Core Modality 3: Peripheral Venous Duplex

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Protocol Document:

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.
Height adjustable couch
Height adjustable chair or low stool

Method:

<u>Test protocol:</u>

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, FV, SFJ, GSV, 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 FV and popliteal vein in transverse view moving down and periodically checking for sites of reflux. Assess for any sites of thrombus or scarring.

<u>GSV</u>

Commencing at the SFJ, move down the GSV 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, whether it is situated within the fascia 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 (i.e. medial, lateral, deep, superficial). Assess the SSV for reflux and as with the *GSV*, 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 GSV and FV 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.

Examine the course of the GSV and FV 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.

Reporting:

Reports should include areas of reflux, source of varicose veins, any limitations of the scan, any anatomical variation and sites not adequately examined. Findings reported on CRIS.

If thrombus is identified a description should be reported, such as extent and whether it is acute or chronic. (In the case of identifying untreated acute DVT or high-risk superficial thrombophlebitis, the Vascular team must be contacted)

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 GSV with PW on augmentation

- Typical diameter(s) of GSV 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.

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
02/02/2016 HD
27/03/2020 CED

End of document

Evidence: 25x Peripheral Venous Duplex Reports

SITE	RIGHT	
Common femoral:	NR	No reflux
Femoral:	NR	No reflux
Popliteal:	NR	No reflux
Saphenofemoral junction:	NR	No reflux
Long saphenous:	R	Reflux
Saphenopopliteal:	A	Absent / not detected
Mid Calf Short Saphenous:	NR	No reflux

Right:
SFJ is patent and competent.
Reflux sampled in the GSV ~3 cm below the level of the SFJ. No obvious source identified.
The incompetent GSV runs relatively straight, within the fascia throughout the thigh (diameter ~5-7 mm), knee (diameter ~4 mm) and calf (diameter ~3 mm) - only low velocity reflux sampled.

GSV appears to feed some very small calibre anterior varicosities at mid calf, however, GSV continues to be incompetent to distal calf.

No obvious large varicosities observed.

Deep veins and SSV are patent and competent - no evidence of scarring or old thrombus detected.

Conclusion:
GSV incompetent throughout thigh and calf.

Venous incomp (LT)

SITE	LEFT	
Common femoral:	NR	No reflux
Femoral:	NR	No reflux
Popliteal:	NR	No reflux
Saphenofemoral junction:	NR	No reflux
Long saphenous:	R	Reflux
Saphenopopliteal:	NR	No reflux
Mid Calf Short Saphenous:	NR	No reflux

Comments:

Comments:

Left:

SFJ and very proximal thigh GSV are patent and competent.

An incompetent medial thigh vein feeds reflux into the GSV at prox-mid thigh, ?incompetent pudendal vein. Below this point the GSV is incompetent.
The incompetent GSV runs relatively straight within the fascia, throughout the thigh (diameters ~4-7 mm), knee (diameters ~5 mm) and calf (diameters 3-4 mm).
GSV feeds varicosities at distal thigh and distal calf.

Deep veins and SSV are patent and competent - no evidence of scarring or old thrombus detected.

Conclusion:

GSV incompetent, via ?Pudendal vein - feeds reflux into distal thigh and distal calf varicosities.

Venous incomp (LT)

SITE	LEFT	
Common femoral:	NR	No reflux
Femoral:	NR	No reflux
Popliteal:	NR	No reflux
Saphenofemoral junction:	NR	No reflux
Long saphenous:	NR	No reflux
Saphenopopliteal:	NR	No reflux
Mid Calf Short Saphenous:	NR	No reflux

Comments:

Comments:

Left:

Clusters of superficial varicosities identified along the anterior-medial aspect of the mid-calf. However, no obvious truncal or perforator incompetent source identified. Small segment of focal scarring identified in aforementioned varicosities.

Deep and superfical veins are patent and competent - no evidence of scarring or old thrombus detected.

Conclusion:

Mid calf varicosities present, however, no obvious incompetent source identified. Truncal veins are patent and competent.

Incidental Finding:

Large, hypoechoic/anechoic, non-vascularised collection identified in the medial popliteal fossa, ?baker's cyst - beyond our area of expertise, alternative imaging is advised if clinically indiciated.

