinus
	Mesenteric masses/abscesses**
	Vascular complications***

Monitoring disease activity

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.

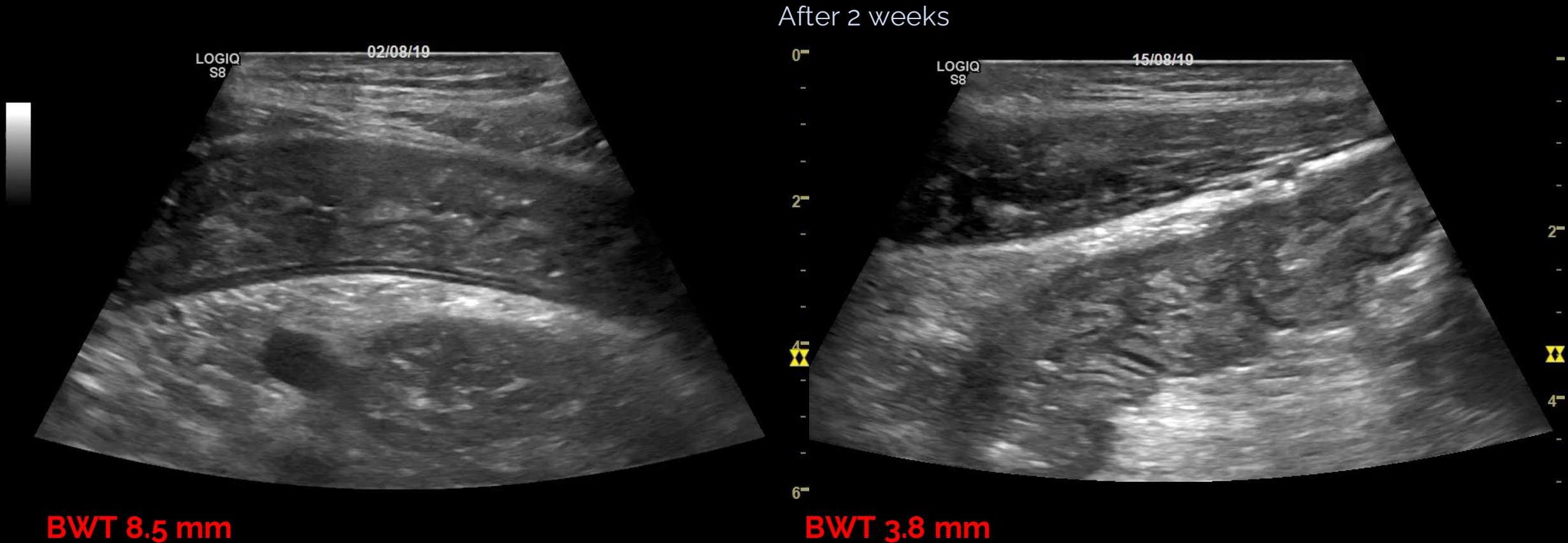
Categories

- Transmural remission ($BWT \leq 3 \text{ mm} + CDS 0$)
- Significant transmural response
- Stable disease
- Progression of inflammation

Kucharzik T et al JCC 2021

Ilvemark J et al JCC 2022

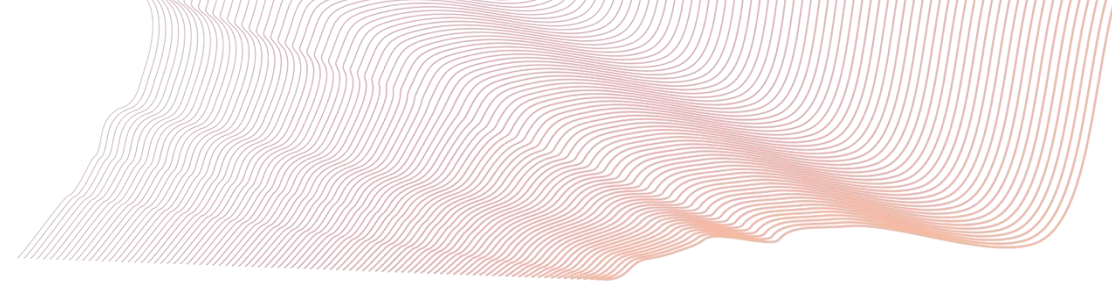
Monitoring IBD - Acute Severe UC, E2, cyclosporin induction i.v.



Significant transmural response in sigmoid colon 2 weeks after treatment induction with decrease of BWT and restitution of haustration

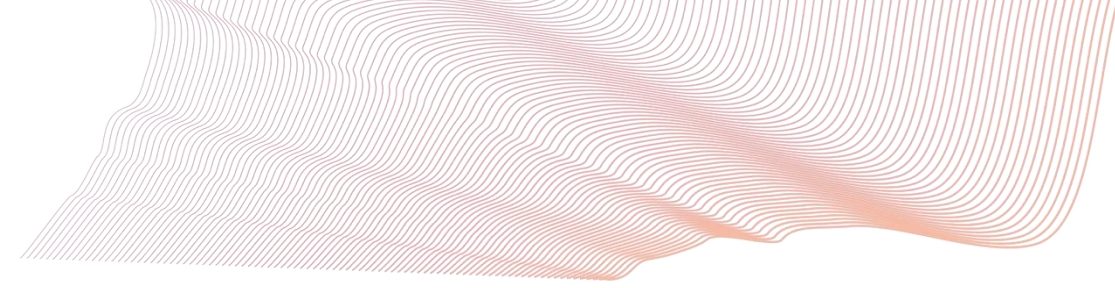


Standardised documentation



- Select and save **representative images** and **cine loops** that accurately depict IUS findings
- **Annotate** (label or body marker) the identified structures appropriately to facilitate interpretation and documentation
- Describe the steps involved in **storing ultrasound images and cine loops**, including data security and retrieval considerations
- Recall the standard terminology and abbreviations used in documenting intestinal ultrasound findings and construct a **well-structured IUS report**

