

Ultrasound Diagnosis of Acute Arterial Thrombosis

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Overview

- Clinical Presentation
- Physiologic Presentation
- Duplex Presentation



Clinical Presentation



- Sudden onset of the “6 P’s”:
 - Pain
 - Pallor
 - Pulselessness
 - Parathesia
 - Paralysis
 - Polar

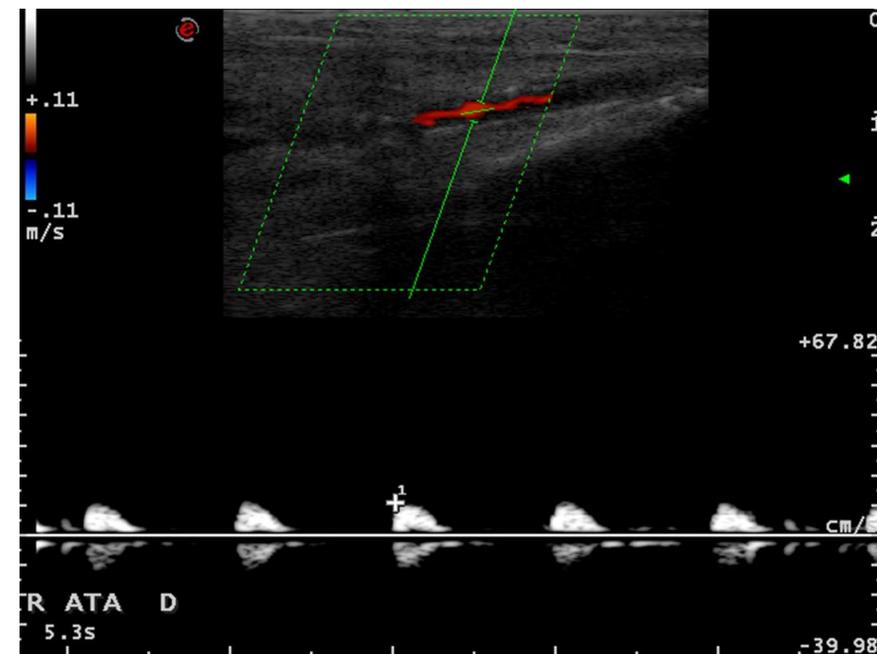
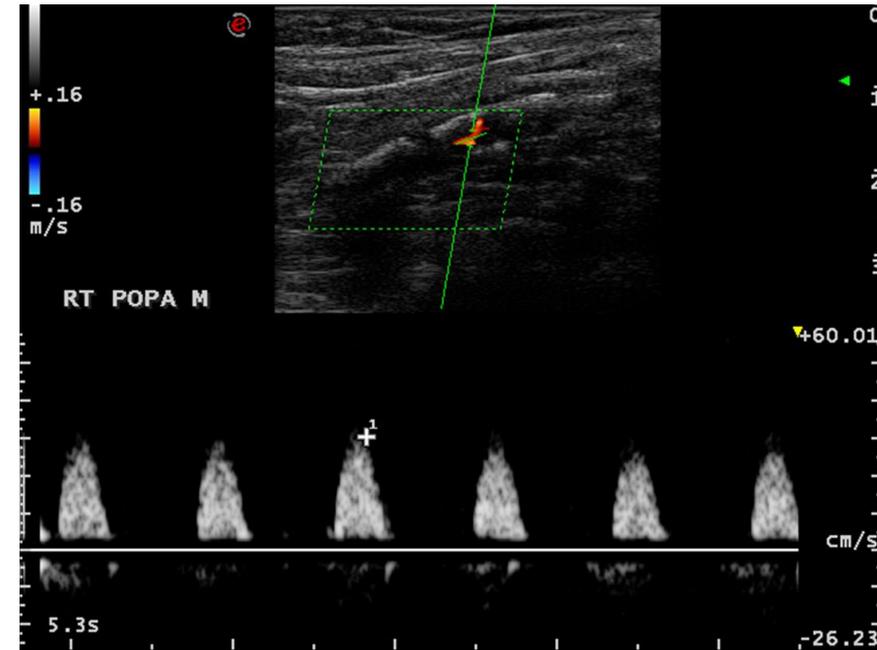
Finding the Occlusion