Venous incomp (RT)

SITE	RIGHT	
Common femoral:	NR	No reflux
Femoral:	NR	No reflux
Popliteal:	NR	No reflux
Saphenofemoral junction:	NR	No reflux
Long saphenous:	NR	No reflux
Saphenopopliteal:	NR	No reflux
Mid Calf Short Saphenous:	NR	No reflux

Comments:

Comments:

Right:

Deep and superficial veins are patent and competent - no evidence of scarring or old thrombus detected.

Conclusion:

No venous incompetence identified.

Venous incomp (RT)

SITE	RIGHT	
Common femoral:	NR	No reflux
Femoral:	NR	No reflux
Popliteal:	NR	No reflux
Saphenofemoral junction:	NR	No reflux
Long saphenous:	R	Reflux
Saphenopopliteal:	A	Absent / not detected
Mid Calf Short Saphenous:	NR	No reflux

Comments:

Comments:

Right:

SFJ is patent and competent; immediately below level of SFJ, the GSV becomes incompetent with very low velocity reflux - feeds varicosities at distal thigh that extend across the medial aspect of the knee and proximal calf, causing pain.

GSV diameters:

Thigh:

Prox - 6.4 mm

Mid - 5.6 mm

Distal above/below VVs - 5.5 mm / 3.9 mm

Knee - 3.5 mm

Calf - 4.0 mm

Deep veins and SSV are patent and competent - no evidence of scarring or old thrombus detected.

Conclusion:

Thigh GSV incompetent with low velocity reflux - feeds VVs at distal thigh - amenable for VNUS.

Common femoral:	R	Reflux
Femoral:	NR	No reflux
Popliteal:	R	Reflux

Saphenofemoral junction:	R	Reflux
Long saphenous:	R	Reflux
Saphenopopliteal:	R	Reflux
Mid Calf Short Saphenous:	R	Reflux

Comments:

Comments:

Left:

Reflux sampled in the CFV; likely due to grossly incompetent SFJ.
SFJ is incompetent, draining reflux into the GSV.

Incompetent GSV runs relatively straight, within the fascia to mid calf (diameters: thigh - 8.2-12.4 mm, knee 7.8 mm, calf above/below VVs - 6.6-7.1 mm/3.4 mm).
At mid calf the GSV becomes tortuous and feeds varicosities.

Reflux sampled in the proximal Pop.V; likely due to grossly incompetent SPJ.
Incompetent SPJ feeds reflux straight into a cluster of varicosities.
The SSV is also incompetent, feeding varicosities ~5 cm below the level of the SPJ.

No evidence of scarring or old thrombus detected.

Incompetent perforators feeding varicosities identified at posterior-lateral mid calf (diameter 3.5 mm) and medial distal calf (diameter 2.1 mm).

Conclusion:

SFJ/GSV incompetence - feeds varicosities at mid calf - amenable for VNUS.
SPJ/SSV incompetent - feeding reflux directly into varicosities.

Incompetent perforators at mid and distal calf.

Venous incomp (RT)

SITE	RIGHT	
Common femoral:	R	Reflux
Femoral:	NR	No reflux
Popliteal:	NR	No reflux
Saphenofemoral junction:	R	Reflux
Long saphenous:	R	Reflux
Saphenopopliteal:	A	Absent / not detected
Mid Calf Short Saphenous:	NR	No reflux

Comments:

Comments:

Right:

Reflux sampled in the CFV; likely due to grossly incompetent SFJ.
SFJ is incompetent, draining reflux into the GSV.

Incompetent GSV runs relatively straight, within the fascia (diameters: thigh - 8.5-10.0 mm, knee 8.0 mm, calf above/below VVs - 8.3 mm/1.8 mm)
Feeds varicosities at proximal calf, ~5 cm below knee level.

Incompetent perforator identified at mid calf, medially (diameter 3.9 mm) - feeding reflux into varicosities.

Remaining deep veins (besides CFV) and SSV are patent and competent - no evidence of scarring or old thrombus detected.

Conclusion:

SFJ/GSV incompetence - feeds varicosities at proximal calf - amenable for VNUS.
Incompetent perforator feeds varicosities at mid calf.

