DVT Ultrasound Cheat Sheet

**Clinical Application**

**Basics**
- Bedside ultrasound DVT scan takes minutes to perform & decreases time to treatment/length of stay
- 2 point compression: scan proximal femoral & popliteal veins for compressibility
- 2 point compression technique used for bedside ultrasound: sensitivity 91-100%
- There are no know complications of DVT scanning!
- Patients with high pre-test prob of DVT should get close-follow up and a repeat exam

**Anatomy**
- Common femoral vein starts at inguinal ligament
- CFV is medial to the artery & nerve
- CFV bifurcates twice - greater saphenous vein branches medially and deep femoral vein branches posteriorly
- Once DFV branches CFV = superficial femoral vein (but it’s still a deep vein)
- SFV becomes popliteal vein in popliteal fossa (after going through adductor canal)
- PV trifurcates into 3 main calf veins: anterior tibial, posteri tibial, & peroneal veins

**Technique**

**Basics**
- Use a linear probe (high frequency)
- Test for compression in transverse plane to vein
- Veins should compress completely when pressure is applied
- Arteries will pulse when pressure is applied
- Normal veins collapses when pressure is applied with a probe
- Apply pressure until the vein collapses or the artery deforms (once artery deforms, you’ve applied sufficient pressure to know if the vein will compress or not)
- Doppler can help tell an artery from a non-compressible vein (if any question, this is not necessary)

**Patient Position**
- Remove restrictive clothes (tight underwear, pants, etc)
- Supine with 20-30 degrees of reverse Trendelenburg
- Hip externally rotated with knee bent 10-30° (positioned out like a frog leg)

**The Image**
- Vessels are round & anaechoic (black)
- Arteries are pulsatile & non-compressible
- Normal veins are compressible
- Non-compressible veins indicate a DVT

**Femoral Vein**
- Probe transverse position below inguinal ligament with marker to pt right
- Scan distally to confluence of GSV & CFV; assess compressibility here
- Scan distally again to confluence of DFV & SVF (which make the CFV); assess both DFV & SVF compressibility

**Popliteal Vein**
- Probe transverse position in popliteal fossa behind knee with probe marker to pt right
- PV is superficial to popliteal artery (“pop on top”)
- Start at promixal PV and assess compressibility
- Scan distally to trifurcation; assess compressibility of proximal portions of calf veins

**Pathology**
- Failure to compress = DVT
- Veins must fully & completely compress for a negative exam

**Tips and Tricks**
- Start scan with light pressure, so veins not accidentally compressed while looking for it
- Don’t start your CFV scan too distally; scan as proximal as possible to avoid this mistake
- The deeper the vein, the more pressure required to collapse it
- You may need to apply more pressure than you think… don’t be afraid to do so!
- Be sure the vein fully collapses! A mostly collapse is a failure to collapse and means DVT!
- Putting pt in reverse Trendelenburg causes max vein distension (easier to see)
- If patient is obese, turn down frequency of your probe (somewhat advanced move but totally helpful)