- Emboli = SUDDEN OCCLUSION
 - No collaterals
- PALPATION can help isolate the occlusion
 - Pulses, polar, paralysis
- Usually cardiac but could be from aneurysm, ruptured plaque or dissection
 - During duplex, go as high as possible

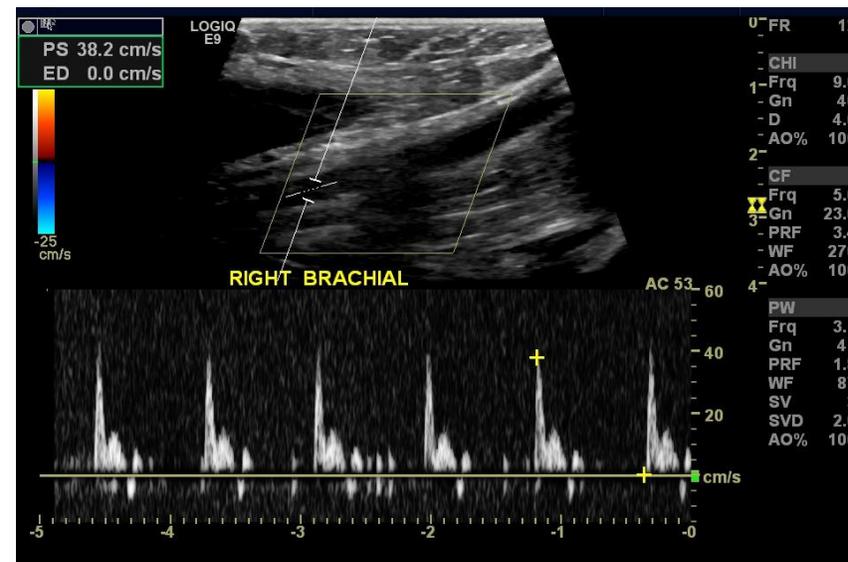
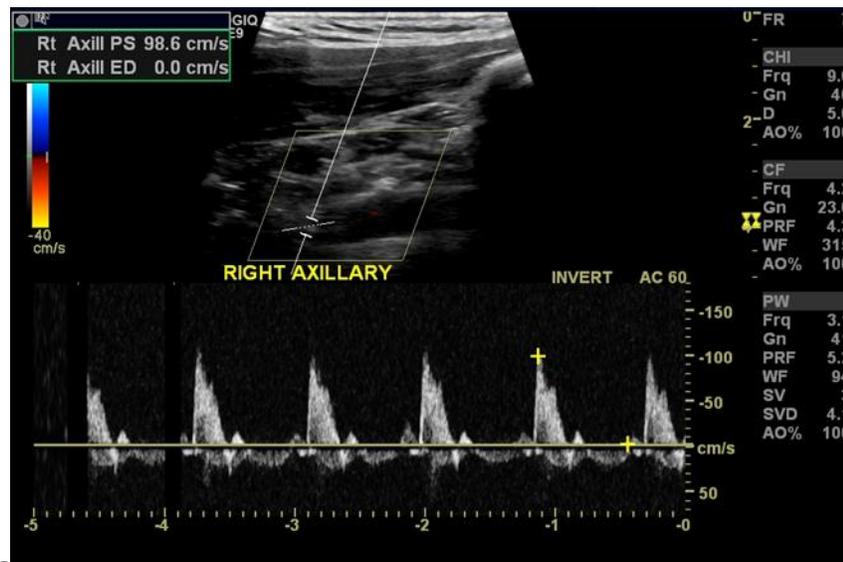


Physiologic Findings

- Generally absent distal waveforms BUT what flow there is may be blunted with no diastolic flow
 - If chronic, generally there will be continuous diastolic flow distal
 - Different than a rounded monophasic signal
- Pressure readings not always appreciated

