



Dr Anna Colclough

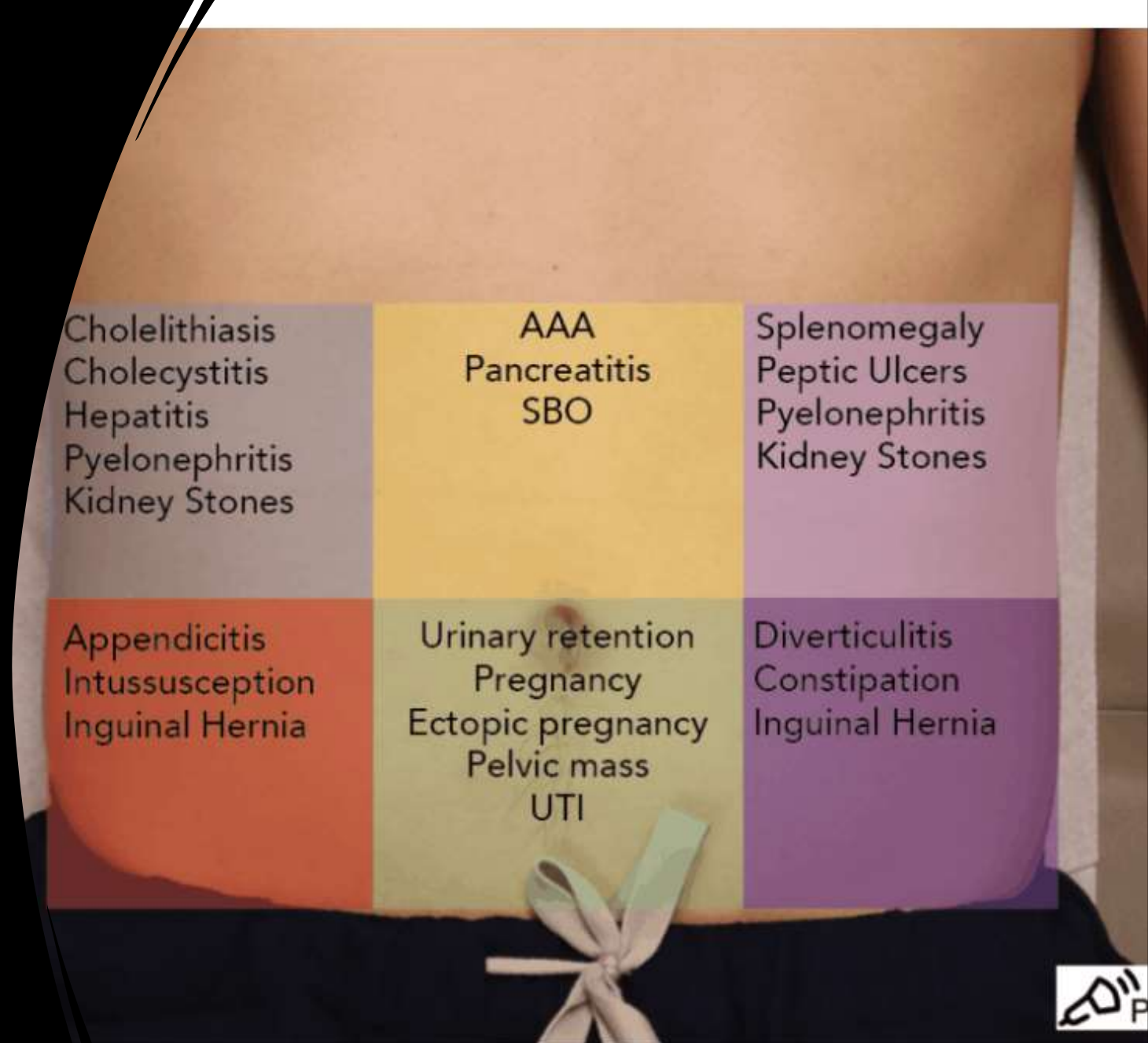
Consultant in Emergency Medicine

Lewisham Hospital

GASTROINTESTINAL POCUS

Poke the Paunch with POCUS

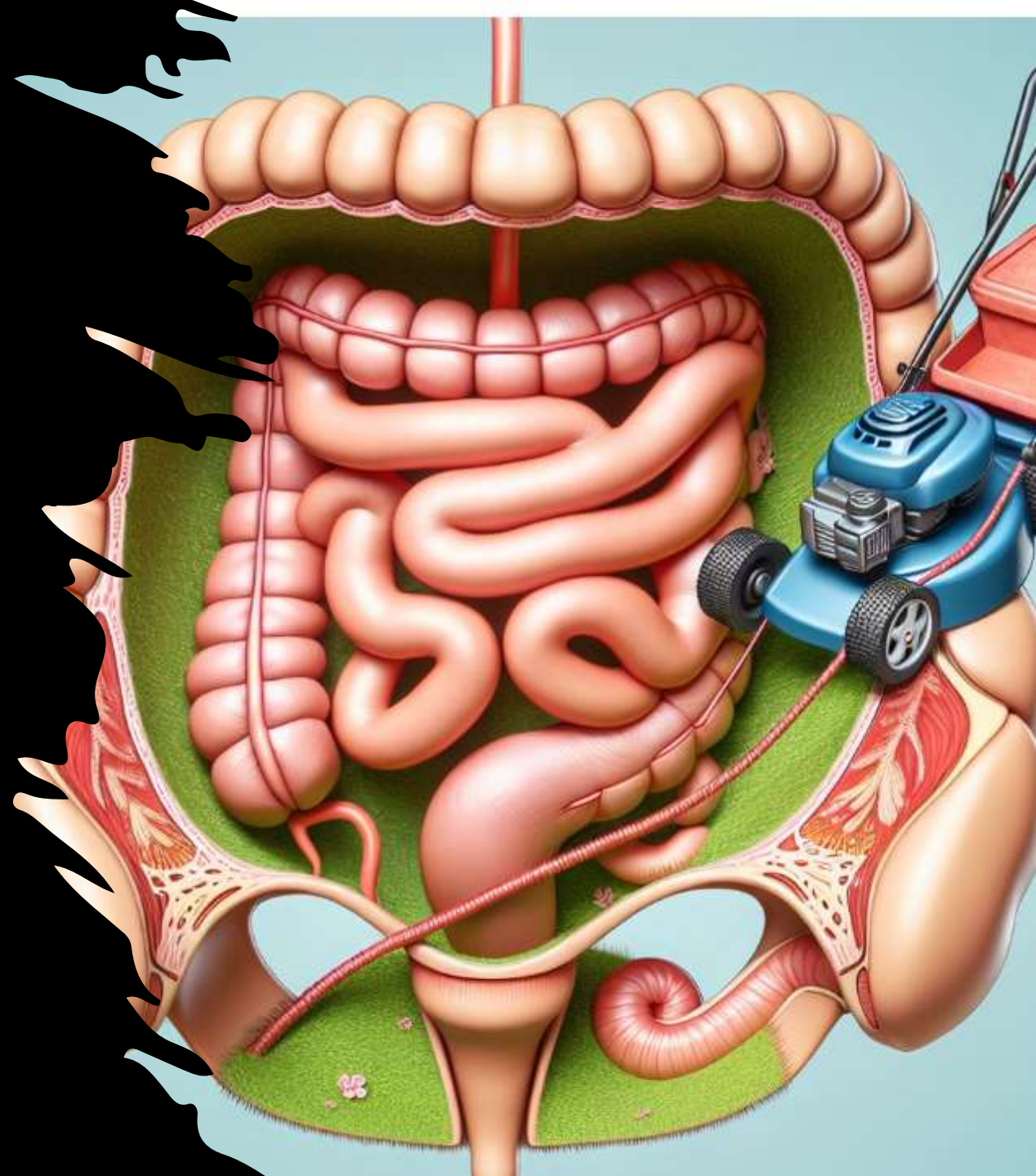
- Have a reason to pick up the probe
- How will this scan change management
- What is the pre-test probability
- What are the risks
- Contemplate non GI causes of abdominal pain



Abdominal Pathology by Region

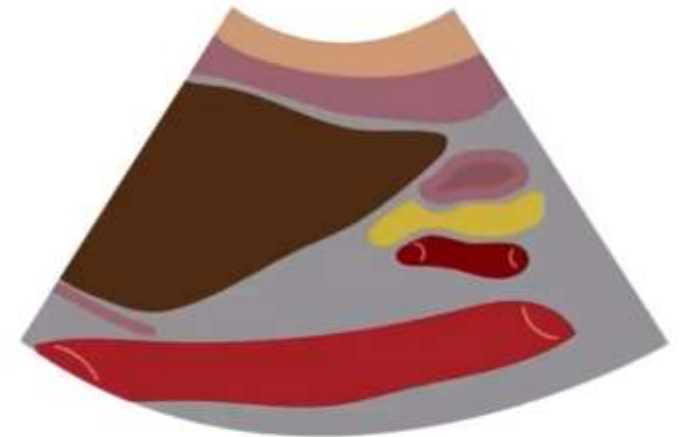
Two approaches

- Systematic: Lawnmower
- Probe where it hurts
- Probe choice; likely curvilinear unless very slim, depends on application.

