VEINS OF UPPER &LOWER LIMB

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VEINS OF UPPER LIMB

SUPERFICIAL VEINS

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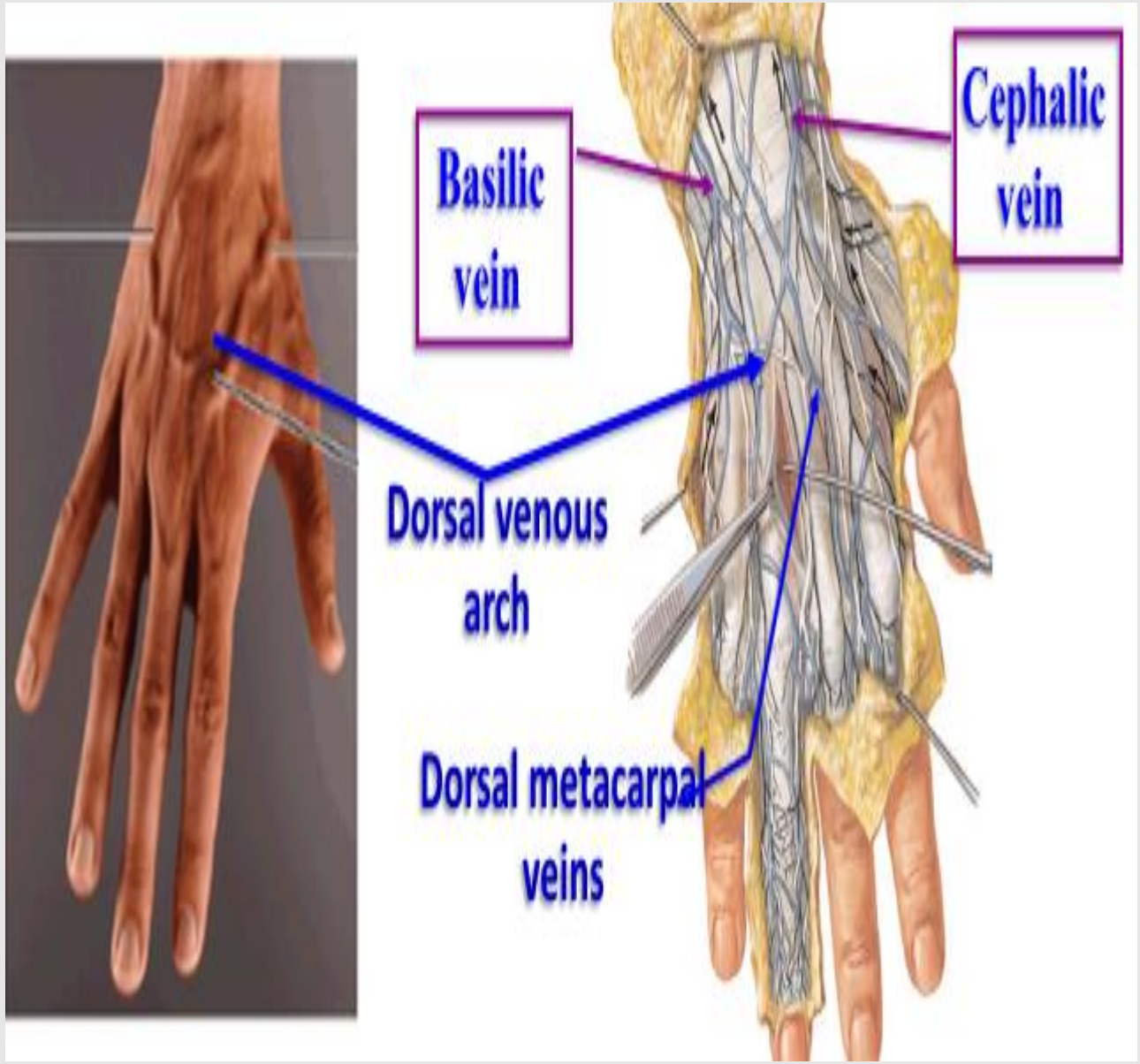
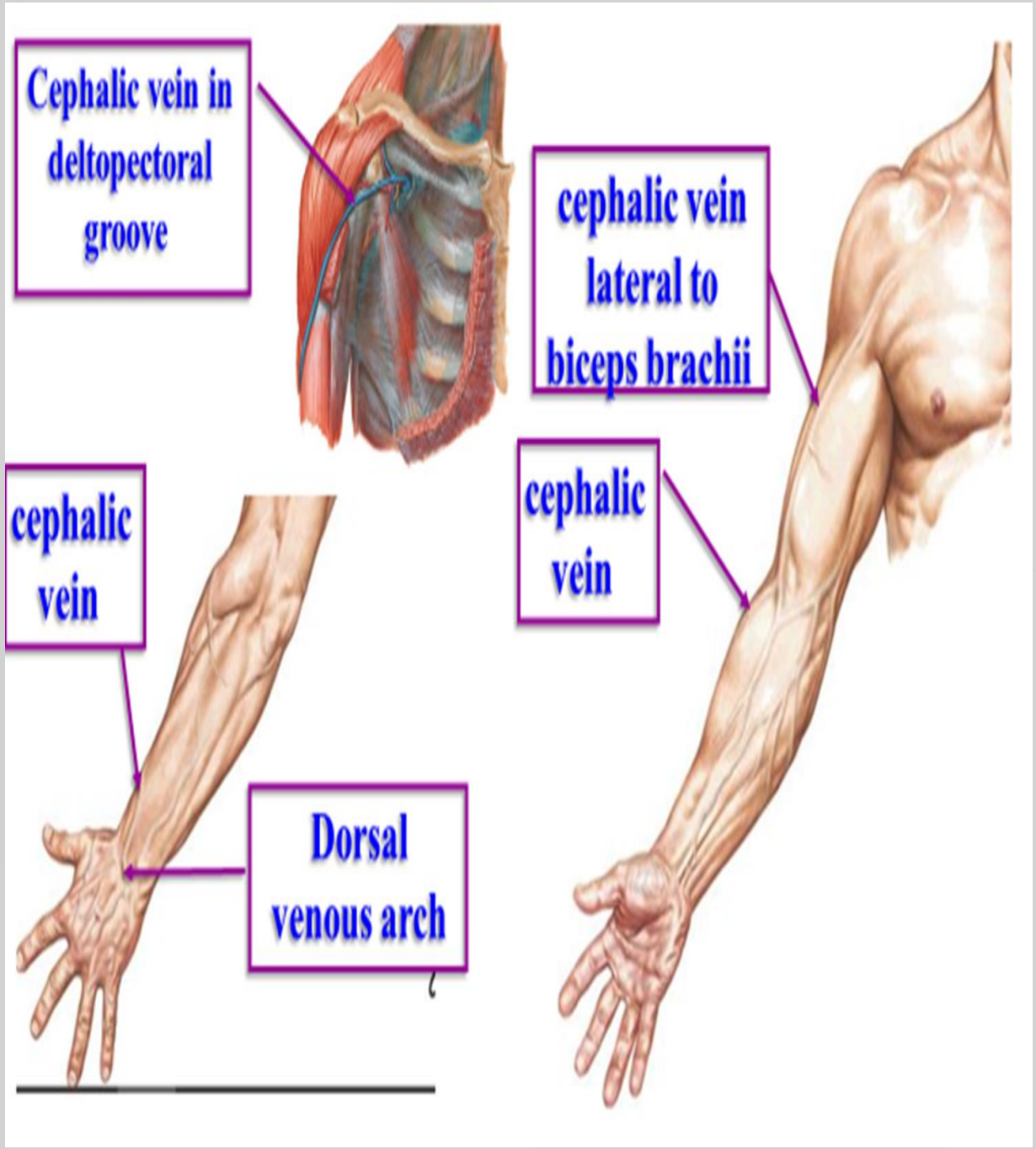
I. **Superficial Veins:** Run in the ***superficial fascia*** and are ***larger and more important*** than the deep veins. They finally ***end in the deep*** veins.