CASE 1



INDICATIONS and DISEASE CHARACTERISTICS

- 24y old man, UC since 2019, mesalamine-refractory, steroid-refractory, azathioprine-induced pancreatitis
- 8-10 loose stools, blood, abdominal cramps, urgency
- lab results: Hb 9.2 mg/dl, WBC $14.3 \times 10^9/\text{l}$, CRP 167 mg/dl, fCalpro: >800 mg/kg

INTRA-PROCEDURE FEATURES

- Point of care examination. No technical limitation. Normal body status

Fasting period: 6h

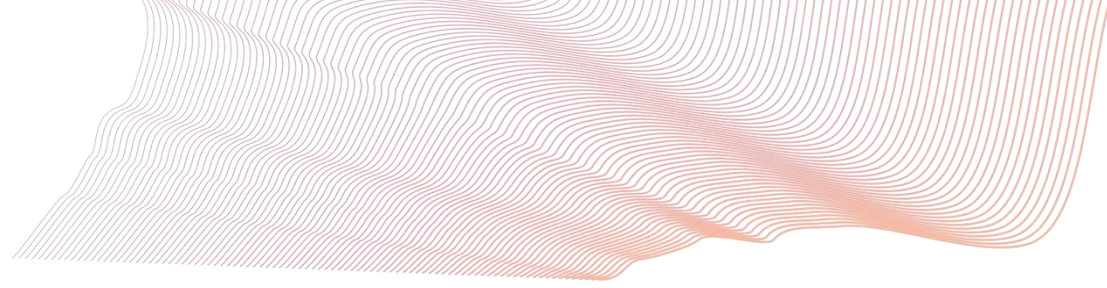
Examination quality: good

Diagnostic confidence: high confidence

Image storage location: cine loops and images stored in PACS

Examiner: Torsten Kucharzik

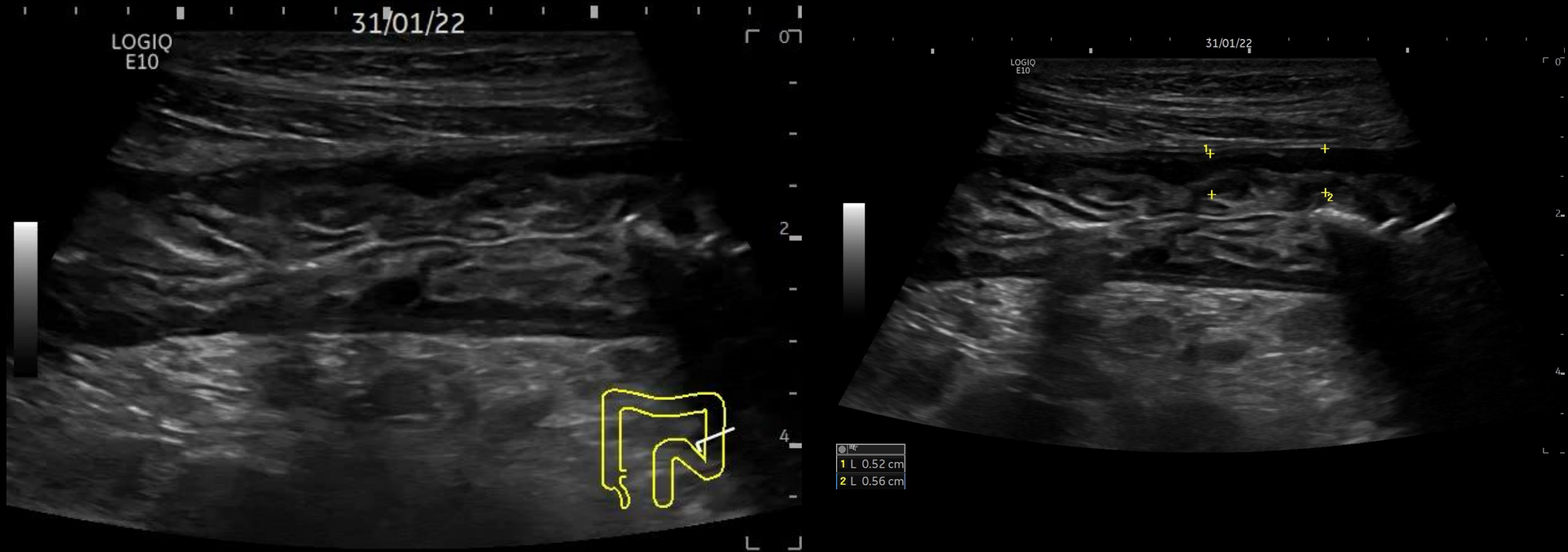
IUS machine: GE Logiq E10; Probe: L2-9 MHz



