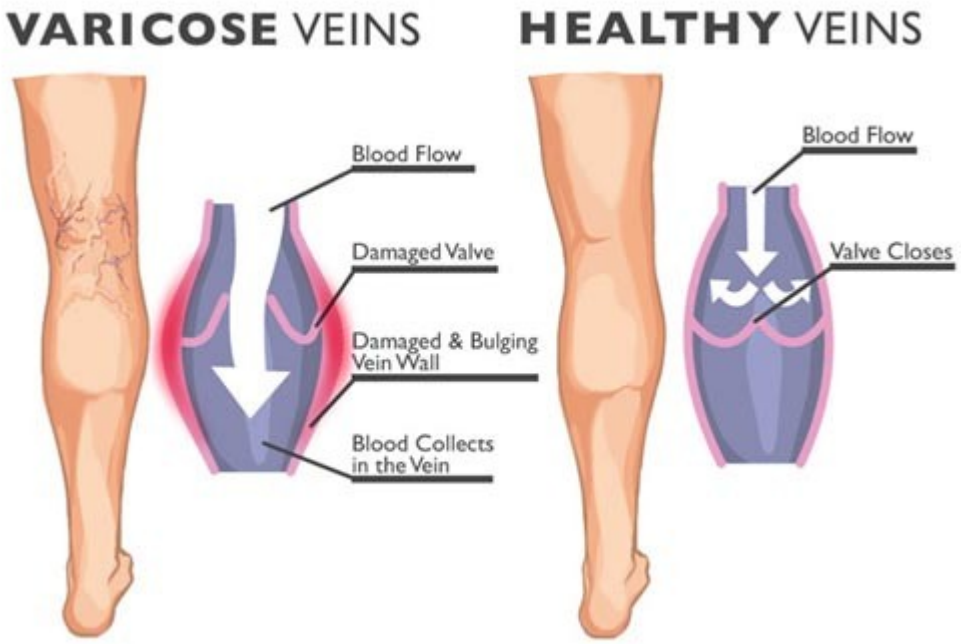
VARICOSE VEINS -



INTRODUCTION -

- Varicosity is the penalty for verticality against gravity. This is the common statement made in lecture classes. The blood has to flow the lower limbs into the heart against gravity because of the upright posture of human beings. In many cases, varicose veins are asymptomatic. Raised intra-abdominal pressure also precipitates varicose veins, more commonly in females due to repeated pregnancy. The complications of varicose veins are responsible for hospitalization of the patient.

VARICOSE VEIN -

- Dilated, tortuous and elongated superficial veins of the limb are called varicose veins. (EDT)
- **Example of varicosity –**
  - Long saphenous varicosity
  - Short saphenous varicosity
  - Oesophageal varices
  - Haemorrhoids
  - Varicocele

PRIMARY VARICOSE VEINS -

- Primary varicose veins occur as a result of congenital weakness in the vein wall due to defective connective tissue and smooth muscle.
- They can also be due to muscular weakness or due to congenital absence of valves.
- Very often, the valve at the saphenophemoral junction (SF) is incompetent/absent. The valves can also be absent where the superficial veins join the deep veins.

Klippel- trenaunay syndrome (KTS) –

- Is a congenital venous abnormality wherein superficial and deep veins do not have any valves. It is also called valveless syndrome. It is a rare congenital medical condition in which blood vessels and lymph vessels fail to form properly. The three main features are – nevus flammeus, venous & lymphatic malformations and soft-tissue hypertrophy of the affected limb.

- Nevus flammeus (port-wine stain) - is a discoloration of the human skin caused by a vascular anomaly (a capillary malformation in the skin)
- Primary varicosity can also be genetic. Some patients inherit abnormalities in the FOXC2 gene. These factors, in addition to prolonged standing (agri-culturists, traffic police, hotel workers), contribute to the development of varicose veins.

