

POCUS Club

Aorta

Evidence

Rubano et. al (2013)

- Systematic review - accuracy of ED-performed US to rule out AAA.
- 7 prospective studies (n=655).
- **P** - Adults with symptoms/signs suggestive of AAA.
- **I** - ED-performed US (operator training variable)
- **C** - Reference standard varied - CT, MR, aortography, Radiology US, laparotomy, autopsy.
- **O** - Operating characteristics
- **Sn 97.5-100%, Sp 94.1-100%.**
- **LR+ 10.8-∞, LR- 0.00-0.025.**

Abdominal Aortic Aneurysm	
Abdominal Aorta > 3 cm	
Sensitivity	99
Specificity	99
Positive LR	99
Negative LR	0.01

AAA

>3cm is abnormal for AA (>5cm is high-risk for rupture - call Vascular!)

>1.5cm is abnormal for common iliac arteries.

Intraluminal thrombus is common - measure whole diameter, not just the true lumen.

Rupture is usually retroperitoneal but **20% are intraperitoneal** (worse prognosis).

1

CURVILINEAR PROBE

Use abdominal preset

Probe marker at **9 o'clock** below xiphoid



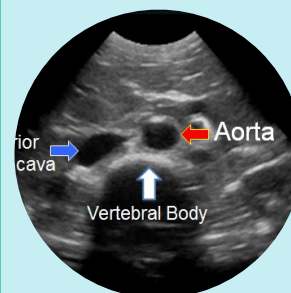
Find **vertebral body**

2

TRANSVERSE VIEW

Ideally **3 views** - proximal, middle, distal (including **iliacs**)

Middle-distal AA most important (**90% AAAs are infrarenal!**)



Measure **outer wall to outer wall**

3

LONGITUDINAL VIEW

Rotate clockwise whilst visualising aorta in transverse plane



Fan to obtain **largest diameter**

Optimise

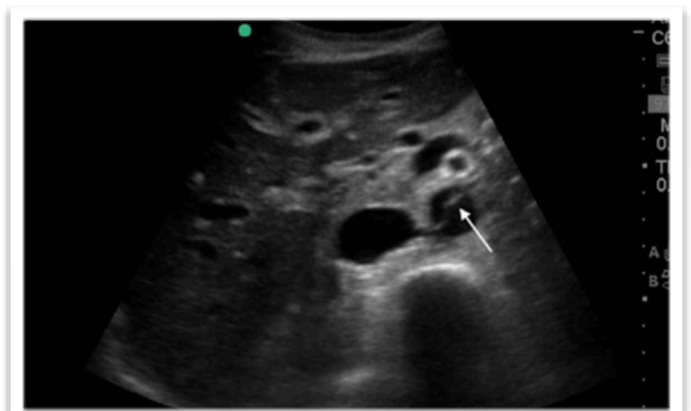
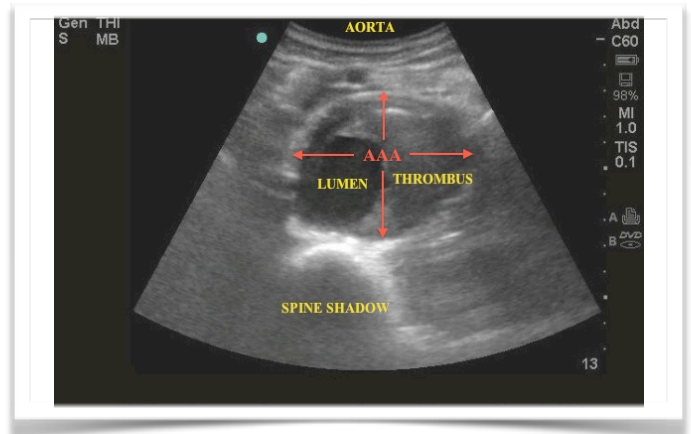
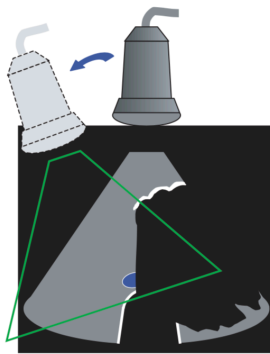
Depth, Focus, Gain

Optimise depth to minimum needed to visualise aorta and **adjust focal zone** for best resolution. Select **appropriate gain** or TGC.

