



international bowel
ULTRASOUND GROUP

How to perform Intestinal Ultrasound

Michael Dolinger

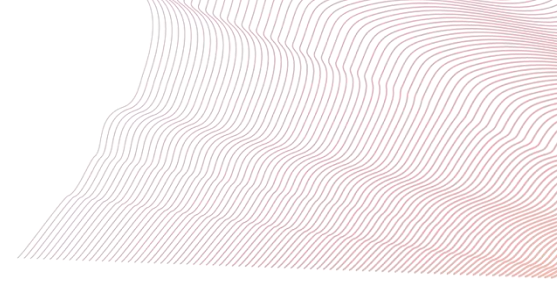


Seattle, US - Friday, October 16th, 2026

Preparation (patient)

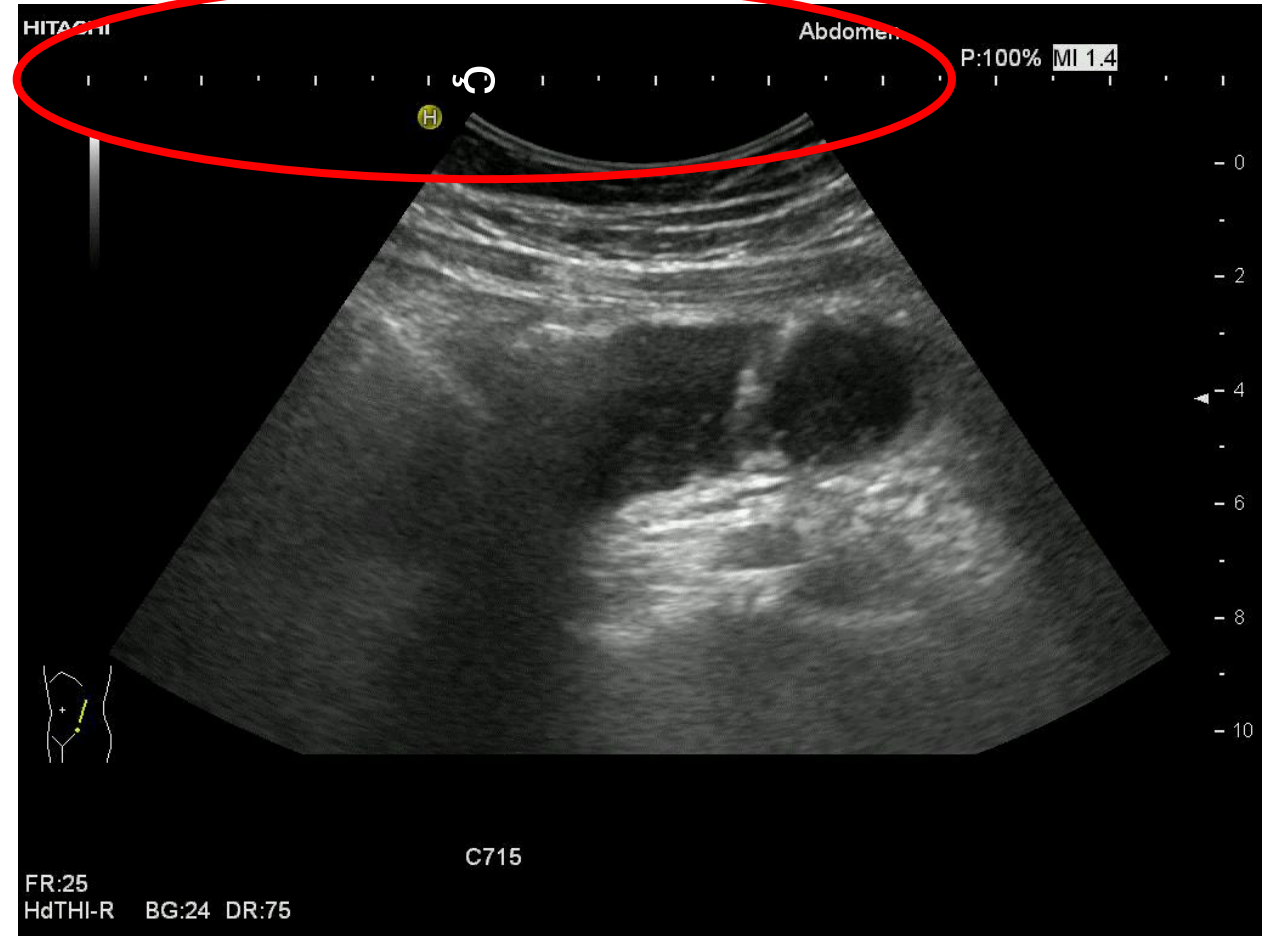
Fasting

- not necessary
- >4 h → reduce amount of food and air in the small bowel
- >6 h → recommended before assessing splanchnic blood flow and GI motility



Prepare the machine – Insert patient's details

- Check patient ID / details
- Save examination when you finish



Ultrasound machine



Monitor

Touchscreen

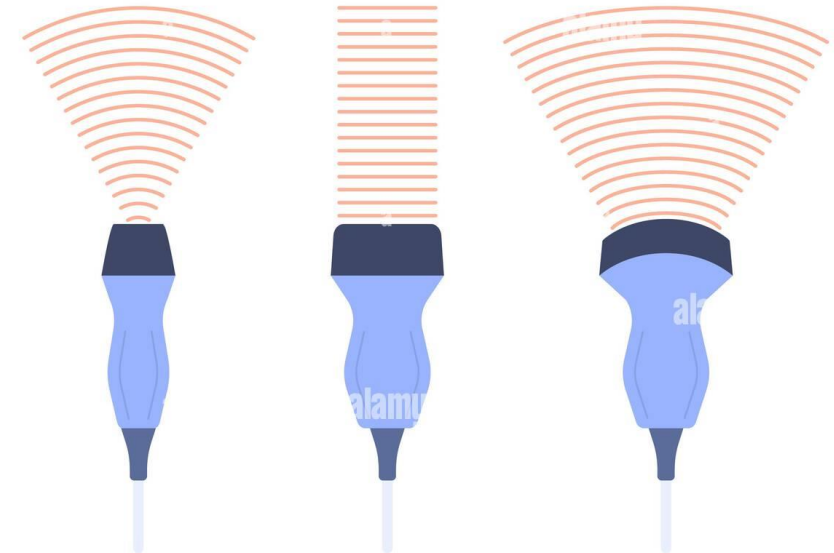
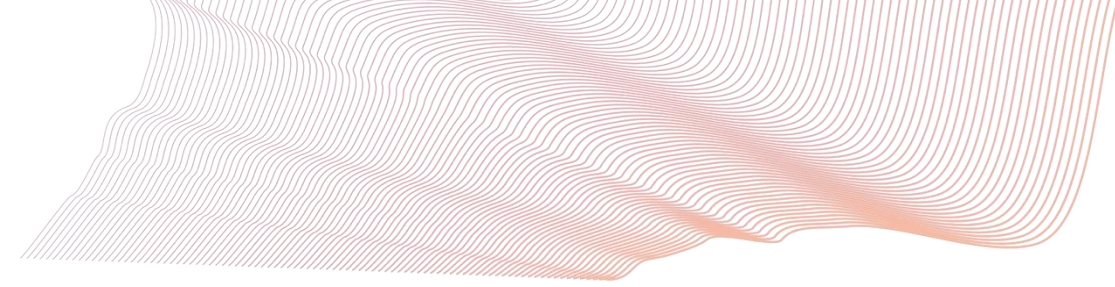
Probes

Control panel

Gel



Ultrasound probes



PHASED ARRAY

LINEAR

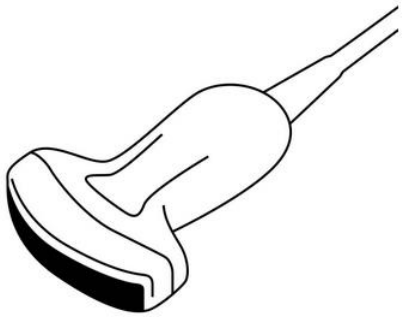
CURVILINEAR

ULTRASOUND PROBE TYPES

Frequency

Properties of the different probes

Low frequency: 1-6 MHz, overview, more depth, less resolution



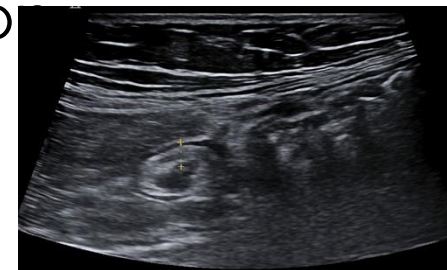
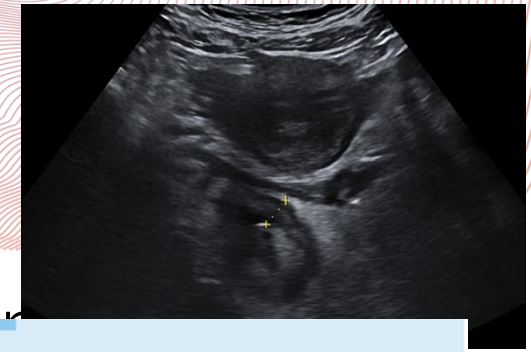
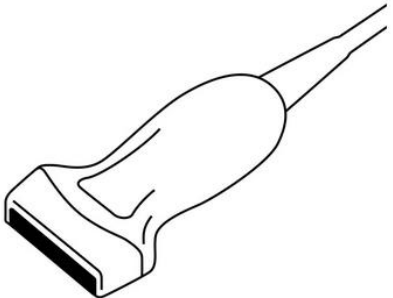
curved array for a larger field, c
pathology

RECOMMENDATIONS:

1. For a complete examination of the bowel both a low and high resolution probe are needed, LoE 5, GoR C, Strong consensus 13/13
2. A probe with a frequency above 5 MHz should be used when measuring wall thickness, LoE 4, GoR B, Strong consensus 13/13

Nylund K et al. EFSUMB Recommendations and Guidelines for Gastrointestinal Ultrasound, Ultraschall Med 2017

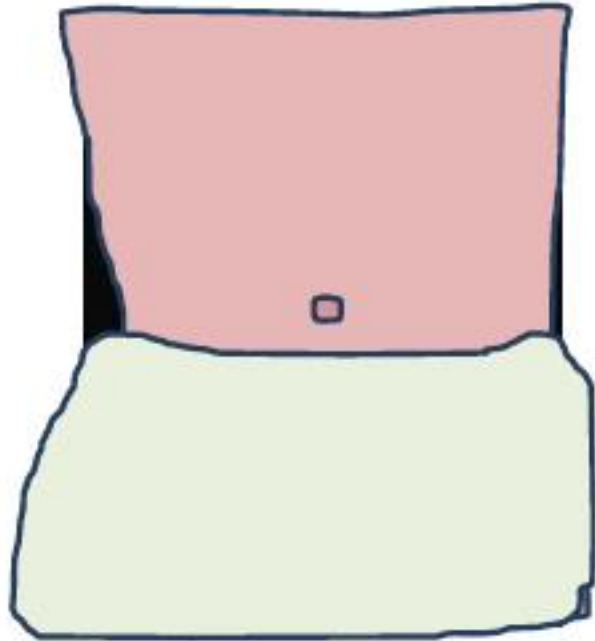
High frequency: > 5MHz (5-10 MHz), only surface accessible (8-10 cm depth penetration), high resolution, detailed examination (discrimination of stratification of the bowel wall)

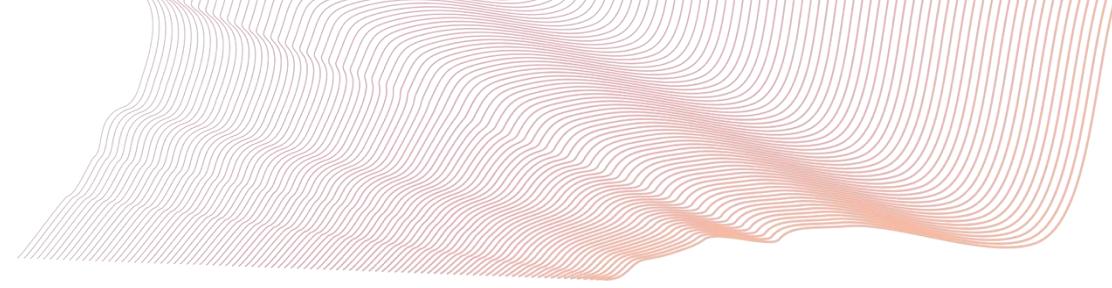


Ultrasound technique



Prepare the patient

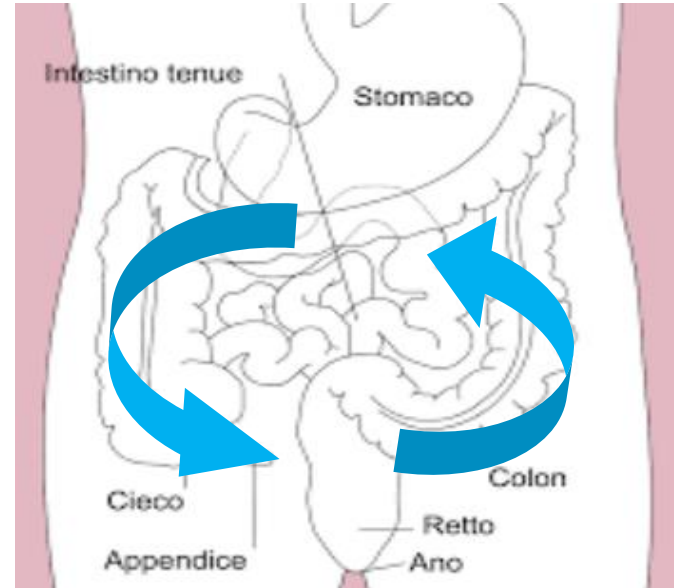




- Expose abdominal area adequately
- Water-based ultrasound gel
- Hold the probe correctly

