• None
• Review lower extremity vascular anatomy
• Review ultrasound approach to imaging the lower extremity
• Common findings
Anatomy of the lower extremity

- Three kinds of veins that will be examined:
  - Deep Veins – accompanied by an artery and are larger than that artery
  - Superficial Veins – not accompanied by arteries
  - Perforator Veins
Deep Veins

• Deep veins are accompanied by an artery and are surrounded by muscle
• Clots in the deep veins are more likely to produce clinically significant PE because they are larger
• Also because they are surrounded by muscle the chance of the clot being dislodged during a muscle contraction is higher
• Therefore the main focus in lower extremity venous duplex ultrasound is the deep system
Superficial Veins

- Located near the skin
- Travel without an accompanying artery within the border that separates the fascia from the muscle
- Job is to get blood close to the skin surface so the veins can help regulate body temperature
- Less likely to cause major clinically significant PE
- Still an important part of a complete ultrasound exam because the superficial clots may become large
Anatomy

- External iliac v.
- Great saphenous v.
- Common femoral v.
- Deep femoral v.
- Femoral v.
- Popliteal v.
Anatomy
• Most of the exam is in the transverse plane

• Vein should compress easily

• Compress every cm or so to make sure a small thrombus is not missed

• Then can rescan in the longitudinal plane with color and pulsed Doppler
• Equipment selection - linear probe

• Proper patient positioning – knee bent and the hip externally rotated

• The patient can be scanned supine, erect or seated in a reclined position to allow access to the groin.

• The calf veins are easier to view when the legs are lower than the torso allowing some venous distension.
Common femoral vein
Common femoral vein
Femoral Vein
Popliteal Vein
Deep Veins of the Calf
• Spontaneity – spontaneous flow without augmentation
• Phasicity – flow changes with respiration
• Compression – transverse plane
• Augmentation – compression distal to site of exam and patency below site of exam
• Valsalva – deep breath, strain while holding breath, demonstrates patency of abdominal and pelvic veins
Clot with loss of phasicity
Compressibility
Augmentation
If patient is positive for DVT, no augmentation is performed.
Lymphadenopathy
• Bakers cyst in the medial popliteal fossa.
• Compression sonography is most important maneuver
• Comparison to the contralateral side can help in difficult situations
The End