

Cardiovascular system: Main blood vessels of the body



Aorta



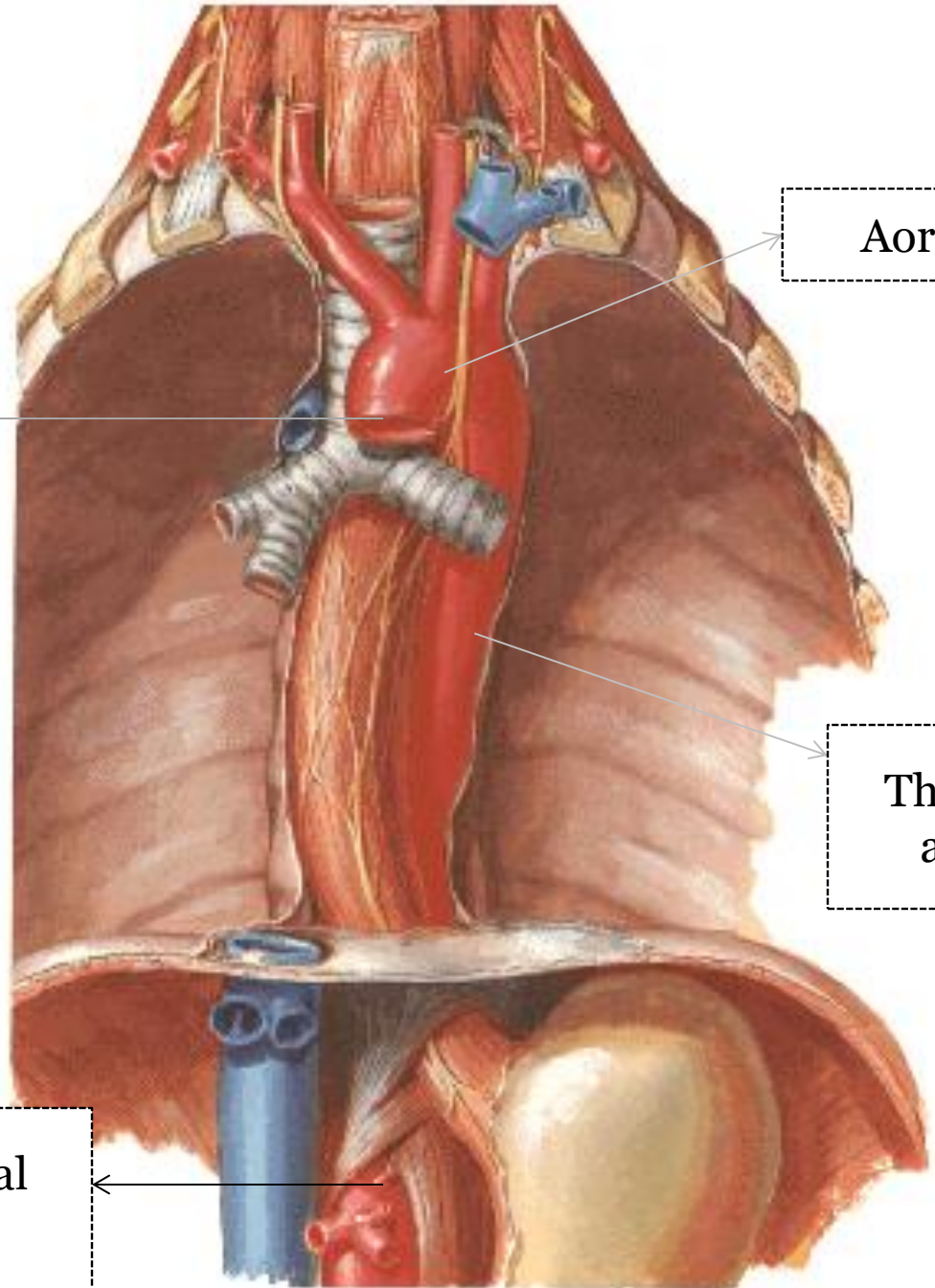
- It arises from left ventricle and distributes blood to all body parts. (oxygenated blood). Its parts are:
- Ascending aorta
- Aortic arch
- Thoracic aorta
- Abdominal aorta

Ascending aorta

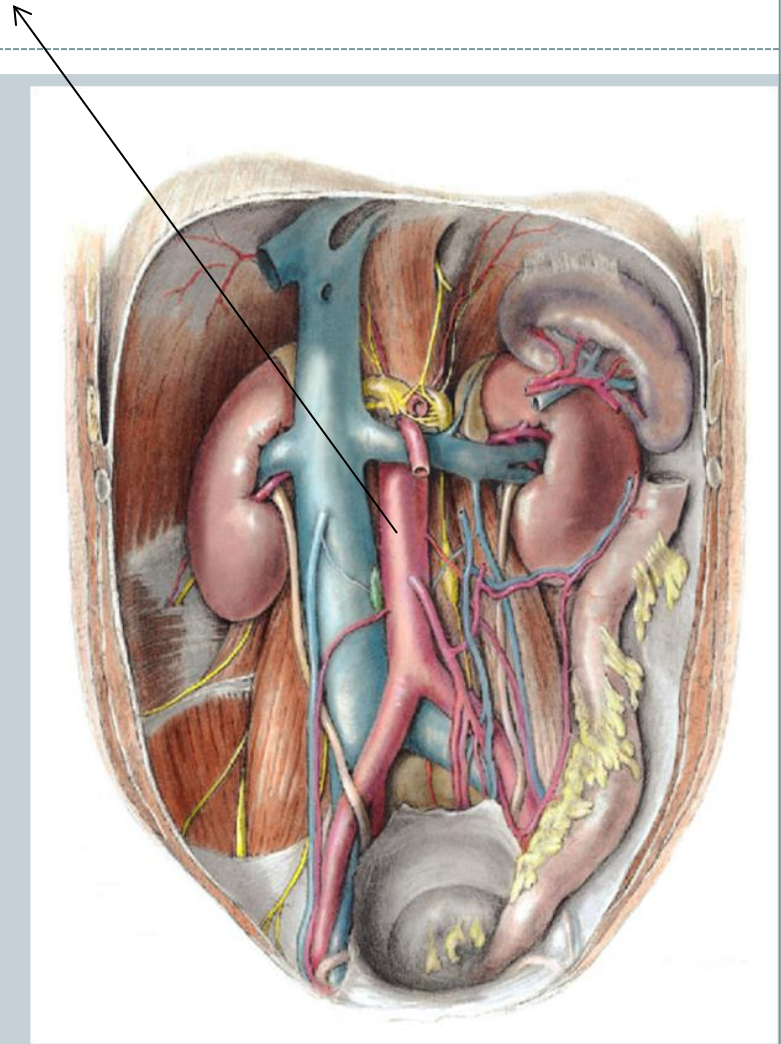
Aortic arch

Thoracic
aorta

Abdominal
aorta



Abdominal aorta





- Branches of ascending aorta: (right and left coronary arteries)
- Branches of arch of aorta:
 - 1. brachiocephalic trunk (which divides into right subclavian artery and right common carotid artery)
 - 2. left common carotid artery.
 - 3. left subclavian artery.

