

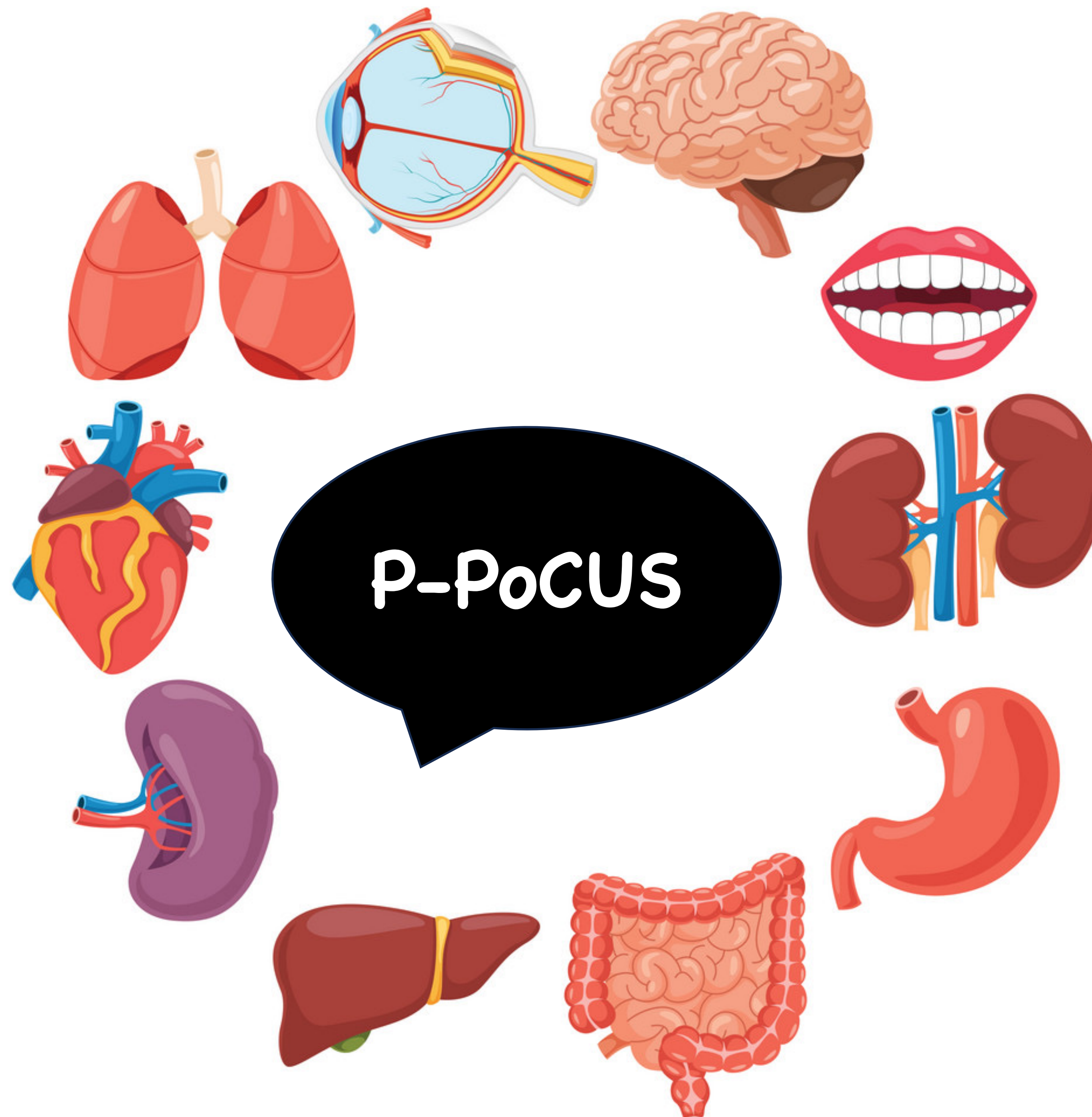
Pocus

in
PEM





FOR THE BOLD™





PoCUS  formal ultrasonography

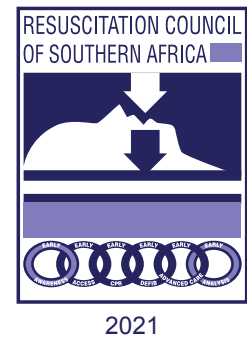


rule in ...

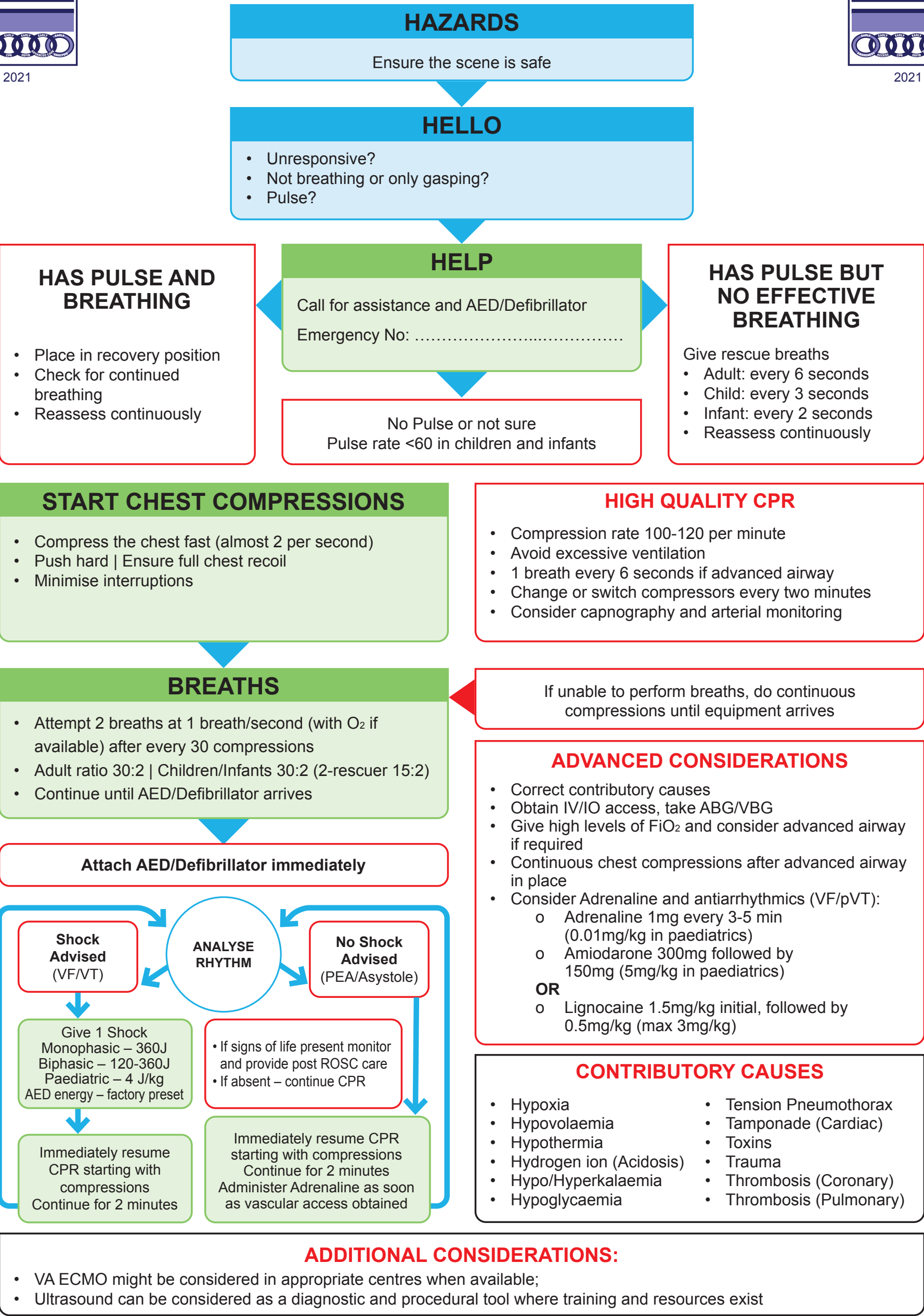
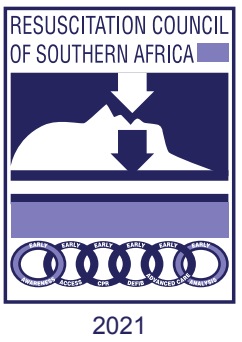
not rule out

Resuscitation





Advanced Cardiac Arrest Algorithm Adult and Paediatric



ADDITIONAL CONSIDERATIONS:

- VA ECMO might be considered in appropriate centres when available;
- Ultrasound can be considered as a diagnostic and procedural tool where training and resources exist

Retinal detachment





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Lung ultrasound

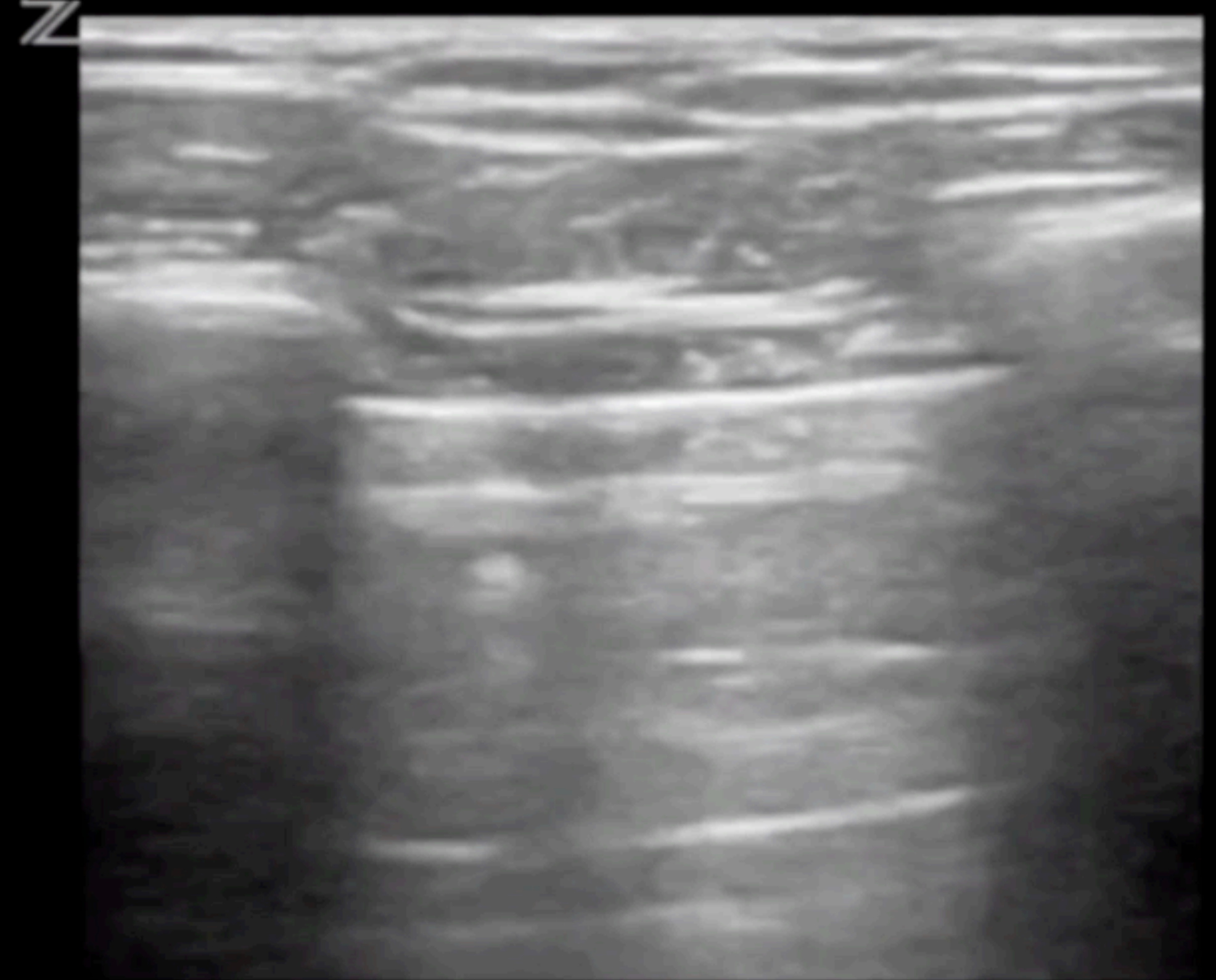
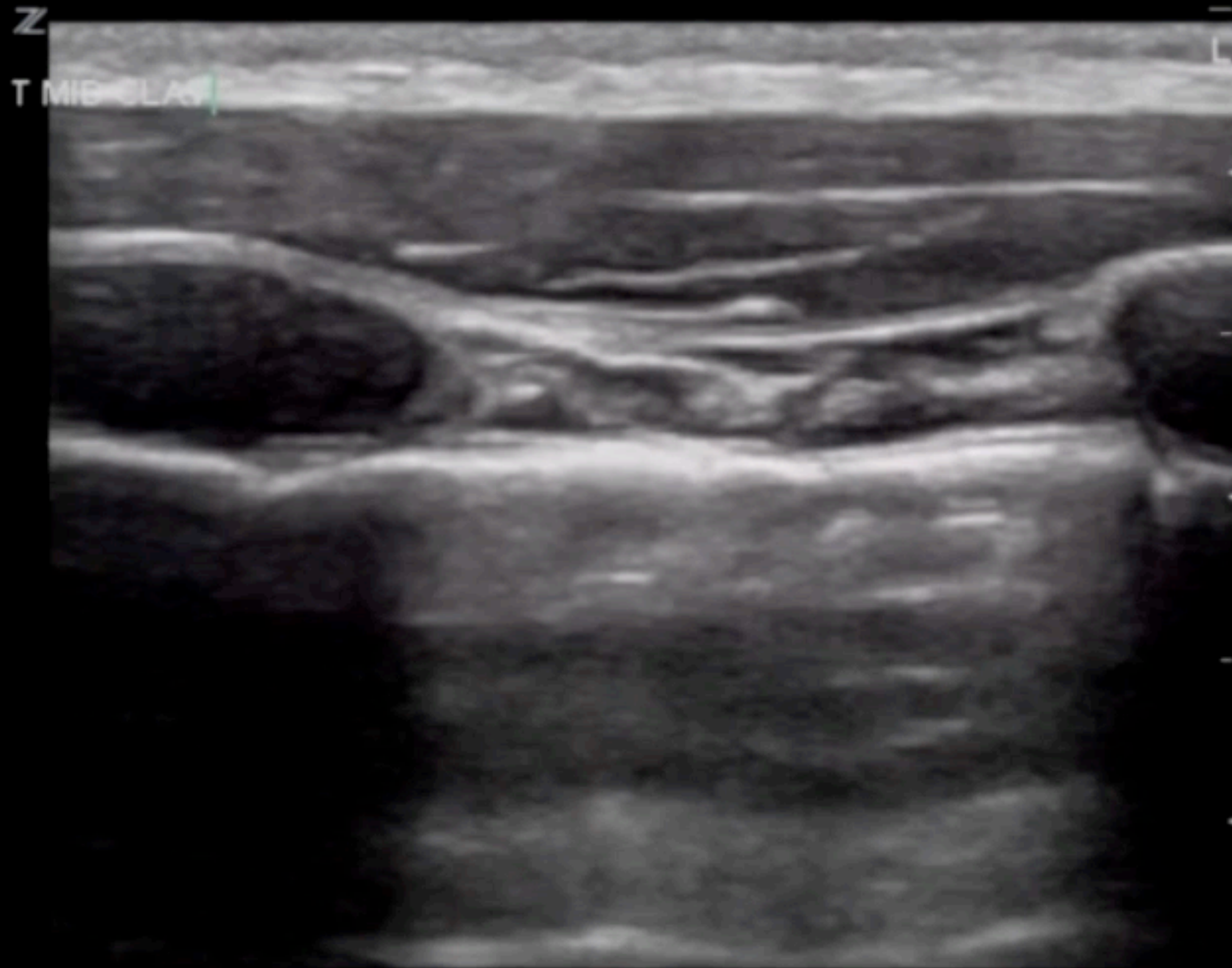