Venous incomp (LT)

SITE	LEFT	
Common femoral:	NR	No reflux
Femoral:	NR	No reflux
Popliteal:	R	Reflux
Saphenofemoral junction:	NR	No reflux
Long saphenous:	NR	No reflux
Saphenopopliteal:	NR	No reflux
Mid Calf Short Saphenous:	NR	No reflux

Comments:

Comments:

Left:

The proximal Pop.V is mildly incompetent, however no scarring seen.

Incompetent perforator (diameter 2-3 mm) identified just below knee level, anterior-medially, draining reflux into clusters of superficial varicosities. This appears to be the main cause of superficial varicosities.

There is reflux in the small SSV mid, filled by the VVs.

Conclusion:

No GSV truncal reflux.

Knee/calf varicosities fed reflux via anterior-medial incompetent perforator just below knee level.

Venous incomp (RT)

SITE	RIGHT	
Common femoral:	NR	No reflux
Femoral:	R	Reflux
Popliteal:	R	Reflux
Saphenofemoral junction:	NR	No reflux
Long saphenous:	NR	No reflux
Saphenopopliteal:	NR	No reflux
Mid Calf Short Saphenous:	NR	No reflux

Comments:

Comments:

Right:

Deep venous incompetence - reflux sampled throughout the Fem.V and Pop.V - no evidence of scarring or old thrombus detected.

Incompetent perforator (diameter 2.4 mm) identified just below knee level, anterior-medially, possibly draining reflux into clusters of superficial varicosities. Unable to confirm this is the only source of reflux however no other deep source identified.

Conclusion:

Deep venous incompetence.
No GSV/SSV truncal reflux.

Unable to confirm main source of VVs.

Incidental finding - a non-vascularised hypoechoic/anechoic collection identified in the medial popliteal fossa, ?baker's cyst - beyond our area of expertise, alternative imaging is advised if clinically indicated.

Venous incomp (LT)

SITE	LEFT	
Common femoral:	NR	No reflux
Femoral:	NR	No reflux
Popliteal:	NR	No reflux
Saphenofemoral junction:	NR	No reflux
Long saphenous:	NR	No reflux
Saphenopopliteal:	R	Reflux
Mid Calf Short Saphenous:	S	See comments

Comments:

Comments:

Left:

Heavy scarring identified in the SPJ, making it grossly incompetent - reflux drains into SSV.
Incompetent SSV leaves the fascia at ~5 cm below the level of the SPJ, and becomes small calibre and tortuous; feeding small calibre superficial varicosities.

Deep veins and GSV are patent and competent .

Conclusion:

SPJ/SSV incompetence and scarring - not amenable for VNUS.

Venous incomp (RT)

SITE	RIGHT	
Common femoral:	NR	No reflux
Femoral:	NR	No reflux
Popliteal:	NR	No reflux
Saphenofemoral junction:	NR	No reflux
Long saphenous:	S	See comments
Saphenopopliteal:	R	Reflux
Mid Calf Short Saphenous:	R	Reflux

Comments:

Comments:

Right:

SPJ incompetent with reflux draining into SSV.
Incompetent SSV runs relatively straight within the fascia - feeds medial varicosities at mid calf (SSV diameters above/below VVs - 5.3-6.3 mm / 3.5 mm).
Aforementioned varicosities extends proximally and drains reflux into the GSV at proximal calf - below this point the calf GSV is mildly incompetent.

Deep veins are patent and competent - no evidence of scarring or old thrombus.

Conclusion:

SPJ/SSV incompetence - feeds VVs at mid calf, which in turn, communicates with the GSV.

Venous incomp (LT)

SITE	LEFT	
Common femoral:	NR	No reflux
Femoral:	NR	No reflux
Popliteal:	NR	No reflux
Saphenofemoral junction:	NR	No reflux
Long saphenous:	NR	No reflux
Saphenopopliteal:	NR	No reflux
Mid Calf Short Saphenous:	NR	No reflux

Comments:

Comments:

Left:

Technically challenging scan due to body habitus.

No evidence of deep or superficial reflux - no evidence of scarring or old thrombus detected.