A. A superficial dorsal venous arch:

1. ***Receives veins from*** **the fingers, dorsum of the hand and from the palm of the hand by veins that perforate the interosseous spaces.**
2. **It *drains in two directions*: laterally into the cephalic vein and medially into the basilic vein.**





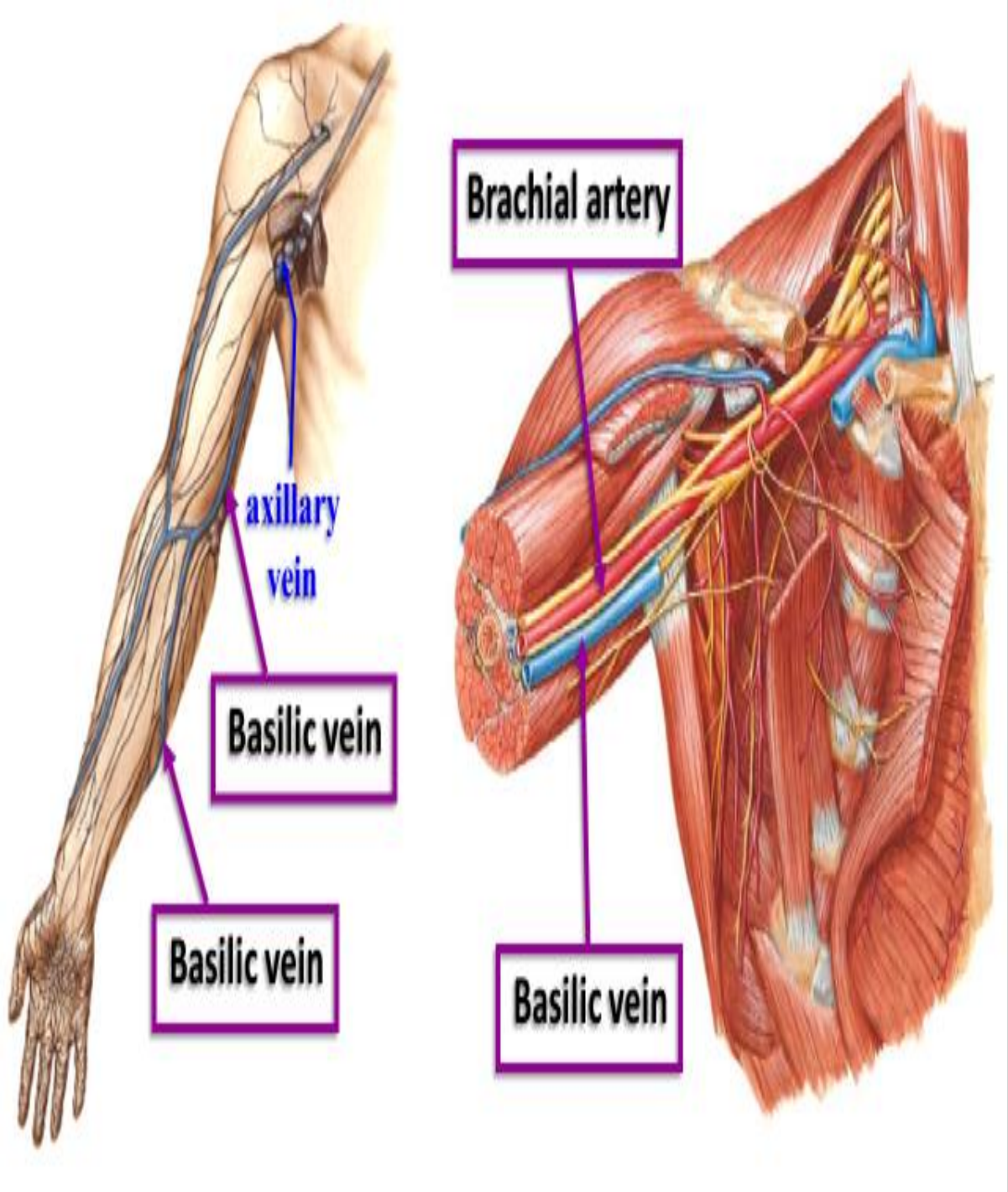
Cephalic Vein:

1-Begins **from the lateral end of the** ***dorsal venous arch*** **in the superficial fascia of the roof of the** ***anatomical snuff-box*****.**

2- It ascends in the ***lateral side*** **of the front of the forearm.**

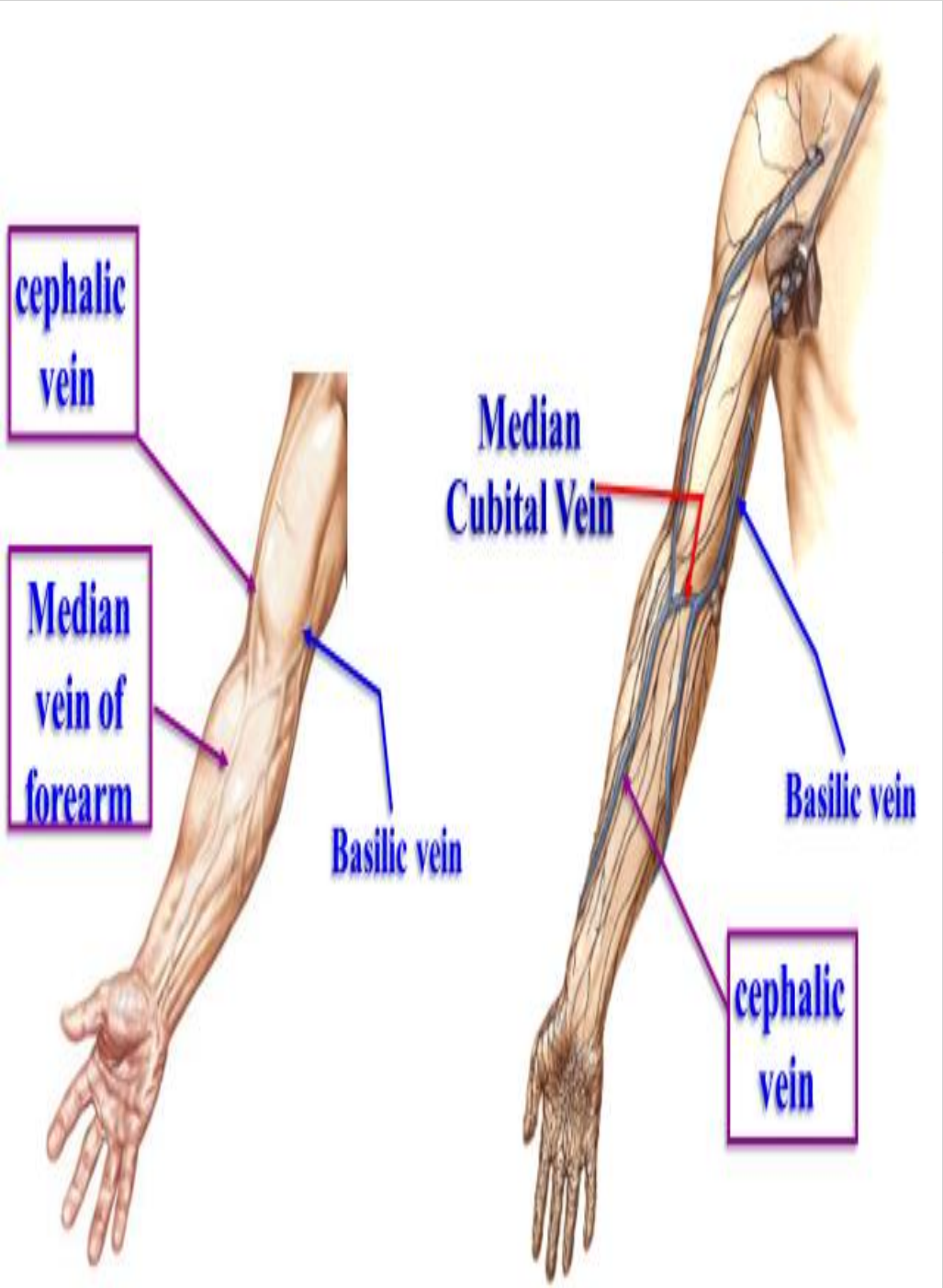
3- Then it crosses the lateral part of the roof of ***cubital fossa*** **to reach the arm.**

4- In the arm**, it runs in a groove along the** ***lateral border of biceps*** **muscle. Finally, it reaches the** ***delto-pectoral groove*** **where it** ***pierces*** **the clavi-pectoral fascia and** ***end in the axillary*** **vein.**



c-Basilic Vein:

1. Begins from the medial end of the dorsal venous arch.
2. It ascends along the medial aspect of forearm , then turns to reach the anterior surface just below the elbow.
3. It then crosses the medial part of the roof of the cubital fossa to reach the arm.
4. It ascends along the medial border of biceps brachii .
5. It pierces the deep fascia at the middle of the arm (insertion of coracobrachialis to become deep and ascends medial to the brachial artery.
6. At the lower border of teres major muscle it is joined by the two venae commitantes of the brachial artery, together forming axillary vein.



