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Standardized IUS Documentation and Reporting

Peter Gedeon, MD PhD

Skåne University Hospital
Lund – Malmö – Trelleborg
Sweden

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Disclosures

None

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Intended Learning Outcome (ILO):

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.

2. Select and save representative images and cine loops that acucurately depict US findings

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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], 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,†]

PLEASE READ THIS REPORT

- The consensus agreement was made by a large interdisciplinary panel of experts to optimally address this important clinical need in daily practice.
- This review from 2021 identifies standardized parameters and suggests how to report and how to characterize CT, MRI and IUS findings.

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Introduction

Why is it important to standardize the IUS report?

- Improve communication to clinicians
- Ensure inclusion of all important disease features
- Improve report structure and reproducibility

Colleagues should understand your findings

- a common language is important

Current practice position 1

Reporting of findings should be structured to improve communication to clinicians, ensure inclusion of all important disease features, and improve report structure and reproducibility

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Write a good report and select and save representative images and cine loops that accurately depict IUS findings.

- Improve communication to clinicians

  - Be aware that your IUS findings can lead to change of current therapy or operative interventions

  - Absence of documentation may lead to delay in therapy and often complementary radiologic imaging

  - Storing pictures and cine loops in a system that allows online access and thus demonstration on interdisciplinary conferences is clear advantage

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Ileal Crohns disease with obstructive symptoms

- Dilated proximal small bowel.
- Ileocecal resection was performed with high priority
- Operation showed high-grade stricture

Reporting

IUS Report

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Indication Flare of known CD, A2L1B1

Examiner Jacob Bjerrum, gastroenterologist

IUS machine GE Logiq E10, Linear probe 2-9 MHz

Image storage PACS

Quality of examination Good, Structures nicely illustrated

- diagnosis fully supported

Sigmoid colon Normal

Descending colon Normal

Transverse colon Normal

Ascending colon Normal

Cecum Normal

Terminal ileum, BWT 7.9mm, BWS 2, CDS 0, iFat 2, extent 20cm, no prestenotic dilatation, no signs of abscesses or fistulas, IBUS-SAS 70

Remaining small bowel Normal

Overall assessment Terminal ilietis without complications. Should be IUS re-assessed 3 months after initiation of treatment

Explanations:
Normal intestinal wall is < 3 mm
BWT = Bowel wall thickness = the wall thickness of the intestine
BWS = Bowel wall stratification = irregular structure in the intestinal layering, often an expression of ulcers
CDS = Color Doppler Signal = blood flow
i-fat = inflammatory fat = proliferation of mesenteric inflammatory fat tissue.

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Pre-procedure features

- **Indication?**
- Suspected CD or UC vs. IBS, infectious disease etc.
- Established IBD - Evaluate disease extension, disease activity, complications / Therapeutic monitoring / Post-operative recurrence
- Current symptoms and laboratory values, current and former treatment, surgical history)
- Previous endoscopic findings and cross-sectional imaging