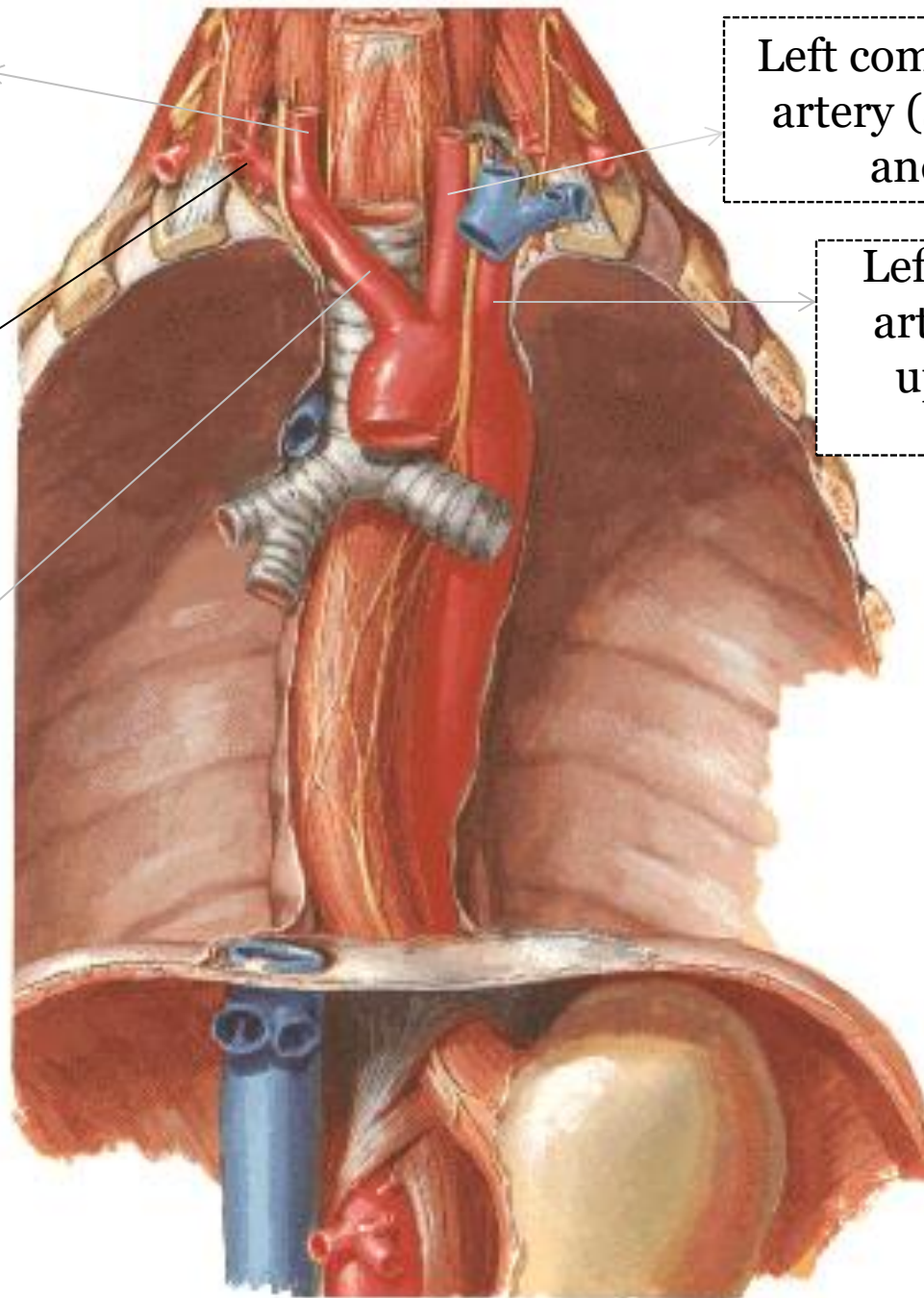
Right common
carotid artery

Left common carotid
artery (supply head
and neck)

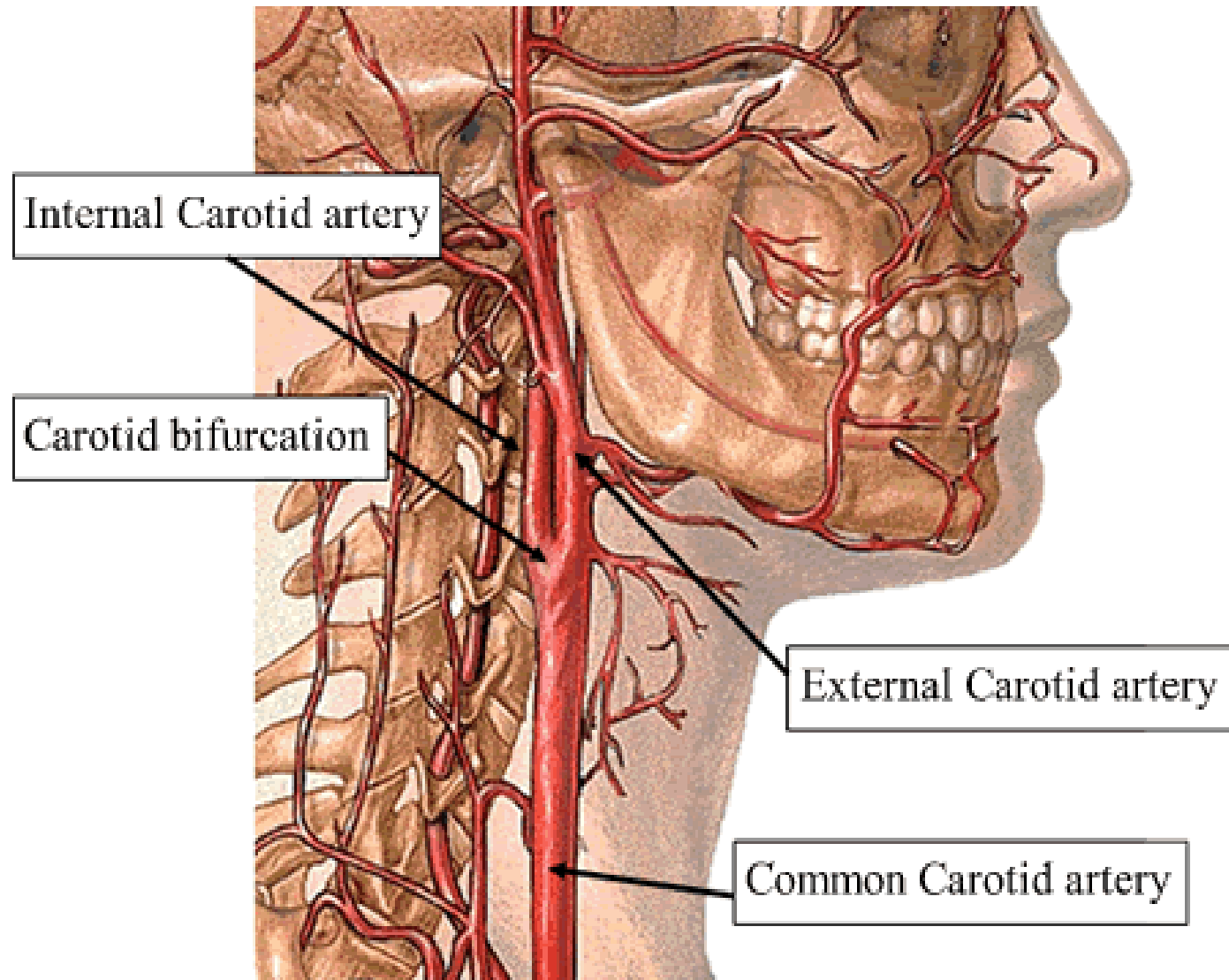
Right subclavian
artery (supply upper
limb)

Left subclavian
artery (supply
upper limb)

Brachiocephalic
trunk

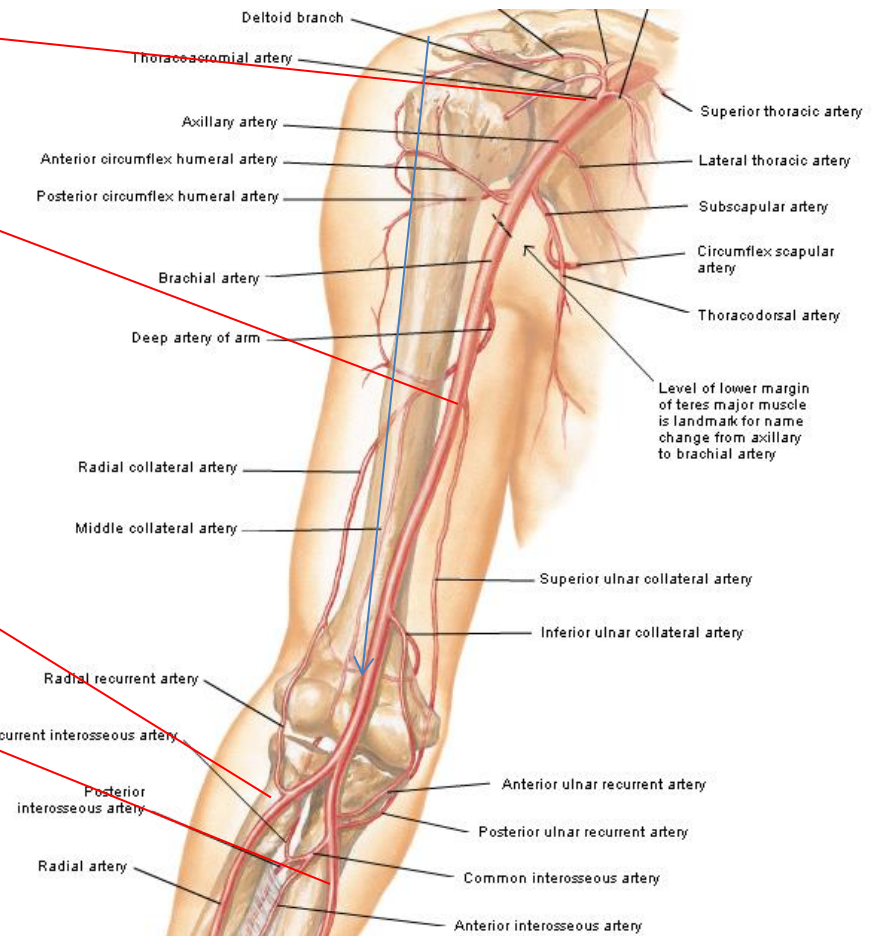


Carotid Arteries (supply the head and neck)