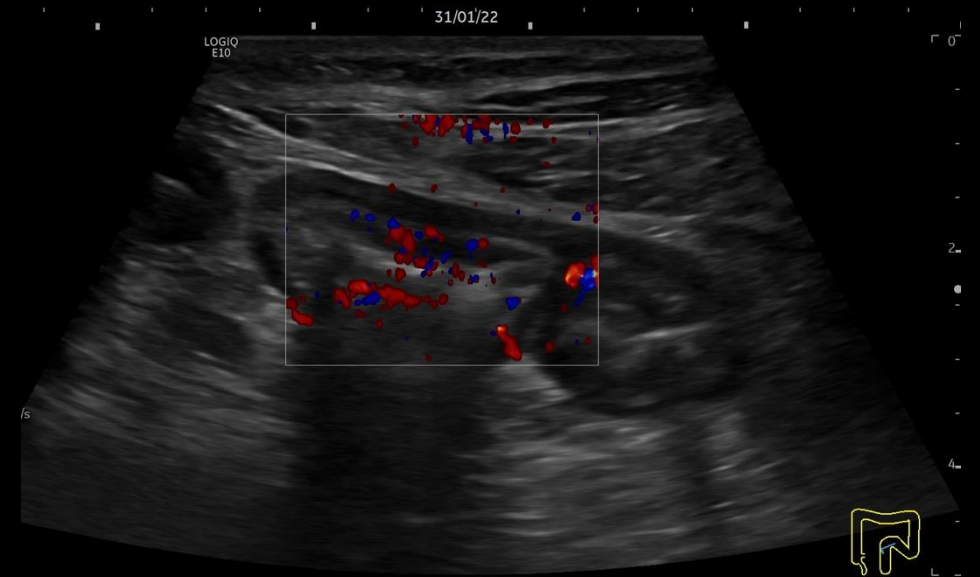
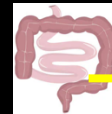
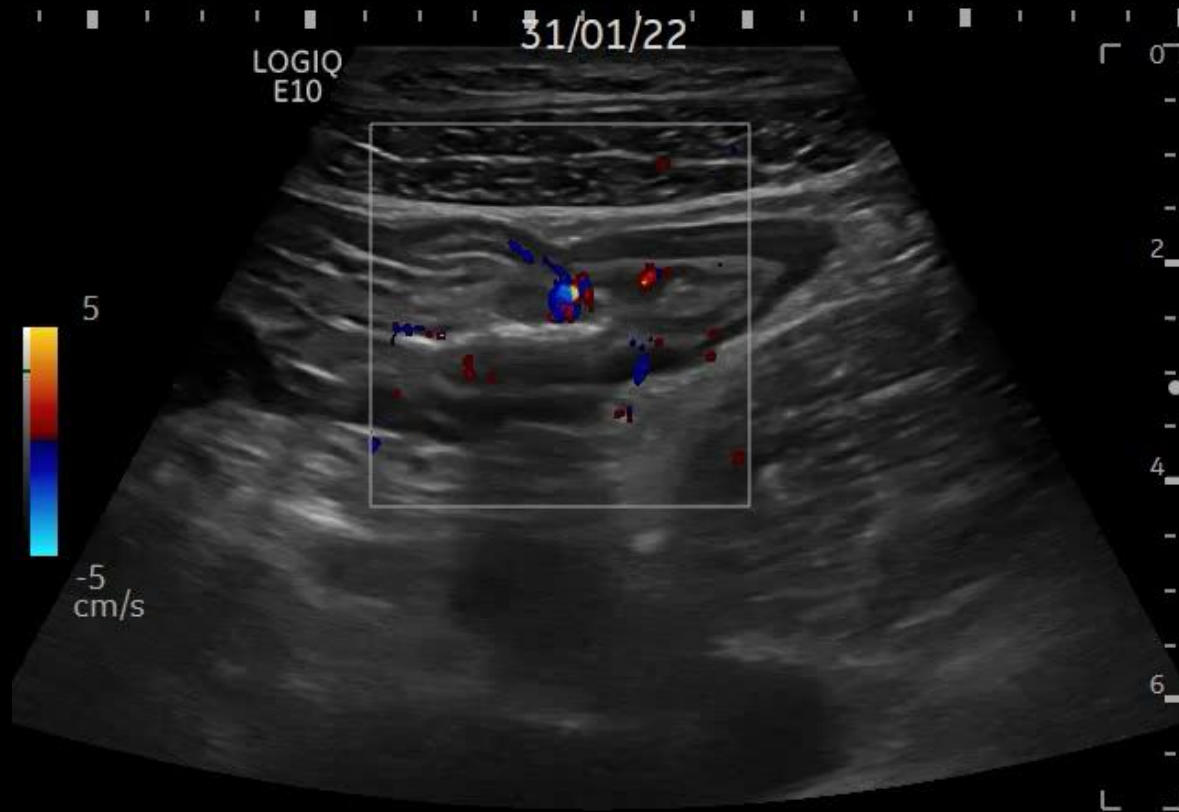
24y old man with ulcerative colitis

- Please describe what you see and consider how to report your findings!
- Disease activity? What are the relevant parameters to look at?
- Disease extension?
- Additional findings?