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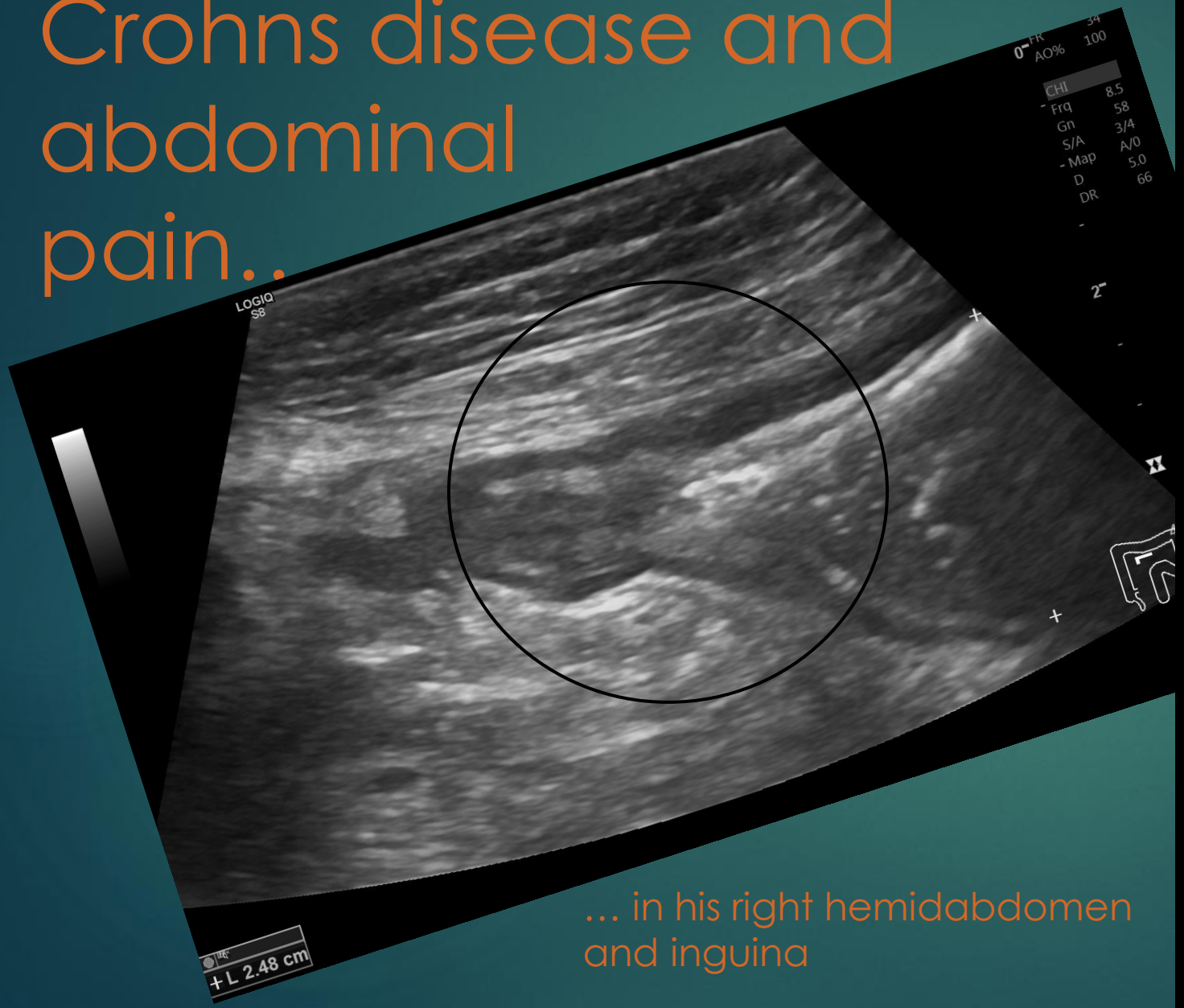
Crohns disease and abdominal pain..