Secondary varicose veins –

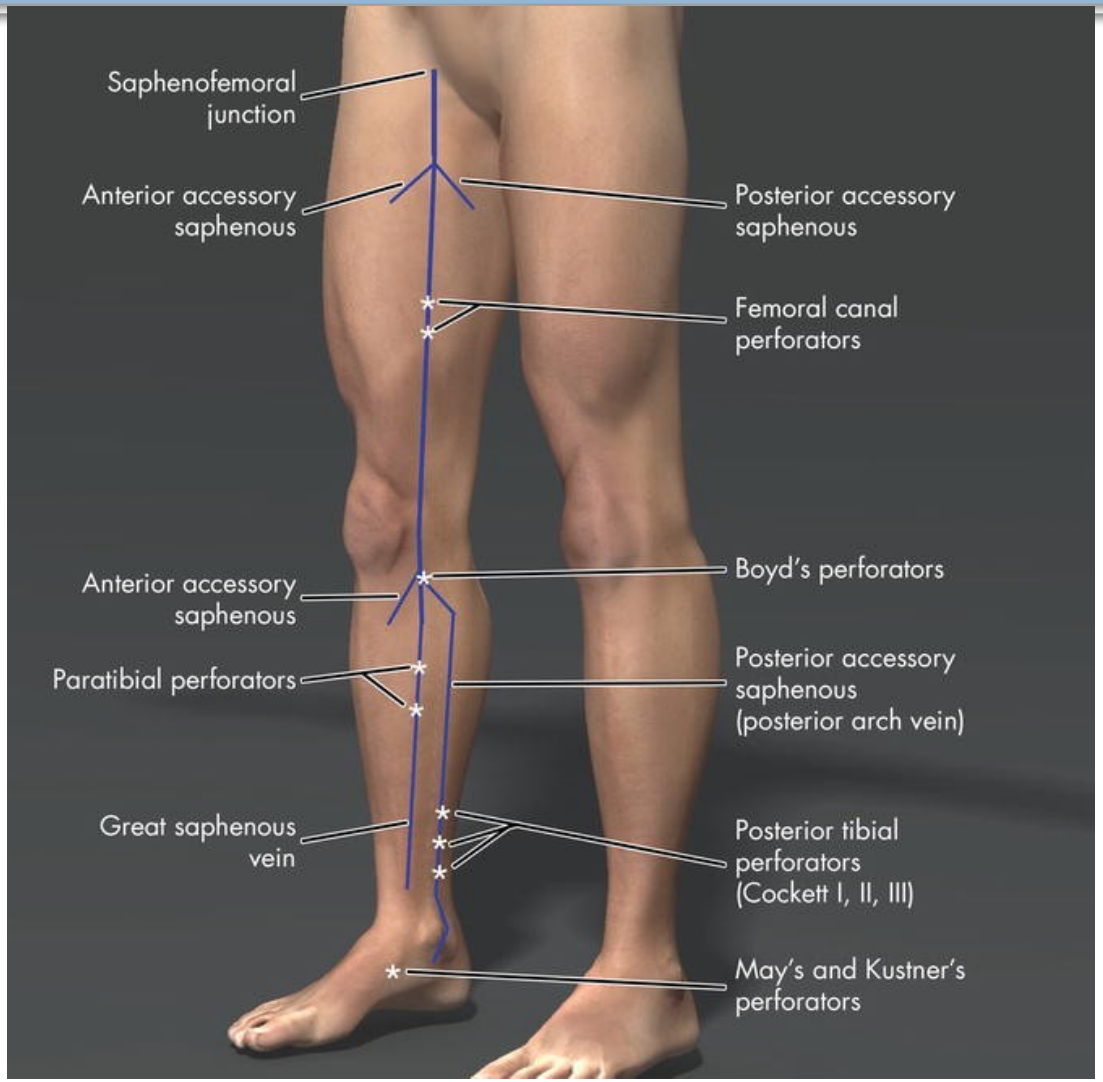
- Women are more prone for varicose veins because of the following reasons :

1. Pregnancy & pelvic tumours cause proximal obstruction to the blood flow.
2. Pills (OCP) alter the viscosity of blood.
3. Progesterone dilate vessel wall.

- Congenital AV fistula increases blood flow and increases venous pressure.