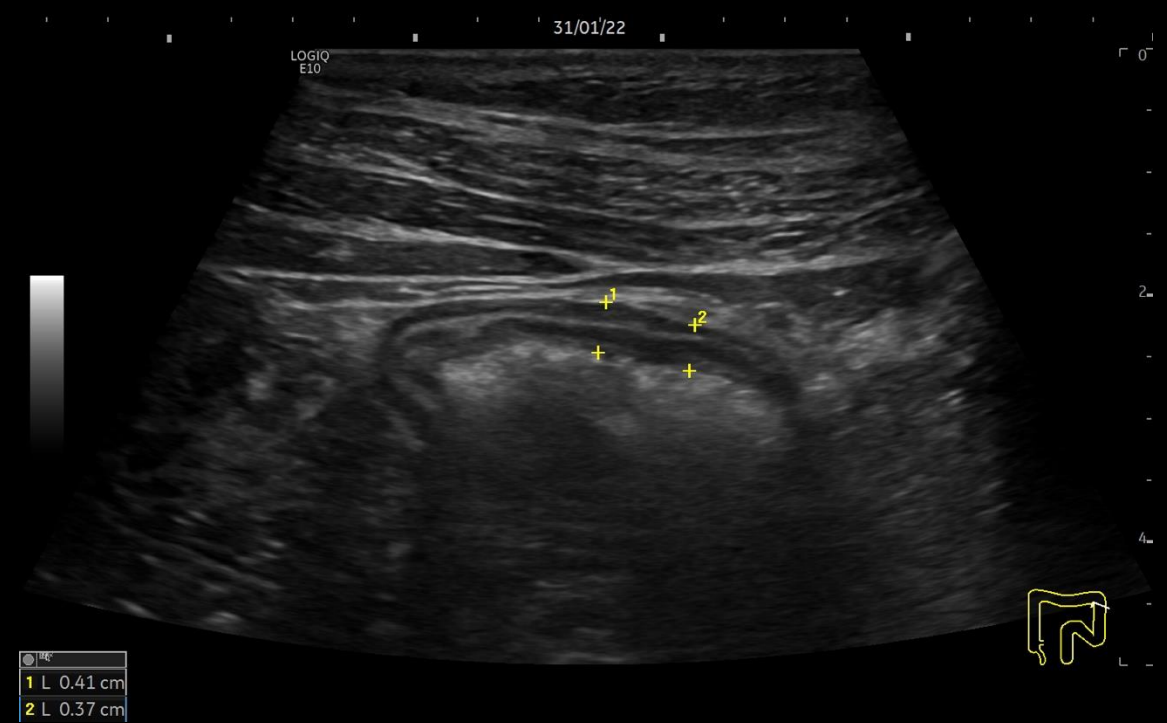
24y old man with ulcerative colitis



24y old man with ulcerative colitis



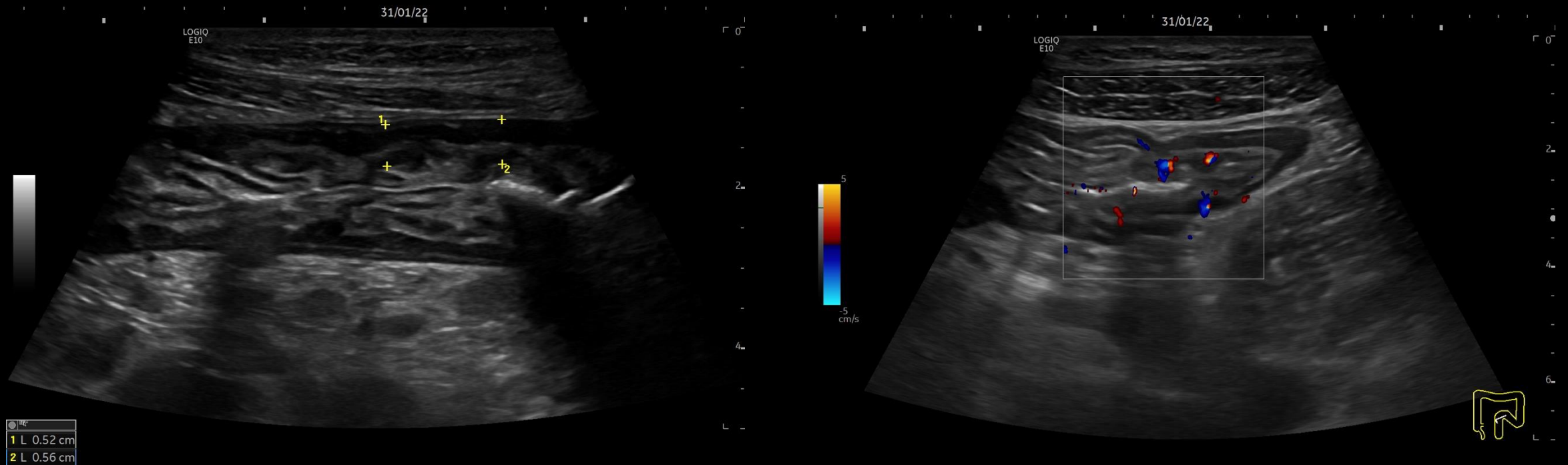
24y old man with ulcerative colitis



24y old man with ulcerative colitis



24y old man with ulcerative colitis



IUS Report - 24y old man with ulcerative colitis

IUS REPORT

INDICATIONS and DISEASE CHARACTERISTICS

24y old man, ulcerative colitis since 2019, mesalamine-refractory, steroid-refractory, azathioprine-induced pancreatitis.