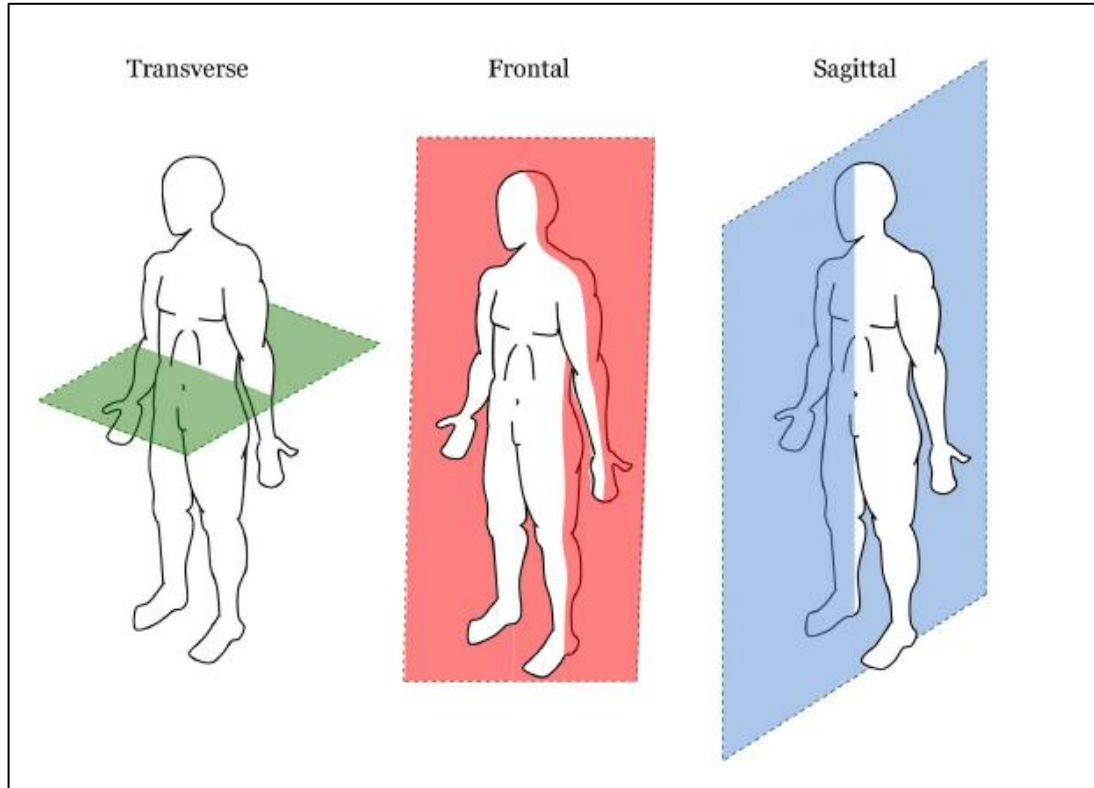


Ultrasound technique

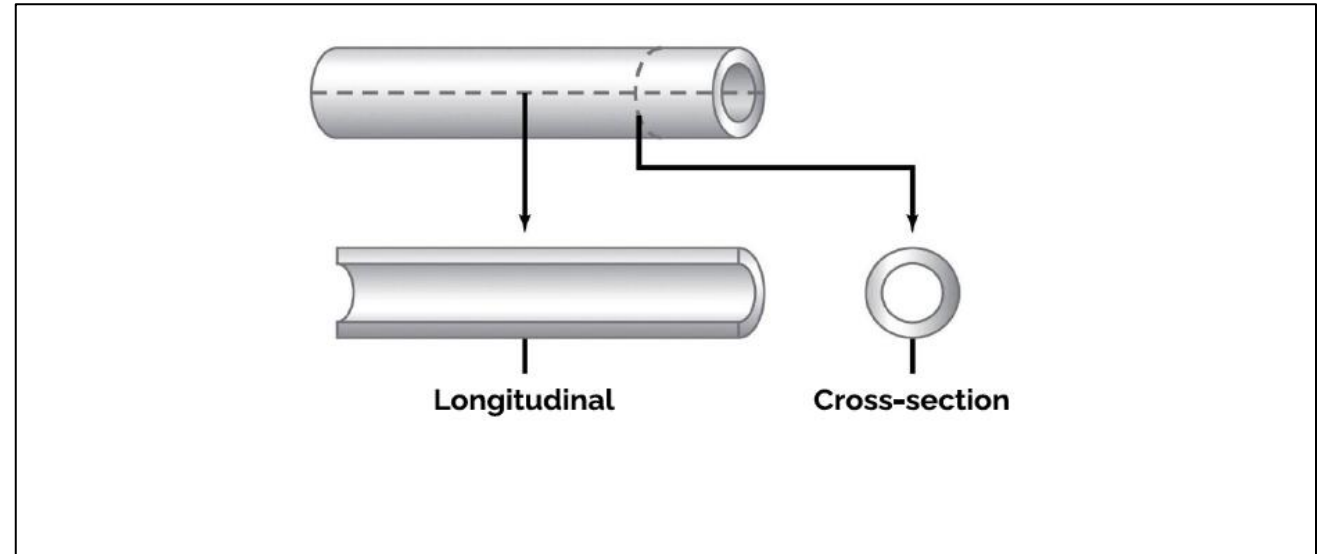


In a segment-wise manner, **all portions** of the bowel are scanned in long and short axes, and images are simultaneously captured to ensure **a continuous assessment**

Scan planes



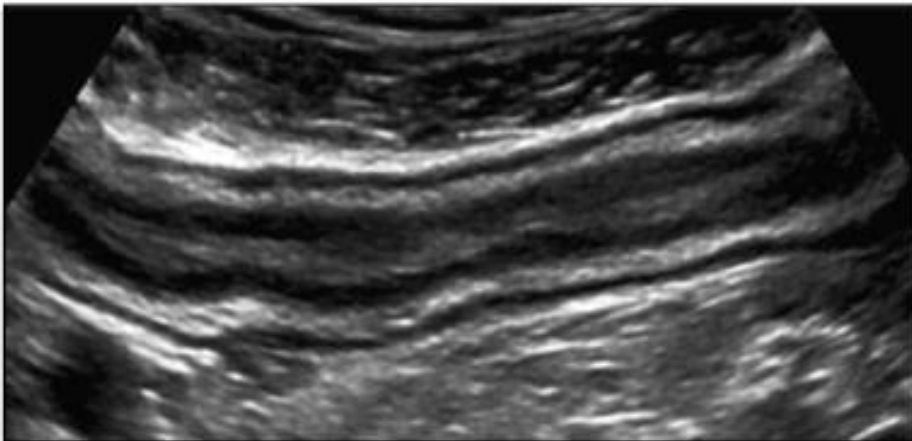
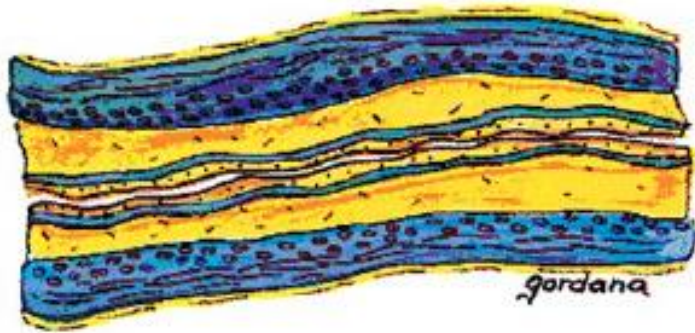
Imaging



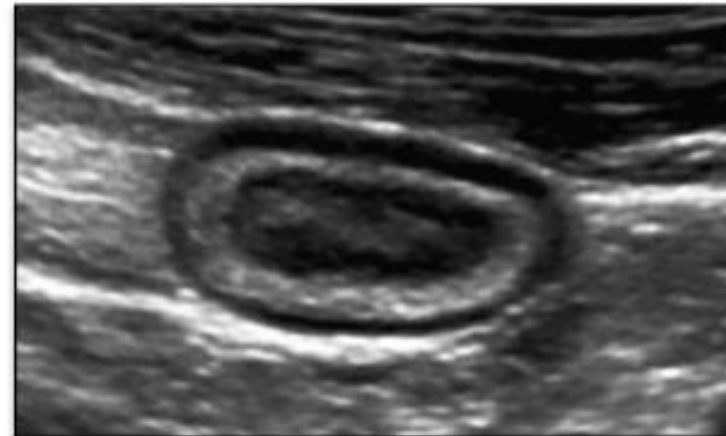
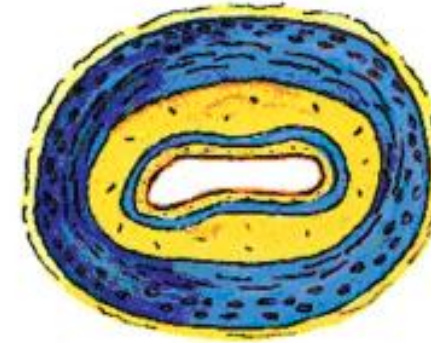
Intestinal ultrasound

