international bowel ULTRASOUND GROUP

Transperineal ultrasound

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Organized in collaboration with: 中山大學 附属第六医院 The Sixth Affiliated Hospital,Sun Yat-sen University

international bowel
ULTRASOUND GROUP

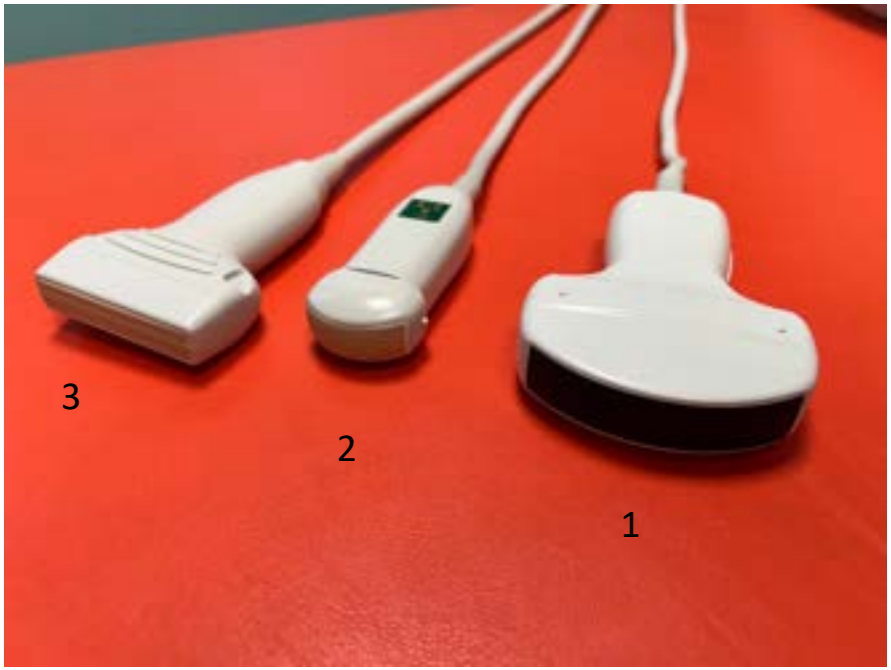
Disclosure

Dr. Mariangela Allocca received consulting fees from Nikkiso Europe, Mundipharma, Alfasigma, Janssen, Abbvie, Ferring, Galapagos, Sandoz, Lilly and Pfizer

Transperineal ultrasound (TPUS)

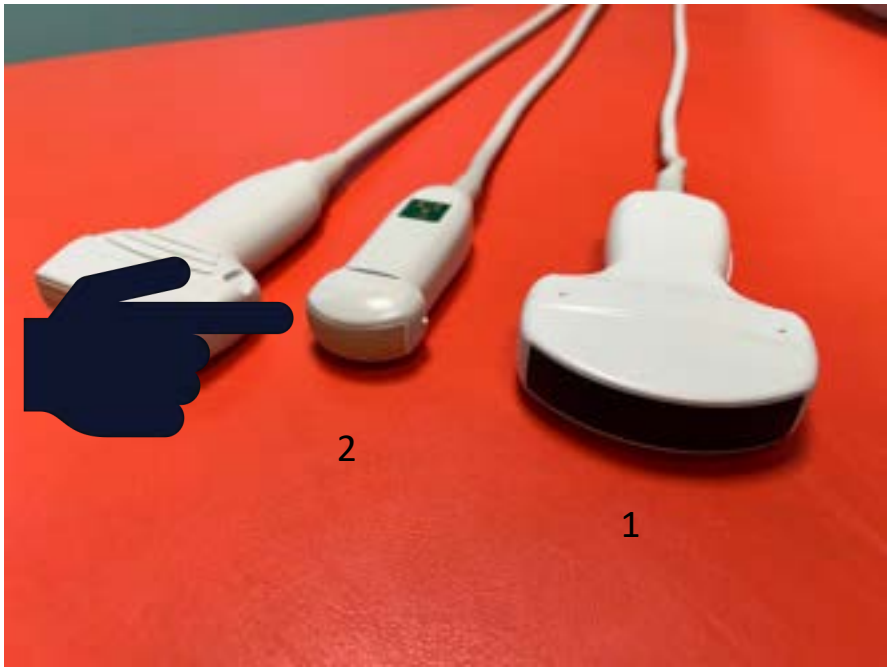
- ✓ assessment of the rectum
- ✓ assessment of the pouch
- ✓ assessment of the perianal disease

Equipment



- The same transducers we use for IUS
- Both low-frequency (1: 6-1 MHz) and high-frequency (2-3: 8-4 MHz and 13-5 MHz) transducers

Equipment



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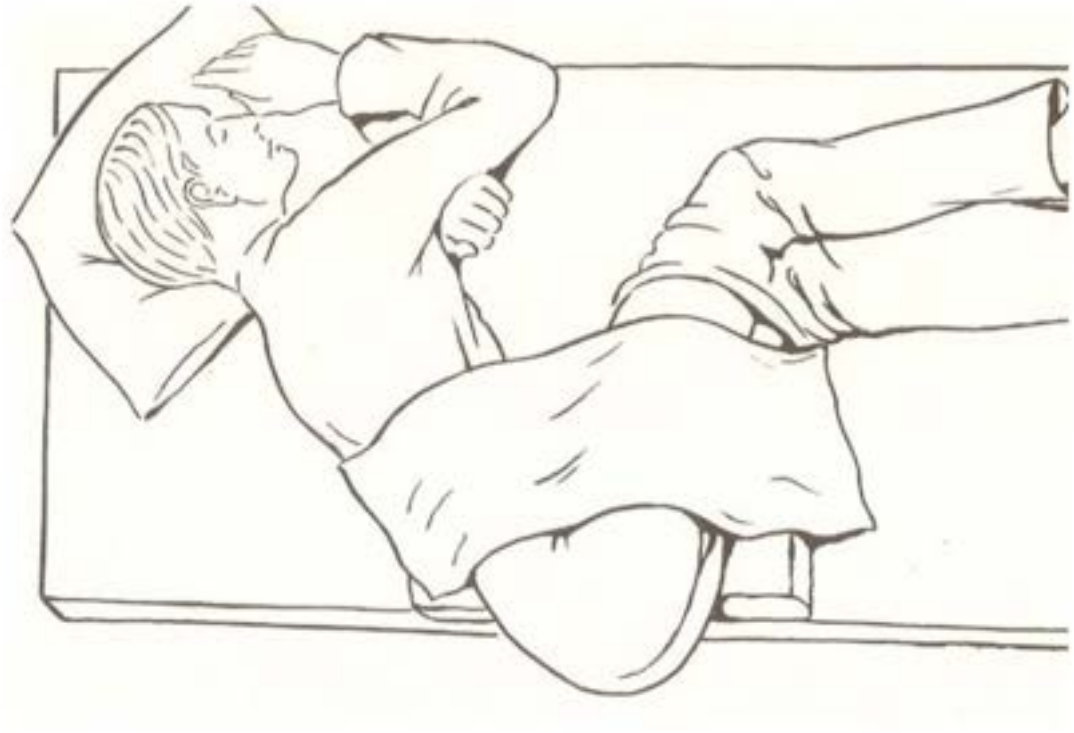
- Both low-frequency (1: 6-1 MHz) and high-frequency (2-3: 8-4 MHz and 13-5 MHz) transducers

Position

Left lateral position



Technique

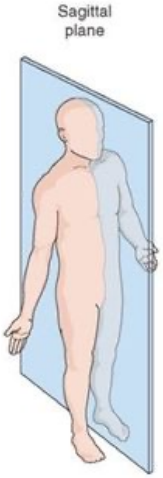
- Anus
- Perianal body
- Vagina/scrotus

Technique

- Anus
- Perianal body
- Vagina/scrotus

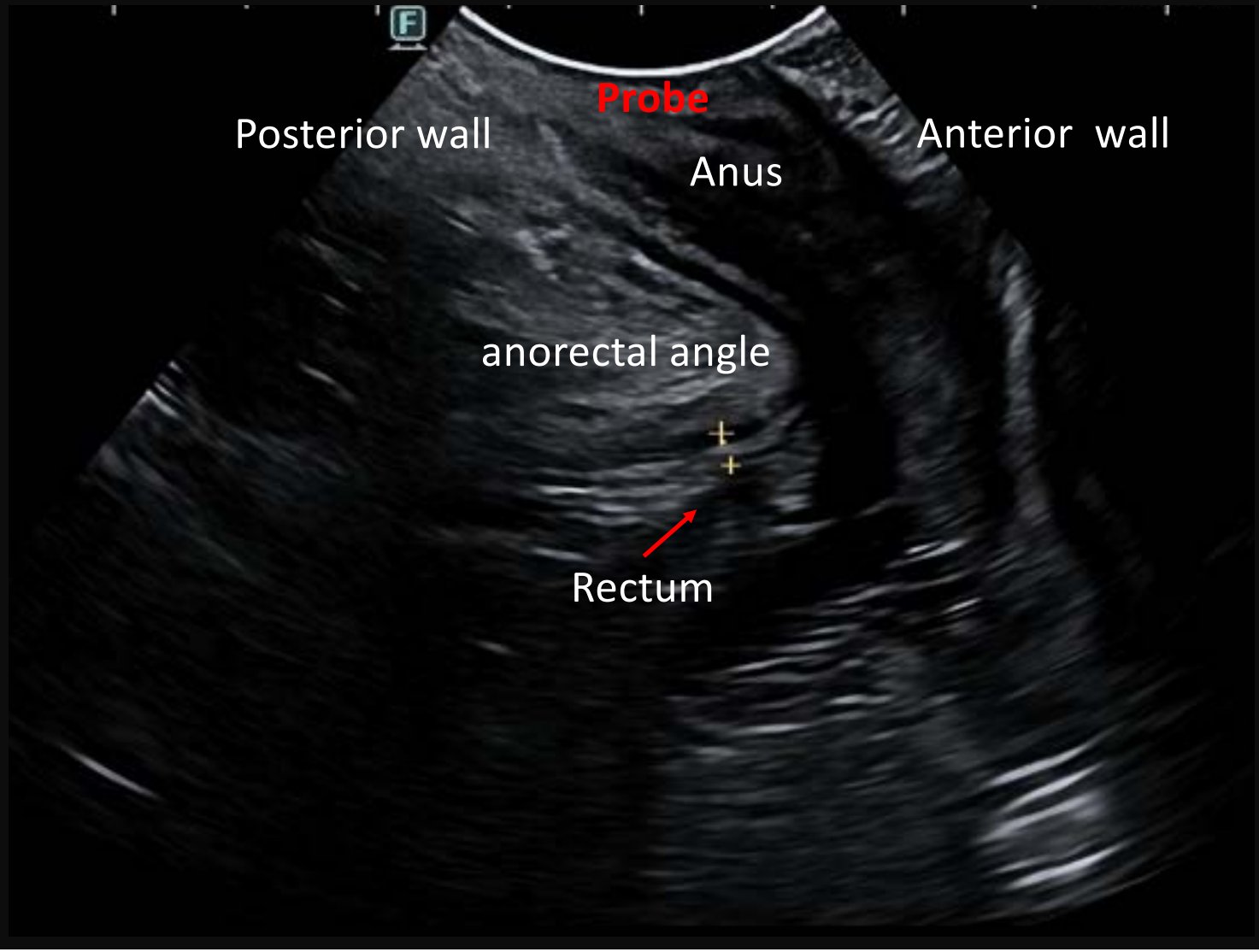
Use a standardized approach

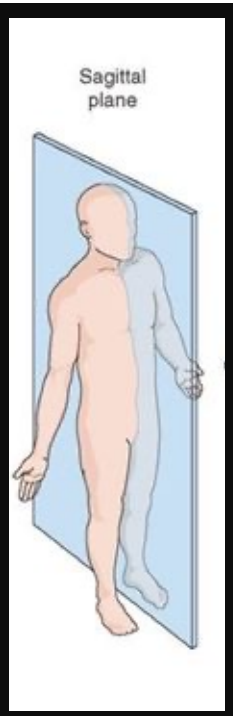
Sagittal scan



Position the probe over the anus in the sagittal scan (or postero-anterior scan) in patients in the left lateral position