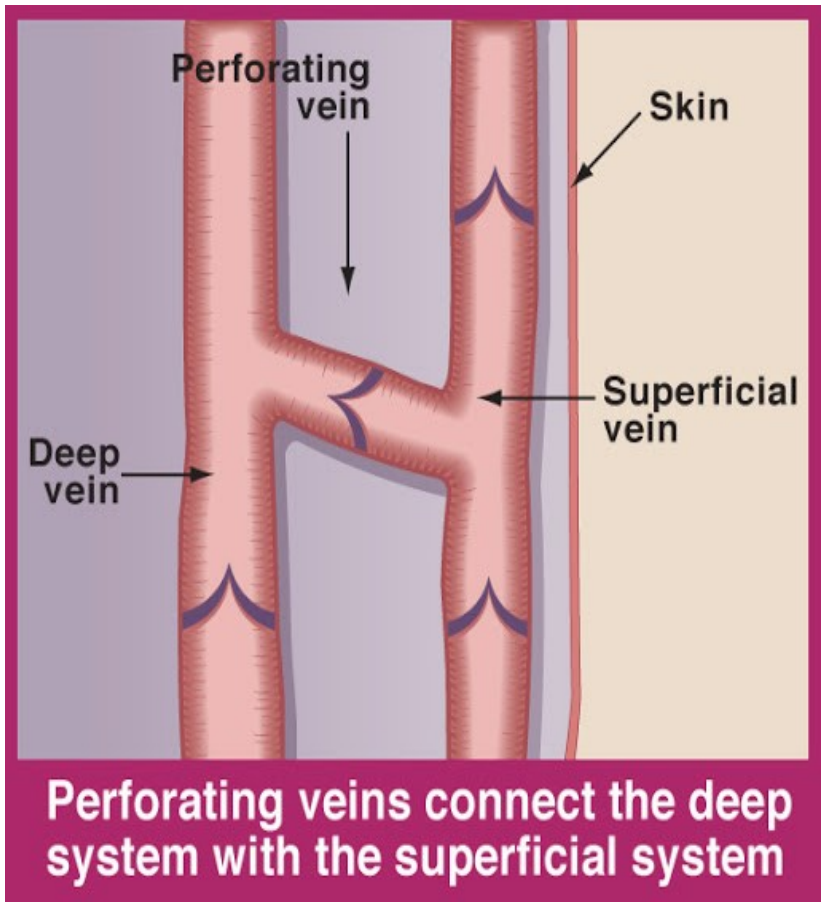
- **Surgical anatomy of venous system of leg –**
- 1. superficial system – long & short saphenous veins and their tributaries.
- 2. perforators
- 3. deep system of veins

Features	LSV	SSV
Origin	Medial part of dorsal venous arch	Lateral part of dorsal venous arch
Location	Front of medial malleolus	Behind lateral malleolus
No. of valves	15-20	1
Termination	Saphenofemoral junction	Saphenopopliteal junction


Saphenofemoral junction
Anterior accessory saphenous
Posterior accessory saphenous
Femoral canal perforators
Boyd's perforators
Anterior accessory saphenous
Paratibial perforators
Posterior accessory saphenous (posterior arch vein)
Great saphenous vein
Posterior tibial perforators (Cockett I, II, III)
May's and Kustner's perforators

PERFORATORS -

- These are the veins which connect long saphenous vein with deep system of veins. Since they perforate deep fascia, they are called perforators. There are 5 constant perforators in the lower limb on the medial side.
- Leg perforators : they are 3 in number.
- L. – below &behind the medial malleolus.
- M . – 10 cm above the tip of medial malleolus
- U . – 15 cm above the MM
- Knee P. – just below the knee
- Thigh P. – palm breadth above the knee.



