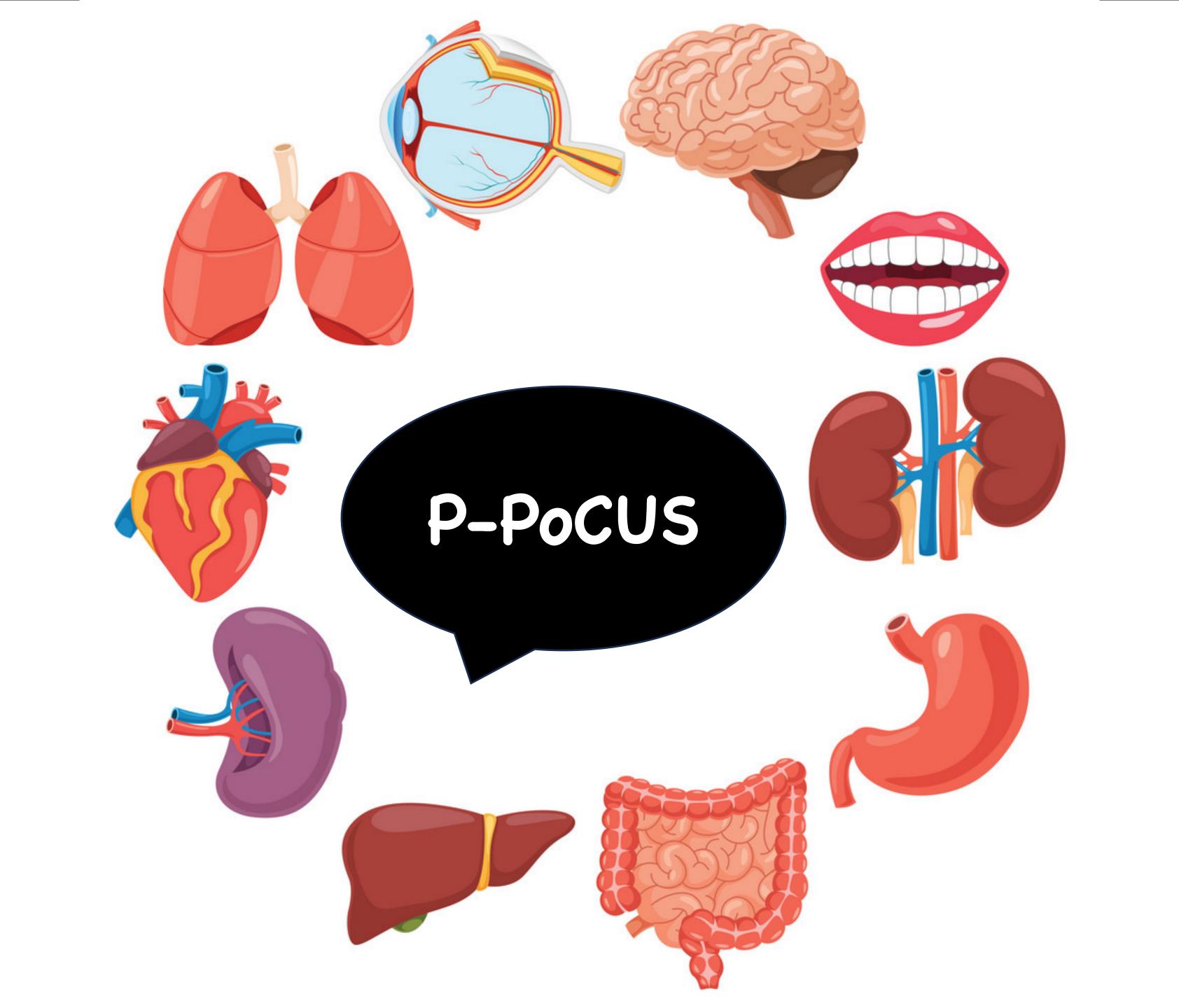


in PEM

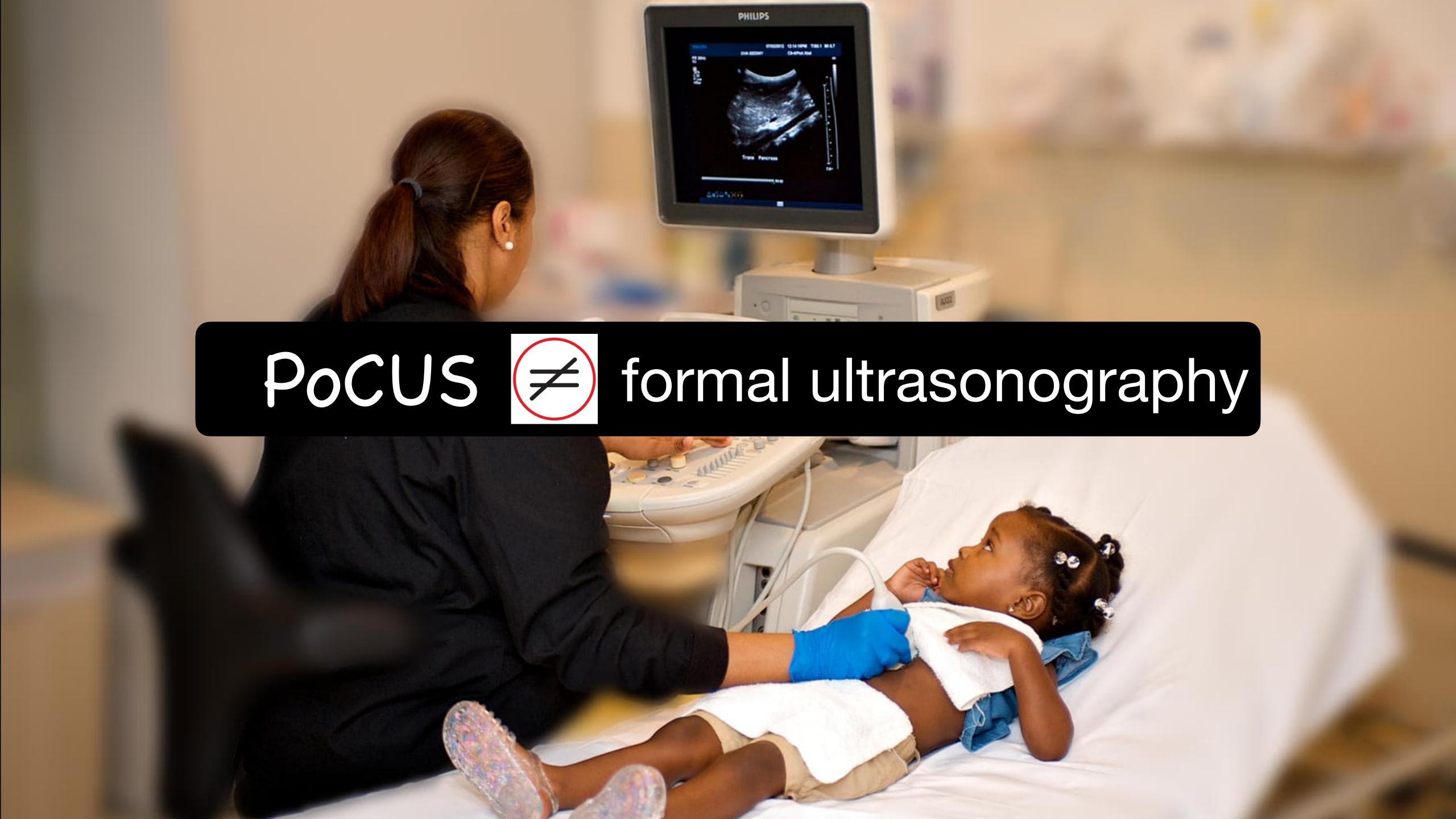




FOR THE BOLD"







rule in ...

not rule out





Advanced Cardiac Arrest Algorithm Adult and Paediatric

CONTROL OF DEFENDANCE COMMENTS

HAZARDS

Ensure the scene is safe

HELLO

- Unresponsive?
- Not breathing or only gasping?

Emergency No:

Pulse?

HAS PULSE AND **BREATHING**

- Place in recovery position
- Check for continued breathing
- Reassess continuously

HELP

Call for assistance and AED/Defibrillator

No Pulse or not sure

Pulse rate <60 in children and infants

HAS PULSE BUT NO EFFECTIVE **BREATHING**

Give rescue breaths

- Adult: every 6 seconds
- Child: every 3 seconds
- Infant: every 2 seconds
- Reassess continuously

START CHEST COMPRESSIONS

- Compress the chest fast (almost 2 per second)
- Push hard | Ensure full chest recoil
- Minimise interruptions

Shock

Advised

(VF/VT)

Give 1 Shock

Monophasic - 360J

Biphasic – 120-360J

Paediatric – 4 J/kg

AED energy – factory preset

Immediately resume

CPR starting with

compressions

Continue for 2 minutes

HIGH QUALITY CPR

- Compression rate 100-120 per minute
- Avoid excessive ventilation
- 1 breath every 6 seconds if advanced airway
- Change or switch compressors every two minutes
- Consider capnography and arterial monitoring

BREATHS

- Attempt 2 breaths at 1 breath/second (with O₂ if available) after every 30 compressions
- Adult ratio 30:2 | Children/Infants 30:2 (2-rescuer 15:2)

Attach AED/Defibrillator immediately

ANALYSE

RHYTHM

Continue until AED/Defibrillator arrives

If unable to perform breaths, do continuous compressions until equipment arrives

ADVANCED CONSIDERATIONS

- Correct contributory causes
- Obtain IV/IO access, take ABG/VBG
- Give high levels of FiO₂ and consider advanced airway
- Continuous chest compressions after advanced airway
- Consider Adrenaline and antiarrhythmics (VF/pVT):
 - o Adrenaline 1mg every 3-5 min (0.01mg/kg in paediatrics)
 - o Amiodarone 300mg followed by 150mg (5mg/kg in paediatrics)

o Lignocaine 1.5mg/kg initial, followed by 0.5mg/kg (max 3mg/kg)