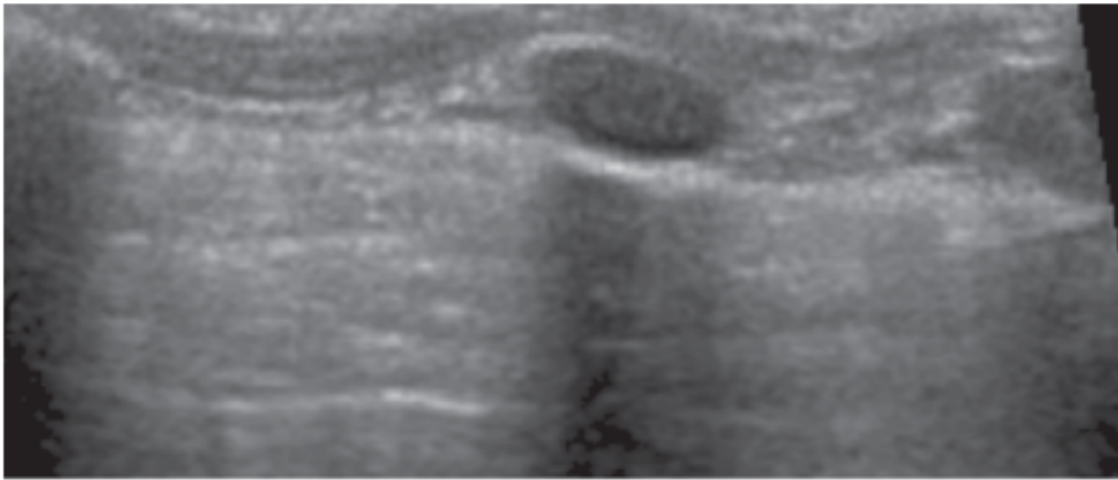
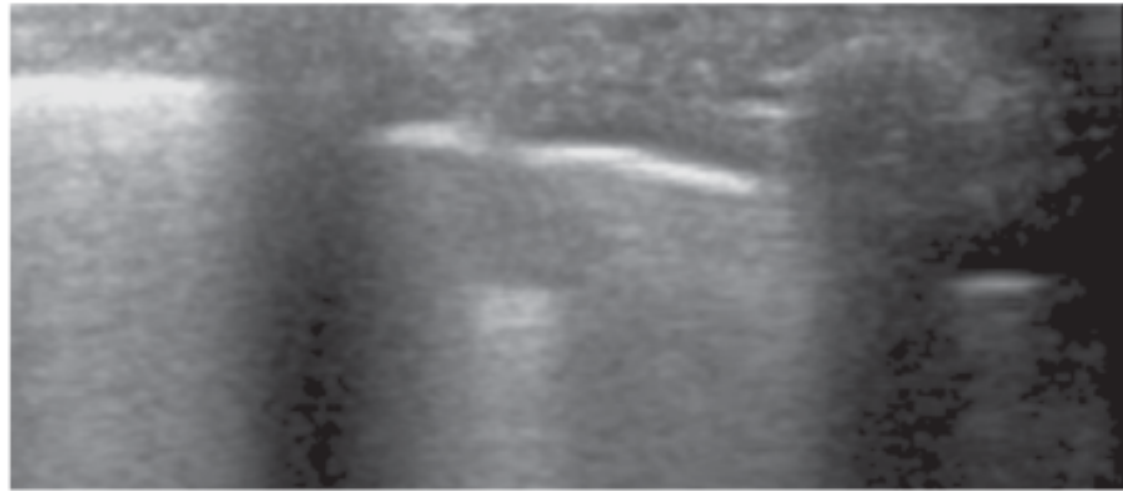
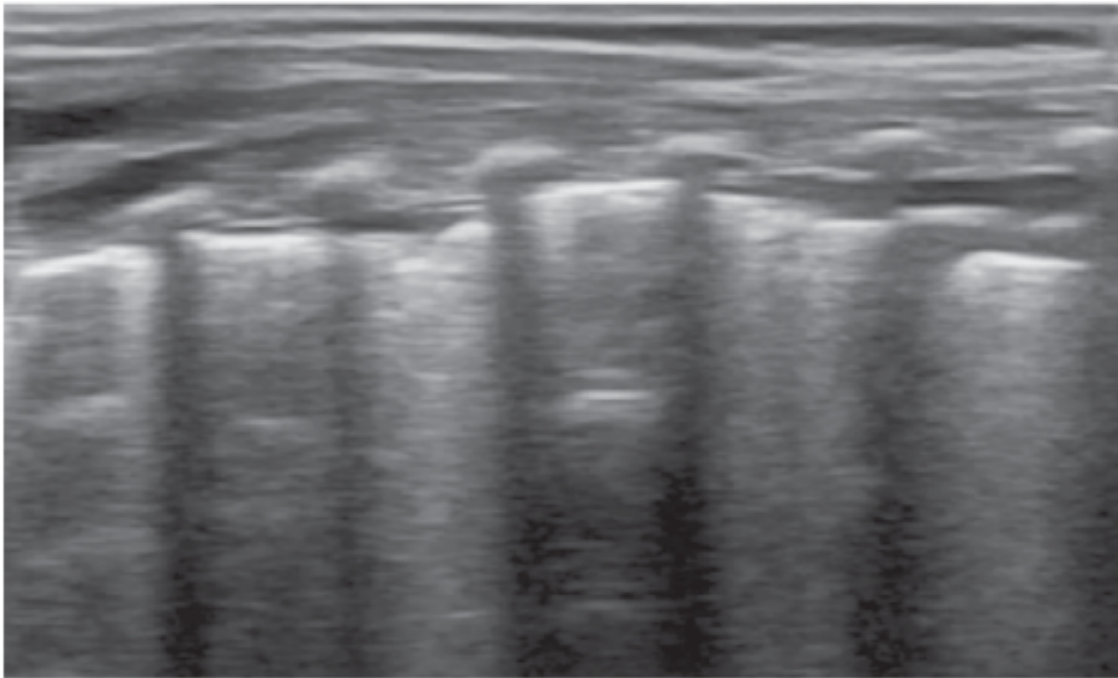
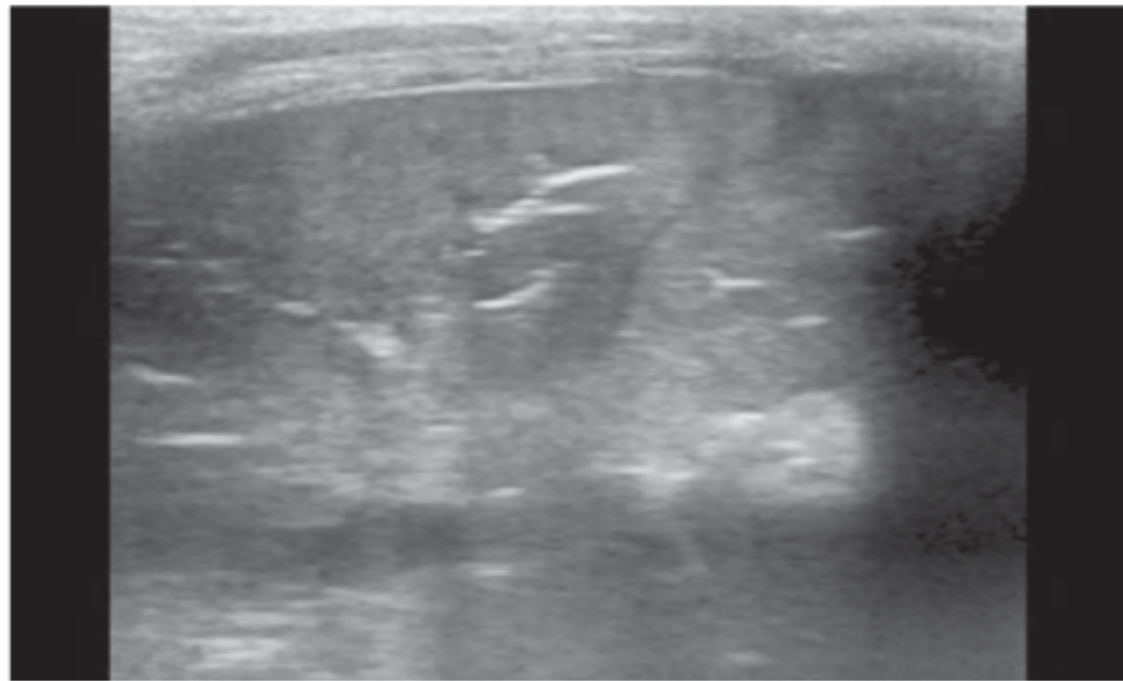
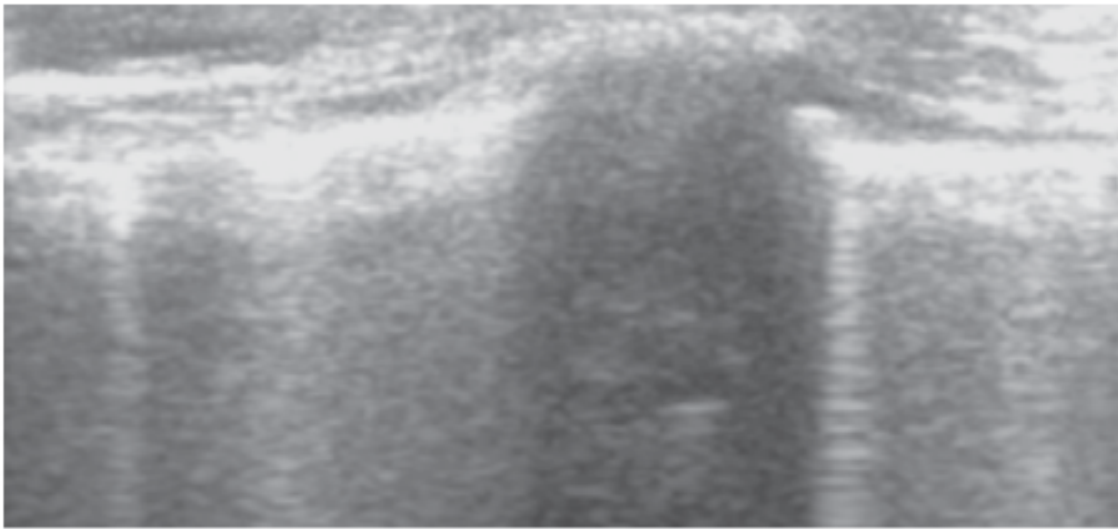
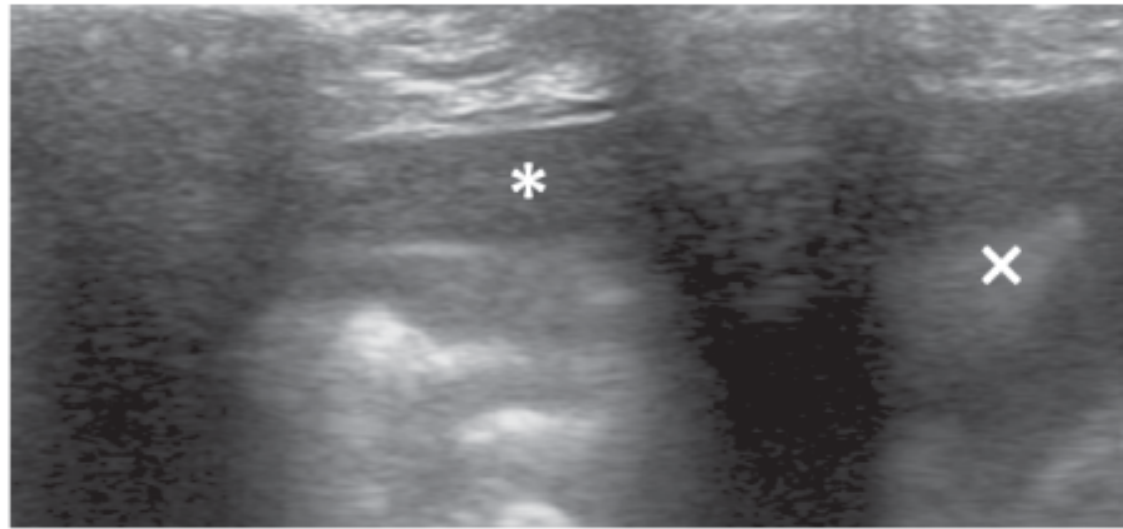
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Sliding Vs. No Sliding

Normal

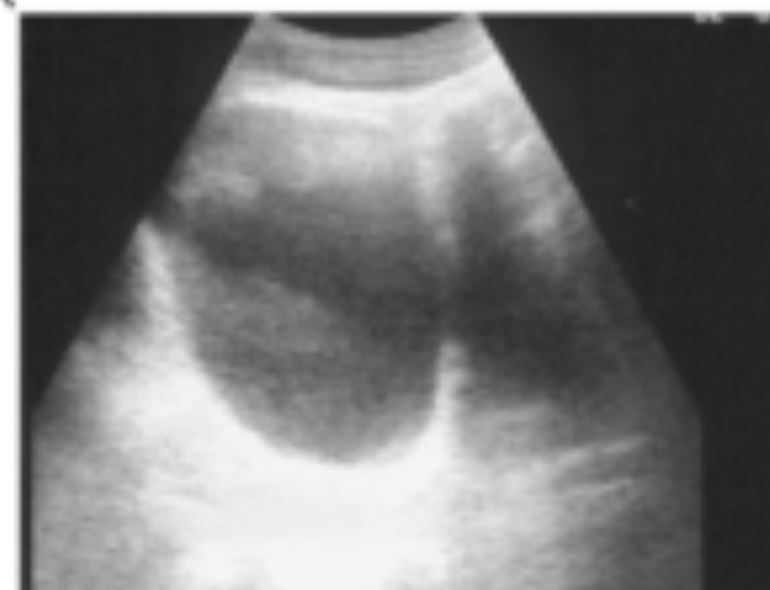
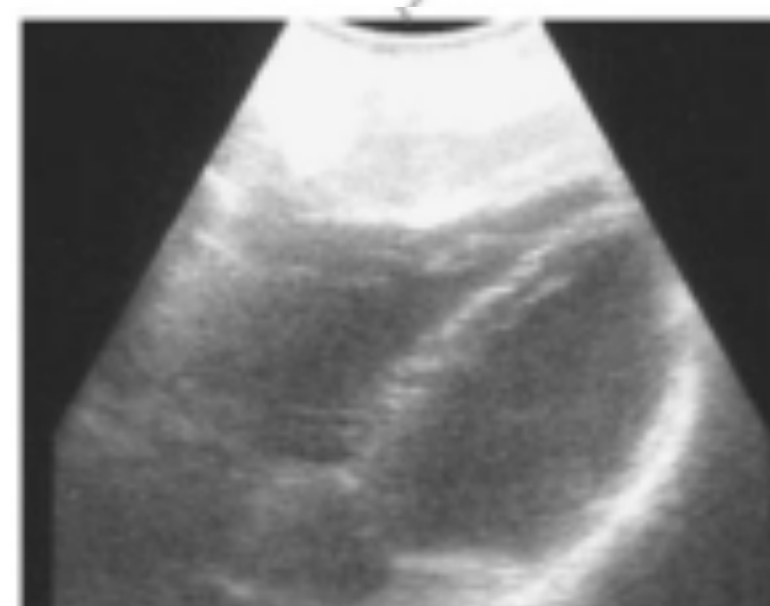
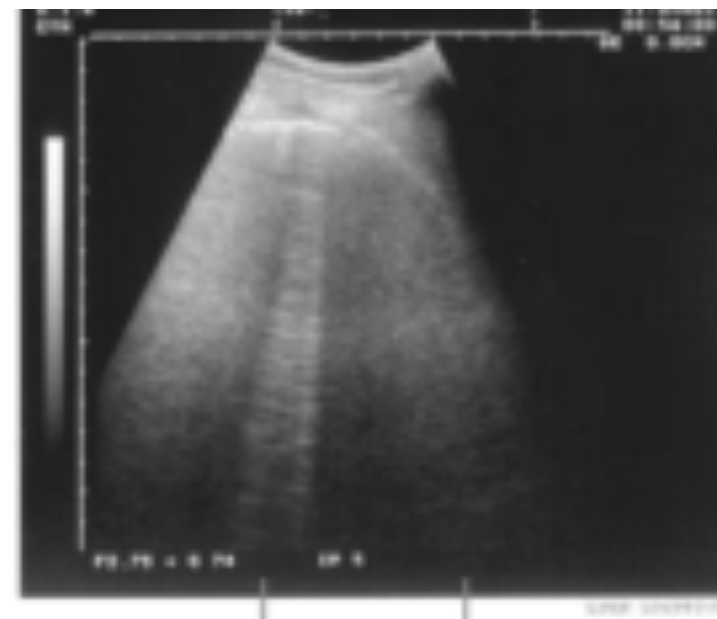
Abnormal



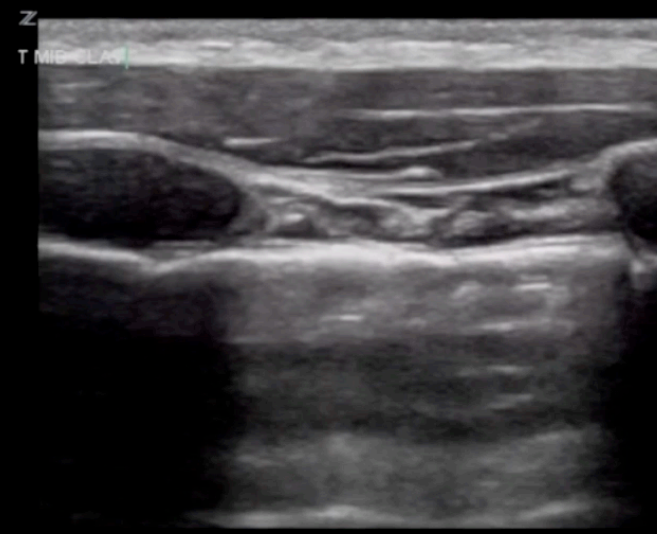
B-line severity patterns		Consolidations	
	Normal Lung sliding: A-lines with less than 2 B-lines		Viral pneumonia: diffuse/coalescent B-lines with small, multiple and bilateral subpleural consolidations
	Moderate: multiple and well defined B-lines		Bacterial pneumonia: Consolidation with air bronchogram or the presence of white lung.
	Severe: multiple and coalescent B-lines		Atelectasis(x): consolidation with a tissue-like pattern with static air bronchogram. Pleural effusion(*): anechoic space between the two pleura.