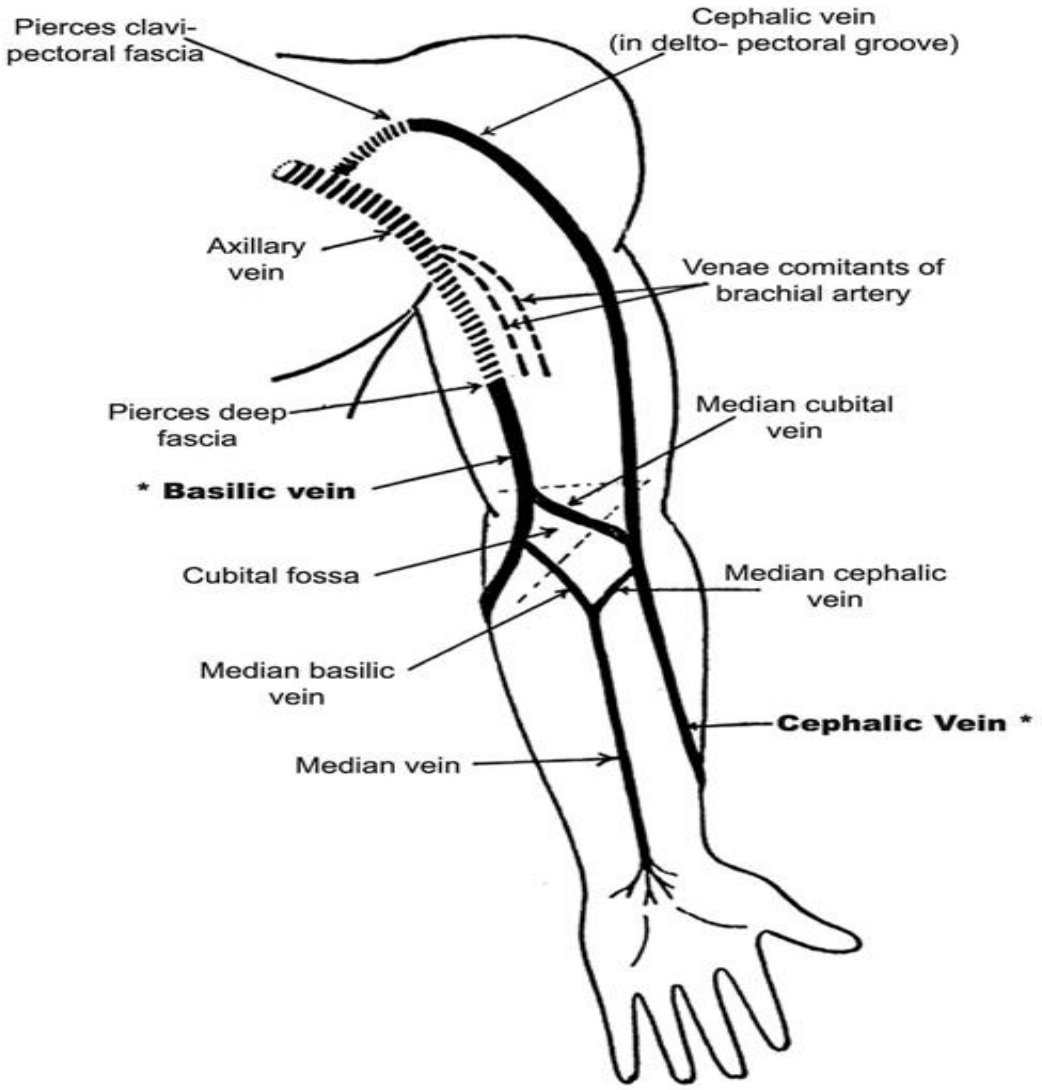
D. Median Cubital vein:

- ***Connects*** **cephalic and basilic veins in the superficial fascia of the *roof of the cubital fossa*, where it crosses superficial to the *bicipital aponeurosis* which separates it from *brachial artery and median nerve* (deep to the aponeurosis).**
- **Applied anatomy : *wrong deep IV injection in this vein may lead to injury of brachial artery or median nerve***

E. Median vein of the forearm:

1. *Begins* near the wrist by union of few veins from the palm of hand. It then ascends in the *middle of the front of the forearm*.

2. Just *below the elbow* it ends by joining median cubital or cephalic or basilica vein .



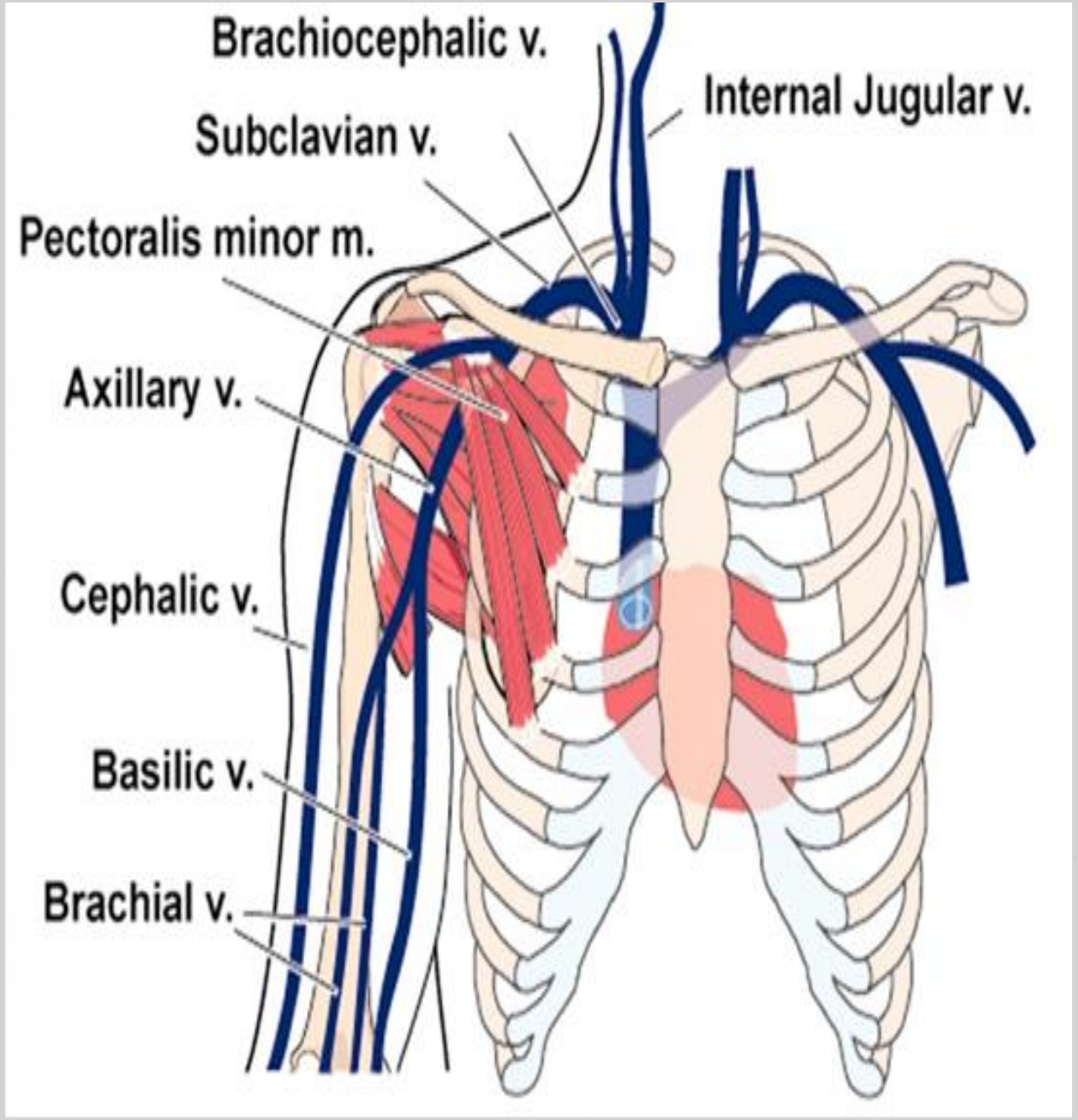
Venous Drainage of Upper Limb
Superficial and Deep Veins
(Anterior view)

Deep Veins: Are two venae comitants which accompany the main arteries. Venae comitantes of radial and ulnar arteries join the venae comitantes of the brachial artery.