… in his right hemidabdomen and inguina

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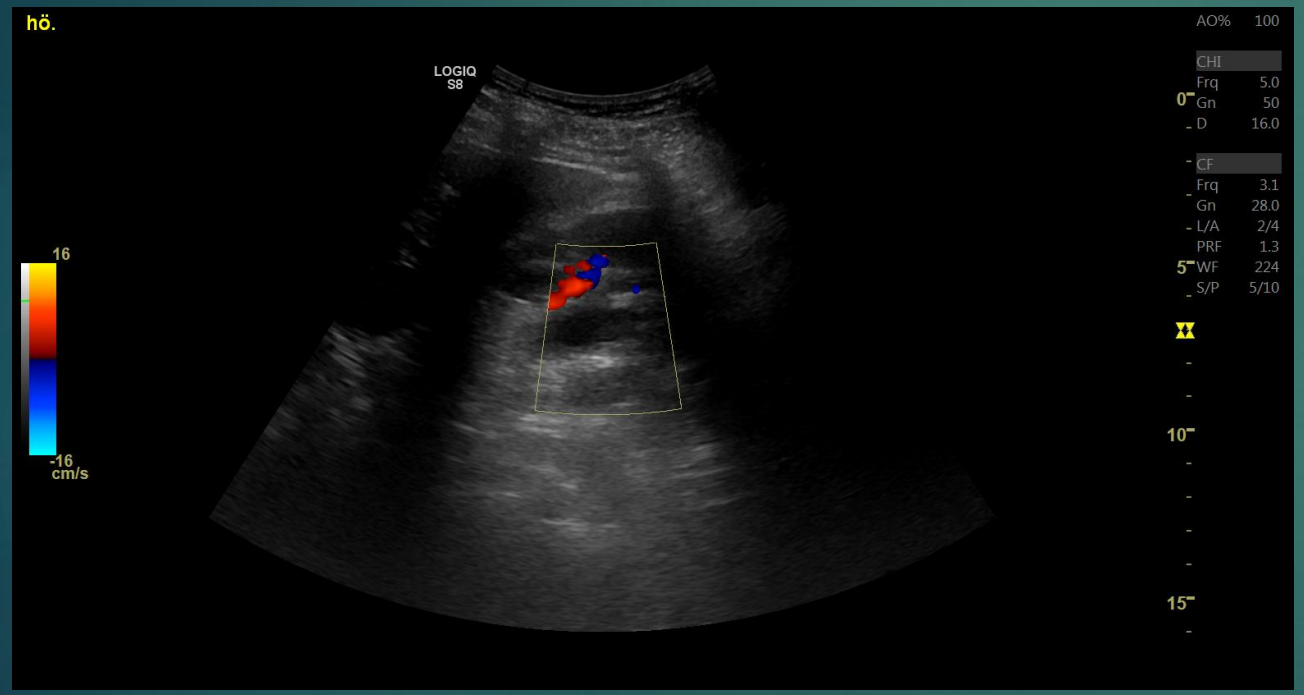
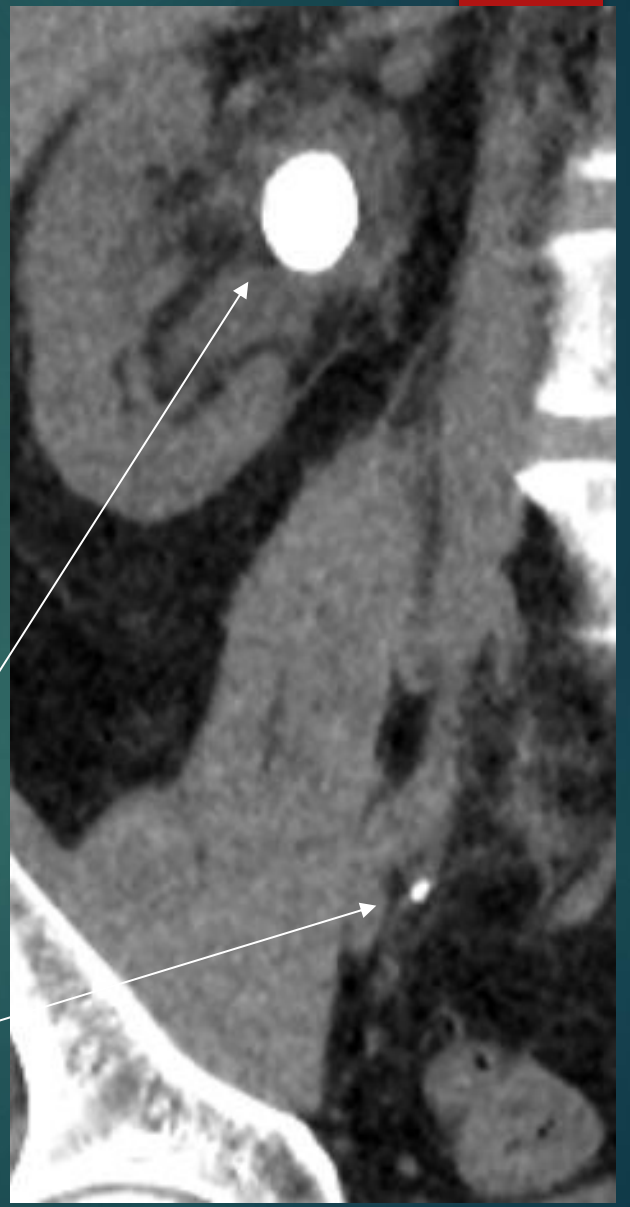
Crohns disease with pain in right inguina





Right kidney with stones and hydronefrosis due to kidney stones and obstruction of the right ureter