Trauma

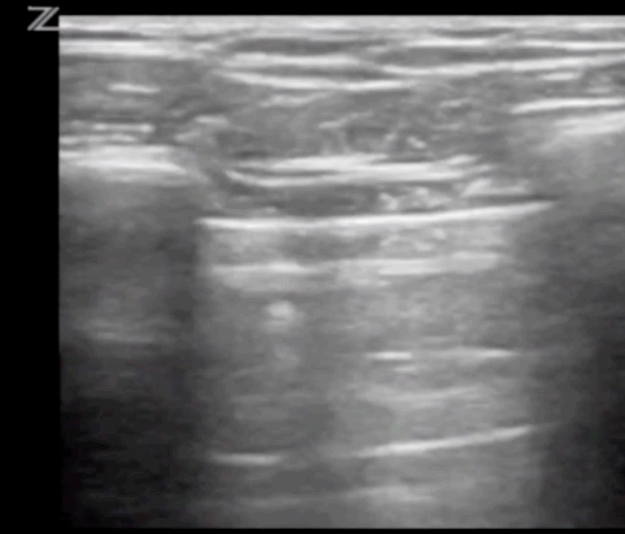




Normal

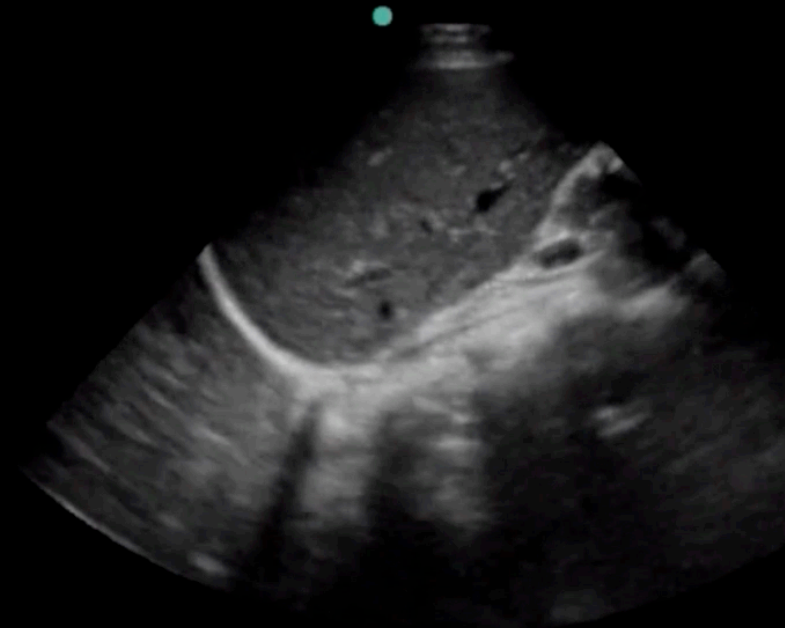


Abnormal



RUQ View

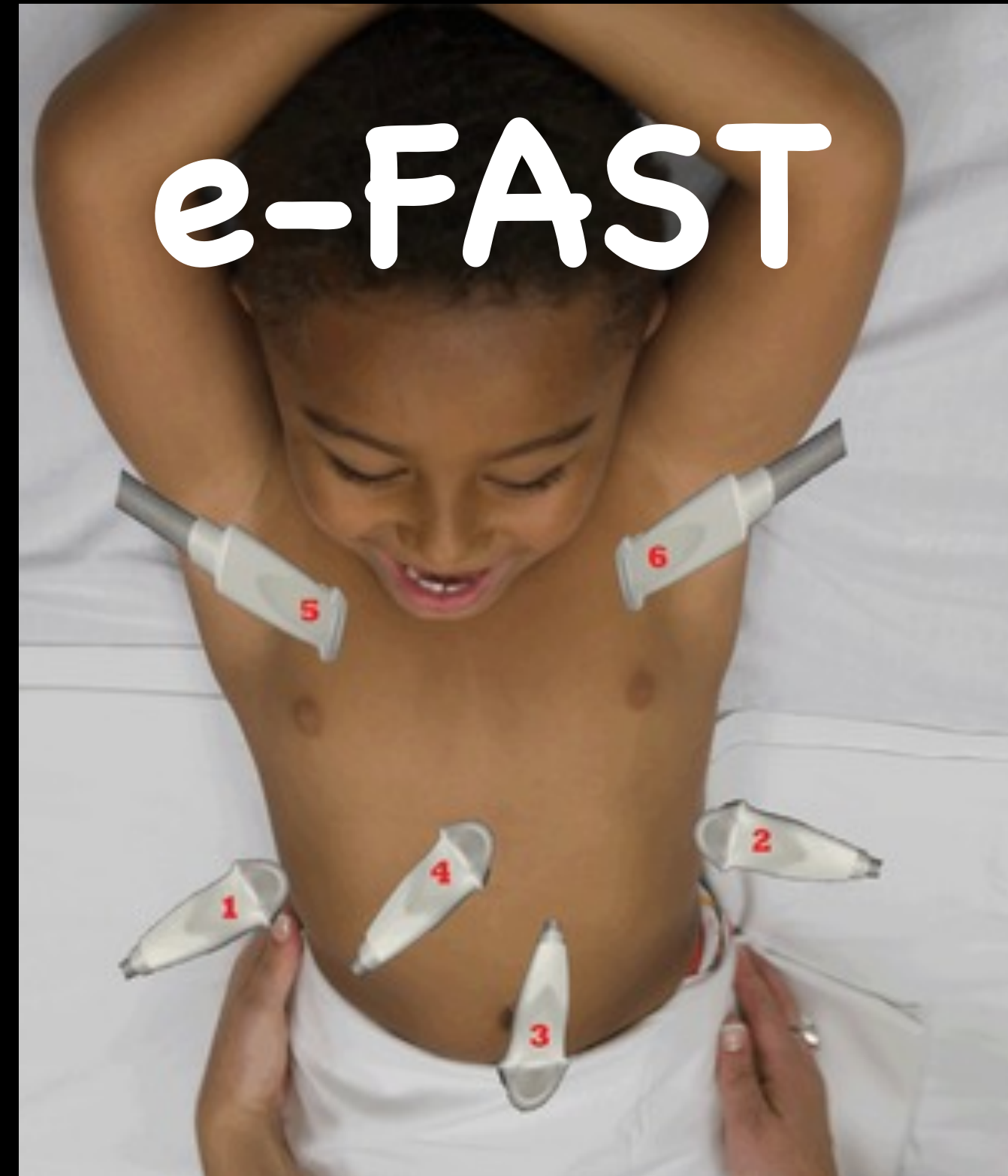
Normal



Abnormal

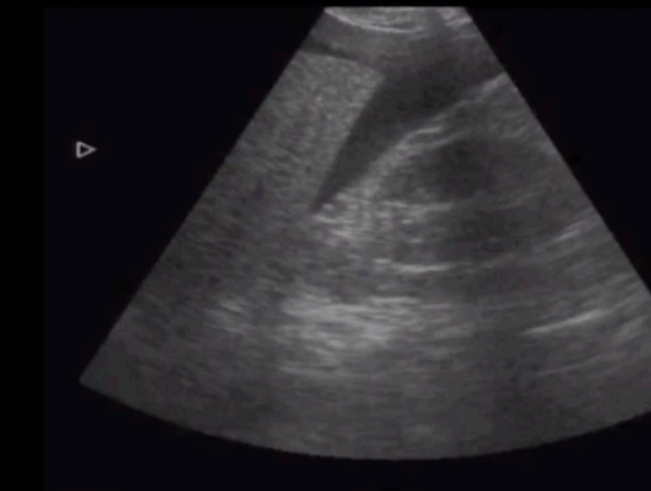


e-FAST

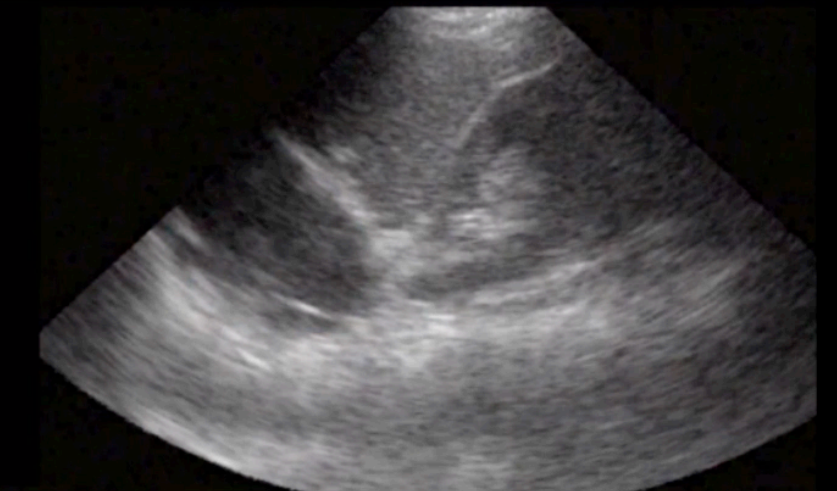


Splenorenal Free Fluid Vs. Normal Fluid in the Stomach

Splenorenal Free Fluid

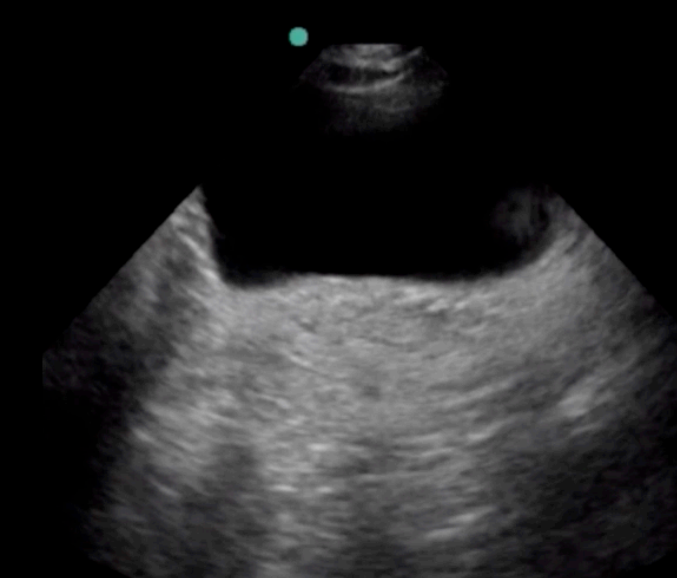


Fluid in Stomach

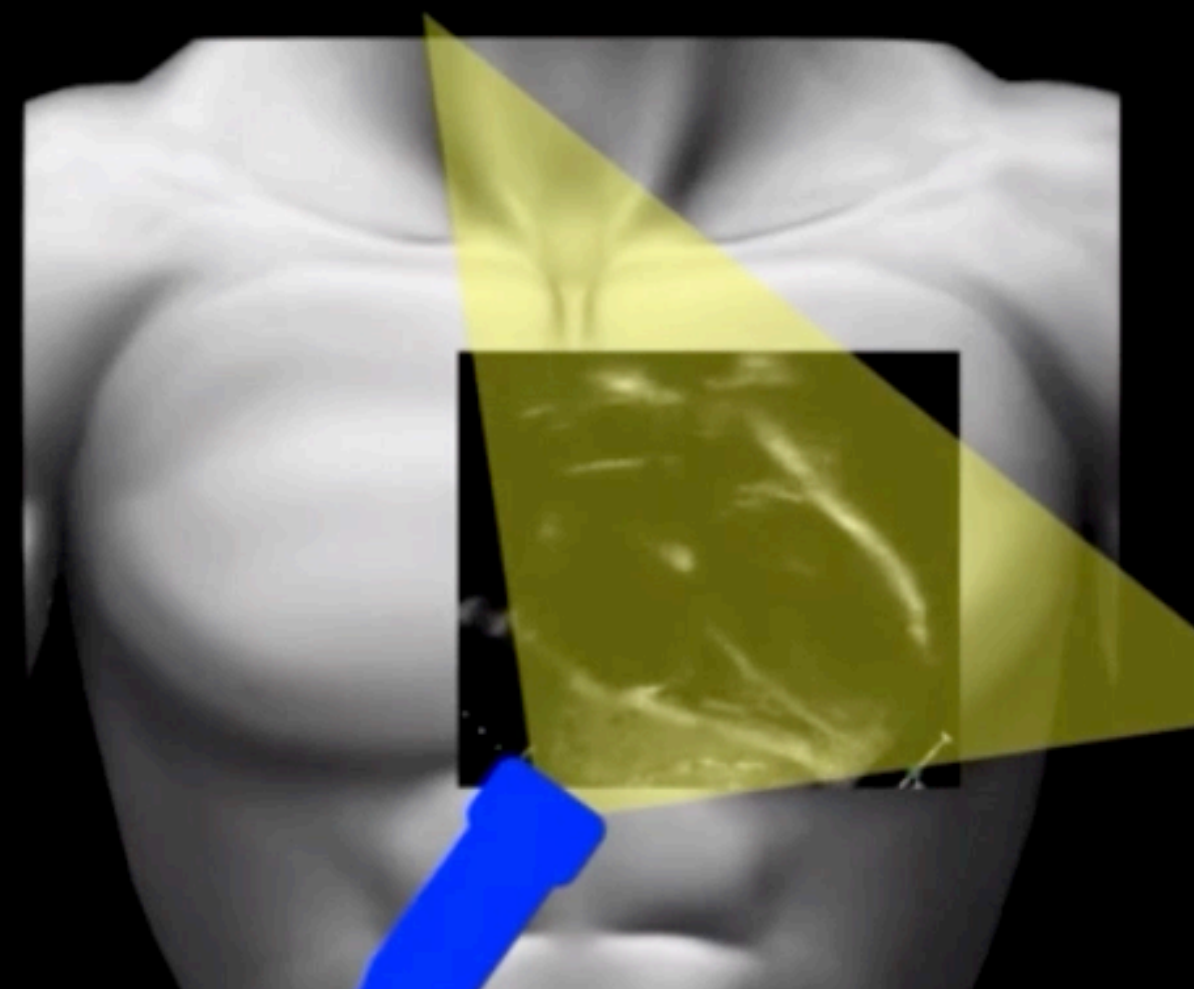
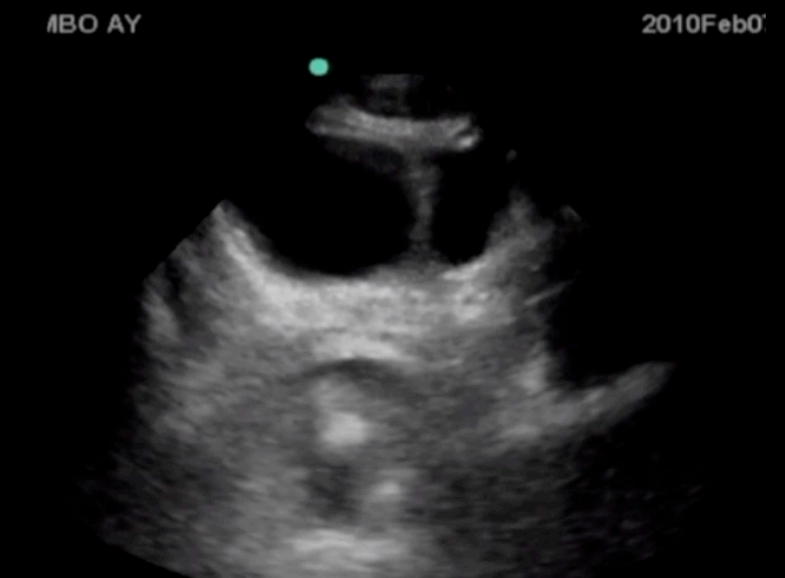


Transverse Suprapubic View

Normal



Abnormal





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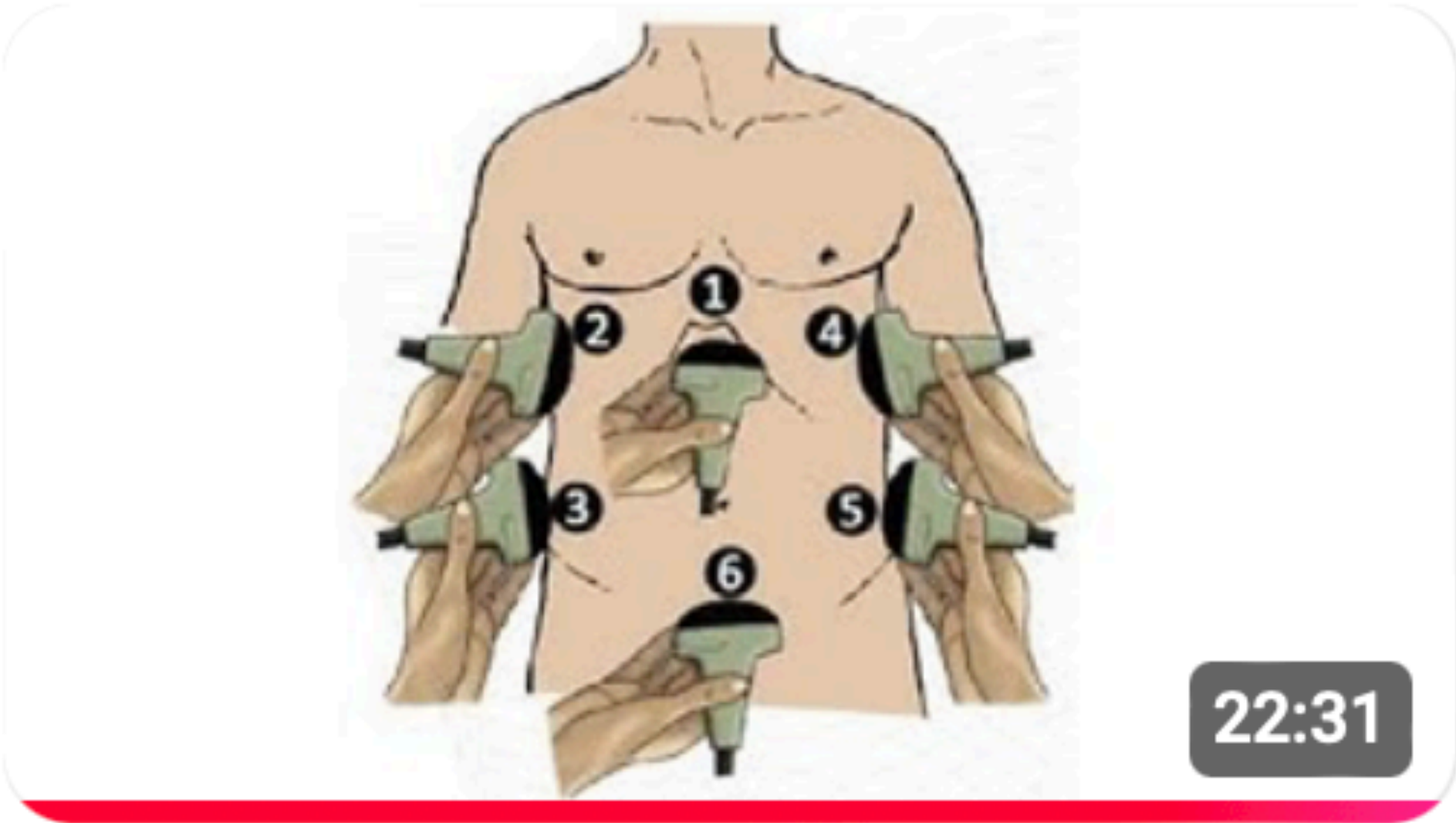
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Dr Tayla Ferguson



FASH Focused Assessment by
Sonography in HIV / TB

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Dr Kelly Davids



HIV + TB



ORIGINAL ARTICLE

Open Access

Focused assessment with sonography for HIV-associated tuberculosis (FASH): a short protocol and a pictorial review

Tom Heller^{1*}, Claudia Wallrauch¹, Sam Goblirsch² and Enrico Brunetti³

Abstract

Background: Ultrasound can rapidly identify abnormal signs, which in high prevalence settings, are highly suggestive of extra-pulmonary tuberculosis (EPTB). Unfortunately experienced sonographers are often scarce in these settings.

Methods: A protocol for focused assessment with sonography for HIV-associated tuberculosis (FASH) which can be used by physicians who are relatively inexperienced in ultrasound was developed.

Results: The technique as well as normal and pathological findings are described and the diagnostic and possible therapeutic reasoning explained. The protocol is intended for settings where the prevalence of HIV/TB co-infected patients is high.

Conclusion: FASH is suitable for more rapid identification of EPTB even at the peripheral hospital level where other imaging modalities are scarce and most of the HIV and TB care will be delivered in the future.

Keywords: HIV, TB, Co-infection, Ultrasound, Focused assessment, Resource-limited setting.