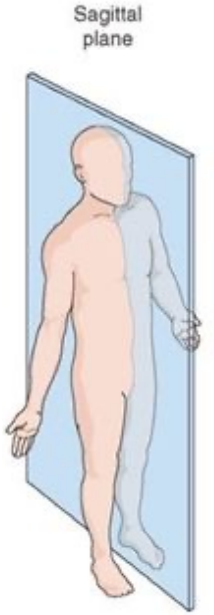
Sagittal scan

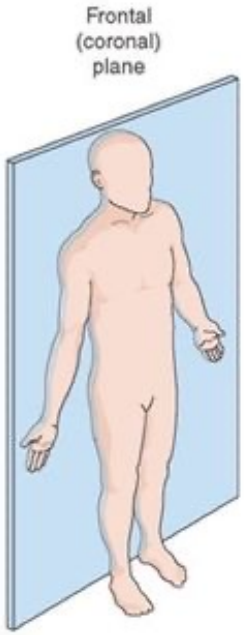




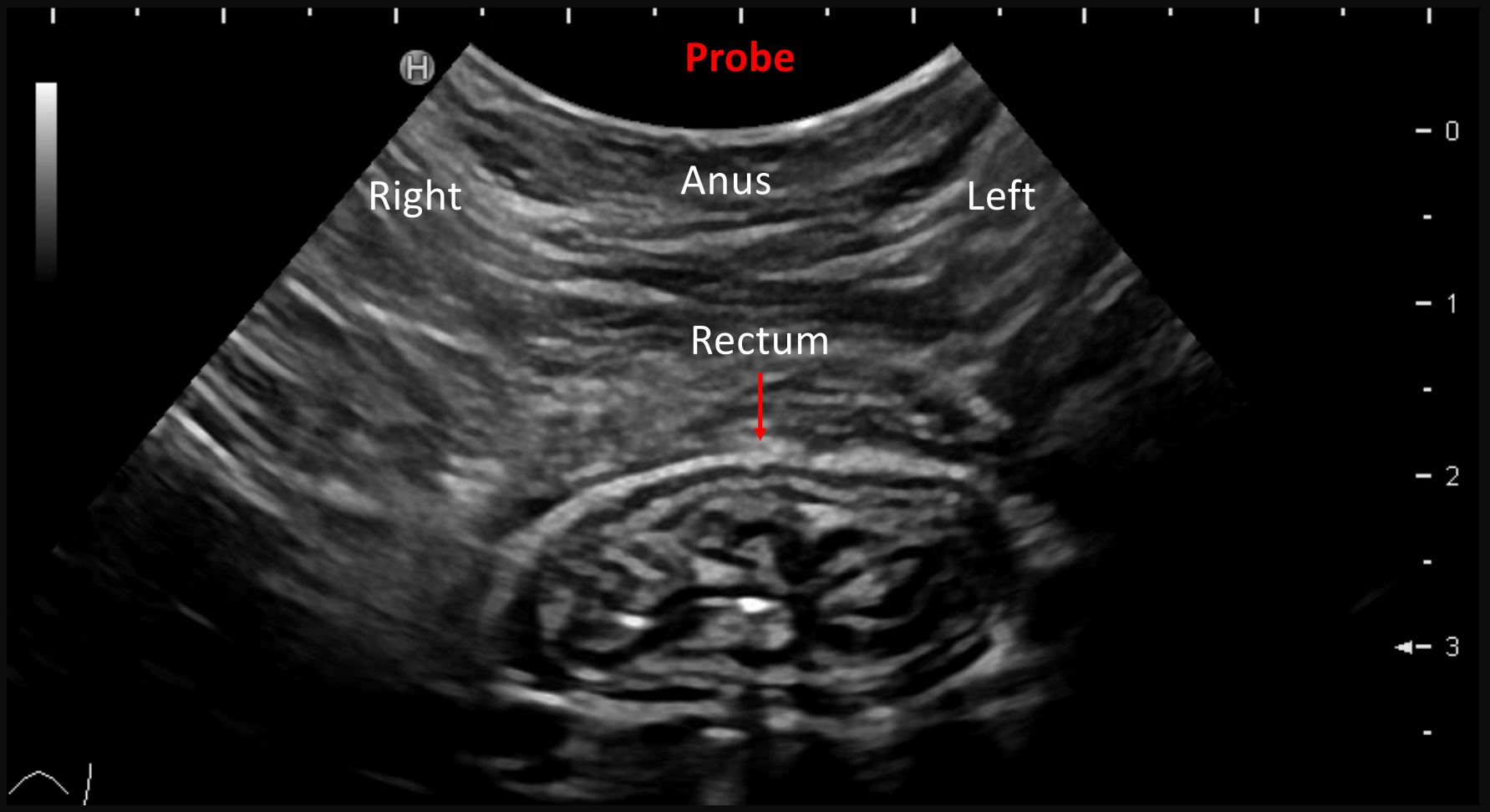
From sagittal to coronal scan

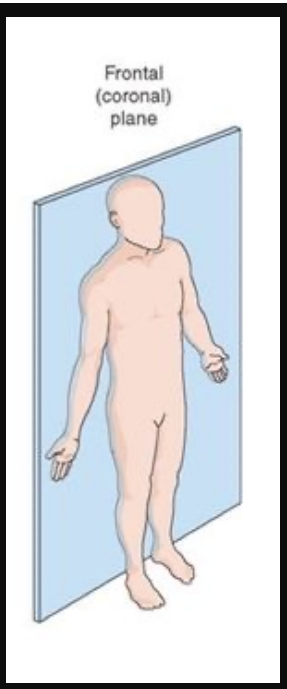
From the sagittal scan, by rotating the transducer of 90 degrees, you can get a coronal scan (or laterolateral scan)





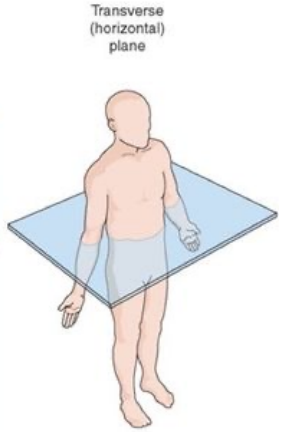
Coronal scan





Trasversal scan

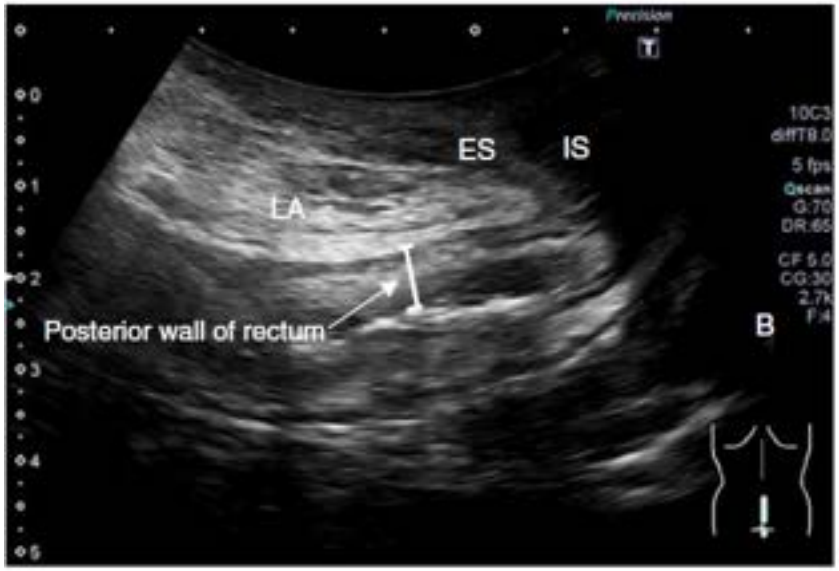
Place the transducer between the anus and the vagina (or scrotum) to obtain a transverse scan of the anus

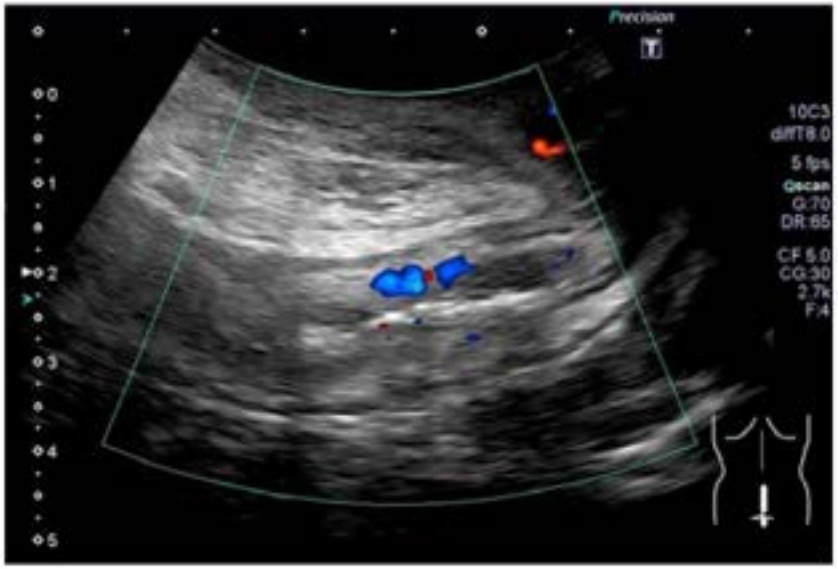


Transperineal ultrasound (TPUS)

- ✓ assessment of the rectum

BWT was independently associated with endoscopic activity in the rectum (as defined by Mayo Endoscopic Score ≥ 2)





	Variable	Univariate OR	Univariate 95% CI	Univariate *P* value	Multivariable Adjusted OR	Multivariable 95% CI	Multivariable *P* value
TPUS	Bowel wall thickness (mm)	4.21[a]	2.00-8.84[a]	0.0002*	3.18[a]	1.43-7.06[a]	0.0003*
	Bowel wall flow[c] (LS 0-1 vs 2-3)	13.78	3.59-52.84	0.0001*	4.07	0.79-23.1	0.1044
Faecal calprotectin		1.41[b]	0.94-2.12[b]	0.0993	1.17[b]	0.91-1.52[b]	0.2208

internal sphincter (IS), external sphincter (ES) and levator ani muscle (LA)

Shintaro S et al. ATP 2020

BWT ≤ 4 mm was 100% sensitive in excluding proctitis, and BWT > 6 mm was 87% specific in detecting proctitis

	Mayo endoscopic subscore ≥2						
Index	**Sensitivity**	**Specificity**	**PPV**	**NPV**	**AUC**	**95% CI**	***P* value**
BWT in transperineal ultrasound							
>4 mm	100%	45.8%	69.0%	100%	0.904	0.787-0.957	0.0002
>5 mm	89.7%	75.0%	81.3%	85.7%			
>6 mm	65.5%	87.5%	86.4%	67.7%			

Shintaro S et al. ATP 2020

Assessment of rectum in sagittal scan

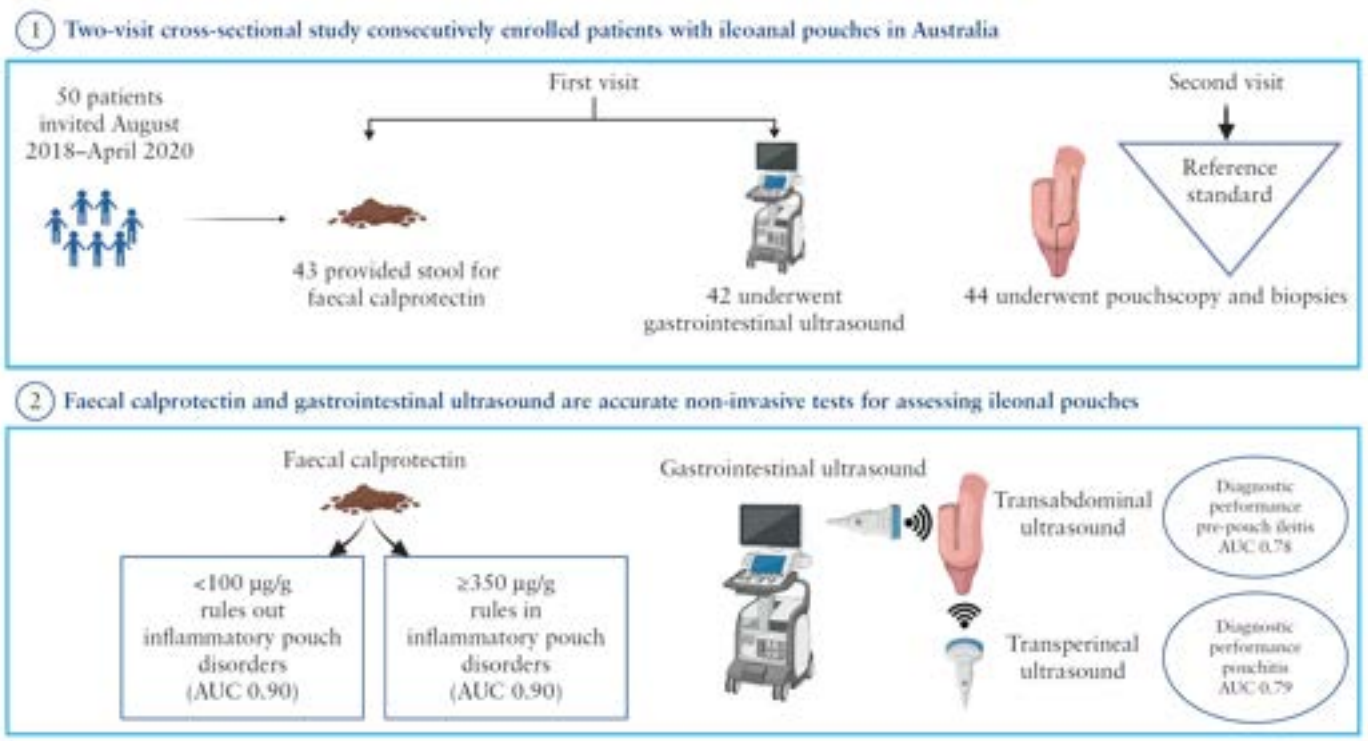
Assessment of rectum in coronal scan

Transperineal ultrasound (TPUS)

- ✓ assessment of the pouch

Pouch wall thickness assessed by TPUS detected pouchitis (as defined by PDAI ≥ 7 and Endoscopic Subscore ≥ 2)

Pouch wall thickness of <3 mm was 88% sensitive in excluding pouchitis, and pouch wall thickness of ≥4 mm was 87% specific in diagnosing pouchitis



Ardalan et al. JCC 2022

Assessment of pouch

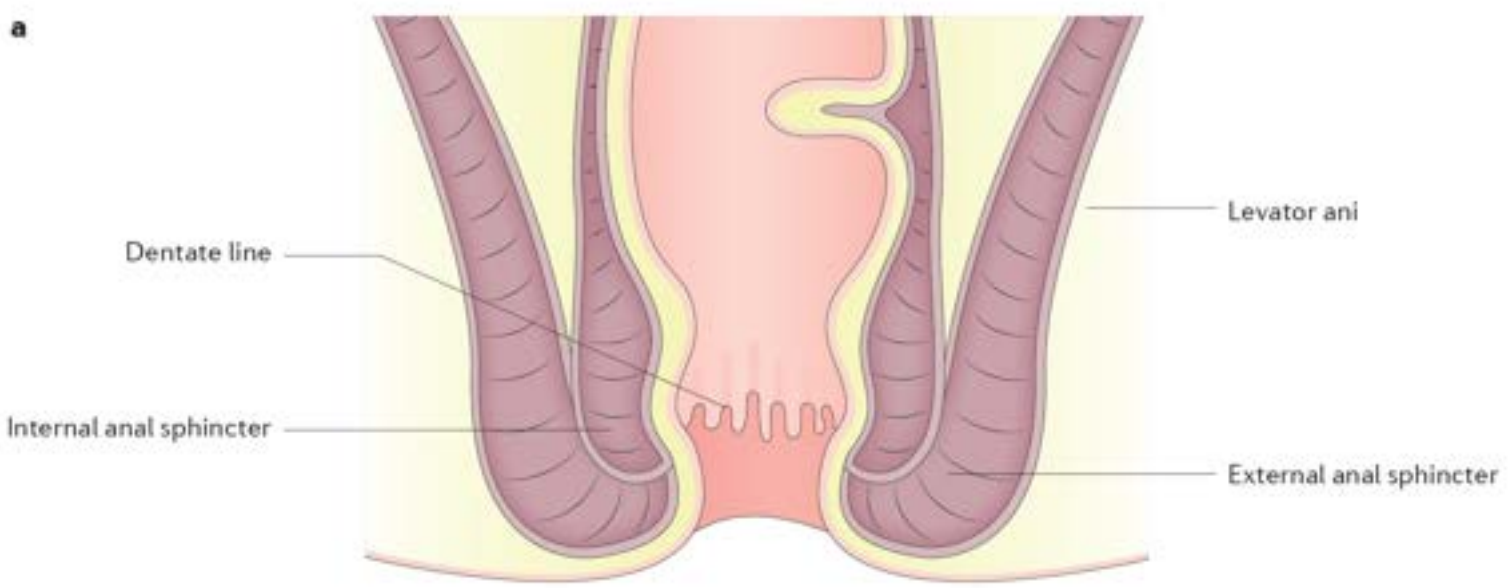
Transperineal ultrasound (TPUS)