CONTRIBUTORY CAUSES

- Hypoxia
- Hypovolaemia
- Hypothermia
- Hydrogen ion (Acidosis)
- Hypo/Hyperkalaemia
- Hypoglycaemia
- - Tension Pneumothorax Tamponade (Cardiac)
 - Toxins
 - Trauma
 - Thrombosis (Coronary)
 - Thrombosis (Pulmonary)

ADDITIONAL CONSIDERATIONS:

VA ECMO might be considered in appropriate centres when available;

If signs of life present monitor

and provide post ROSC care

Immediately resume CPR

starting with compressions

Continue for 2 minutes

Administer Adrenaline as soon

as vascular access obtained

• If absent – continue CPR

• Ultrasound can be considered as a diagnostic and procedural tool where training and resources exist

No Shock

Advised

(PEA/Asystole)

www.resus.co.za

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

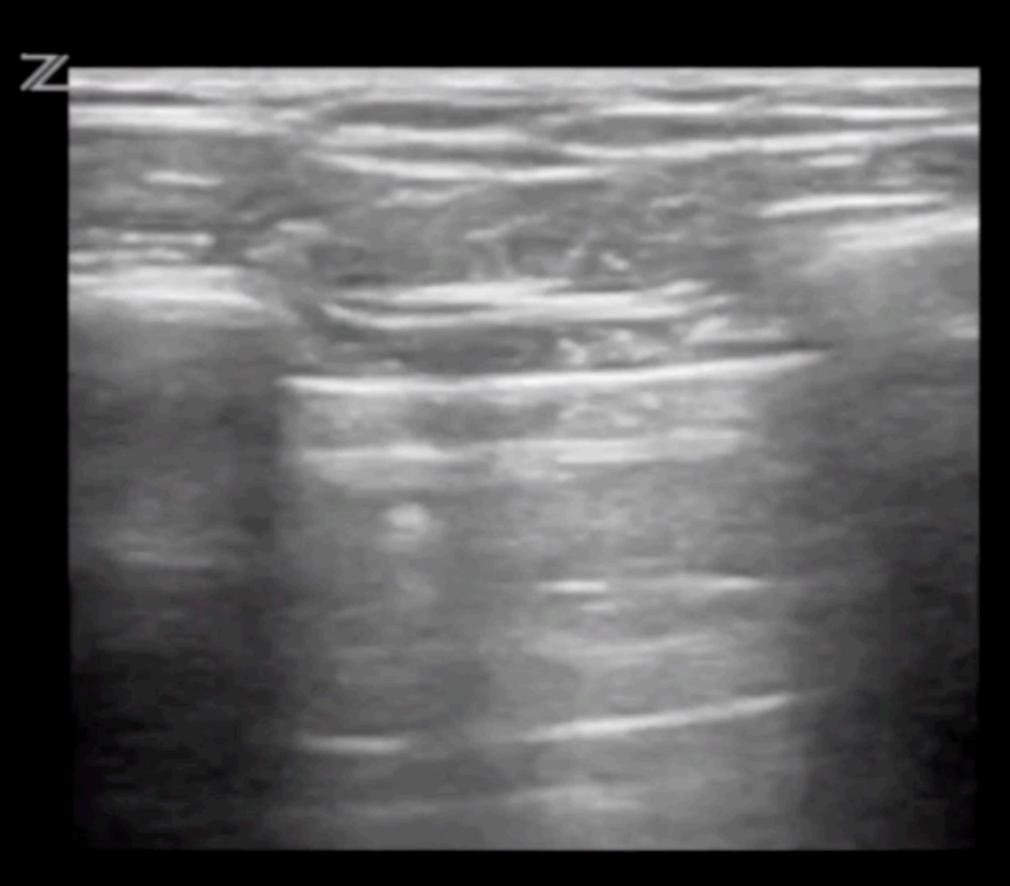
29K views • 2 years ago



Sliding Vs. No Sliding

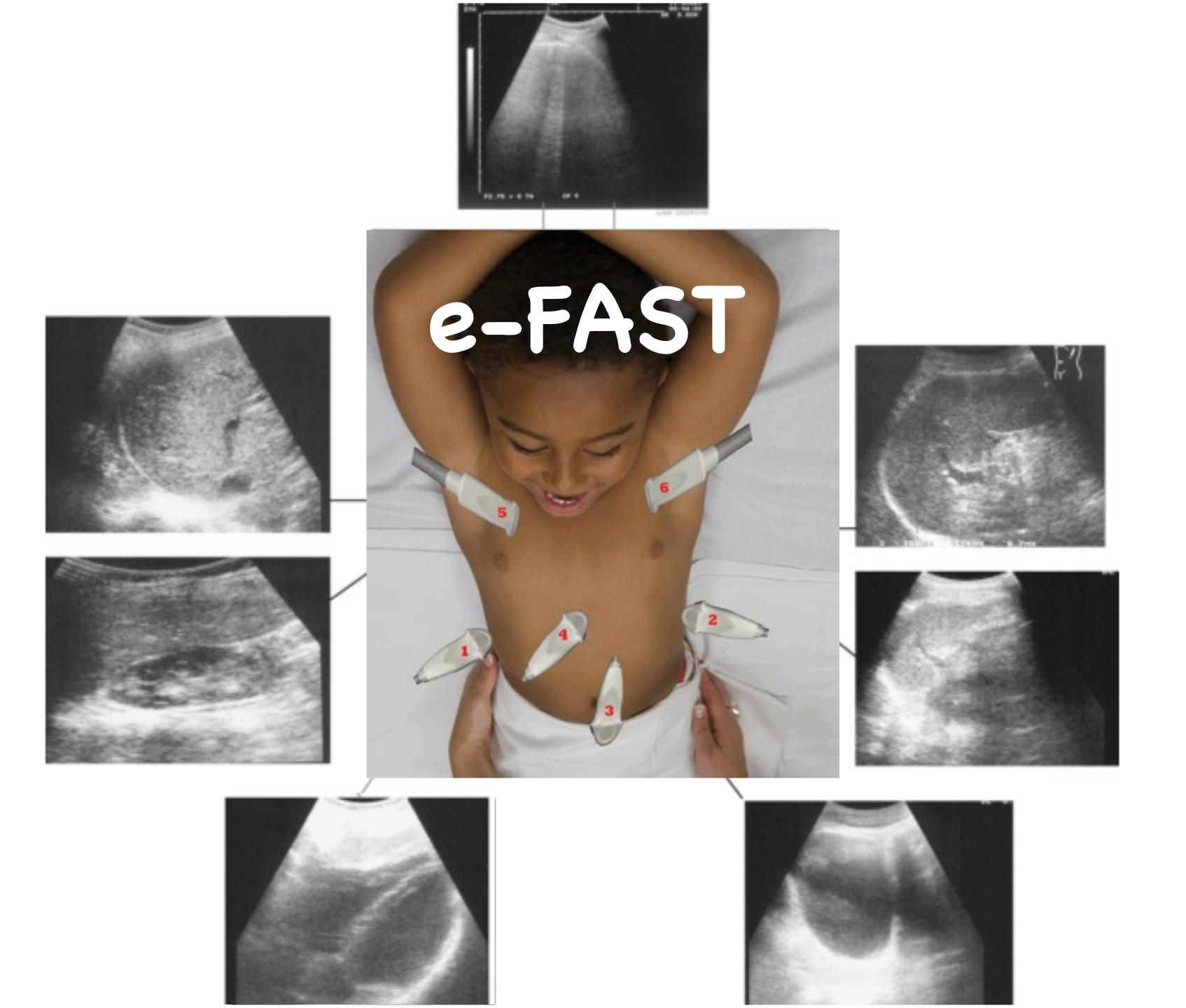
Normal

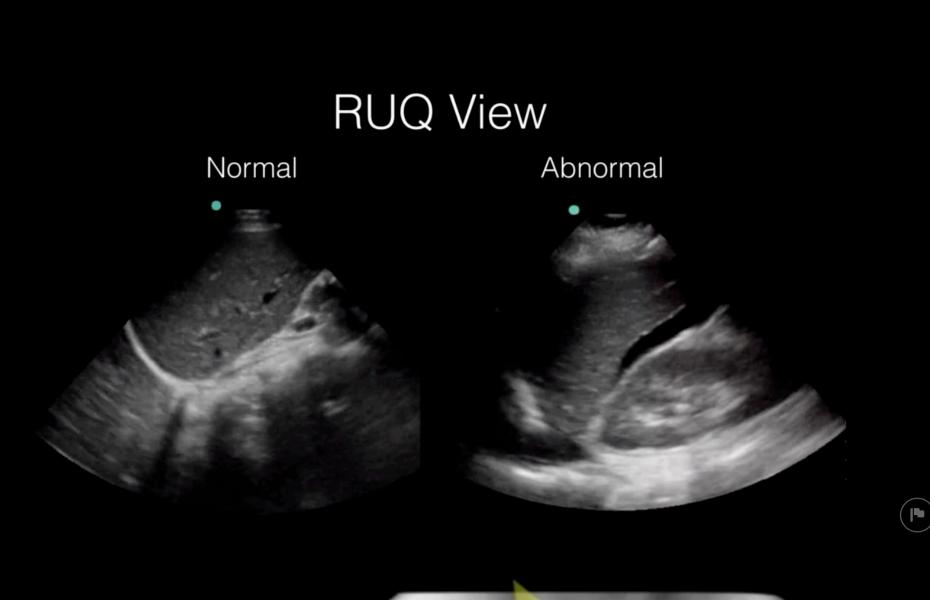


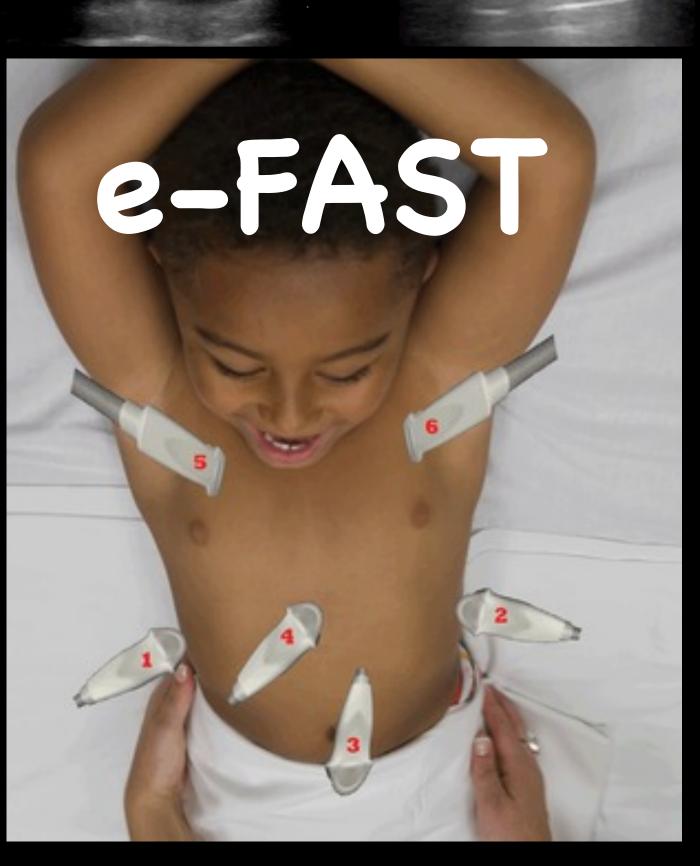


B-line severity patterns		Consolidations	
	Normal Lung sliding: A-lines with less than 2 B-lines		Viral pneumonia: diffuse/coalescent B-lines with small, multiple and bilateral subpleural consolidations
	Moderate: multiple and well defined B-lines		Bacterial pneumonia: Consolidation with air bronchogram 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.



