Ultrasound Diagnosis of Acute Arterial Thrombosis

Joseph P. Hughes, RVT, RVS, FSVU
President, Society for Vascular Ultrasound
Director of Business Development, NAVIX Diagnostix
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Disclosures

• None relevant

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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

Courtesy: Patrick Washko
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!

- jphughes@navixdiagnostix.com
- jhughes@svunet.org
- 215-534-1087