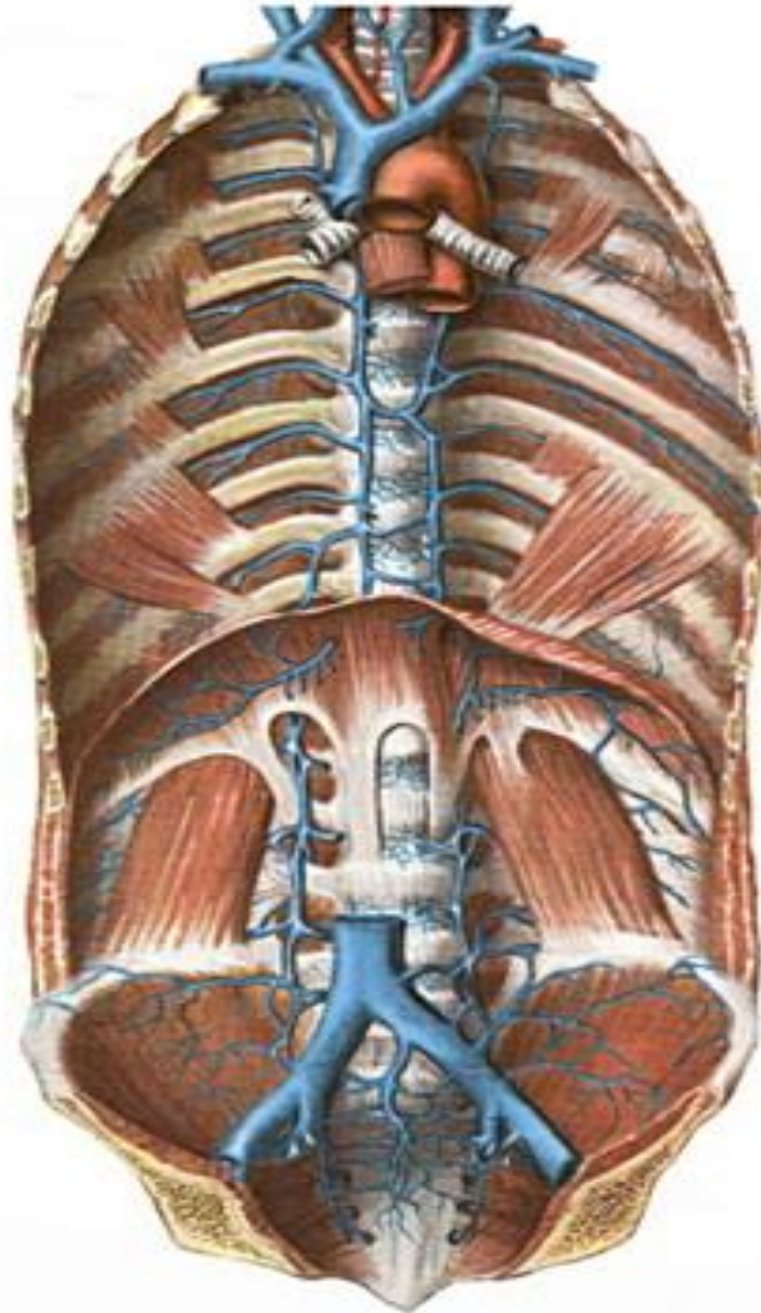
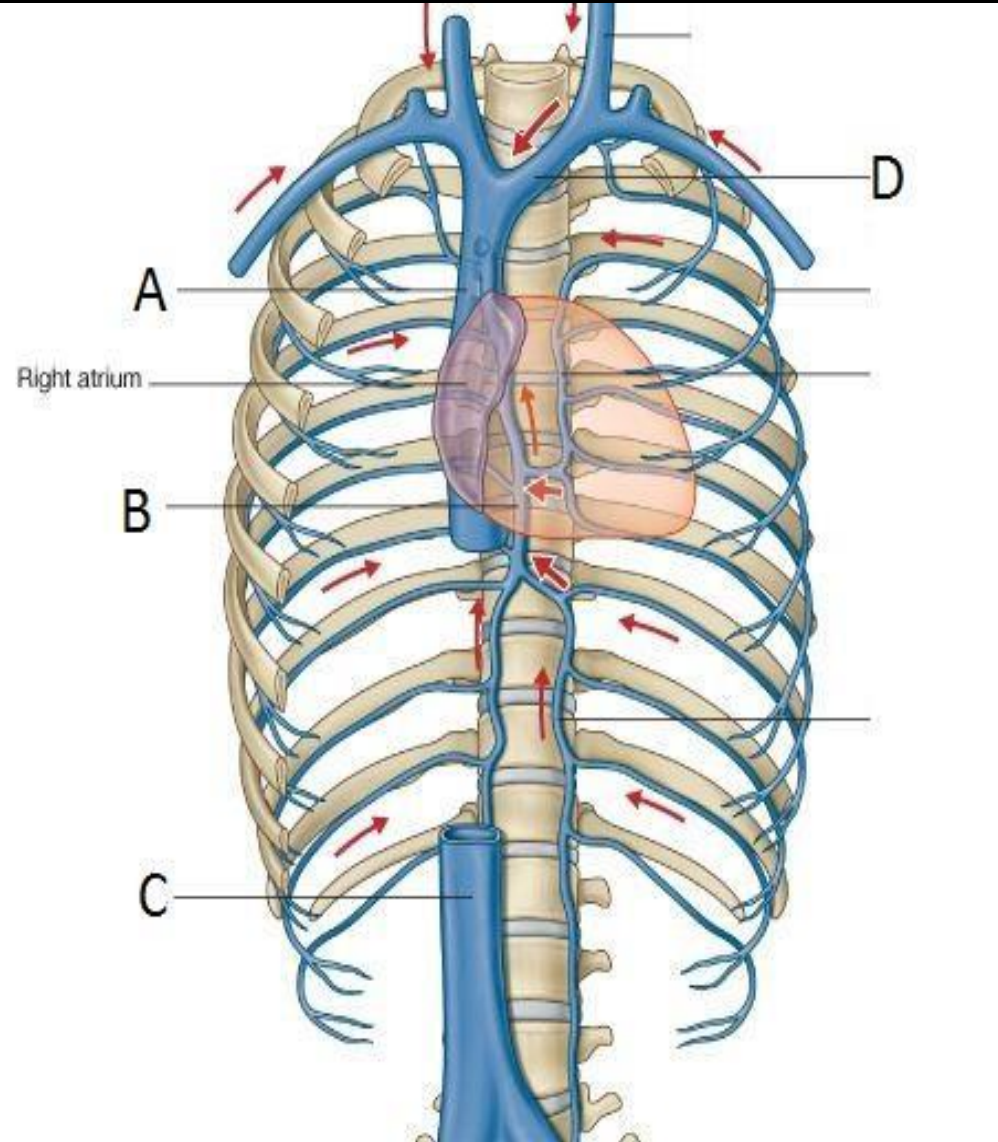
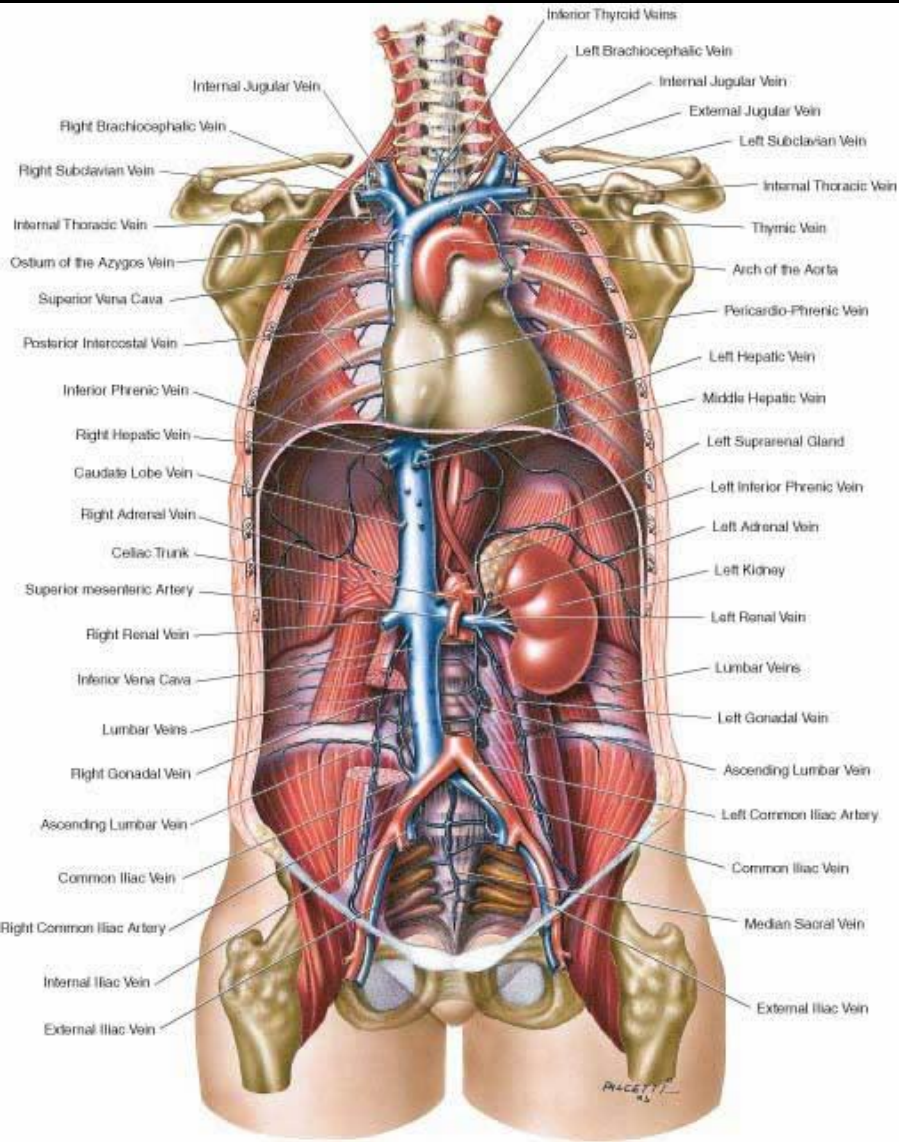