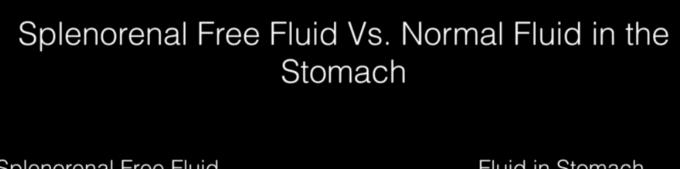


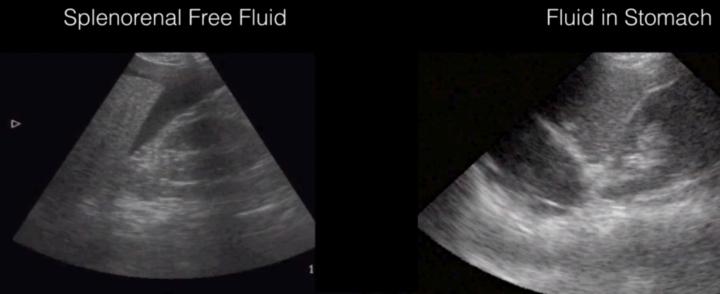




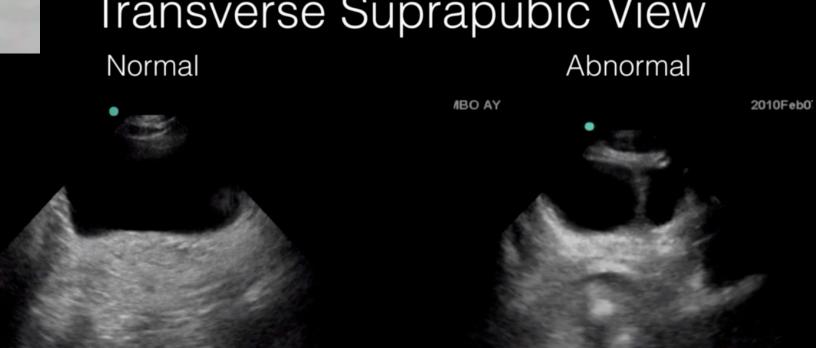
Normal

Abnormal













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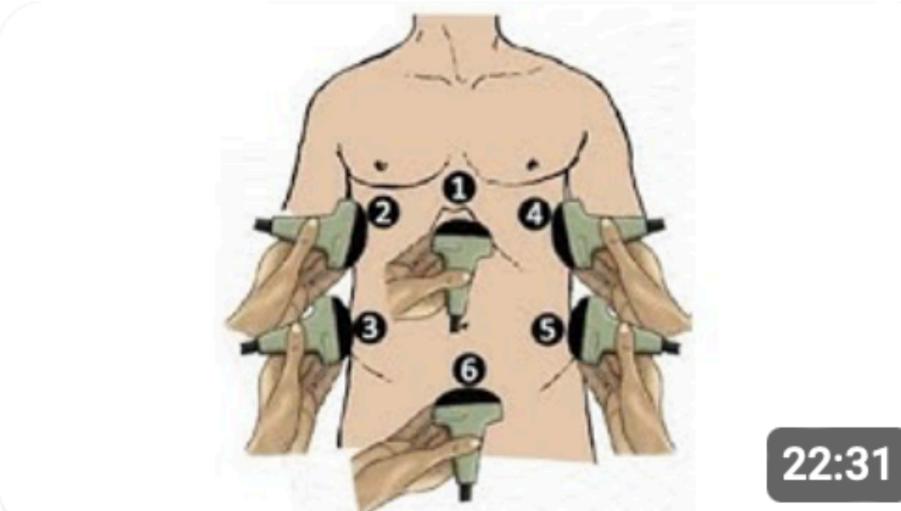




e-FAST

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Dr Tayla Ferguson



FASH Focused Assessment by Sonography in HIV / TB

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Heller et al. Critical Ultrasound Journal 2012, 4:21 http://www.criticalultrasoundjournal.com/content/4/1/21



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

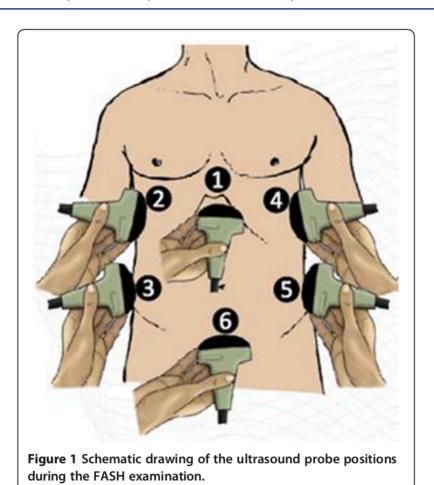
Background: Ultrasound can rapidly identify abnormal signs, which in high prevalence settings, are highly suggestive of extra-pulmonary tuberculosis (EPTB). Unfortunately experienced sonographers are often scarce in

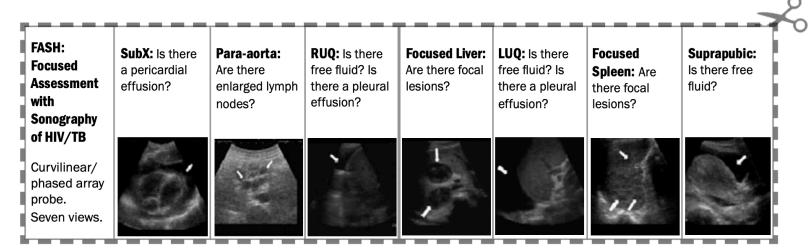
Methods: A protocol for focused assessment with sonography for HIV-associated tuberculosis (FASH) which can be used by physicians who are relatively inexperienced in ultrasound was developed.

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.





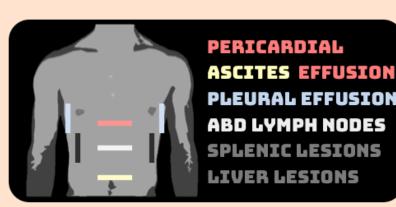


Questions:

What is the diagnostic accuracy of the FASH (Focused Assessment with Sonography for HIV associated Tuberculosis)

Methods:

Prospective study of adult patients with HIV in South Africa with any symptoms of tuberculosis (TB). FASH exam compared to rapid TB test or culture for diagnosis of TB. 1° outcome was accuracy of at least 1 finding on FASH exam.



FASH

	Sens%	Spec%	+LR	-LR
≥1 Finding	73	54	1.6	0.5
≥4 Findings	9	99	7.5	0.9

Abdominal lymph nodes were most predictive of TB (OR 3.7), then ascites (OR 3), pericardial effusion (OR 1.9)

an Hoving DJ, Kenge AP, Maartens G, Meintjes G. Point-of-Care Ultrasound Predictors for the Diagnos

Clinical Microbiology and Infection 30 (2024) 320–327



Clinical Microbiology and Infection

Contents lists available at ScienceDirect

journal homepage: www.clinicalmicrobiologyandinfection.com

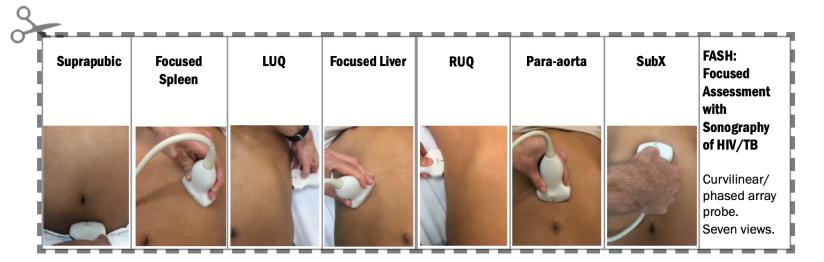
CMI **CLINICAL** AND INFECTION ESCMID OF CUMERAL MICROBIOL MICROBIO

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 Taccari ³, Tapiwa Kumwenda ⁴, Michaëla AM Huson ⁵, Claudia Wallrauch ⁴, Tom Heller ^{4, 6}

- $^{1)}$ Institute of Tropical Medicine, University of Tübingen, Tübingen, Germany
- ²⁾ Partner Site Tübingen, German Center for Infection Research (DZIF), Tübingen, Germany ³⁾ Dipartimento di Scienze di Laboratorio e Infettivologiche, Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy
- ¹⁾ Lighthouse Clinic Trust, Lilongwe, Malawi
- ⁵⁾ Department of Internal Medicine, Radboud University Medical Center, Nijmegen, The Netherlands
- ⁶⁾ International 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 Bélard, 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, PhD1,7, 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 ³Charité – Universitätsmedizin Berlin, corporate member of Freie Universität Berlin, Humboldt-Universität 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.