II.

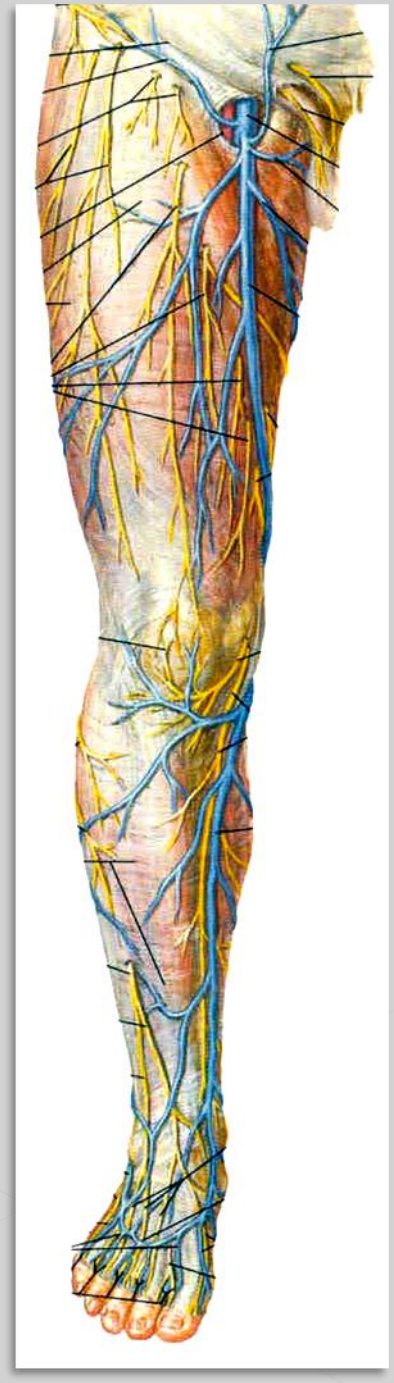
*** Axillary vein:**

1. ***Begins at*** **the lower border of** ***teres major*** **muscle by the union of the** ***basilic*** **vein and the two** ***venae comitantes of the brachial*** **artery.**
2. **It ascends on the** ***medial side of the axillary artery*** **in the axilla.**
3. **It** ***ends*** **at the outer border of the 1st rib (at the apex of the axial) by becoming the** ***subclavian*** **vein in the neck.**
4. ***Tributaries*****: Correspond to the branches of axillary artery in addition to cephalic vein, venae comitantes of brachial artery and basilic**



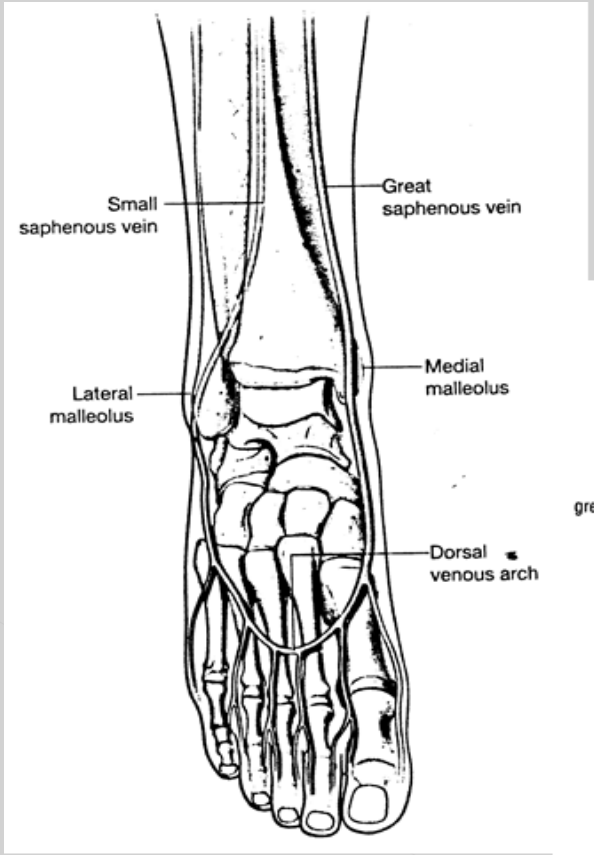
VEINS OF LOWER LIMB

* **All veins of lower limbs have bicuspid unidirectional valves which allow blood to pass from distal to proximal and from superficial to deep.**

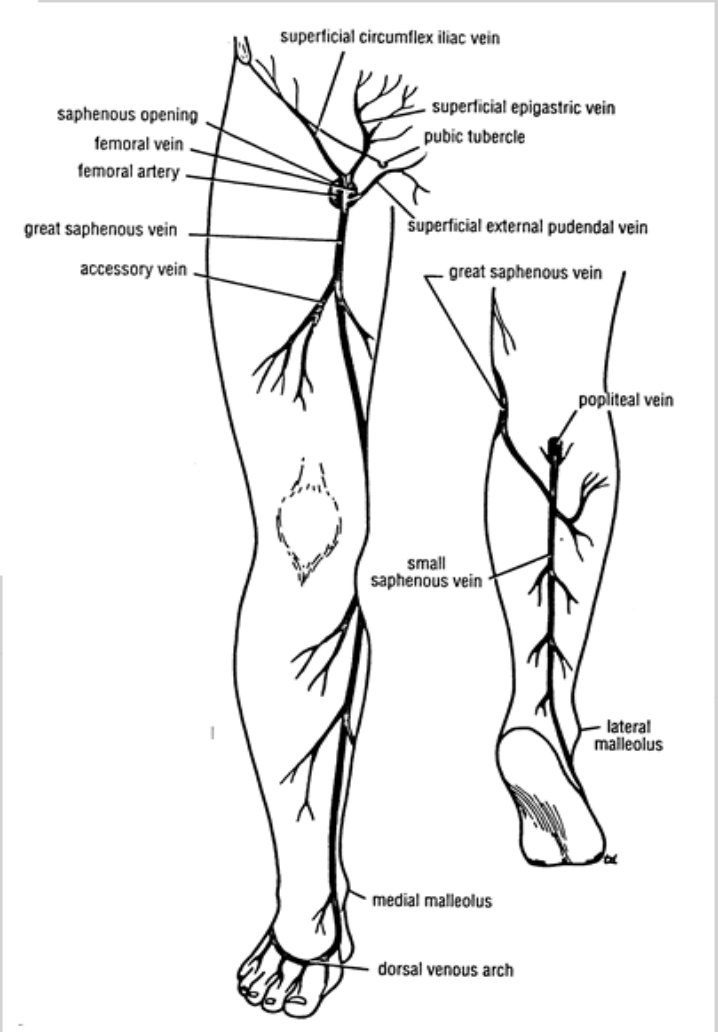


A-Superficial veins

- **Lie superficial to the deep fascia (i.e. unsupported in the S.C. tissue and liable for dilatation , elongation & tortousity i.e *varicose veins*).**
- **Drain the skin & S.C. tissues of L.L except the skin of lower 1/3 of medial aspect of the leg (ulcer bearing area) is an exception as it is drained by the ankle perforators which pierce the deep fascia to ends directly in the deep veins**