# Vena cava superior





## ***The system of vena cava superior***

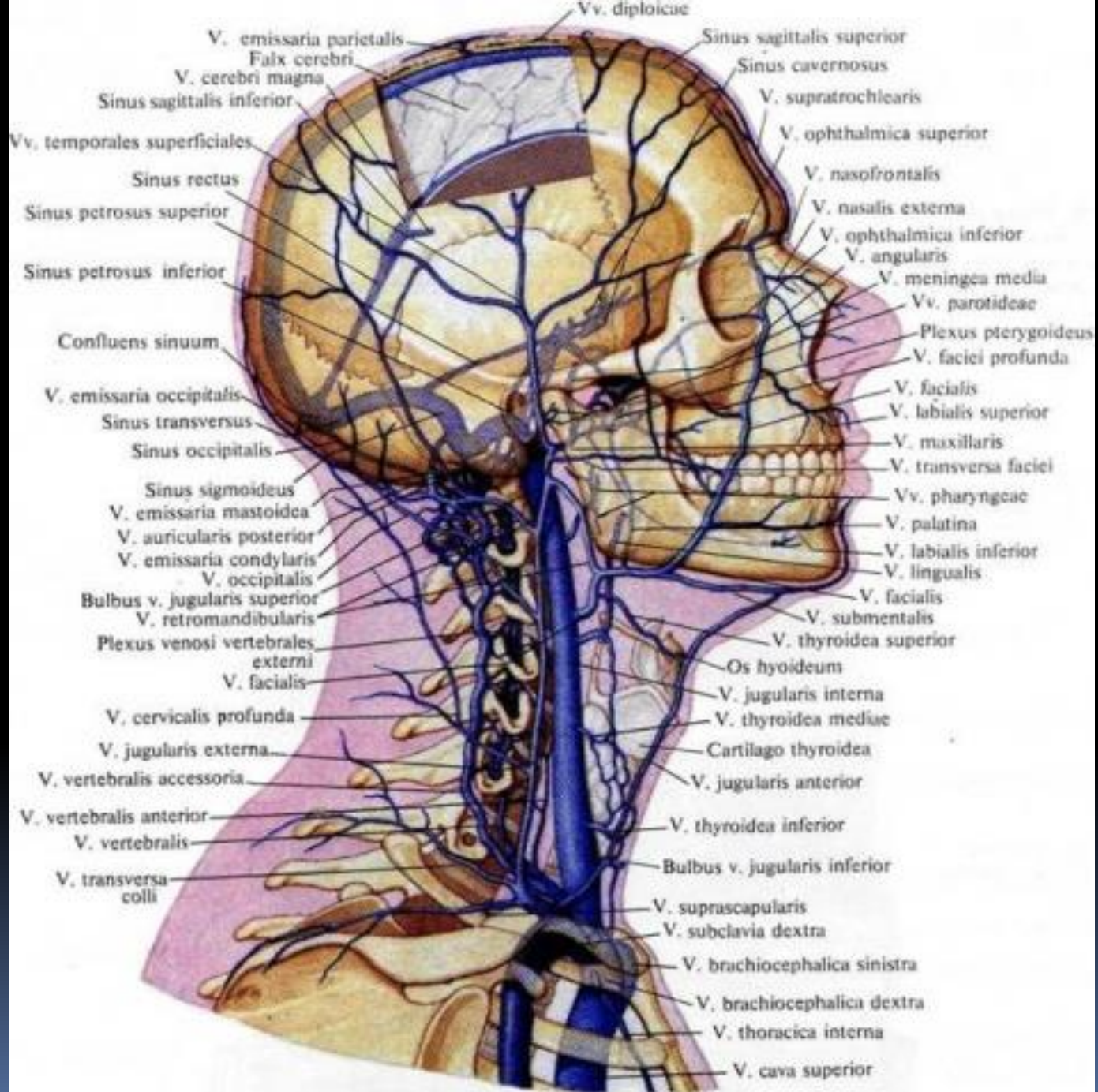
***The superior vena cava*** is a thick short trunk located to the right and posteriorly of the ascending aorta.

It is formed by the left and right brachiocephalic veins (also referred to as the innominate veins), behind the junction of the first right rib with the sternum. It descends vertically behind the first and second intercostal spaces, ends in the upper part of the right atrium opposite the upper border of the third right costal cartilage.