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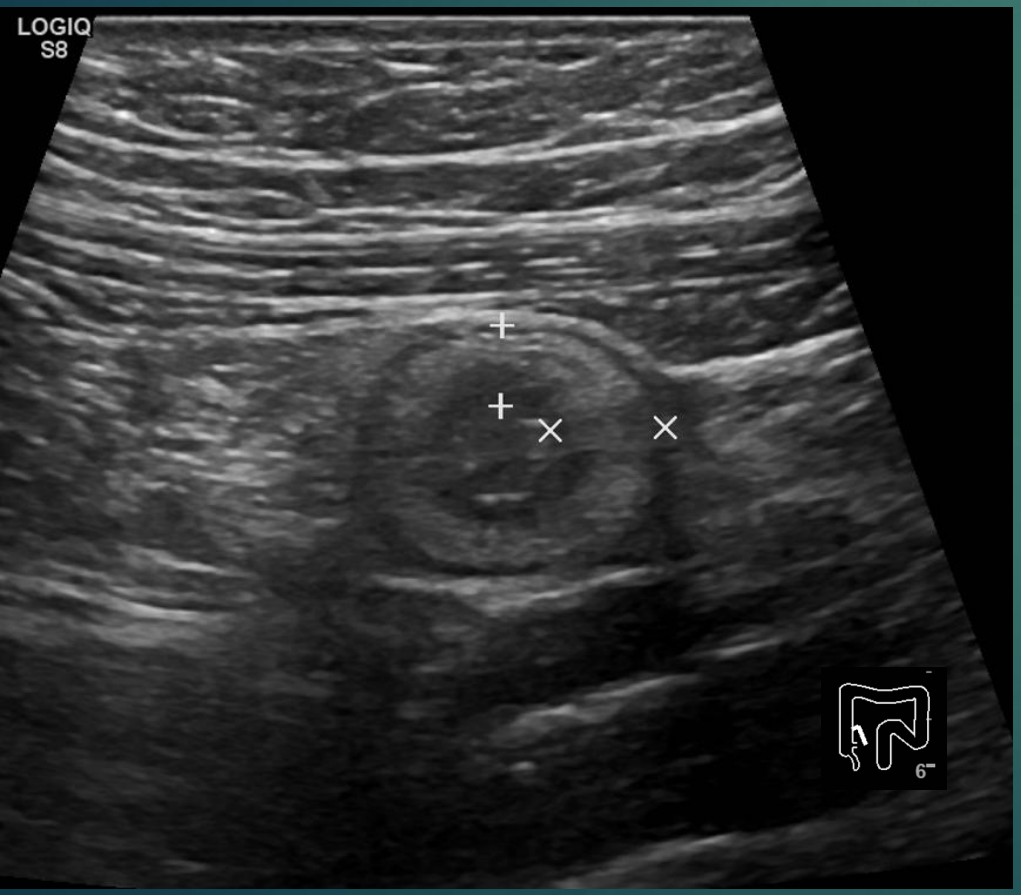