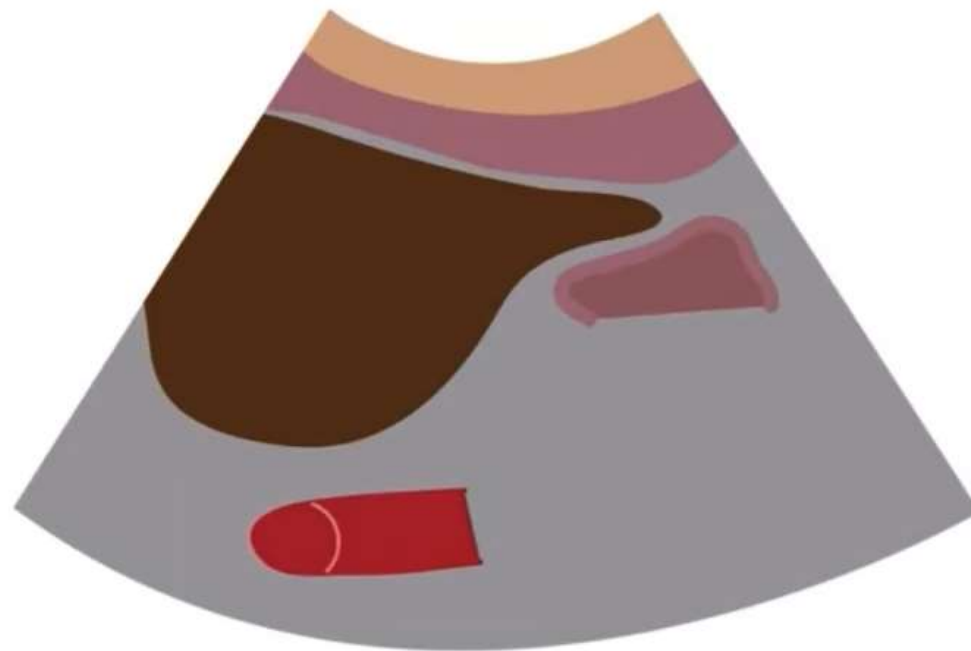


Stomach

- Fasting status- risk stratify for aspiration
- Injectables
- NG tube
- Outlet obstruction



Empty stomach



Solid in stomach

Small Bowel Obstruction

- Absent or decreased peristalsis
- Back and forth movement 97.7% specific
- Fluid-filled bowel, diameter >2.5 cm (83.7% specific)
- Well-defined plicae circulares extending perpendicularly from bowel wall (absent in ileum) - "keyboard sign"
- Bowel wall oedema
- Distally collapsed bowel suggests a transition point
- Free fluid between loops of bowel - "tanga sign"
- *Free fluid is associated with higher grade obstruction and poorer prognosis



Eur J Emerg Med. 2010 Oct;17(5):260-4. doi: 10.1097/MEJ.0b013e328336c736.

Ultrasonography by emergency medicine and radiology residents for the diagnosis of small bowel obstruction.

Unlüer EE¹, Yavaş O, Eroğlu O, Yılmaz C, Akarca FK.

Emerg Med J. 2011 Aug;28(8):676-8. doi: 10.1136/emj.2010.095729. Epub 2010 Aug 22.

Bedside ultrasonography for the detection of small bowel obstruction in the emergency department.

Jang TB¹, Schindler D, Kaji AH.

	X- Ray	CT	US
Sensitivity	66-77%	92%	88%
Specificity	50-57%	93%	96%

	76 patients	CT gold standard
X-RAY	Sn 46%	Sp 67%
POCUS		
Dilated bowel	Sn 91%	Sp 84%
↓ Bowel peristalsis	Sn 27%	Sp 98%

Utilization of ultrasound for the evaluation of small bowel obstruction: A systematic review and meta-analysis.

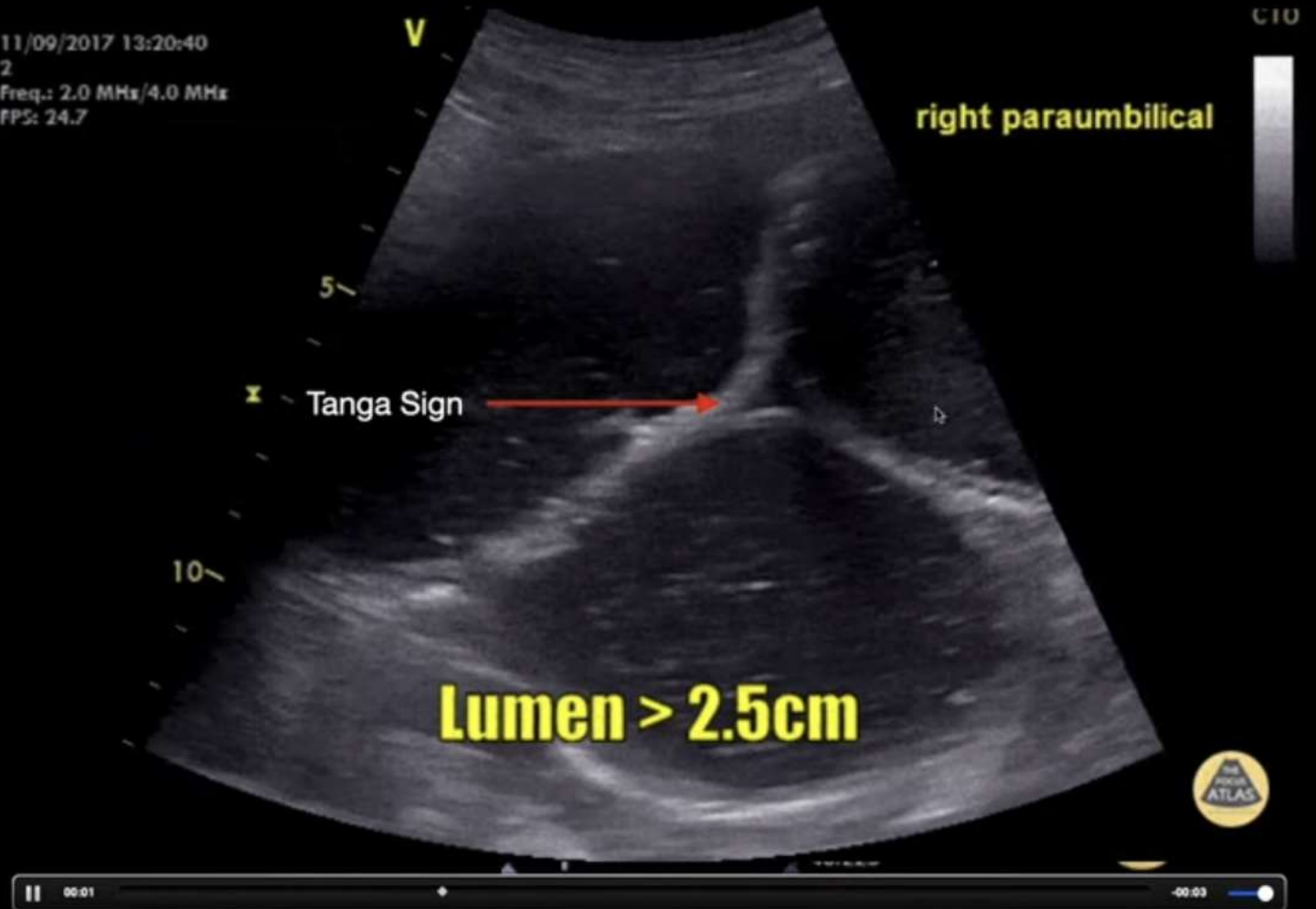
Gottlieb M¹, Peksa GD², Pandurangadu AV², Nakitende D², Takhar S³, Seethala RR³.