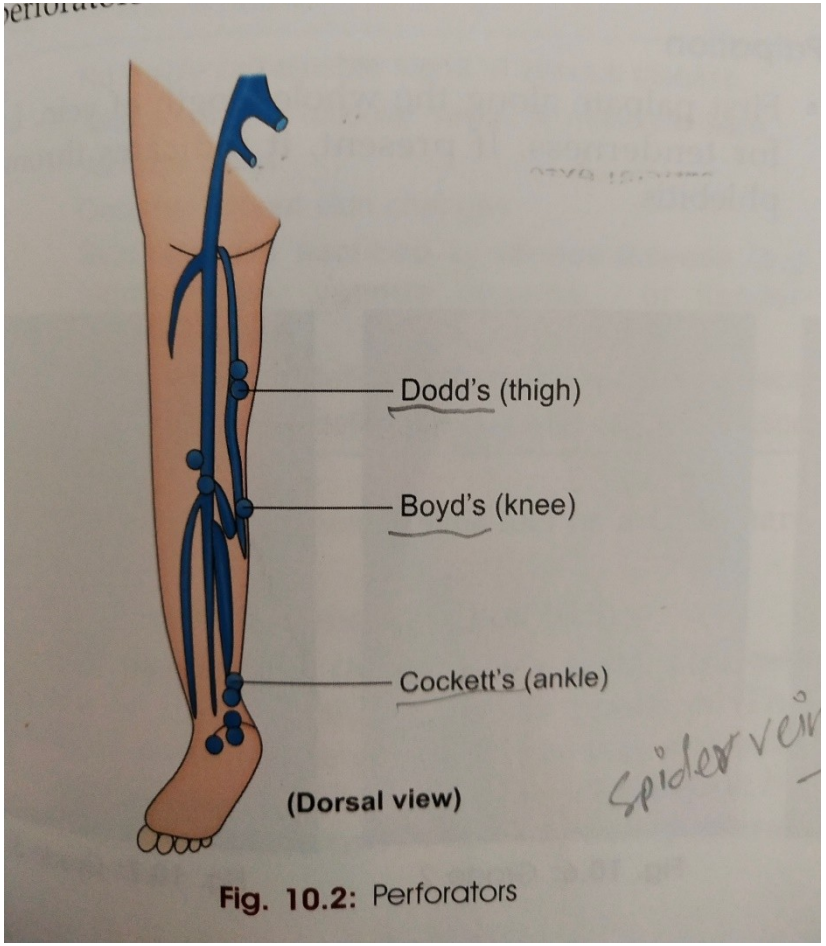


Fig. 10.2: Perforators

Deep vein -

Common femoral vein

Ant. & post. tibial vein

Popliteal vein

Peroneal vein

CEAP CLASSIFICATION -

- C – Clinical score (grade0-6)
- C0 – no visible or palpable varicose veins
- C1 - telangiectasia (thread veins/spider vein /broken veins),reticular vein.
- C2
- 1. C2A – varicose veins without any symptoms(asymptomatic)
- 2. C2S – varicose vein with symptoms
- C3 – ankle oedema without skin changes.

- C4 – Skin damage(change) due to varicose veins, hidden varicose veins(venous reflex)
- C5 – Healed venous leg ulcer
- C6 – Venous leg ulcer.

Clinical classification

Class 1:
Telangiectasia.

Class 2:
Varicose vein.

Class 3:
Edema.

Class 4:
Pigmentation /
Eczema.

Class 5:
Healed Ulcer.

Class 6:
Venous Ulcer.

E- ETIOLOGY CLASSIFICATION

- Ec – Congenital = KTS, congenital AV fistula.
- Ep – Primary = AV fistula due to trauma, Genetic - FOXC2 gene,

Predisposing-factor-tall,obesity, occupation, old age, smoking.

- Es – Secondary = obstruction of deep vein in pregnancy, ascitis, pelvic mass, IVC thrombosis. OCP, progesterone, incompetence of valve after venous thrombosis. Eg; DVT
- En – no cause found.

A/P CLASSIFICATION -

- A – ANATOMICAL
- As = Superficial vein
- Ad = Deep vein
- Ap = perforator
- P – PATHOLOGICAL
- Pr = reflex due to blood into superficial system
- Po = obstruction
- Pr,o = reflex & obstruction

CLINICAL EXAMINATION -

- Very often patient complains of swelling of the legs.
- Dragging pain in the leg or dull ache is due to heaviness. Night cramps occur due to change in the diameter of veins. Aching pain is relieved at night on taking rest or elevation of limbs. Night cramps are more seen in women then men.
- Patients can present with ulceration, eczema, dermatitis & bleeding.

- Symptoms of pruritus/itching & skin thickening.
- Sudden pain in the calf region with fever and edema of the ankle region suggests deep vein thrombosis (DVT).

SIGN -

- INSPECTION – (should be done in standing position)
- Dilated veins are present in the medial aspect of leg & the knee.
- Single dilated varix at SF junction is called saphena varix. It is due to saccular dilatation of the upper end of long saphenous vein at the saphenous opening.
- A localized, dilatation of the vein which is ‘dome’ like/ or ballooned out. (Blow out)

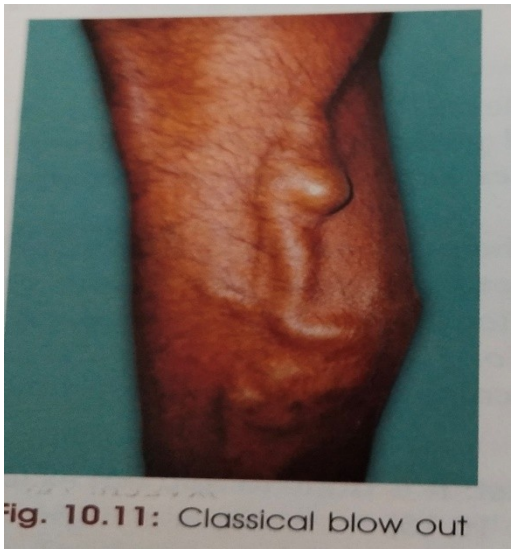
- Ankle flare is a group of veins near the medial malleolus.
- Complications such as ulceration, bleeding, eczema & dermatitis may be present. Pigmentation is very often seen.
- Healed scar indicates previous ulceration.