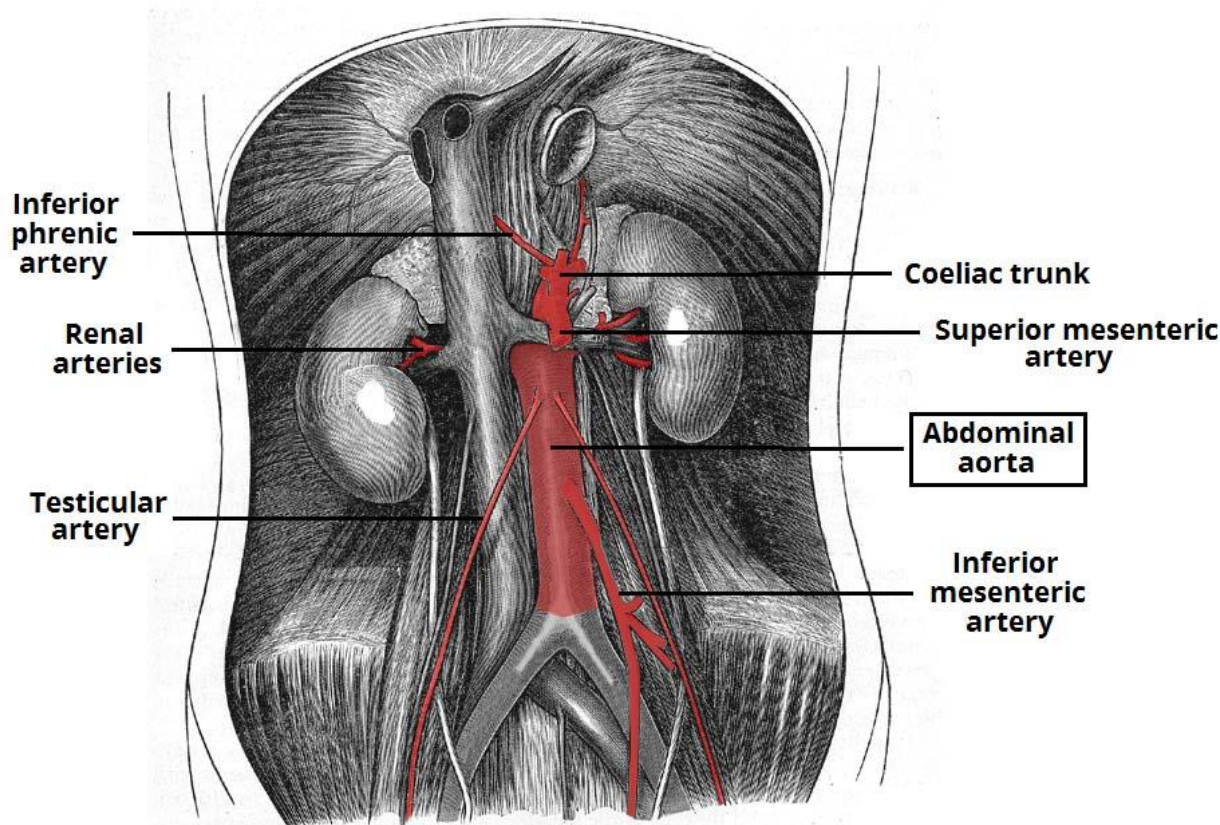


Arteries of upper limb

- Axillary artery
- Brachial artery
- Divides into:
- Radial artery and
- Ulnar artery



Main branches of abdominal aorta



Terminal branches of abdominal aorta are right and left common iliac arteries.

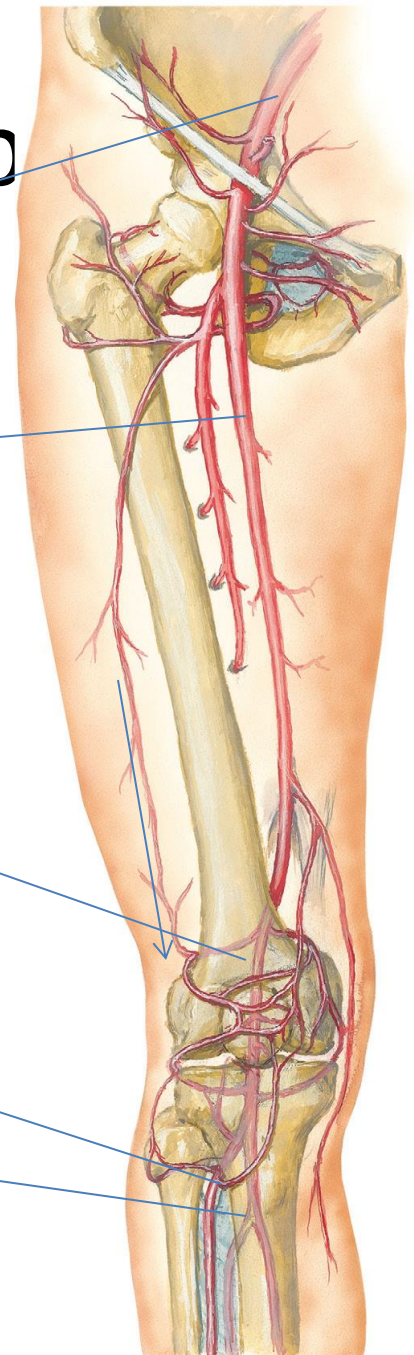
Common iliac artery divides into internal iliac and external iliac arteries.

External iliac artery becomes femoral artery which supplies lower limb.

Internal iliac artery supplies pelvic organs.

Arteries of lower limb

- External iliac artery
- Becomes femoral art.
- Becomes popliteal art.
- Which divides into:
- Anterior tibial artery and
- Posterior tibial artery