- 11 studies
- 1178 patients
- **ULTRASOUND: sensitivity 92.4%**
, Specificity of 96.6%
- **Positive Likely hood ratio of 27.5**
- **Negative Likelihood Ratio of 0.08**

THE TANGA SIGN



11/09/2017 13:20:40
2
Freq.: 2.0 MHz/4.0 MHz
FPS: 24.7

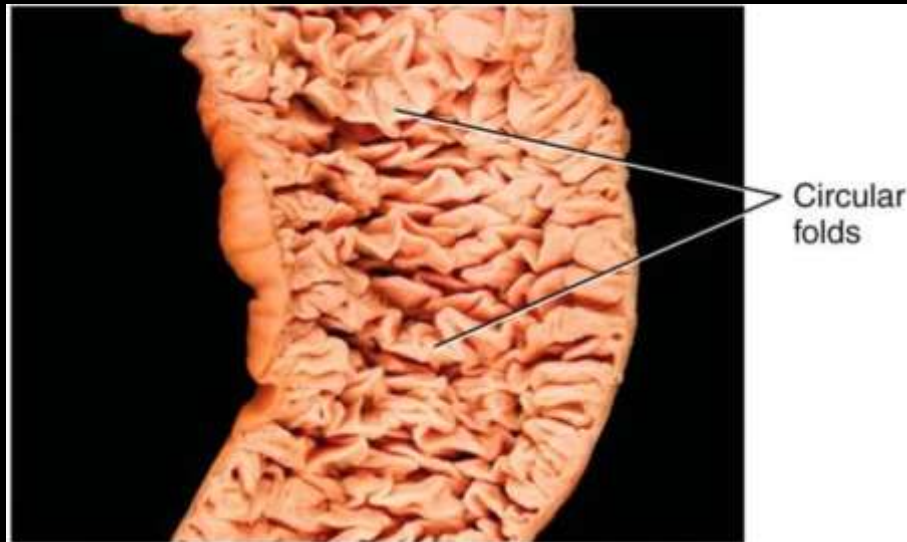


Thickened bowel wall , $> 3\text{mm}$

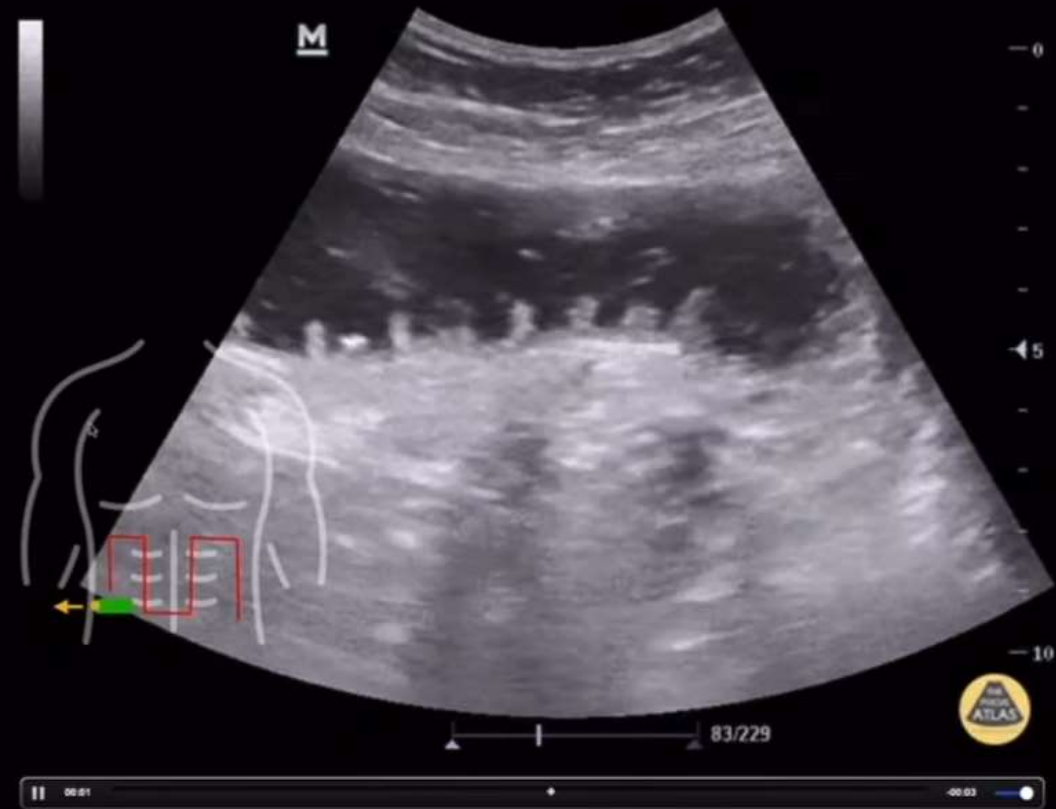


KEYBOARD SIGN

Well-defined plicae circulares extending perpendicularly from bowel wall (absent in ileum) - "keyboard sign"



SBO



Perforation

- Look for Enhanced Peritoneal Stripe Sign (EPSS)
- Free fluid
- A lines

- Look out for false positives (air within lumen)