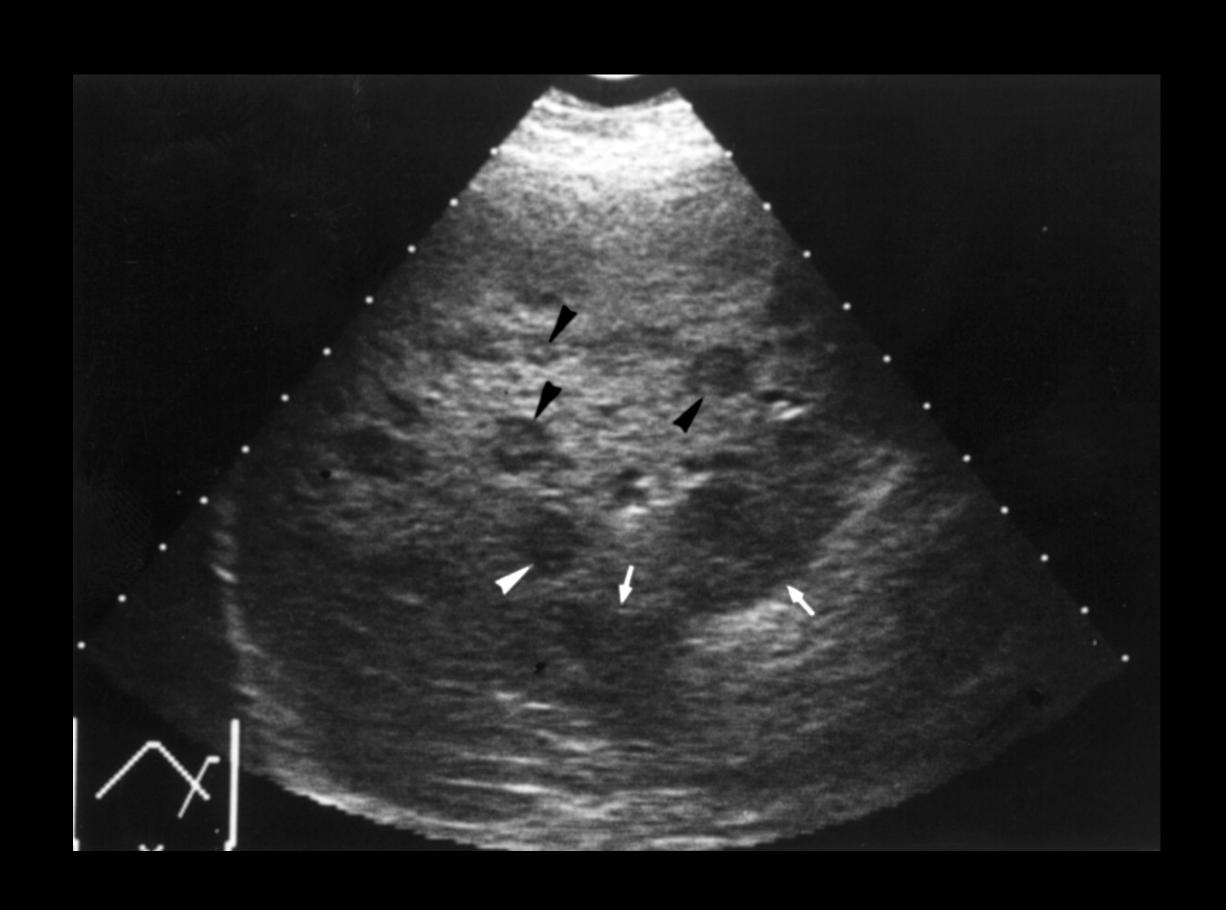
Conclusions—POCUS for EPTB in children with PTB is feasible. The high prevalence of findings suggests that POCUS can contribute to timely diagnosis of childhood TB and to monitoring treatment response.