Major veins of systemic circulation

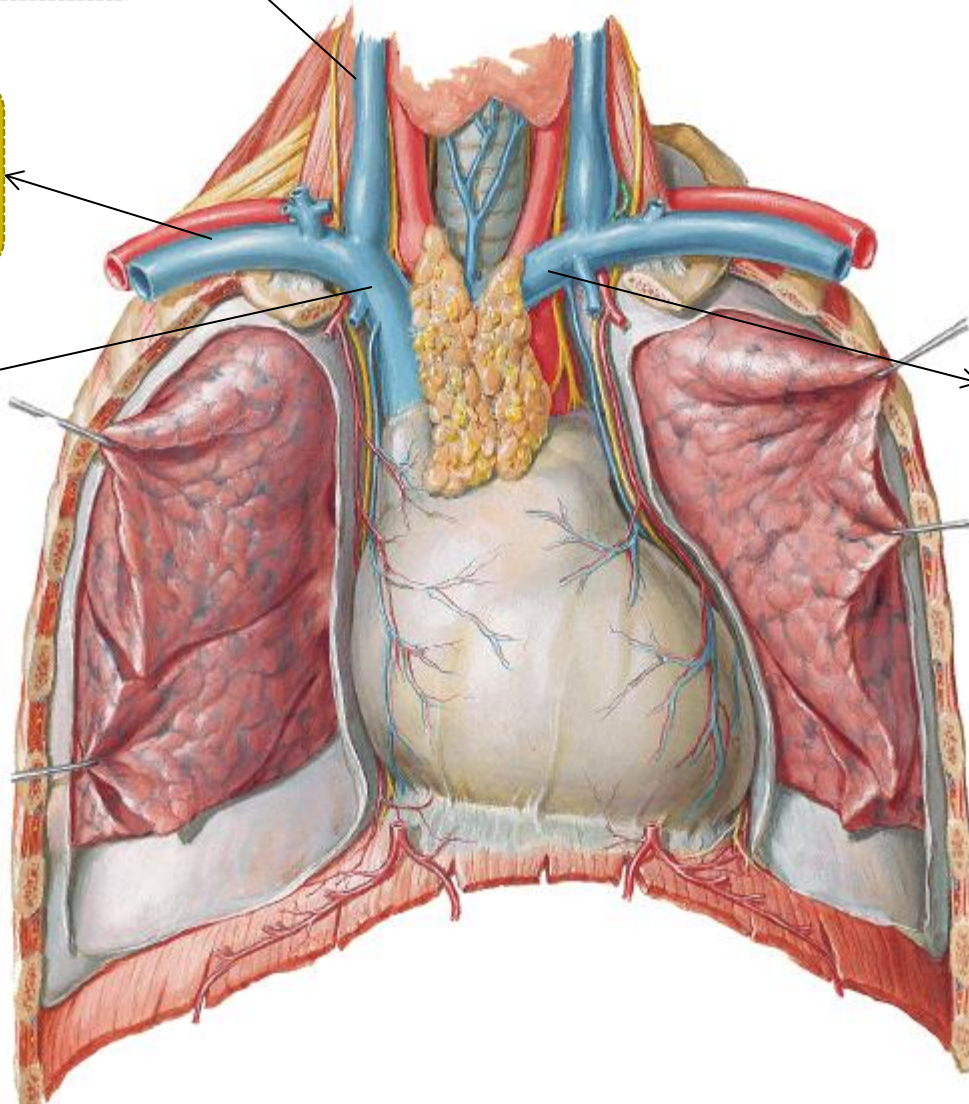


- Superior vena cava: drains upper parts of body.
- Inferior vena cava: drains lower parts of the body.
- They enter their deoxygenated blood into the right atrium.