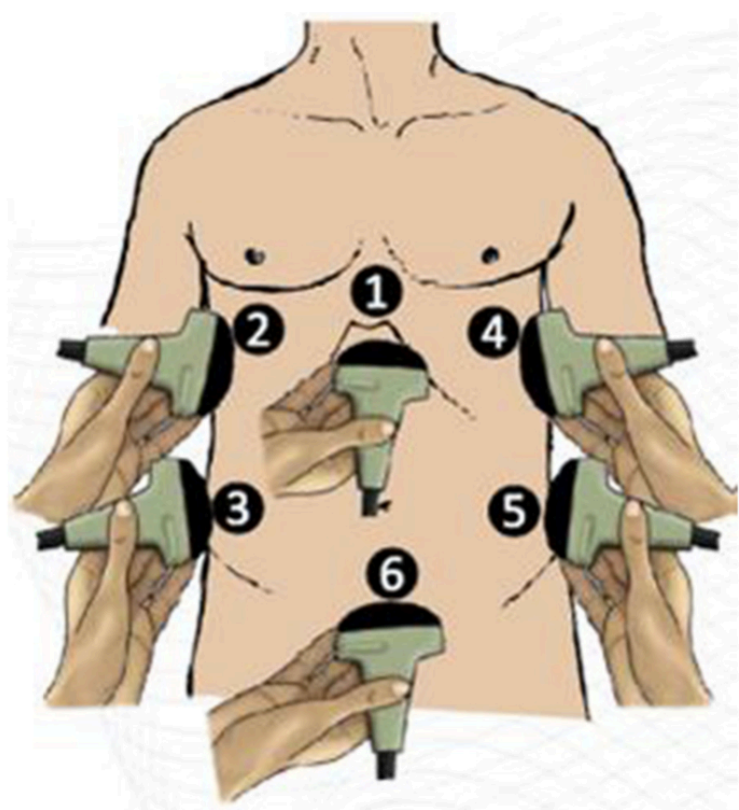
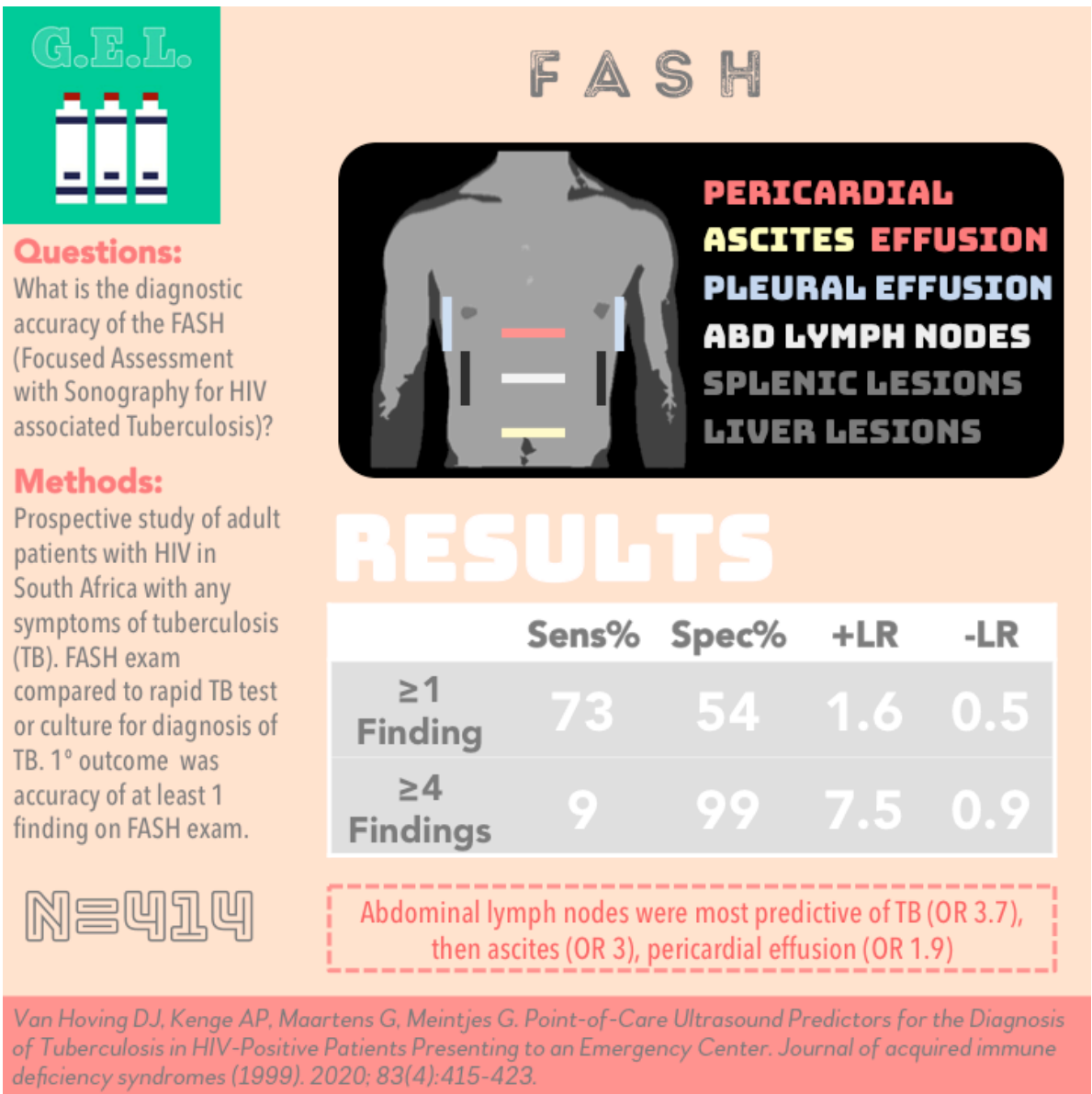
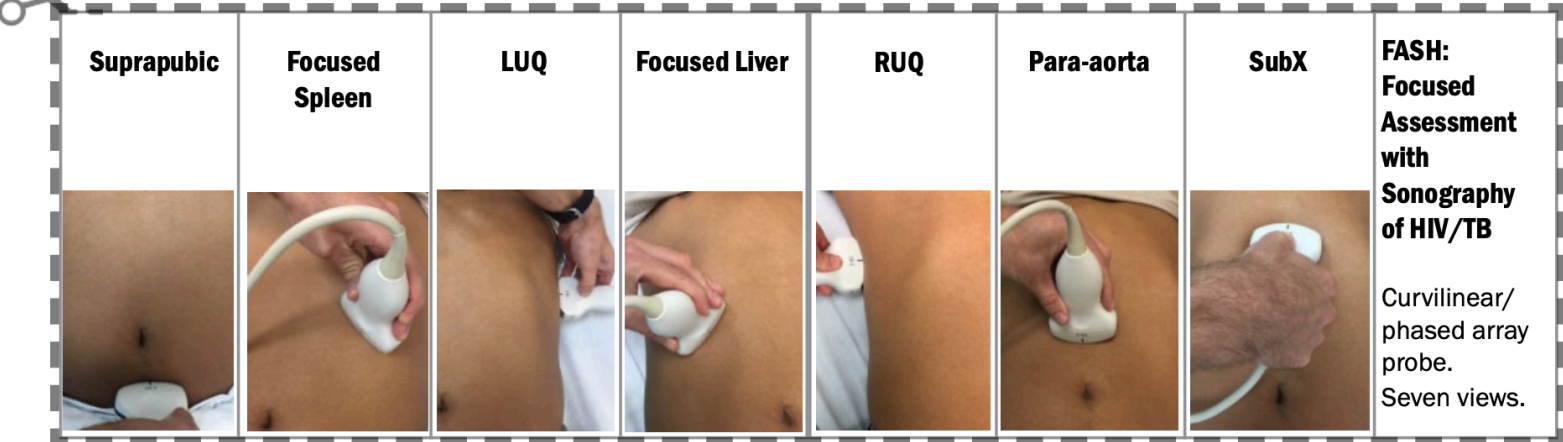
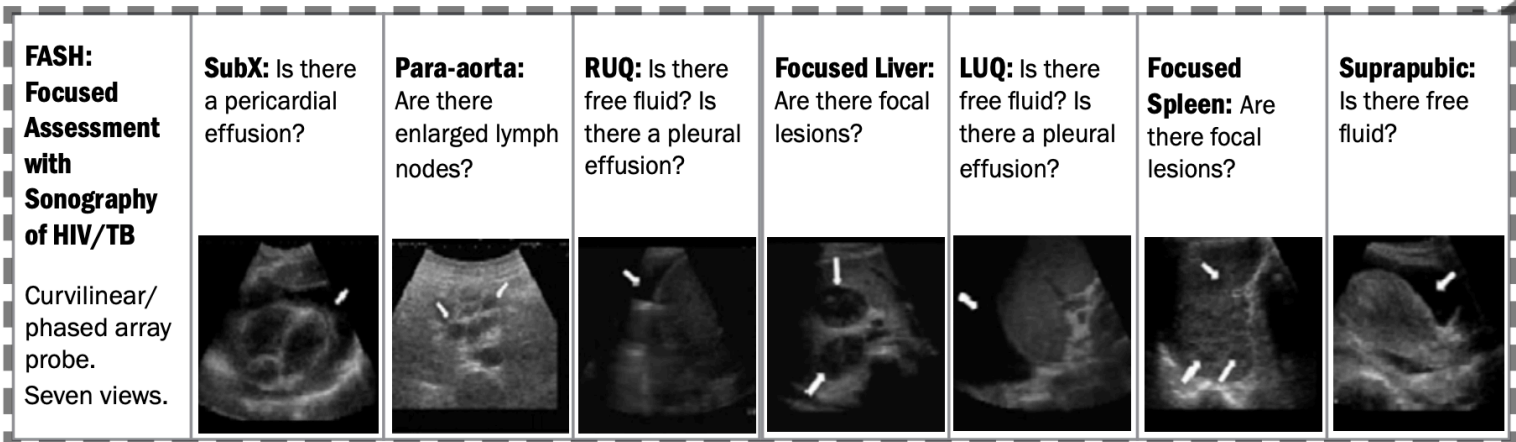


Figure 1 Schematic drawing of the ultrasound probe positions during the FASH examination.



Van Hoving DJ, Kenge AP, Maartens G, Meintjes G. Point-of-Care Ultrasound Predictors for the Diagnosis of Tuberculosis in HIV-Positive Patients Presenting to an Emergency Center. *Journal of acquired immune deficiency syndromes* (1999). 2020; 83(4):415-423.

Clinical Microbiology and Infection 30 (2024) 320–327



Narrative review

Point-of-care ultrasound for tuberculosis and HIV—revisiting the focused assessment with sonography for HIV-associated tuberculosis (FASH) protocol and its differential diagnoses

Sabine Belard^{1,2,*}, Francesco Taccari³, Tapiwa Kumwenda⁴, Michaëla AM Huson⁵, Claudia Wallrauch⁴, Tom Heller^{4,6}

¹Institute of Tropical Medicine, University of Tübingen, Tübingen, Germany
²Partner Site Tübingen, German Center for Infection Research (DZIF), Tübingen, Germany
³Dipartimento di Scienze di Laboratorio e Infettivologiche, Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy
⁴Lighthouse Clinic Trust, Lilongwe, Malawi
⁵Department of Internal Medicine, Radboud University Medical Center, Nijmegen, The Netherlands
⁶International Training and Education Center for Health, University of Washington, Seattle, WA, USA

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Utility of Point-of-Care Ultrasound in Children with Pulmonary Tuberculosis

Sabine B  lard, MD^{1,2,3,4}, Charlotte C. Heuvelings, MD^{1,2}, Ebrahim Banderker, FC Rad Diag (SA)⁵, Lindy Bateman, MBChB¹, Tom Heller, MD⁶, Savvas Andronikou, PhD^{1,7}, Lesley Workman, MPH¹, Martin P. Grobusch, FRCP², and Heather J. Zar, PhD¹

¹Department of Paediatrics and Child Health, Red Cross War Memorial Children's Hospital, and MRC Unit on Child & Adolescent Health, University of Cape Town, Cape Town, South Africa
²Centre of Tropical Medicine and Travel Medicine, Division of Infectious Diseases, Department of Internal Medicine, Academic Medical Centre, University of Amsterdam, Amsterdam, The Netherlands
³Charit   – Universit  tsmedizin Berlin, corporate member of Freie Universit  t Berlin, Humboldt-Universit  t zu Berlin, and Berlin Institute of Health, Department of Pediatric Pneumology and Immunology, Berlin, Germany
⁴Berlin Institute of Health (BIH), 10178 Berlin, Germany
⁵Department of Pediatric Radiology, Red Cross War Memorial Children's Hospital, Cape Town, South Africa
⁶Lighthouse Clinic, Kamuzu Central Hospital, Lilongwe, Malawi
⁷University of Bristol, United Kingdom

Abstract

Background—Point-of-care ultrasound (POCUS) detects extra-pulmonary tuberculosis (EPTB) in HIV-infected adults but has not been evaluated in children despite their higher risk of EPTB. This study's aims were to investigate feasibility of POCUS for EPTB in children, frequency of POCUS findings suggestive of EPTB, and time to sonographic resolution of findings with treatment.

Methods—This prospective South African cohort study enrolled children with suspected PTB. POCUS for pleural, pericardial or ascitic effusion, abdominal lymphadenopathy, or splenic or hepatic micro-abscesses was performed and repeated at 1, 3 and 6 months of TB treatment. Prevalence of POCUS findings and their association with HIV-infection was investigated in children with confirmed PTB (microbiologically proven), unconfirmed PTB (clinically diagnosed), or unlikely TB (respiratory disease that improved during follow-up without TB treatment).

Results—Of 232 children [median age 37 months (IQR 18;74)], 39(17%) were HIV-infected. Children with confirmed or unconfirmed PTB had a higher prevalence of POCUS findings than children with unlikely TB [18/58(31%) and 36/119(30%) versus 8/55(15%), p=0.04 and p=0.03, respectively]. Pleural effusion [n=30(13%)] or abdominal lymphadenopathy [n=28(12%)] were the most common findings; splenic micro-abscesses [n=12(5%)] were strongly associated with

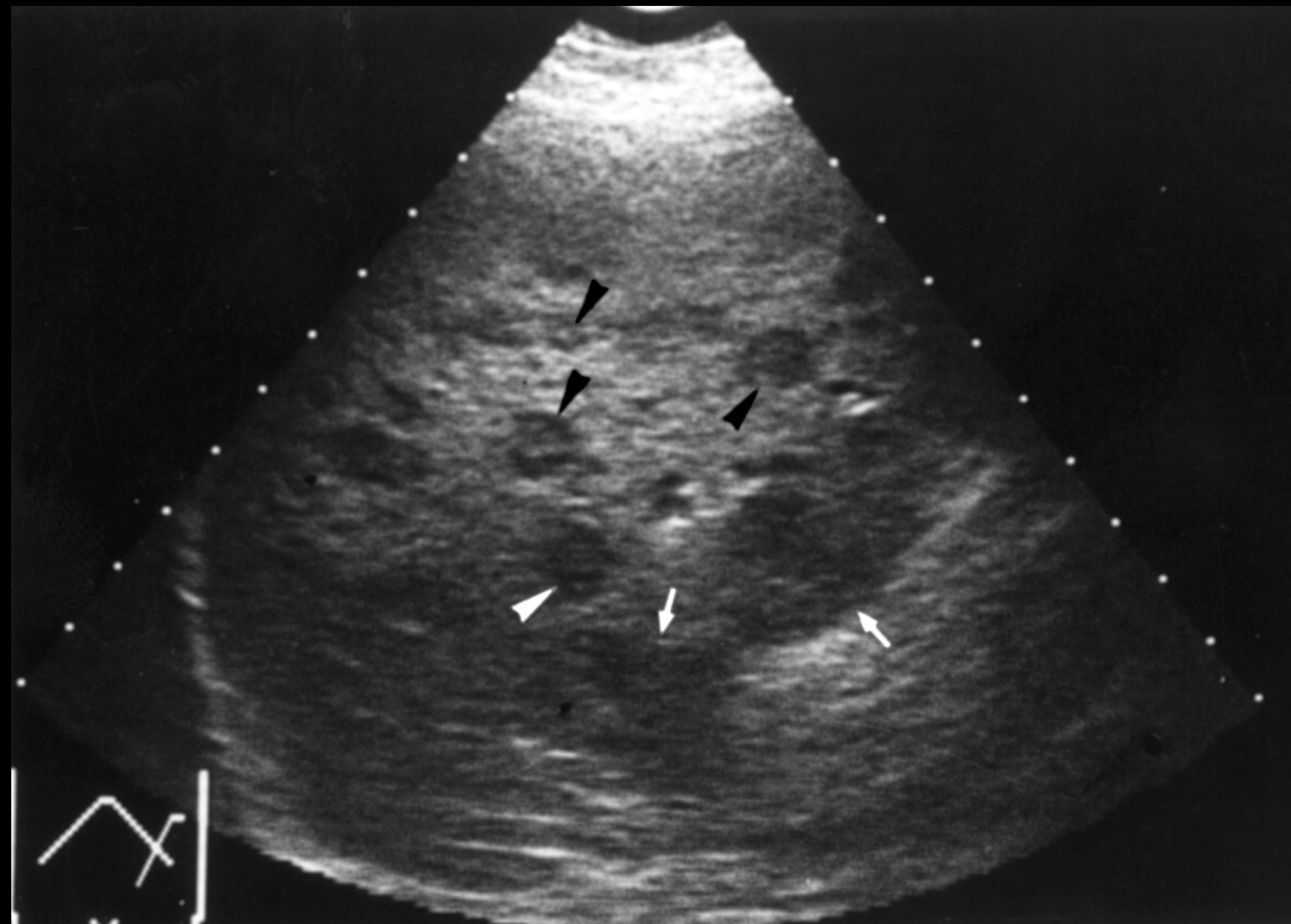
confirmed PTB. Children co-infected with HIV and TB were more likely than HIV-uninfected children with TB to have abdominal lymphadenopathy [37% versus 10%, p<0.001] or splenic micro-abscesses [23% versus 3%, p<0.001]. Most ultrasound findings resolved by 3 months with appropriate TB treatment.

Conclusions—POCUS for EPTB in children with PTB is feasible. The high prevalence of findings suggests that POCUS can contribute to timely diagnosis of childhood TB and to monitoring treatment response.