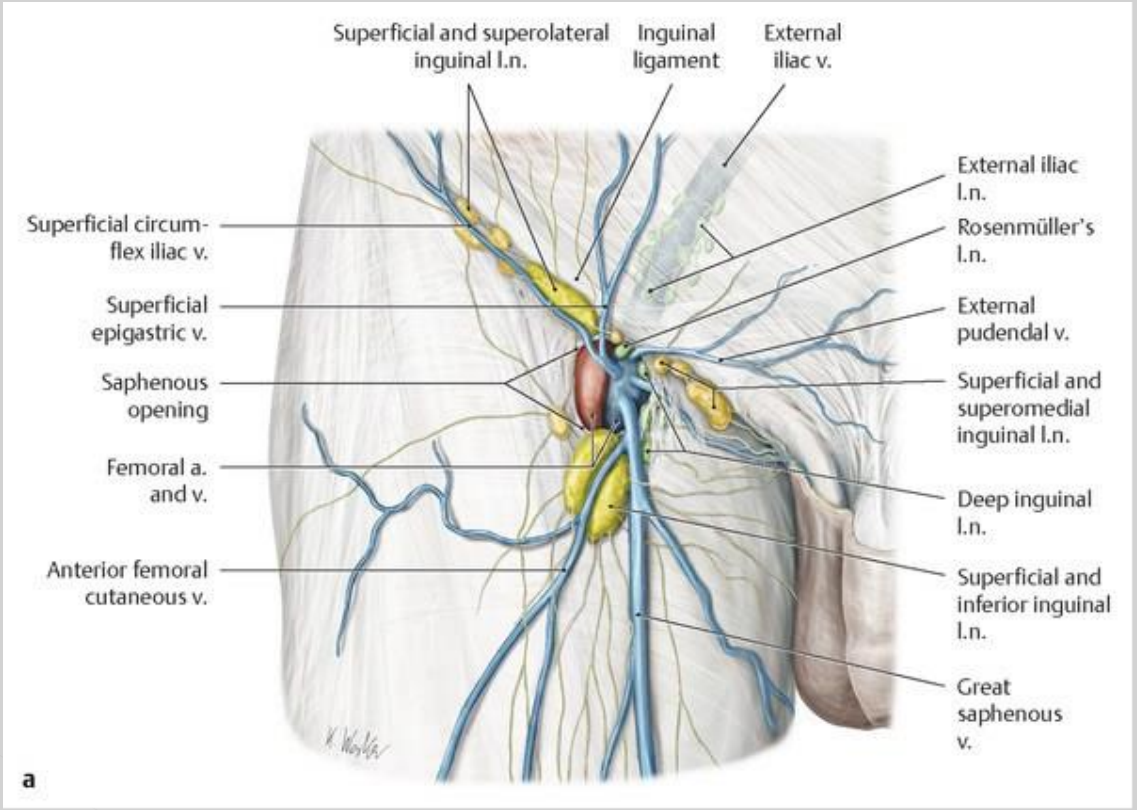
Dorsal venous arch and saphenous veins



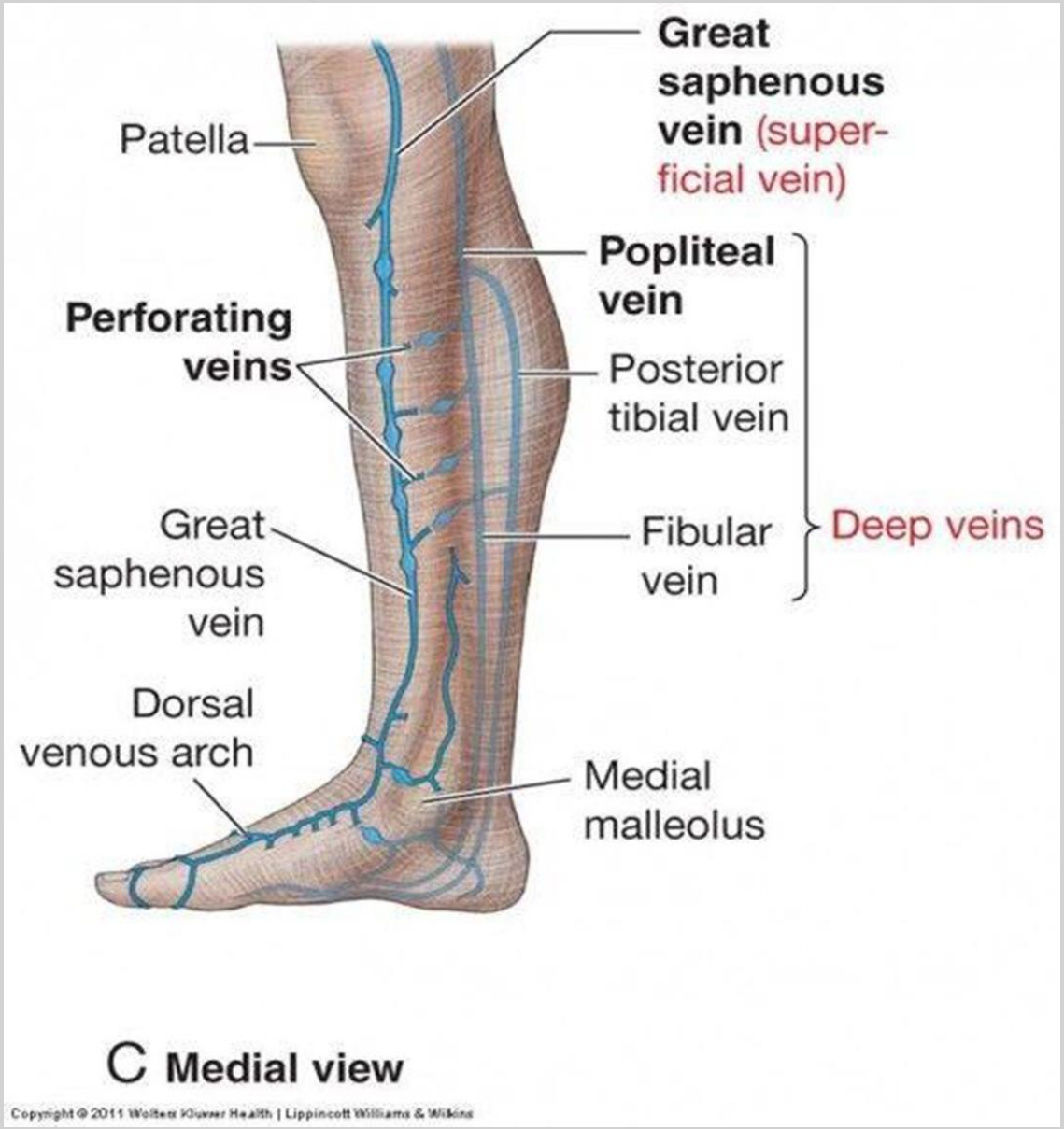
Superficial veins of lower limb.

1. Long (great) saphenous vein :

- It is the longest vein in the body.
- Begins on the dorsum of foot as upwards continuation of medial end of dorsal venous arch of the foot.
- It passes on medial aspect of foot then ascends in front of medial malleolus (commonest site for venous cut down) , medial aspect of leg behind medial border of tibia (accompanied by saphenous nerve which is anterior to the vein) , behind the medial condyles of tibia & femur then antero-medial aspect of thigh to the saphenous opening.
- It ends by piercing the cribriform fascia to join the femoral vein at the sapheno- femoral junction (4 cm below & lateral to the pubic tubercle).
- It contains 10-20 valves (especially numerous below the knee) with one valve at its upper end called sapheno-femoral valve (or Trendlenberg's valve).



Tributaries of great saphenous vein



it receives at the inguinal region:

1- superficial circumflex iliac vein .

2- superficial epigastric vein .

3- superficial external pudendal vein .

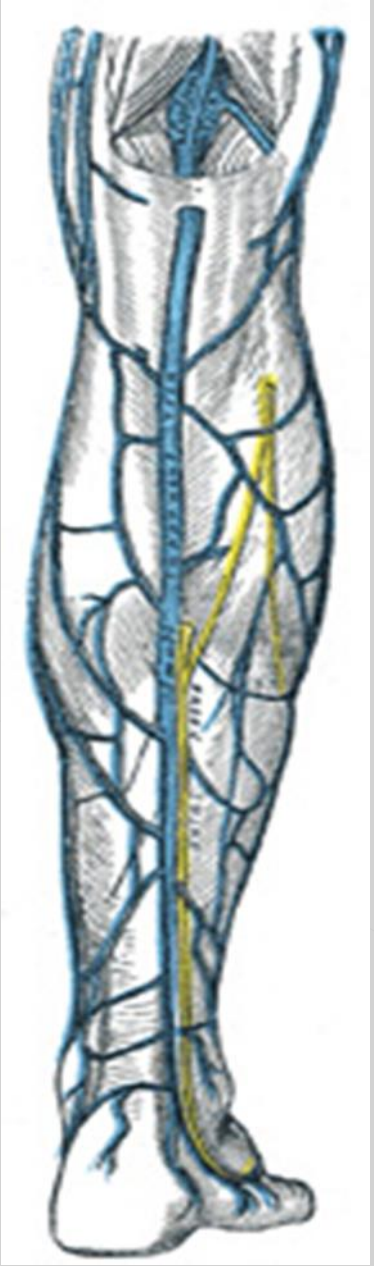
Surface anatomy: from point just in front of medial malleolus 4 fingers behind medial border of patella point 4 cm below & lateral to pubic tubercle.