- ✓ assessment of the perianal disease

Classification of perianal fistulas: Parks classification

Parks classification

Superficial	Superficial fistula without crossing any sphincter or muscular structure
Intersphincteric	Fistula tract between the internal anal sphincter and external anal sphincter, in the intersphincteric space
Trans-sphincteric	Fistula tract crosses the external anal sphincter
Suprasphincteric	Fistula tract penetrates the intersphincteric space and continues over the top of the puborectalis and penetrates the levator muscle before reaching the skin
Extrasphincteric	Fistula tract outside the external anal sphincter and penetrating the levator muscle



Panés and Rimola. Nat Rev Gastroenterol Hepatol 2017

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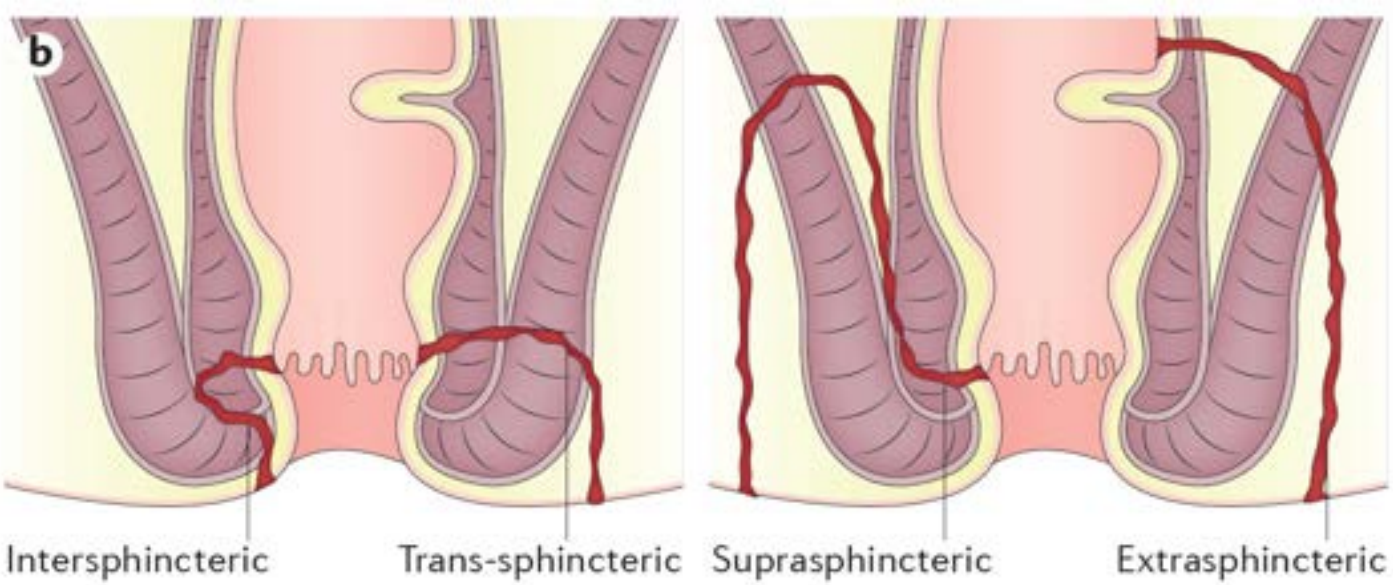
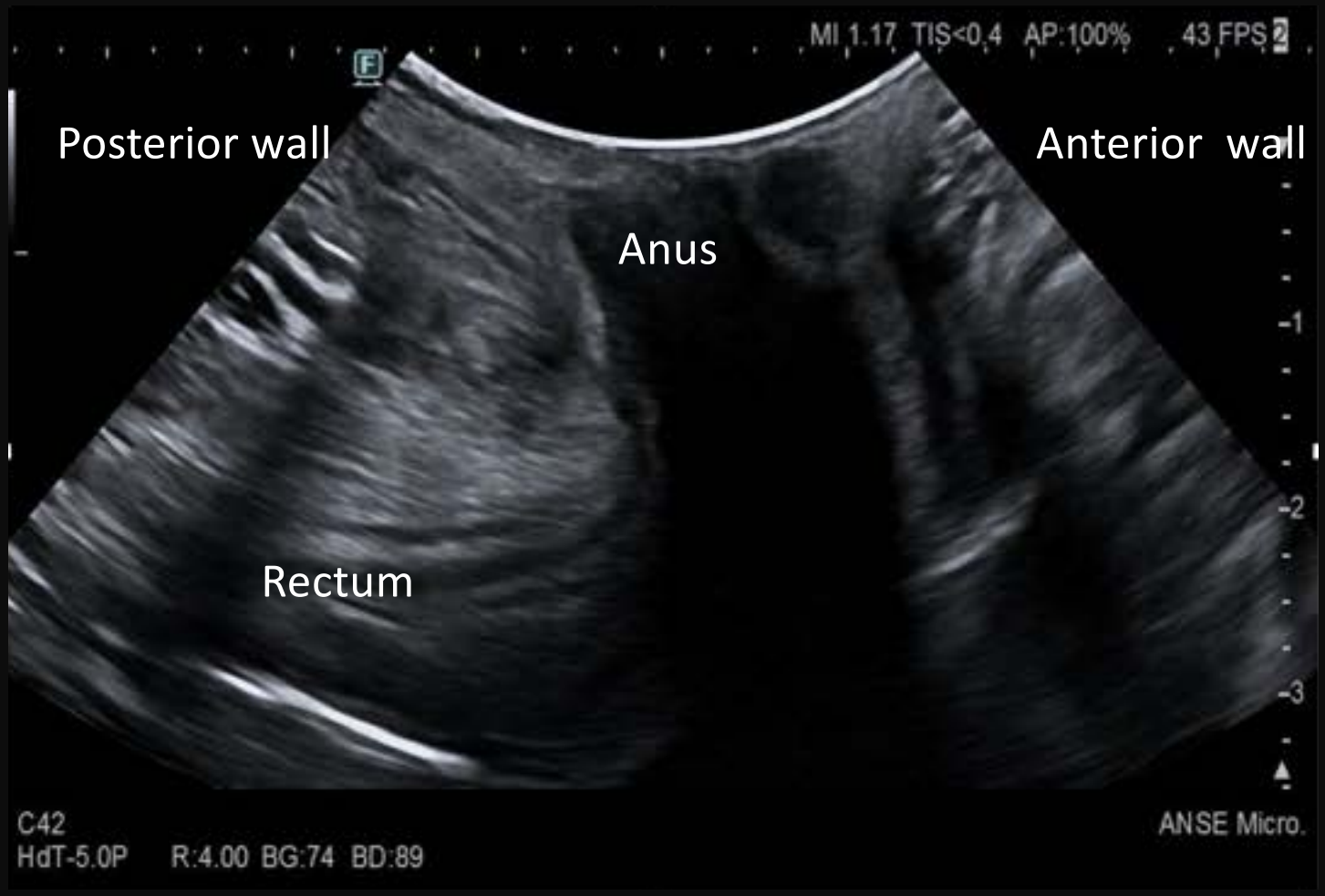


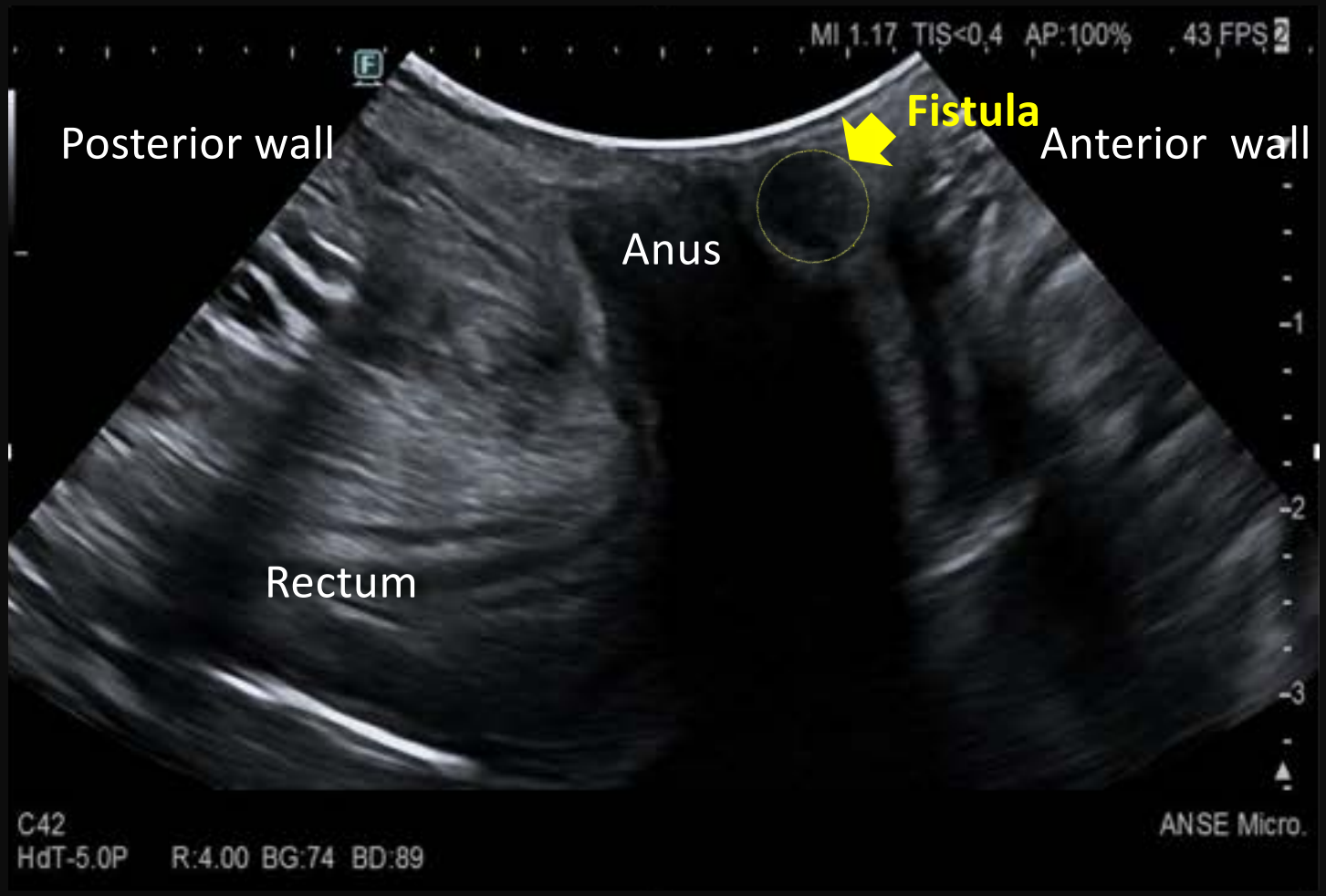
Panés and Rimola. Nat Rev Gastroenterol Hepatol 2017


MI 1.17 TIS<0.4 AP:100% 43 FPS
F
-1
-2
-3
C42
HdT-5.0P R:4.00 BG:74 BD:89
ANSE Micro.