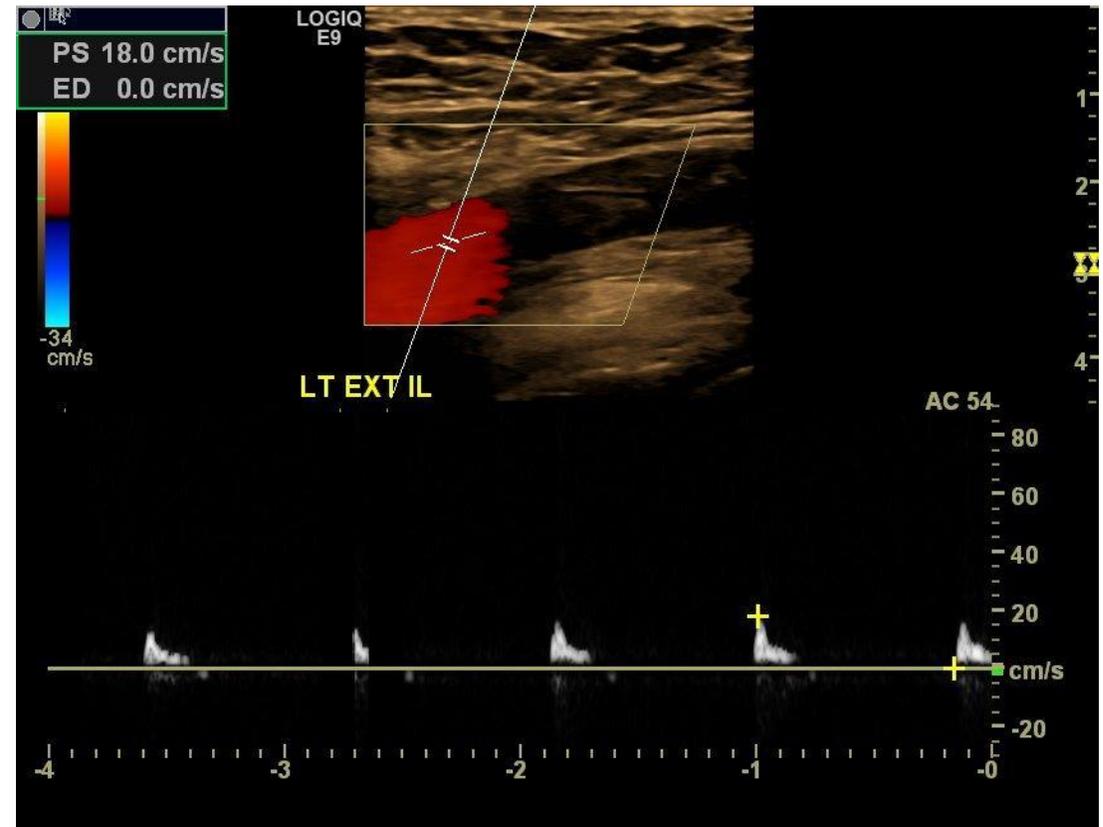


Approaching acute occlusion, increase in resistance is noted



Case Study

- 50 y.o. male woke up with sudden pain and inability to move left lower extremity
- Cold on palpation with no pulses from groin to foot
- Duplex ordered
- High resistance external iliac artery