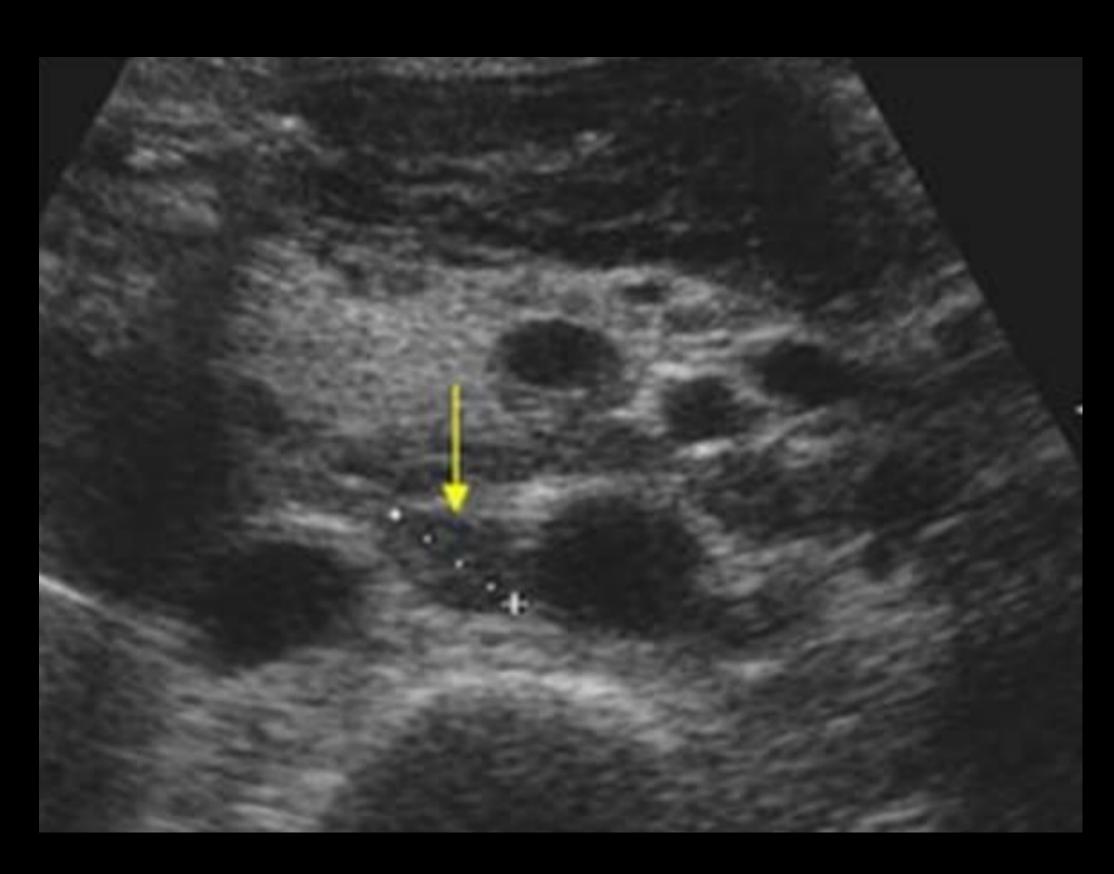
Keywords

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

Splenic micro-abscesses

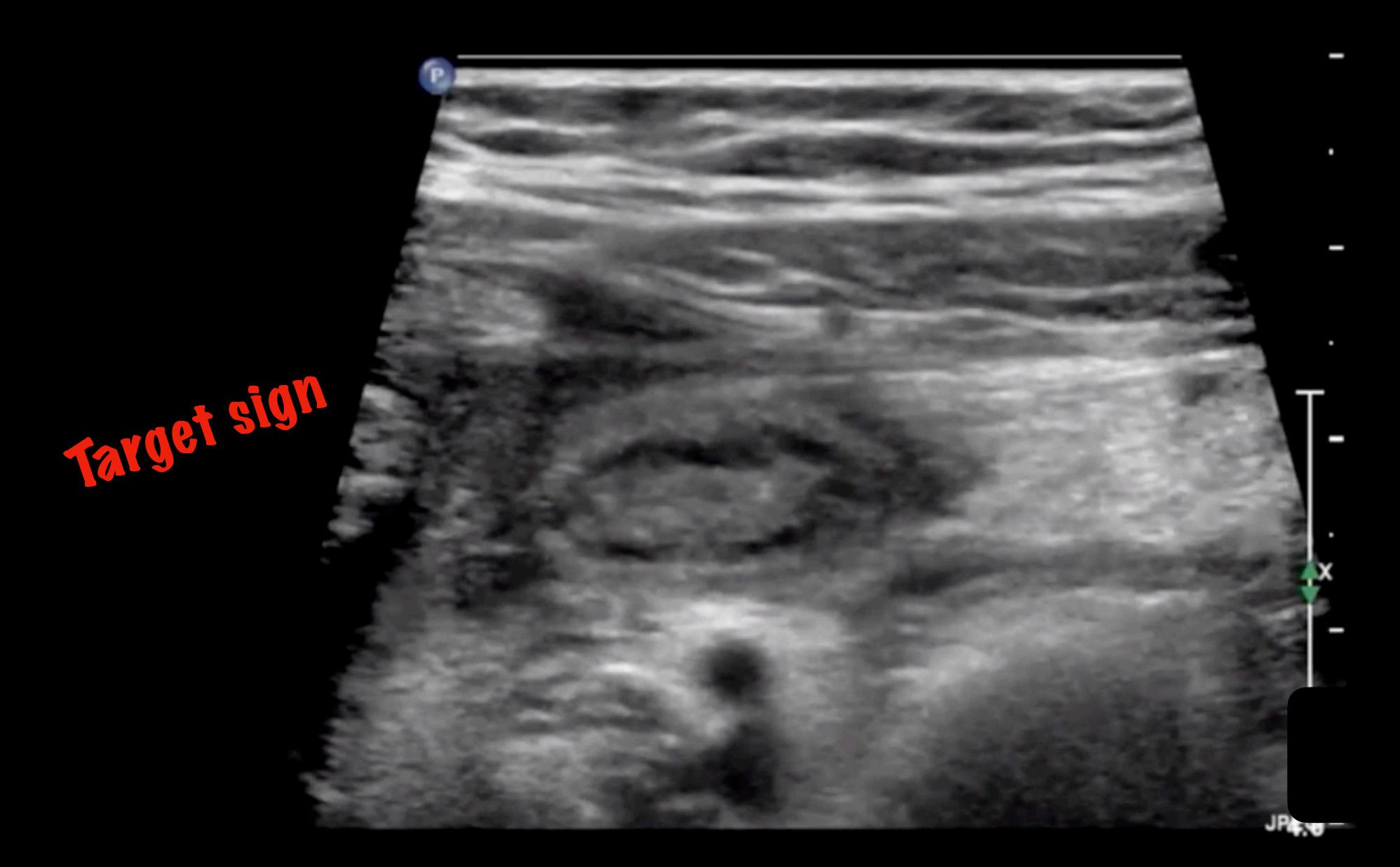
Lymph nodes



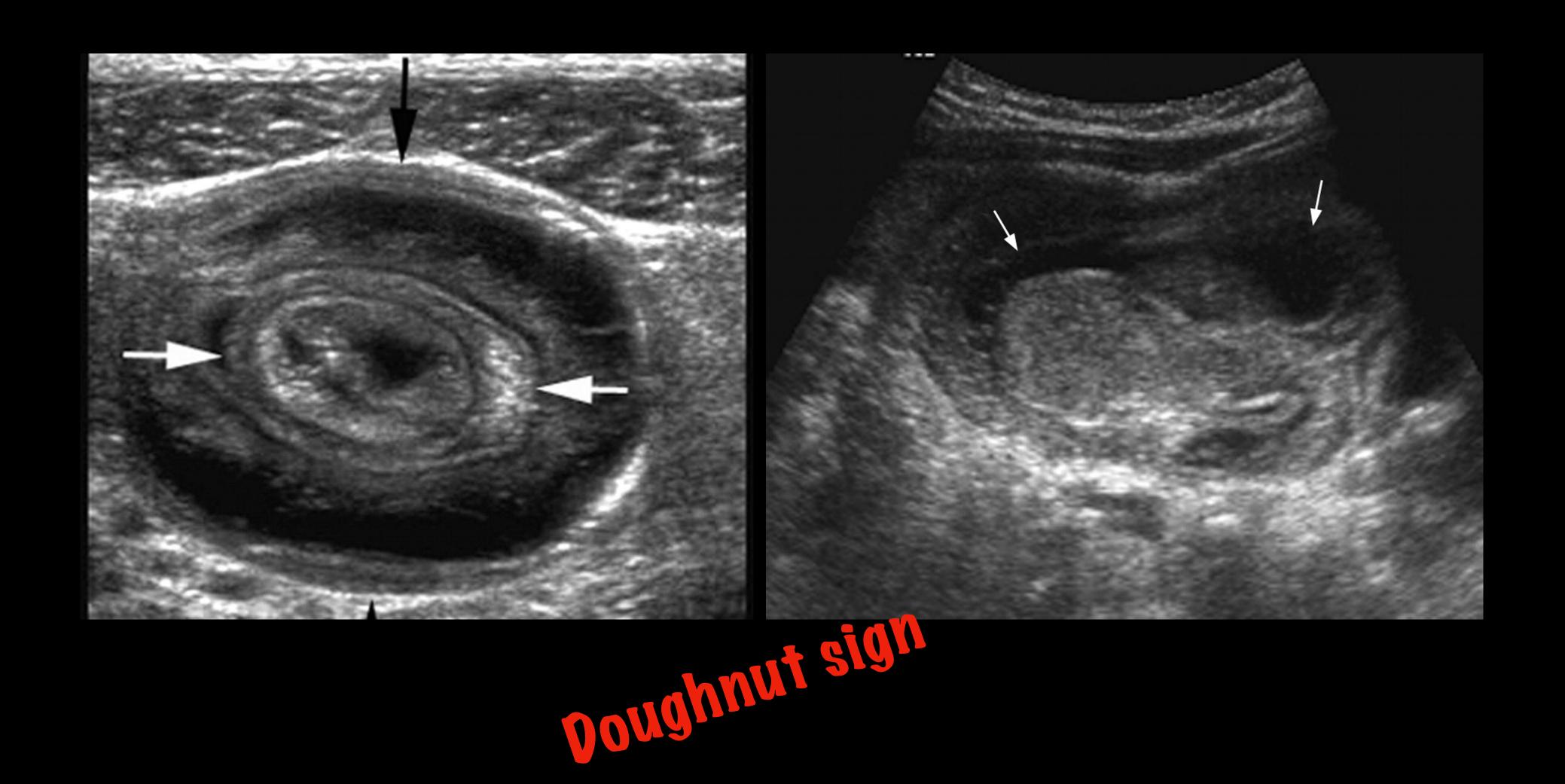




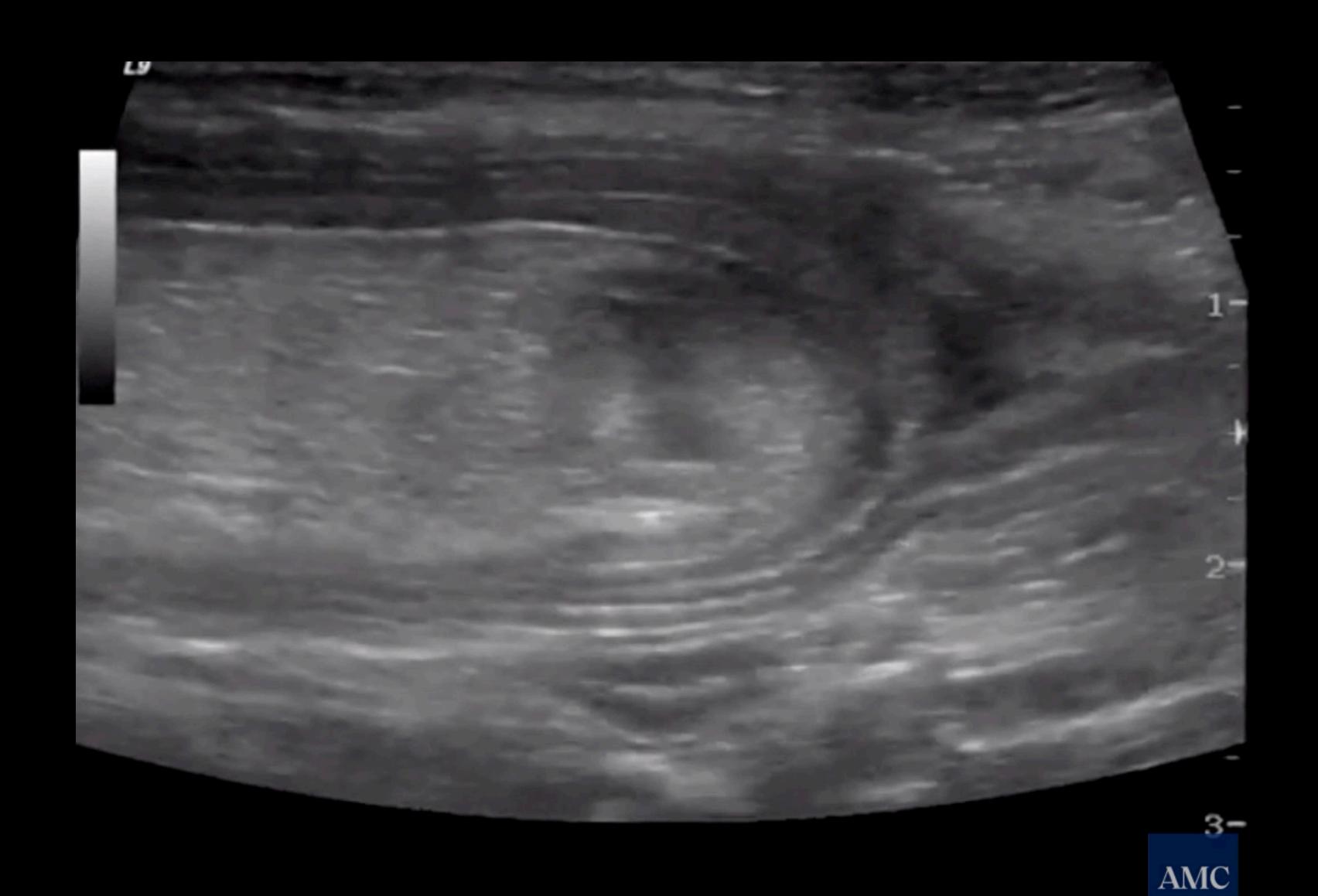
Appendicitis



Intussusception



Intussusception



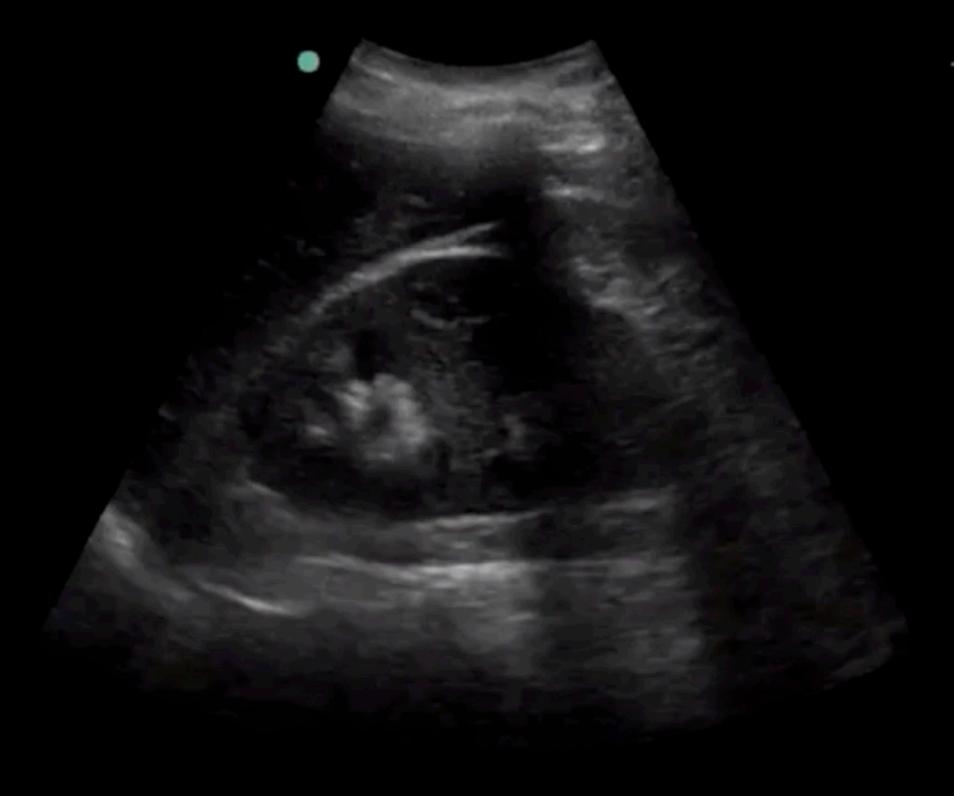


Kidney

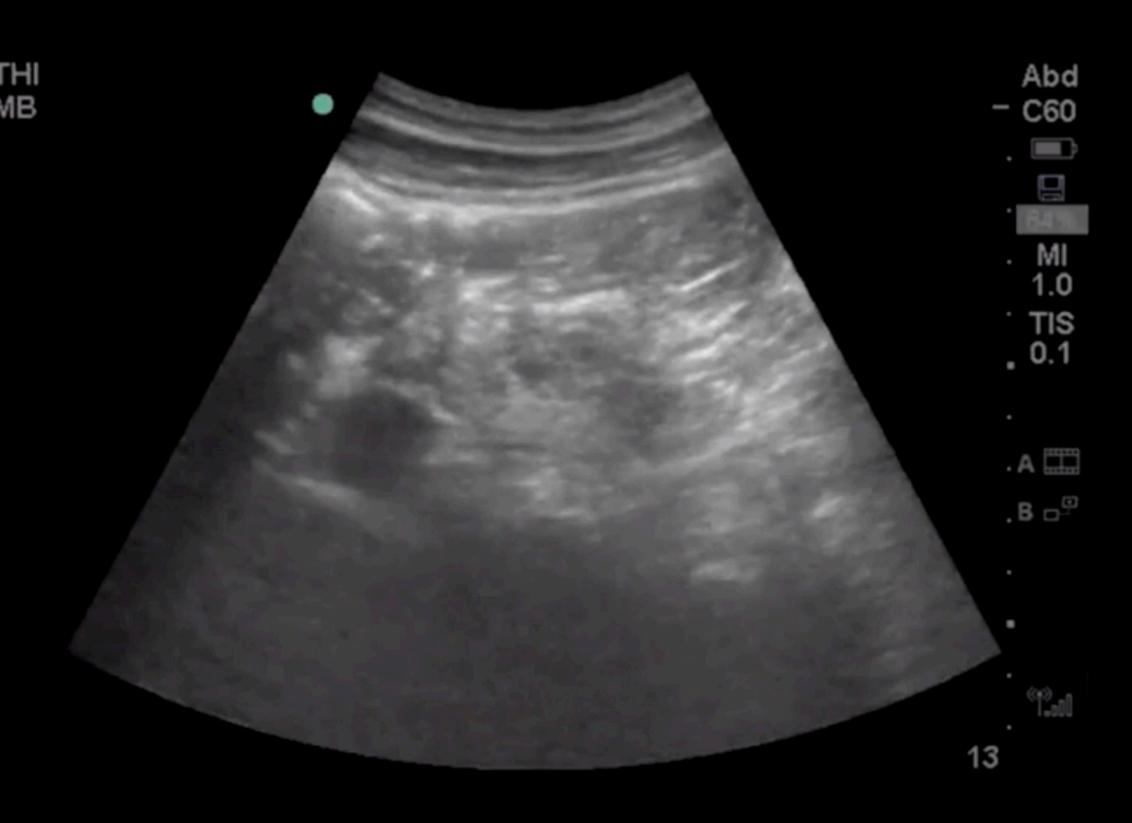
Abd