Anterior intersphincteric fistula, sagittal scan



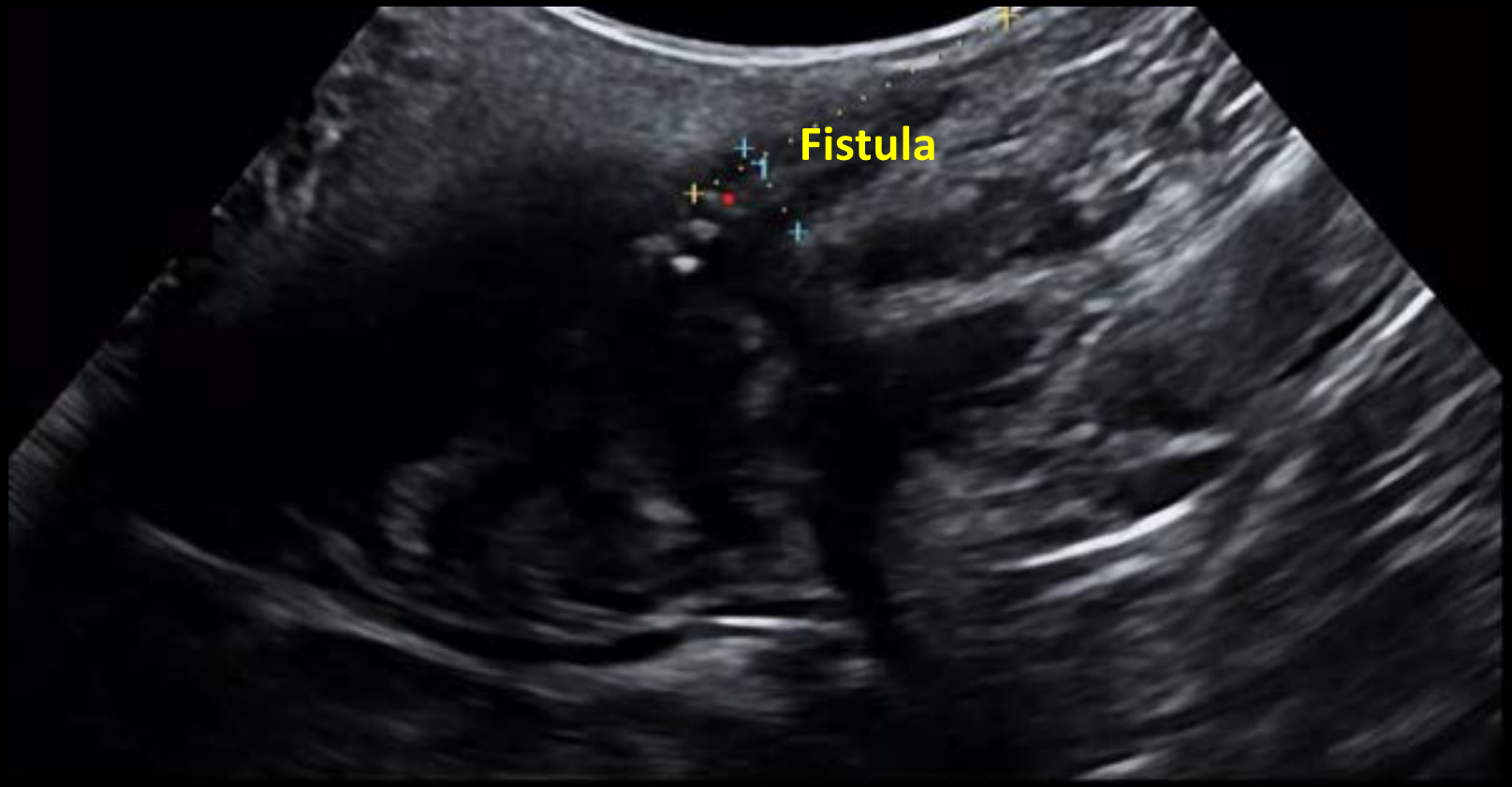
Anterior intersphincteric fistula, sagittal scan




MI 1.17 TIS<0.4 AP:100% 43 FPS 1
Probe
Right
Left
Anus
-1
-2
-3
C42
HdT-5.0P R:4.00 BG:74 BD:89
ANSE Micro.

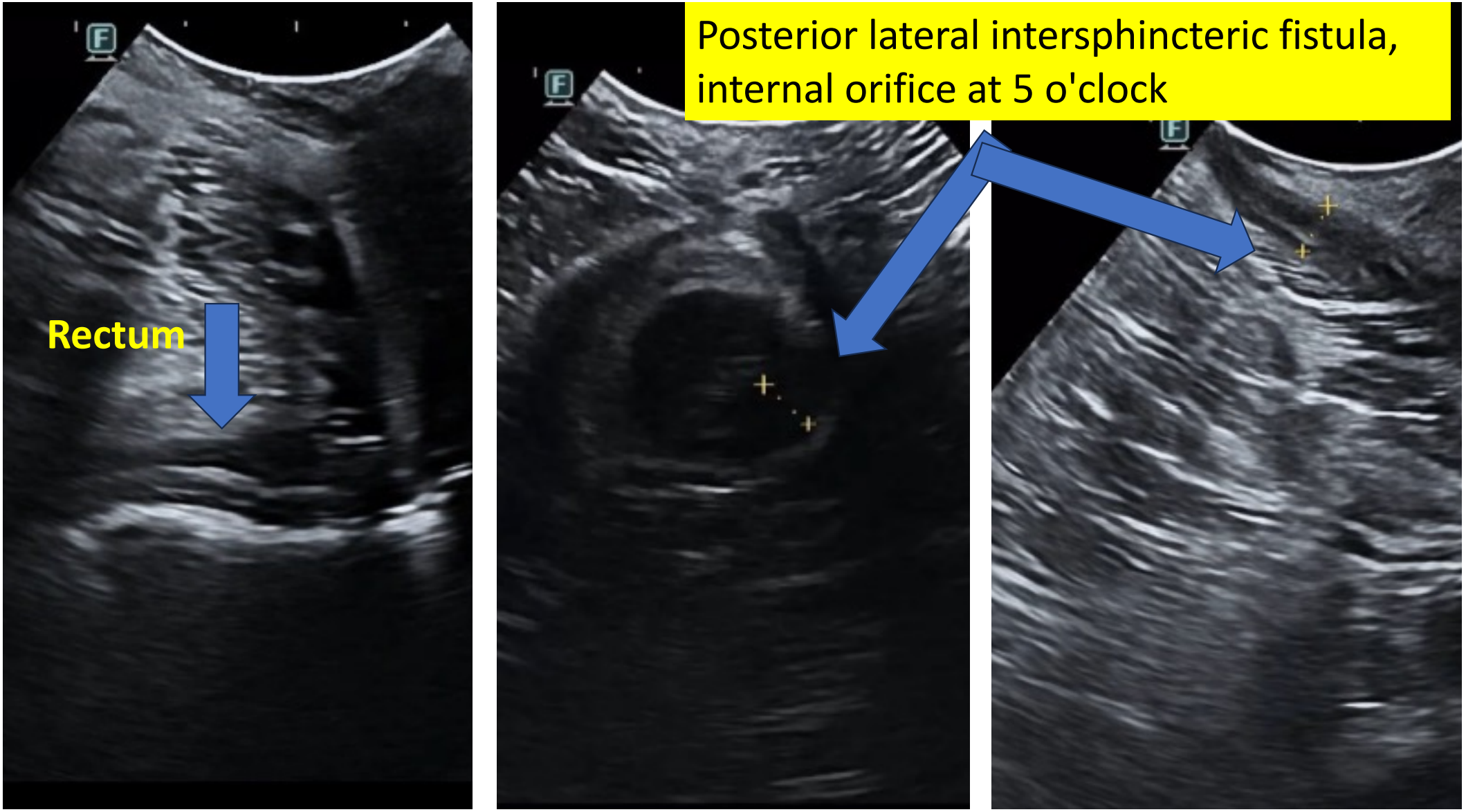
An 11 o’clock intersphincteric fistula, transverse scan

An 5 o’clock intersphincteric fistula, trasversal scan, probe between the anus and coccyx



Sagittal scan of the anus

Trasversal scan of the anus

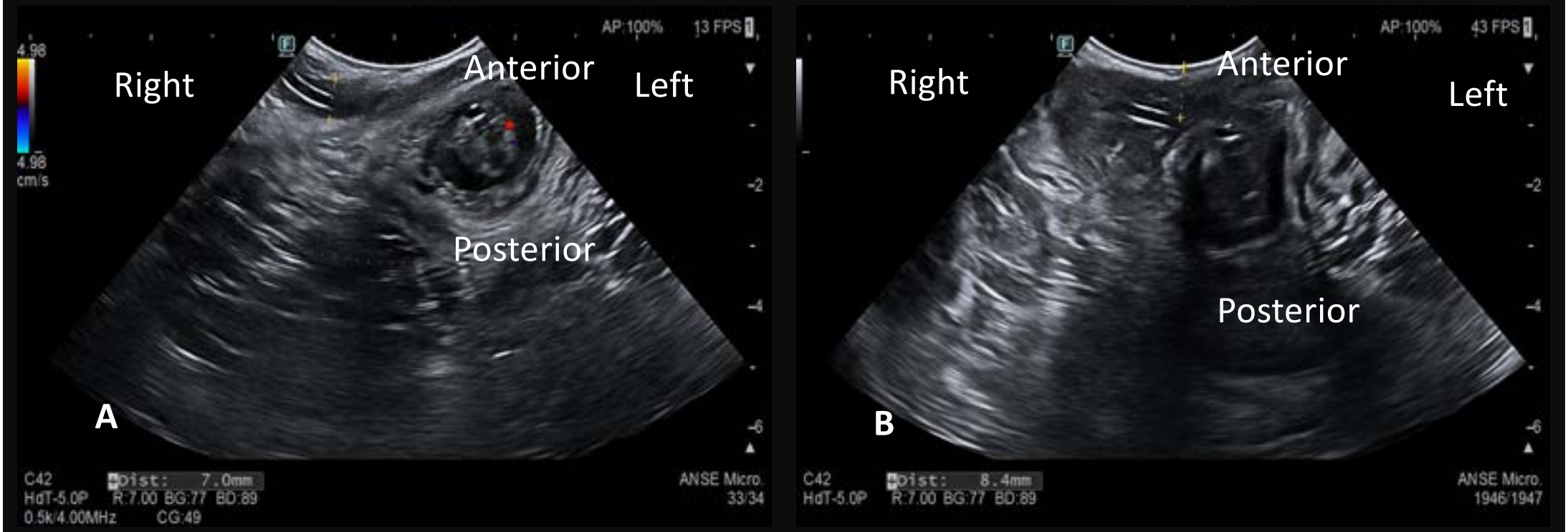

Rectum
Posterior lateral intersphincteric fistula, internal orifice at 5 o'clock


MI 0.85 TIS<0.4 AP:100% 43 FPS
-2
-4
-6
C42
HdT-5.0P R:7.00 BG:73 BD:89
ANSE Micro.