Scan planes

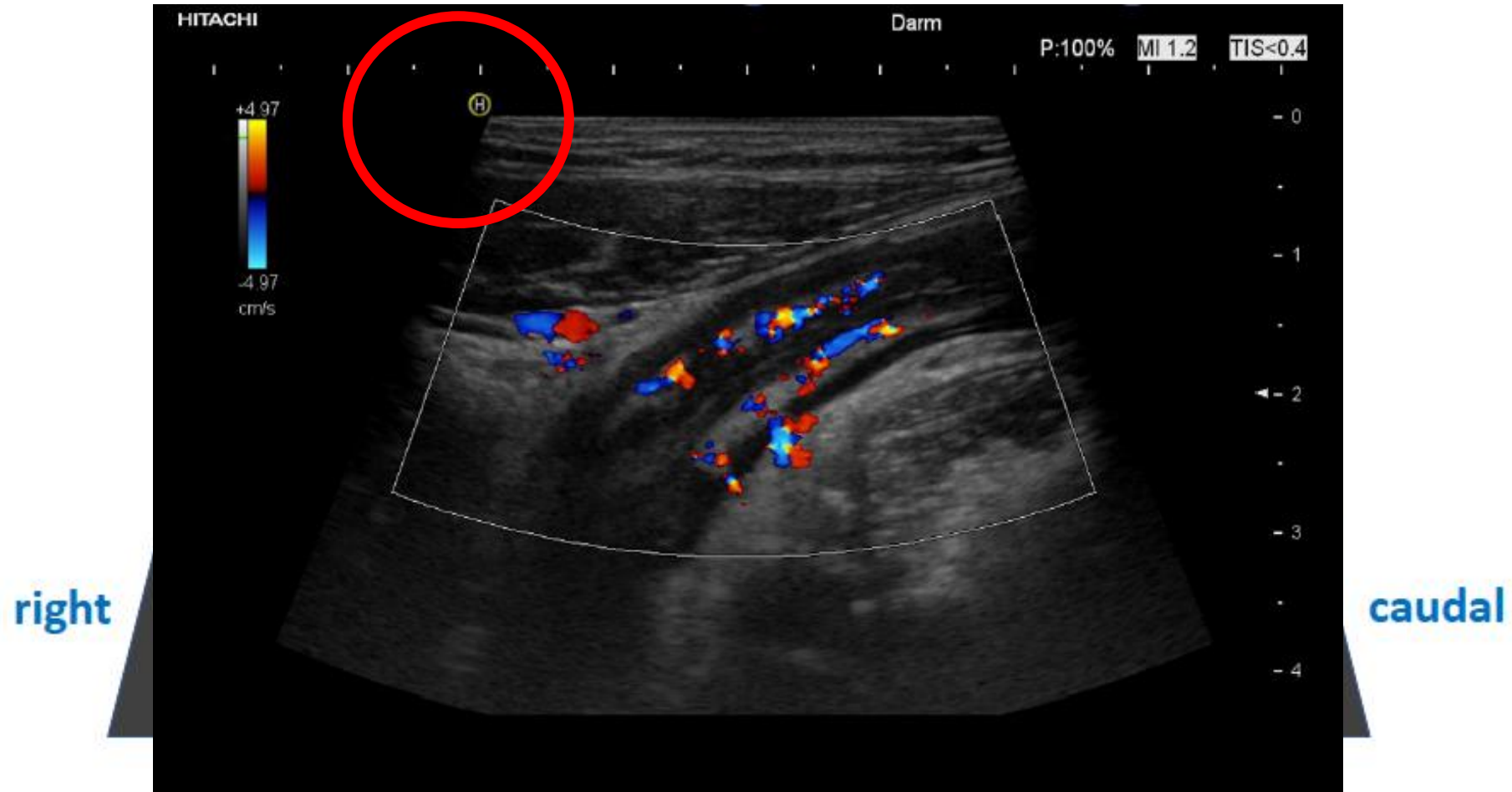
Longitudinal



Cross-section

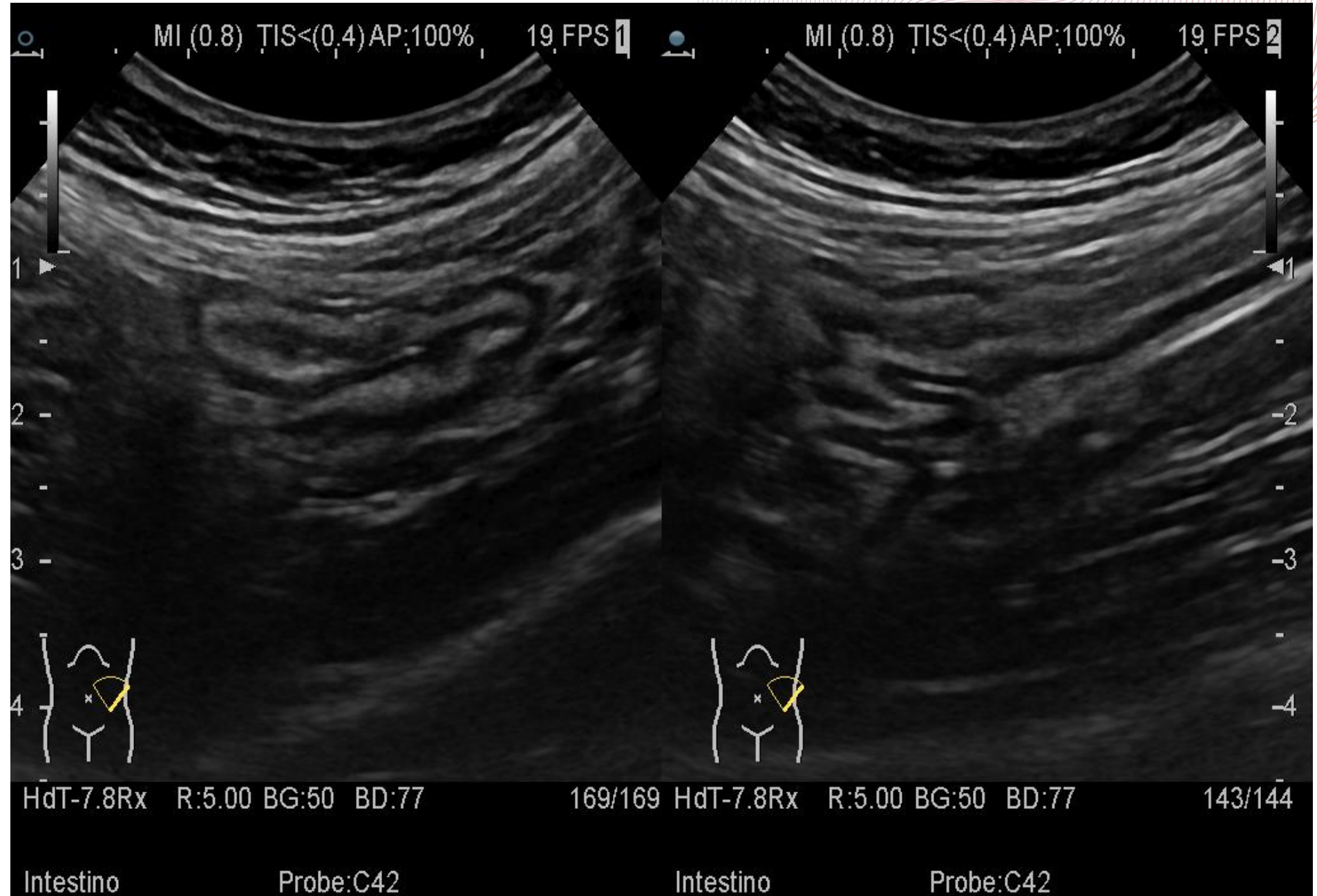


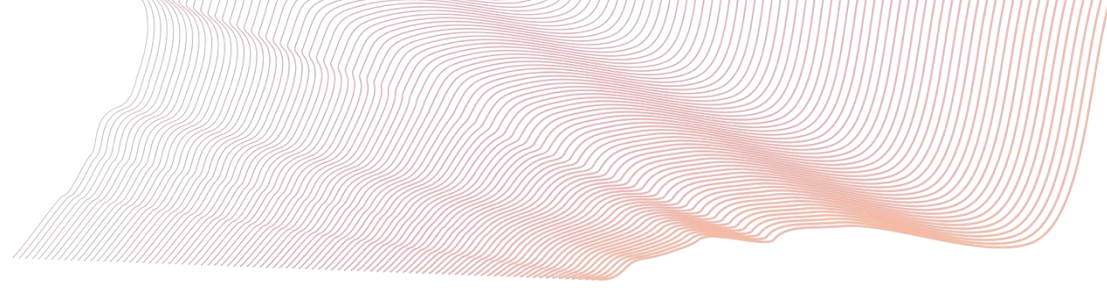
Probe orientation



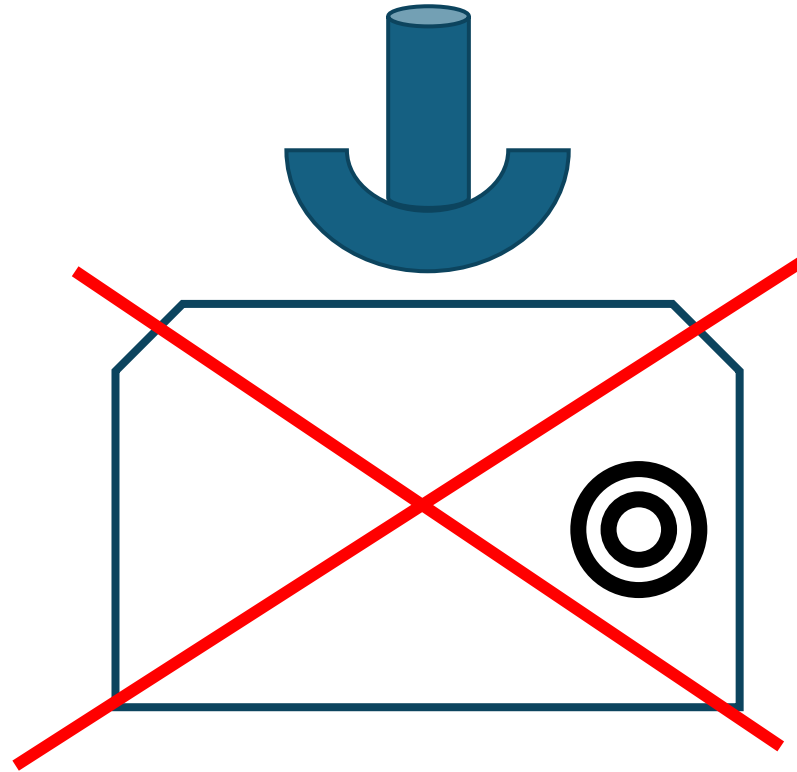
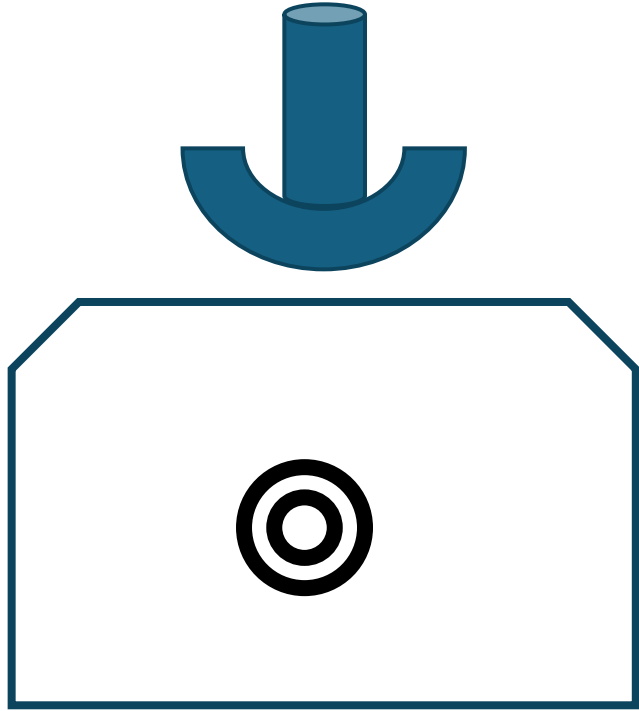
Turning the probe



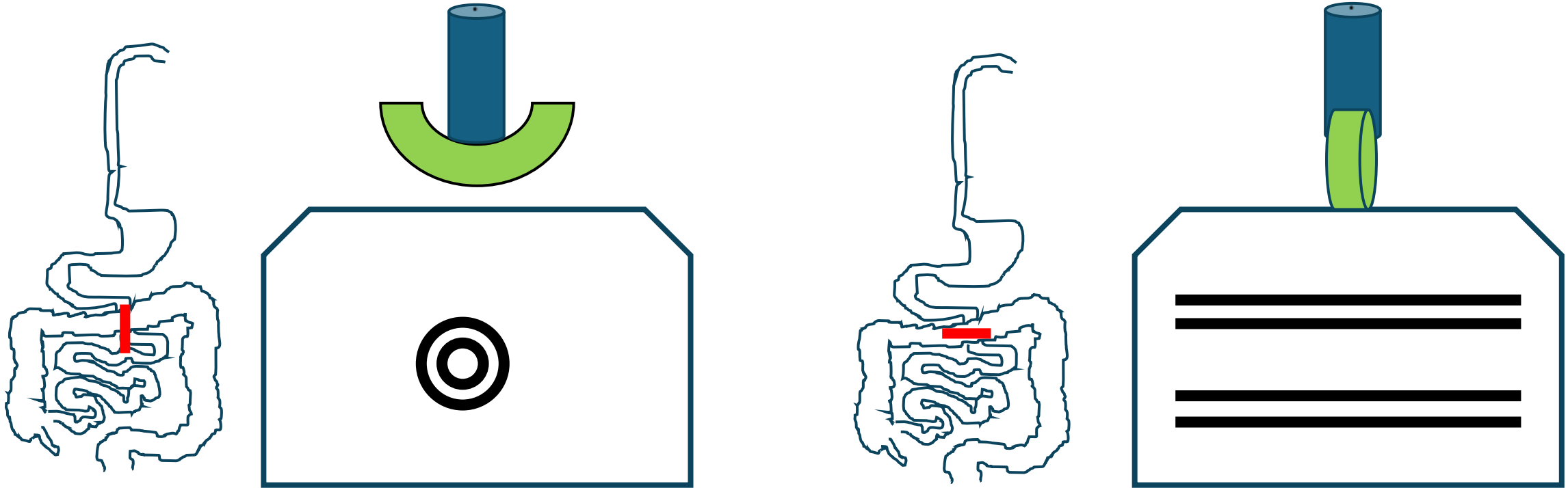




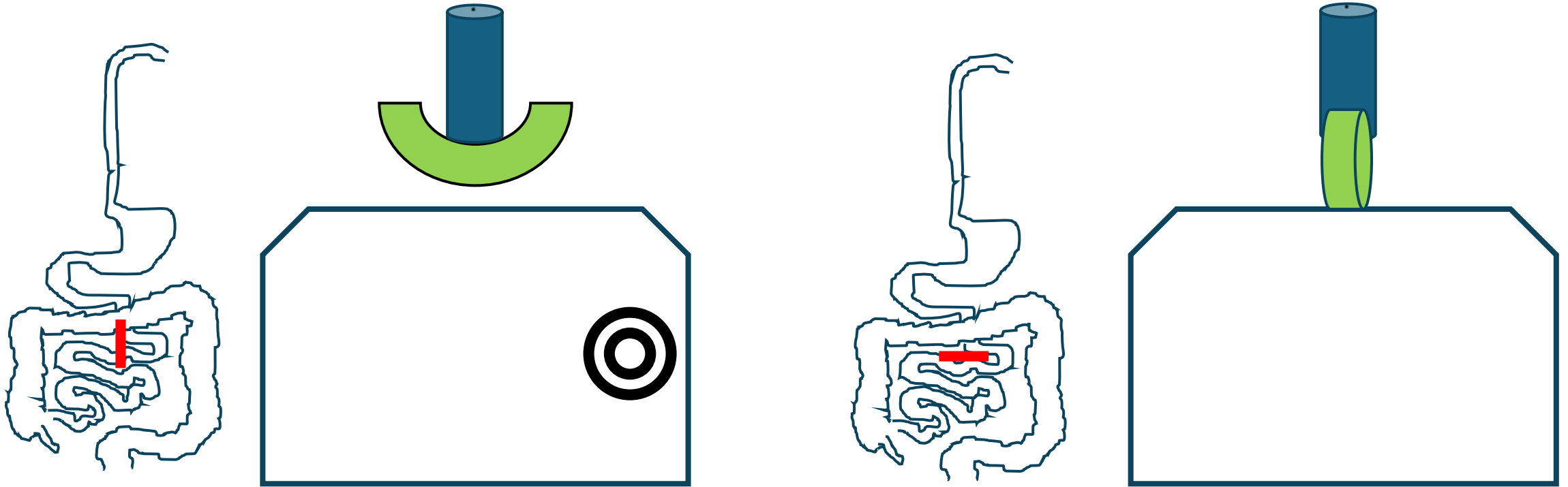
Keep your region of interest in the center