➢ PALPATION -

- First palpate along the whole length of vein. Look for tenderness. If present, it indicates thrombo-phlebitis.
- Vein which is thrombosed will feel as a firm/hard nodule.

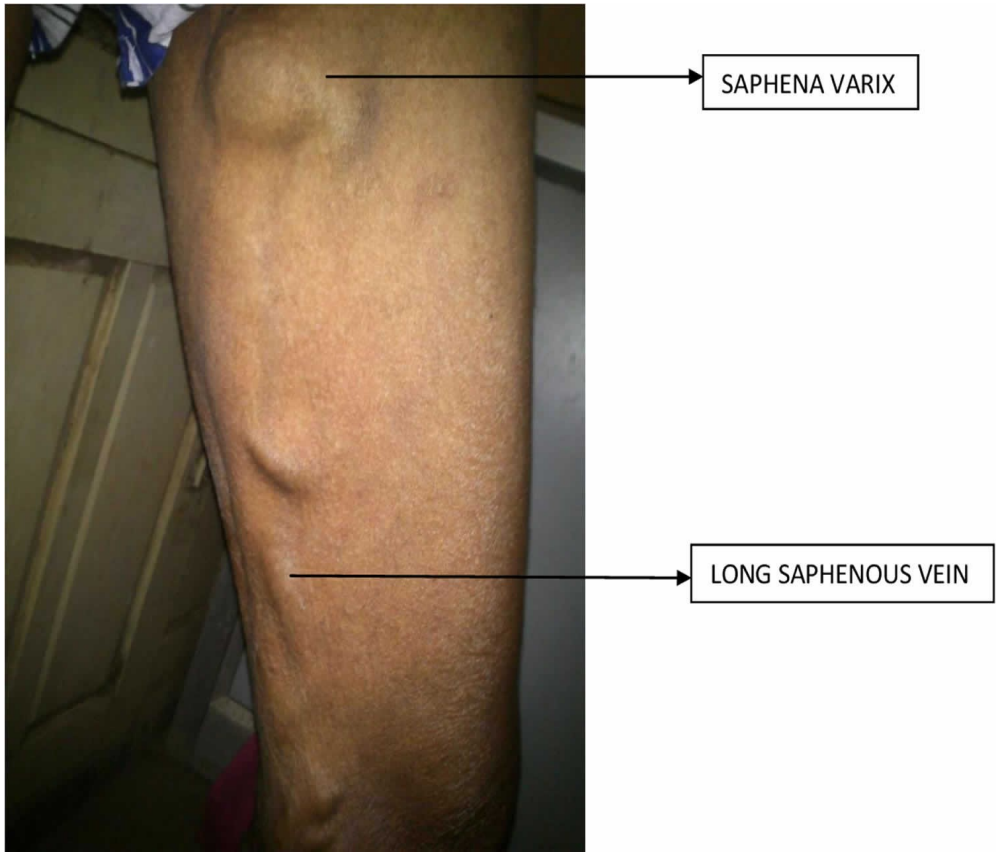
- Ankle flare is a group of veins near the medial malleolus.

- A localized, dilatation of the vein which is ‘dome’ like/ or ballooned out. (Blow out)