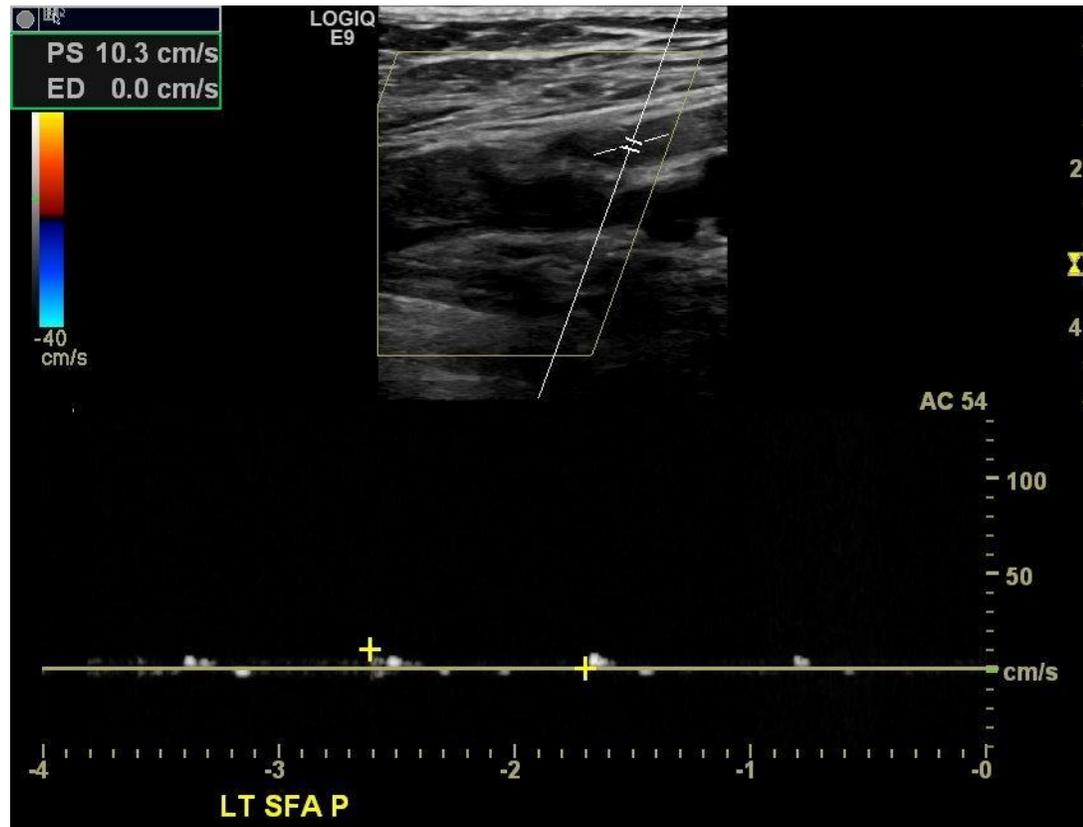


Duplex Findings – B-mode appearance



- Low-level, mostly homogeneous echoes
- May be mistaken for artifact
- Must confirm with Doppler
- Can also confirm with cineloops

