PROCEDURE CHECKLIST

Ultrasound: two-region compression for DVT

A bedside compression ultrasound of the common femoral and popliteal veins to detect proximal deep vein thrombosis in the leg, with full wall-to-wall compressibility as the test.

EM Orbit

Patient reference	Date	Time	Completed by

Equipment ready

- [ ] Ultrasound machine with a vascular preset
- [ ] High-frequency linear probe
- [ ] Ultrasound gel
- [ ] Colour Doppler (optional; the compression test is the primary method)
- [ ] Image storage and clip recording facility
- [ ] Probe cleaning wipes per manufacturer and local policy

Before · Assessment

- [ ] Assess the clinical probability with a validated score (the two-level Wells score for deep vein thrombosis) and record it.
- [ ] Follow the local pathway: D-dimer or ultrasound first, depending on the score and on availability.
- [ ] Ask about anticoagulation, previous thrombosis, cancer, immobility, recent surgery or travel, and symptoms of pulmonary embolism.
- [ ] If a scan cannot be done within the time set by the local pathway and the probability is high, start interim therapeutic anticoagulation per local protocol, unless contraindicated.

Before · Preparation

- [ ] Explain the scan and obtain verbal consent.
- [ ] Position the patient: supine, with the head of the bed raised (reverse Trendelenburg) to fill the leg veins if the patient can tolerate it, and the leg externally rotated with the knee slightly bent.
- [ ] Select the linear probe and the vascular preset; set the depth so that the vessel is in the centre of the image.
- [ ] Use the transverse (short-axis) orientation with the marker to the patient's right, and keep the same orientation for both legs.

During · Common femoral vein

- [ ] Place the probe in the groin, just below the inguinal ligament, in transverse orientation.
- [ ] Identify the common femoral artery (round, pulsatile, thick-walled) and the vein medial to it (thin-walled, oval, compressible).
- [ ] Apply gentle pressure with the probe, perpendicular to the skin, until the artery begins to deform: the vein should flatten completely so that the walls touch. Release and repeat.
- [ ] Follow the vein distally in short steps, compressing at each step at intervals of about 1 cm, through the saphenofemoral junction, where the great saphenous vein joins the common femoral vein (the 'Mickey Mouse' appearance).
- [ ] Continue down to the bifurcation of the common femoral vein into the deep femoral vein and the femoral vein (the former superficial femoral vein), and compress both.
- [ ] **Do not dismiss thrombus in the femoral vein (formerly called the superficial femoral vein) as superficial: it is a deep vein and thrombus in it is treated as proximal deep vein thrombosis.**

During · Popliteal vein

- [ ] Position the leg with the knee slightly bent and the hip externally rotated, or with the patient prone or in the lateral position.
- [ ] Place the probe in the popliteal fossa in transverse orientation. The popliteal vein lies superficial to the artery.
- [ ] Compress the popliteal vein with gentle pressure until its walls touch, in steps of about 1 cm.
- [ ] Follow the popliteal vein distally to the trifurcation, where it divides into the anterior tibial vein and the tibioperoneal trunk, and compress throughout.
- [ ] Scan both legs if the history or symptoms suggest it, and always scan the symptomatic leg.

During · Interpretation

- [ ] A normal vein compresses completely, wall to wall, with minimal pressure.
- [ ] A vein that does not compress completely at any point is positive for deep vein thrombosis, even if flow is seen.
- [ ] Look for echogenic material in the lumen, a distended vein and absent flow on colour Doppler as supporting signs.
- [ ] Record a clip of the compression at each level, including the saphenofemoral junction and popliteal fossa.
- [ ] Use only enough pressure to flatten the vein, and stop compressing a segment once thrombus is seen: the scan is then positive.

After · Act on the result

- [ ] Positive scan: confirms proximal deep vein thrombosis. Start anticoagulation per local protocol and follow the deep vein thrombosis pathway.
- [ ] Wells score 'unlikely' (one or less): the pathway usually starts with a D-dimer; if negative, deep vein thrombosis is excluded and other causes should be sought; if positive, proceed to the proximal scan.
- [ ] Wells score 'likely' (two or more) with a negative proximal scan: send a D-dimer. A negative D-dimer excludes deep vein thrombosis per the pathway; a positive D-dimer means a repeat scan.
- [ ] **A negative two-region scan excludes proximal deep vein thrombosis at the time of the scan. It does not exclude isolated calf vein thrombosis or thrombus developing later.**
- [ ] Negative scan with a positive D-dimer, or persistent concern (particularly calf symptoms): arrange a repeat proximal scan or a whole-leg scan, per the local pathway, with interim anticoagulation if there is a delay.
- [ ] Indeterminate or technically limited scan: refer for formal vascular imaging; do not exclude deep vein thrombosis.

After · Documentation and cleaning

- [ ] Document the clinical probability, D-dimer result, the veins scanned, compressibility at each level, limitations and the plan.
- [ ] Give the patient clear advice on symptoms of pulmonary embolism, the date of any repeat scan and when to return.
- [ ] Clean the probe according to the manufacturer and local policy.

A procedure checklist. Perform procedures only within your training, competence and local policy. It does not replace your clinical judgement.
EM Orbit · Emergency medicine, in one orbit · proc-pocus-dvt · red rows are the steps that must not be missed