Longitudinal view

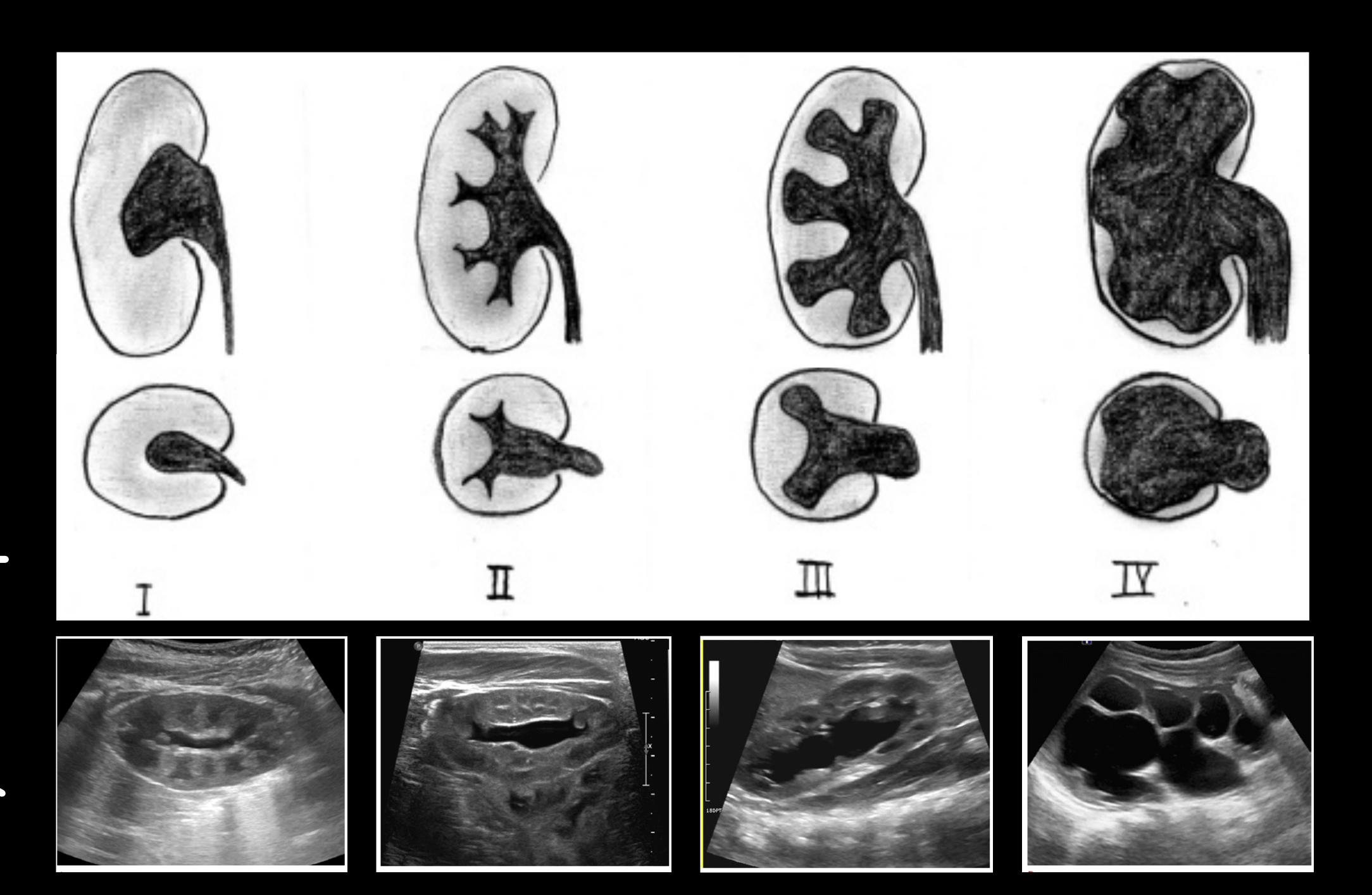
Gen THI S MB



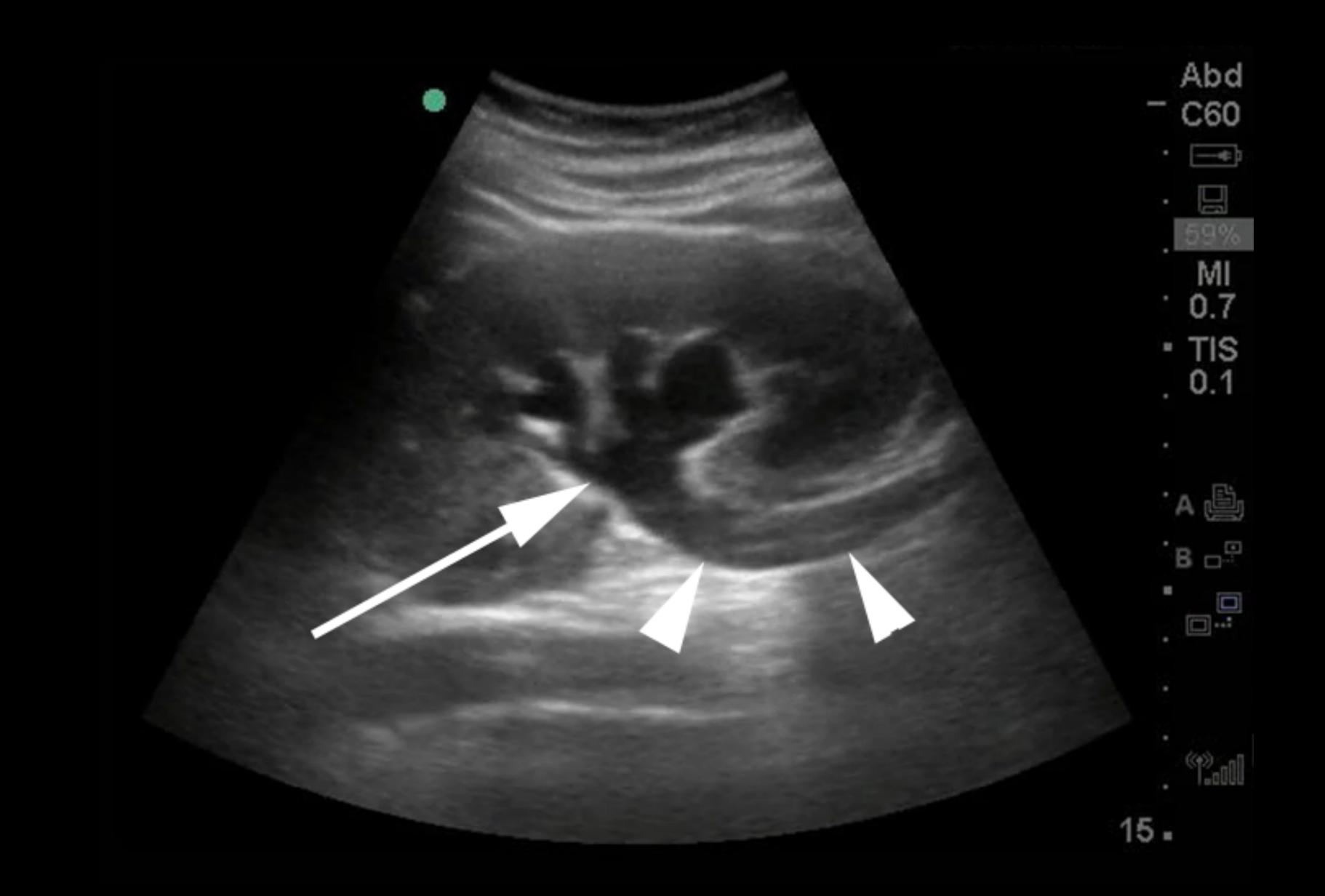
Transverse view



Jronephrosis



Hydroureter

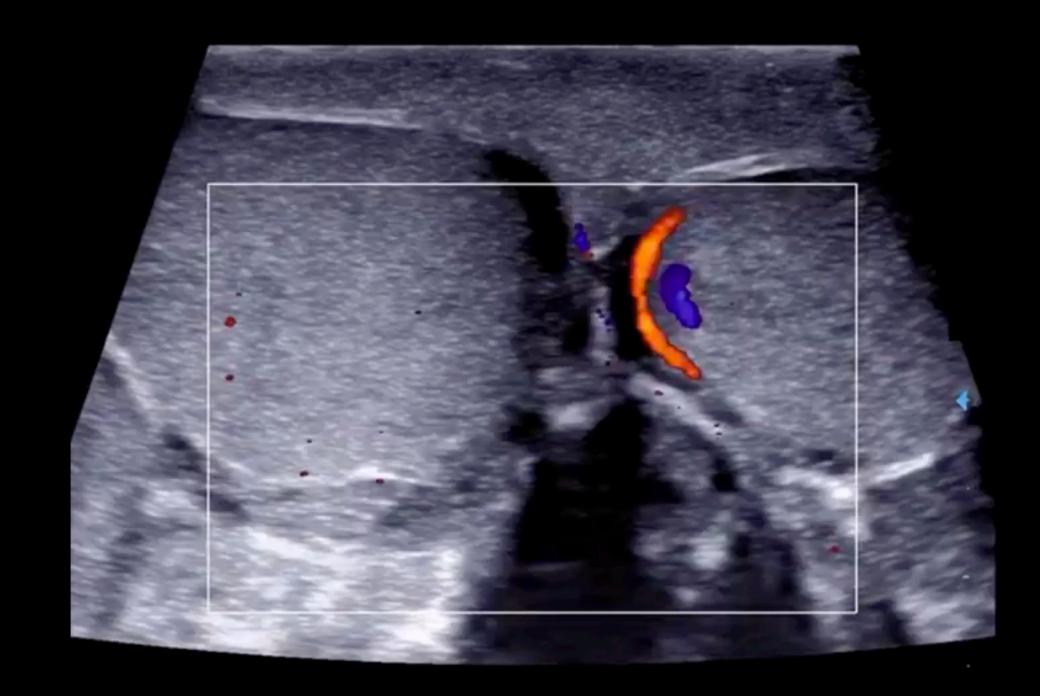


Testicular Torsion

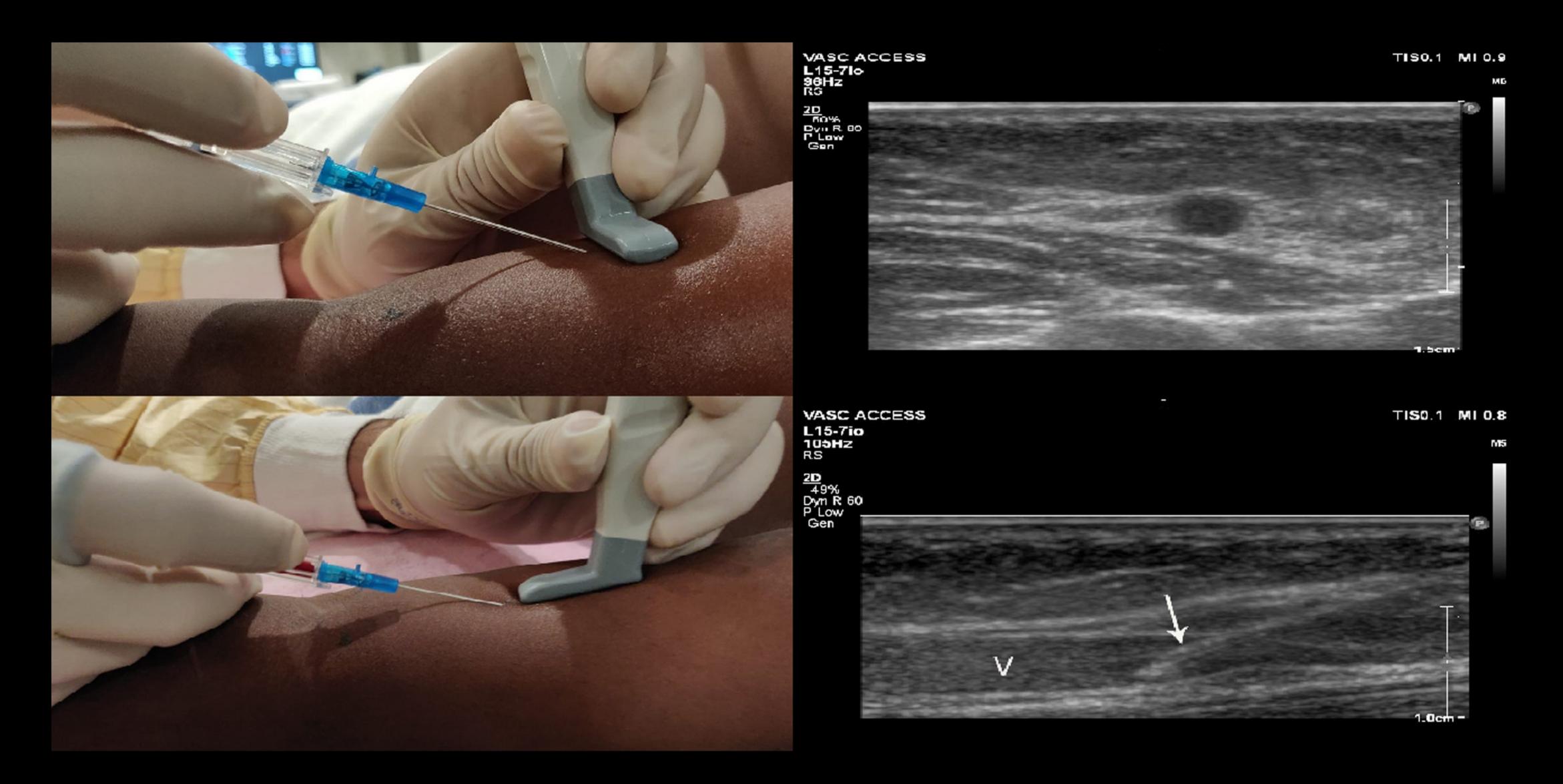
Spectacle view

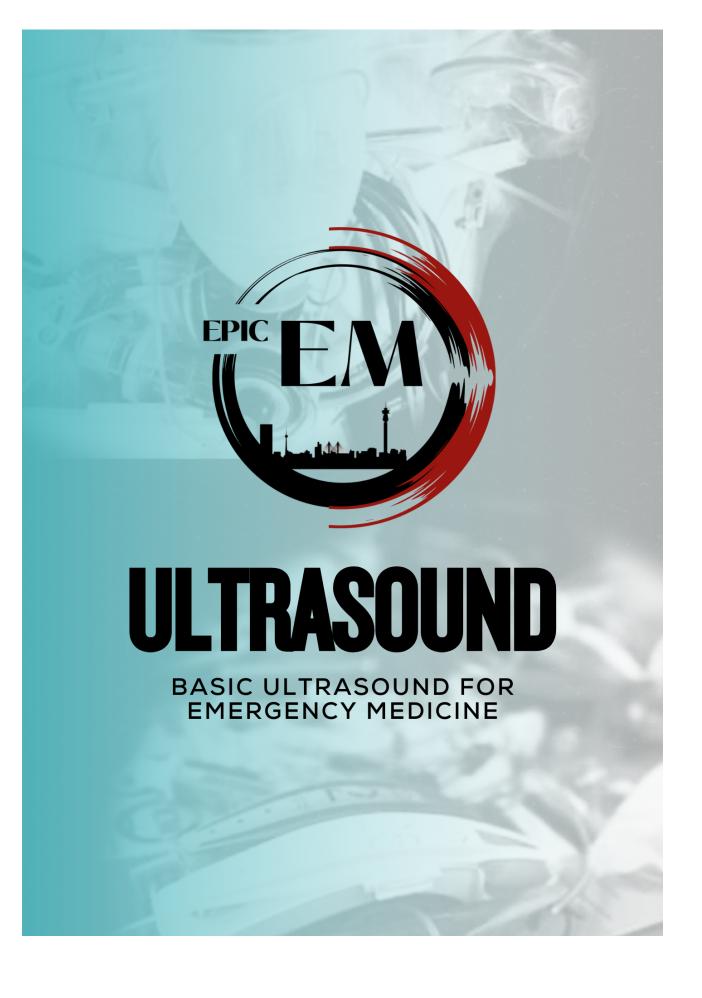


Color Doppler



Vascular access







■ Book your seat





Why they s