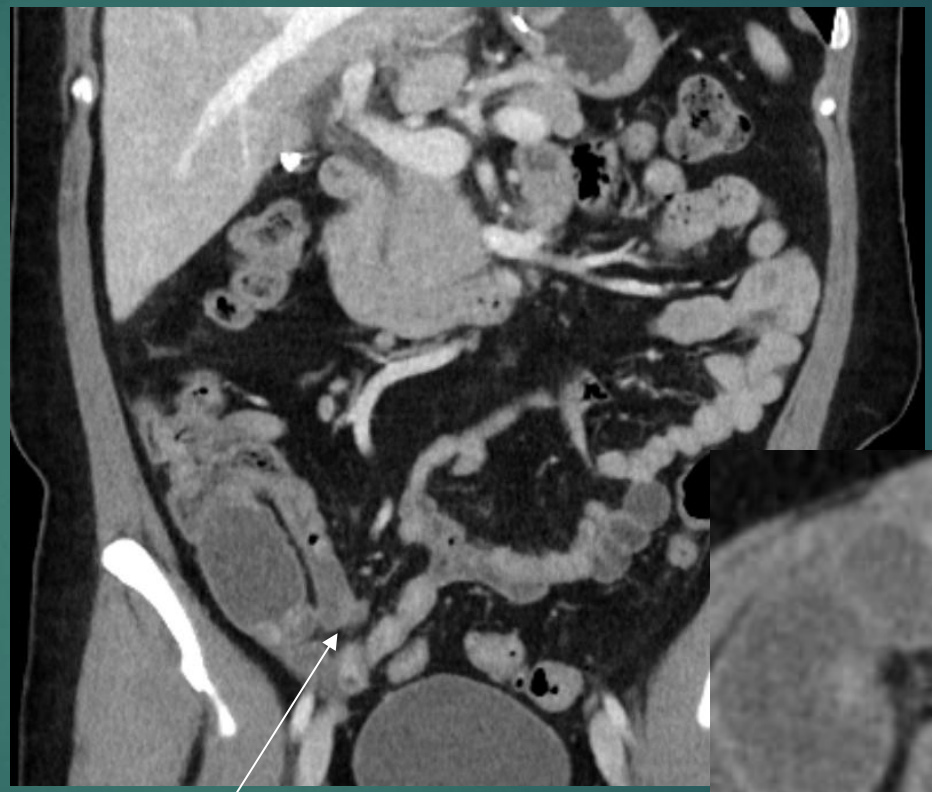
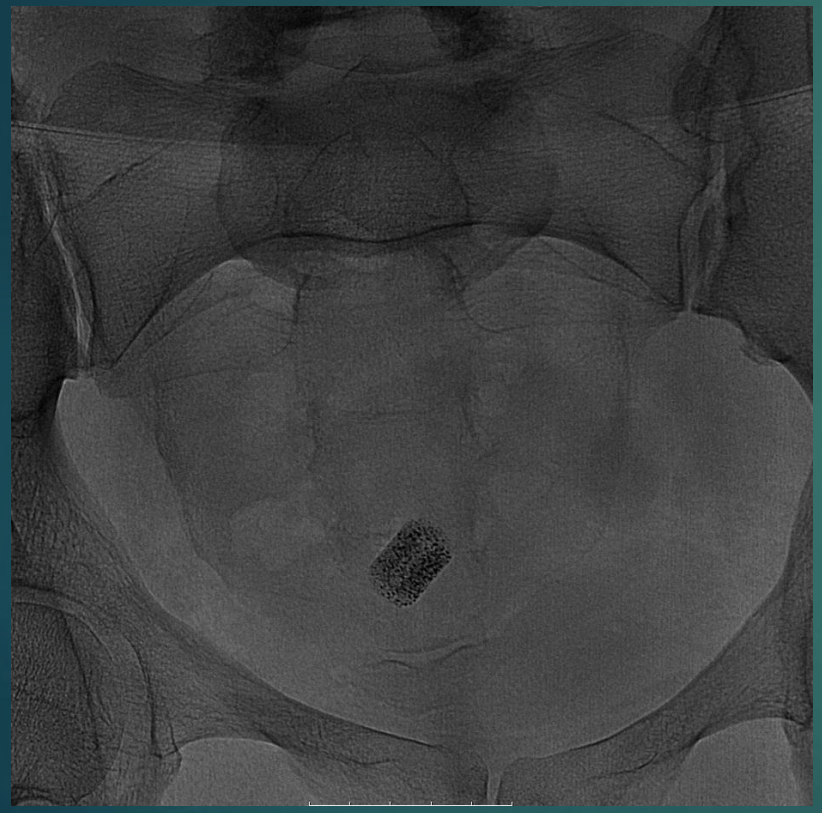
Crohns disease with recurrent episodes of ileus