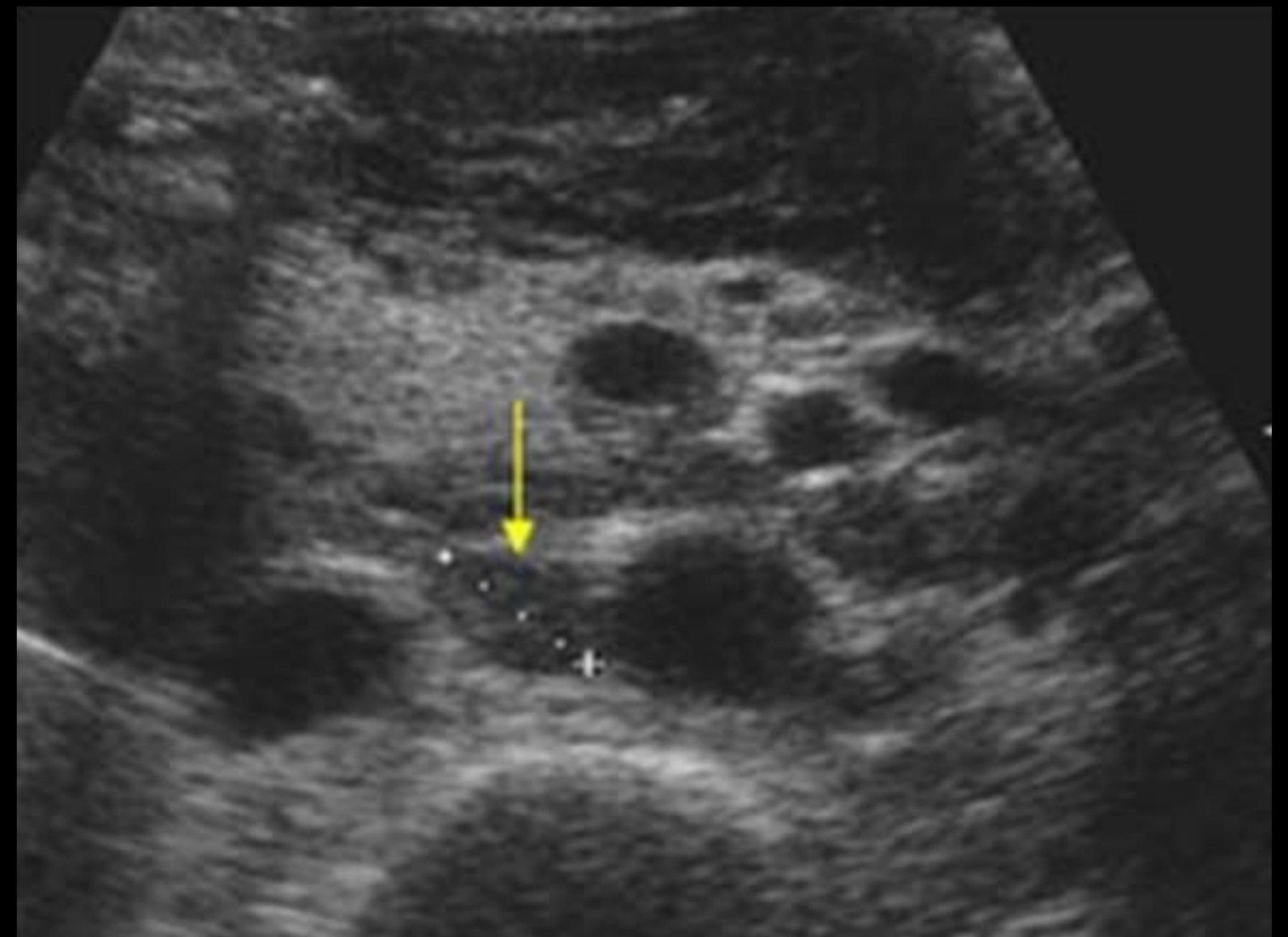
Keywords

tuberculosis; ultrasound; children; extra-pulmonary; point-of-care

Splenic micro-abscesses



Lymph nodes

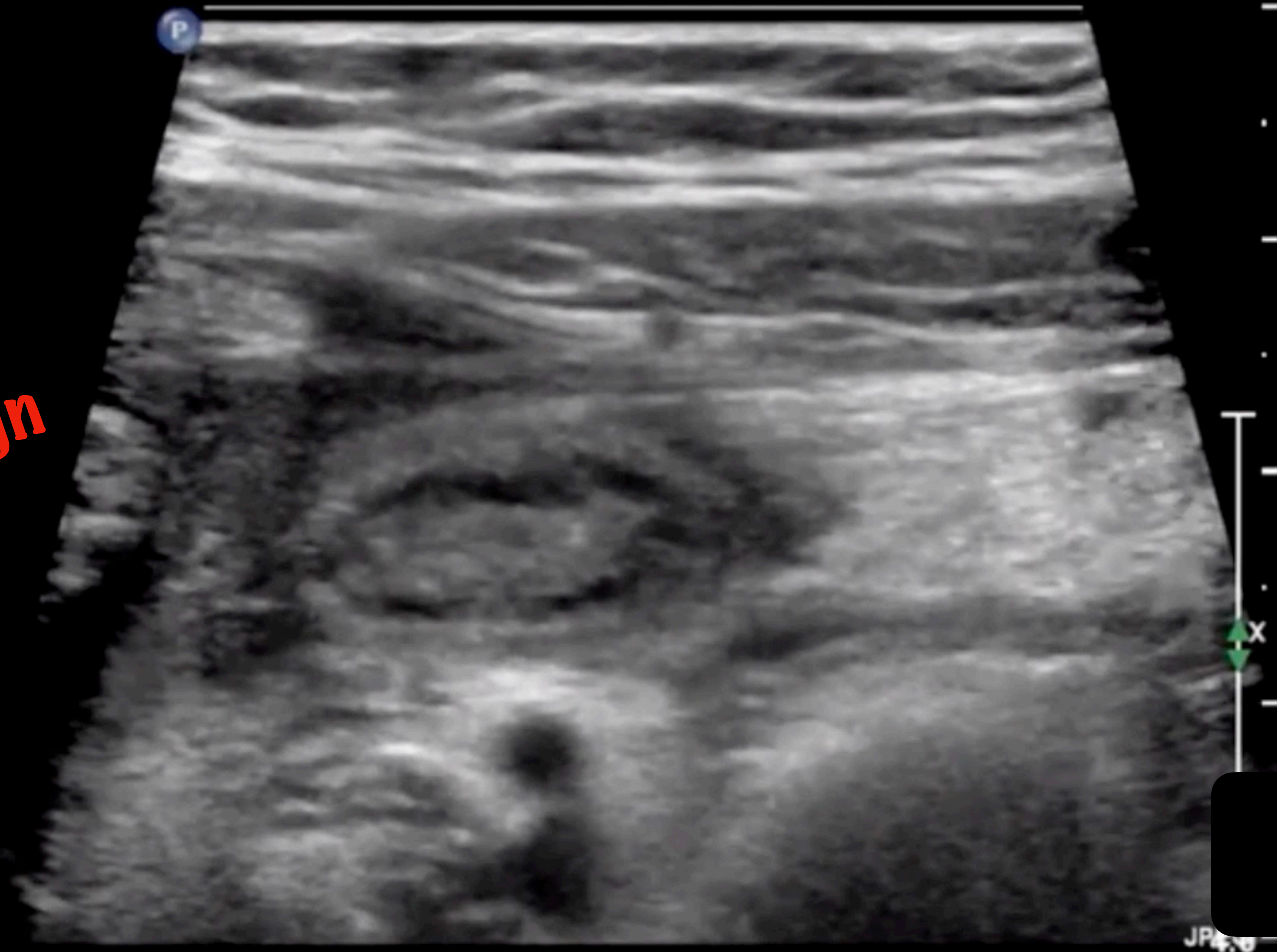




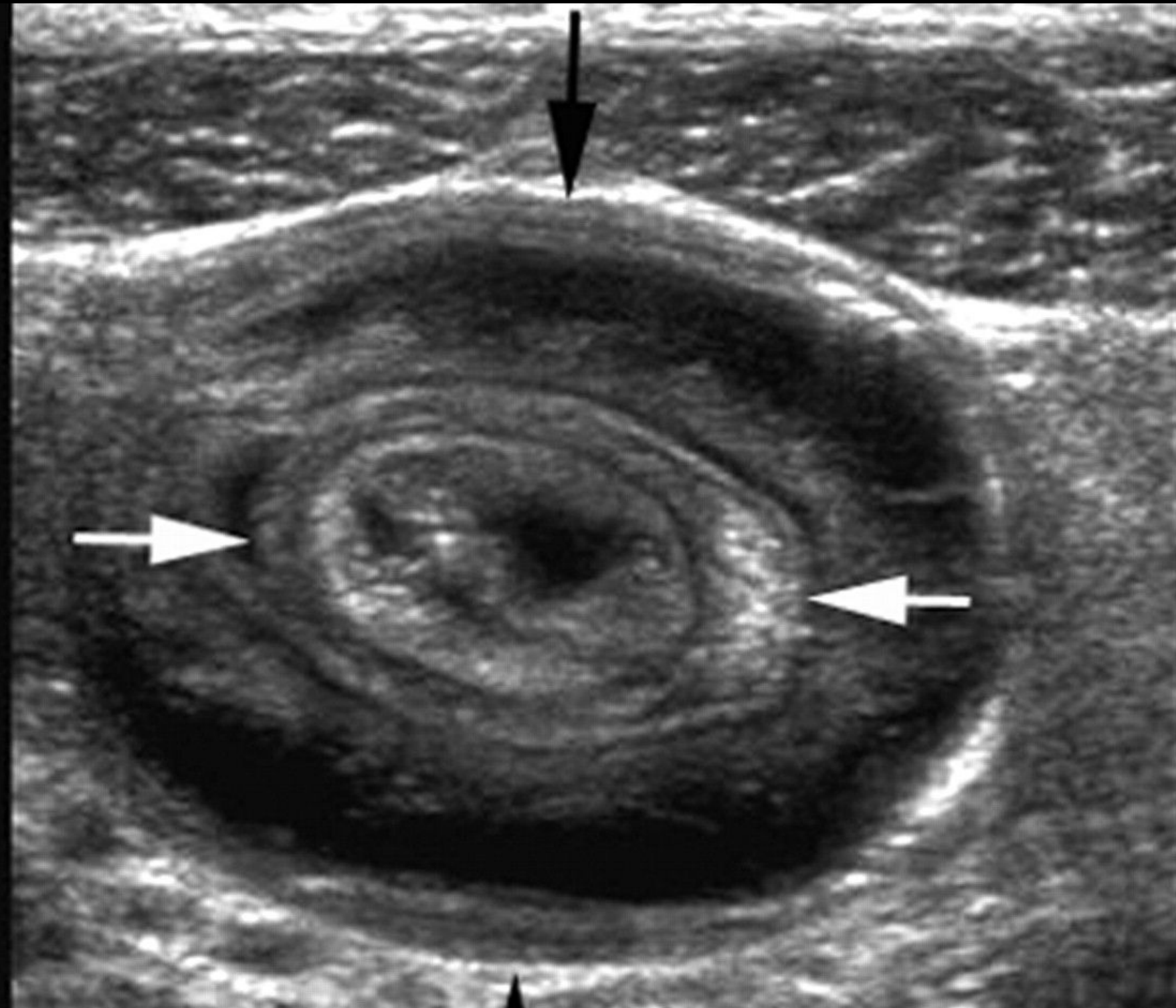
Abdo pain

Appendicitis

Target sign

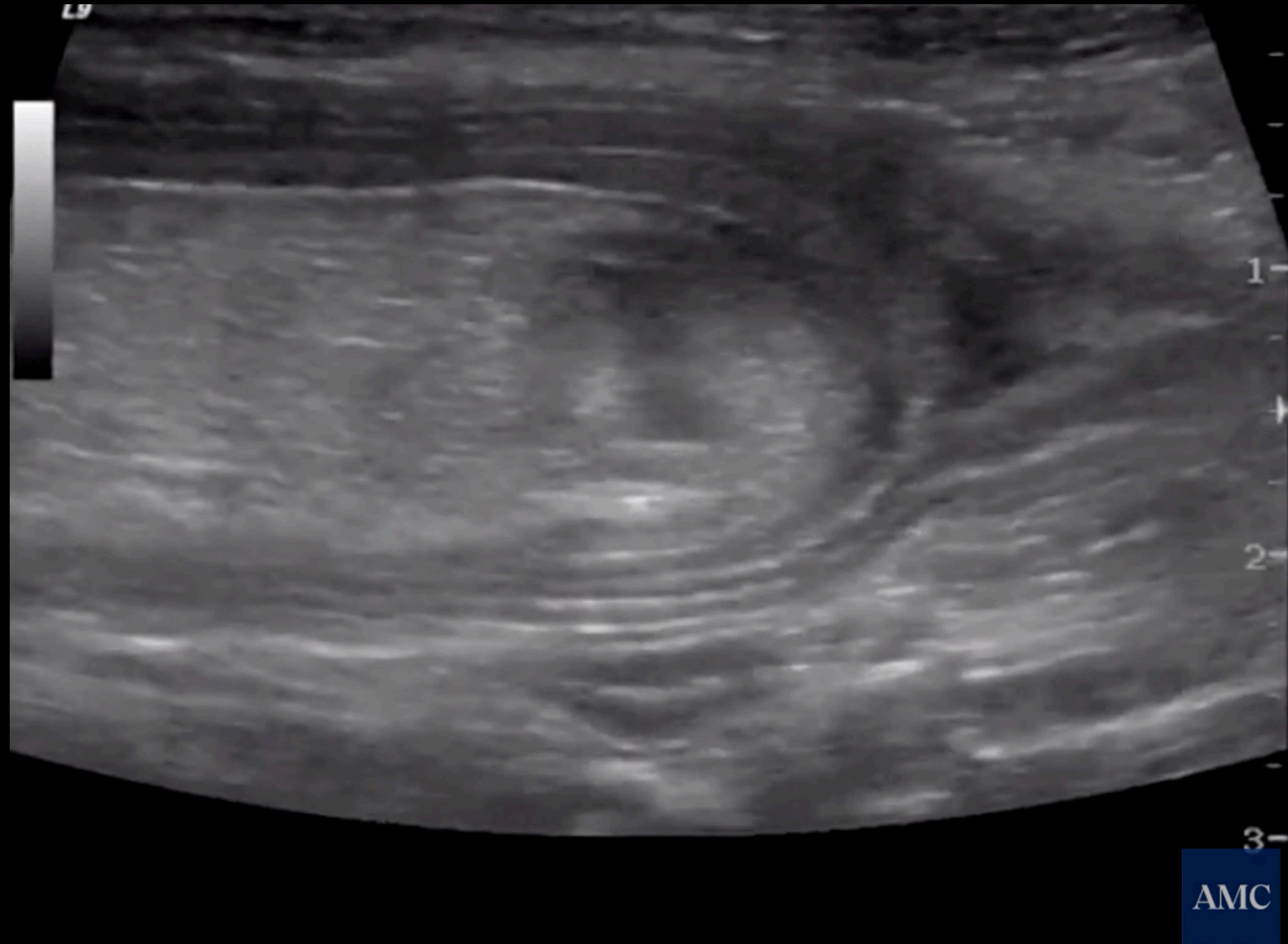