An 11 o’clock transphincteric fistula with a seton in situ, transverse scan

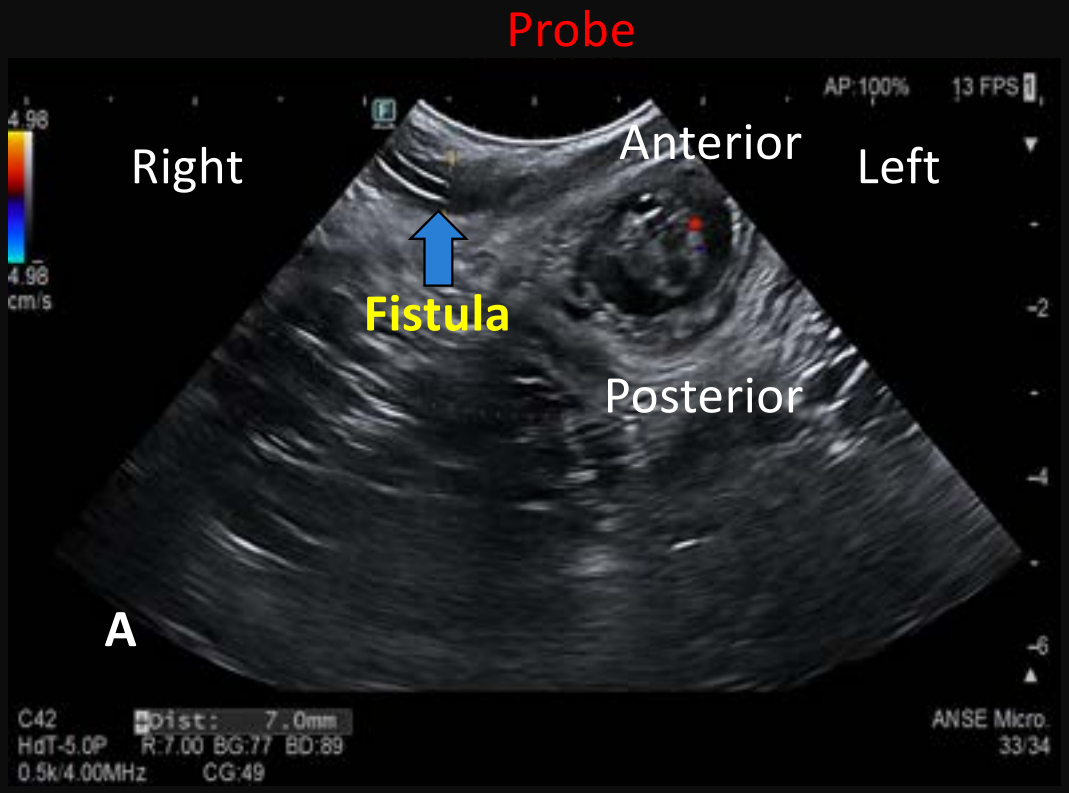
Fistula diameter 7 mm

Distance of the fistula from the skin 8.4 mm

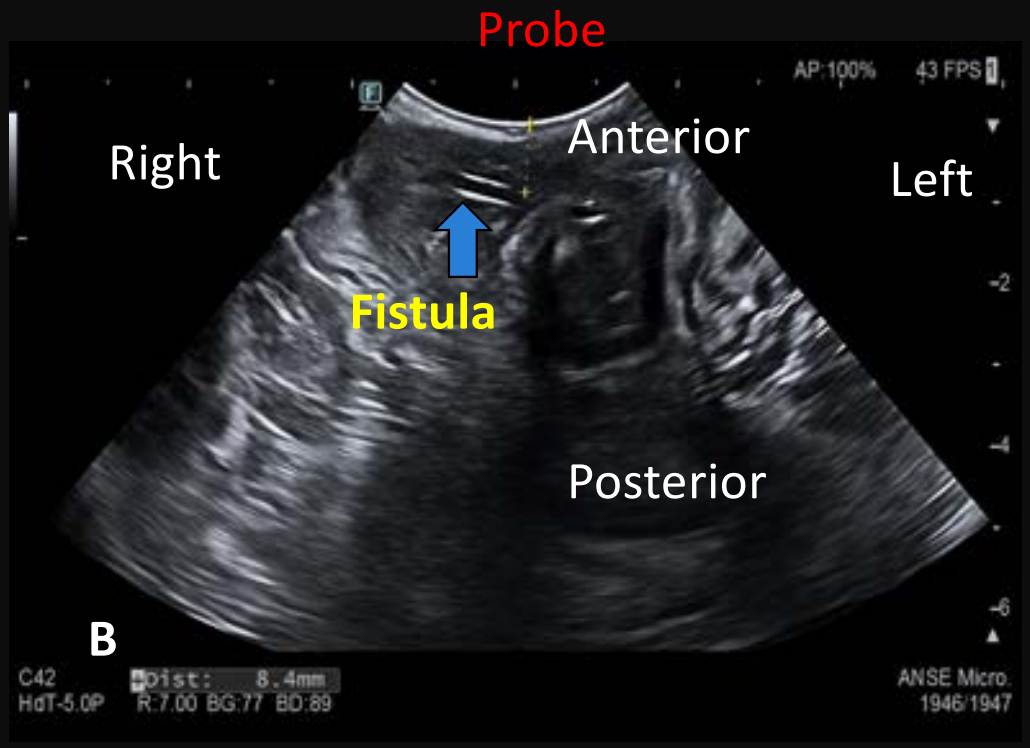


An 11 o’clock transsphincteric fistula with a seton in situ, transverse scan

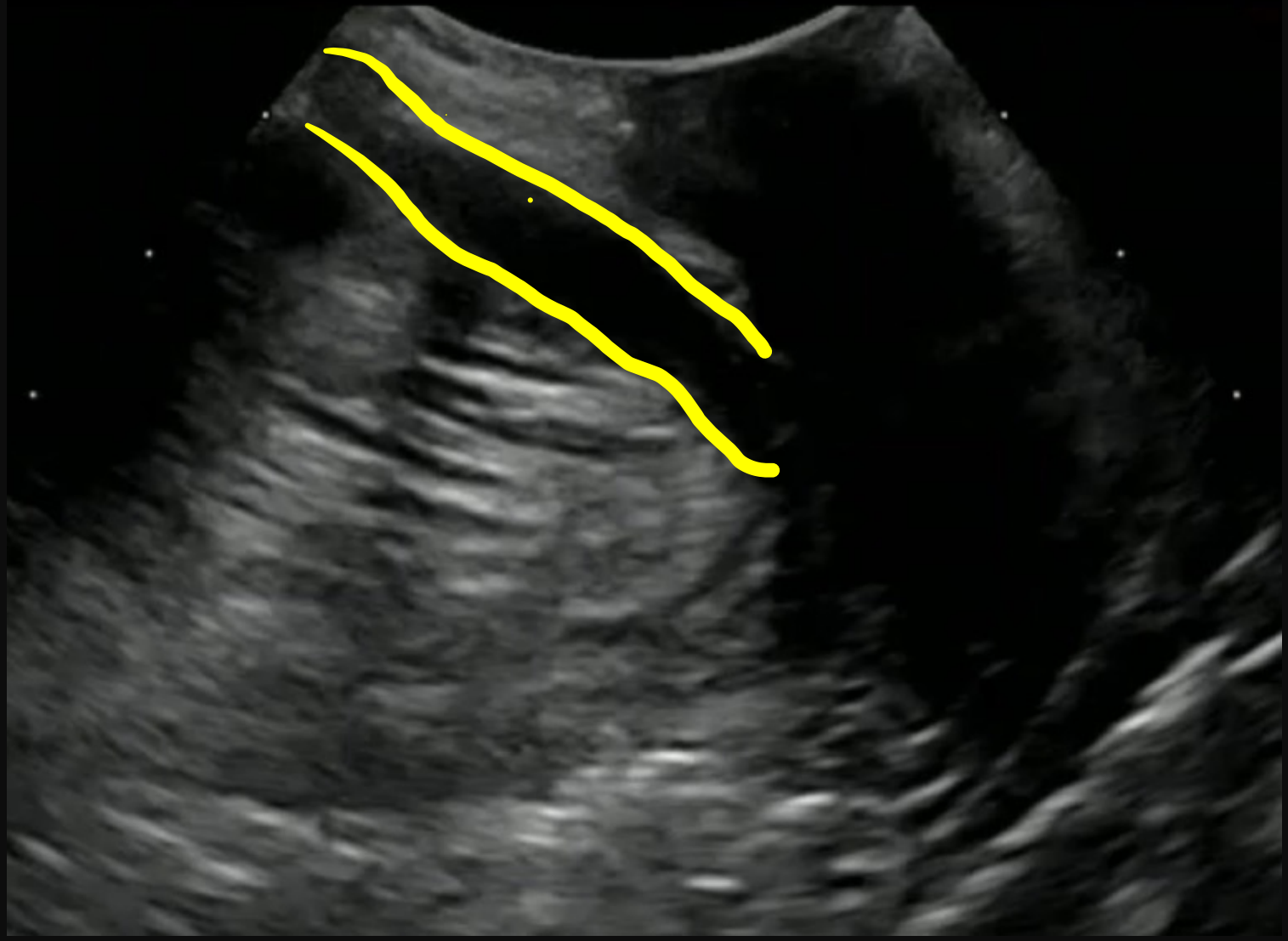
Fistula diameter 7 mm



Distance of the fistula from the skin 8.4 mm



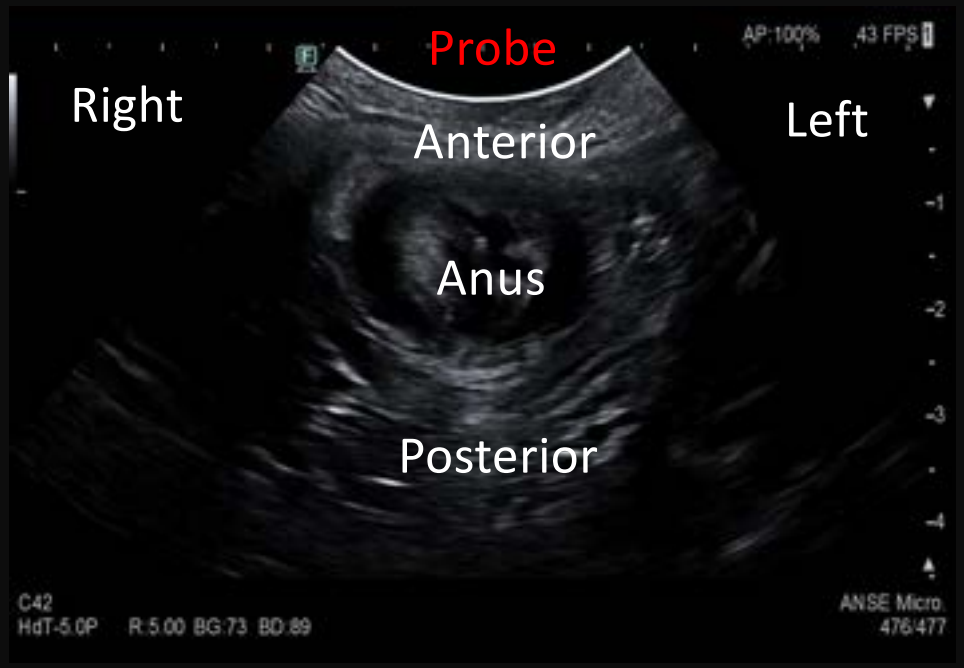
Posterior transfincteric fistula, sagittal scan