The CFV is widely patent with normal respirophasic venous flow; not suggestive of more proximal obstruction/May-Turner. Very poor views of EIV/CIV due body habitus.

Conclusion:

No evidence of venous incompetence.

Venous incomp (LT)

SITE	LEFT	
Common femoral:	NR	No reflux
Femoral:	NR	No reflux
Popliteal:	R	Reflux
Saphenofemoral junction:	NR	No reflux
Long saphenous:	NR	No reflux
Saphenopopliteal:	NR	No reflux
Mid Calf Short Saphenous:	NR	No reflux

Comments:

Comments:

Left:

The proximal Pop.V is mildly incompetent, however no scarring seen.

Incompetent perforator (diameter 2-3 mm) identified just below knee level, anterior-medially, draining reflux into clusters of superficial varicosities. This appears to be the main cause of superficial varicosities.

There is reflux in the small SSV mid, filled by the VVs.

Conclusion:

No GSV truncal reflux.

Knee/calf varicosities fed reflux via anterior-medial incompetent perforator just below knee level.

Venous incomp (RT)

SITE	RIGHT	
Common femoral:	NR	No reflux
Femoral:	R	Reflux
Popliteal:	R	Reflux
Saphenofemoral junction:	NR	No reflux
Long saphenous:	NR	No reflux
Saphenopopliteal:	NR	No reflux
Mid Calf Short Saphenous:	NR	No reflux

Comments:

Comments:

Right:

Deep venous incompetence - reflux sampled throughout the Fem.V and Pop.V - no evidence of scarring or old thrombus detected.

Incompetent perforator (diameter 2.4 mm) identified just below knee level, anterior-medially, possibly draining reflux into clusters of superficial varicosities. Unable to confirm this is the only source of reflux however no other deep source identified.

Conclusion:

Deep venous incompetence.
No GSV/SSV truncal reflux.

Unable to confirm main source of VVs.

Incidental finding - a non-vascularised hypoechoic/anechoic collection identified in the medial popliteal fossa, ?baker's cyst - beyond our area of expertise, alternative imaging is advised if clinically indicated.

Venous incomp (RT)

SITE	RIGHT	
Common femoral:	NR	No reflux
Femoral:	NR	No reflux
Popliteal:	NR	No reflux
Saphenofemoral junction:	NR	No reflux
Long saphenous:	S	See comments
Saphenopopliteal:	NR	No reflux
Mid Calf Short Saphenous:	NR	No reflux

Comments:

Comments:

Right:

Pt reported veins has previously been stripped.

No SFJ or dominant prox-to-mid thigh GSV detected. Remnant GSV from distal thigh is patent and competent.

Conclusion:

No evidence of truncal deep or superficial reflux.

Venous Incomp (LT)

SITE	LEFT	
Common femoral:	R	Reflux
Femoral:	NR	No reflux
Popliteal:	NR	No reflux
Saphenofemoral junction:	R	Reflux
Long saphenous:	R	Reflux
Saphenopopliteal:	NR	No reflux
Mid Calf Short Saphenous:	NR	No reflux

Comments:

Comments:

Left:

Same pattern of venous incompetence as describe previously (19/02/2021).

Deep veins are patent with no evidence of thrombus or scarring.
Minor CFV reflux likely due to incompetent SFJ.
FV and PopV are competent.

SFJ has gross reflux.
GSV is bifid.
The more medial GSV is competent and leaves the fascia in the proximal thigh.
The more anterior GSV is incompetent and feeds large VVs just above knee crease level which track down the medial and posterior calf. The GSV is competent below this.
The incompetent anterior GSV is mildly tortuous in the upper and mid thigh and runs within the fascia.
The anterior thigh GSV diameters measures 1.0-1.2 cm. The diameter of the GSV at proximal calf (below level of VVs) measures 0.4 cm.

High termination SPJ.
SSV is patent and competent.

Conclusion:

SFJ/anterior bifid GSV branch incompetence - feeds VVs just above knee crease level.