Keep your region of interest in the center

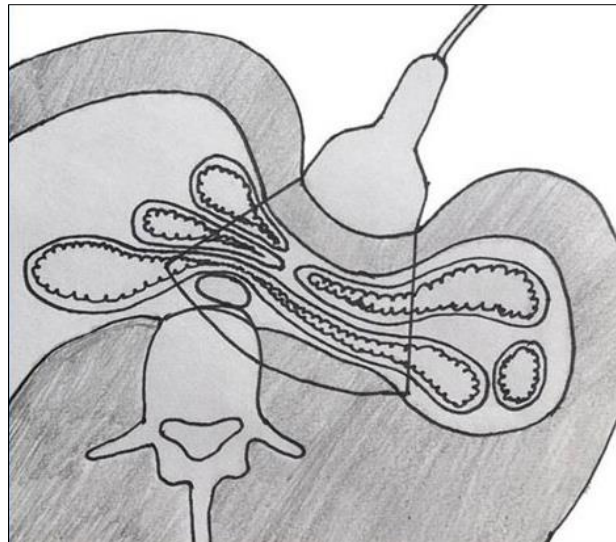
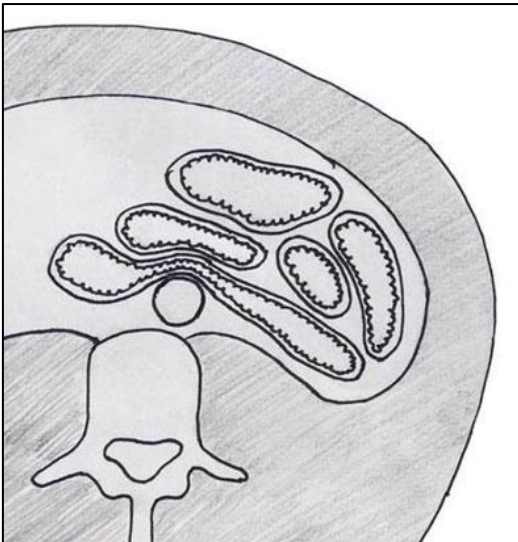


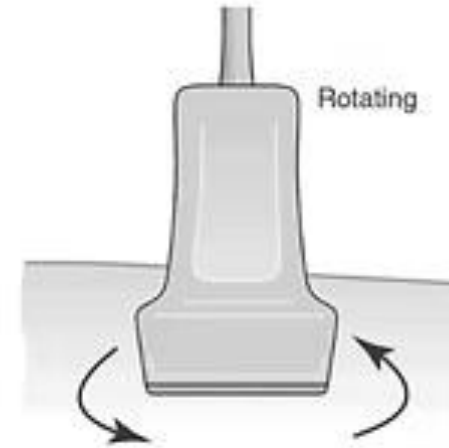
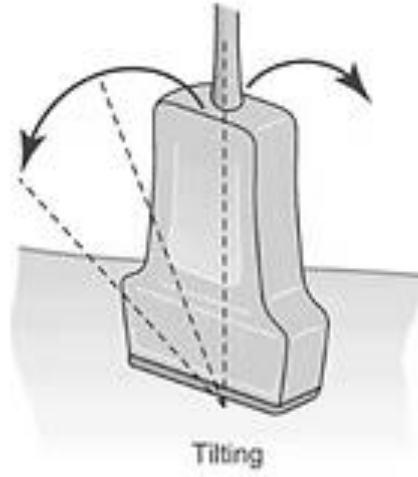
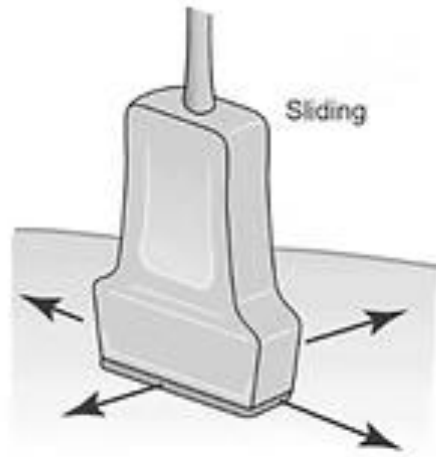
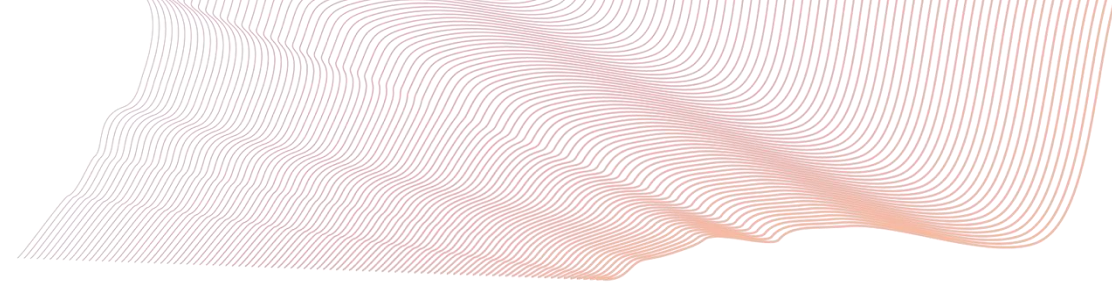
Keep your region of interest in the center



Examination technique

- **Probe movement**
 - set and tilt, not chaotic movement
- **Graded compression method**
 - visualization of deep areas using HF probe





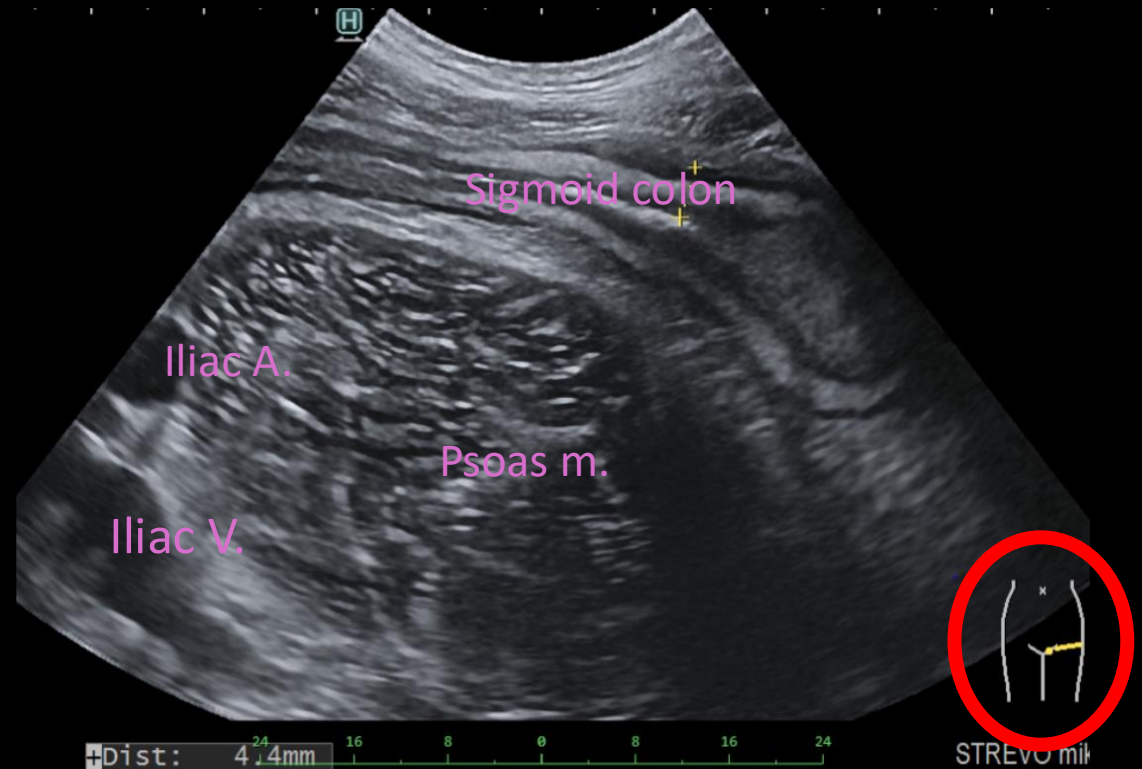
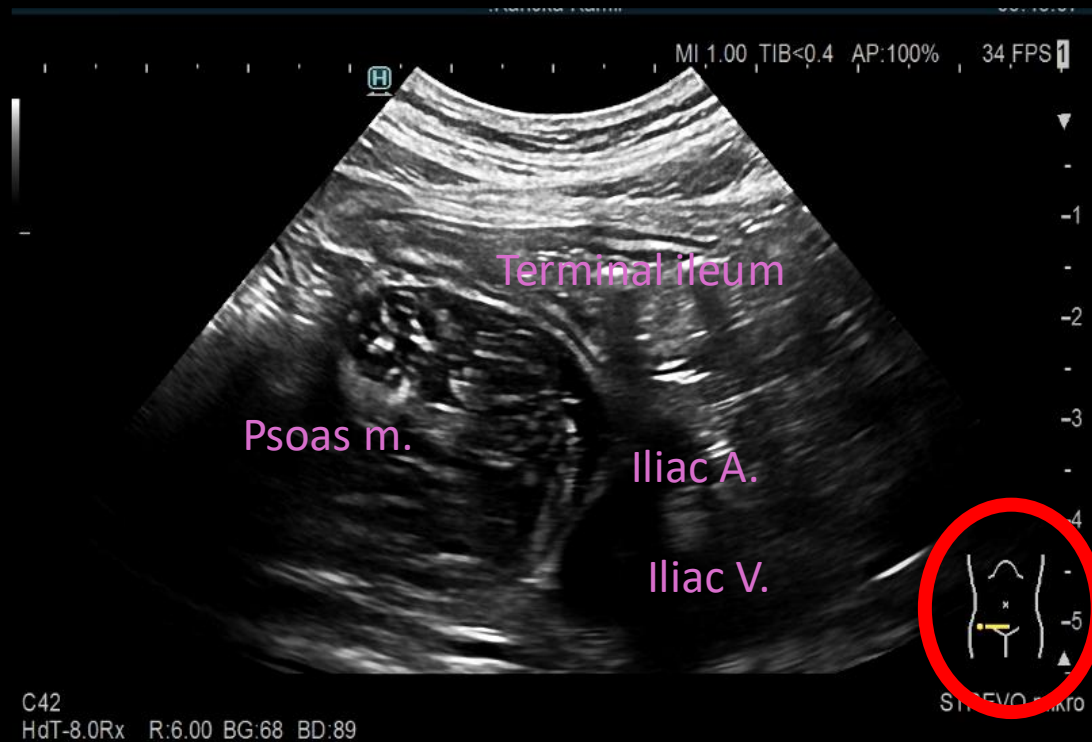
What to look for

- Recognize the different parts of the bowel and surrounding structures
 - **Landmarks!!**
- Normal vs. abnormal bowel wall



Localization of the key anatomy (landmarks)

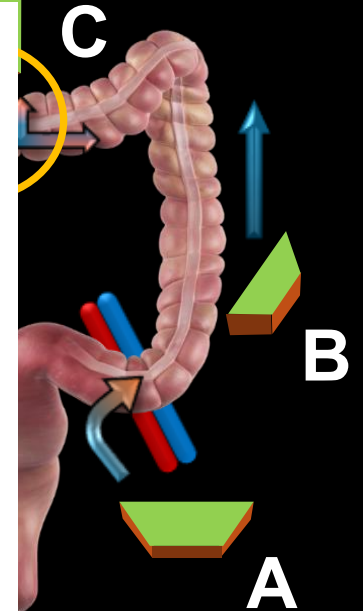
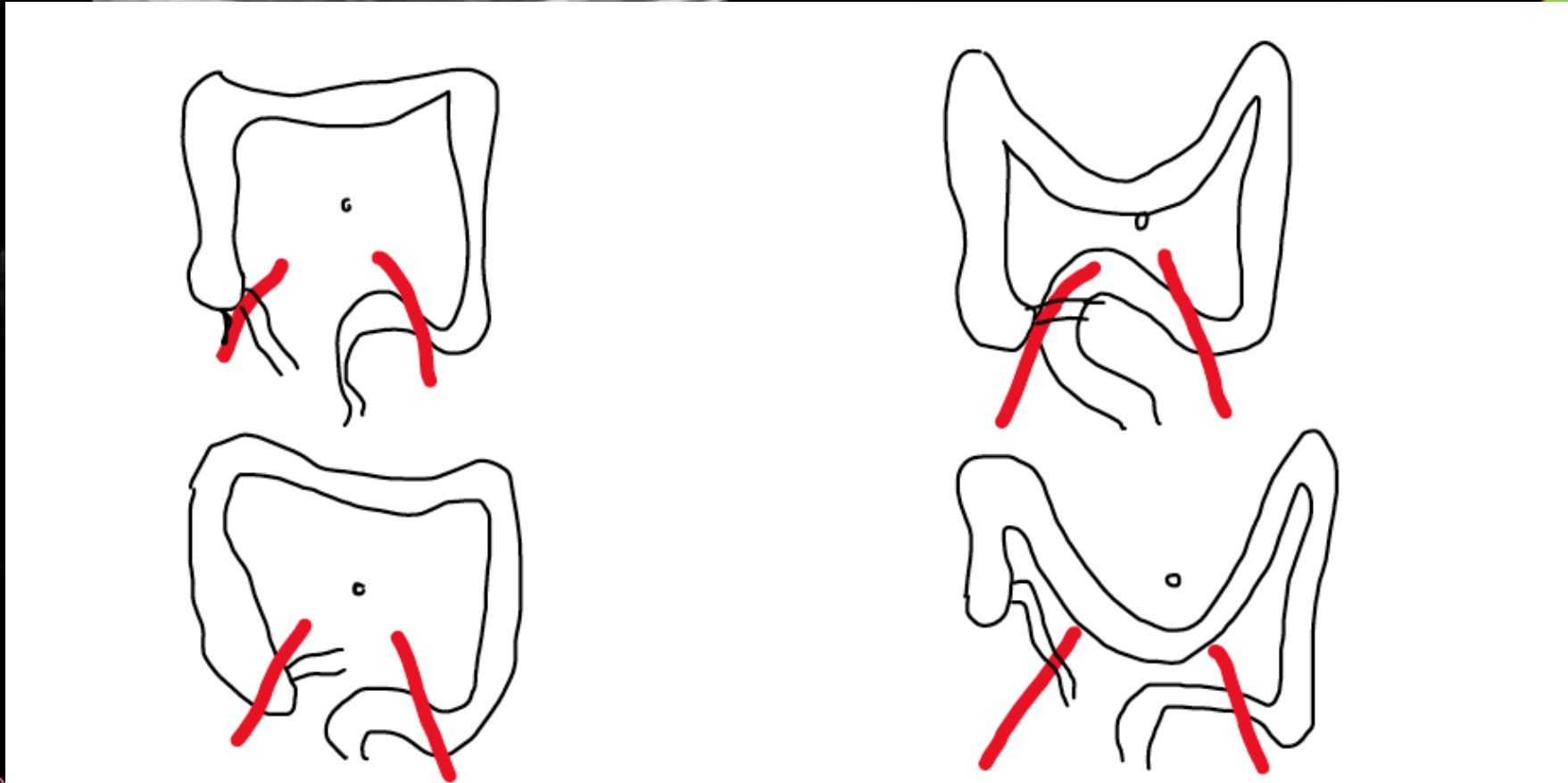
The most important landmarks: iliac vessels and the psoas muscle