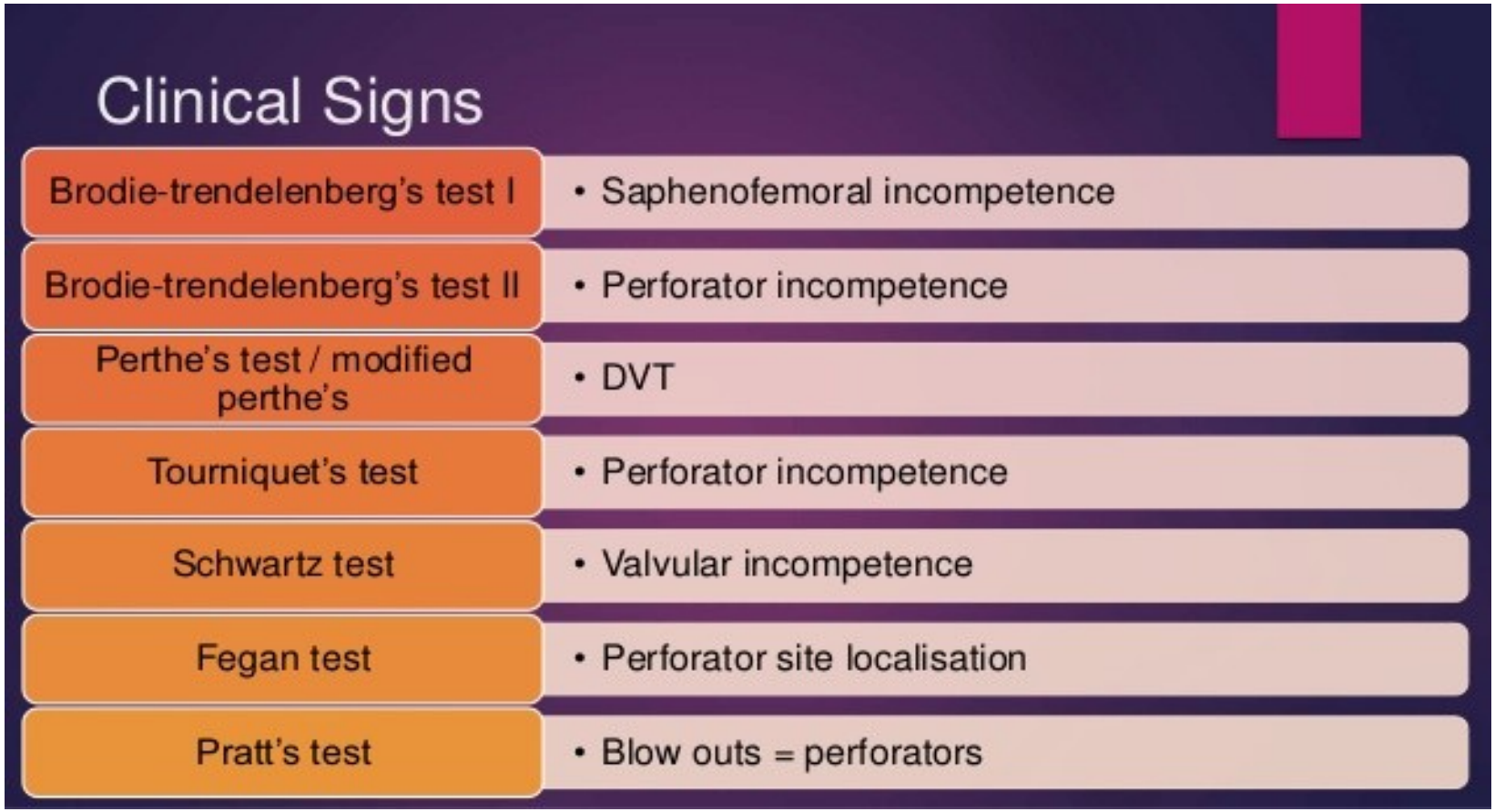


ig. 10.11: Classical blow out

- Single dilated varix at SF junction is called saphena varix. It is due to saccular dilatation of the upper end of long saphenous vein at the saphenous opening.

