

## VENOUS INSUFFICIENCY IMAGING

### 0. SCOPE & OBJECTIVE

- 0.1. Ultrasound assessment of the deep and superficial venous system to assess for venous reflux/incompetence .
- 0.2. To provide operators with general instructions on how to undertake the investigation.

### 1. RESPONSIBILITY

- 1.1. The clinical scientist (trainee clinical scientist) performing the scan is responsible for undertaking the procedure.
- 1.2. The clinical scientist (or trainee clinical scientist under supervision) may alter procedure depending on individual patient and clinical information required.
- 1.3. The chaperone/clinical scientist is responsible for undertaking the patient identification.

### 2. IMAGING PROCEDURE

- 2.1. Confirm patient details: Name, address and DOB. Explain the scan procedure, describing the suspected sites of incompetence and which areas of the body are to be scanned.
- 2.2. Obtain informed verbal consent.
- 2.3. This is potentially an intimate procedure and if deemed so, then a chaperone must be present in the room at the time of the investigation.
- 2.4. Enter patient details into ultrasound machine.
- 2.5. Select venous pre-set and appropriate probe.
- 2.6. Use sterile gel if required as per the sterile gel SOP.
- 2.7. Ask the patient to stand and identify the location of the varicose veins. Ask the patient if they have had previous varicose vein treatment (record any previous treatment on the report).
- 2.8. Patient may stand during the procedure or sit on the edge of the bed with legs dependant.
- 2.9. B-mode should be utilised to assess patency of the veins being assessed.
- 2.10. Spectral and colour Doppler should be utilised to assess flow characteristics within the veins, including phasicity, spontaneity and direction of flow. Distal augmentation should be used to enhance the flow and assess for reflux.
- 2.11. The common femoral, femoral, popliteal and deep calf veins should be assessed for patency and competency. Any thrombus that is identified should be noted. Any deep vein incompetence (defined as reflux time  $>1$  second<sup>1</sup>) should be reported.
- 2.12. A representative image of any deep venous insufficiency identified should be saved.
- 2.13. The sapheno-femoral junction, great saphenous vein and anterior accessory saphenous vein should be assessed for competence. Any superficial vein incompetence (defined as reflux time  $>0.5$  seconds<sup>1</sup>) should be noted.
- 2.14. A representative image of the great saphenous vein and short saphenous vein showing competence or reflux should be saved as a minimum.
- 2.15. Where superficial venous incompetence is identified, if the vein is likely to be suitable for radiofrequency ablation (i.e. not tortuous or very small calibre); record the diameter and depth of the vein and whether it is straight and remains within the fascia.
- 2.16. Make note of any incompetent deep vein perforators and their location.
- 2.17. Assess the sapheno-popliteal junction and small saphenous vein for patency and competence.

- 2.18. Assess competence of the Giacomini vein, if present. If incompetence is identified, comment on radiofrequency ablation suitability.
- 2.19. Any varicose veins that have not been linked to either the great or small saphenous system should be examined to identify any other sources of reflux – i.e. incompetent perforators or pelvic origin incompetence. This may involve assessment of the medial, anterior, lateral and posterior leg as the refluxing veins are “followed” back to their source.
- 2.20. At the end of the scan give the patient some paper tissue to wipe themselves and inform them that the results of the scan will be forwarded to the referring consultant/GP.

### 3. Reporting

- 3.1. Note the name of the chaperone in the radiographers comments dialog box of the procedure details section in RADIS before the exam is completed.
- 3.2. Report the scan on the “CWM” patient reporting system
- 3.3. For venous insufficiency duplex examination, the report should include:
  - Which veins have been assessed and the competency of the veins/ extent of incompetence
  - Presence/absence of any thrombus
  - Any anatomical variations due to previous procedures
  - Any scan limitations

### 4. REFERENCES

1. European Society for Vascular Surgery (ESVS) 2022 Clinical Practice Guidelines on the Management of Chronic Venous Disease of the Lower Limbs - [Editor's Choice – European Society for Vascular Surgery \(ESVS\) 2022 Clinical Practice Guidelines on the Management of Chronic Venous Disease of the Lower Limbs - European Journal of Vascular and Endovascular Surgery \(ejves.com\)](#)