Anatomical landmarks in the mid upper andomden – Finding the Transverse

14.11.2023 15:08:06 ADM 9L Darm MI 1.3 TIs 0.8 0-
Se: 12 S8
Lossy compression (JPEG)

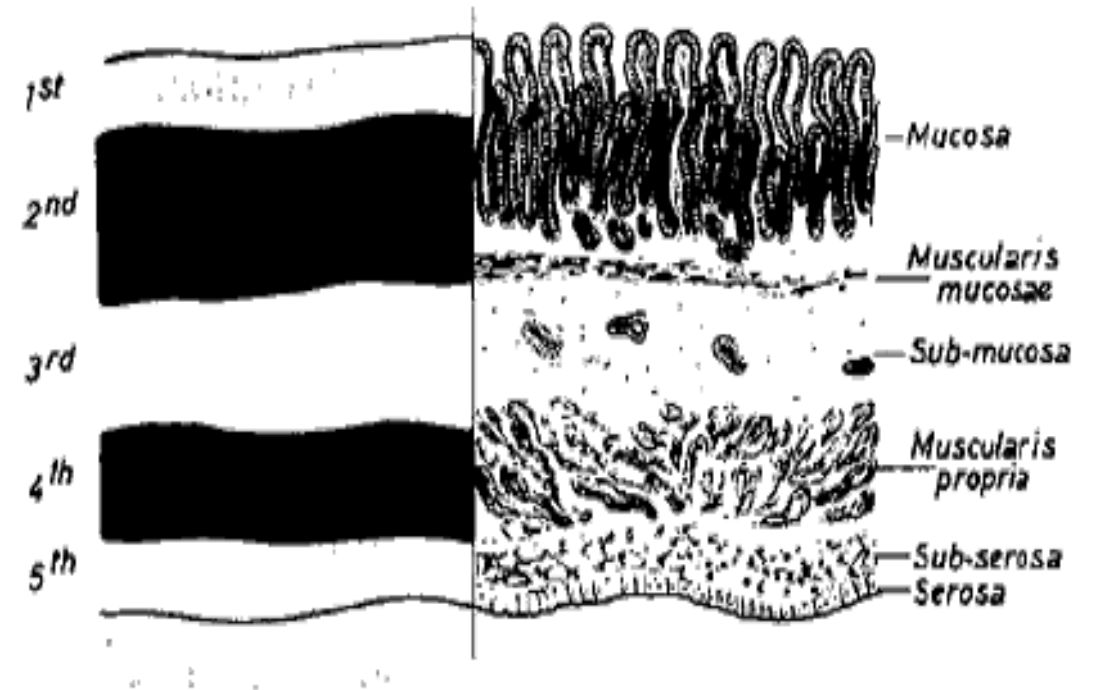
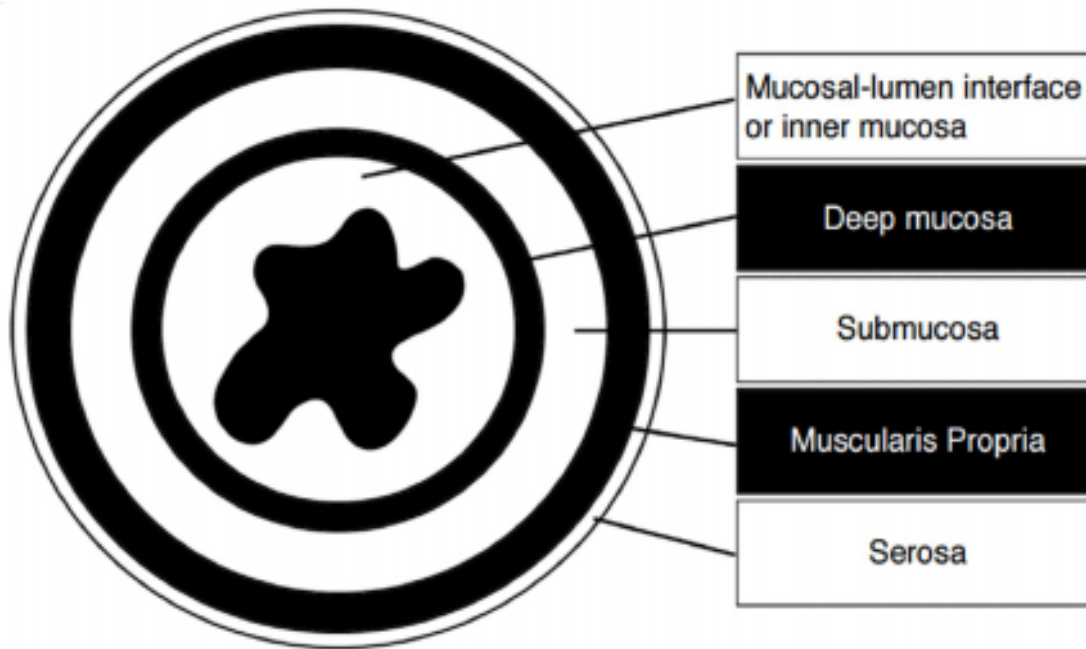


WL: 127 WW: 250 [D]

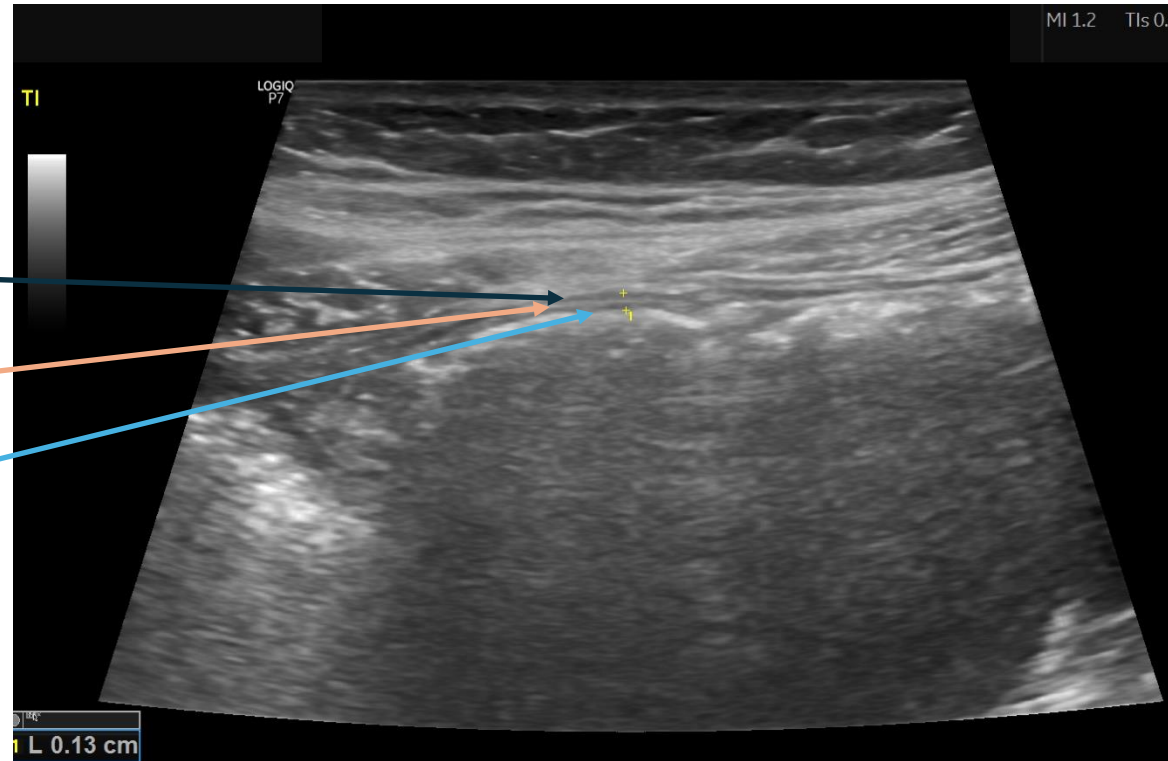
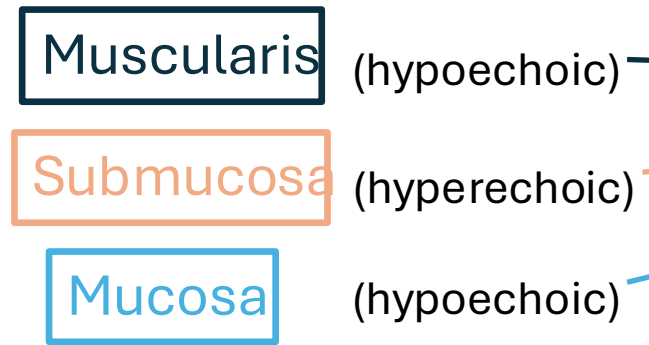
14.11.2023 15:08:06

Normal bowel wall

- 5 distinct sonographic layers



Normal bowel wall in ultrasonography

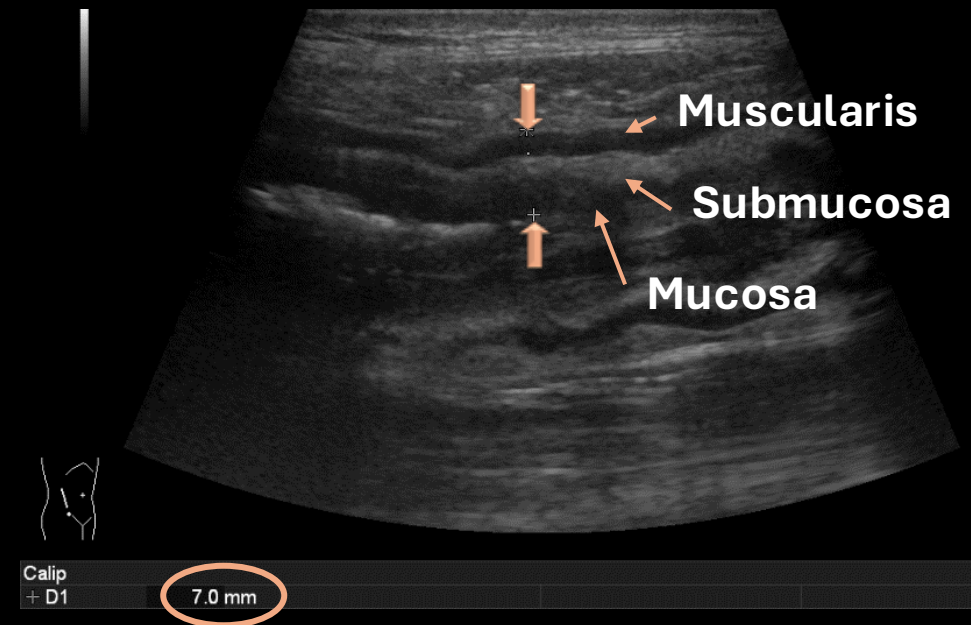
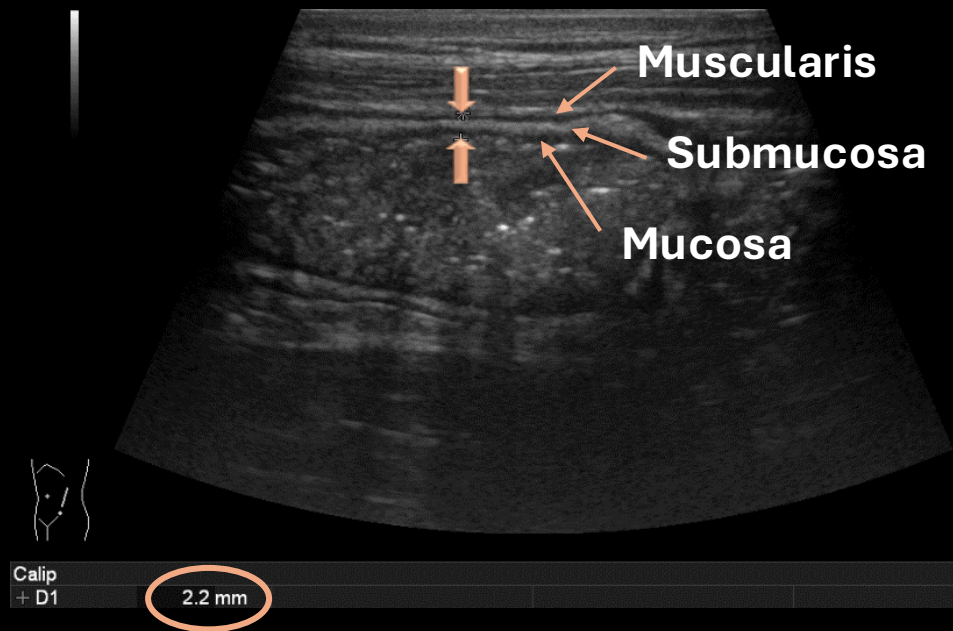