8-10 loose stools, blood, abdominal cramps, urgency

INTRA-PROCEDURE FEATURES

Point of care examination. No technical limitation. Normal body status

Fasting period: 6h

Examination quality: good

Diagnostic confidence: high confidence

Image storage location: cine loops and images stored in PACS

Examiner: Torsten Kucharzik

IUS machine: GE Logiq E10; Probe: 2-9 MHz

RESULTS

BWT: sigmoid colon 5.4 mm, descending colon 4.5 mm, transverse colon 4.5 mm, ascending colon 1.9 mm, TI 1.8 mm

Vascularisation (IBUS CDS Score): rectum: NA, sigmoid colon: 3, descending colon: 3, transverse colon: 3, ascending colon: 0; TI: 0, ileum: 0, jejunum: 0; duodenum: 0

Echostratification: Colon: normal; small bowel: normal

Mesenteric fat: sigmoid colon; descending colon: present (2); transverse colon, ascending colon, TI: absent (0)

Additional findings: Pseudopolyps, loss of haustration in left colon, free fluid, mesenteric lymph nodes

Activity Score: HUC Activity Score (1.4 x CWT (mm) + 2 x CWF): 1.4x5.4+2=9.56

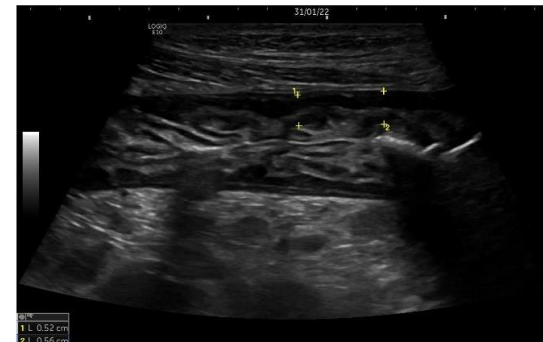
Complications of disease: None

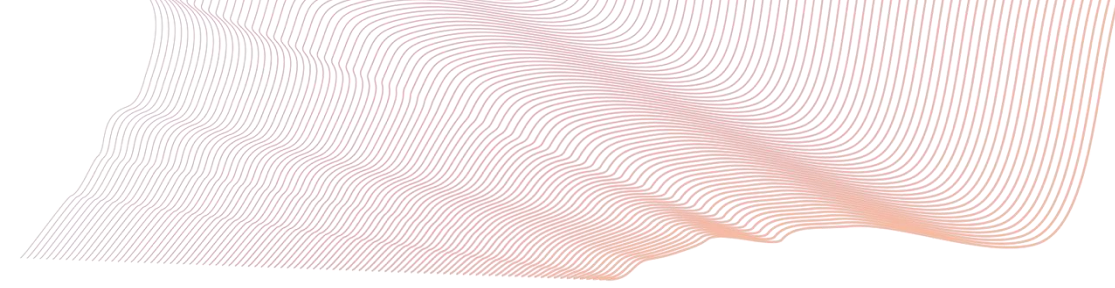
DESCRIPTION: Markedly increased BWT in the left sided colon until right transverse colon with increased vascularisation, preserved echostratification, increased mesenteric fat, mesenteric lymphadenopathy, pseudopolyps, partial abrogated haustration in the left colon and free fluid

IUS DIAGNOSIS: Highly active ulcerative colitis, E3

RECOMMENDATIONS: Suggested IUS follow up in 2 weeks

IMAGES:





CASE 2

INDICATIONS and DISEASE CHARACTERISTICS

- 22y old man, Crohn's disease L1B1 since 2017, steroid-refractory, azathioprine-failure
 - 3-4 stools, abdominal cramps right lower quadrant, temp 37.9°C
- lab results: Hb 10.2 mg/dl, CRP 67 mg/dl, fCalpro: >800 mg/kg.