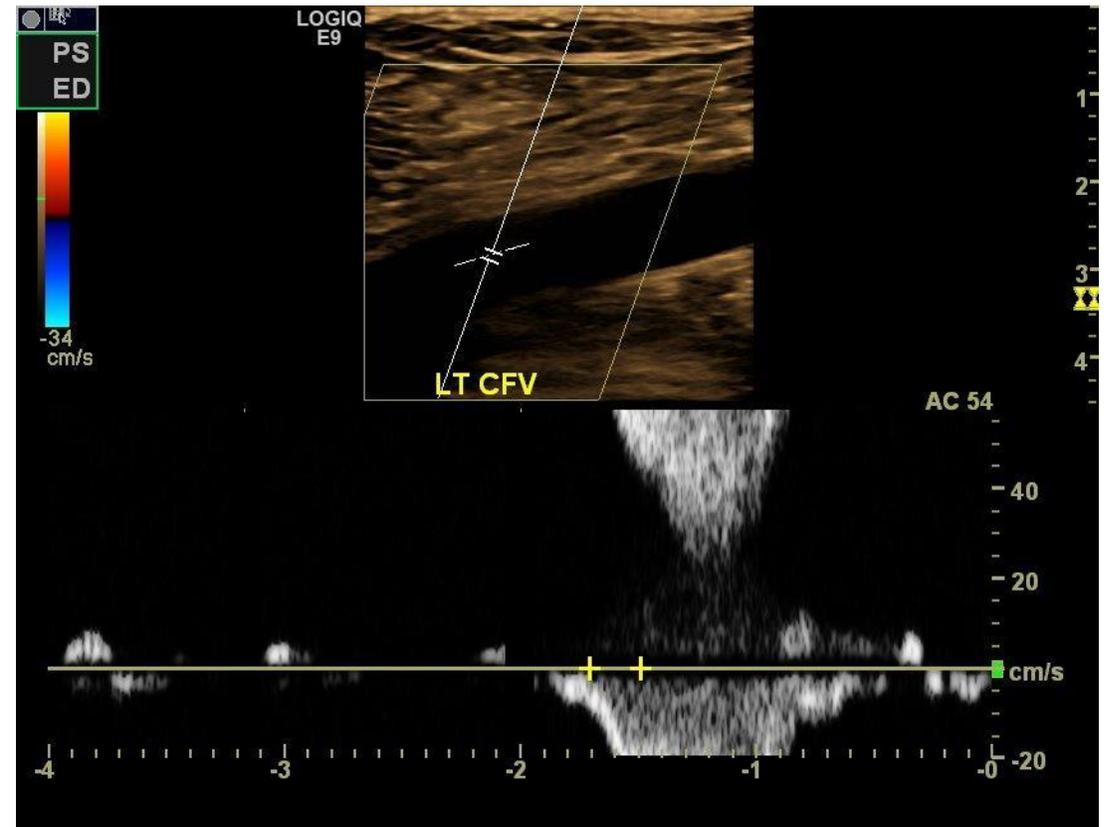
Doppler the area of suspected occlusion



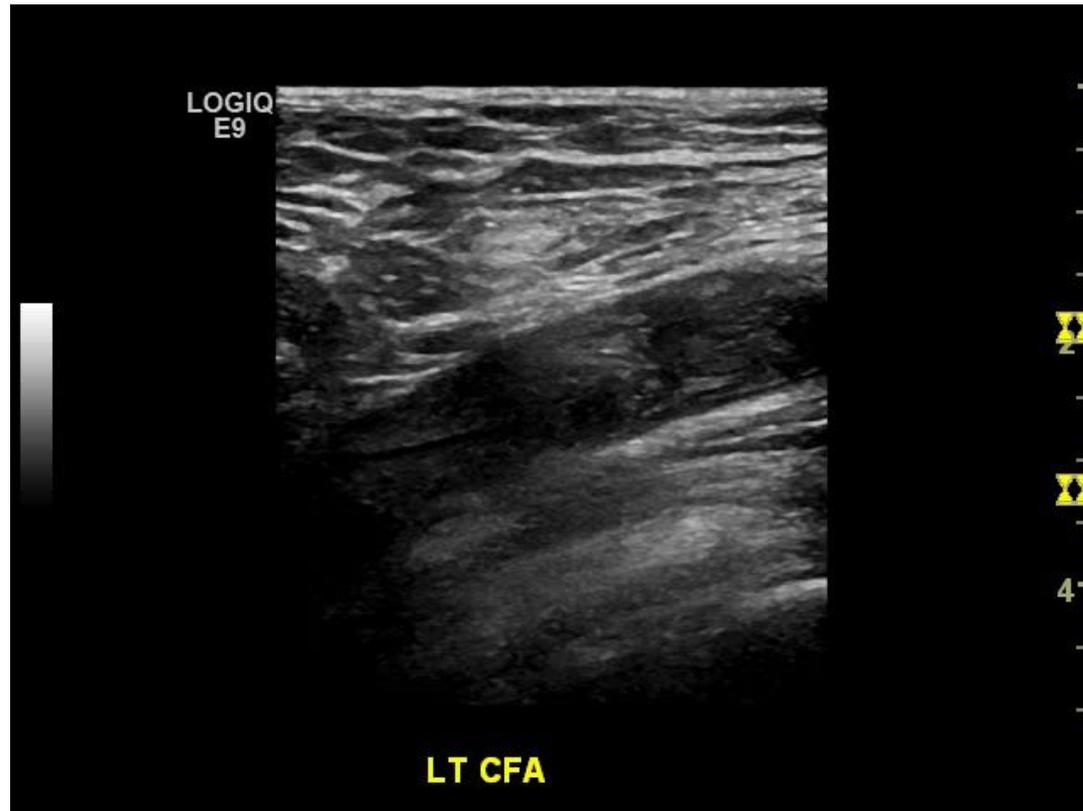
- Those “blips” are probably not flow
- Movement of the embolus as the pulse hits above

Differentiate the artery from vein

- Optional
- And it sounds silly but provide as much information as possible
- Have seen mistakes...