Some practical points:

- Interface echo of serosa mixed in with interface from peritoneum
- Posterior bowel wall often not possible to see due to air in the lumen → **Measurements in anterior wall!**
- Measure from mucosal hypoechoic layer to muscularis hypoechoic layer
- Avoid measuring at points of haustrations and mucosal folds (overestimation!)
- Keep probe perpendicular to GI wall



Bowel wall thickness (BWT)

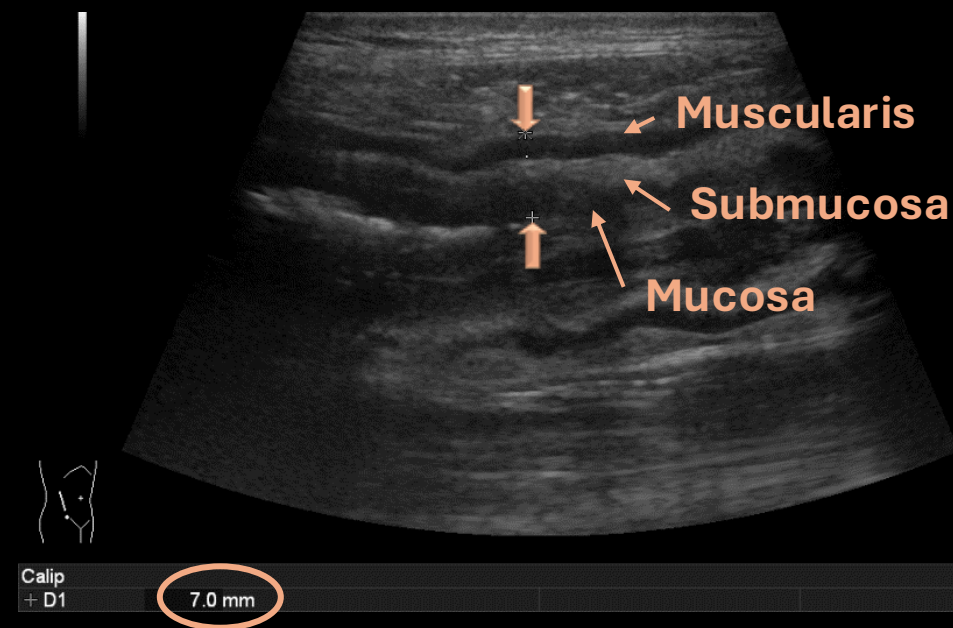
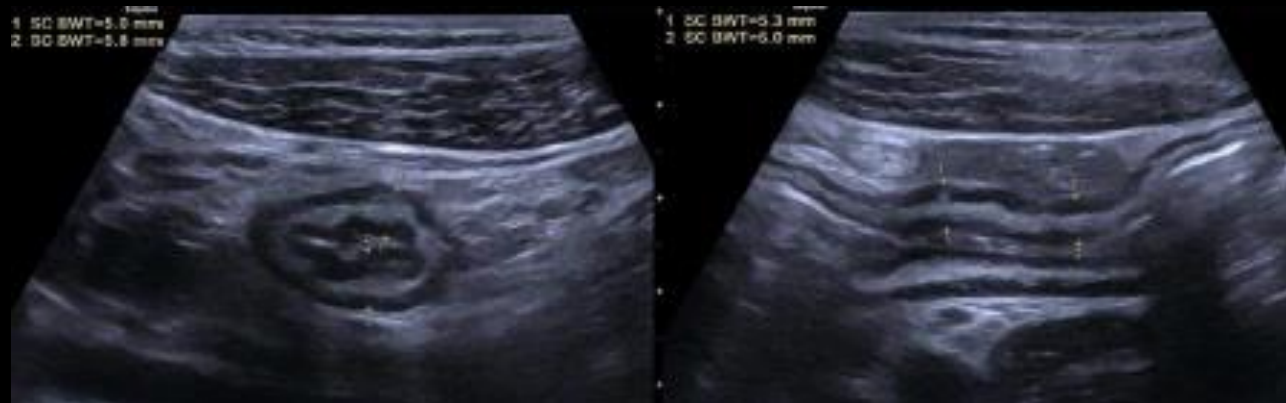
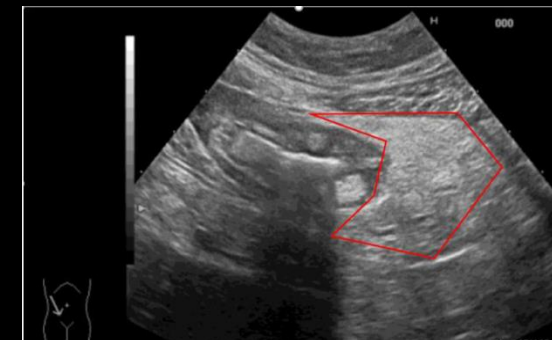
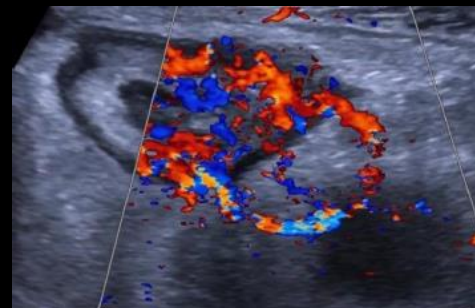


*Measure at right angles to bowel wall layers.



Parameters

- ✓ BWT
- ✓ Stratification
- ✓ Vascularization
- ✓ Margins
- ✓ Austra
- ✓ Motility
- ✓ Mesentery
- ✓ Lymph nodes
- ✓ Free fluid



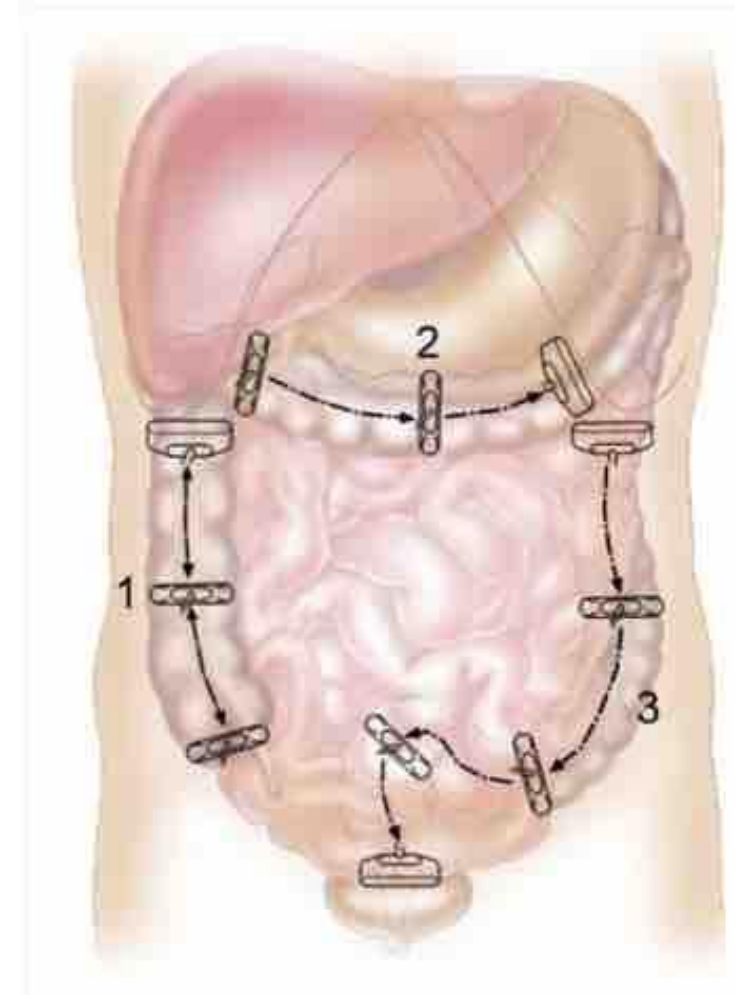
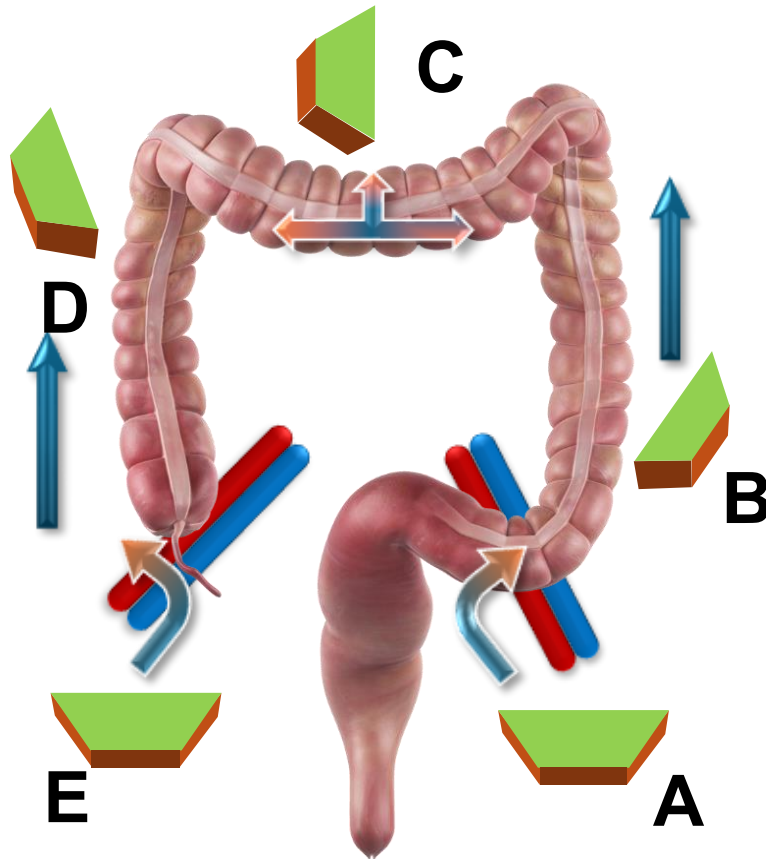
Examination technique – Systematic

RECOMMENDATIONS:

10. The scanning of the intestines must involve a systematic approach, LoE 5, GoR C. Strong consensus 12/12

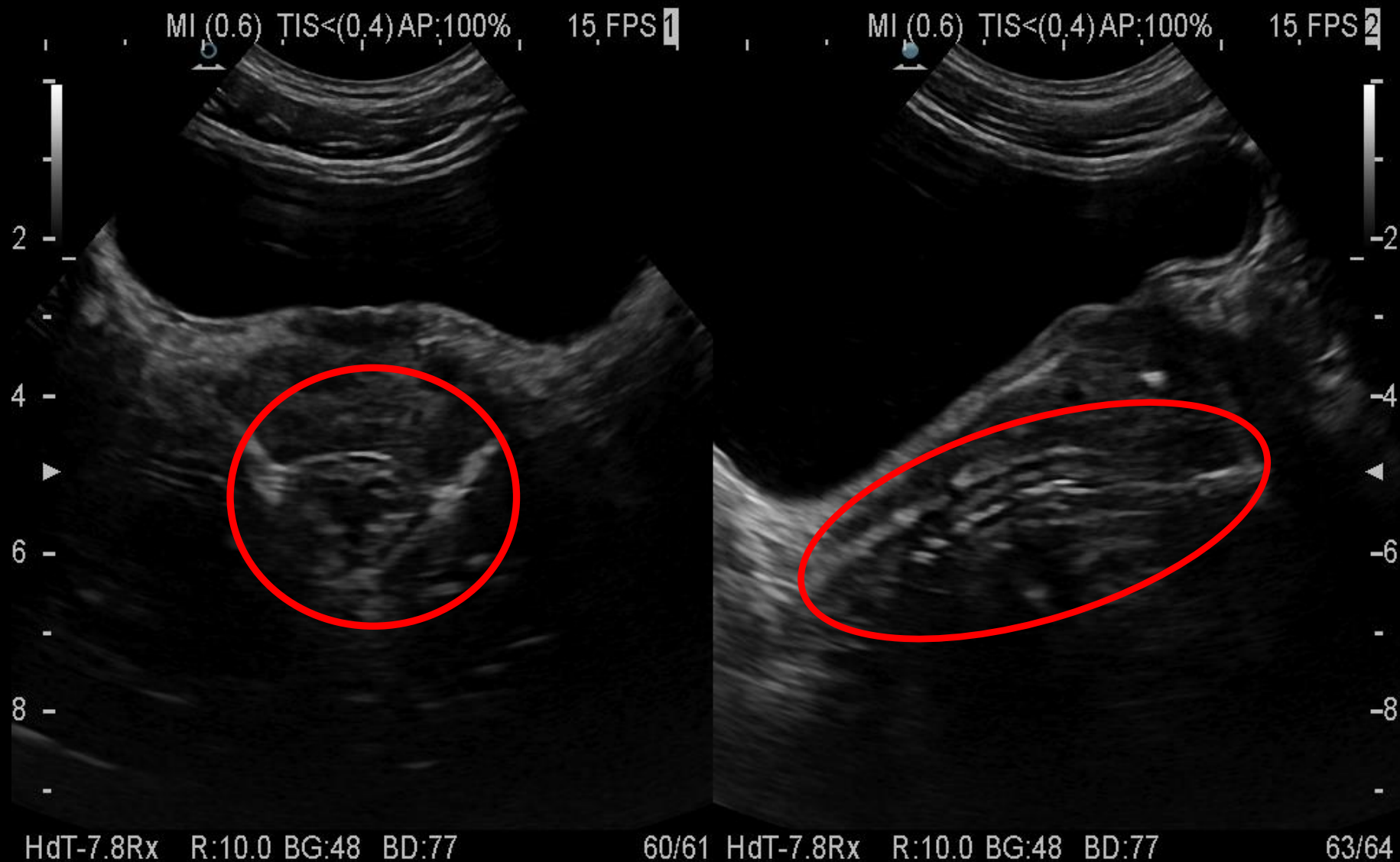
Rectum → Sigmoid → Descending → Transverse → Ascending → Cecum
→ Terminal Ileum
→ Small bowel