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

Course Information

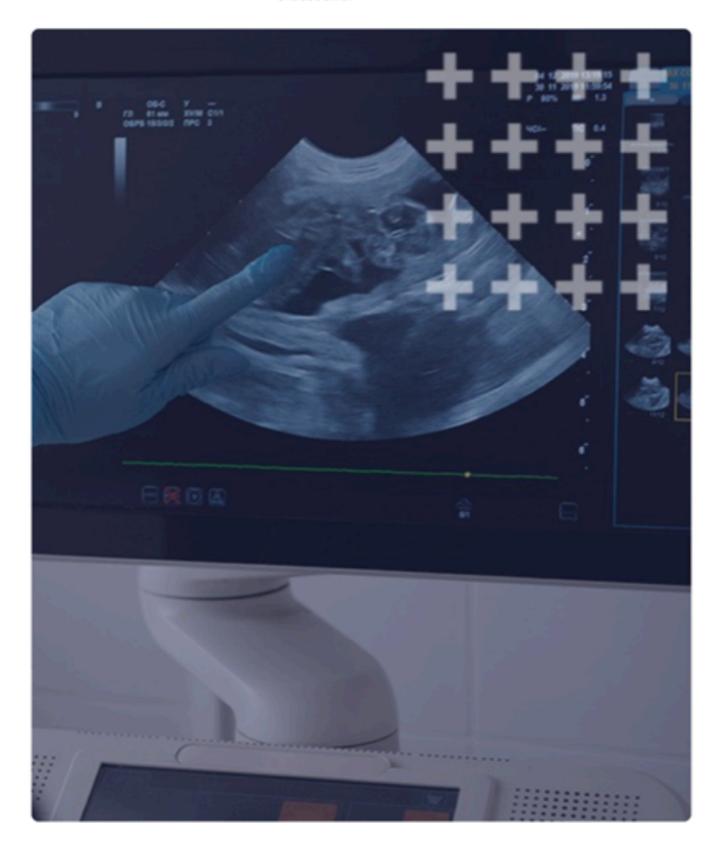
The core ePoCUS curriculum focuses on ultrasound skills that are deemed essentia emergency setting or dealing with emergencies on a regular basis, and includes 7 covered in the course:

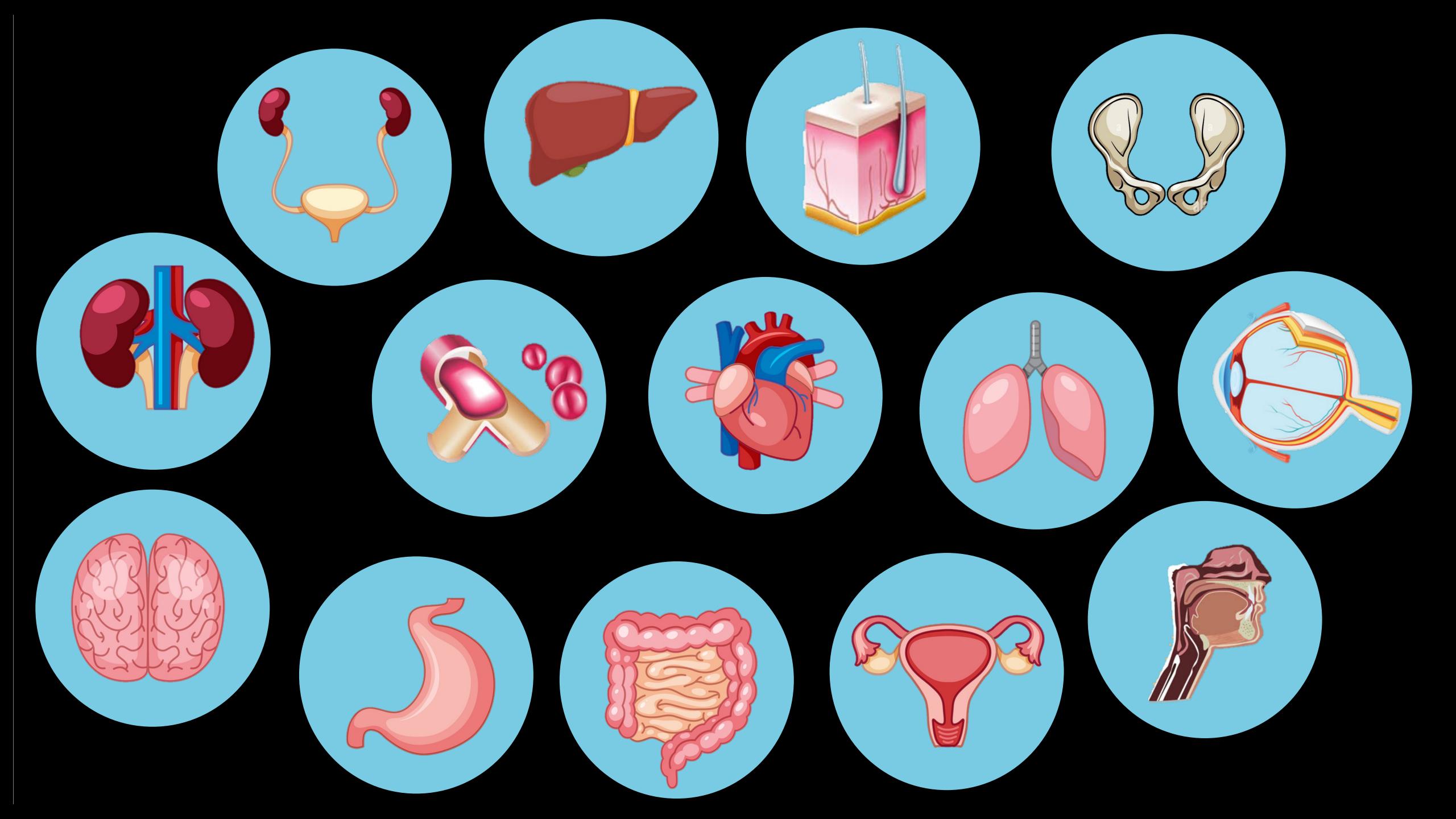
- 1. Module 1: Introduction and Principles of PoCUS
- 2. Module 2: Image Acquisition and Optimisation