INTRA-PROCEDURE FEATURES

- Point of care examination. No technical limitation. Normal body status

Fasting period: 4h

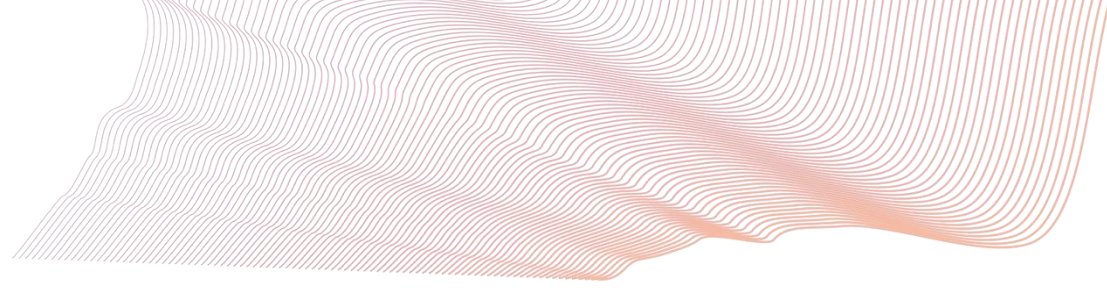
Examination quality: good

Diagnostic confidence: high confidence

Image storage location: cine loops and images stored in PACS

Examiner: Torsten Kucharzik

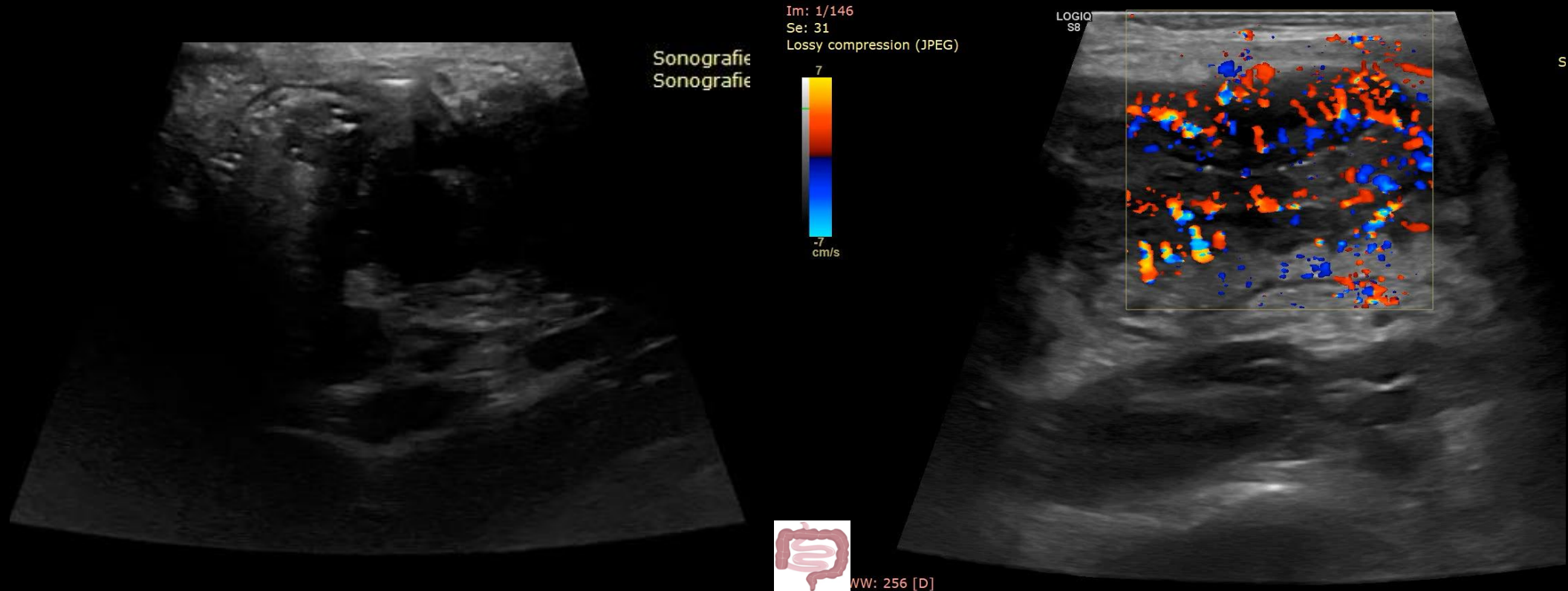
IUS machine: GE Logiq S8, GE Logiq E10; Probes: C1-6 MHz, L2-9 MHz



