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| Clinical Standard Operating Procedure (SOP)  **Lower Limb venous insufficiceny SOP** | | |
| **SETTING** | Vascular Science Unit | |
| **FOR STAFF** | Clinical Vascular Scientists | |
| **PATIENTS** | Patients who require assessment for venous insufficiency | |
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| **STANDARD OPERATING PROCEDURE**   1. Read the patient referral and check any relevant sources that could aid the investigation (e.g. VSU database, CDS, ICE open net, PACS or NBT radiology) 2. Ensure the room is ready for the assessment, the appropriate equipment is in the room and the patient’s details have appeared on the worklist 3. Collect the patient from the waiting area, introduce yourself and confirm patient identifiers against the referral and machine worklist 4. Explain the test and the purpose of the patient visit 5. Gain patient consent 6. Ask the patient to describe their symptoms (characteristics, onset and duration) and take a clinical history. Ask the patient if they have had a previous DVT or thrombophlebitis 7. Ask the patient to remove any shoes and lower body garments 8. Position the patient in a supine position on the bed and cover them over with a sheet or towel 9. Before starting the scan ask the patient to point out any areas of visible/predominate varicose veins, skin changes, current or past ulceration or site of bleeding. Take time to visually inspect the patient’s leg as this will help guide the scope of the scan   **Above knee DVT assessment**   1. Tuck a piece of white roll underneath the patients clothing and make sure you will be able to access the groin to visualise the proximal common femoral vein 2. Select the linear probe and the LEV pre-set 3. Start at the groin in B-mode with the transducer in transverse (TS). Bring an image of the common femoral vein (CFV) and artery (CFA) and greater saphenous vein (GSV) into view 4. In longitudinal plane (LS) move/heel and toe the probe proximally so you can see the CFV start to dive deeper (where it will become the external iliac vein) 5. Using spectral Doppler assess the common femoral vein for spontaneous and phasic flow. Ask the patient to take a deep breath in, hold for 2-3 seconds, and then breathe out. Save an image 6. If not phasic, assess the contralateral leg and record if neither are phasic. If the ipsilateral leg only is not phasic i.e. continuous flow, the iliac veins and inferior vena cava should be examined for thrombus 7. In TS assess the CFV, profunda vein origin (PFV), femoral vein (FV) and popliteal vein (POPV) with compressions (every 2 -3cm) and save a representative split screen image or cine loop of each vein and label appropriately 8. If acute DVT proceed to full leg DVT assessment as stated in leg DVT Clinical Protocol and SOP   **Venous insufficiency assessment**  **Deep veins**   1. Reposition the patient to one of the following (depending on suitability for the patient, adequate augmentation and assessor preference):    1. Sitting up right with both legs over the side of the bed    2. Standing position    3. Supine with a tilt of the bed to approximately 45 degrees 2. Starting in the groin in LS, use colour and spectral Doppler to assess the competency of the CFV, FV and POPV. To do this adjust the sample volume to include wall to wall sampling of the total lumen, then squeeze the calf (augmenting flow), ensuring that the calf squeeze is adequate 3. Measure the length of time of the reflux post squeeze. Record and save representative image   **Superficial veins**   1. Starting in the groin, use colour and spectral Doppler to assess the competency and patency of the sapheno-femoral junction and the entire GSV 2. Note any areas of superficial thrombophlebitis (acute or chronic) 3. Assess the competence of any associated perforators or branches of the GSV. Take particular care to follow branches that may lead an area of predominant varicose veins, skin changes, ulceration or site of bleeding 4. Starting in the popliteal fossa, use colour and spectral Doppler to assess the competency and patency of the sapheno-popliteal junction (SPJ) and the entire short saphenous vein (SSV) 5. The anatomy of the SSV origin is very variable and if no obvious SPJ is seen, this should be commented on in the report 6. Note any areas of superficial thrombophlebitis (acute or chronic) 7. Assess the competence of any associated perforators and branches of the SSV. Take particular care to follow branches that may lead an area of predominant varicose veins, skin changes, ulceration or site of bleeding 8. If incompetence is seen (reflux >0.5 seconds) in the GSV or SSV the following should be recorded/measured: 9. The length of reflux (in seconds) 10. The location and extent of the incompetent section 11. If the vein is straight/uniform or tortuous 12. The depth and diameter (if extremely tortuous, depth and diameters are not needed) 13. Assess the competence of any other superficial veins that have not been linked to either the GSV or SSV to identify any other sources of reflux. This may involve assessment of the medial, anterior, lateral and posterior leg. Follow any refluxing veins back to their source 14. Save and label representative images throughout the scan 15. Inform the patient of the results and write the report on CRIS and the database 16. If the referral is from a vascular consultant or nurse, email the referring clinician to inform them the scan has been performed | | |
| **Additional Information**  Venous Insufficiency Clinical protocol  Vascular Science generic protocol | | |
| **Table A** | |
| **REFERENCES** |  |
| **RELATED DOCUMENTS AND PAGES** | Venous Insufficiency Clinical protocol  Vascular Science generic protocol |
| **AUTHORISING BODY** | Vascular Science Unit |
| **SAFETY** | Please refer to Vascular Science Unit health and safety policy |
| **QUERIES AND CONTACT** | Vascular Science Unit  A225  Bristol Royal Infirmary  Upper Maudlin St  Bristol, BS2 8HW  Tel: 0117 342 7530  Email: VSU@uhbw.nhs.uk or uhb-tr.vascular-science@nhs.net |