Intussusception



Doughnut sign

Intussusception



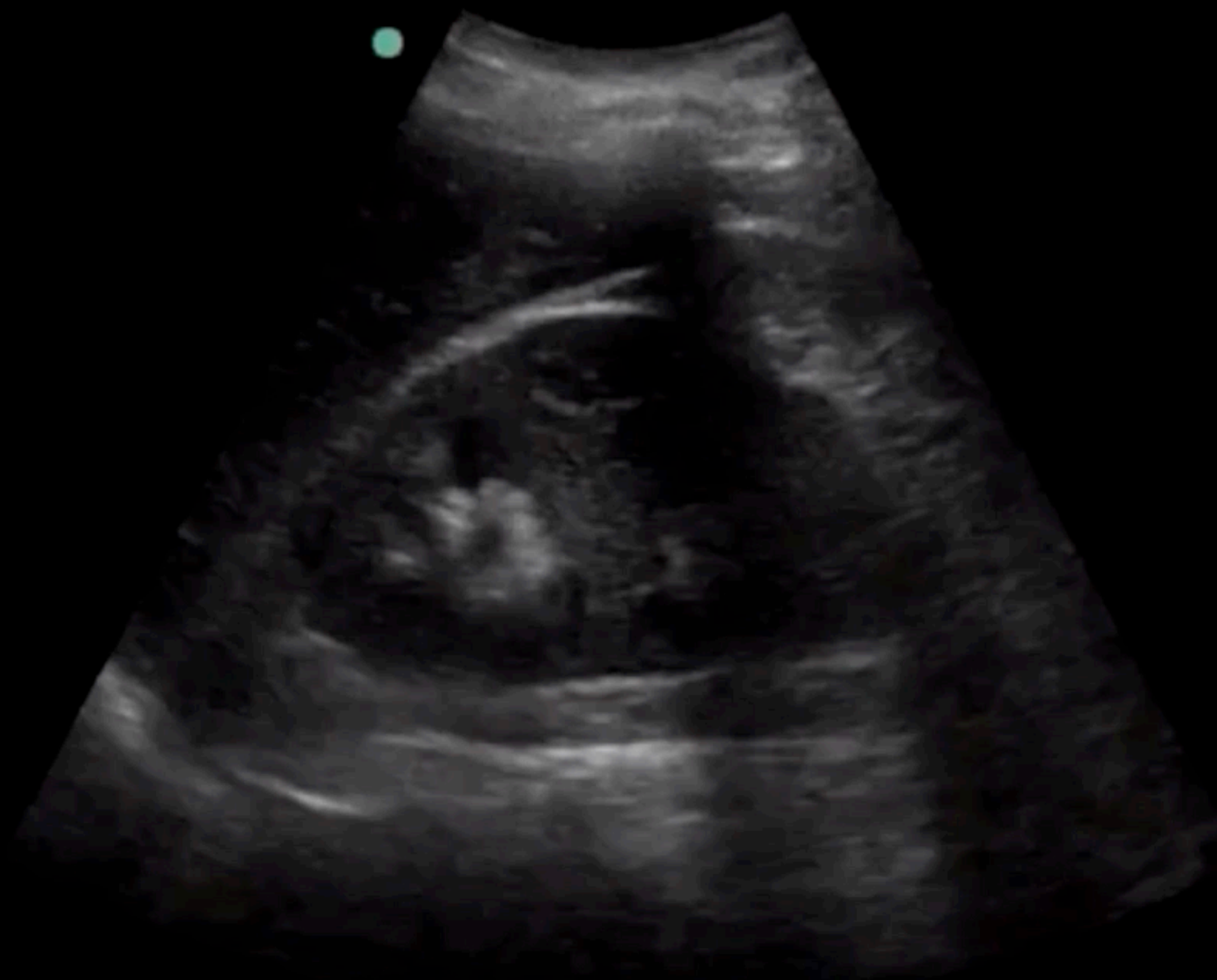
Renal + GUS



Kidney

Longitudinal view

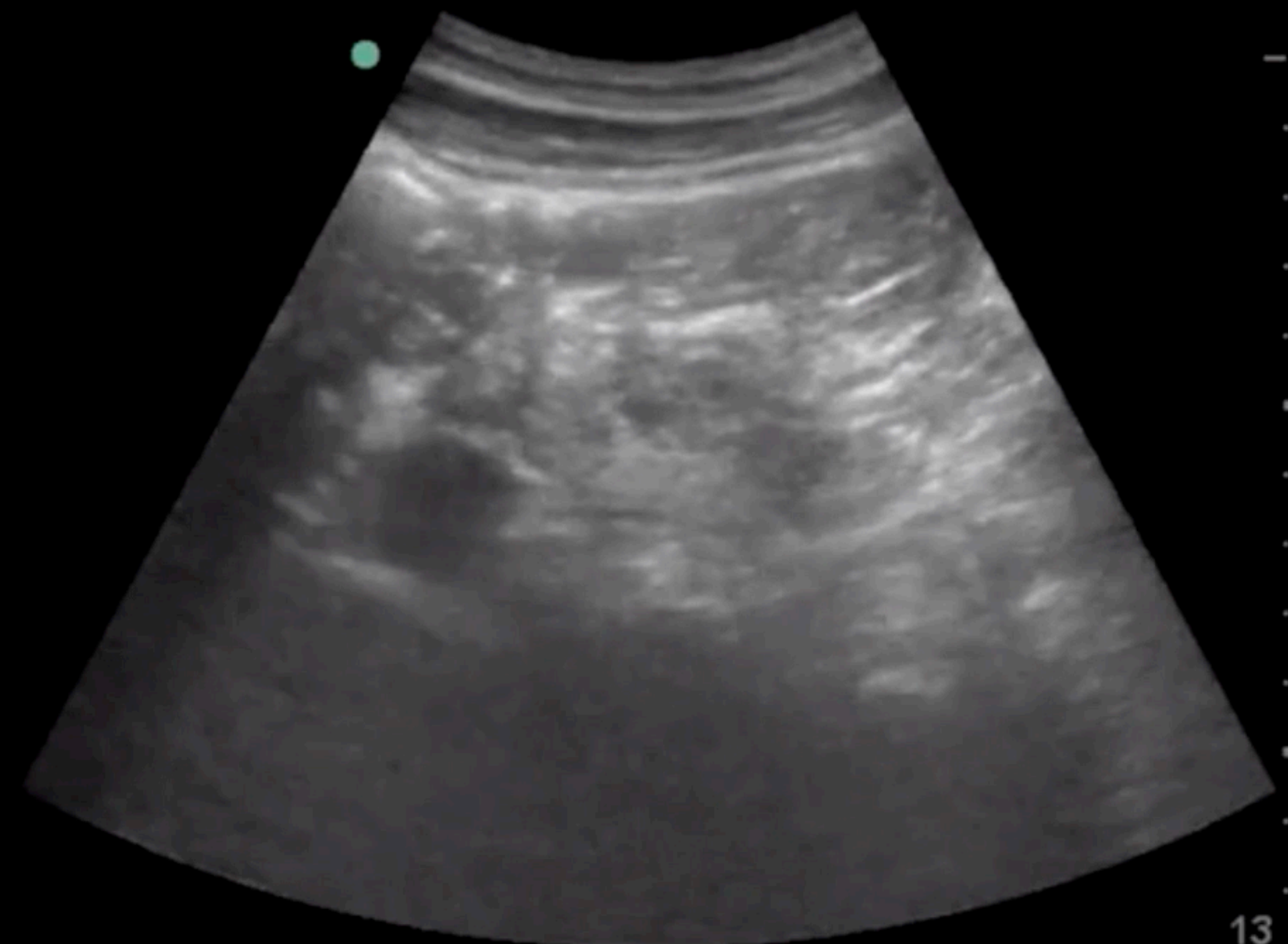
Gen THI
S MB



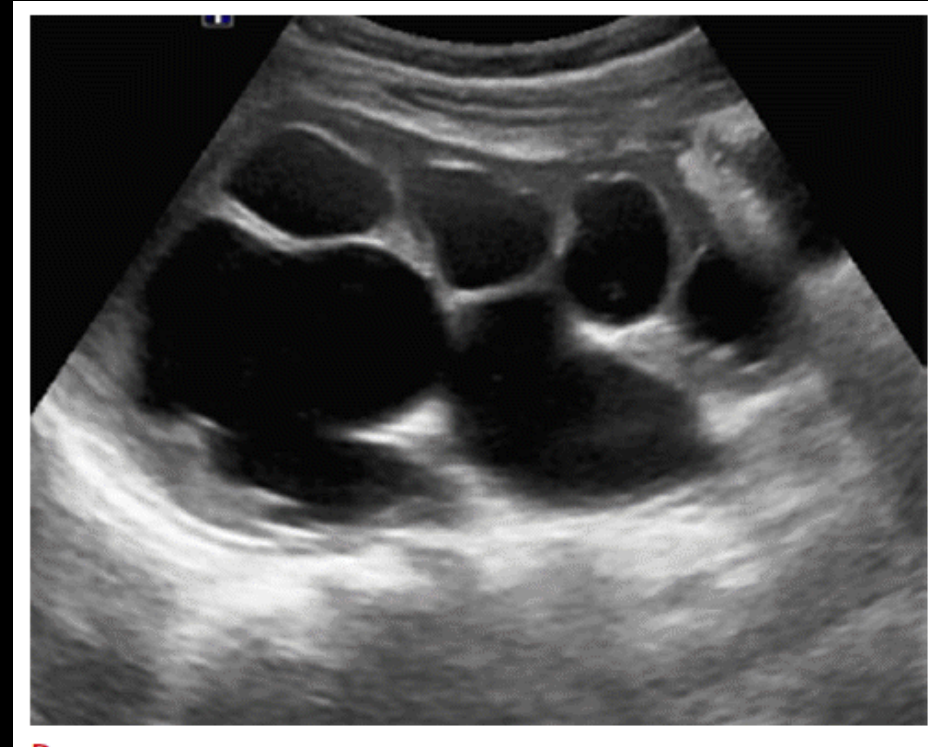
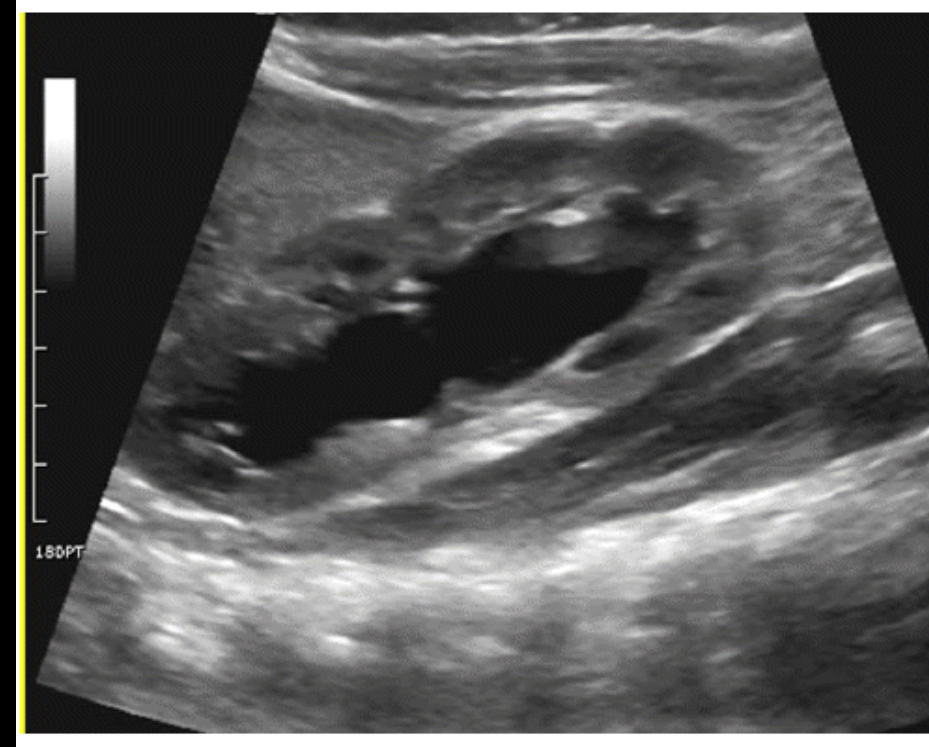
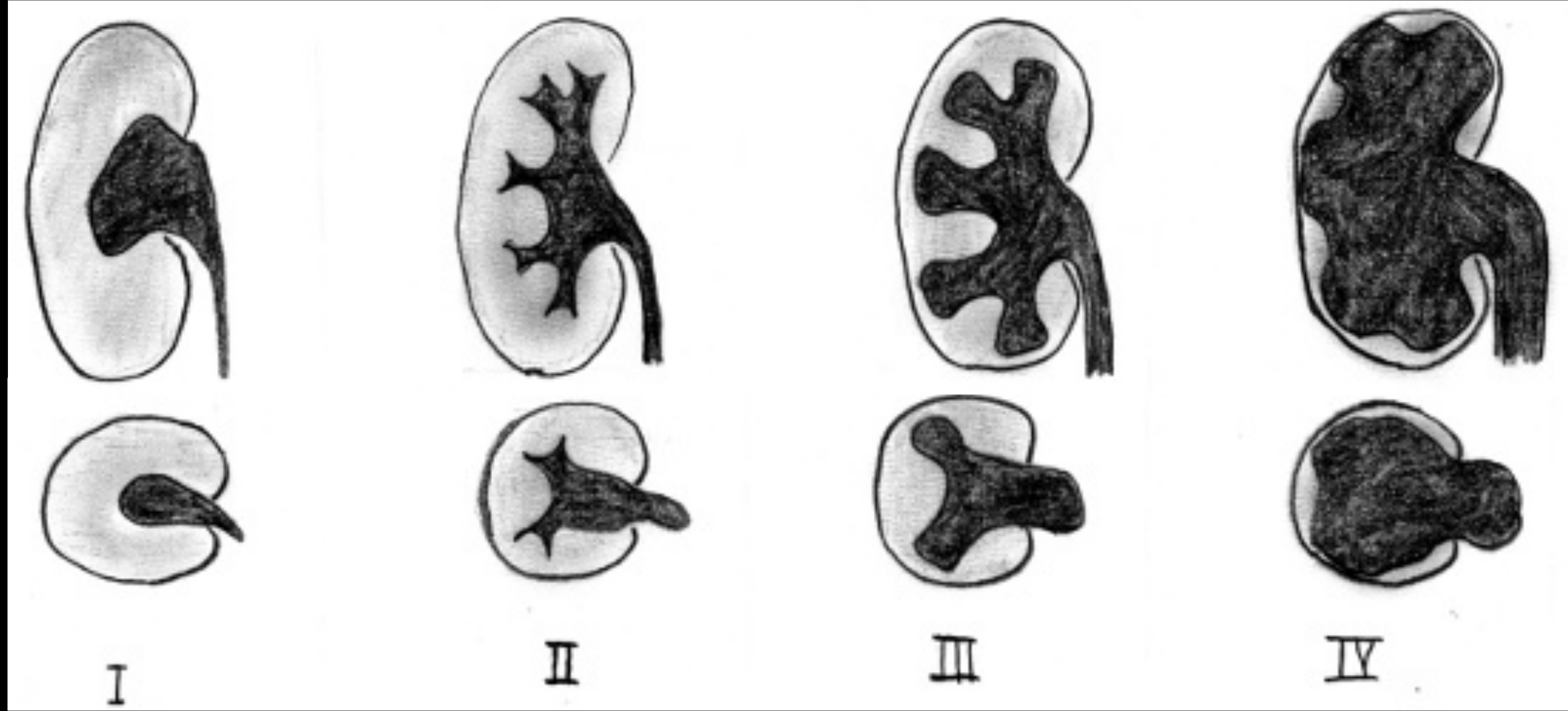
Abd
Gen THI
S MB