Right internal
jugular vein

right subclavian
vein

Right
brachiocephalic
vein

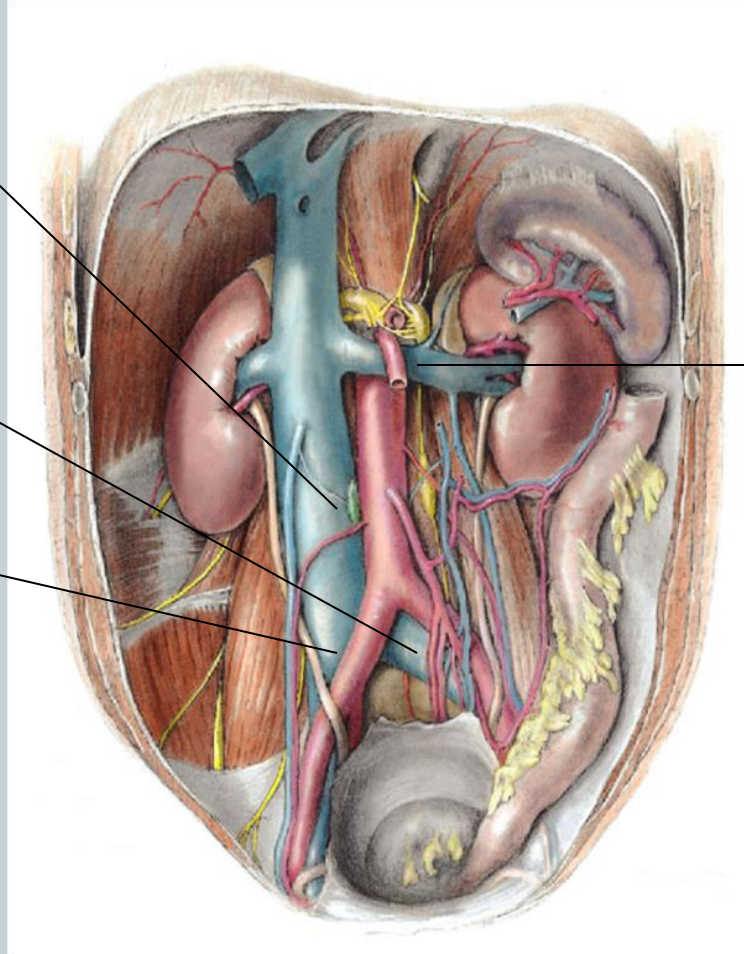


Left
brachiocephalic
vein



Inferior vena cava

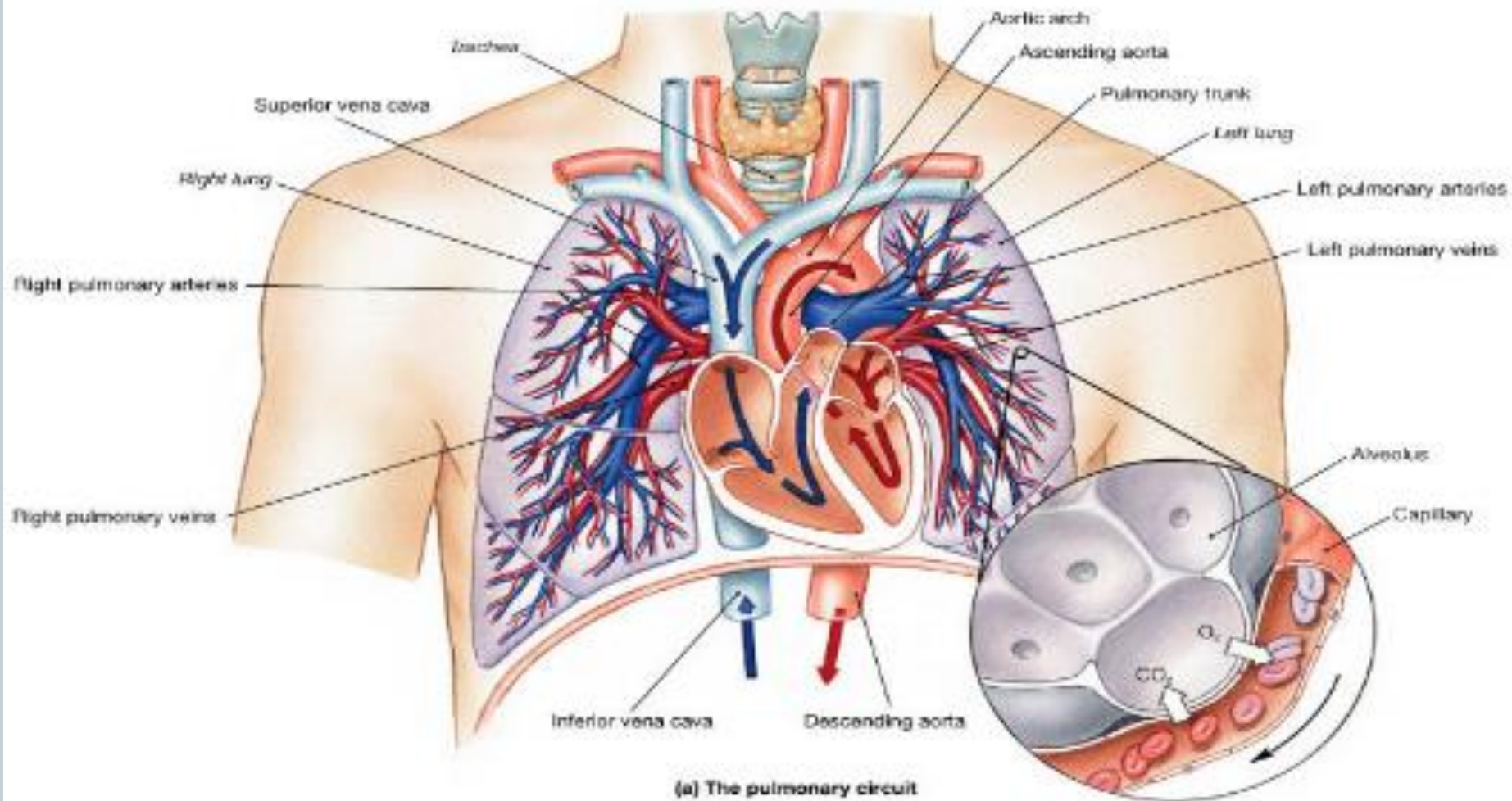
Right and left
common iliac veins



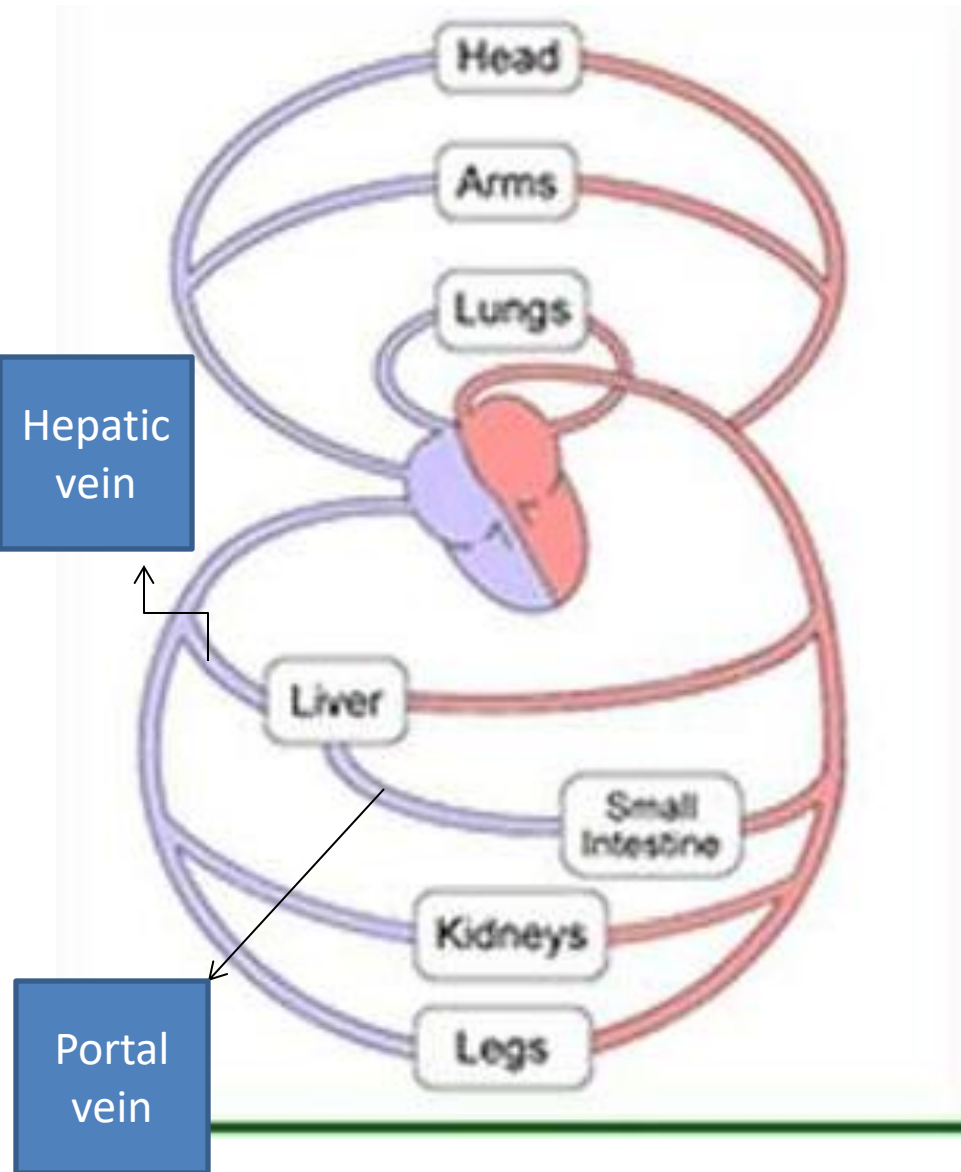
Renal vein



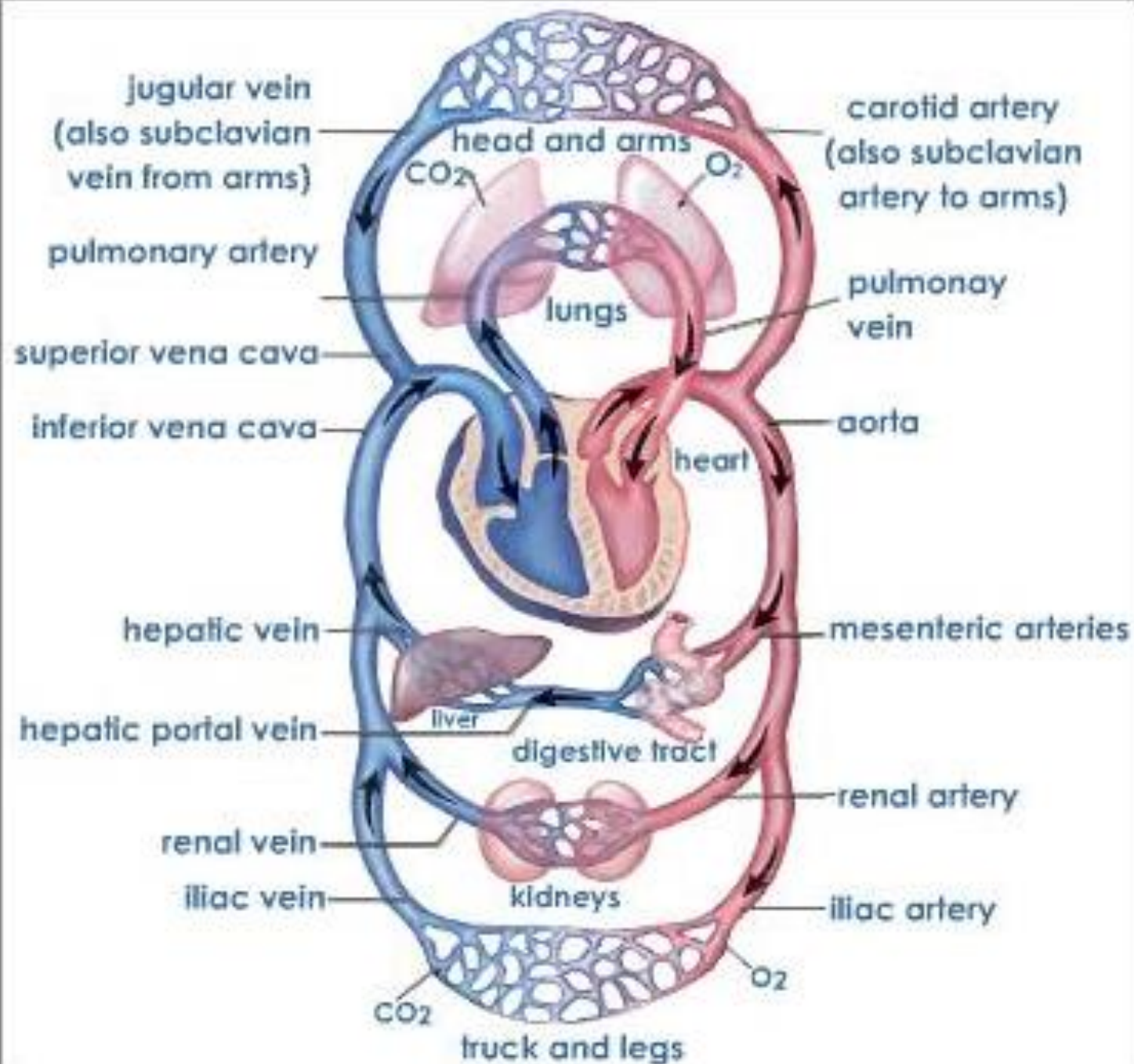
- Pulmonary trunk...pass its deoxygenated blood from the right ventricle to the lungs.
- Pulmonary veins (4 in number) they pass their oxygenated blood to the left atrium.

