

Introduction and scope:

Venous incompetence may occur in the deep, superficial or both venous systems of the leg. The object of the examination is to locate the sites of incompetence notably at the saphenofemoral and saphenopopliteal junctions and at the sites of perforating veins. Ultrasound can also be used to assess the suitability of any incompetent veins for endovenous treatment.

Responsibilities:

Test staff: scientific or technical staff trained in vascular duplex scanning.

Equipment:

Colour duplex scanner with a high frequency linear transducer.

Method:

Test protocol:

The examination of the thigh segment is ideally performed with the patient standing, weight bearing more on the contralateral leg. However, the examiner must assess the patient's mobility and ability to stand for the period of the test. If the patient is unable to stand the patient could alternatively be assessed in a seated position on the edge of the examination couch. When examining the vessels in the calf the patient can be seated.

The examination is primarily performed in a transverse view. The main sites of interest are the CFV, SFV, SFJ, LSV, PopV, SPJ, SSV and any incompetent perforators. Distal and proximal augmentation is used to check for reflux. Anatomy is identified with B-mode ultrasound, and incompetence is investigated and quantified with colour, and spectral Doppler. On identification of reflux an image should be taken in longitudinal section with spectral Doppler used to record the duration of reflux.

Begin the examination in the groin at the level of the CFV. Image the CFV and SFJ in longitudinal section and assess for reflux with distal augmentation (calf or distal thigh). If reflux is observed image this with spectral Doppler and record site and duration of reflux. Assess the SFV and popliteal vein in transverse view moving down and periodically checking for sites of reflux. Assess for any sites of thrombus or scarring.

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LSV

Commencing at the SFJ, move down the LSV in transverse periodically checking for any reflux or incompetent branches.

If the LSV is incompetent its diameter should be measured with a view to establishing suitability for endovenous treatment, the vein should also be measured with the patient supine where appropriate. Measure the diameter in the proximal thigh and at knee level or at a suitable level for access for endovenous treatment. Also note whether the LSV is straight and whether it runs particularly superficially.

SSV

Check the popliteal vein and SPJ in a longitudinal plane and look for reflux at the SPJ. If the SPJ is incompetent, report its distance from the knee crease and site of insertion (ie medial, lateral, deep, superficial). Assess the SSV for reflux and as with the LSV, if incompetent, assess for suitability for endovenous treatment.

Perforators

Test for reflux in perforating veins and record diameter and position in cms above the ground for calf perforators, or distance above level of knee crease or below level of groin crease for thigh perforators (NB thigh perforators will need to be marked before surgery). Take PACS images for only positive reflux findings.

Thigh:

Examine the course of the LSV and SFV in transverse plane to locate any perforating veins. If found, check for reflux.

Calf:

Examine all aspects of the calf for perforators which are often, but not always, found to join the PTV to the anterior and posterior arch tributaries of the LSV.

Recurrent varicose veins

In cases of recurrence perform the standard examination. In addition check for recurrent reflux at the operative site(s) and the presence of reportedly stripped veins. Pre-operatively the SPJ or perforators may be located and marked on the leg if necessary.

Alternative sources

Any alternative sources of reflux (e.g. anterior thigh vein, pelvic veins) and any anatomical variations should also be identified.

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Reporting:

Reports should include areas of reflux, source of varicose veins and sites not adequately examined. Findings reported on CRIS.

Where it aids clarity and understanding, the written report should be augmented with a diagram completed on the lower limb venous template (VAS-FRM-17); diagrams are scanned into the PACS system, and this noted in the written report.

Reflux criteria

< 0.5sec - no reflux
0.5 to 1sec - minor reflux
1 to 2secs - significant reflux
>2secs - gross reflux

Images:

- Longitudinal section of the SFJ with PW on augmentation
- Long section of LSV with PW on augmentation
- Typical diameter(s) of LSV if incompetent, including a range if appropriate. Diameter at knee if describing for endovenous treatment
- Long section of SSV with PW on augmentation
- Diameter(s) of SSV where incompetent
- PW image of femoral and popliteal vein on augmentation
- Images of other pathology described in report

When a patient feels faint:

Although not a regular occurrence, patients can feel faint during a lower limb venous incompetence scan. If a patient feels faint:

- Lie them down flat
- Offer them water
- Let at least one other staff member know the situation.
- Do not leave the patient unattended.

Inspection criteria:

Complete CRIS database patient tested/DNA/rebooked.

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References:

SVT Professional performance guidelines, Lower Limb Venous Duplex Ultrasound Examination for the Assessment of Venous Insufficiency/Incompetence:

<http://www.svtgbi.org.uk/assets/Uploads/Professional-Issues/LowerLimbVenousforIncomptenceProtocolPSCFinalJan20131.pdf>

NICE Guideline CG168 (July 2013) Varicose veins in the legs: The diagnosis and management of varicose veins

Reviewed:

02/09/2014 HD

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