Colon



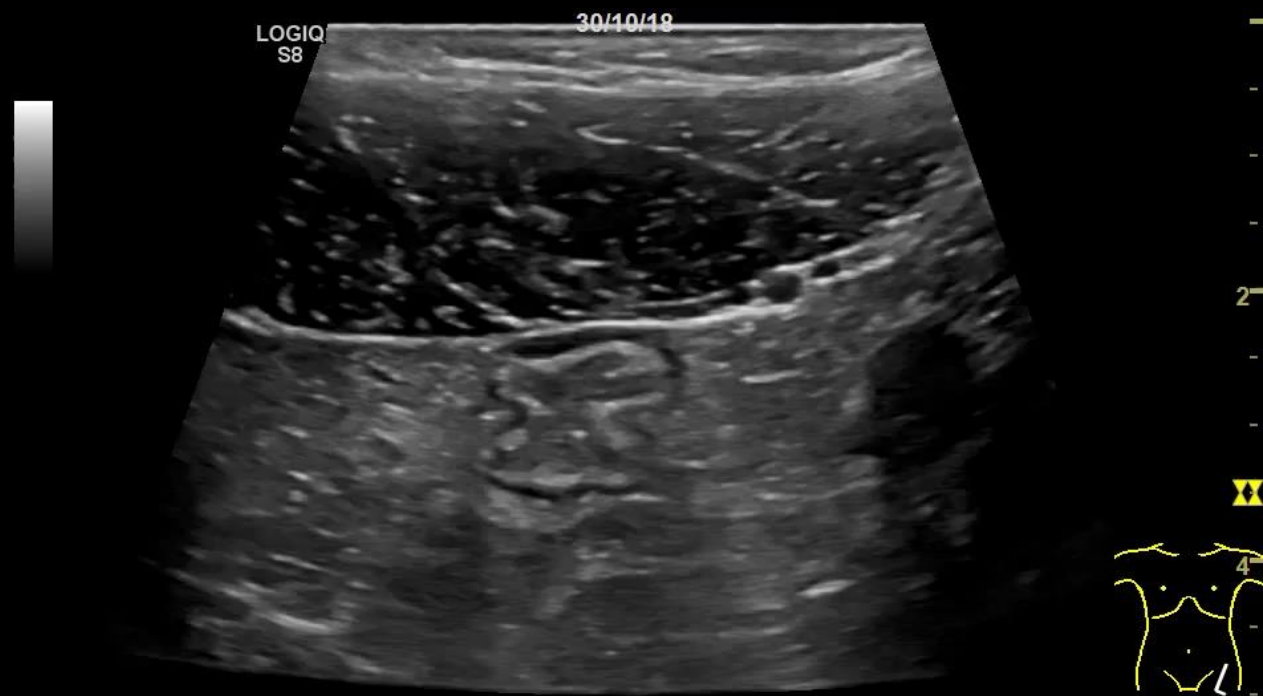


Rectum



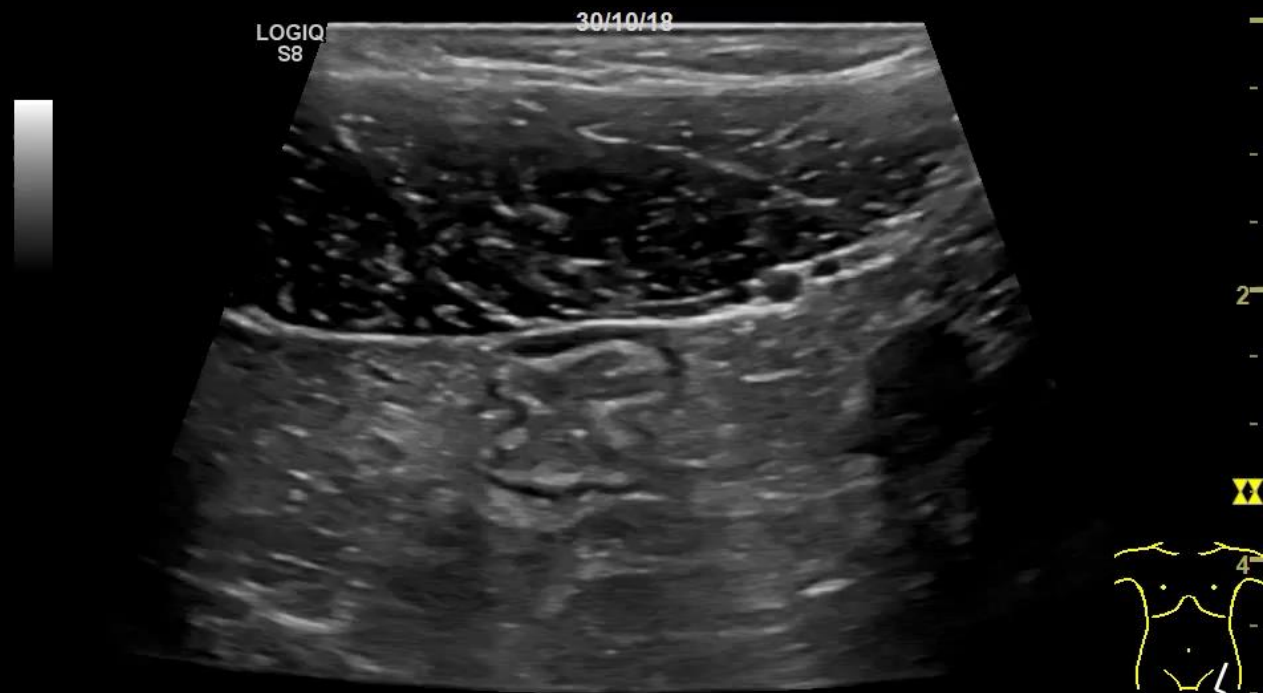


Sigmoid Colon





Sigmoid Colon



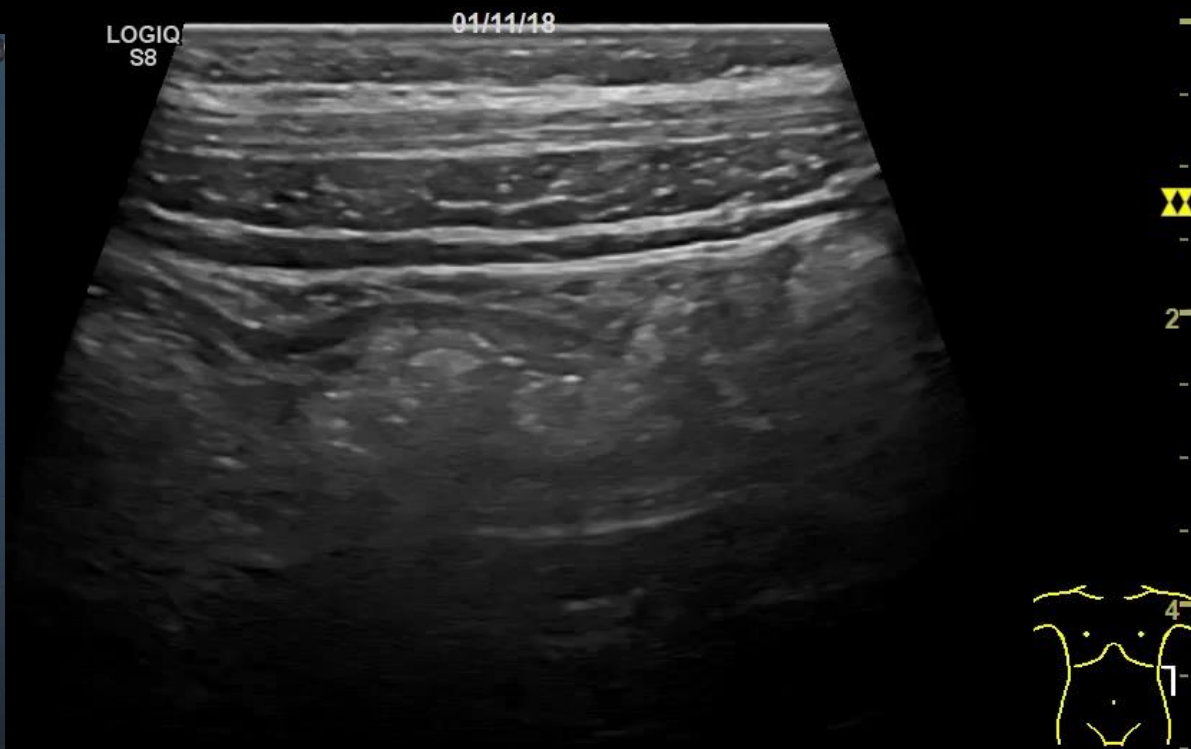


Descending colon



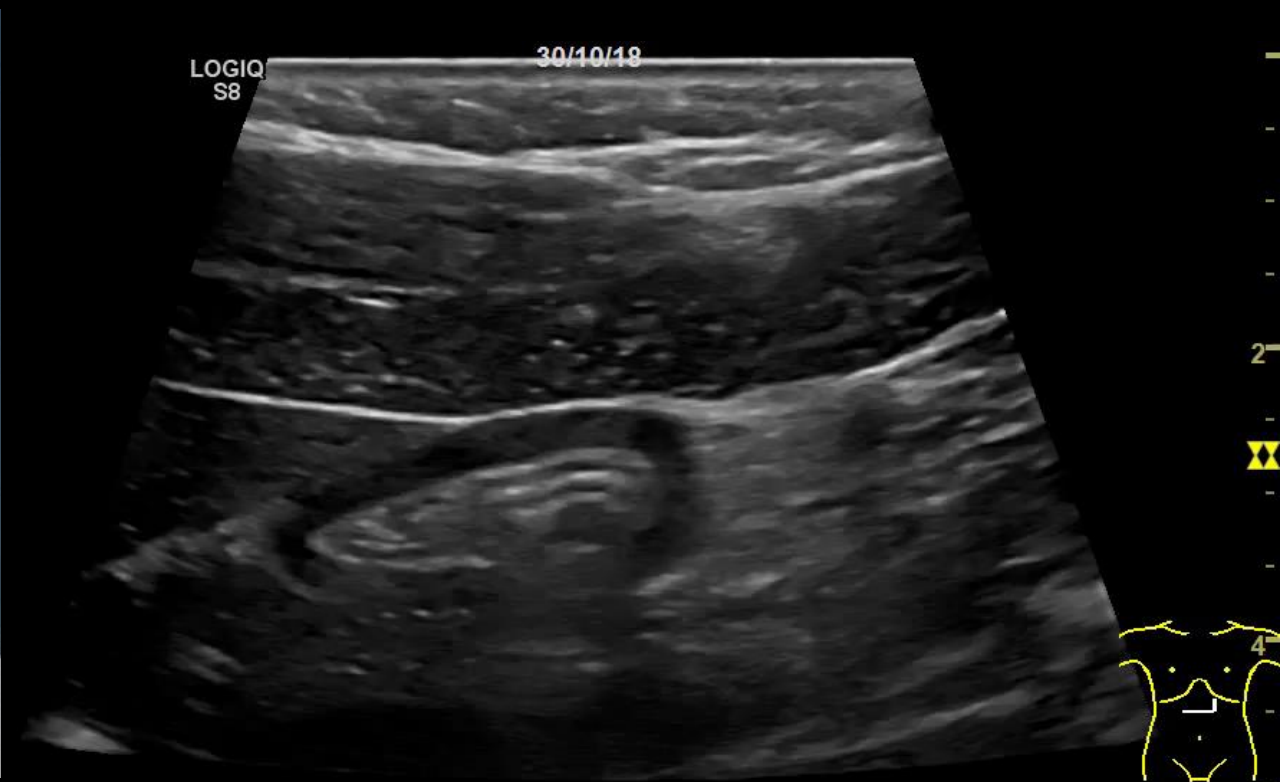
LOGIQ
S8

01/11/18



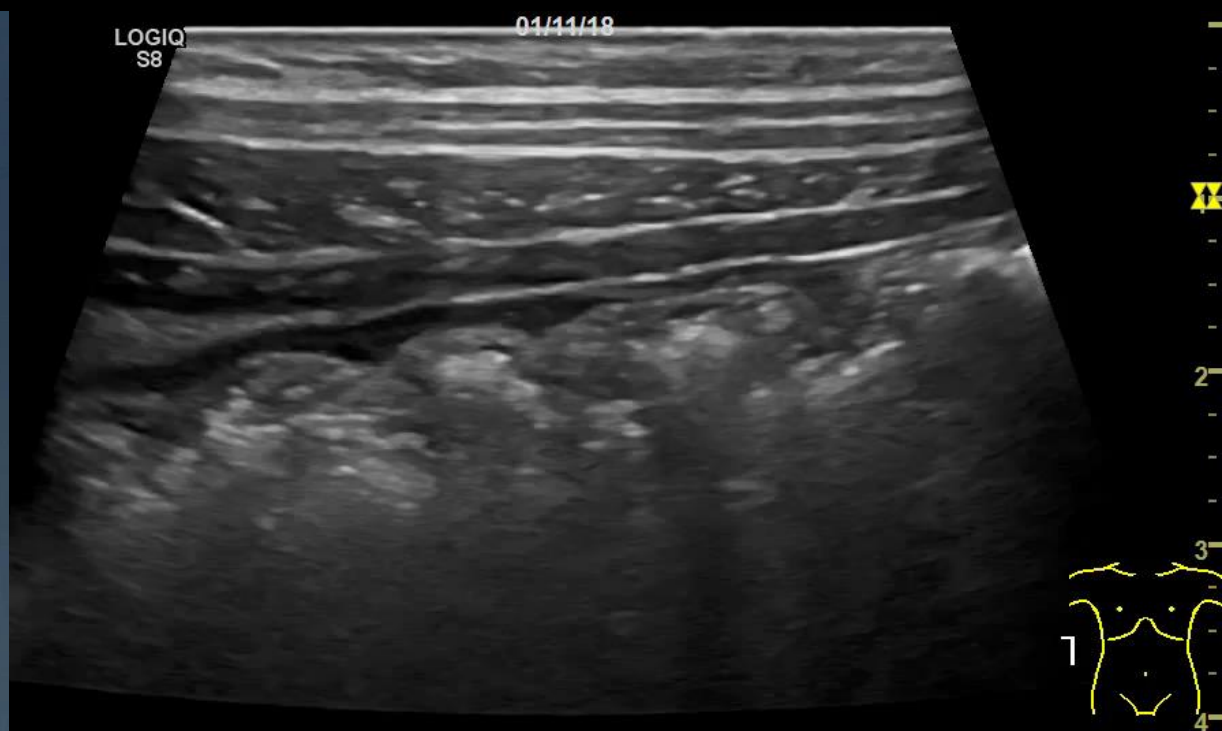


Transverse colon



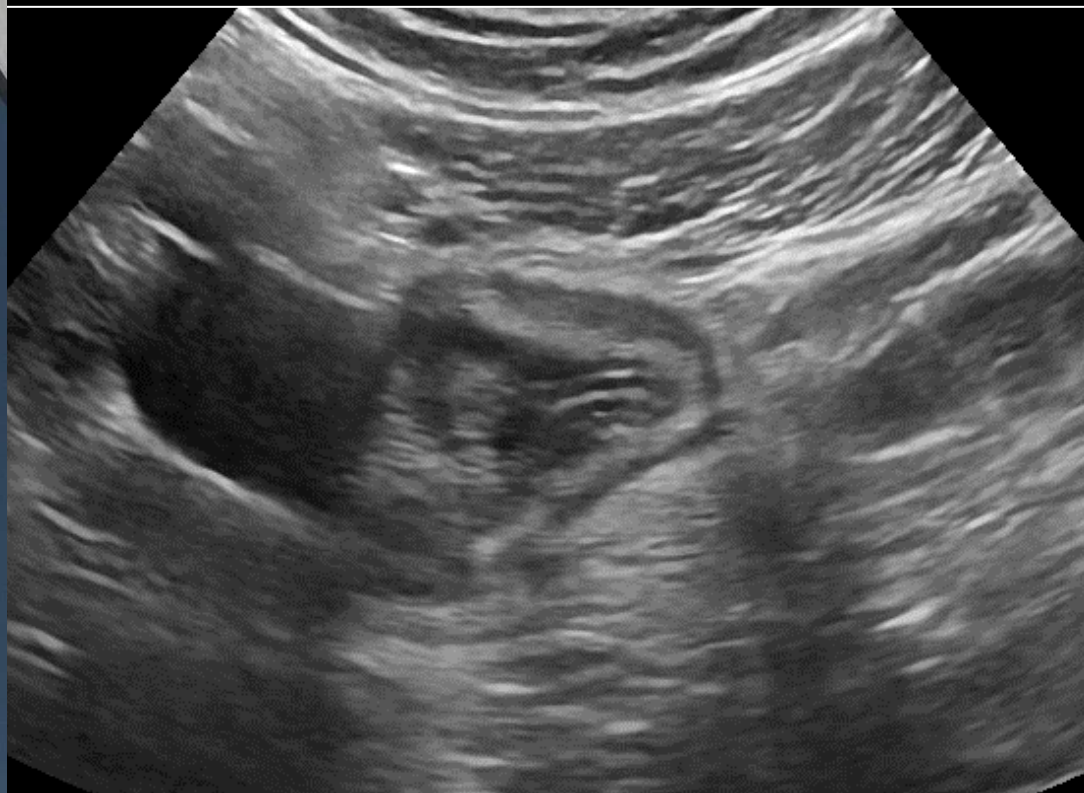


Ascending colon





Terminal ileum

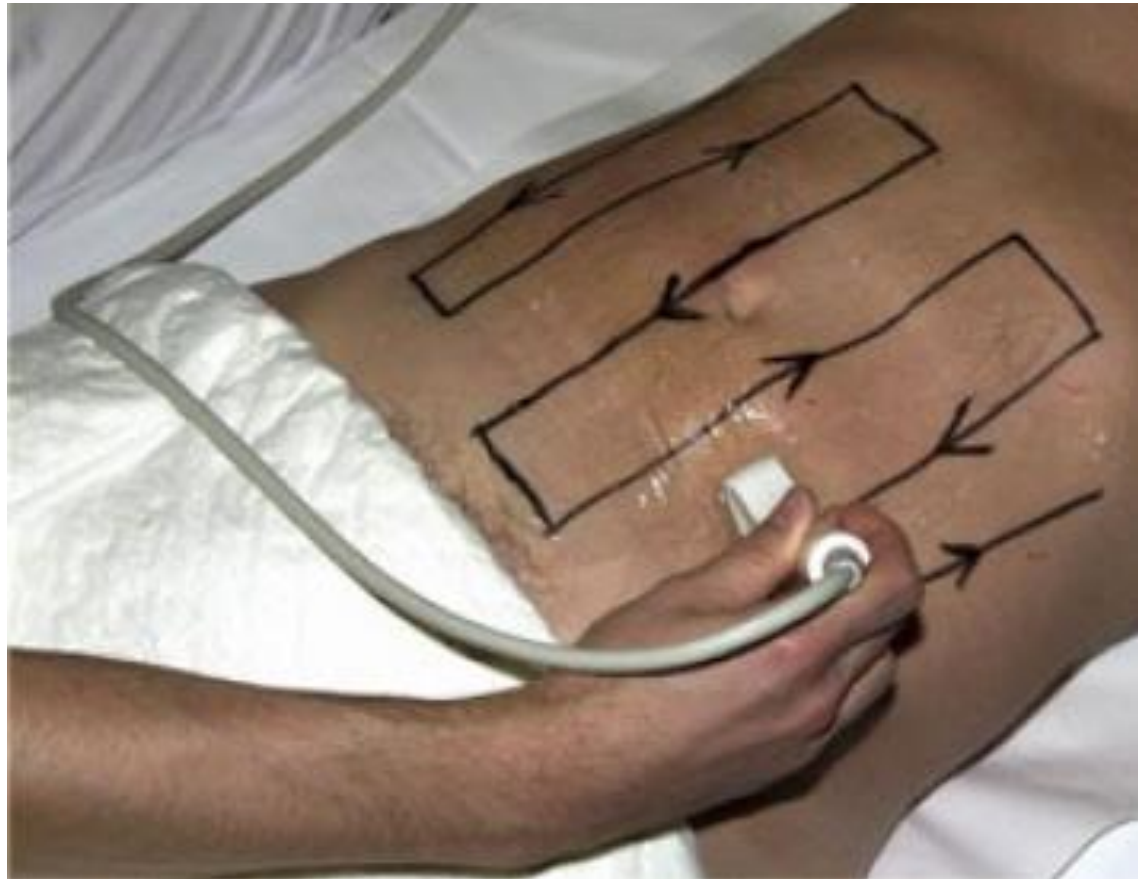