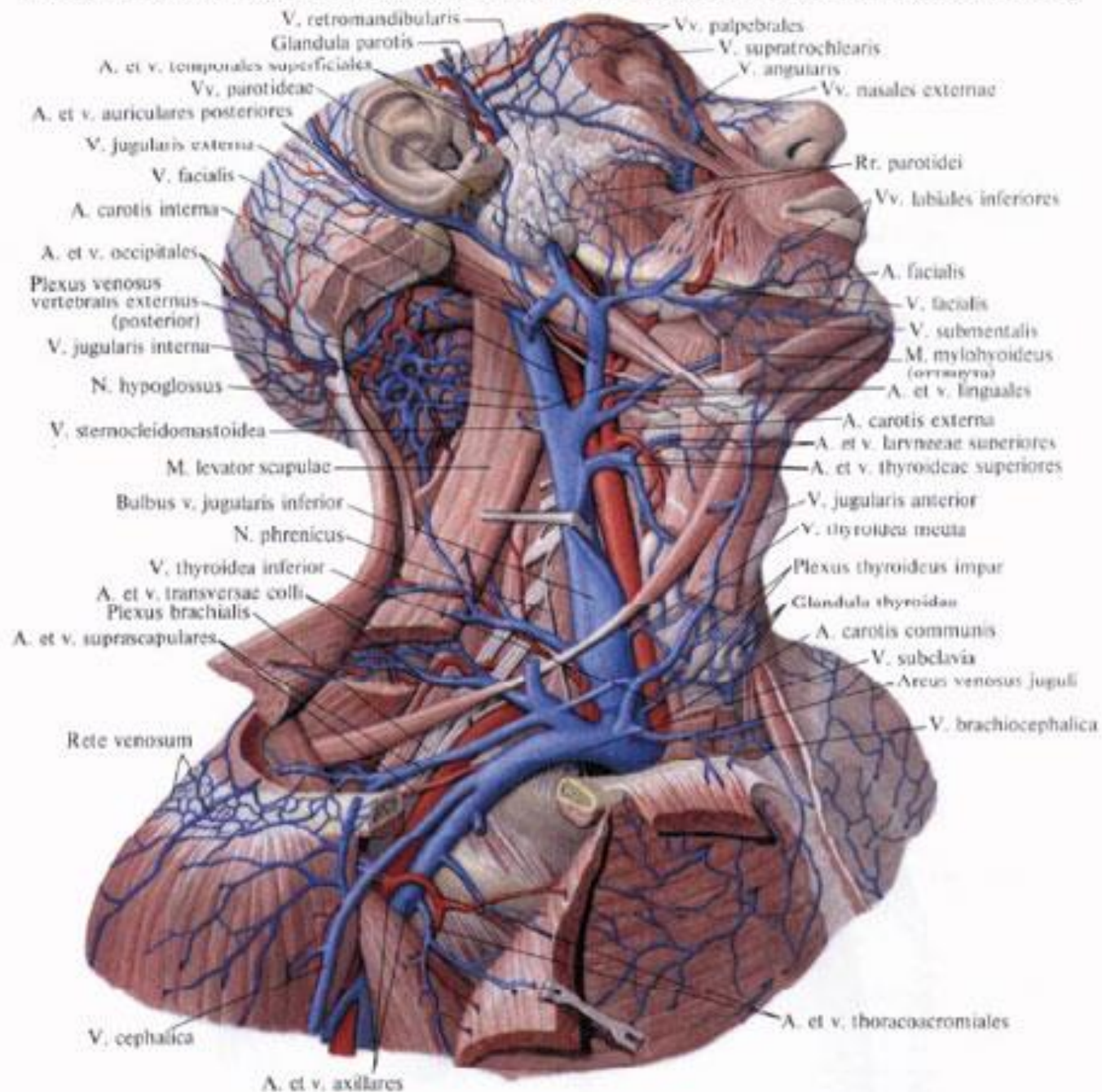
The azygos vein arches forward over the root of the right lung and drains into the v. cava superior.

# Innominate veins

The left and right brachiocephalic veins (or innominate) are two large trunks, formed by the union of the internal jugular and subclavian veins of the corresponding side at the level of the sternoclavicular joint. The left brachiocephalic vein (*v. anonyma sinistra*), is longer and larger than the right, being about 6-7 cm in length; the right innominate vein (*v. anonyma dextra*) is the shorter and smaller, being about 2.5 centimeters in length; Vv. thyroideae inferiores and v. thyroidea ima, originating from the venous plexus of the thyroid gland and the thymus drain into innominate veins.



# Вены и артерии головы, шеи и пояса верхней конечности, вид сбоку



# Internal jugular vein

The internal jugular vein (*v. jugularis interna*) collects the blood from the brain, from the superficial parts of the face, and from the neck. It is directly continuous with the sigmoid sinus, and begins in the jugular foramen, at the base of the skull. At its origin it is somewhat dilated, and this dilatation is called the superior bulb. It runs down, lying at first lateral to the internal carotid artery, and then lateral to the common carotid, and at the root of the neck unites at an angle (*angulus venosus juguli*) with the subclavian vein to form the innominate vein; a little above its termination is a second dilatation, the inferior bulb.

# Internal jugular vein

The extracranial tributaries of the internal jugular vein are:

1. The common facial vein (v. facialis communis), is formed from the union of the posterior facial (retromandibular) vein and the anterior facial (facial) vein. The anterior facial vein collects the blood from the corresponding branches of facial artery;
2. The posterior facial vein (v. retromandibularis) collects blood from the temporal region and pterygoid plexus. It is formed by the union of the superficial temporal and maxillary veins. It passes through the parotid gland, then divides into an anterior branch and a posterior branch. The anterior passes forward and joins the facial vein, forming the common facial vein. The posterior joins the posterior auricular vein, becoming the external jugular vein;

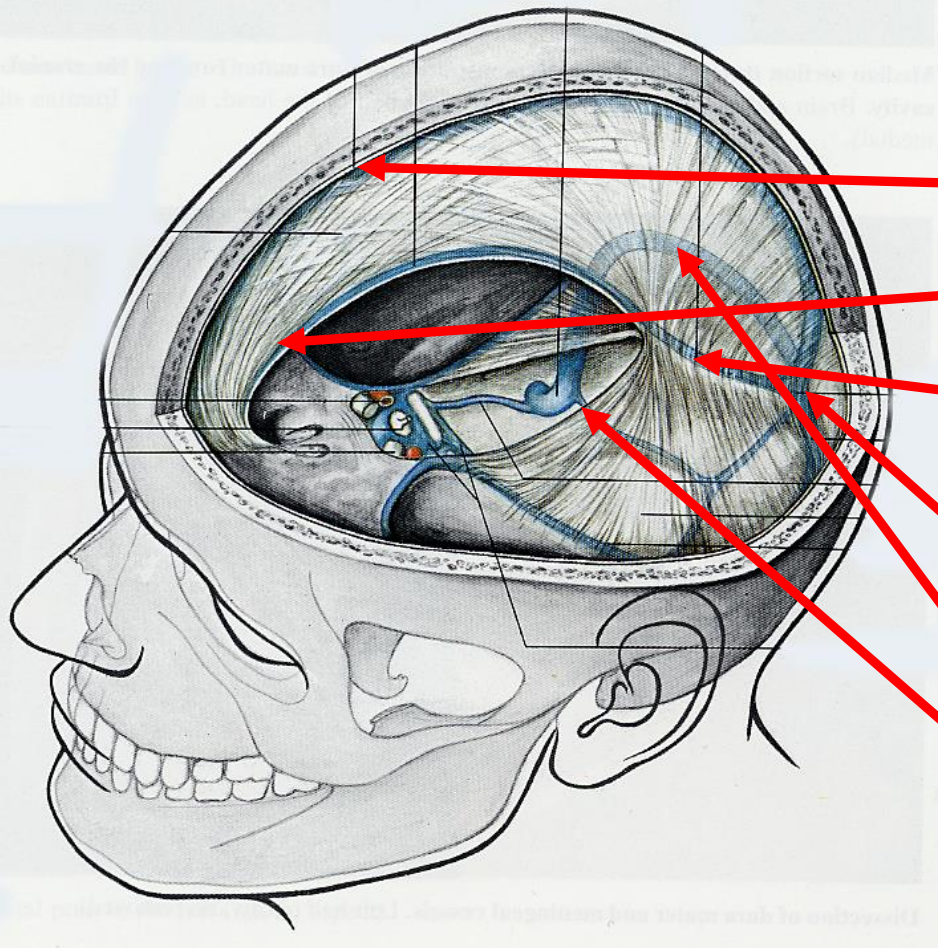
## Internal jugular vein

3. The pharyngeal veins (vv. pharyngeae) *begin* in the pharyngeal plexus on the outer surface of the pharynx and end in the internal jugular vein;
4. The lingual vein (v. lingualis) accompanies the artery of the same name;
5. The superior thyroid veins (vv. thyroidea superiores), collect the blood from the upper part of the gland and the larynx;
6. The middle thyroid vein (v. thyroidea media) collects the blood from the lower part of the thyroid gland.