EPSS: Enhanced Peritoneal Stripe Sign

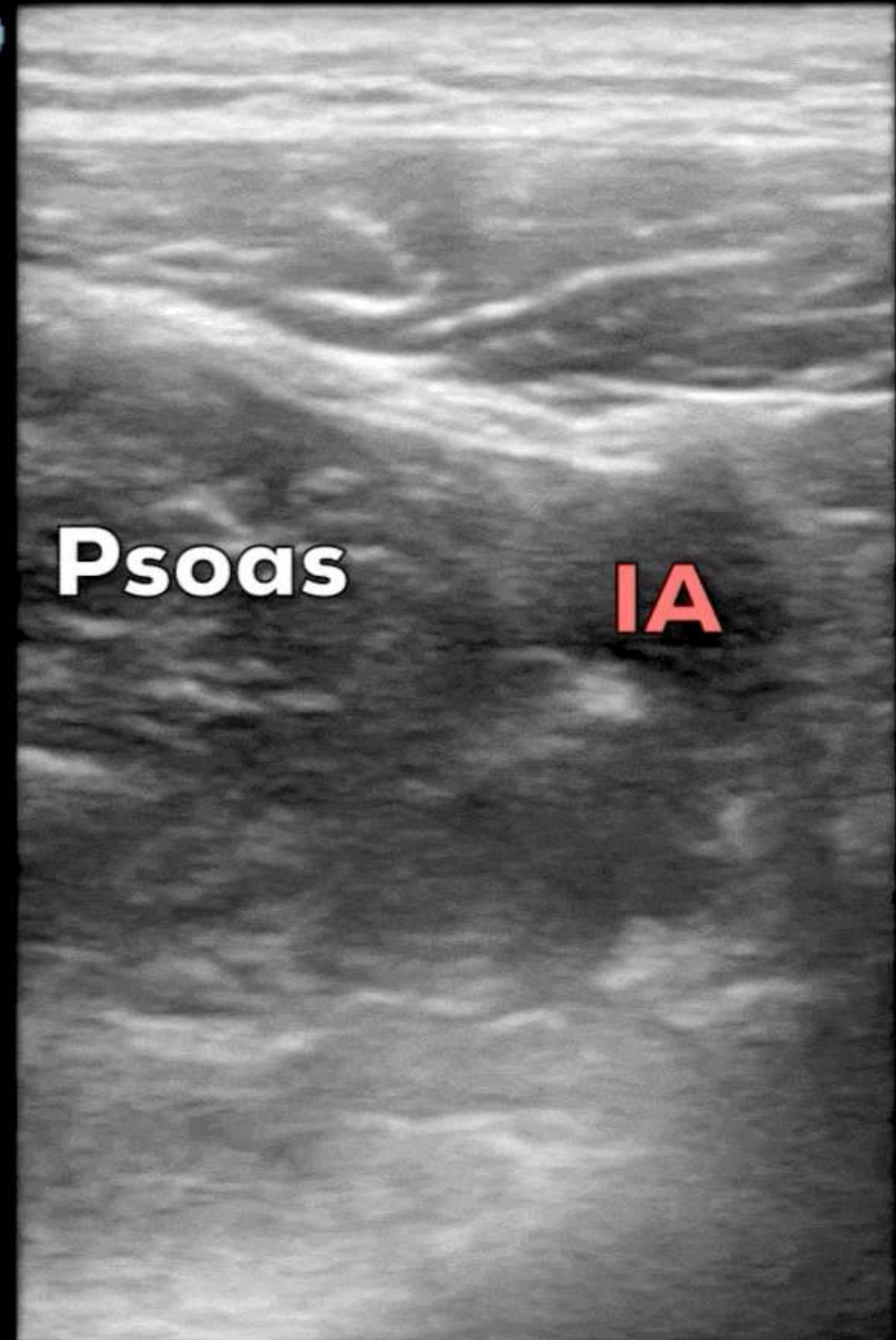


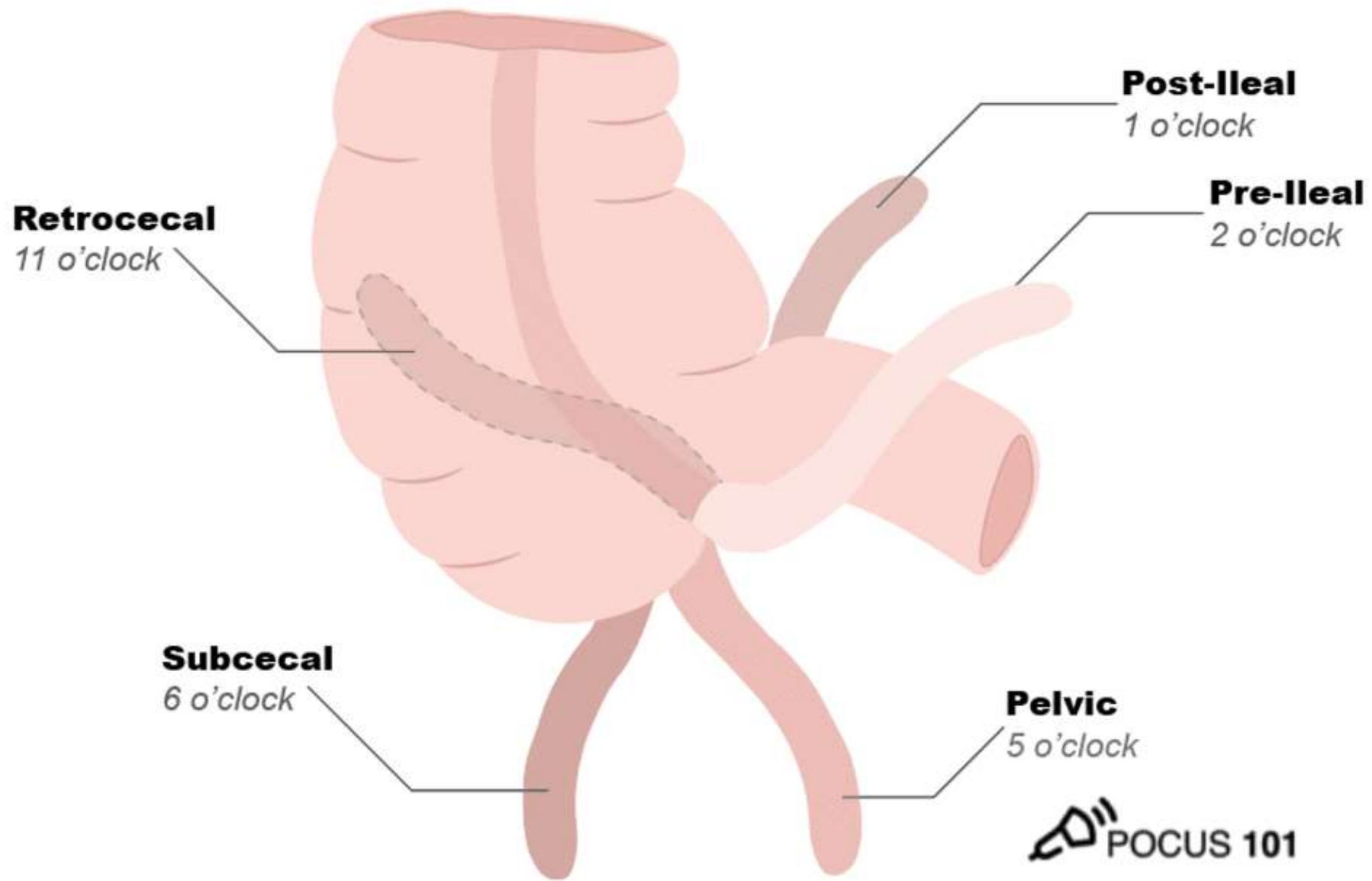
False Positive EPSS



Appendicitis

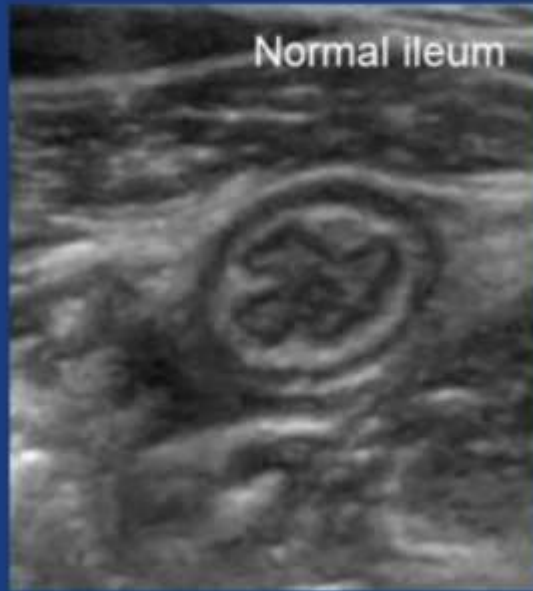
- Ask patient to Point to area of maximal tenderness
- Scan in Long and transverse from iliac crest to, high frequency
- Graded compression
- Find ileocaecal valve then go down 2-3 cm
- Compress ileum and caecum to look for appendix behind it