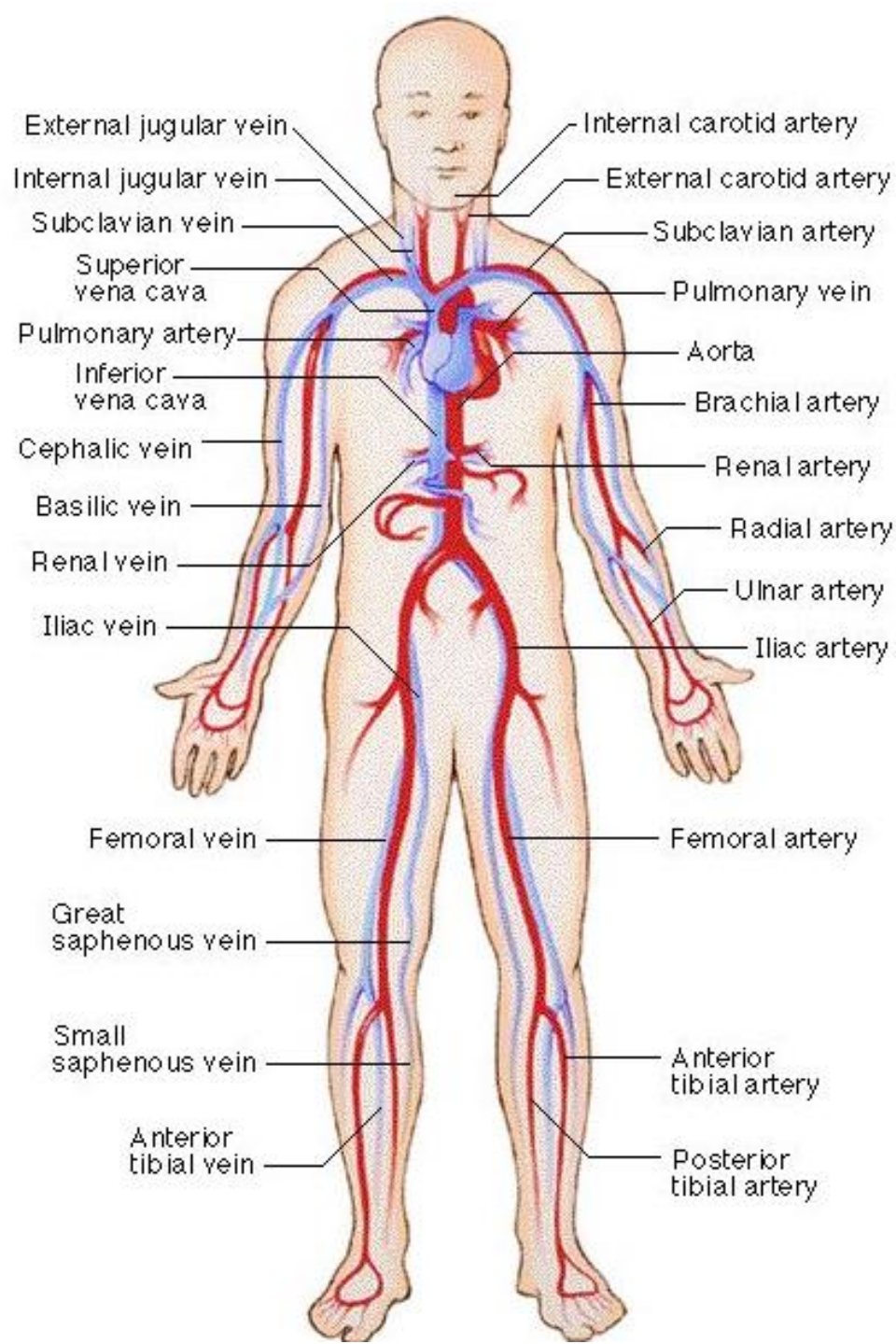


Portal circulation

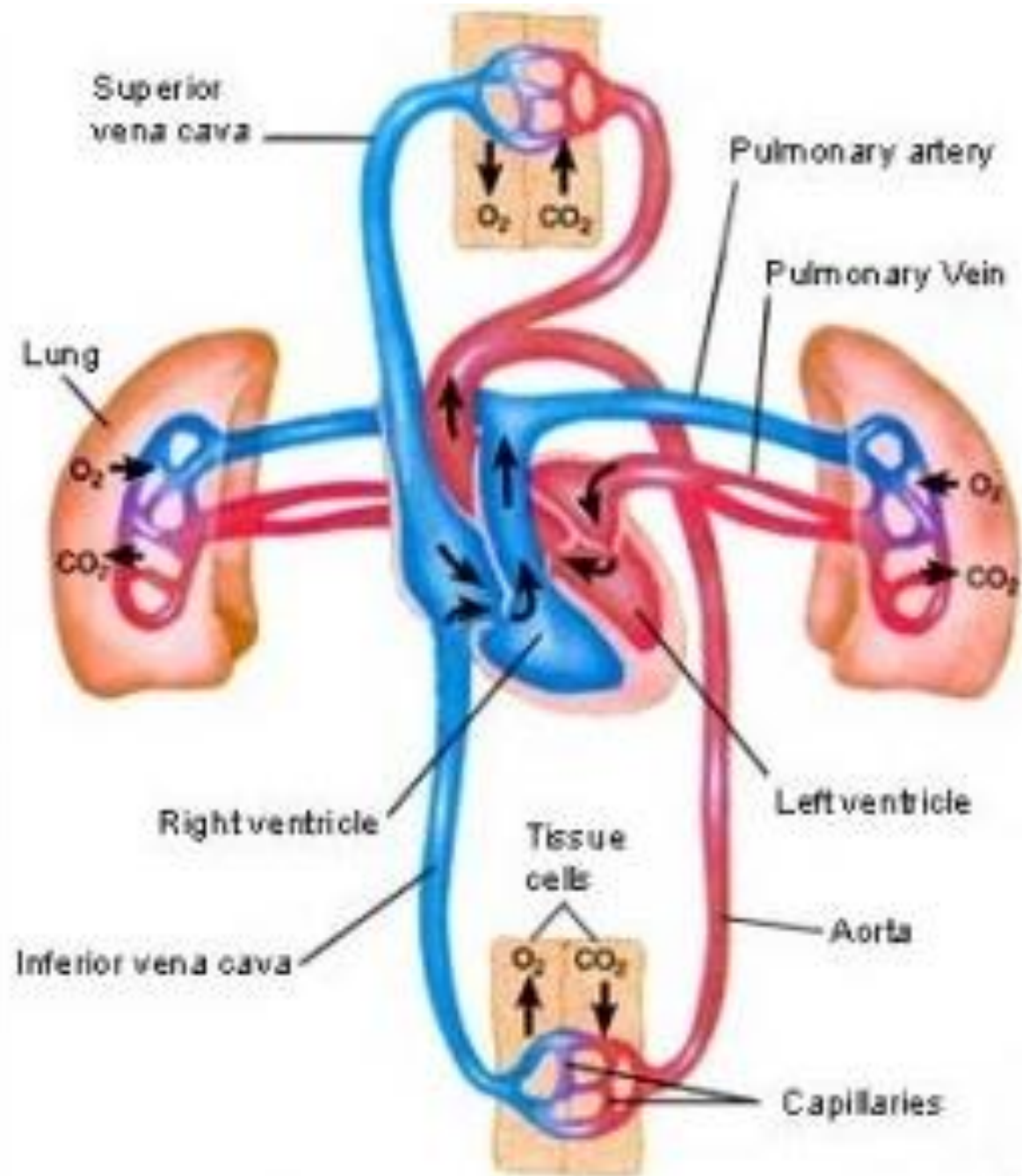


- Arteries supplying intestine becomes capillaries which contain nutrient rich blood. This is collected by a vein (portal vein). Which is passed through the liver for metabolism of these nutrients. So portal vein become capillaries again inside the liver. Then these capillaries form another vein (hepatic vein) which does not contain the nutrients absorbed by intestine. Which is drained by inferior vena cava back to the heart.





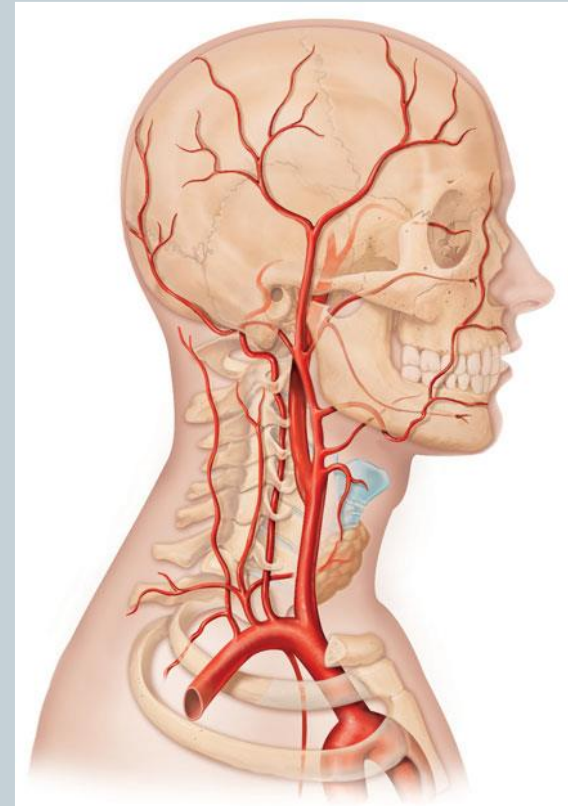
- In addition to femoral vein, in lower limb there is great saphenous vein, which is the longest vein in the body. This is a superficial vein draining the lower limb and commonly is diseased and abnormally dilated called varicose veins.
- Upper limb is drained by cephalic and basilic veins and they drain into the subclavian vein.