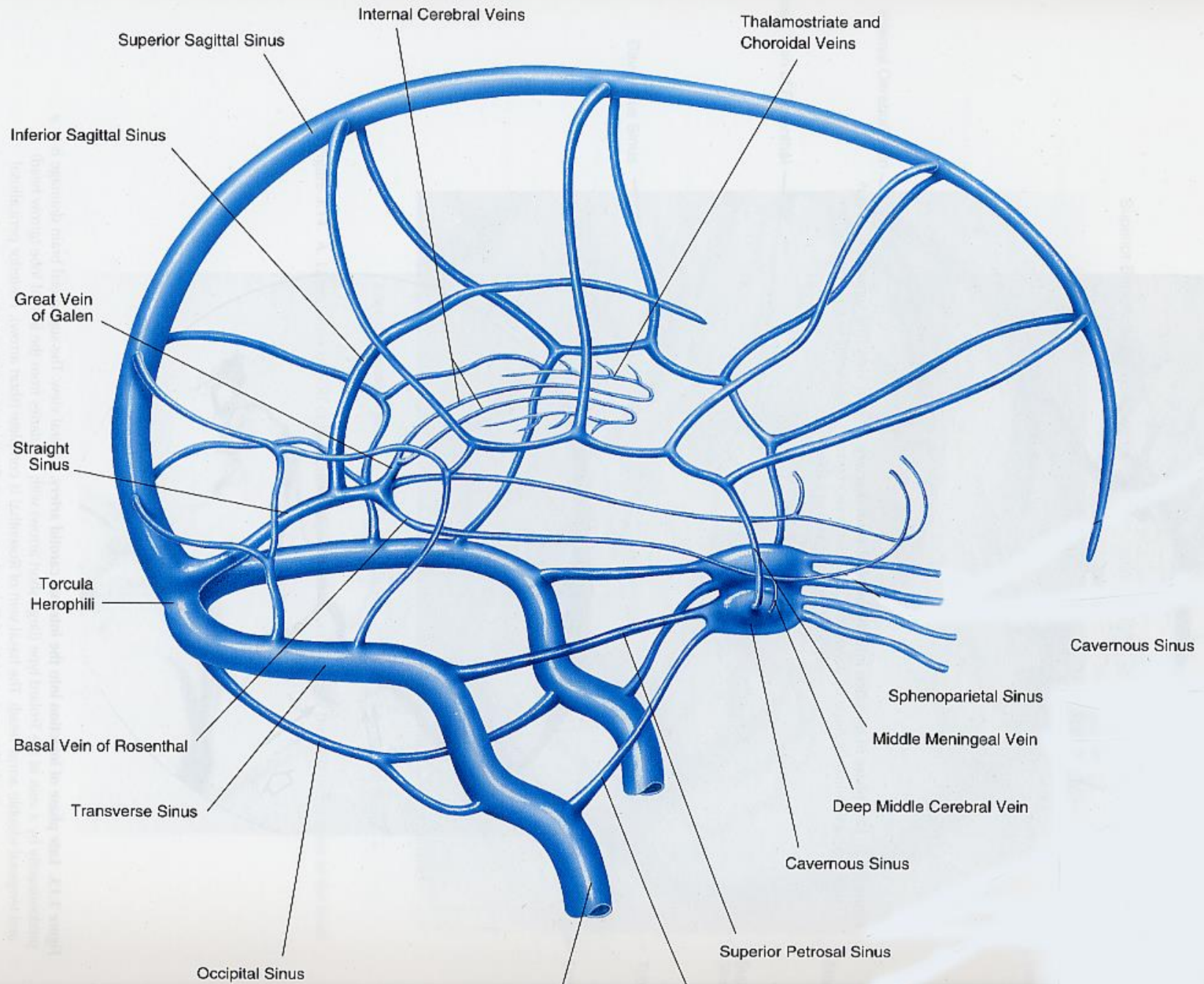
The intracranial tributaries of the internal jugular vein are:

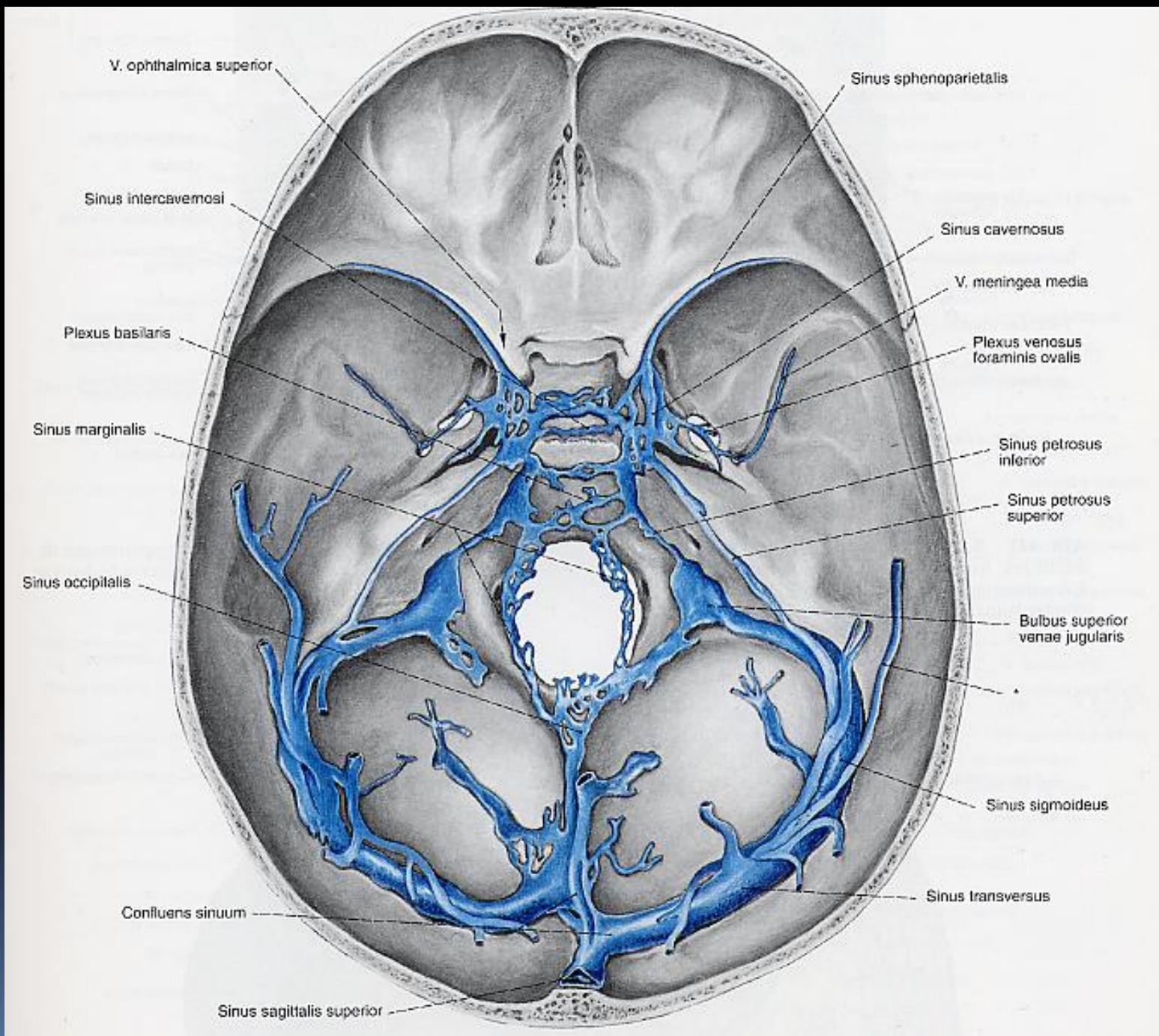
1. The superficial and deep veins of the brain;
2. The venous blood from the sinuses;
3. The diploic veins.