Previous findings

- Recent colonoscopy did not show significant stricture in the most distal 20 cm of ileum



Capsule enteroscopy 2023: capsule did not leave the bowel in time-

Dilated (small bowel?) loops on CT scan

sigmoid

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Technical features

- **Modality/machine specifications (i.e. GE, Canon, Fujifilm (Hitachi)**
- **Probes** (high-frequency or abdominal)
- **Use of oral contrast** (type, volume)
- **Use of i.v. contrast medium** (type, volume)

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Intra-procedure features

- **Examination extent** (complete bowel/abdominal scan or point-of-care examination)
- **Examination quality / diagnostic confidence /Technical limitations** (intestinal gas or feces, obesity)
- **Findings, Disease activity**, **Complications, Extra intestinal findings**

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Quality of examination

1. Good insight - Structures nicely illustrated, diagnosis fully supported

2. Acceptable insight - Structures fairly well produced, sufficient for diagnosis

3. Severly reduced insight - Insufficient for diagnosis

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Findings

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

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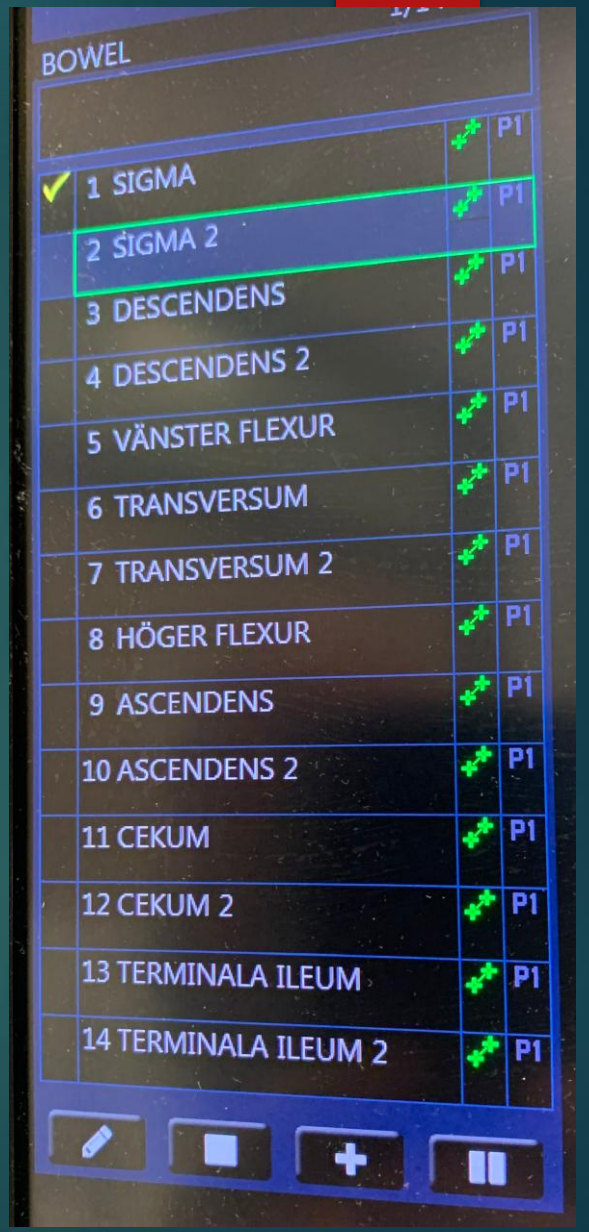
Findings

- Bowel wall thickness (BWT). A threshold of 3 mm is the recommended cut-off for presence of mural inflammation for both small and large bowel.
- Mural changes (BWS) – ulcerations and oedema
- Vascularisation (CDS) - (colour Doppler on IUS).
- Perienteric inflammatory changes and mesenteric adipocyte proliferation (creeping fat) – i-fat



Scan assistant

Post-procedure features

- **Conclusion** (including treatment response, if any) –this is about IUS but usually also about IBD… Report may have to be adapted depending on the level of expertise of the referring doctor
- **Follow-up**
- **Image storage location**

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Monitoring disease activity

For follow-up examinations, reporting should focus on changes from the previous examination and categorized as: transmural remission or significant transmural response, stable disease, or progression of inflammation.

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Postoperative recurrence

Imaging evidence of post-operative disease activity and post-operative complications should be reported.

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Standard reporting prepared in MedSpeech

Standardsvarsskelett tarmultraljud för taligenkänning:

Inremitterande:

Frågeställning:

Anamnes

Tidigare bukoperationer:

Apparat: GE Logiq S8, konvex och linjär prob. Bildlagring lokalt och i SYNGO DYNAMICS, POCUS mappen. Undersökningskvalitet: bra/måttlig/dålig. Ingen oral kontrast.

Rektum: ej undersökt

Sigmoideum, descendens, transversum, ascendens och cekum visualiseras med normal väggtjocklek och skiktning. Inget patologiskt dopplersignal.

(neo)term. ileum: Väggtjocklek …mm, normal skiktning. Limberg … Inget inflammatoriskt fett. Rörligheten bedöms som normal. Ingen prestenotisk dilatation.

Tunntarm enligt lawn-mower-method: Ingen väggförtjockning, inga dilaterade tunntarmsslyngor.

Inga patologiska lymfkörtlar i anslutning till terminala ileum. Ingen ascites, inga hållpunkter för abscess, fistel eller perforation.

Sammanfattningsvis …

Förnyad undersökning rekommenderas om:

Ytterligare transmural bildgivning rekommenderas:

”infoga IBUS-scores”

IBUS–SAS (0–100) = 4·BWT+15·i-fat+7·CDS+4·BWS

Milan ultrasound criteria (UC) = 1.4 × BWT (mm) + 2 × BWF; BWF = 1 if present or BWF = 0 if absent.