Venous incomp (LT)

SITE	LEFT	
Common femoral:	NR	No reflux
Femoral:	R	Reflux
Popliteal:	R	Reflux
Saphenofemoral junction:	R	Reflux
Long saphenous:	R	Reflux
Saphenopopliteal:	R	Reflux
Mid Calf Short Saphenous:	R	Reflux

Comments:

Comments:

Left:

Incompetent SFJ drains reflux into GSV.
Incompetent GSV runs relatively straight within the fascia (diameter ~5 mm) - reflux drains down competent perforator at mid thigh.

Incompetent SPJ feeds reflux into SSV.
The incompetent SSV runs relatively straight within fascia; at mid calf the SSV feeds posterior calf VVs (SSV diameters: above/below VVs ~7 mm/~ 4 mm).

Conclusion:

Deep venous reflux sampled in the Fem.V and Pop.V.

SFJ/GSV reflux - GSV drains reflux into competent perforator at mid thigh.
SPJ/SSV reflux - SSV feeds VVs at mid-calf.

Venous incomp (RT)

SITE	RIGHT	
Common femoral:	R	Reflux
Femoral:	R	Reflux
Popliteal:	R	Reflux
Saphenofemoral junction:	R	Reflux
Long saphenous:	R	Reflux
Saphenopopliteal:	R	Reflux
Mid Calf Short Saphenous:	R	Reflux

Comments:

Comments:

Right:

Deep and superficial reflux sampled throughout.

Incompetent SFJ drains reflux into the ATV and GSV.
The ATV is incompetent and tortuous from origin; feeding anterior thigh varicosities just below level of SFJ.
The incompetent GSV runs relatively straight within the fascia throughout thigh; GSV feeds varicosities at distal thigh (Thigh GSV diameters: 5.2-6.5 mm, below VVs - 2.5 mm).

Incompetent SPJ drains reflux into SSV - the proximal segment of the incompetent SSV runs relatively straight within the fascia (diameter 5.8 mm) - unable to visualise remaining calf veins due to dressing/weeping ulcers.

Conclusion:

Deep veins incompetent throughout.
SFJ/ATV and GSV reflux - ATV feeds VVs from origin, GSV feeds VVs at distal thigh (?amenable for VNUS).
SPJ/SSV reflux - unable to identified level at which it feeds calf varicosities due to dressings/wounds.

Venous incomp (RT)

SITE	RIGHT	
Common femoral:	NR	No reflux
Femoral:	NR	No reflux
Popliteal:	NR	No reflux
Saphenofemoral junction:	R	Reflux
Long saphenous:	NR	No reflux
Saphenopopliteal:	NR	No reflux
Mid Calf Short Saphenous:	NR	No reflux

Comments:

Comments:

Right:

Same pattern of venous insufficiency as described in previous scan (02/11/2017).

SFJ reflux straight into tortuous anterior thigh tributary up to 5-7 mm.
Very tortuous - unsuitable for VNUS.

GSV absent in thigh, ?previous treatment.

Deep veins and SSV are patent and competent - no evidence of scarring or old thrombus.

Conclusion:

SFJ/ATV incompetence.

Venous incomp (LT)

SITE	LEFT	
Common femoral:	NR	No reflux
Femoral:	R	Reflux
Popliteal:	R	Reflux
Saphenofemoral junction:	R	Reflux
Long saphenous:	R	Reflux
Saphenopopliteal:	S	See comments
Mid Calf Short Saphenous:	S	See comments

Comments:

Comments:

Left:

Fem.V and Pop.V are patent, albeit, incompetent with low velocity reflux sampled throughout - no evidence of scarring or old thrombus detected.

The SFJ is patent and incompetent, with reflux draining into the GSV.
The incompetent GSV runs relatively straight, within the fascia to very proximal calf; at this point it leaves the fascia and feed medial calf varicosities (diameter: thigh - 4.1-5.6 mm, knee - 4.4 mm, knee/prox calf above VVs - 4.3 mm).
Additionally, an incompetent perforator drains reflux into the GSV at distal thigh (diameter 3.3 mm).

Reflux to superficial tortuous veins in the popliteal fossa from a tortuous vein inserting to the popliteal vein laterally, 6 cm above knee crease. This is not the SPJ. Aforementioned VVs, feeds reflux into the SSV for a short segment, distally - this segment proceeds to feed distal calf varicosities.
Unsuitable for VNUS.