Transverse view

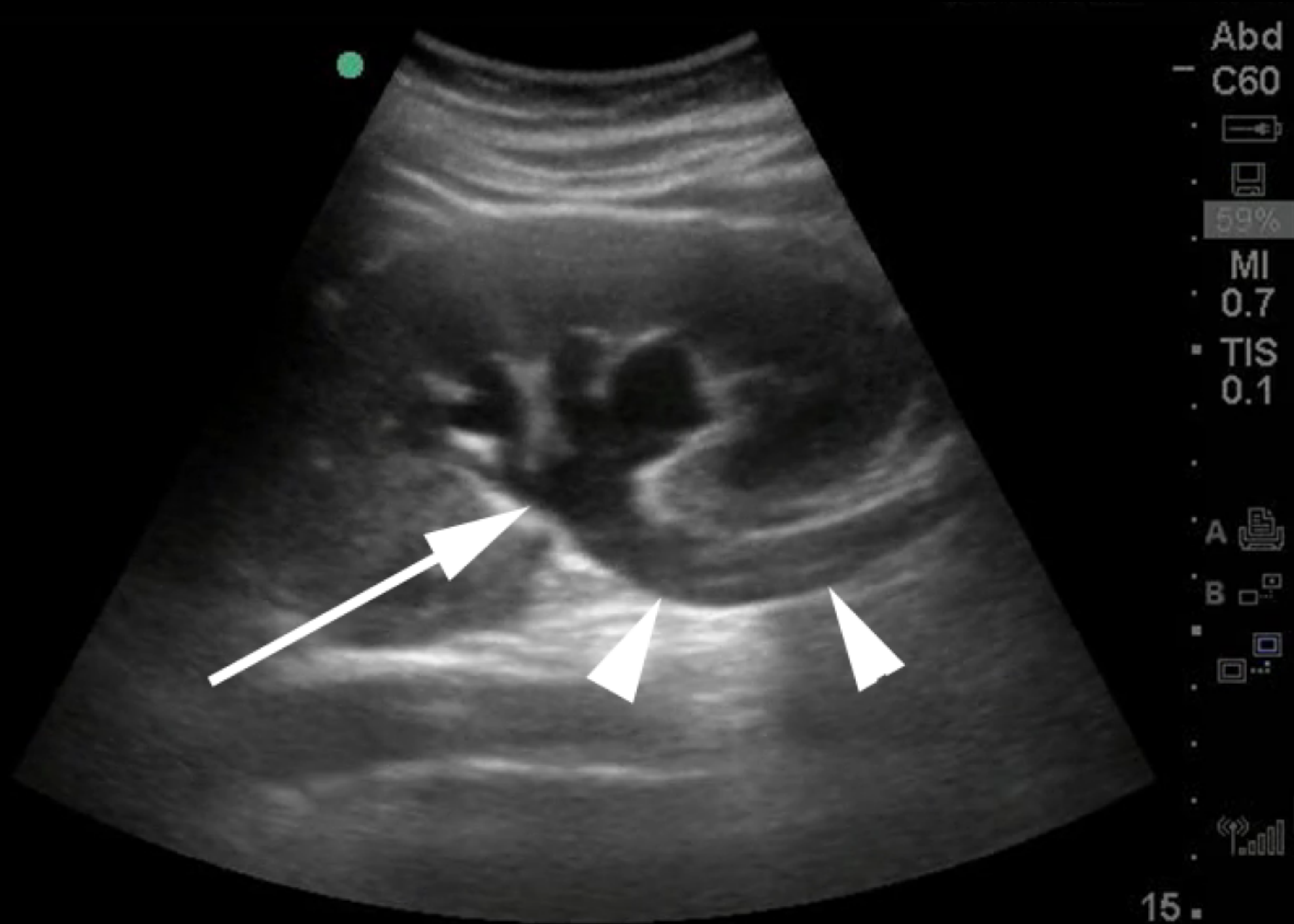
Abd
- C60
MI
1.0
TIS
0.1



Hydronephrosis

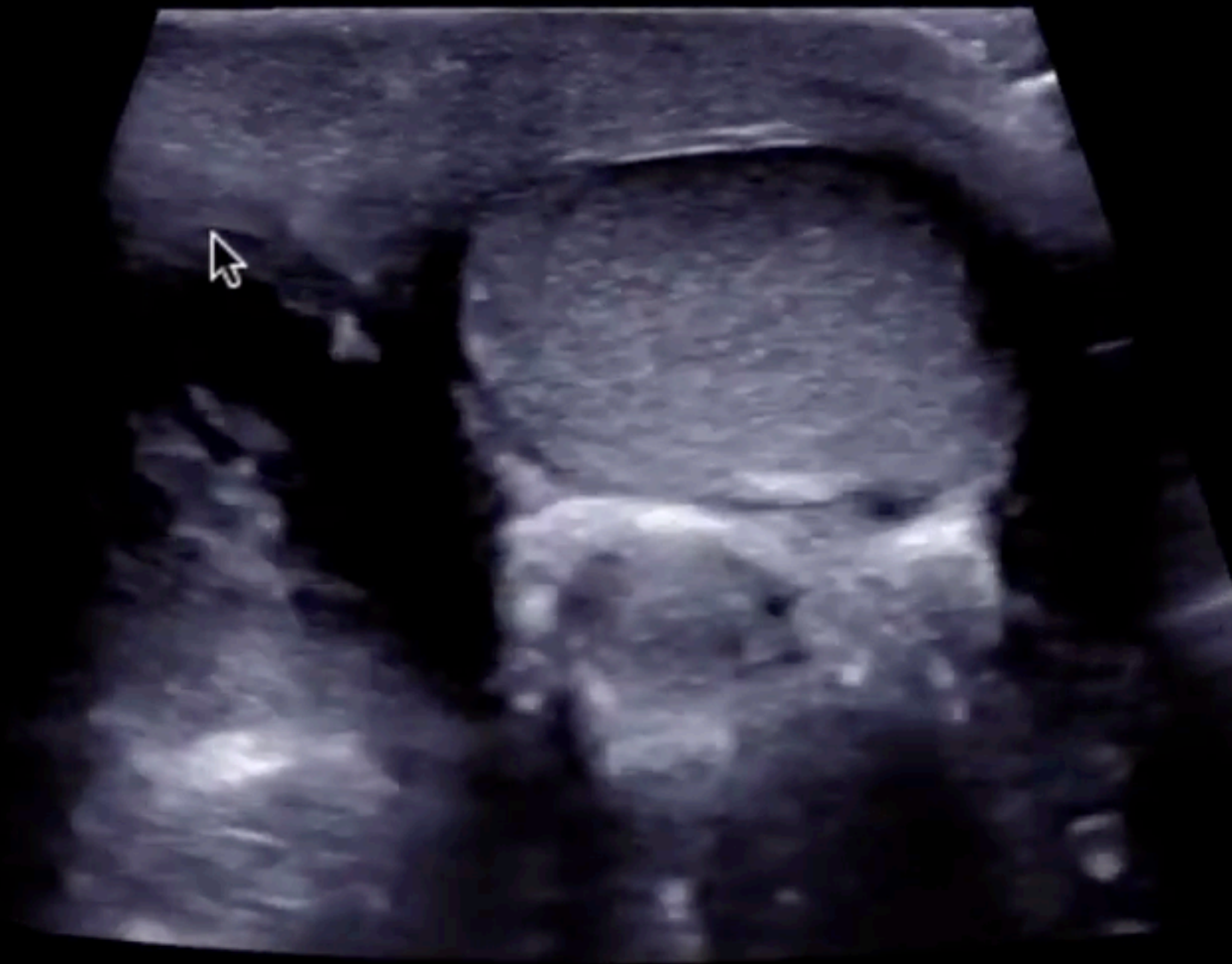


Hydroureter

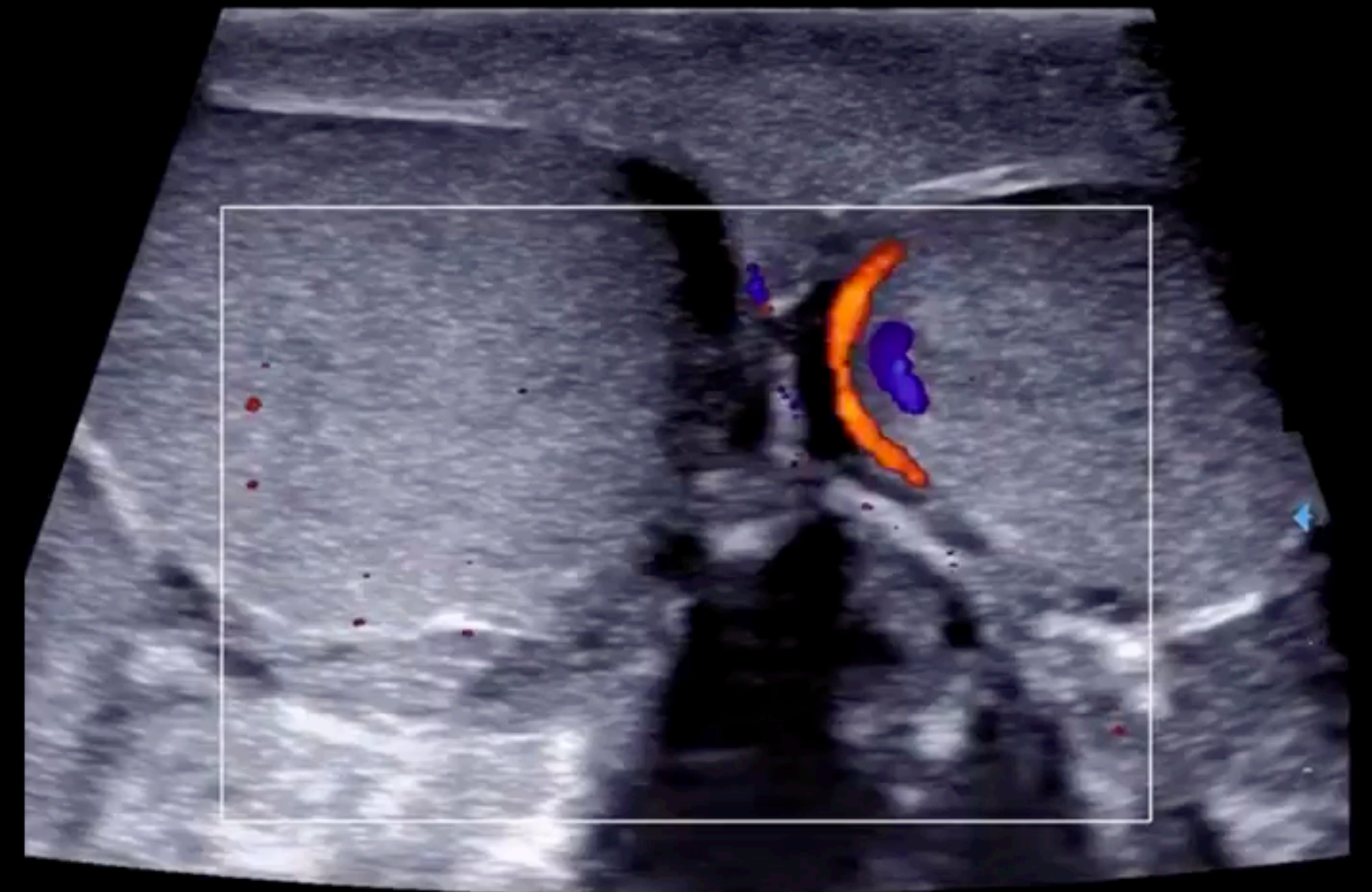


Testicular Torsion

Spectacle view



Color Doppler



Vascular access

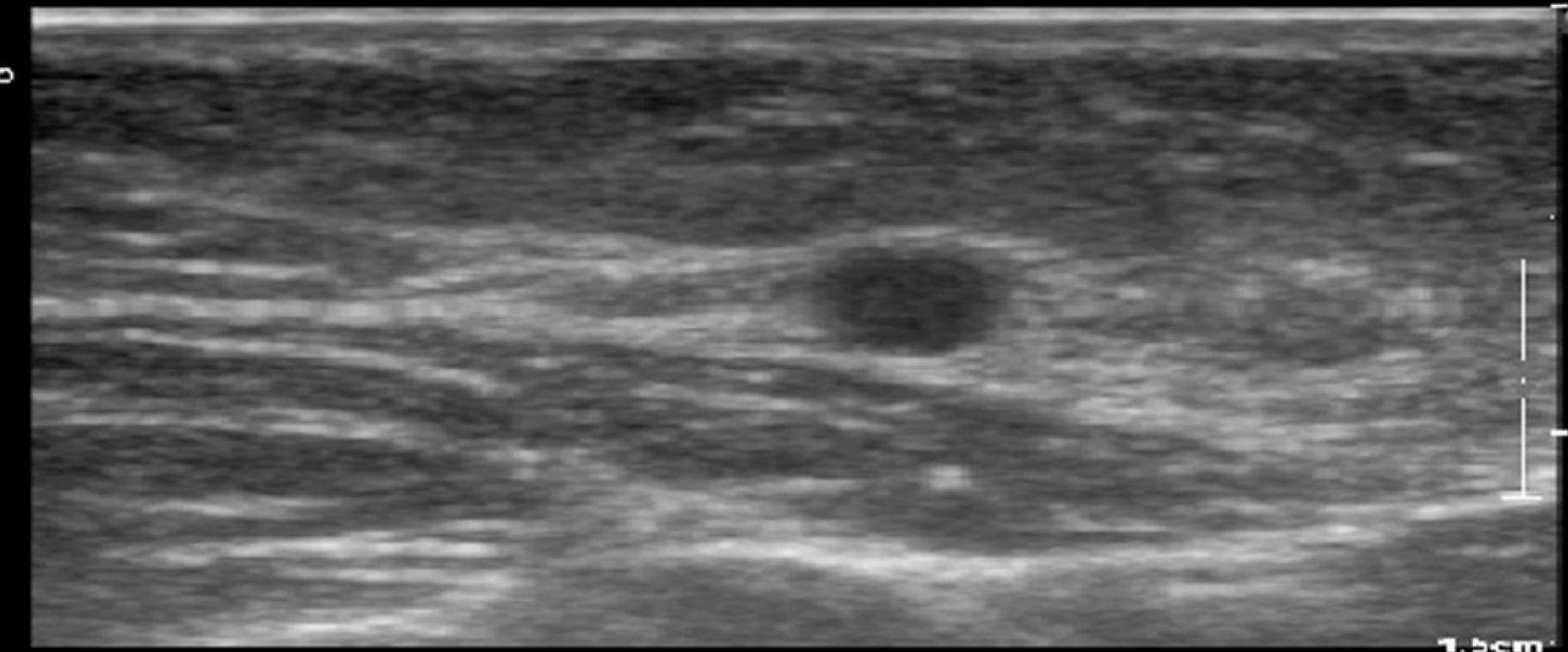


VASC ACCESS
L15-7io
96Hz
RS

2D
40%
Dyn R 80
P Low
Gen

TIS0.1 MI 0.9

ME

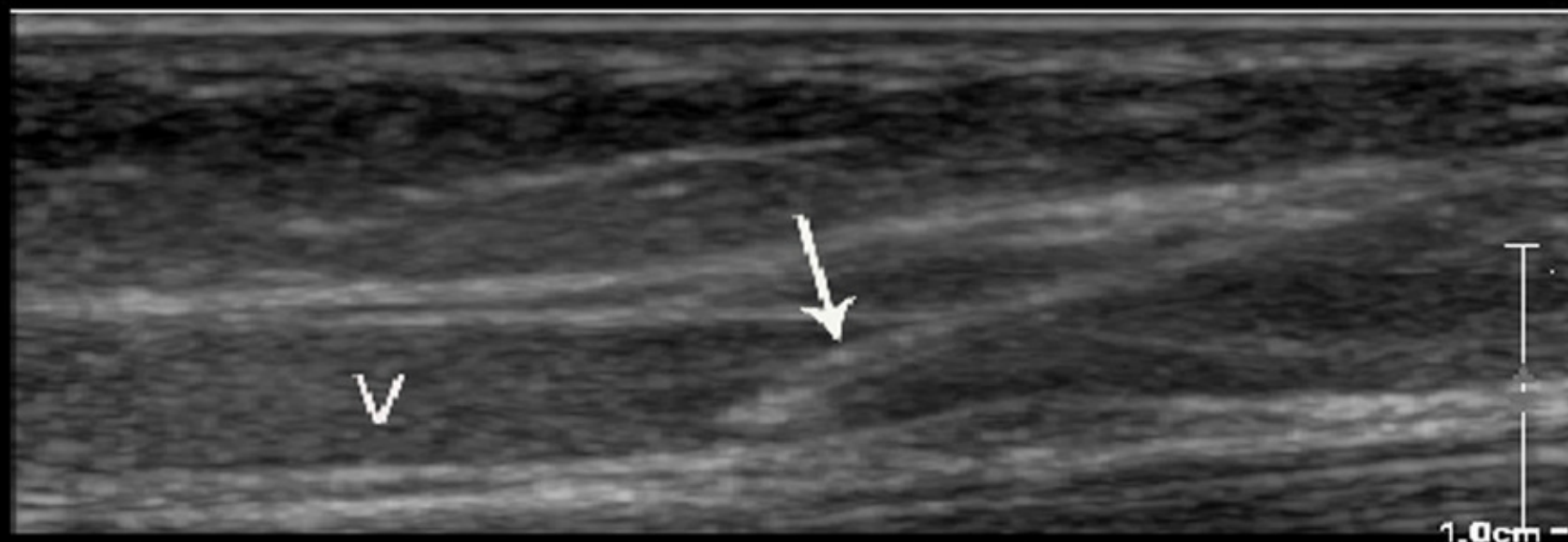


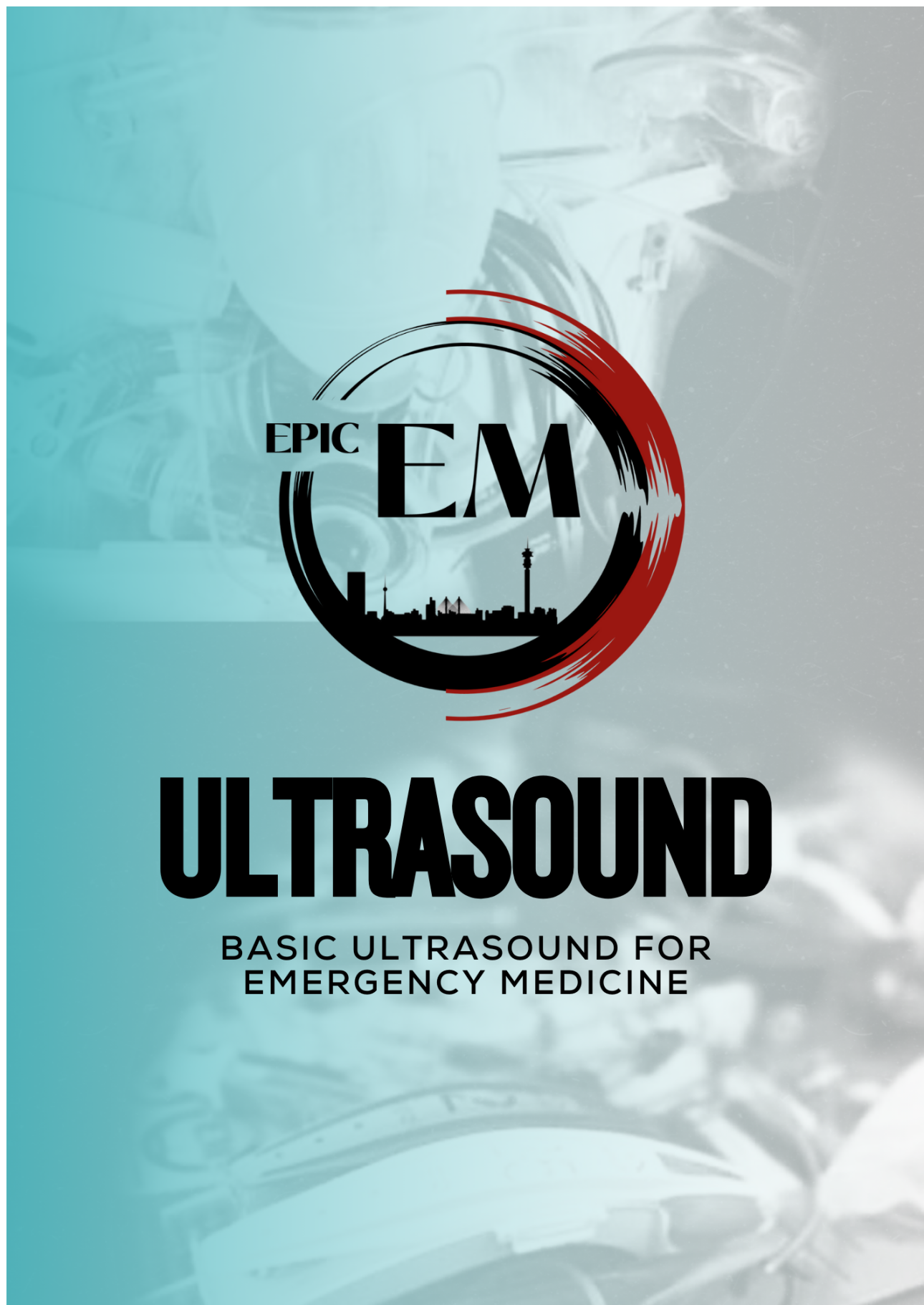
VASC ACCESS
L15-7io
105Hz
RS

2D
49%
Dyn R 60
P Low
Gen

TIS0.1 MI 0.8

MS





core ePoCUS Course

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Who should attend



Why they s

All health care practitioners wanting to learn the basic skills of point of care ultrasound those practicing medicine in emergency settings.

Course Information

The core ePoCUS curriculum focuses on ultrasound skills that are deemed essential in an emergency setting or dealing with emergencies on a regular basis , and includes 7 modules covered in the course:

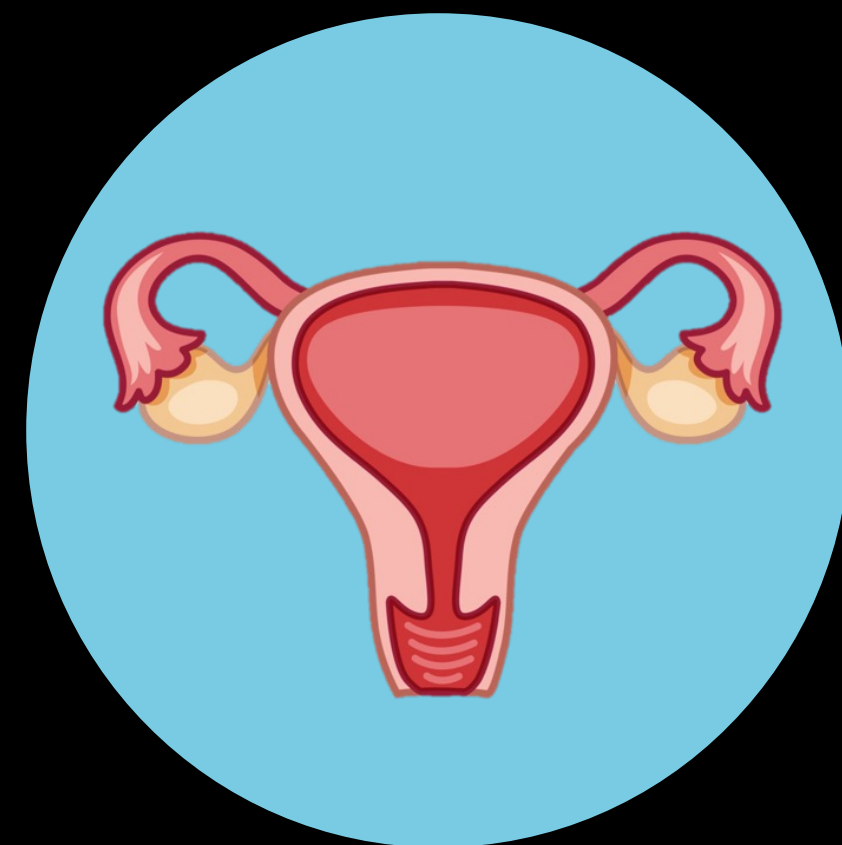
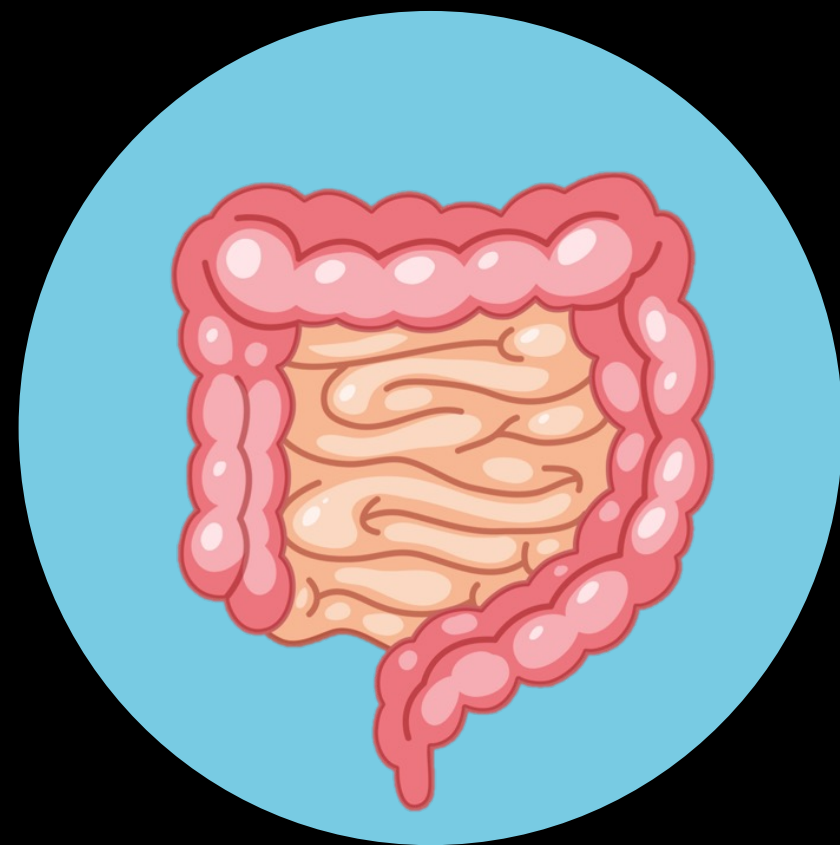
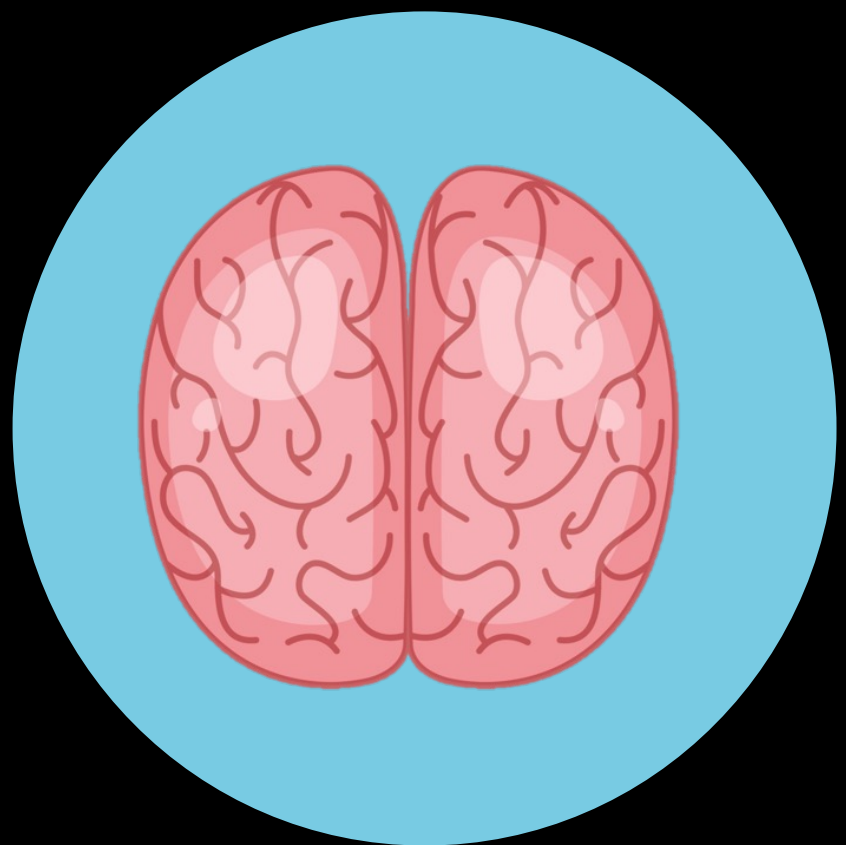
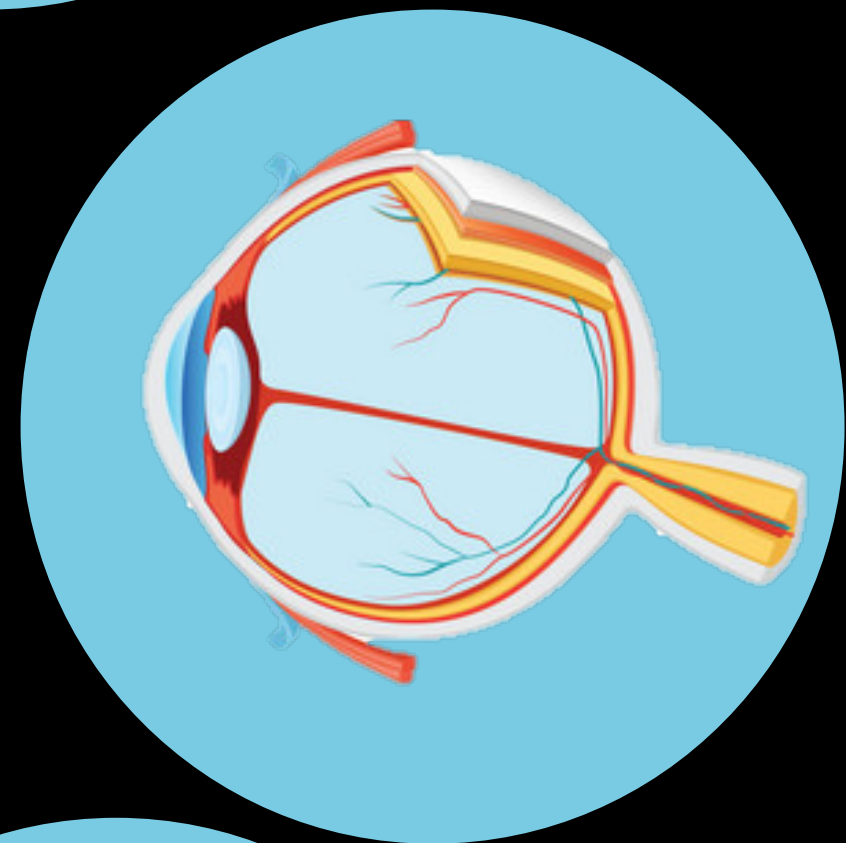
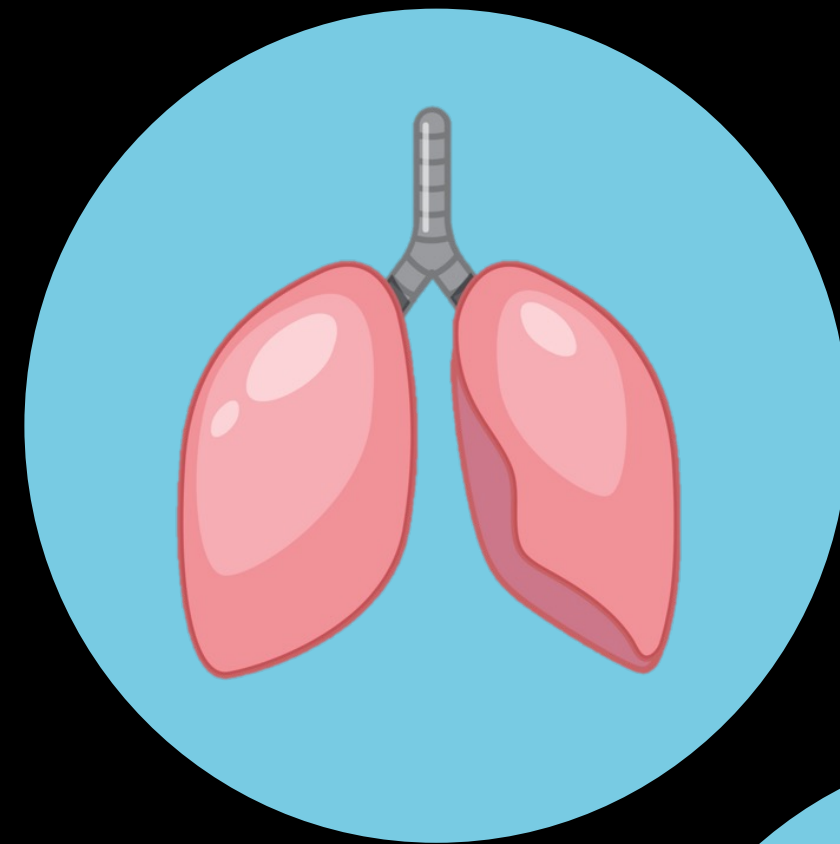
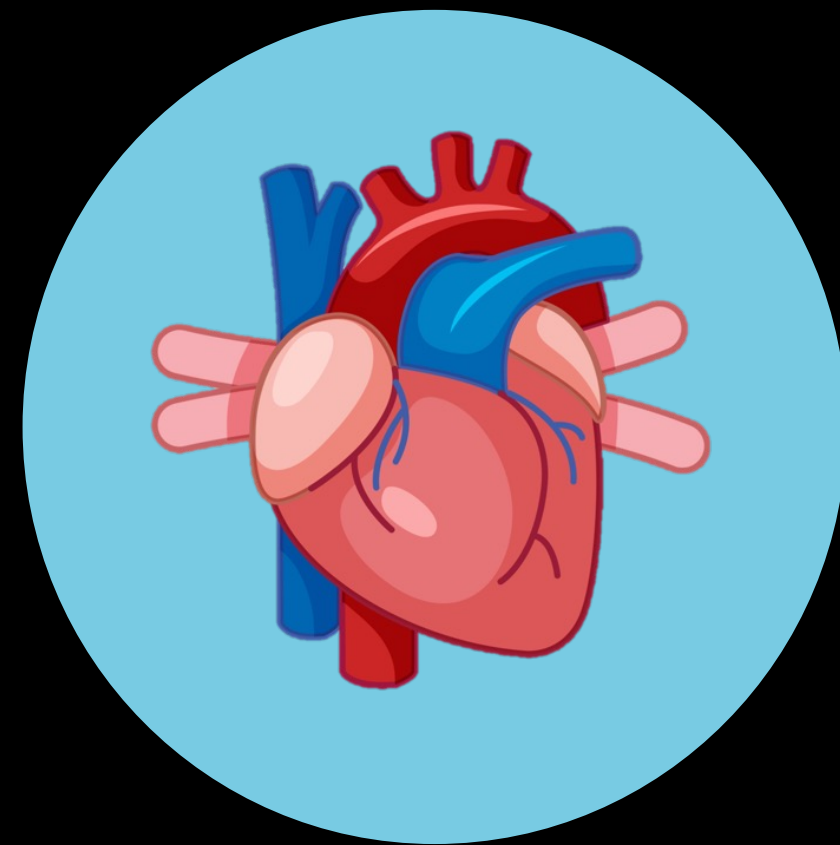
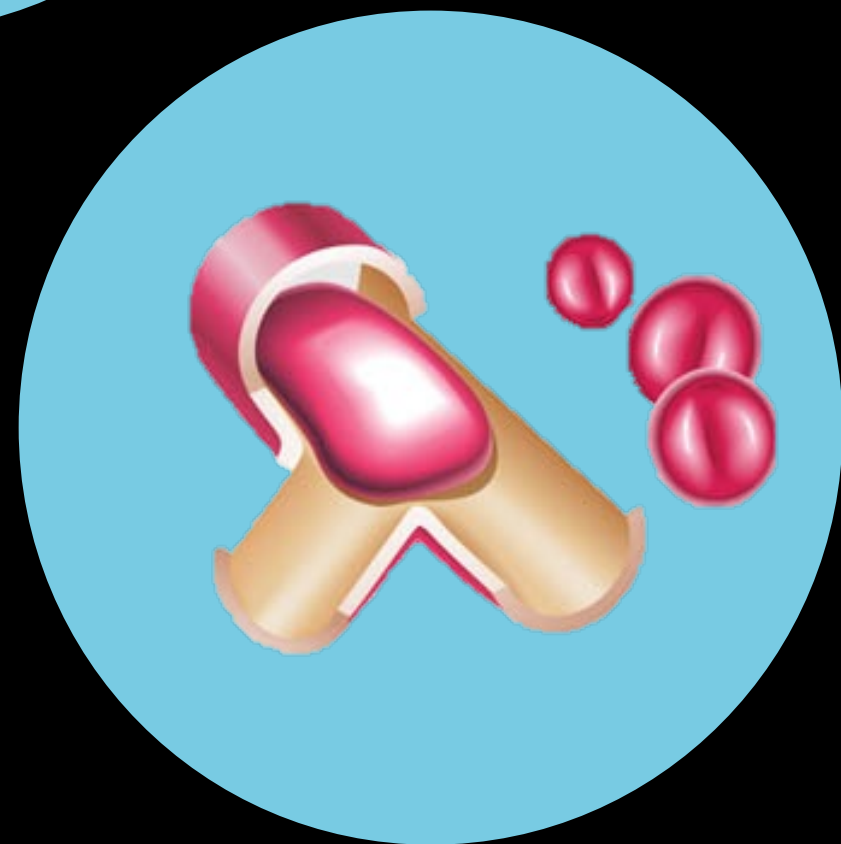
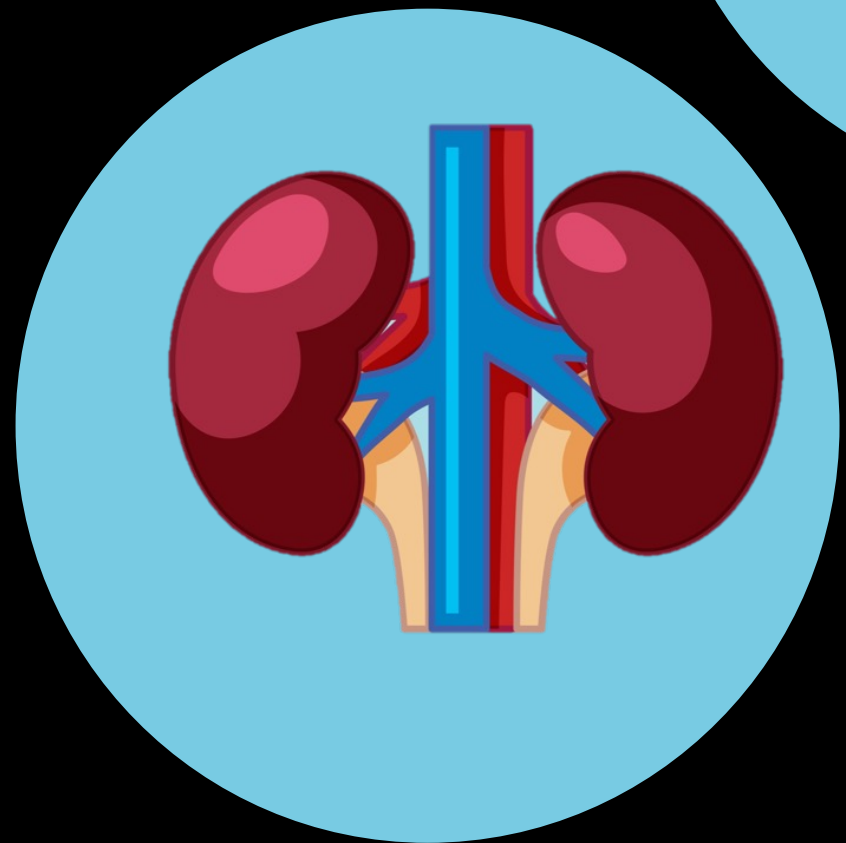
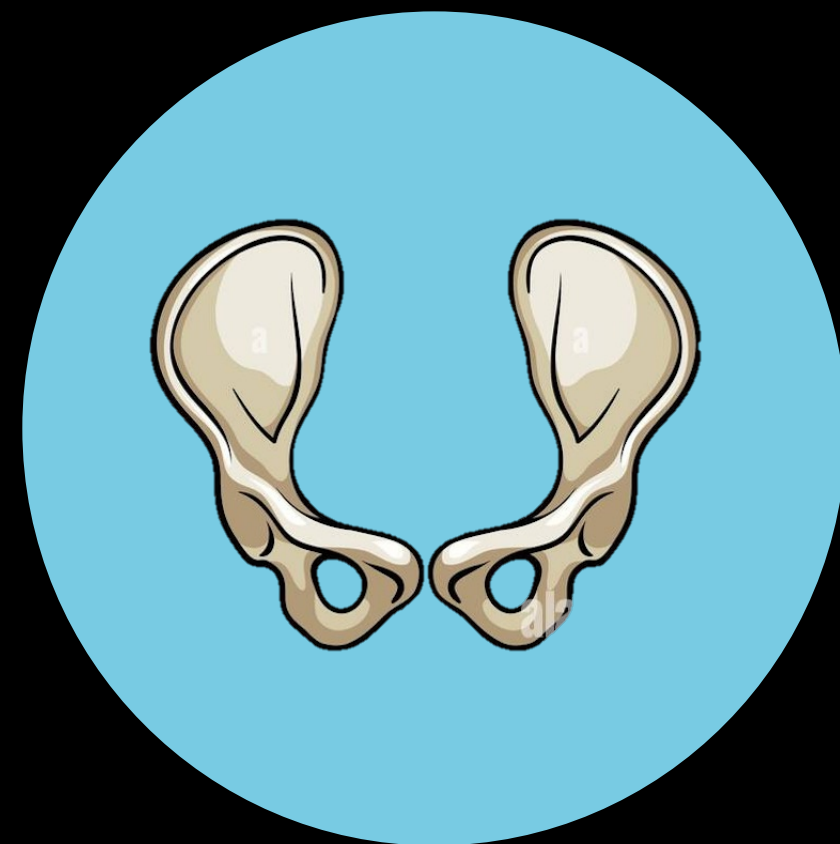
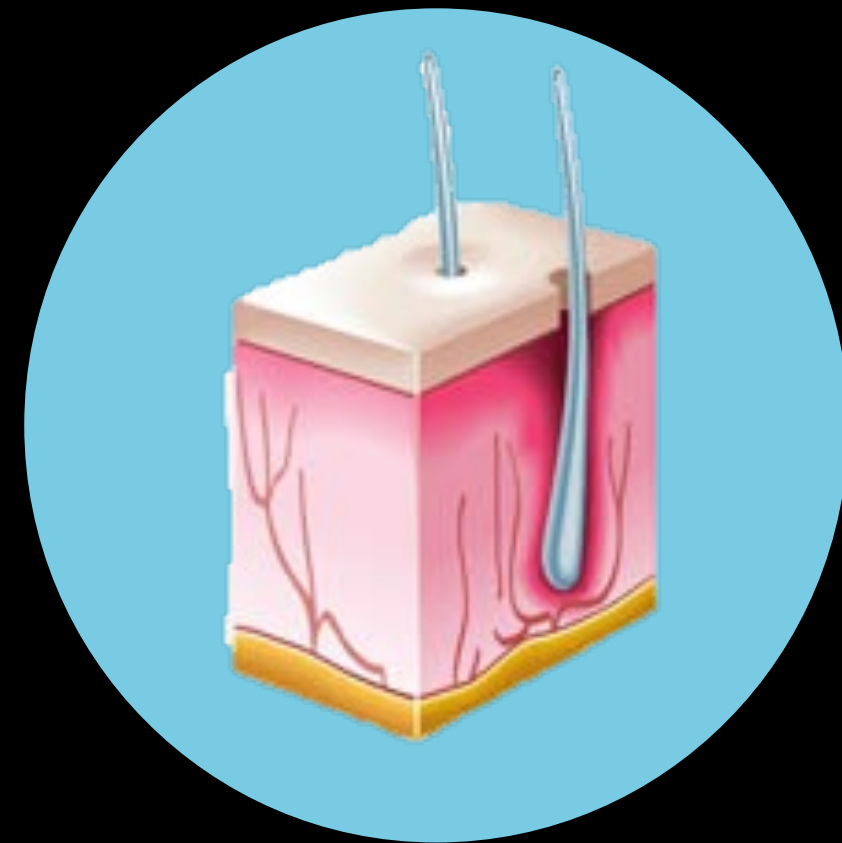
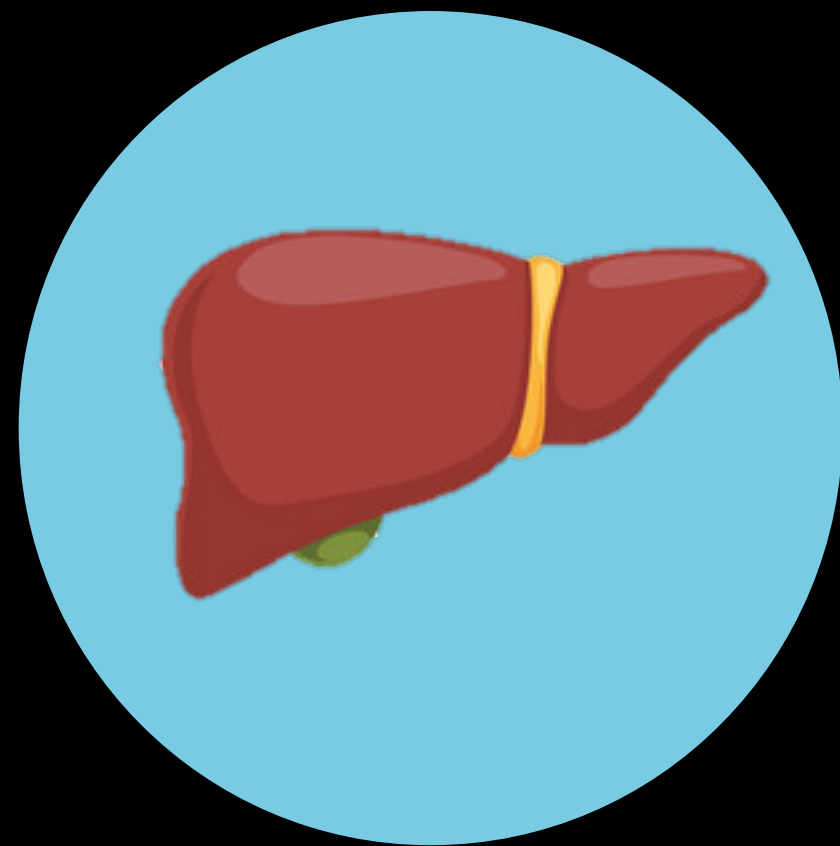
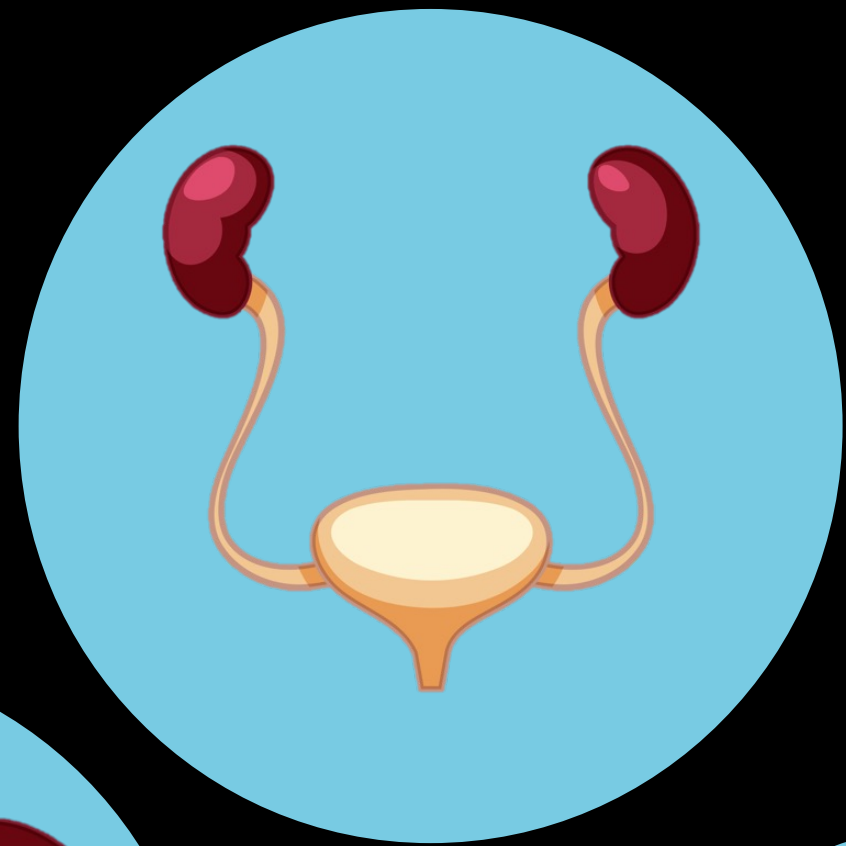
1. Module 1: Introduction and Principles of PoCUS
2. Module 2: Image Acquisition and Optimisation
3. Module 3: The extended Focused Assessment with Sonar in Trauma (eFAST)
4. Module 4: Basic Lung Ultrasound Assessment
5. Module 5: Aorta Ultrasound Assessment
6. Module 6: Basic Cardiac Ultrasound assessment including Limited Compression I
7. Module 7: Ultrasound guided vascular access



Ultrasound Crash Course

A beginner course to help prepare you to practice the management and assessment of patients using Point of Care Ultrasound.





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Thank you

Any Questions?
Any comments?