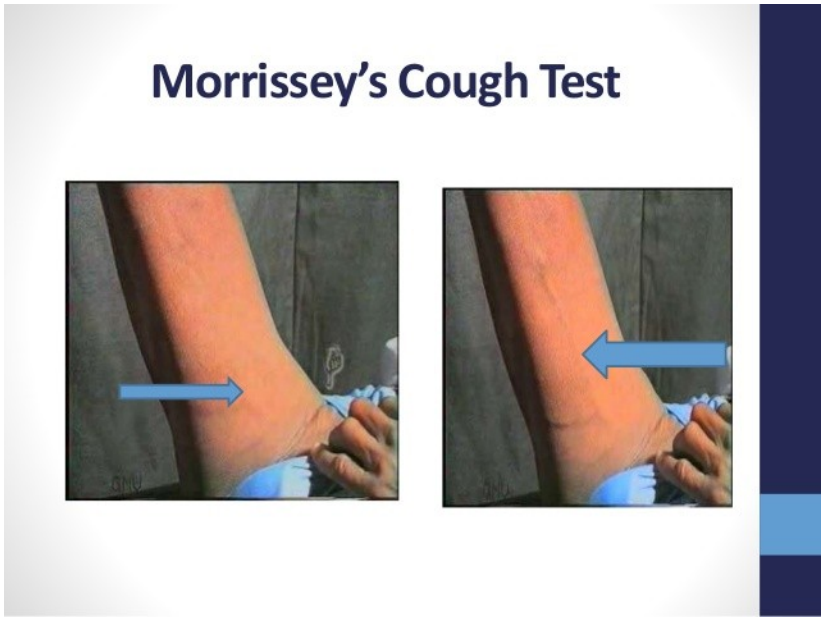


TEST -


Clinical Signs
Brodie-trendelenberg's test I
• Saphenofemoral incompetence
Brodie-trendelenberg's test II
• Perforator incompetence
Perthe's test / modified perthe's
• DVT
Tourniquet's test
• Perforator incompetence
Schwartz test
• Valvular incompetence
Fegan test
• Perforator site localisation
Pratt's test
• Blow outs = perforators

Morrissey's cough test -

- Cough impulse test – this test should be done in the standing position. The examiner keeps the finger at SF junction & asks the patient to cough. Fluid thrill, an impulse felt by the fingers, is indicate of 'saphenofemoral incompetence'.

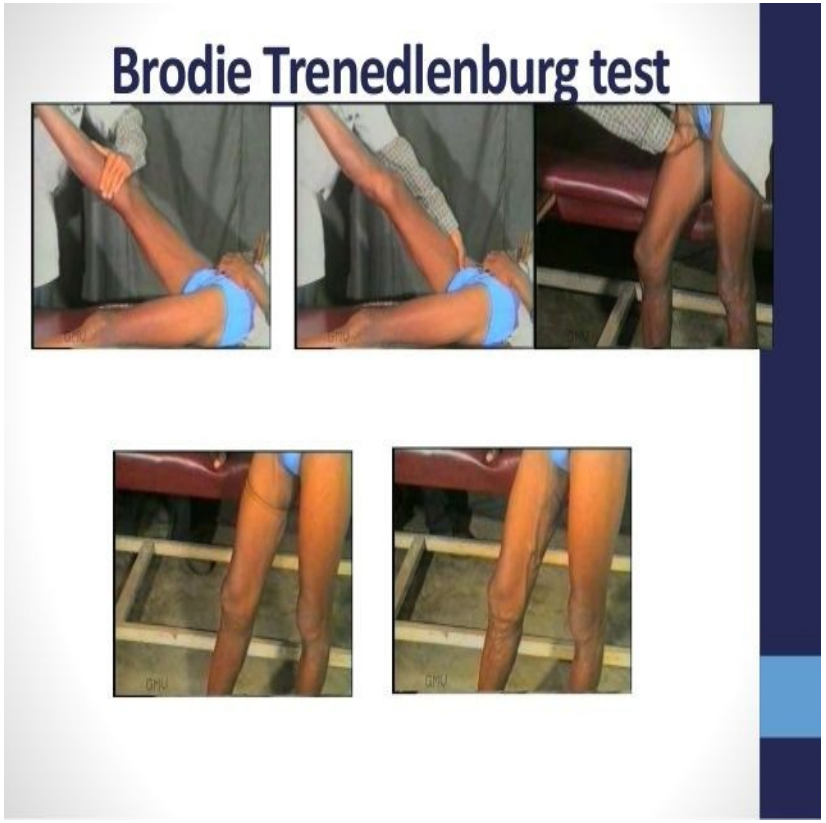


Trendelenburg test -

- The patient is asked to lie on the couch in the supine position. The leg is elevated above the level of heart & the vein emptied. SF junction is occluded with the help of the thumb (or a tourniquet) & the patient is asked to stand.
- Trendelenburg I – release the thumb or tourniquet immediately. Rapid gush of blood from above downwards indicates saphenofemoral incompetence.