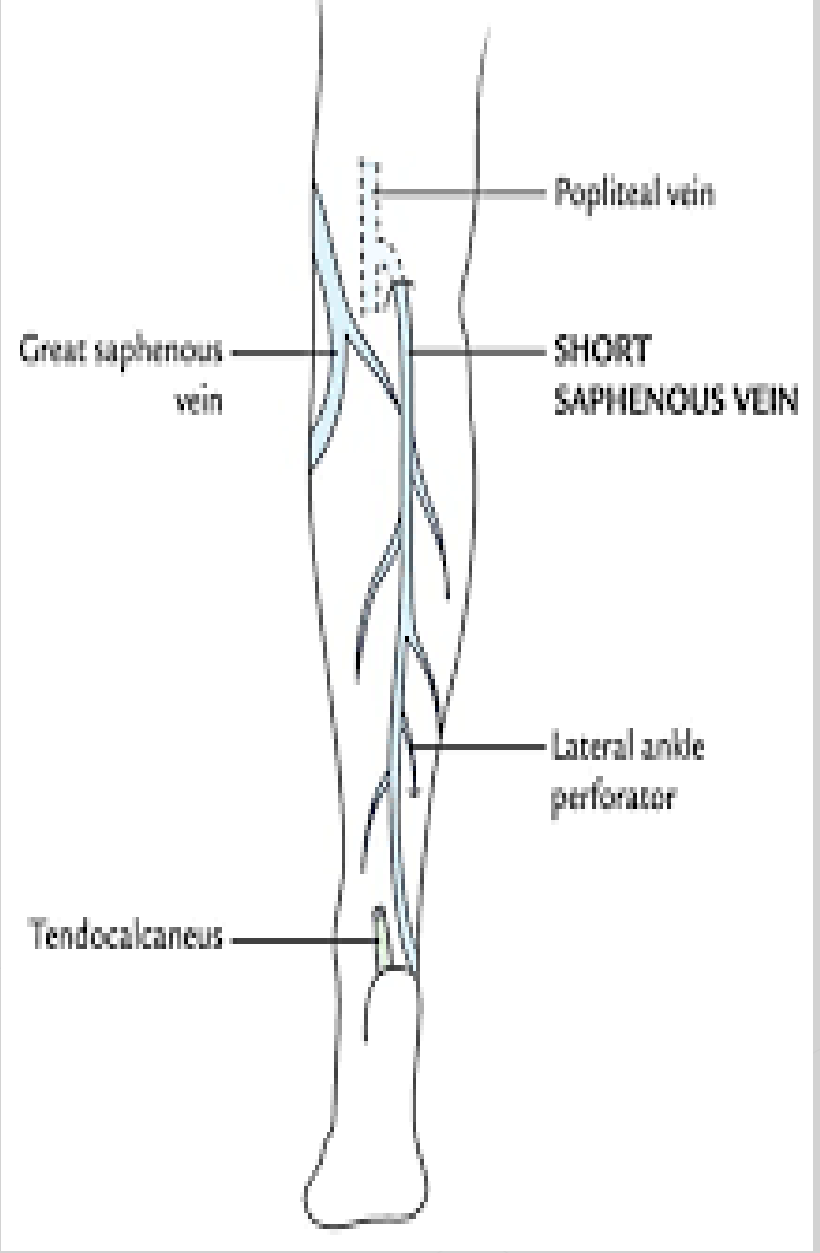
• Small Saphenous Vein

** **Origin**: on the dorsum of the foot by the union of the lateral end of the dorsal venous arch with the lateral dorsal digital vein of the little toe.

** **Course and relations**:

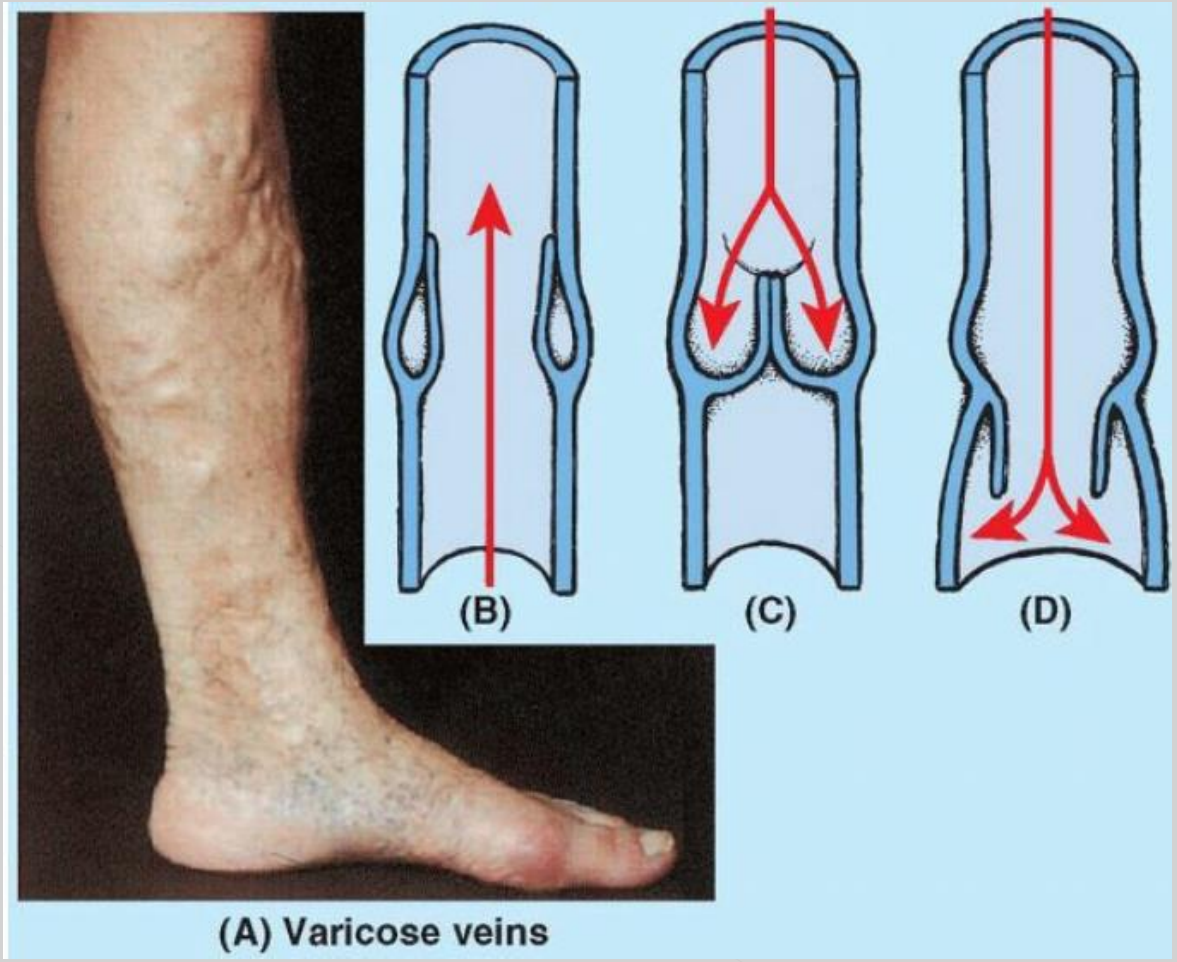
- It passes backwards along the lateral border of the dorsum of the foot.
- Then, it curves up passing **behind the lateral malleolus** and ascends on the back of the leg.
- About the middle of the popliteal fossa, it pierces the popliteal fascia to end in the **popliteal vein**.
- Along its course it is closely accompanied by the **sural nerve**.





Varicose veins

- **Frequently, the great saphenous vein and its tributaries become varicose (dilated so that the cusps of their valves do not close).**
- **Varicose veins are common in the posteromedial parts of the lower limb and may cause discomfort.**
- **In a healthy vein, the valves allow blood to flow toward the heart (B) while keeping blood from flowing away from the heart (C).**
- **Valves in varicose veins (D) are incompetent due to dilation or rotation and no longer function properly. As a result, blood flows inferiorly in the veins, producing varicose veins.**



B-Deep veins:

Lie deep to the deep fascia & they including the intra and inter-muscular veins as well as the vena commitants of the named arteries and given the same names.