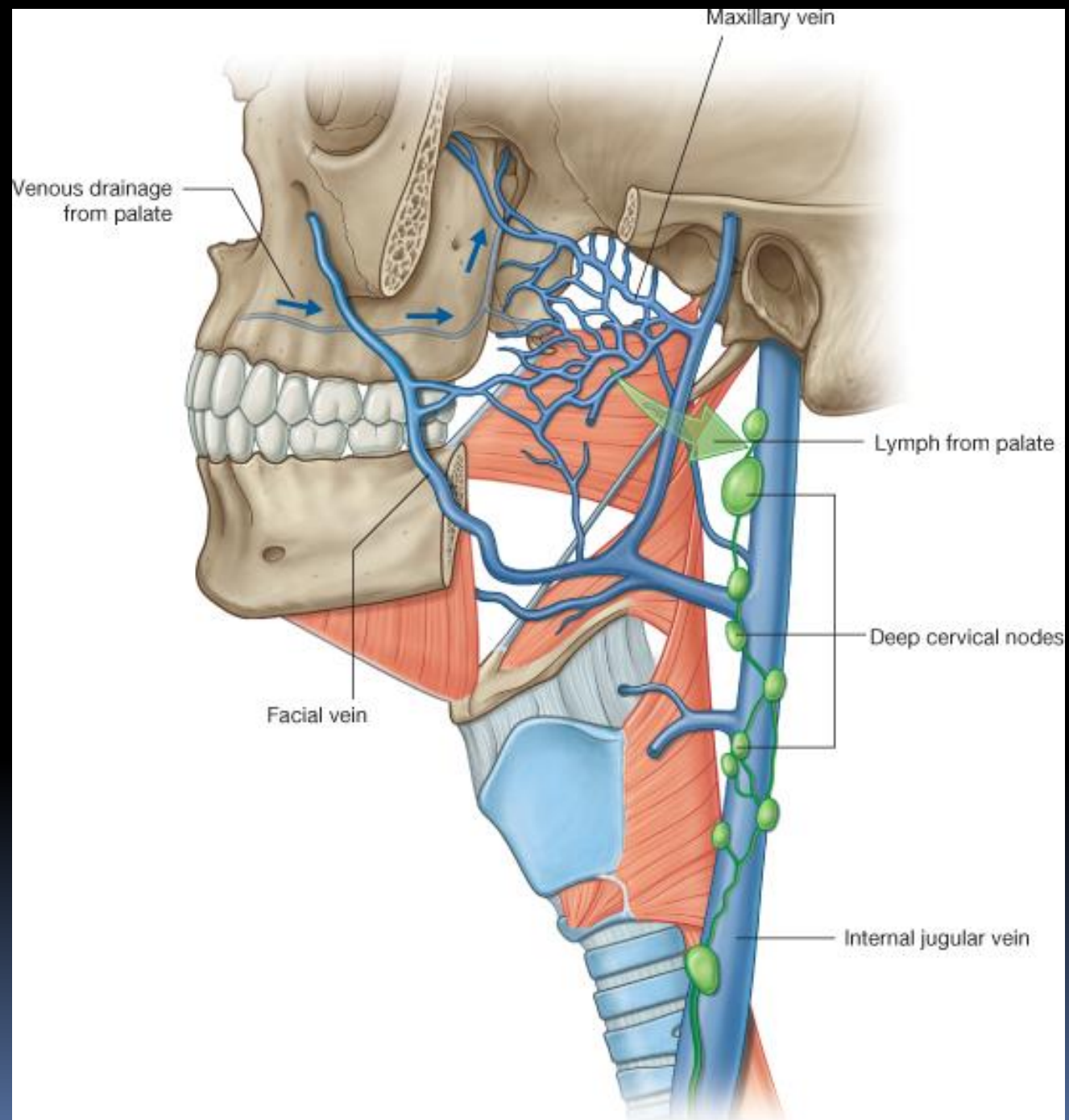


sinus sagittalis superior  
sinus sagittalis inferior  
sinus rectus  
confluens sinuum  
sinus transversum  
sinus sigmoideus