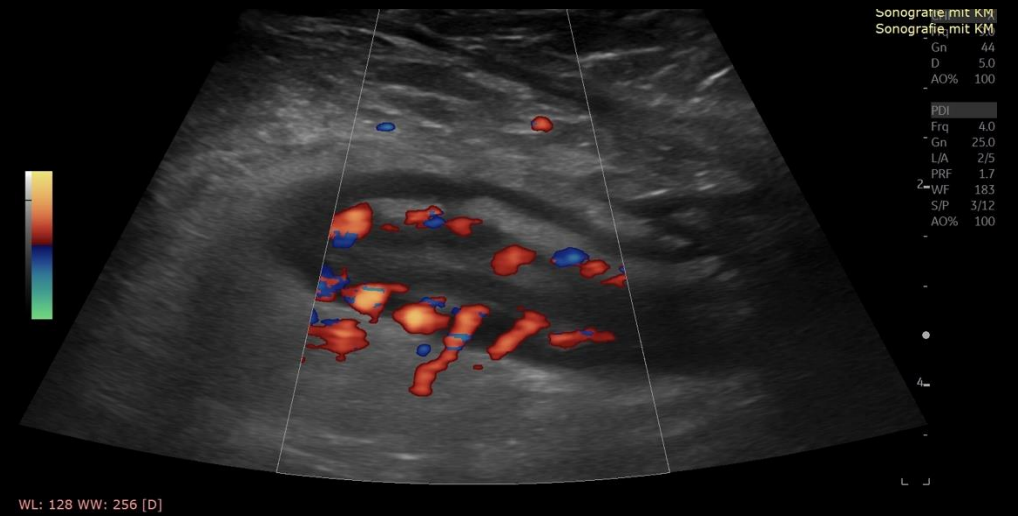
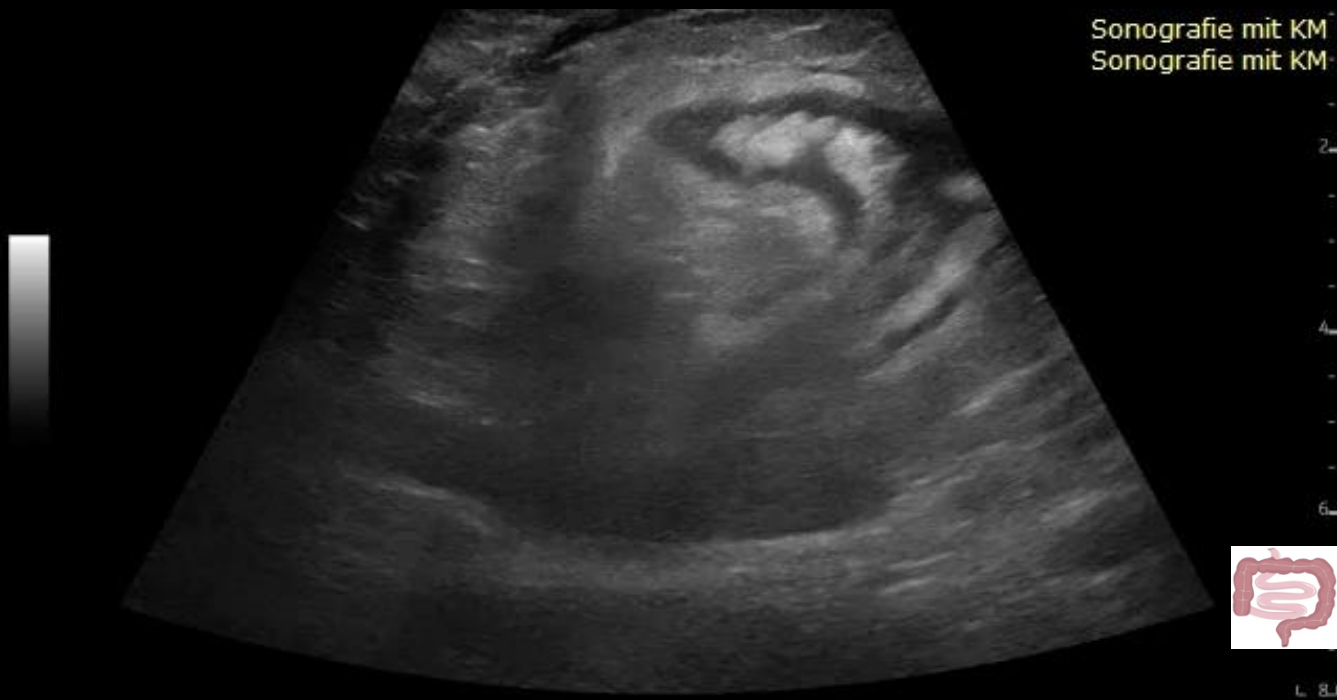
22y old man with Crohn's ileitis

- Please describe what you see and consider how to report your findings!
- Disease activity? What are the relevant parameters to look at?
- Disease extension?
- Additional findings?

22y old man with Crohn's ileitis



22y old man with Crohn's ileitis



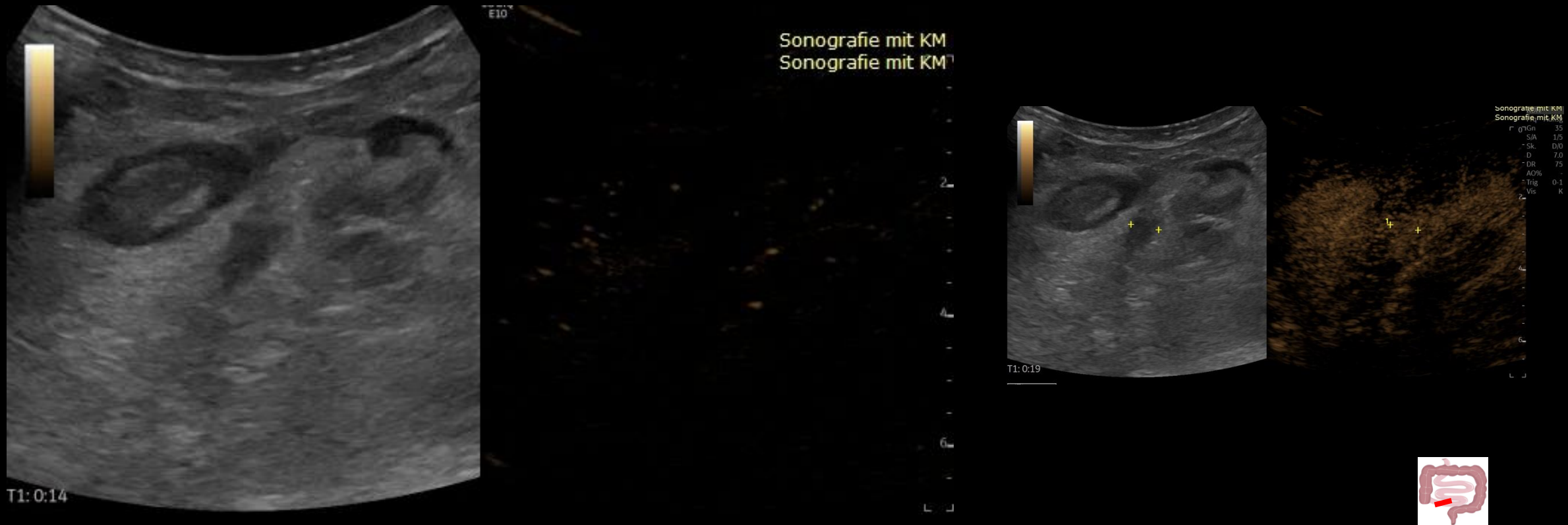
22y old man with Crohn's ileitis – abscess or phlegmone?



