

**CLINICAL SKILLS: EXAMINATION OF THE VENOUS SYSTEM****Definitions:**

- *Varicose veins are due to superficial venous insufficiency and are superficial, tortuous and dilated veins on the skin surface*
  - *Venous thrombosis can be superficial or deep, and the risk is increased if there is stasis or the blood or an alteration to the clotting cascade*
  - *Chronic venous insufficiency is where venous flow is restricted, either due to obstruction, damage to the vein walls or incompetent valves*
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- **Wash your hands**
  - **Introduce yourself**
  - **Ask permission to examine the patient**
  - **Expose the patient's lower half (from groin to toes)**
  - **Reposition - standing up at first**

**Inspect:**

- Scars from previous varicose vein surgery
- Ulcers (present or past) - venous ulcers are usually found around/above the medial malleolus
- Venous eczema (lower leg erythema and dry skin)
- Thin skin
- Ankle oedema
- Haemosiderin deposition - dark red staining of the skin due to venous hypertension
- Lipodermatosclerosis - thickening and fibrosis of the skin caused by chronic inflammation and fat necrosis
- Atrophie blanche - white scarring around a healing ulcer
- Saphena Varix (a varicosity at the saphenous vein where it meets the femoral vein, seen as a swelling around 2-4cm inferio-lateral to the pubic tubercle). This may be mistaken for a hernia, but a Saphena Varix has a bluish tinge
- Varicose veins
  - Judge whether you think the varicose vein comes from: the long saphenous vein, short saphenous vein or perforating veins (these are the three locations where superficial veins join deep veins)
    - The short saphenous vein runs from the posterior part of the lateral malleolus, to the posterior aspect of the calf, and into an indeterminate place in the popliteal fossa
    - The long saphenous vein runs from the anterior part of the medial malleolus, up the medial aspect of the leg, to the sapheno-femoral junction (SFJ), which lies 2-4cm inferio-lateral to the pubic tubercle

**Palpate:**

- Varicose veins for *tenderness* (phlebitis) and *hardness* (thrombosis)
- Leg pulses - femoral, popliteal, dorsalis pedis, tibialis posterior (if ulceration is present, it helps to know whether there is any arterial insufficiency contributing to the ulcer)
- Temperature of veins - if warm may indicate infection

**Auscultate:**

- If there is a venous varicosity then it is appropriate to auscultate for a bruit, which would be suggestive of an underlying arterio-venous malformation

**Special tests:**

- *Cough impulse test*
  - Palpate at the SFJ (2-4cm inferio-lateral to the pubic tubercle) and ask the patient to cough
  - If positive (i.e.: you feel a cough impulse), this suggests there is a Saphena Varix
- *The 'tap test':*
  - Put finger lightly onto saphenofemoral junction
  - Tap on varicose vein lower down the leg
  - If they are in continuity (i.e.: the valves are incompetent) then you will feel thrilling from the vein to the junction
  - This is because those thrills are normally interrupted by competent valves
- *Trendelenberg's test:* - you should either do this test, *or* the tourniquet test in your OSCE
  - Assesses if the SFJ valve is competent
  - Lie the patient down
  - Raise their legs and firmly 'milk' the blood up their legs (by placing two hands firmly around their leg and moving slowly proximal), draining venous blood from their varicose veins
  - Place two fingers on the SFJ
  - Ask patient to stand, keeping your fingers firmly in place
  - If varicosities are controlled they will not rapidly fill
  - Release your fingers, and they then fill up
  - This shows there is incompetence at the SFJ
- *Tourniquet test:*
  - Ask patient to lie down and left their leg up
  - Drain the venous blood from the leg as above
  - Apply a tourniquet on the SJF
  - Ask patient to stand up
  - Look for refill of the varicose vein - normal is a few seconds
  - If no refill this suggests that it is the SFJ valve (or a more proximal valve) that is incompetent
    - You can confirm by taking off tourniquet - if a incompetent valve there, will have a sudden gush filling from above when remove tourniquet
  - If the varicose vein *does* refill with the torniquet still in place around the SFJ, then this suggests that the incompetence is more distal
  - In this case, repeat the test at more distal points down the leg - e.g. once above the knee and once below the knee
  - More distal sites of incompetence causing varicose veins include the short saphenous veins, and the deep perforators that join with the deep venous system of the leg
- *Perthe's test:*
  - Determines if the deep femoral veins are competent or not
  - Apply a tourniquet at the mid thigh level with the patient standing

- Ask the patient to either a) walk around the room for 5 minutes, or b) repeatedly alternate between standing on tip-toes to standing on flat feet for 5 minutes
- Results:
  - If deep system is competent, the blood will go through and back to the heart, and the patient will have no symptoms. If the deep system is incompetent, the patient will feel pain in the leg and the varicosities will increase in size

**To conclude my examination:**

- Offer to carry out an abdominal and pelvic examination (increased pressure in abdomen can lead to varicose veins) and genital examination for males. Additionally, an abdominal/pelvic ultrasound study is sometimes appropriate to rule out a mass lesion causing obstruction to the venous system
- Thank patient and offer to help them to get dressed
- A more detailed examination of the venous system can be achieved with the aid of doppler ultrasound - this can assess for thrombosis and for valvular insufficiency by examining the flow form through the veins