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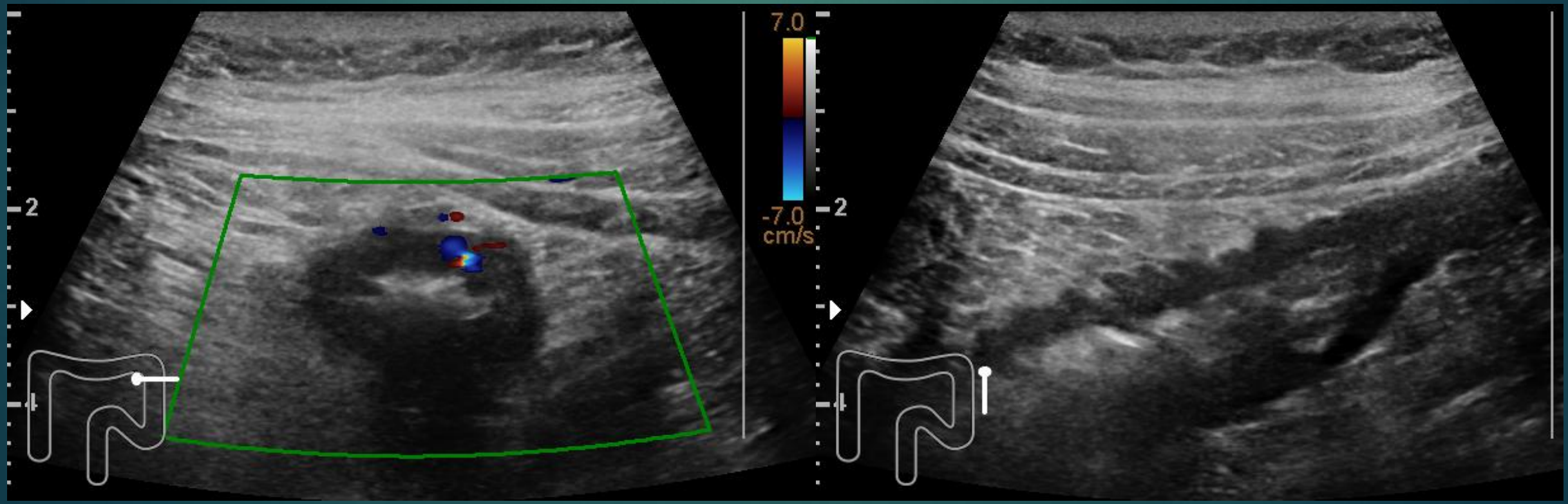
IUS Report Image Storage

- Add representative images or store in PACS or for example Syngo Dynamics



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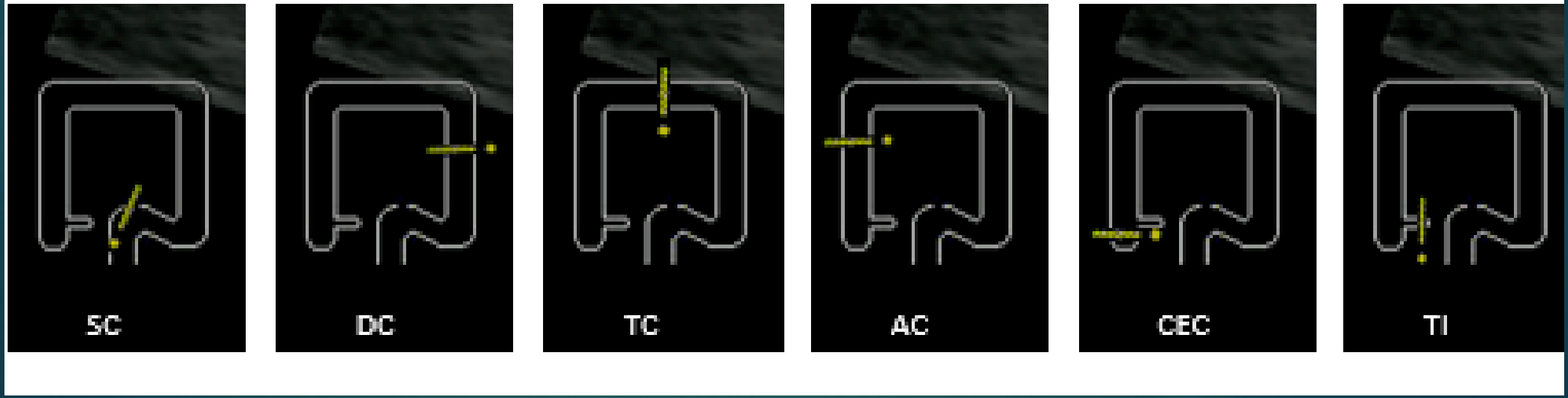
Annotation

- Annotations on all captures (greyscale and CDI)
- SC / DC / TC / AC / CEC / TI / NTI / prox SB
- Ensure written annotation does not obscure image scanning field



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How to do cine loops

- Electronic IUS photo [and cine loop] storage and documentation of pathology is required to ensure quality and transparency.
- For IUS, all pathological segments should be documented in longitudinal and cross-sectional with cine-loop sweeps that include the whole pathology originating at non-pathological margins.
- Vascularization should also be documented with colour Doppler imaging cine loops.