A

Zygomatofacial artery and vein

Transverse facial artery and vein

Zygomatotemporal artery and vein

Superficial temporal artery and vein

Supratrochlear artery and vein

Supra-orbital artery and vein

Angular artery and vein

Lateral nasal artery and vein

Superior labial artery and vein

Inferior labial artery and vein

Facial artery

Facial vein

External carotid artery

Posterior auricular vein

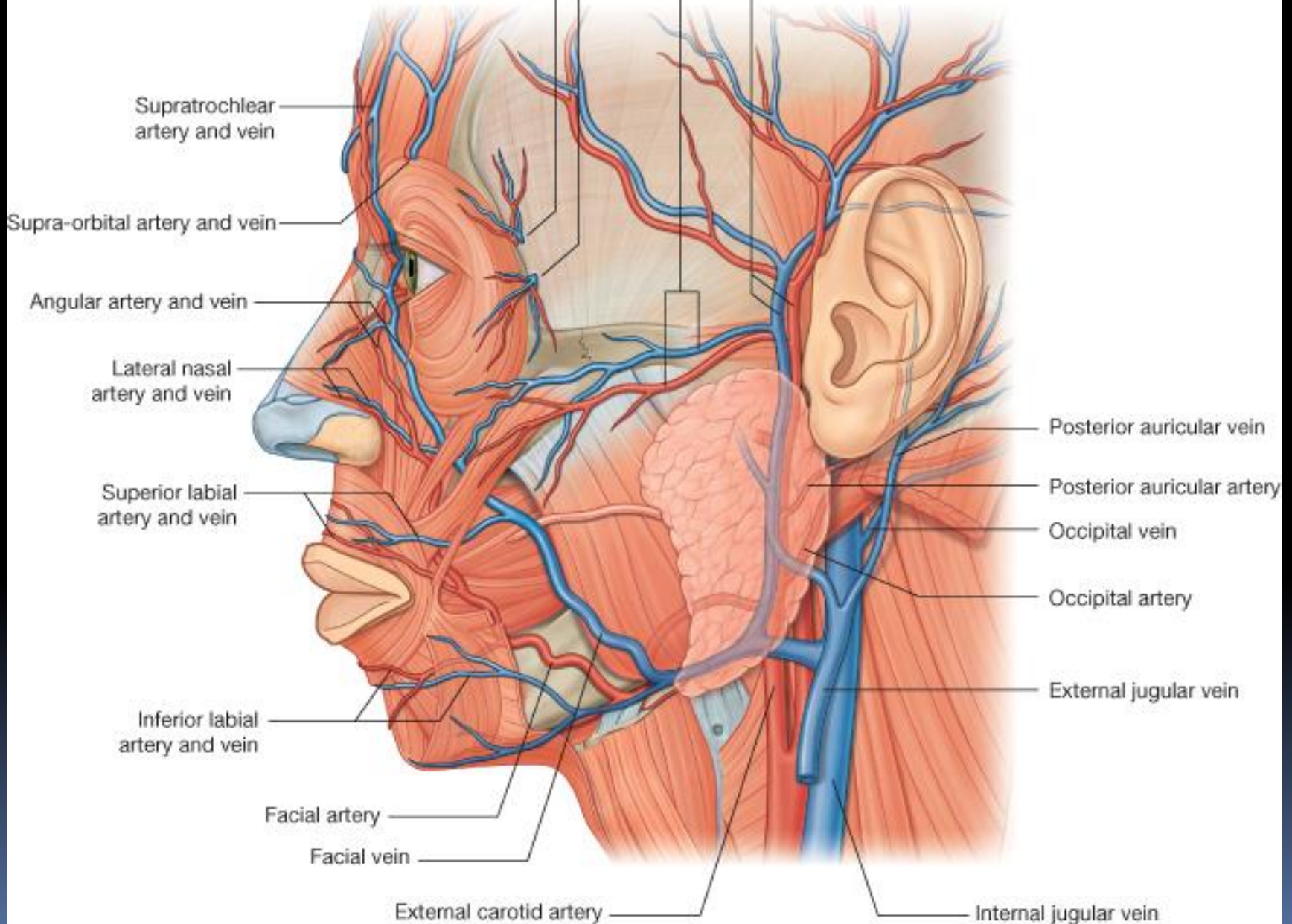
Posterior auricular artery

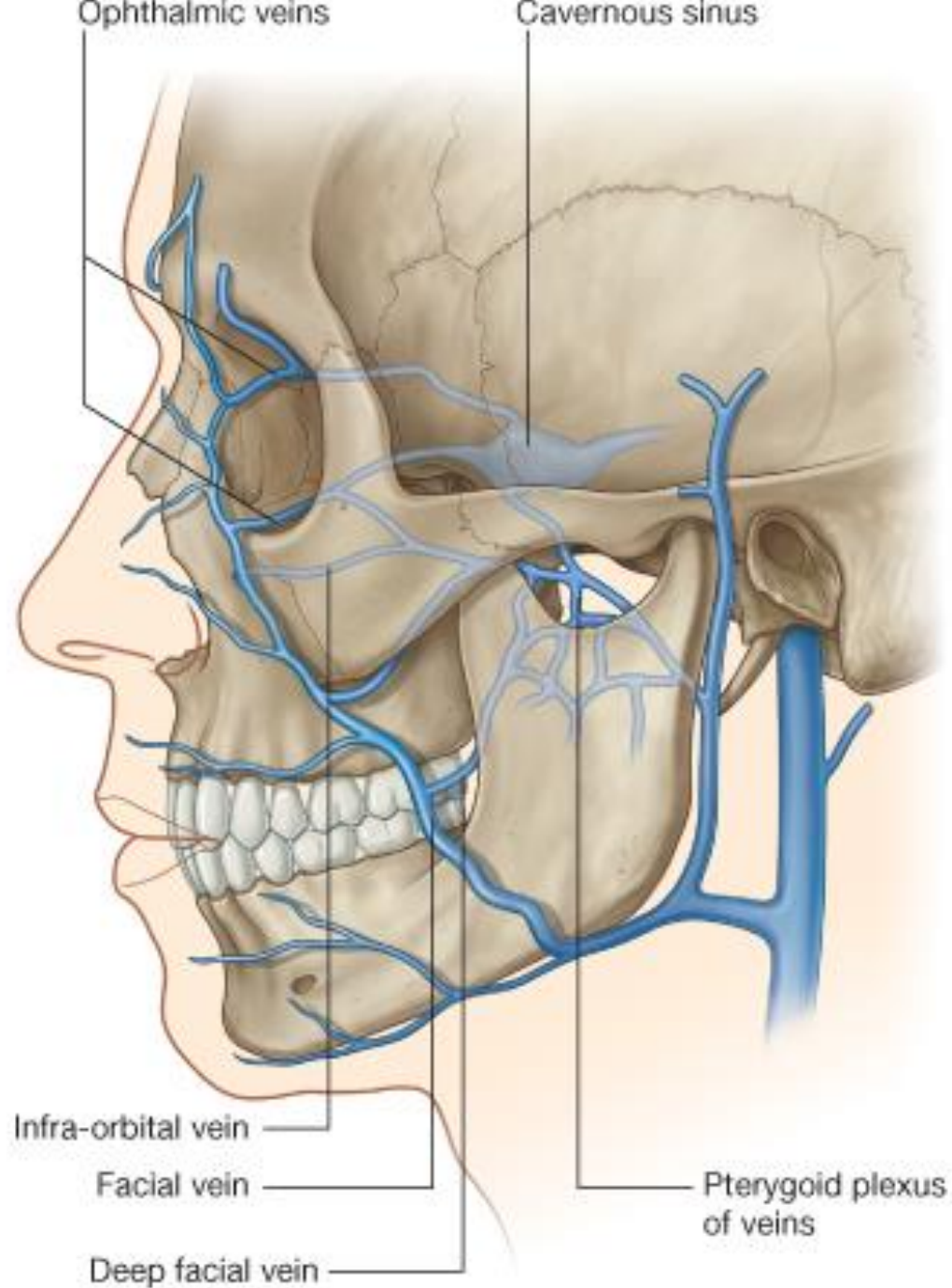
Occipital vein