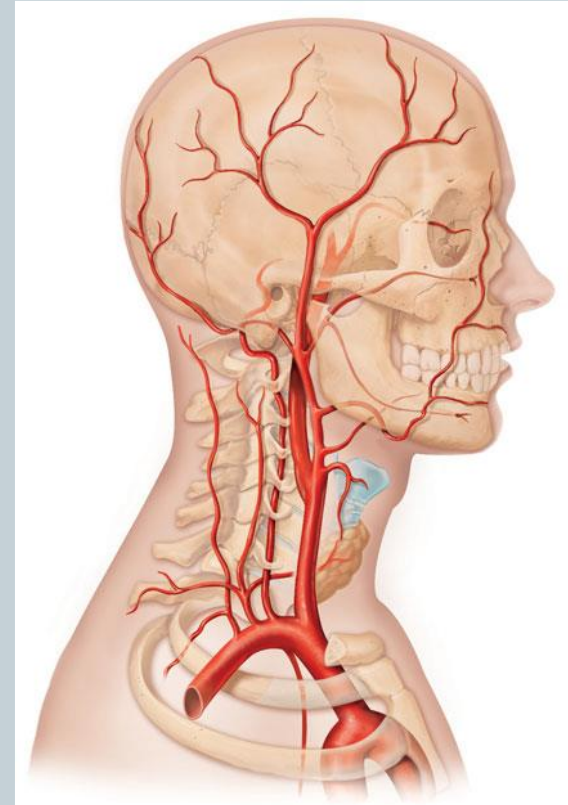
Arteries of the Head and Neck



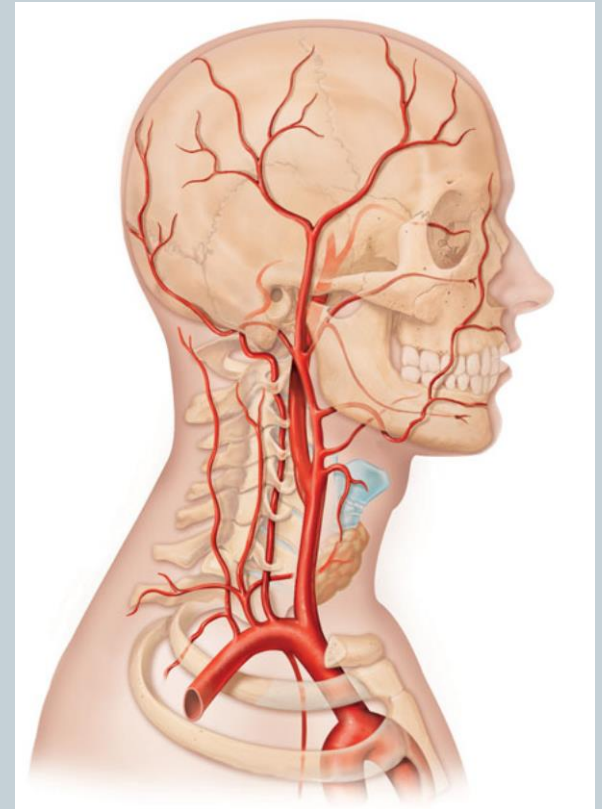
- Four pairs of arteries supply the head and neck:
- **the common carotid arteries** plus three branches from each subclavian artery
- Common Carotid Arteries: Most parts of the head and neck receive their blood from the common carotid arteries



- by dividing into
- an **external and internal carotid artery**.
- The external carotid arteries supply most tissues of the head external to the brain and orbit.



- Near the temporomandibular joint, each external carotid ends by splitting
- into the superficial temporal and maxillary arteries.
- The internal carotid arteries supply the orbits and most of the cerebrum.



• Vertebral Arteries

- The blood supply to the posterior brain comes from the right and left vertebral arteries, which arise from the subclavian arteries
- arterial anastomosis called the circle of Willis. This circle forms a loop around
- this anastomosis provides alternate routes for blood to reach brain areas that are affected if either a carotid or vertebral
- artery becomes occluded.

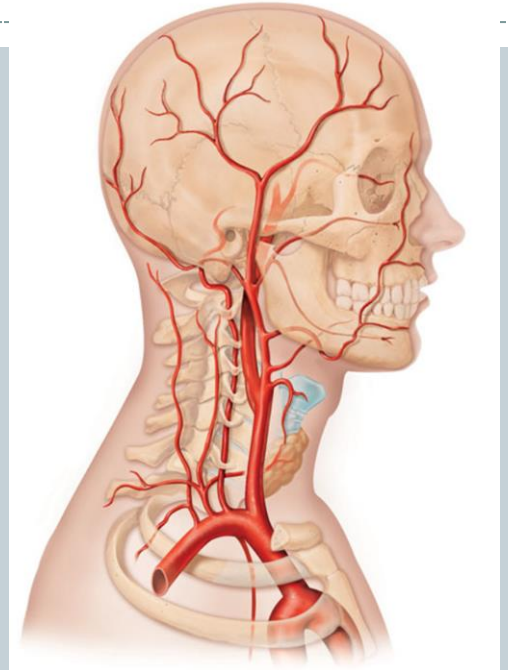
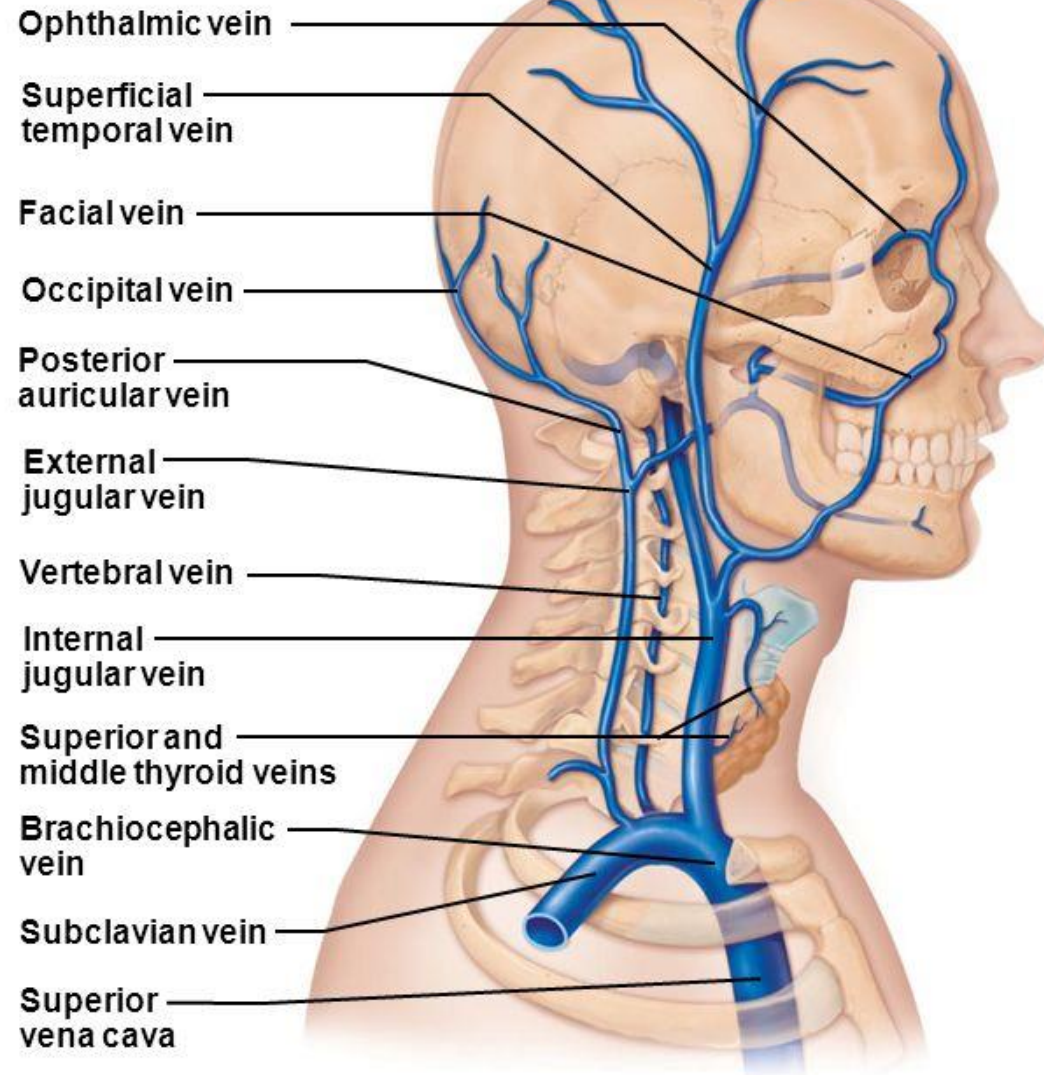
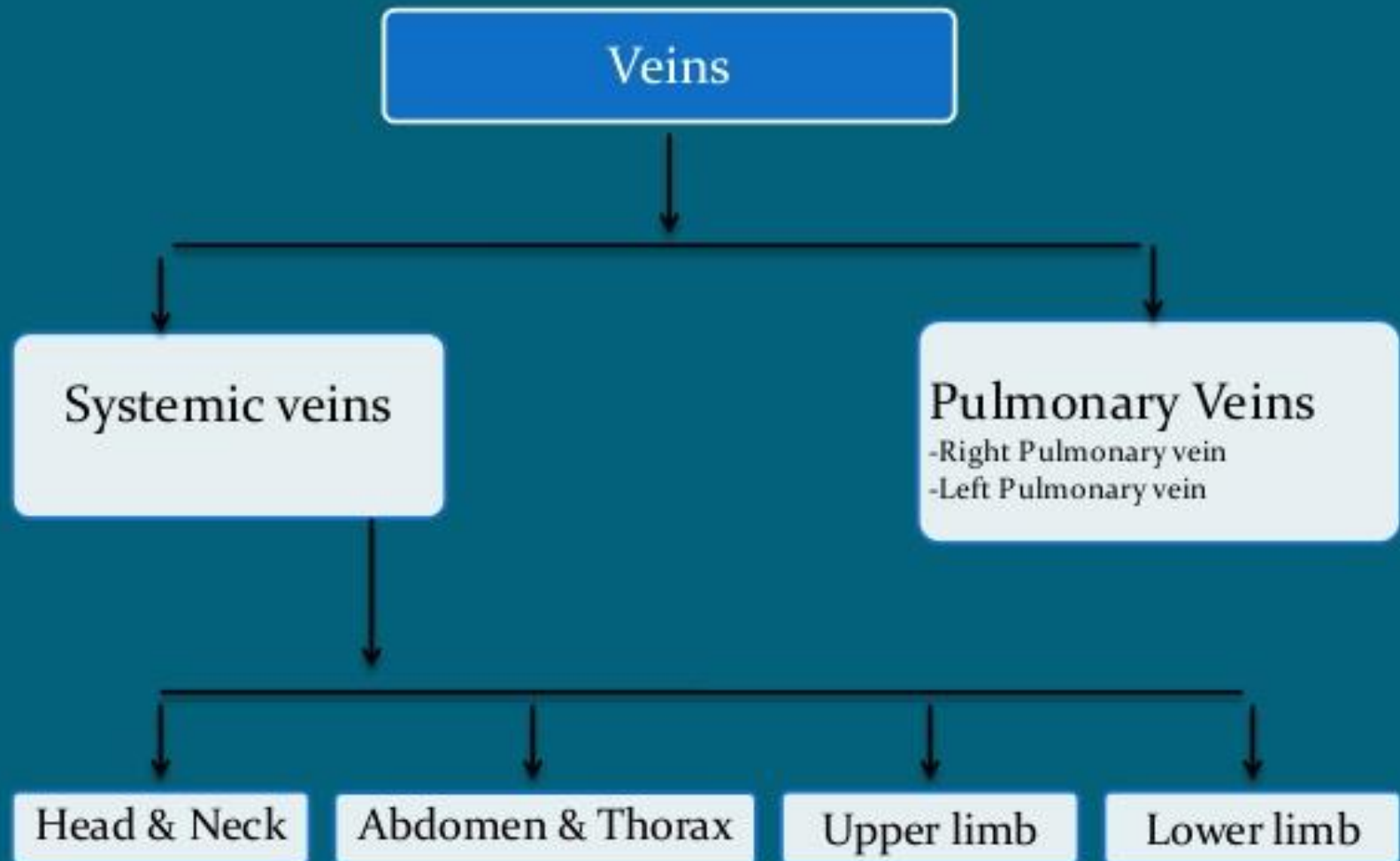