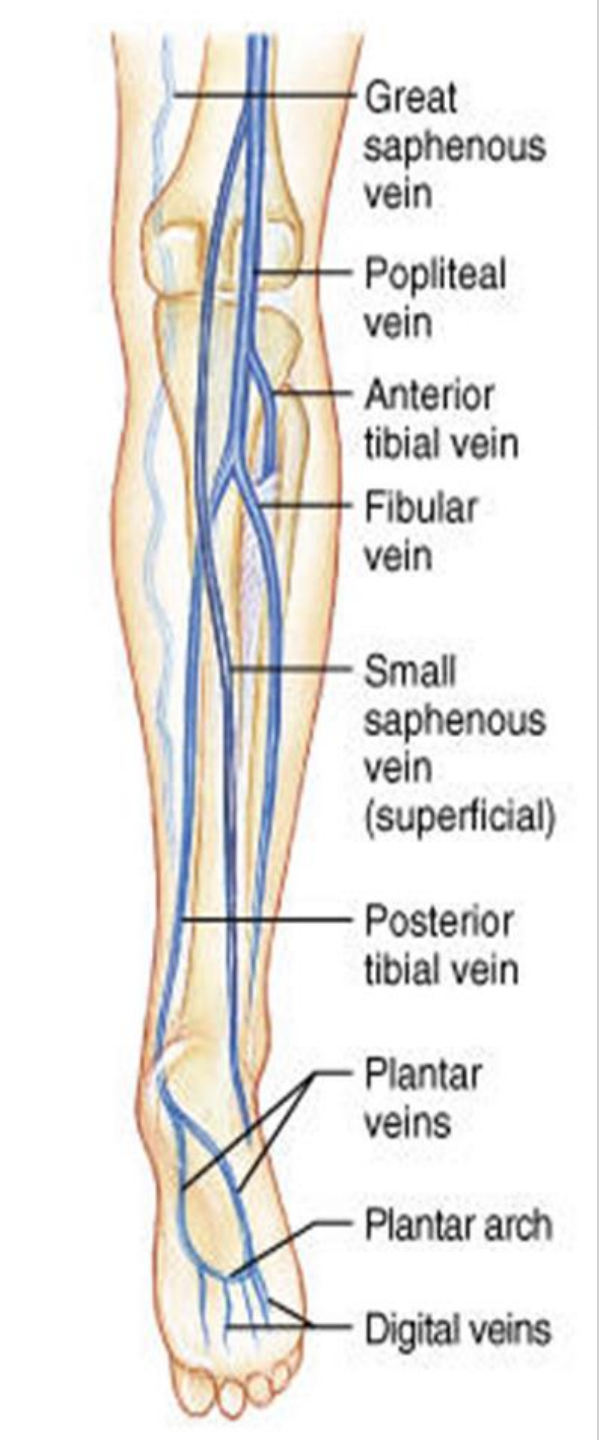
These veins drain the structures deep to the deep fascia & receive blood from the superficial veins through the communicating veins.

These veins include vena commitants of dorsalis pedis, plantar, anterior tibial , posterior tibial & peroneal arteries (below the knee each artery is accompanied with 2 vena commitants), popliteal vein & femoral vein with their tributaries.

Applied anatomy: In the deep veins blood pass only in one direction towards the heart except the soleus venous plexus which drains anterior into vena commitants of posterior tibial artery. This drainage is against gravity if the patient in the recumbent position → High incidence of D.V.T in these veins during prolonged recumbancy in bed or during operation.

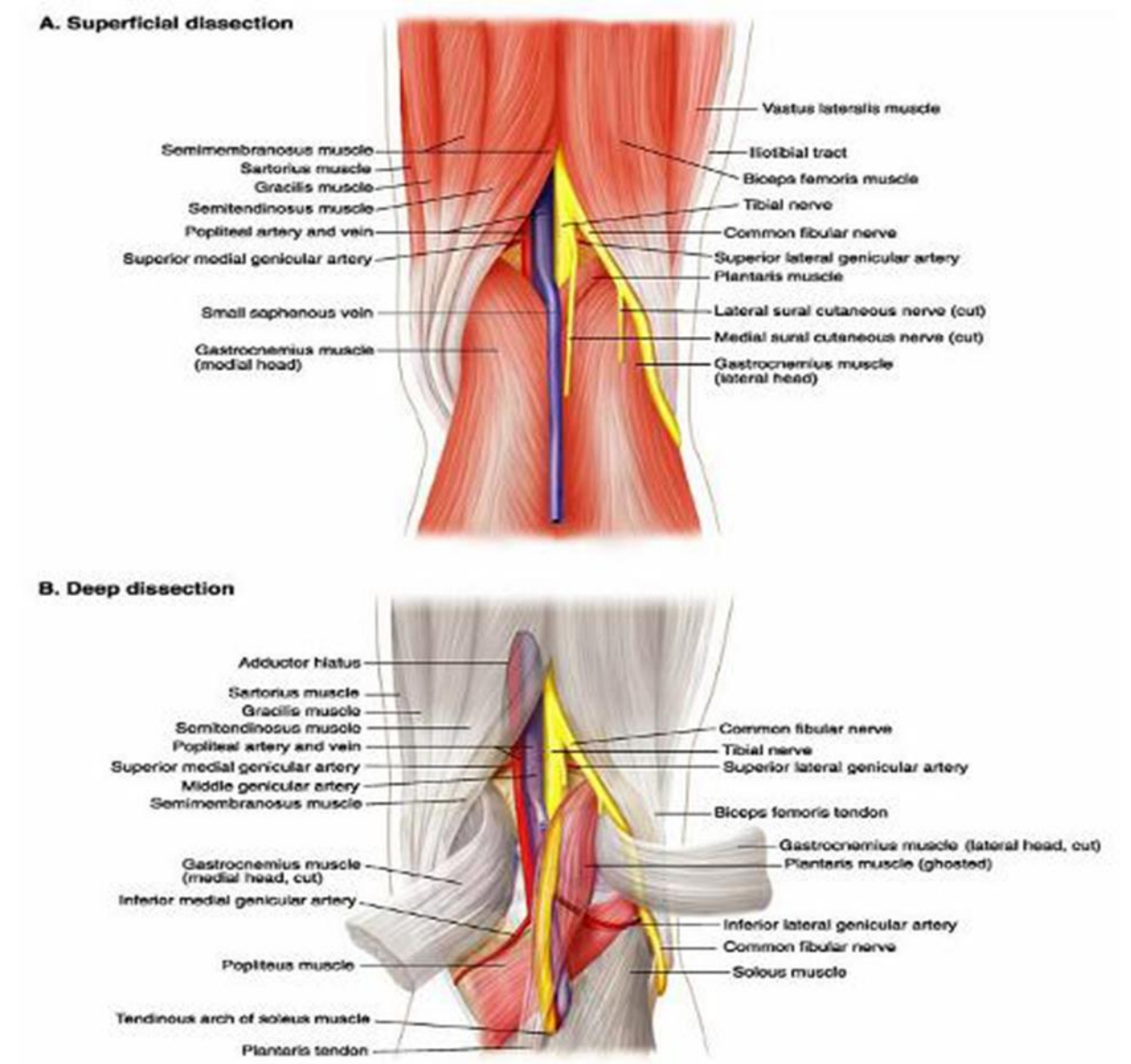
Deep veins

- The **plantar digital veins** *arise* from plexuses on the plantar surfaces of the digits, unite to form four **metatarsal veins;** these run backward in the metatarsal spaces, communicate with the veins on the dorsum of the foot, and unite to form the **plantar venous arch** which lies alongside the plantar arterial arch.
- From the deep plantar venous arch the **medial** and **lateral plantar veins** run backward close to the corresponding arteries and, after communicating with the great and small saphenous veins, unite behind the medial malleolus to form the posterior tibial veins.



- The **posterior tibial veins** accompany the posterior tibial artery, and are joined by the **peroneal veins.**
- The **anterior tibial veins** are the upward continuation of the venæ comitantes of the dorsalis pedis artery. They leave the front of the leg by passing between the tibia and fibula, over the interosseous membrane, and unite with the posterior tibial, to form the **popliteal vein.**

Popliteal vein



Beginning:

union of the vena comitantes of the anterior and posterior tibial arteries at the lower border of popliteus

Termination:

the adductor opening and continues as the femoral vein.