WL: 128 WW: 256 [D]

26.01.2022 08:30:29

22y old man with Crohn's ileitis – abscess or phlegmone?





IUS Report - 22y old man with Crohn's ileitis

IUS REPORT

INDICATIONS and DISEASE CHARACTERISTICS

22y old man, Crohn's disease L1B1 since 2017, steroid-refractory, azathioprine-failure.

3-4 stools, abdominal cramps right lower quadrant, temp 37.9°C;

lab results: Hb 10.2 mg/dl, CRP 67 mg/dl, fCalpro: >800 mg/kg.

INTRA-PROCEDERE FEATURES

Point of care examination. No technical limitation. Normal body status

Fasting period: 4h

Examination quality: good

Diagnostic confidence: high confidence

Image storage location: cine loops and images stored in PACS

Examiner: Torsten Kucharzik

IUS machine: GE Logiq E10; Probe: 2-9 MHz

RESULTS

BWT: sigmoid colon 2.5 mm, descending colon 2.5 mm, transverse colon 2.2 mm, ascending colon 2.0 mm, TI 9.2 mm

Vascularisation (IBUS CDS Score) : rectum: NA, sigmoid colon: 1, descending colon: 1, transverse colon: 1, ascending colon: 1; TI: 3, ileum: 3, jejunum: 0; duodenum: 0

Echostratification: TI: completely abrogated; ileum: partially abrogated; colon: present

Mesenteric fat: TI and ileum: present (2); sigmoid colon; descending colon; transverse colon, ascending colon: absent (0)

Extension: TI/ileum: 18 cm length

Additional findings: free fluid, mesenteric lymph nodes; **CEUS:** (2.5 ml SonoVue) phlegmone, blind ending fistula, no abscess

Complications: blind ending fistula TI, sinus tracks TI, no abscess, no stenosis

Activity Score: IBUS – SAS CD Score (0–100) = $4 \cdot \text{BWT} + 15 \cdot \text{i-fat} + 7 \cdot \text{CDS} + 4 \cdot \text{BWS}$;

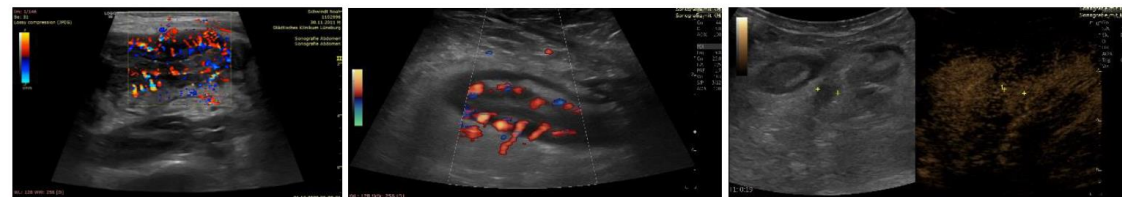
$4 \times 9.2 + 15 \times 2 + 7 \times 3 + 4 \times 3 = 99.8$

DESCRIPTION: Markedly increased BWT in the terminal ileum, with markedly increased vascularisation, abrogated echostratification, increased mesenteric fat, abrogated motility, mesenteric lymphadenopathy, phlegmonre, sinus tracks, blind ending fistula and free fluid

IUS DIAGNOSIS: Highly active penetrating Crohn's disease L1B3 with blind ending fistula and sinus tracks in the TI

RECOMMENDATIONS: Suggested IUS follow up in 4 weeks

IMAGES



Take Home Messages

1

Use a systematic approach for every examination.

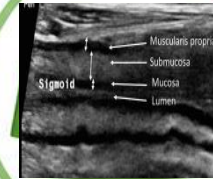
Ensure complete and structured assessment of all bowel segments.



2

Measure bowel wall thickness correctly.

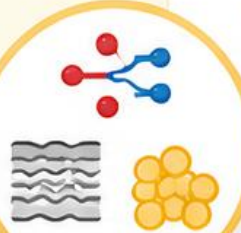
Use the correct technique and measure the most abnormal segment.



3

Assess vascularity, stratification, and mesenteric fat in every affected segment.

These core parameters reflect disease activity.



4

Always evaluate for complications.

Actively look for strictures, fistulas, abscesses, and other complications.



A standardized report improves communication, reproducibility, and patient care.



international bowel
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Thank you!