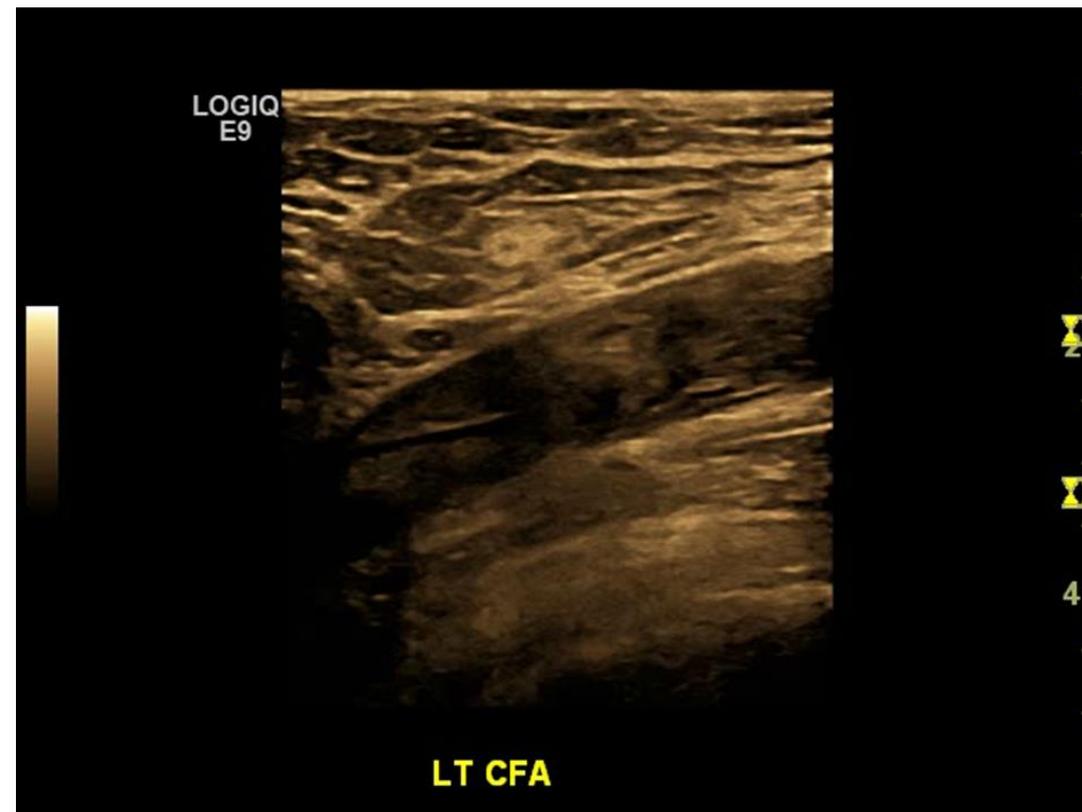
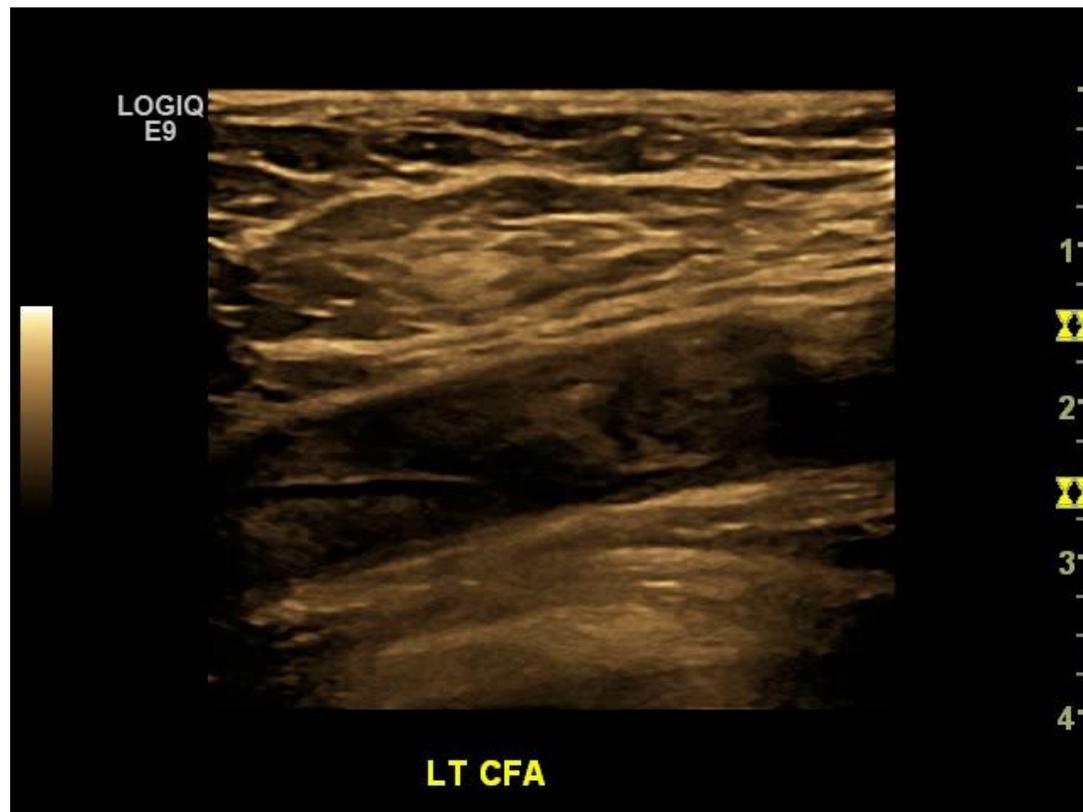