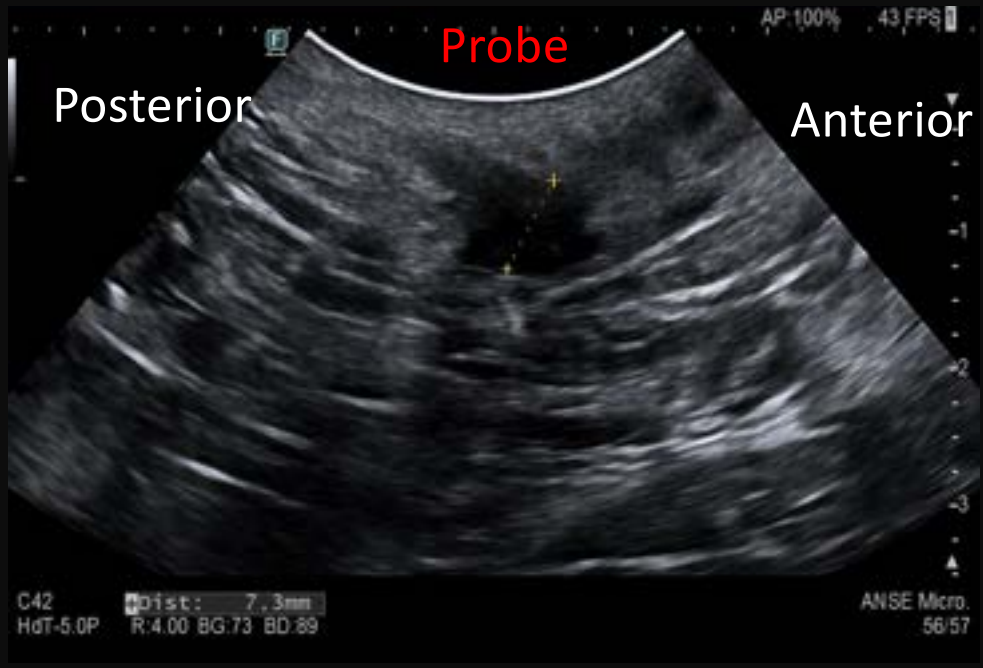
Transphincteric fistula at 1 o'clock

Interphincteric fistula at 7 o'clock

Transverse scan

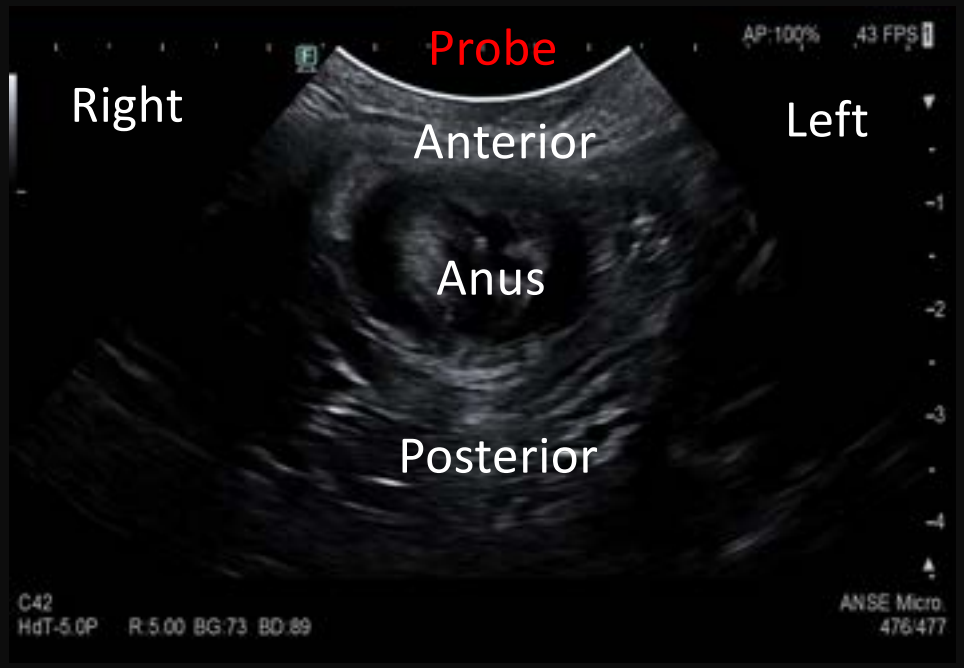


Sagittal scan

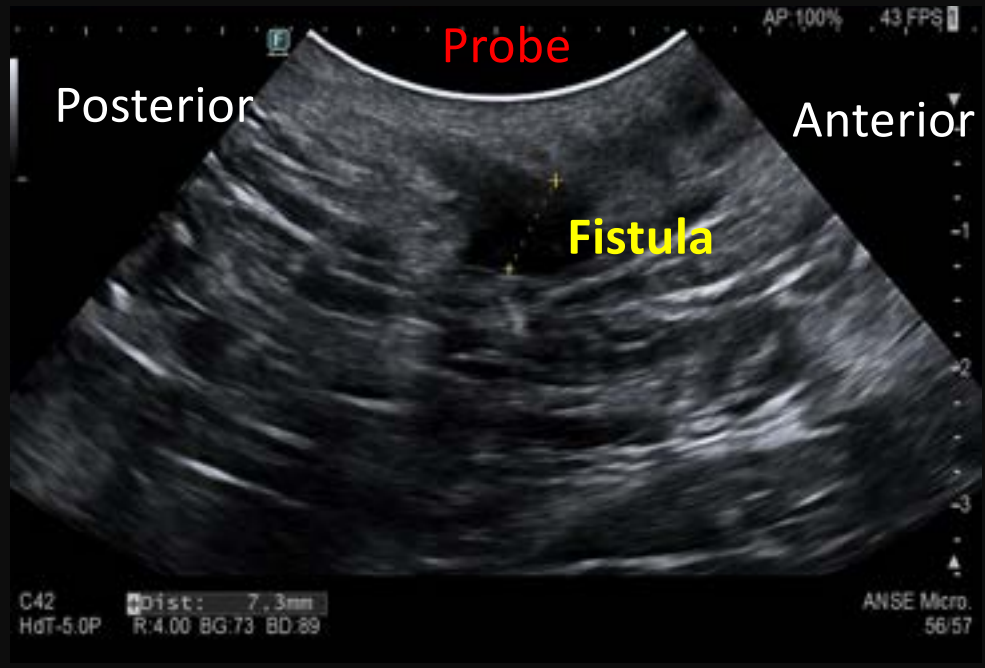


Extraspinteric fistula

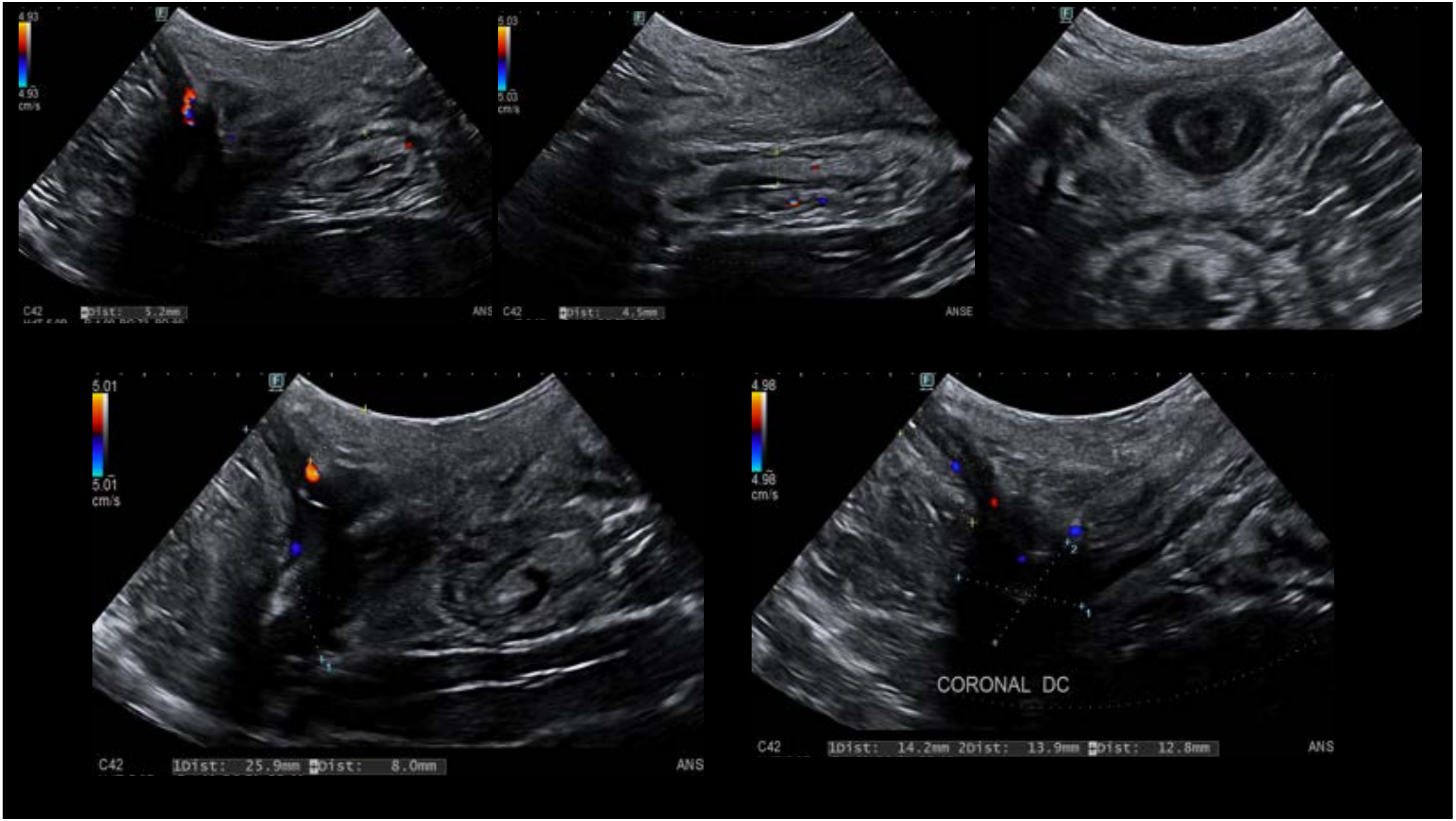
Transverse scan

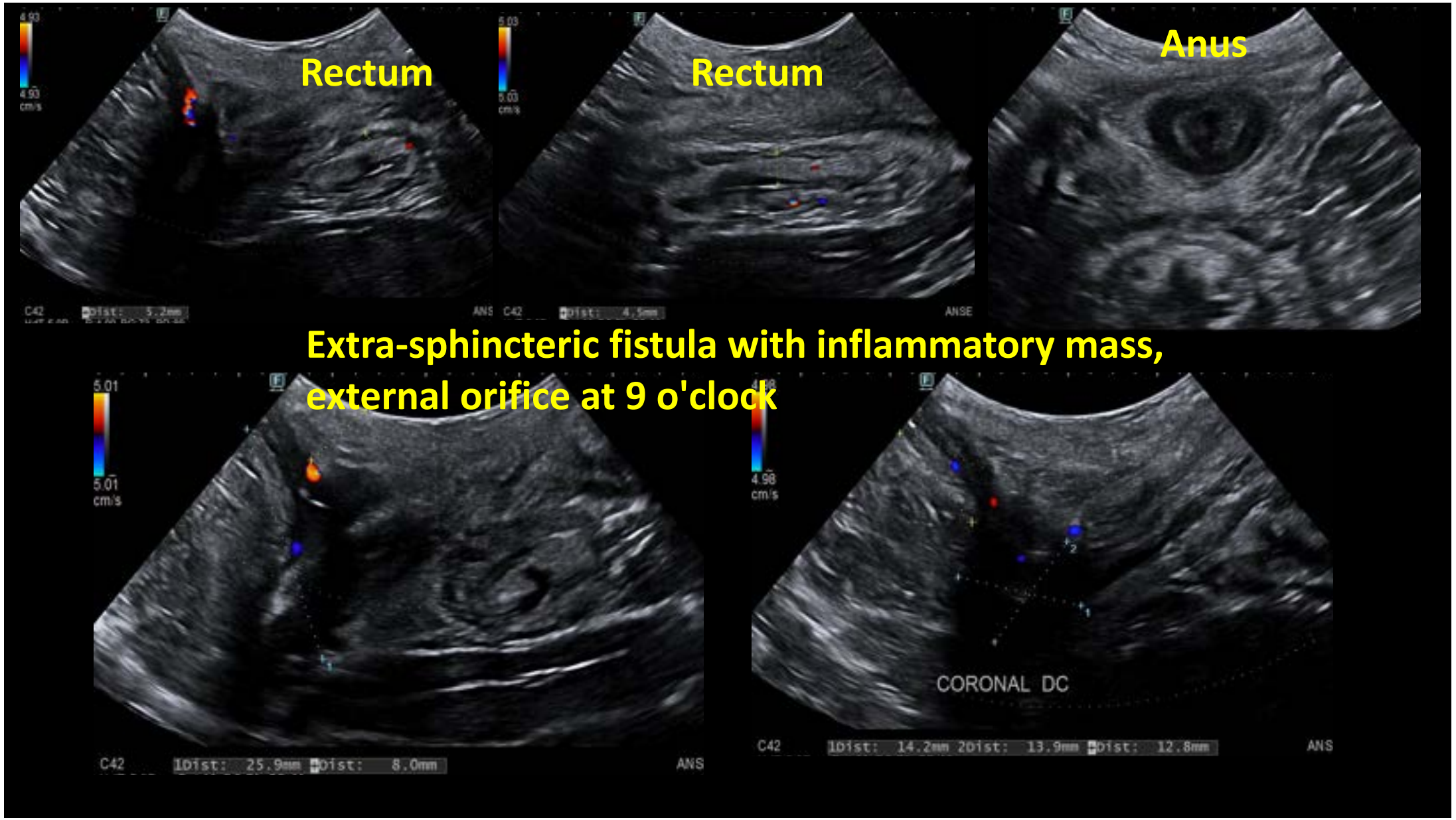


Sagittal scan



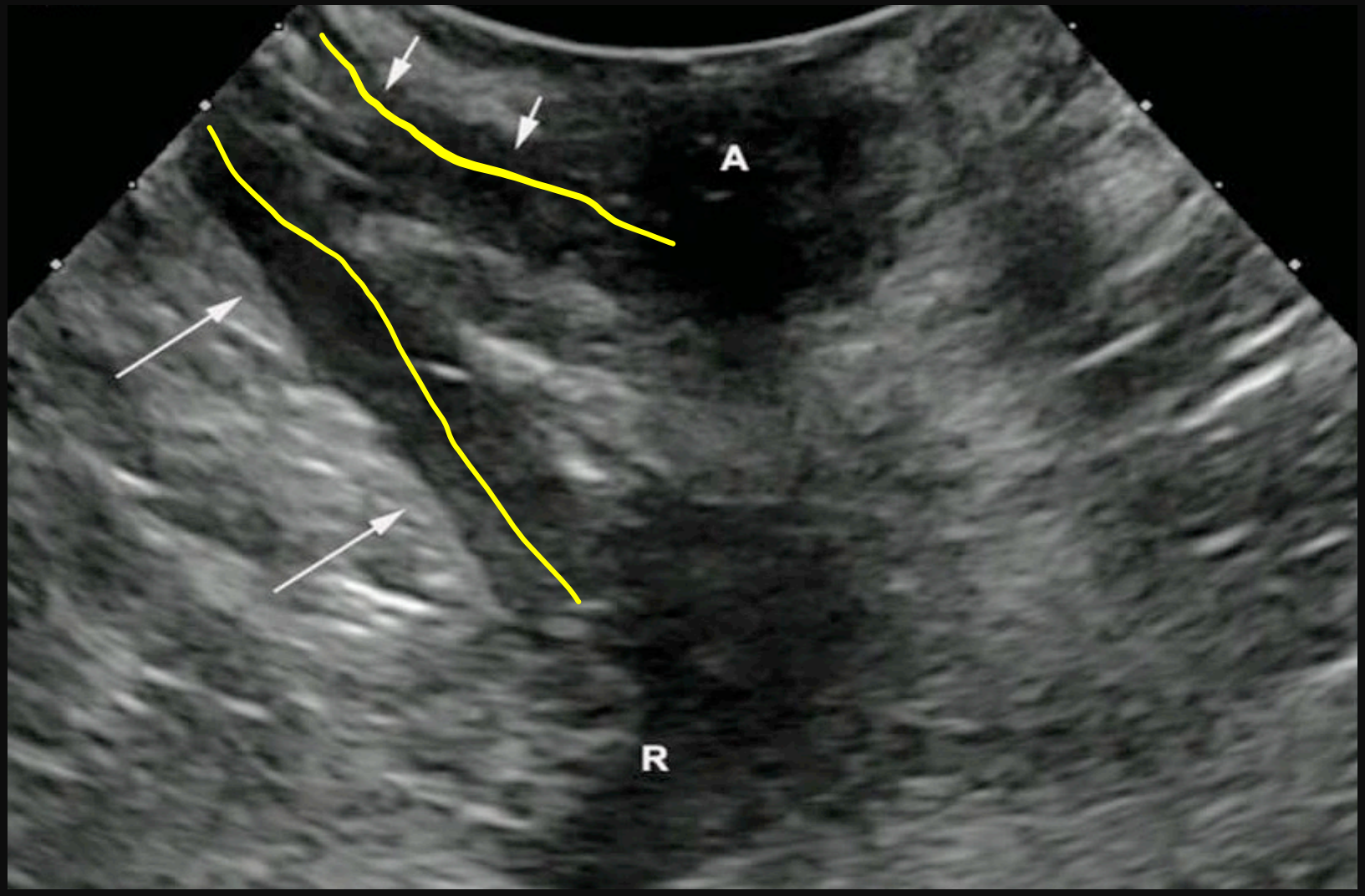
Extraspinteric fistula, coronal scan

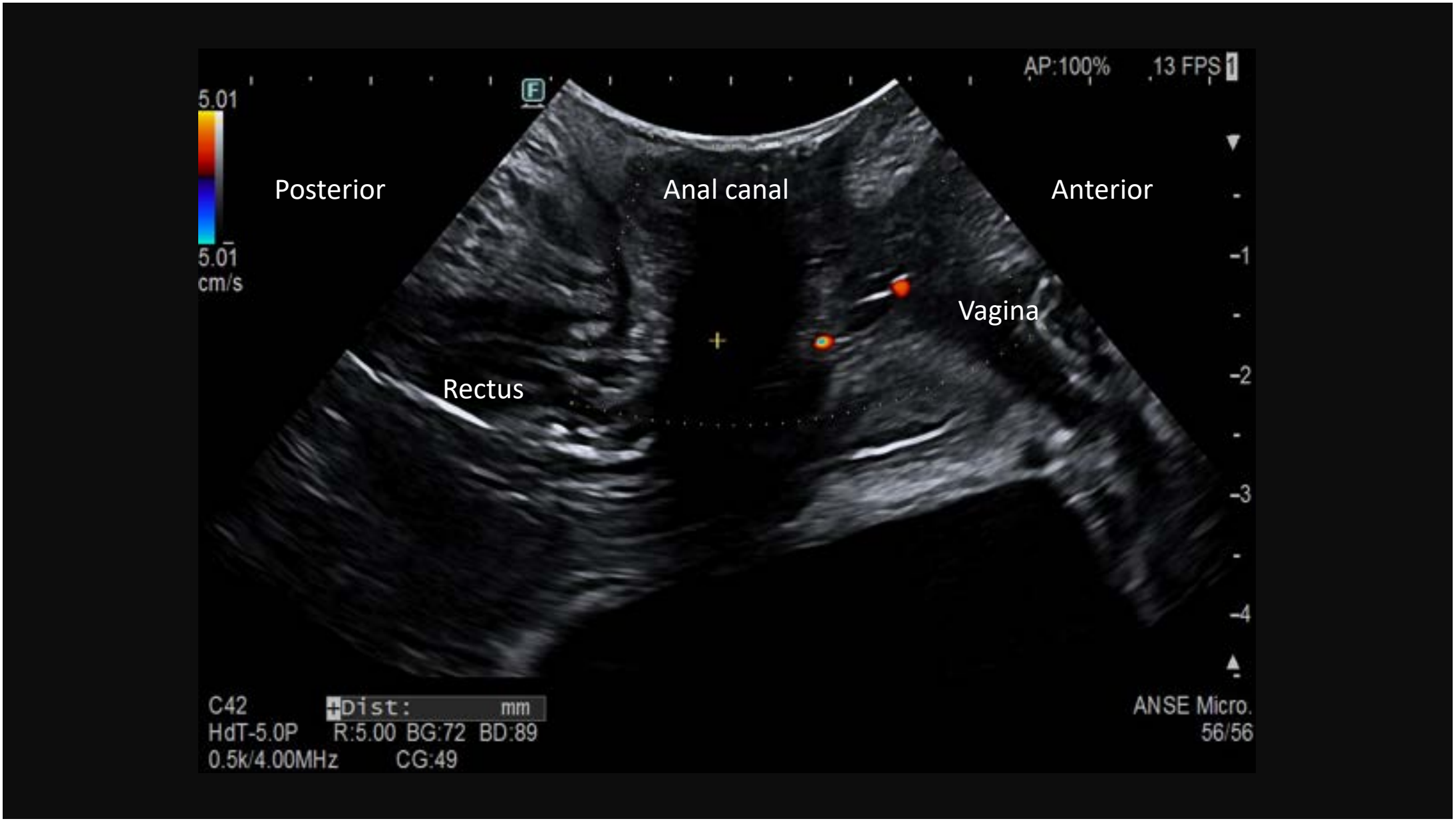

4.93
4.93
cm/s
C42
Dist: 5.2mm
ANS
5.03
5.03
cm/s
C42
Dist: 4.5mm
ANSE
5.01
5.01
cm/s
C42
1Dist: 25.9mm Dist: 8.0mm
ANS
4.98
4.98
cm/s
CORONAL DC
C42
1Dist: 14.2mm 2Dist: 13.9mm Dist: 12.8mm
ANS