- 3. Module 3: The extended Focused Assessment with Sonar in Trauma (eFAST)
- 4. Module 4: Basic Lung Ultrasound Assessment
- 5. Module 5: Aorta Ultrasound Assessment
- 6. Module 6: Basic Cardiac Ultrasound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



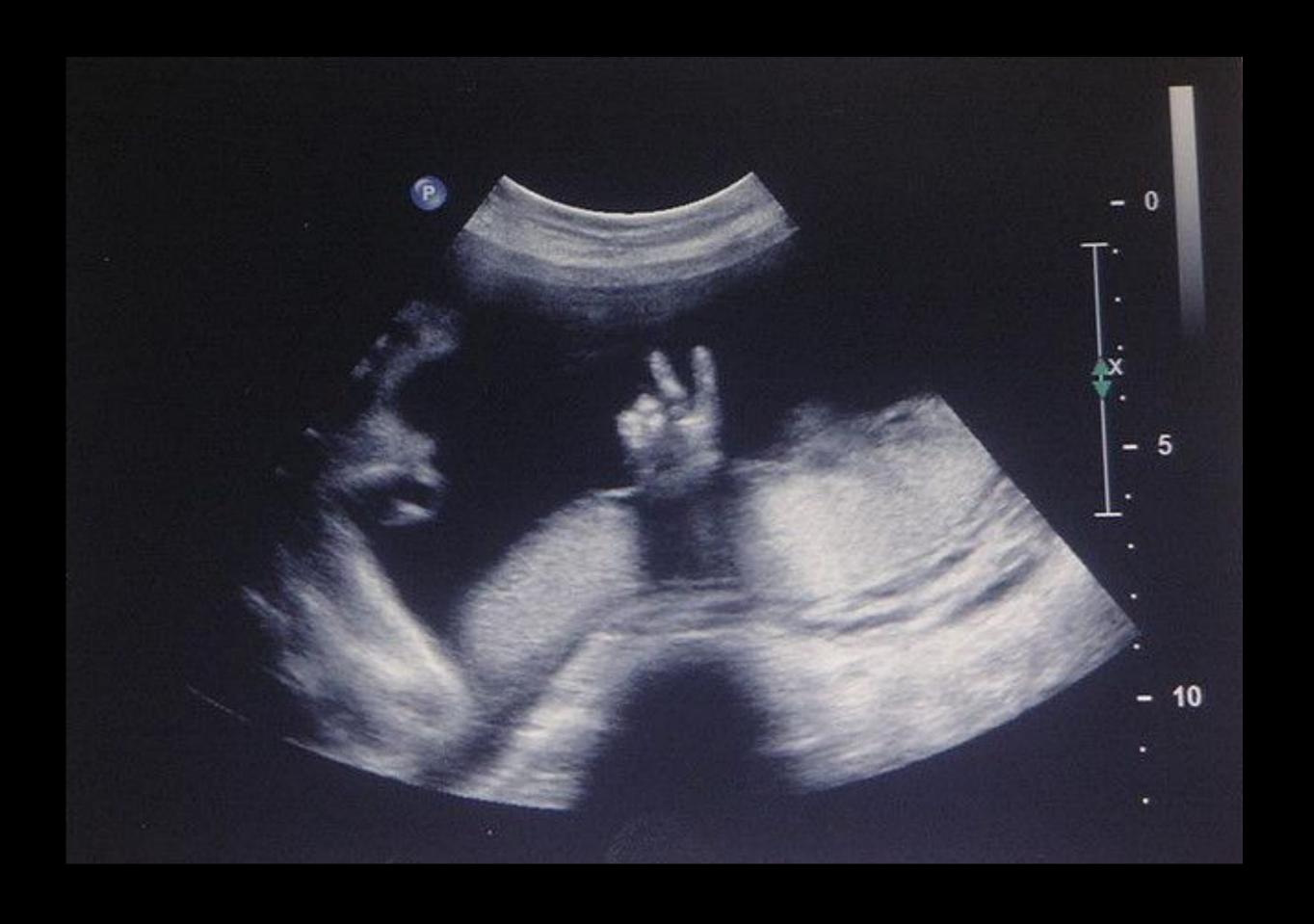
Ultrasound Crash Course

A beginner course to help prepare you to practice the









Thank you

Any Questions?
Any comments?