Cineloops

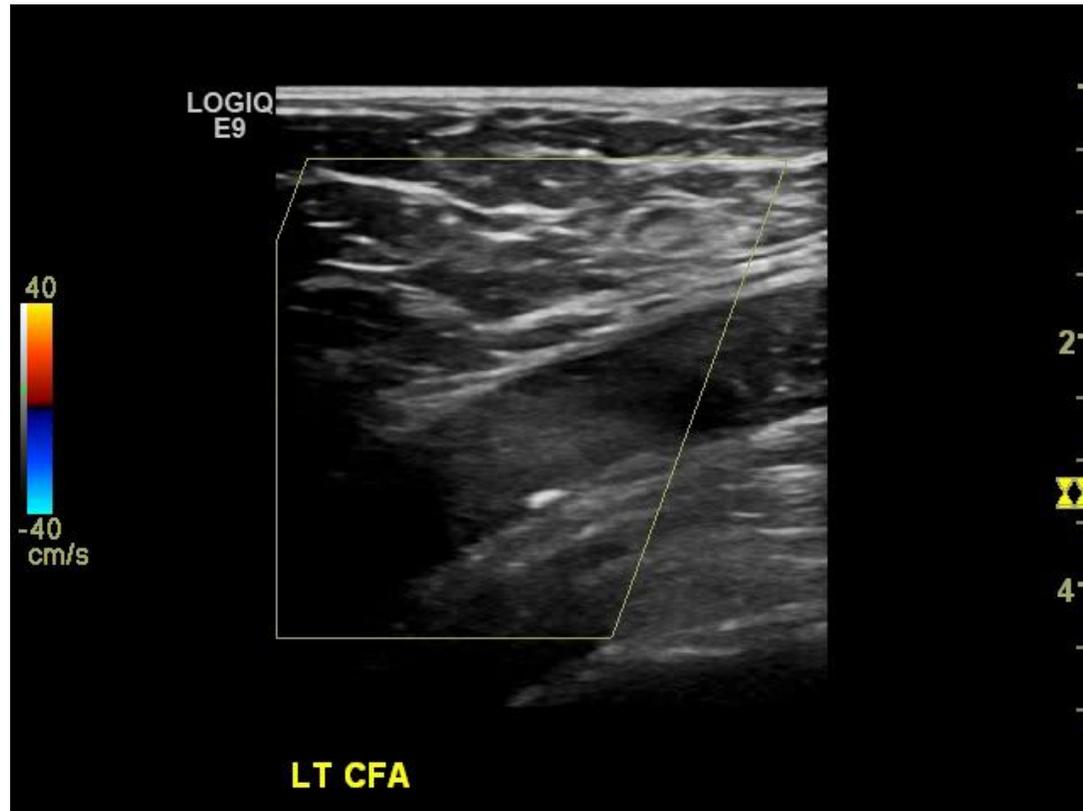


- Movement of the thromboembolism or flap
- Differentiate artifact

Multiple approaches



Color Doppler



- The absence of color does not mean that there is not flow
- Decrease PRF
- Power Doppler

Summary

- Clinical presentation is the key
 - Symptoms are sudden
 - Palpate for the level of the occlusion (saves time)
 - Investigate as far proximal as you can once you've found the suspected lesion
- Don't wait for me to come in to do a STAT study in the middle of the night – call a surgeon/interventionalist first so they're ready to fix the problem
 - Of course, if I'm there you should still find a surgeon/interventionalist
 - TIME = LEG

Thank you!

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