Rectum
Rectum
Anus
Extra-sphincteric fistula with inflammatory mass,
external orifice at 9 o'clock
CORONAL DC

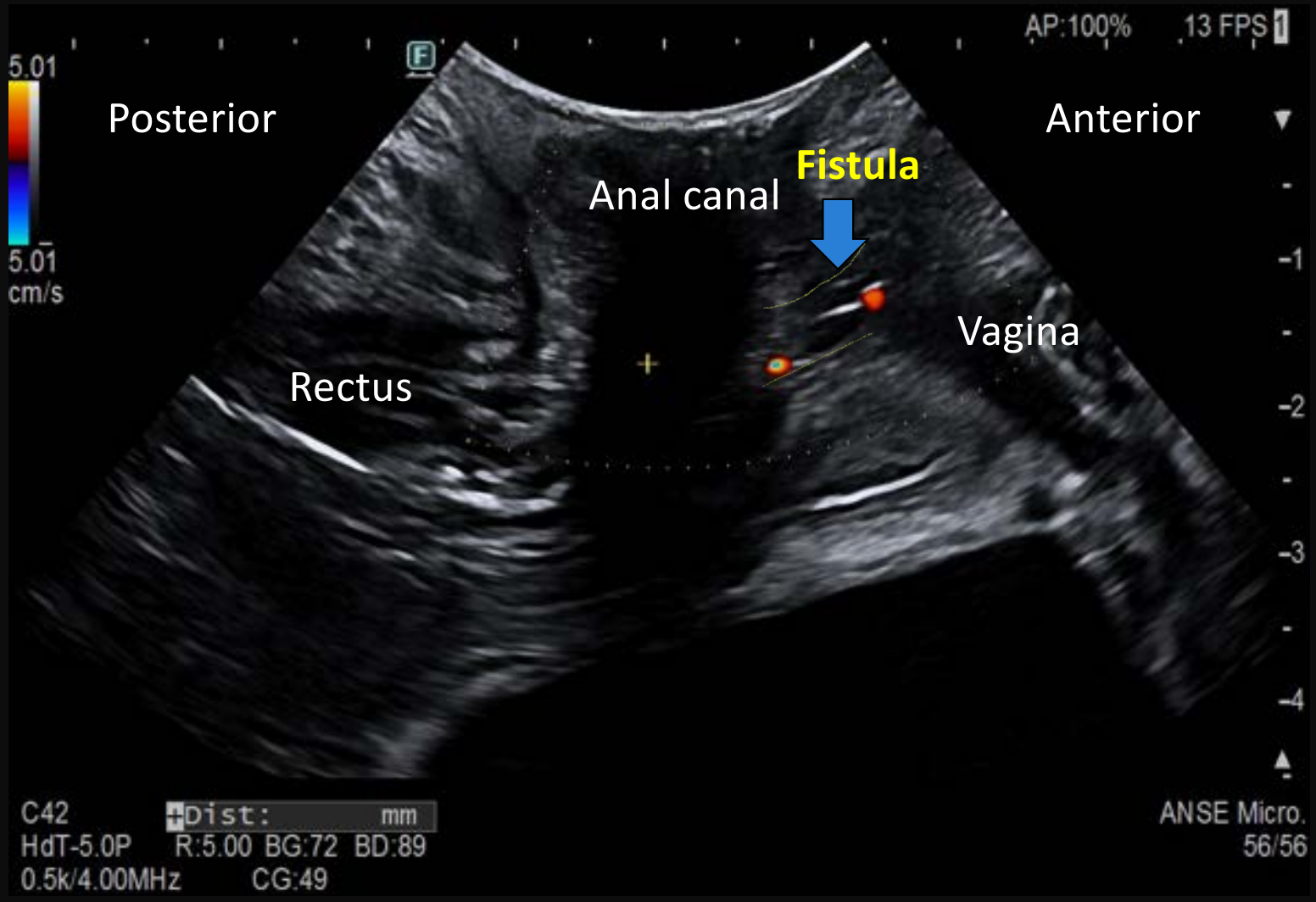

-02

Trans- and extrasfincteric fistula




AP:100%
13 FPS
5.01
5.01
cm/s
Posterior
Anal canal
Anterior
Vagina
Rectus
C42
HdT-5.0P
0.5k/4.00MHz
Dist:
mm
R:5.00 BG:72 BD:89
CG:49
ANSE Micro.
56/56

Recto-vaginal fistula, sagittal scan

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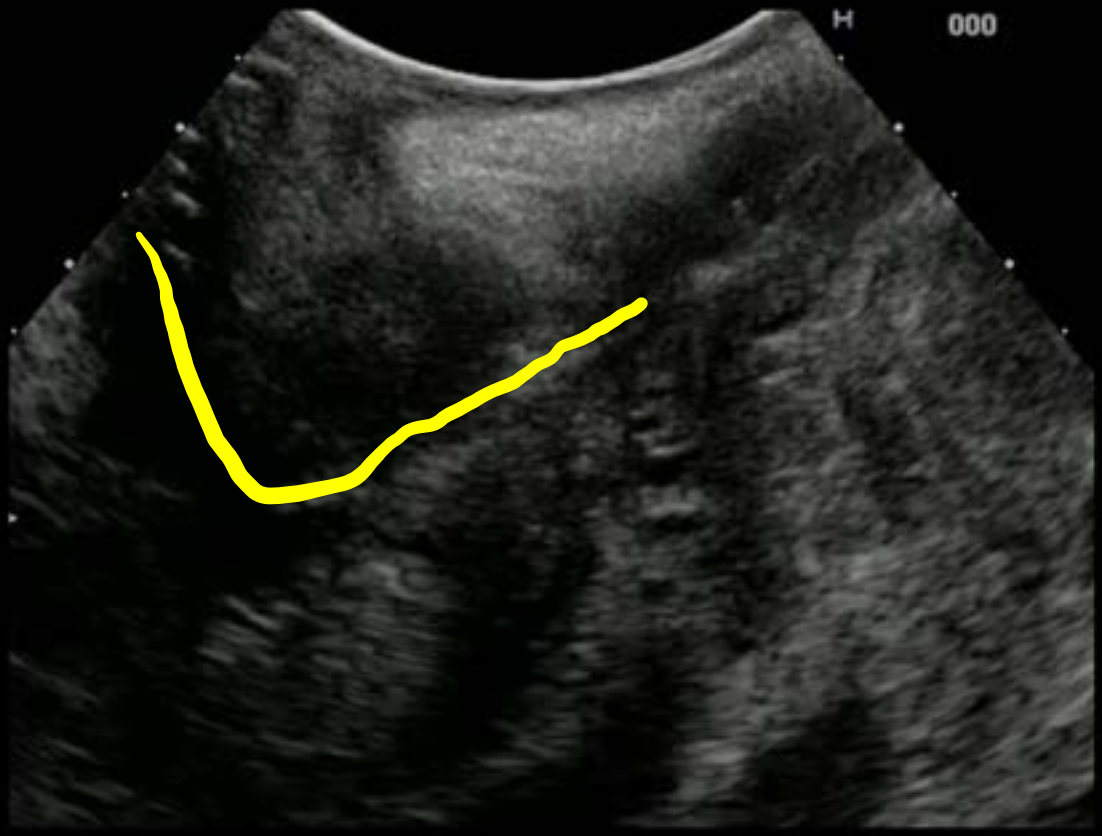
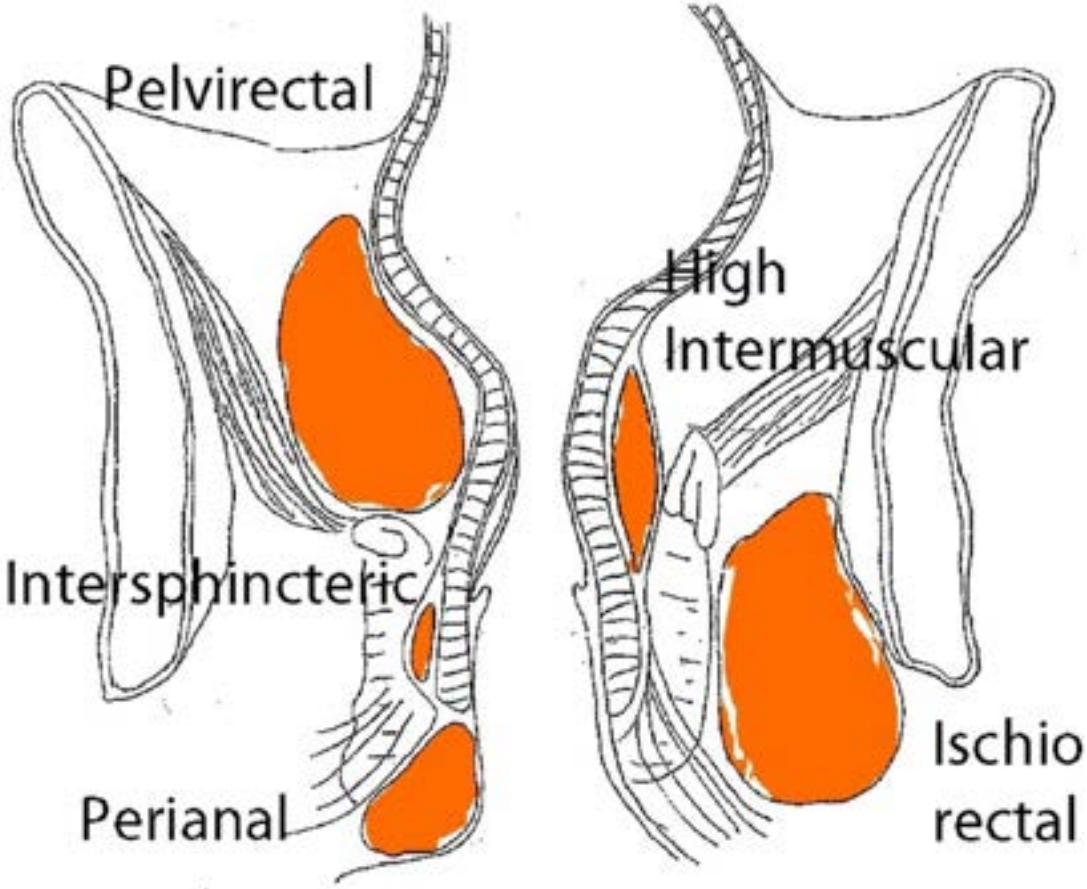
Recto-vaginal fistula



Classification of perianal abscesses



Lavazza and Maconi. J of Ultrasound 2019

Perianal superficial abscess

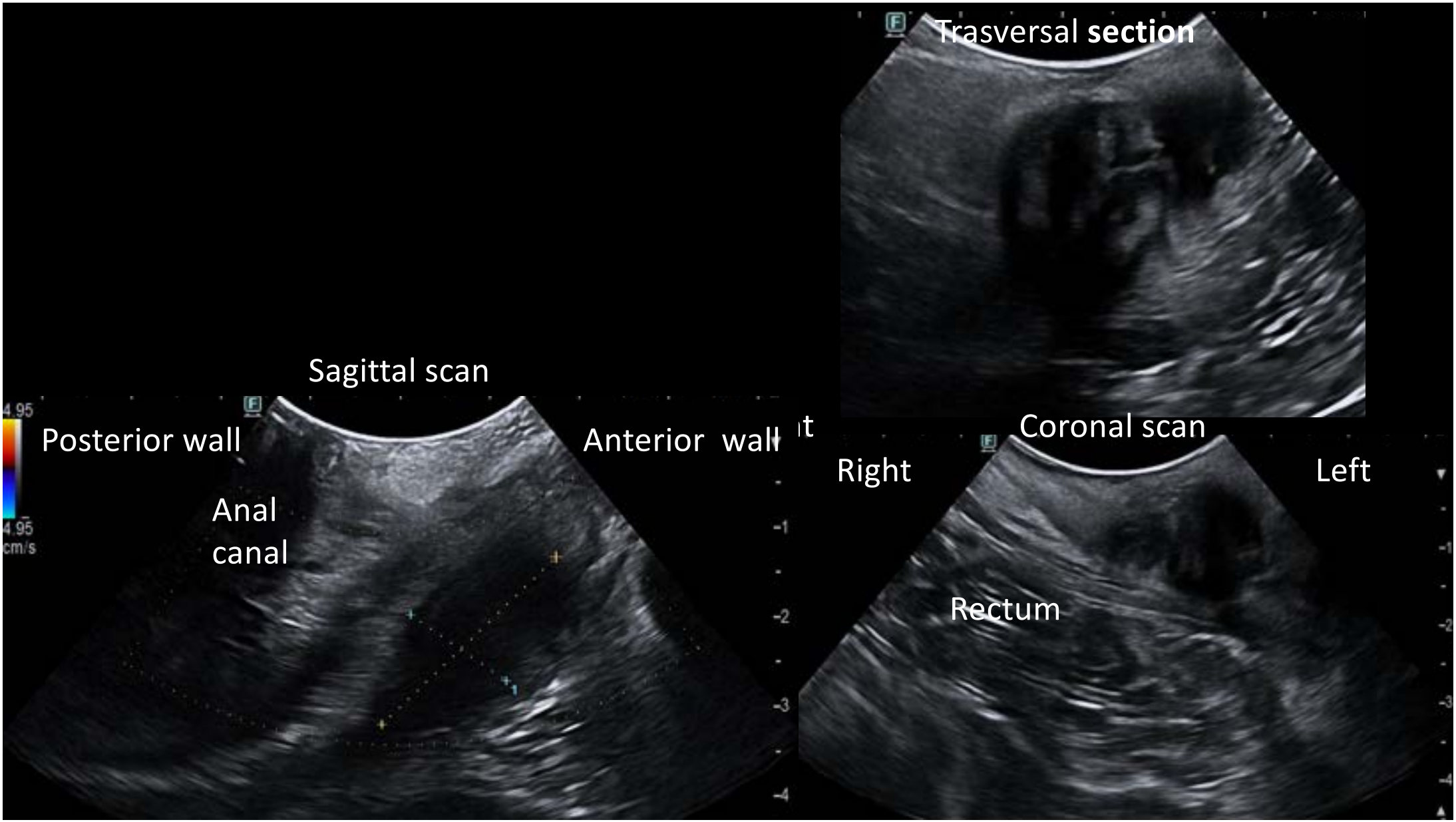

MI 0.85 TIS<0.4 AP:100% 43 FPS
Anus
-1
-2
-3
-4
C42
HdT-7.4Rx R:5.00 BG:75 BD:89
ANSE Micro.