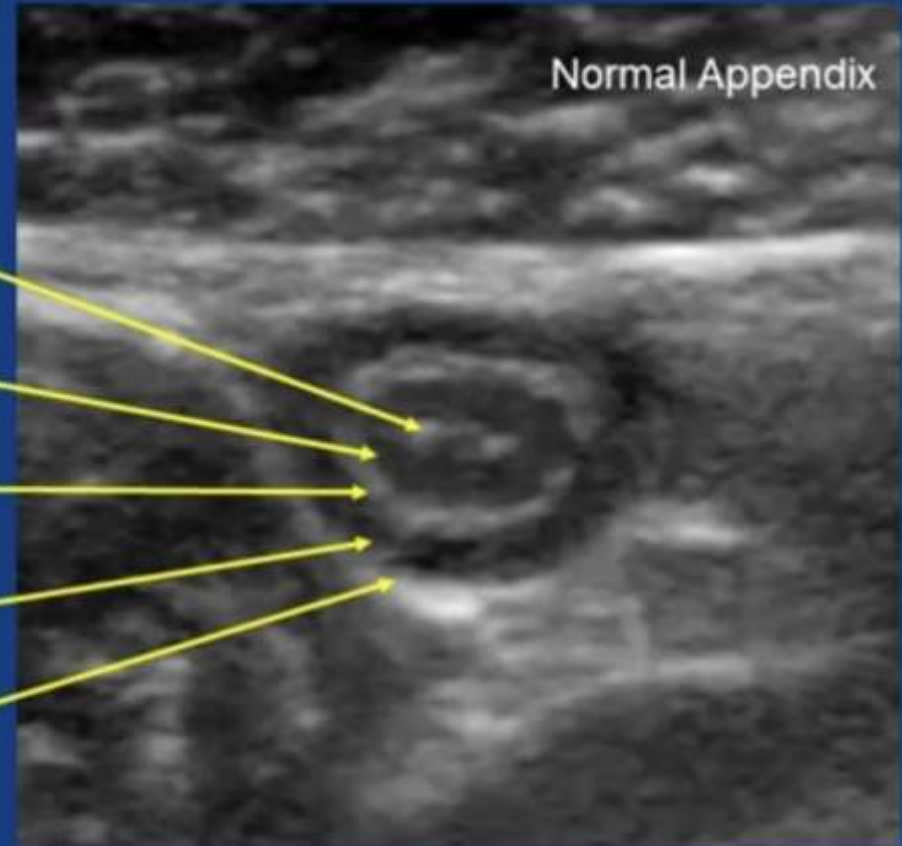


Appendix/Appendicitis locations

Normal Appendix



Normal ileum

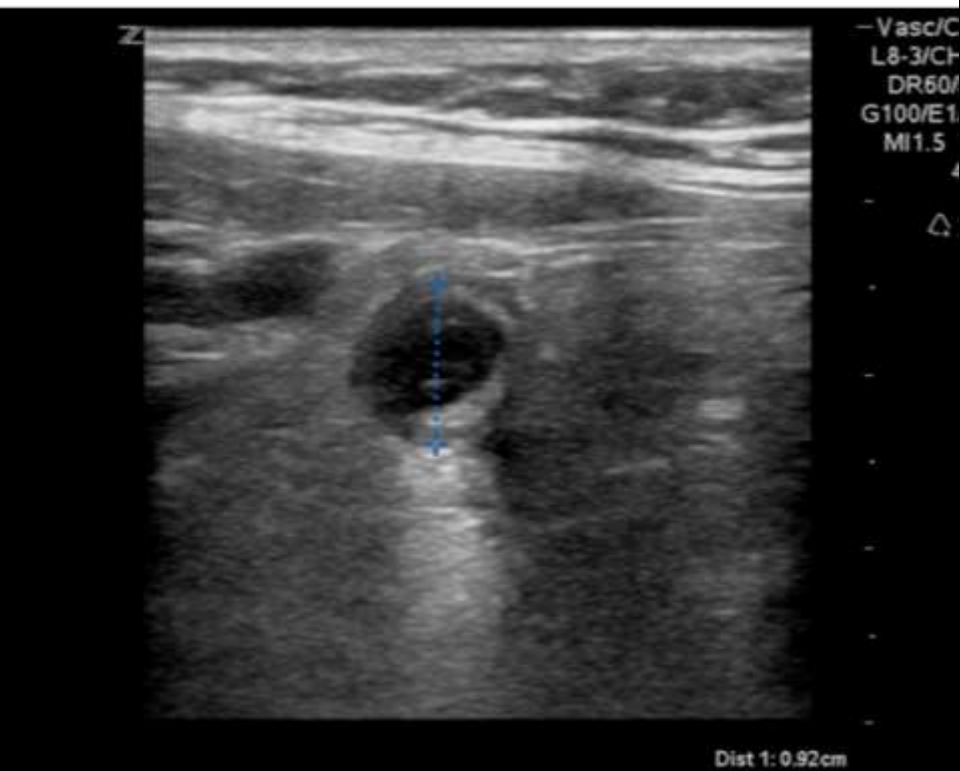


Normal Appendix

Appendicitis findings



Dilated appendix with blind ended Pouch



Dilated appendix with a diameter >6mm and "Target Sign"