Conclusion:

Compared to previous imaging there is new deep venous reflux (Fem.V and Pop.V), an incompetent distal thigh perforator and SFJ/GSV reflux.
The pattern of venous incompetence in the popliteal fossa and calf remain unchanged compared to previous imaging (02/11/2017).

Venous incomp (LT)

SITE	LEFT	
Common femoral:	NR	No reflux
Femoral:	NR	No reflux
Popliteal:	NR	No reflux
Saphenofemoral junction:	S	See comments
Long saphenous:	S	See comments
Saphenopopliteal:	NR	No reflux
Mid Calf Short Saphenous:	NR	No reflux

Comments:

Comments:

Left:

SFJ and prox-to-mid thigh GSV absent, ?previous VVs treatment

Neogenic small calibre veins seen at SFJ level; proceed to communicate with small calibre superfical varicosities extending down the medial thigh

Deep veins, SSV and remnant GSV (from distal thigh, downwards) are patent and competent.

Conclusion:

No evidence of truncal reflux.

Venous incomp (RT)

SITE	RIGHT	
Common femoral:	NR	No reflux
Femoral:	NR	No reflux
Popliteal:	NR	No reflux
Saphenofemoral junction:	R	Reflux
Long saphenous:	S	See comments
Saphenopopliteal:	R	Reflux
Mid Calf Short Saphenous:	NR	No reflux

Comments:

Comments:

Right:

SFJ is patent and incompetent with refluxing draining into a mildly tortuous, large calibre ATV (diameter 6-15 mm).
The incompetent ATV runs within the fascia and feeds incompetent anterior-medial thigh varicosities at mid-thigh.
The aforementioned varicosities communicates with the GSV at mid thigh, below this point the GSV becomes incompetent.
The GSV proceeds to feed varicosities at mid-calf.

Deep veins and SSV are patent and competent.

Conclusion:

SFJ/ATV incompetence - feeds varicosities at mid thigh; additionally, communicates with GSV, in turn feeds further varicosities at mid-calf.

SFJ/ATV primary source of incompetence.

Venous incomp (RT)

SITE	RIGHT	
Common femoral:	NR	No reflux
Femoral:	NR	No reflux
Popliteal:	NR	No reflux
Saphenofemoral junction:	NR	No reflux
Long saphenous:	NR	No reflux
Saphenopopliteal:	NR	No reflux
Mid Calf Short Saphenous:	NR	No reflux

Comments:

Comments:

Right:

Deep and superficial veins are patent and competent - no evidence of scarring or old thrombus detected.

Venous incomp (LT)

SITE	LEFT	
Common femoral:	NR	No reflux
Femoral:	NR	No reflux
Popliteal:	NR	No reflux
Saphenofemoral junction:	NR	No reflux
Long saphenous:	R	Reflux
Saphenopopliteal:	NR	No reflux
Mid Calf Short Saphenous:	NR	No reflux

Comments:

Comments:

Left:

At proximal calf (~5 cm below knee crease) the GSV becomes incompetent with no obvious source.

The incompetent GSV in the calf leaves the fascia for a short segment proximally, and continues within the fascia at mid-calf - appears to communicate with medial ankle varicosities (diameters 2.6-3.5 mm).

The deep veins, thigh GSV and SSV are patent and competent - no evidence of scarring or old thrombus detected.

Conclusion:

Calf GSV incompetence (no obvious source) - feeds medial ankle varicosities.

Venous incomp (RT)

SITE	RIGHT	
Common femoral:	NR	No reflux
Femoral:	NR	No reflux
Popliteal:	NR	No reflux
Saphenofemoral junction:	NR	No reflux
Long saphenous:	S	See comments
Saphenopopliteal:	A	Absent / not detected
Mid Calf Short Saphenous:	NR	No reflux

Comments:

Comments:

Right:

A focal segment of very low velocity reflux sampled in the GSV at prox-to-mid calf (no obvious cause); the remaining GSV in the thigh and distal calf is patent and competent - no evidence if scarring or old thrombus detected.

Deep veins and SSV are patent and competent - no evidence of scarring or old thrombus detected.

Conclusion:

Minor low-velocity reflux sampled in the GSV at prox-to-mid calf (diameter 2.4-2.8 mm).