Intersphincteric abscess, trasverse scan

Posterior intersphincteric sbscess, 6 o'clock,
with no vascular signals on colour Doppler

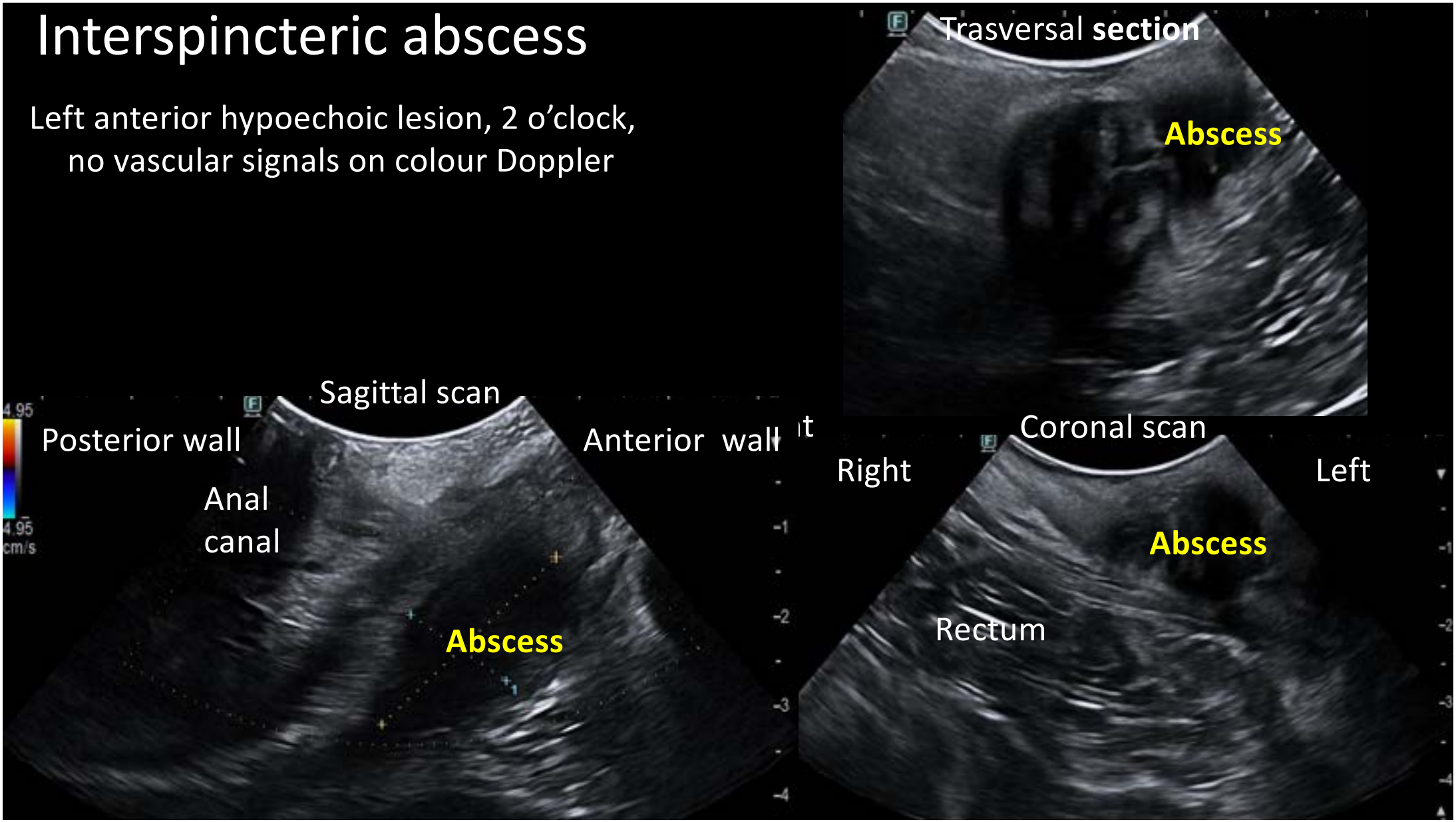
Intersphincteric abscess, trasverse scan

Posterior intersphincteric sbscess, 6 o'clock,
with no vascular signals on colour Doppler


Trasversal **section**
Sagittal scan
Posterior wall
Anterior wall
Anal
canal
Coronal scan
Right
Left
Rectum

Interspincteric abscess

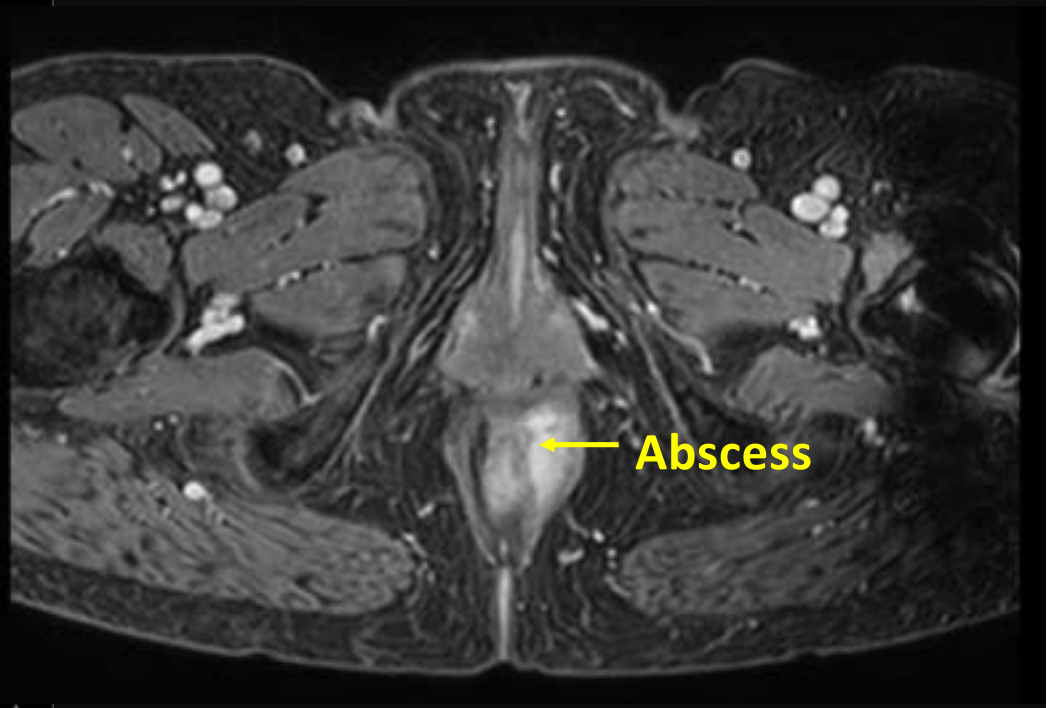
Left anterior hypoechoic lesion, 2 o'clock,
no vascular signals on colour Doppler



Interspincteric abscess

Left anterior hypoechoic lesion, 2 o'clock,
no vascular signals on colour Doppler

Trasversal section

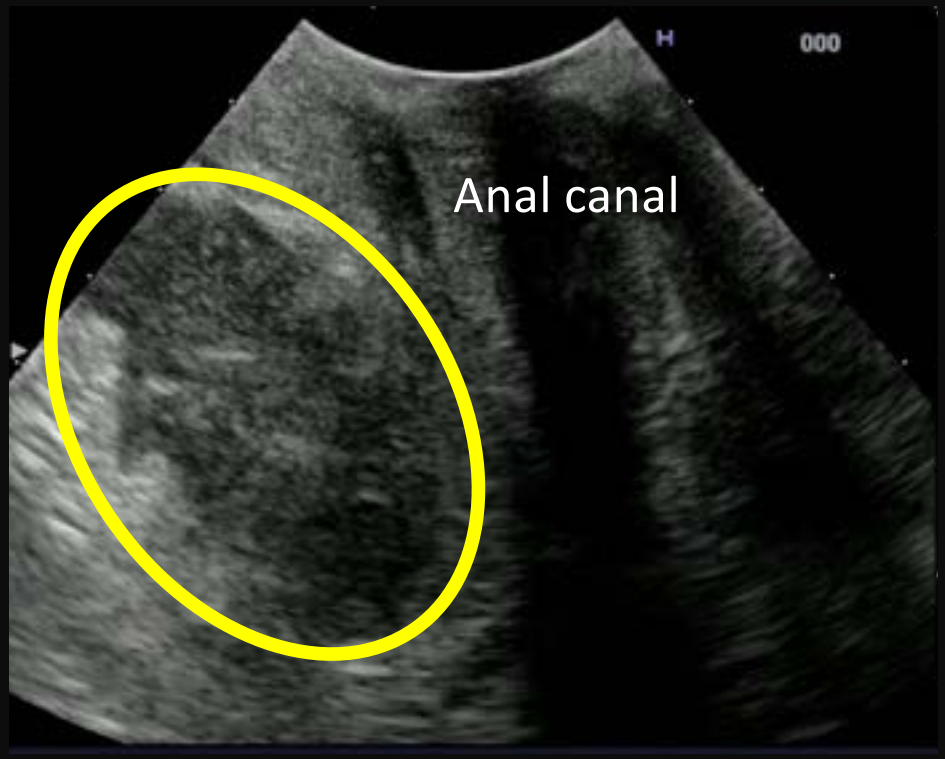


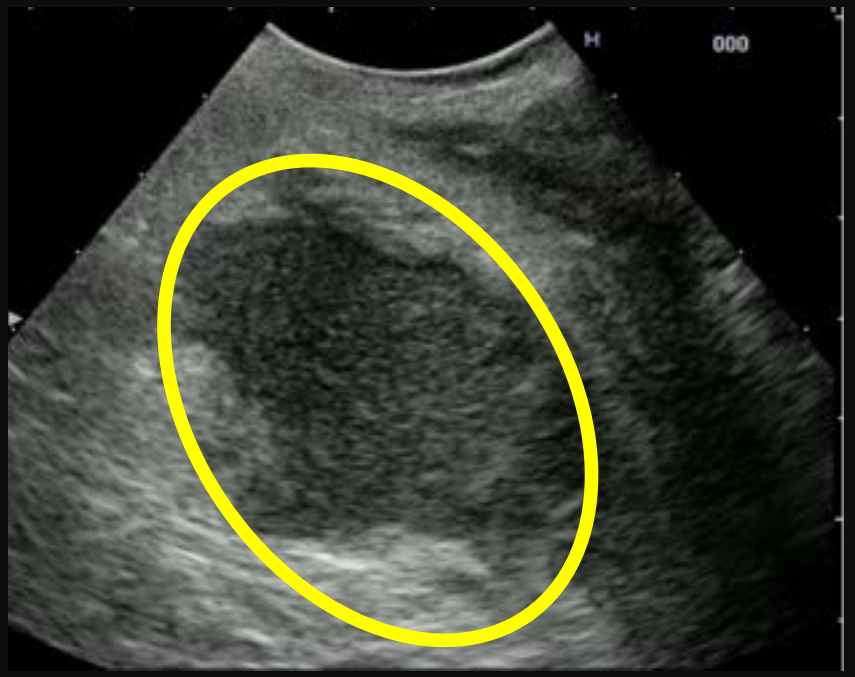

H
000


H
000
Anal canal


H
000

Ischiorectal inflammatory mass





TPUS has a sensitivity of 98% and 86% in detecting perianal fistulae and abscesses

Detection of perianal fistula

Sensitivity **98%** (95% CI 96-100%)

PPV **95%** (95% CI 90-96%)

Classification of perianal fistula

Sensitivity **92%** (95% CI 85-97%)

PPV **92%** (95% CI 83-98%)

Detection of internal orifice

Sensitivity **91%** (95%CI8 4%-97%)

PPV **87%** (95%CI: 76%-95%)

Detection of perianal abscesses

Sensitivity **86%** (95% CI 67-99%)

PPV **90%** (95% CI 76-99%)

12 studies, 565 patients

Sensitivity reduced for supra/extrasphincteric tracts and deep abscesses

Maconi et al. Ultraschall in Med 2017

Journal of Crohn's and Colitis, 2025, **19(9)**, jjaf170
https://doi.org/10.1093/ecco-jcc/jjaf170
Advance access publication 18 September 2025
Original Article

International consensus on the use of intestinal ultrasound in inflammatory bowel disease trials

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Approved definitions for TPUS response/remission in pCD

Response	Remission
• Reduction in the number of separate fistulae (93.3%) • Decrease in fistula length/size of at least 50% compared to baseline (76.9%) • Reduced number of collections (100%) • Reduction in collection size of at least 50% compared to baseline (76.9%), • Diminished vascularity as assessed by CDS (84.6%)	• Complete disappearance of all fistulae (93.3%) • Resolution of all collections (100%)
Time points	
At weeks 12-16, 24, 48-52	At weeks 12-16, 24, 36, 48-52

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Thank you