Figure 19.27b Venous drainage of the head, neck, and brain.



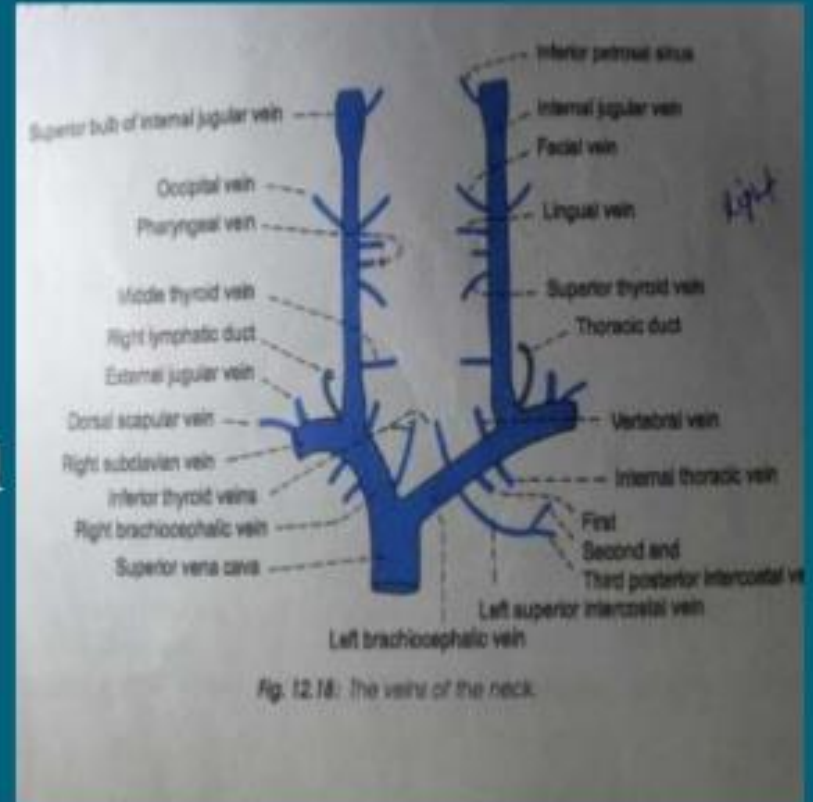
(b) Veins of the head and neck, right superficial aspect

Classification of veins



Veins of the Head and neck

- Venous drainage from the face is entirely superficial
- All the venous drainage from the head and neck terminate in the **internal jugular vein** which join the **subclavian vein** to form the **brachiocephalic vein** behind the medial end of the clavicle
- Two **brachiocephalic veins** unite to form **superior vena cava**



Head & neck

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graph TD; A[Head & neck] --> B[External group]; A --> C[Internal group]; B --> B1[a) Internal jugular]; B --> B2[b) External jugular]; B --> B3[c) Anterior jugular]; B --> B4[d) Oblique jugular]; B --> B5[e) Posterior external jugular]; C --> C1[a) Venous sinuses]; C --> C2[b) Emissary veins]; C --> C3[c) Diploic veins];
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External group

- a) Internal jugular
- b) External jugular
- c) Anterior jugular
- d) Oblique jugular
- e) Posterior external jugular

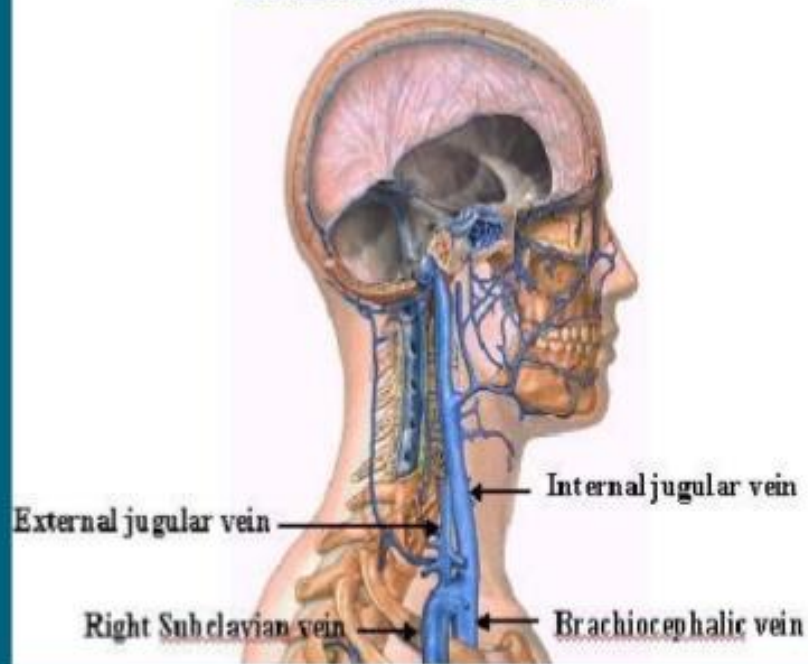
Internal group

- a) Venous sinuses
- b) Emissary veins
- c) Diploic veins

Internal jugular veins

DEEP VEINS OF HEAD AND NECK

RIGHT LATERAL VIEW





- Questions?