Compound imaging (multi-beam/iBeam) improves lateral resolution of vessels and cystic structures.

Navigating bowel gas

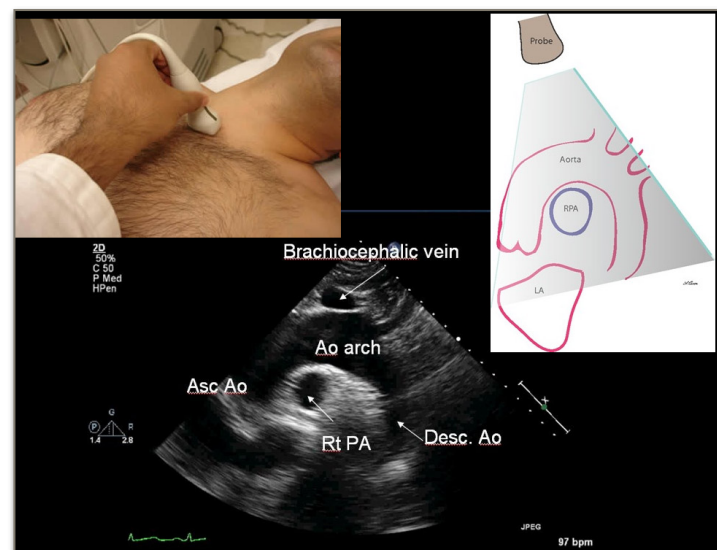
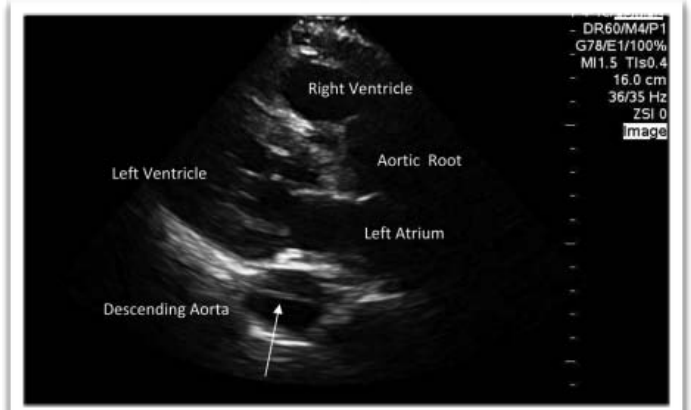
Steady pressure and jiggle probe to gas.
Scan "around" gas - lateral to midline, rocking the probe.
Try left lateral positioning or bend knees.



Aortic dissection

Look for a flap!

Floating intimal flap is highly specific for AD. False lumen may show absent or reduced colour flow.



Parasternal long axis (PLAX) view:

Check **aortic root** (>4cm abnormal)
Descending aorta can often be seen inferior to LA.

Suprasternal notch view:

Can be tricky! Rotate and fan probe gently.

RESOURCES

5 Min Sono: <http://5minsono.com/aaa/> <http://5minsono.com/ad/>
The POCUS Atlas: <http://www.thepocusatlas.com/ea-aorta>
Rubano et al. (2013): <https://www.ncbi.nlm.nih.gov/pubmed/23406071>
Middlemore Hospital EM Education: <http://www.mmheme.org/ultrasound-modules/2015/4/8/abdominal-aorta-ultrasound>
Books: Introduction to Bedside Ultrasound (Dawson & Malin), Manual of Emergency and Critical Care Ultrasound (Vicki Noble)