Tributaries:

Muscular veins,

genicular veins corresponding to the arteries

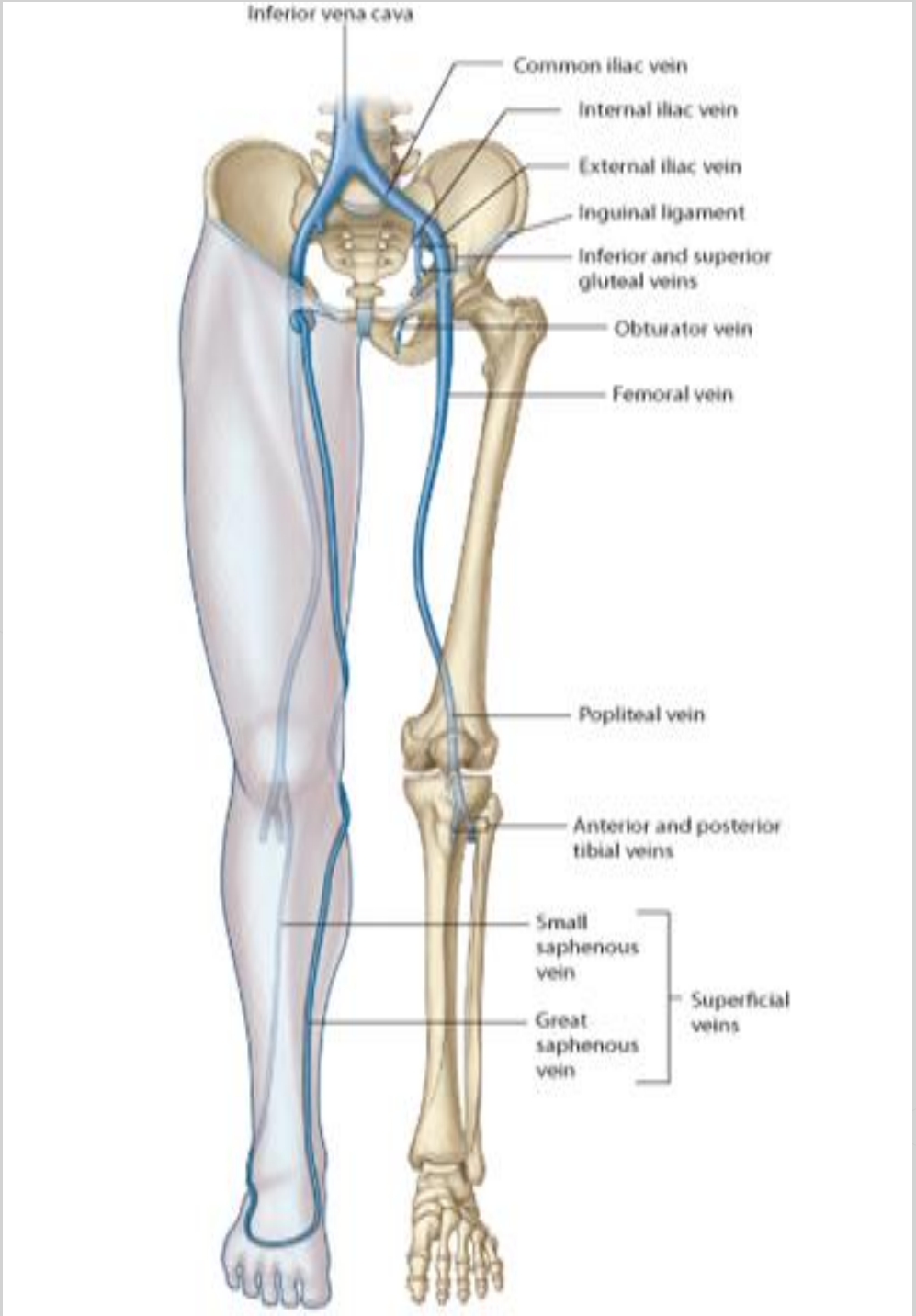
the small saphenous vein.

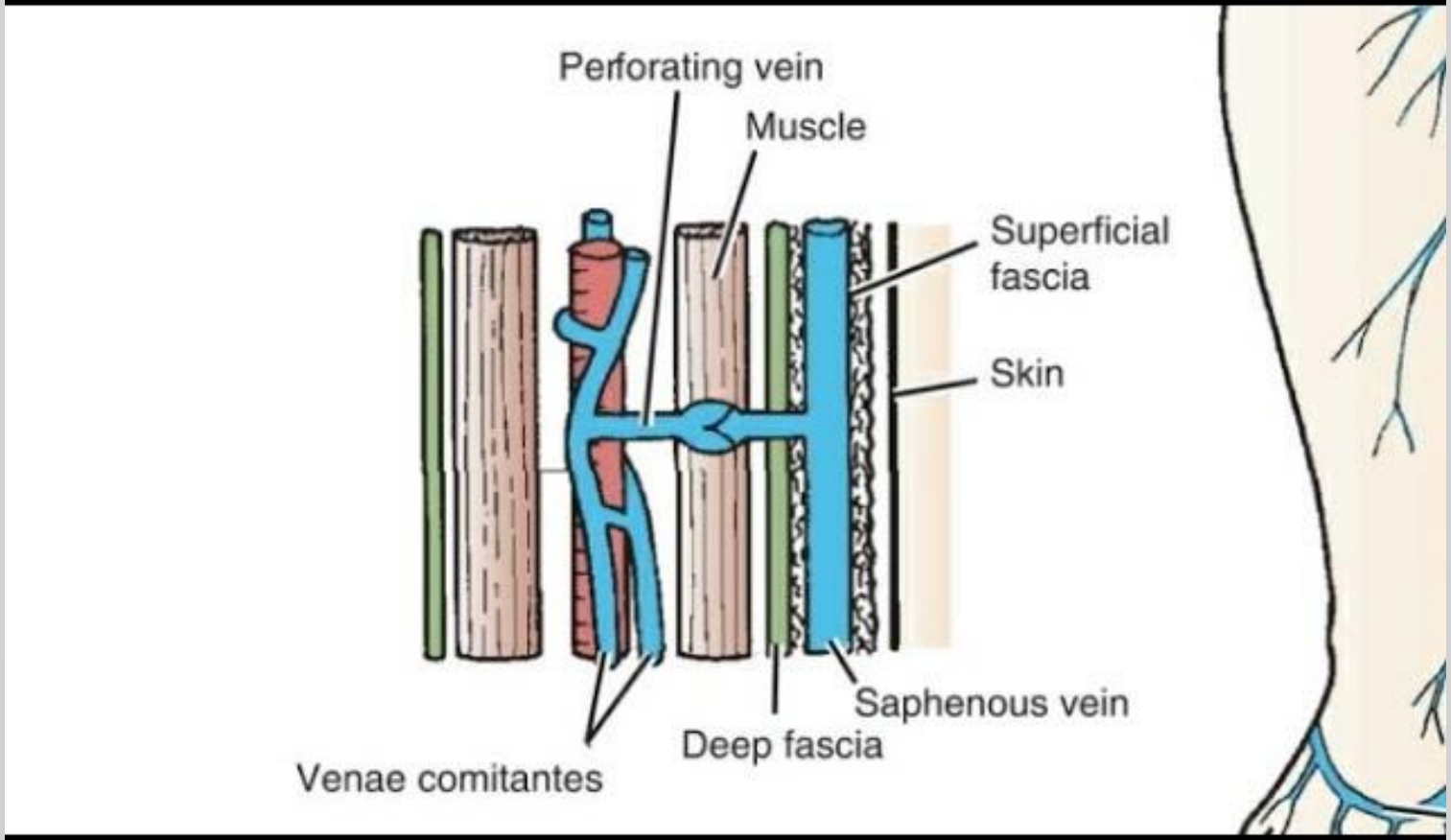
Femoral vein

Beginning:

continuation of the popliteal vein at the adductor opening.

It terminates as the external iliac vein after passing behind the inguinal ligament medial to the femoral artery.





C-Perforators (Communicating) veins:

- These veins perforate the deep fascia to connect the deep & superficial systems.

Surgical facts related to veins of L.L.:

1- Valves direct the blood from *superficial to deep* veins *except* in some veins of *hands, feet & face* where the direction is reversed for the regulation of body temperature.

***2- Varicose veins* are dilated elongated tortuous superficial veins of the lower limbs (not in the deep veins which are supported by muscles) .**

3- Long saphenous vein can be used in *arterial bypass graft.*

***4- Venous cut down operation* is usually done at the lower end of the long saphenous vein just above the medial malleolus .Take care from injury of saphenous nerve which leads to sensory loss on the medial aspect of foot .**


Thank You