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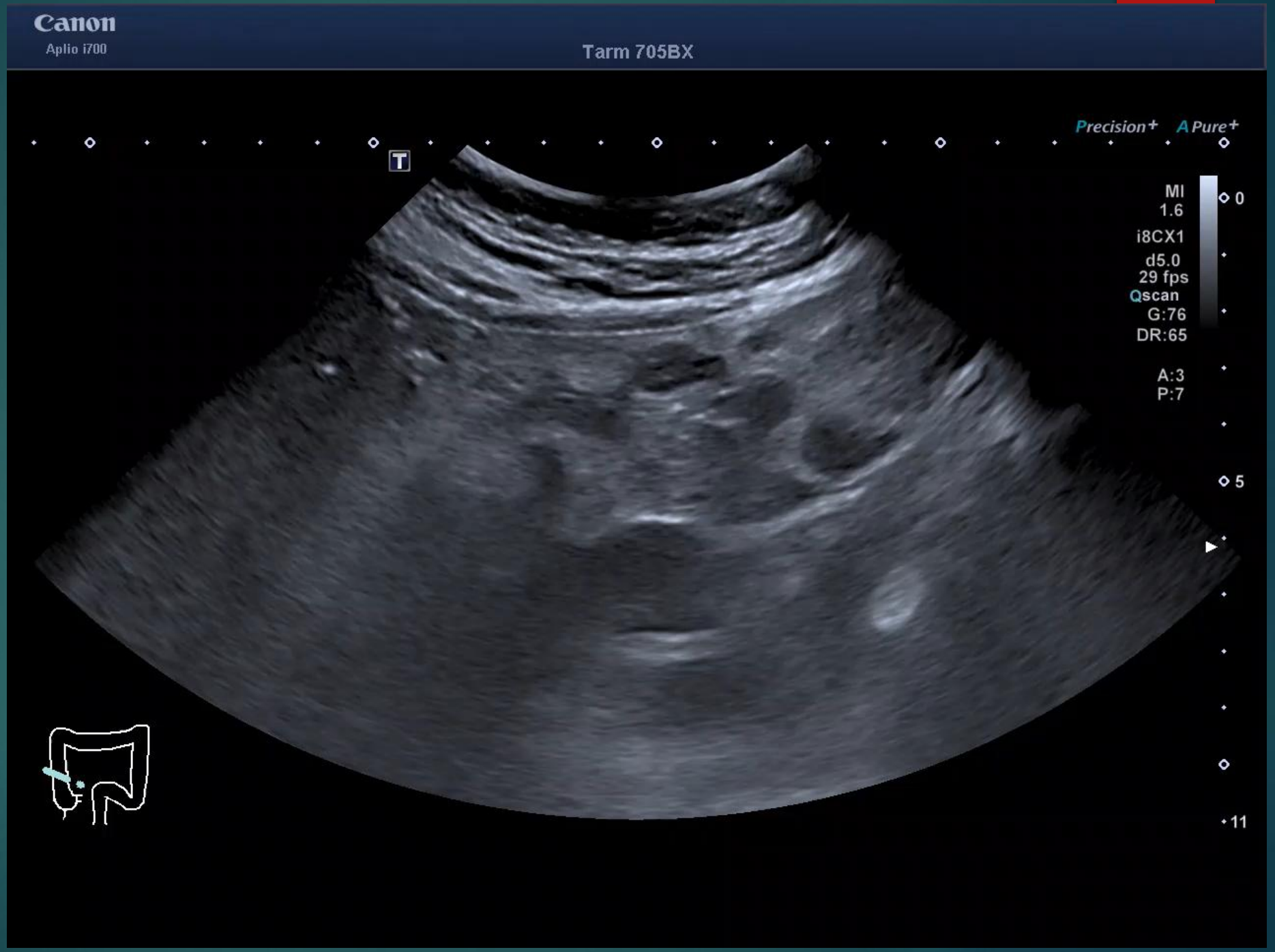
Cine loop sweeps that include the whole pathology originating at non-pathological margins

Neo-terminal ileum with post-operative recurrence after ileo-ascendens-anastomosis



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Cine loop focusing on main pathology

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Take-home messages

- Use a standardized IUS report - clear, systematic presentation of findings
- Remember that your colleagues should understand your findings
  - concise summary
- Save/store images and cine loops, ideally in a central storage system