Trendelenburg II –

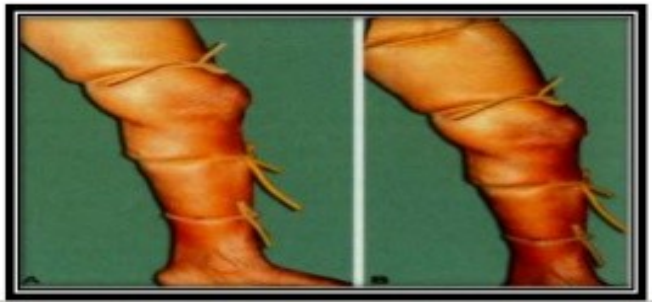
- The pressure at the SF junction is maintained without releasing the thumb or tourniquet. The patient is then asked to stand. Slow filling of the long saphenous is seen. It is due to perforator incompetence.

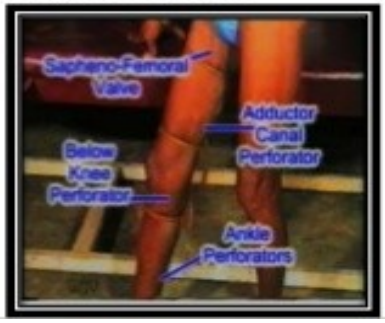


Multiple tourniquet test -

Multiple Tourniquet Test

- The patient is asked to lie supine. The vein is emptied by elevation. 3-5 tourniquets are applied at different levels as follows:
- 1st Tourniquet – At the level of SF junction
- 2ndTourniquet – At the level of midline of the thigh
- 3rd Tourniquet – Just below the knee
- 4th Tourniquet – Lower third of leg (Above medial malleolus)
- The patient is now asked to stand up. Observe the appearance of veins after releasing the tourniquet one by one from below upwards.
- If the veins above the tourniquet fill up and those below it remain collapsed (presence of incompetent vein above tourniquet) and vice versa.





Schwartz test -

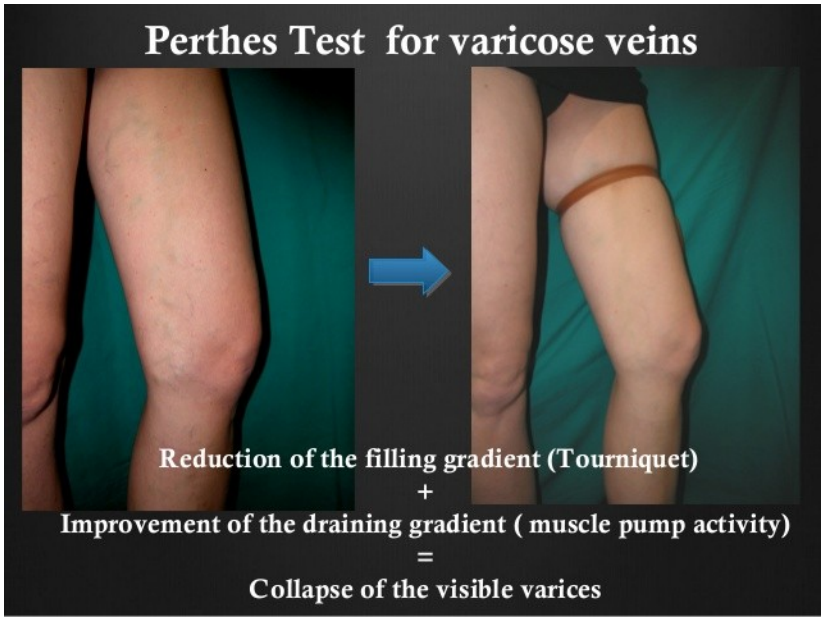
4. Schwartz test

- In standing position,tap the lower part of vein
- Impulse felt on saphenofemoral junction

Fig.7.6.— Shows how to perform Schwartz test.

Modified Perthes Test -

- The patient is asked to stand, the tourniquet is applied at SF junction & he is asked to have a brisk walk. If the patient complains of severe pain in calf region or if superficial veins become more prominent, it is an indication of DVT.



Fegan's test

- It is done to detect the site of perforators. The patient is asked to stand. The varicosity is marked with methylene blue & he is asked to lie down. The leg is elevated to empty the vein & the vein is palpated throughout its course. The defect in the deep fascia have a circular, buttonhole consistency.
- NOTE – vein is not emptied in Perthes' test.

Treatment -

- A. Pharmacotherapy : it helps in reducing oedema of the leg, thus improves night cramps.
- B. Non-surgical treatment :
- 1. elastic compression stockings
- 2. injection line of treatment
- 3. foam sclerotherapy
- 4. endovenous laser ablation (EVLA)
- 5. radio-frequency ablation (RFA)
- C. Surgical T/t -