- Non-compressibility of the appendix (unless perforated)
- Blind ended pouch
- Diameter of the appendix > 6 mm
- Single wall thickness ≥ 3 mm
- Target sign
- Hyperechoic appendicolith with posterior shadowing 65% of cases, 87% specific. Higher risk of perforation

Appendicitis

0.68cm



DOM
ED

SonoSite
HFL38xp/13-6 MSK
MI: 0.7 TIS: 0.3

4.0 cm

2D: G: 50
Res DR: 0
MB

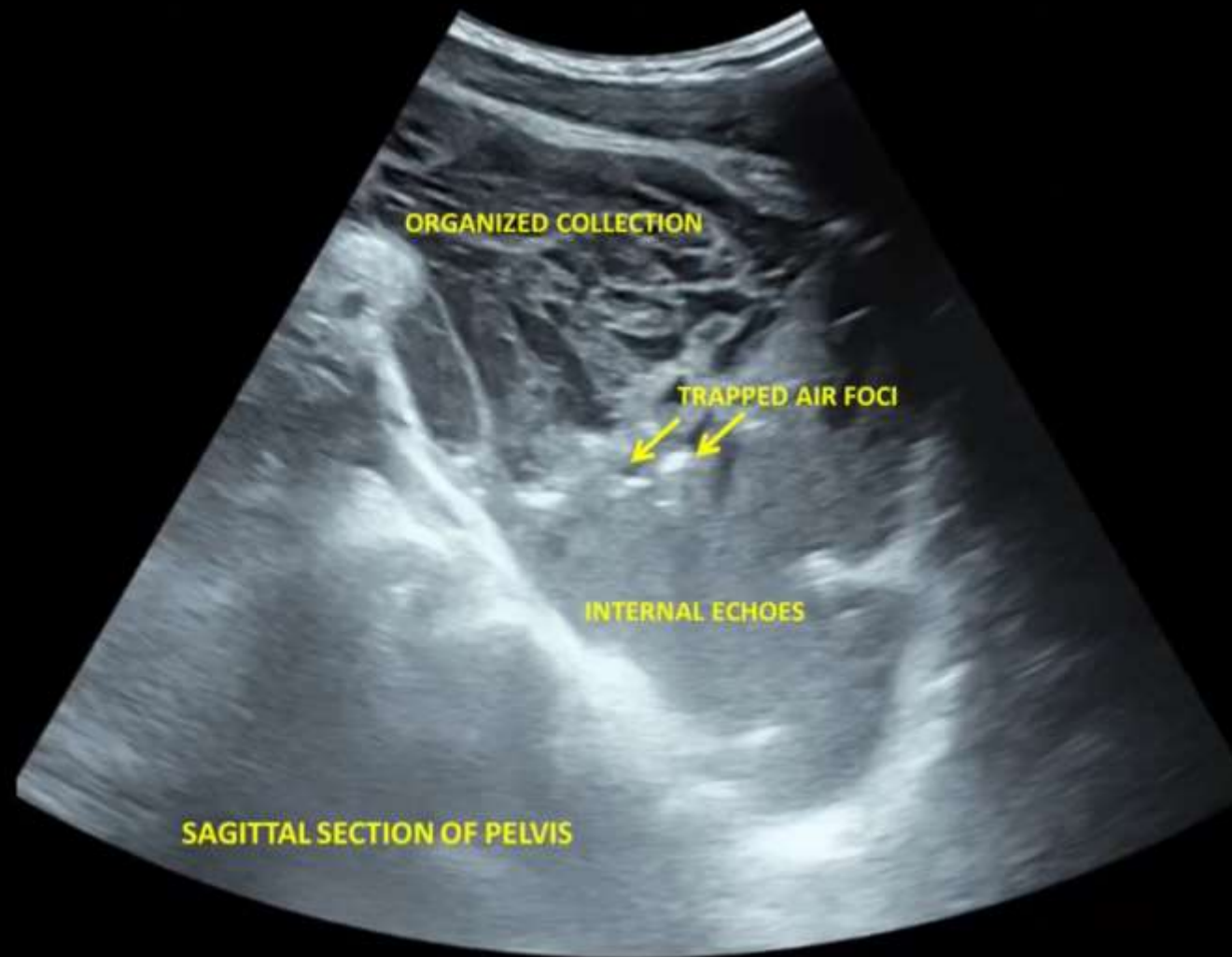


4.0

2D:
Res

SonoSite
HFL38xp/13-6 MSK

Perforated appendix



OTHER GI applications



Collection and fistula in Crohn's colitis



Onion sign in an invaginated segment of bowel due to a polyp (seen protruding into the lumen)

► J Med Ultrasound. 2023 Mar 21;31(1):1-7. doi: [10.4103/jmu.jmu_5_23](https://doi.org/10.4103/jmu.jmu_5_23)

Point-of-care Ultrasound of the Gastrointestinal Tract

[Odd Helge Gilja](#)^{1,2,*}, [Kim Nylund](#)^{1,2}

Resources