Examination technique

Systematic approach

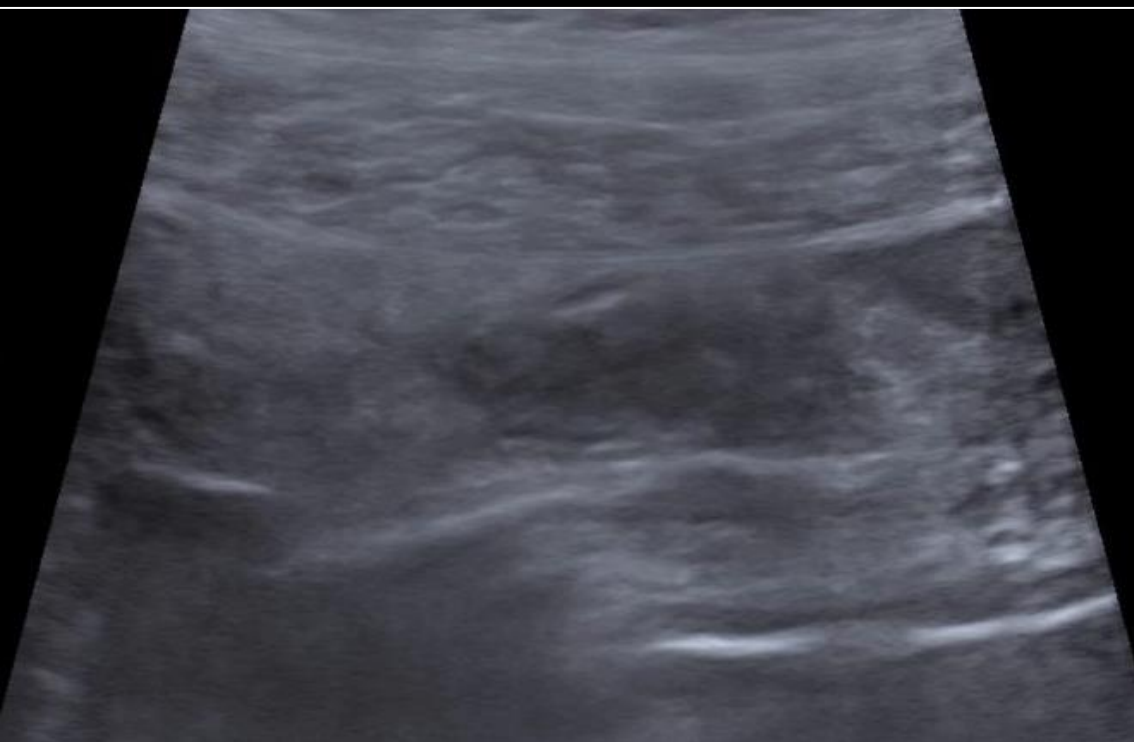
- Small bowel

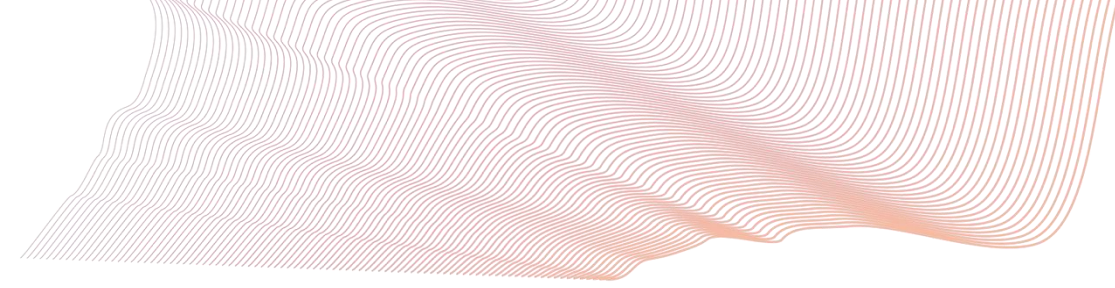
“mowing the lawn” technique





Differentiation between small and large bowel on IUS





Take home messages

- ✓ Preparation: none
- ✓ Probe 5-8 MHz
- ✓ orientation
- ✓ know what to look for
- ✓ anatomical landmarks
- ✓ ultrasound scan plans
- ✓ systematic approach



Thank you