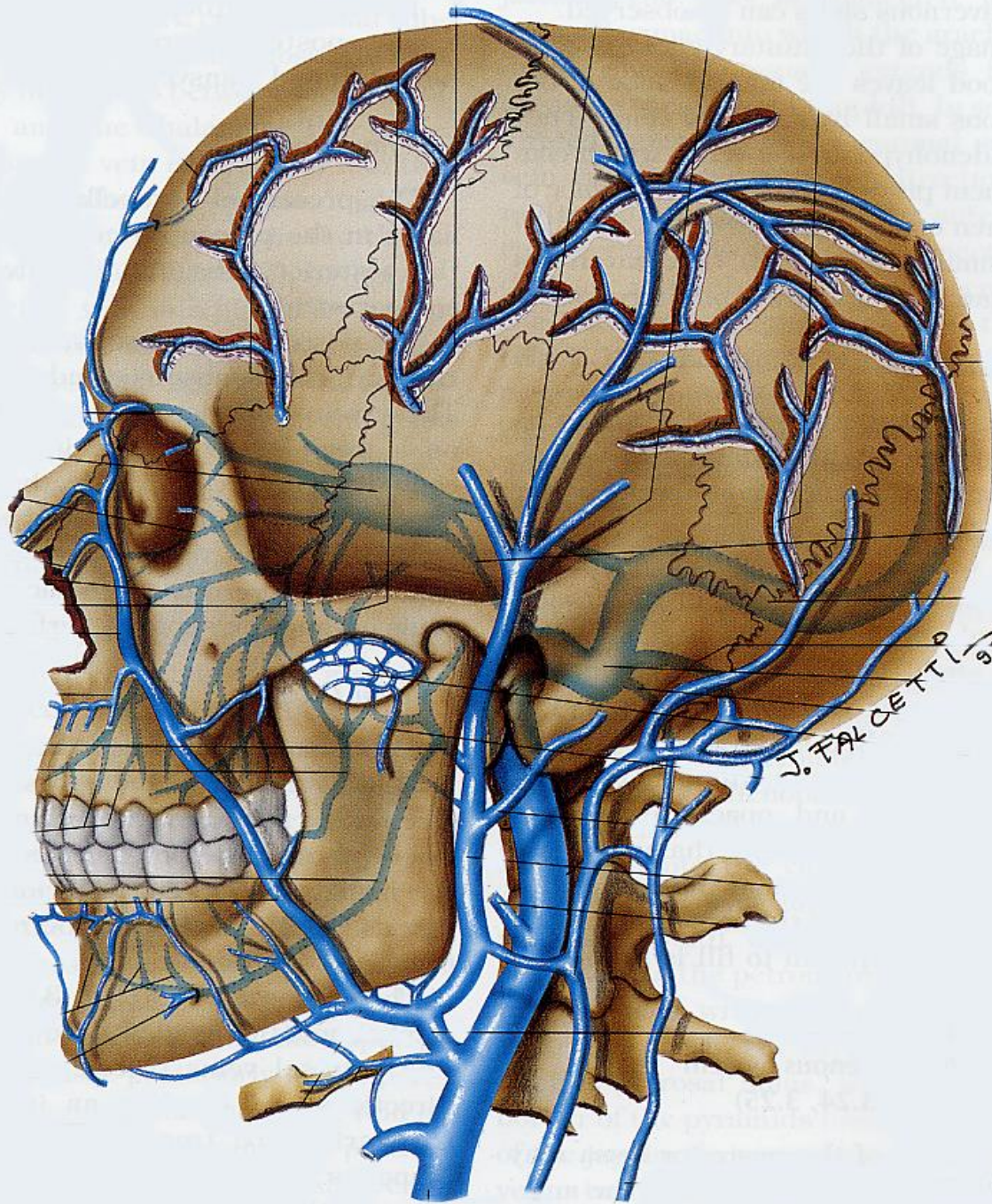
Occipital artery

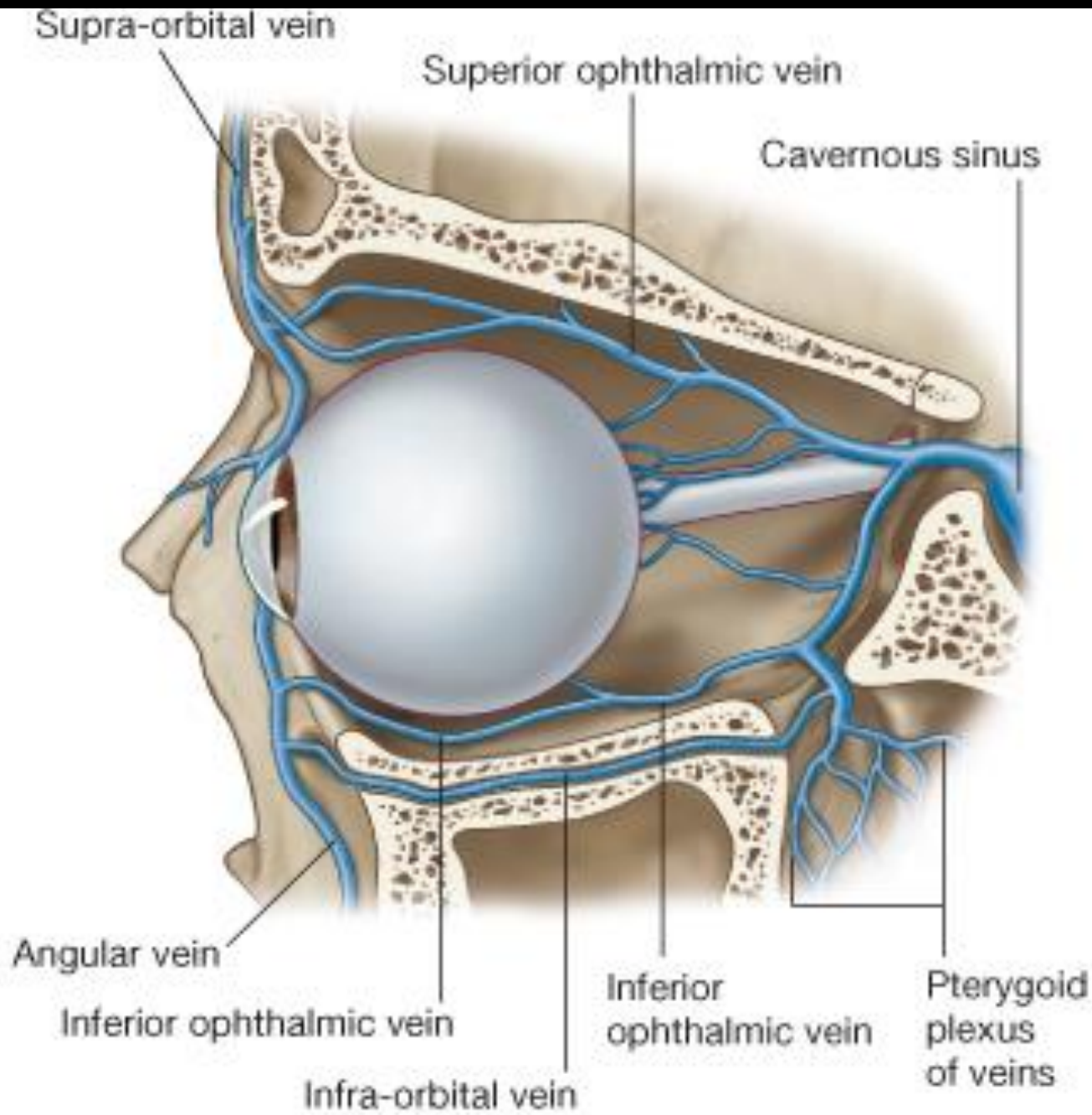
External jugular vein

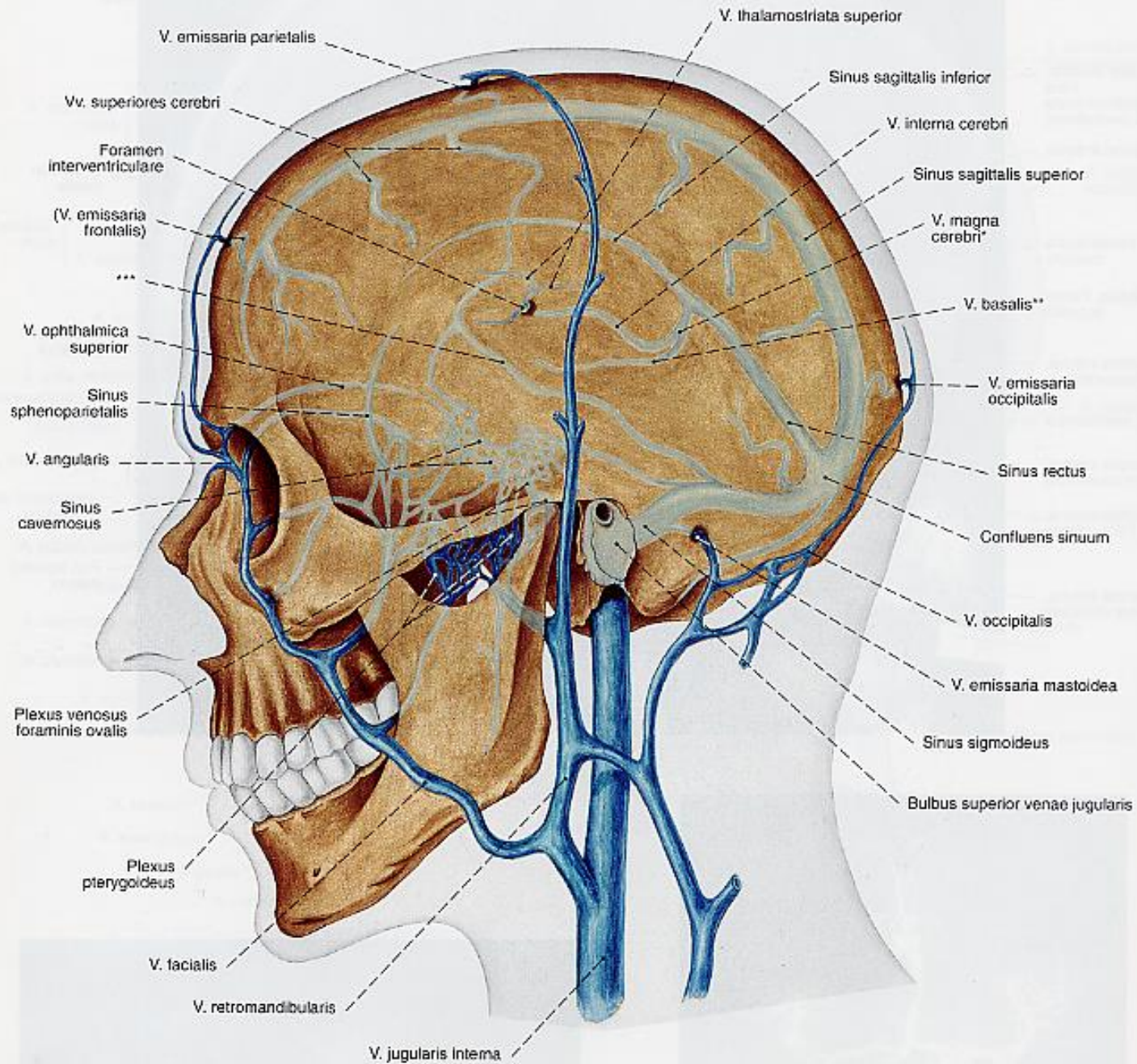
Internal jugular vein

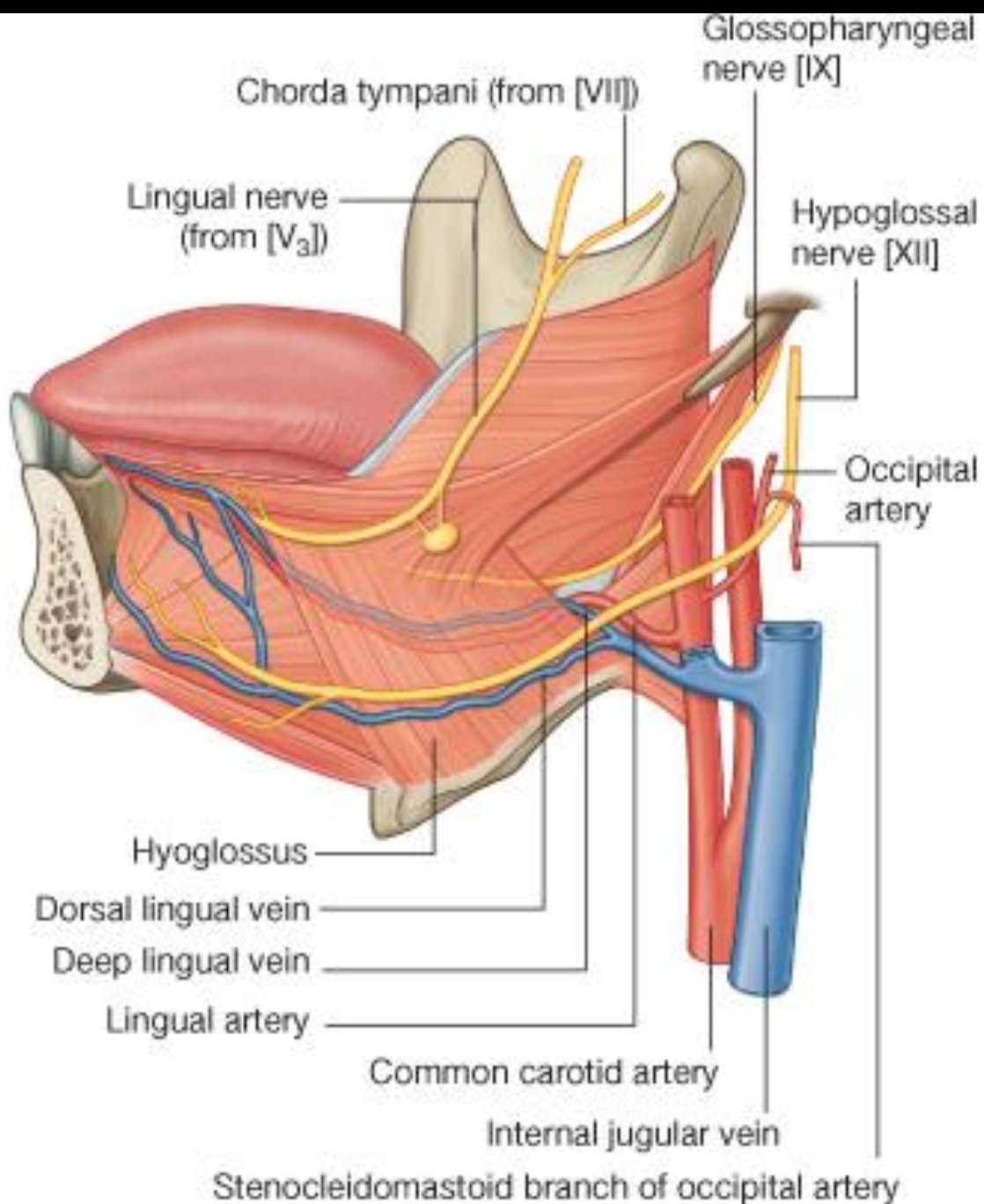


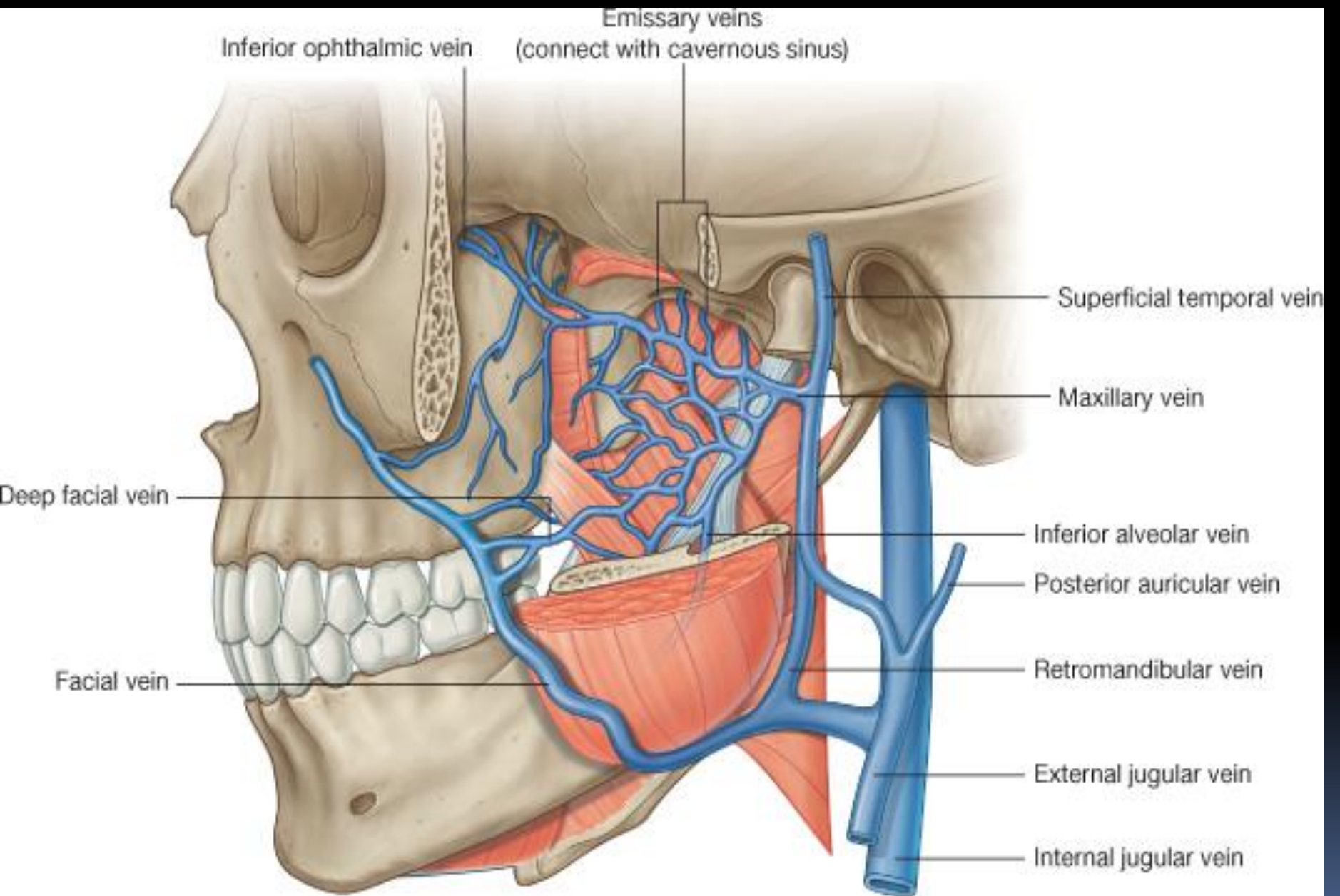


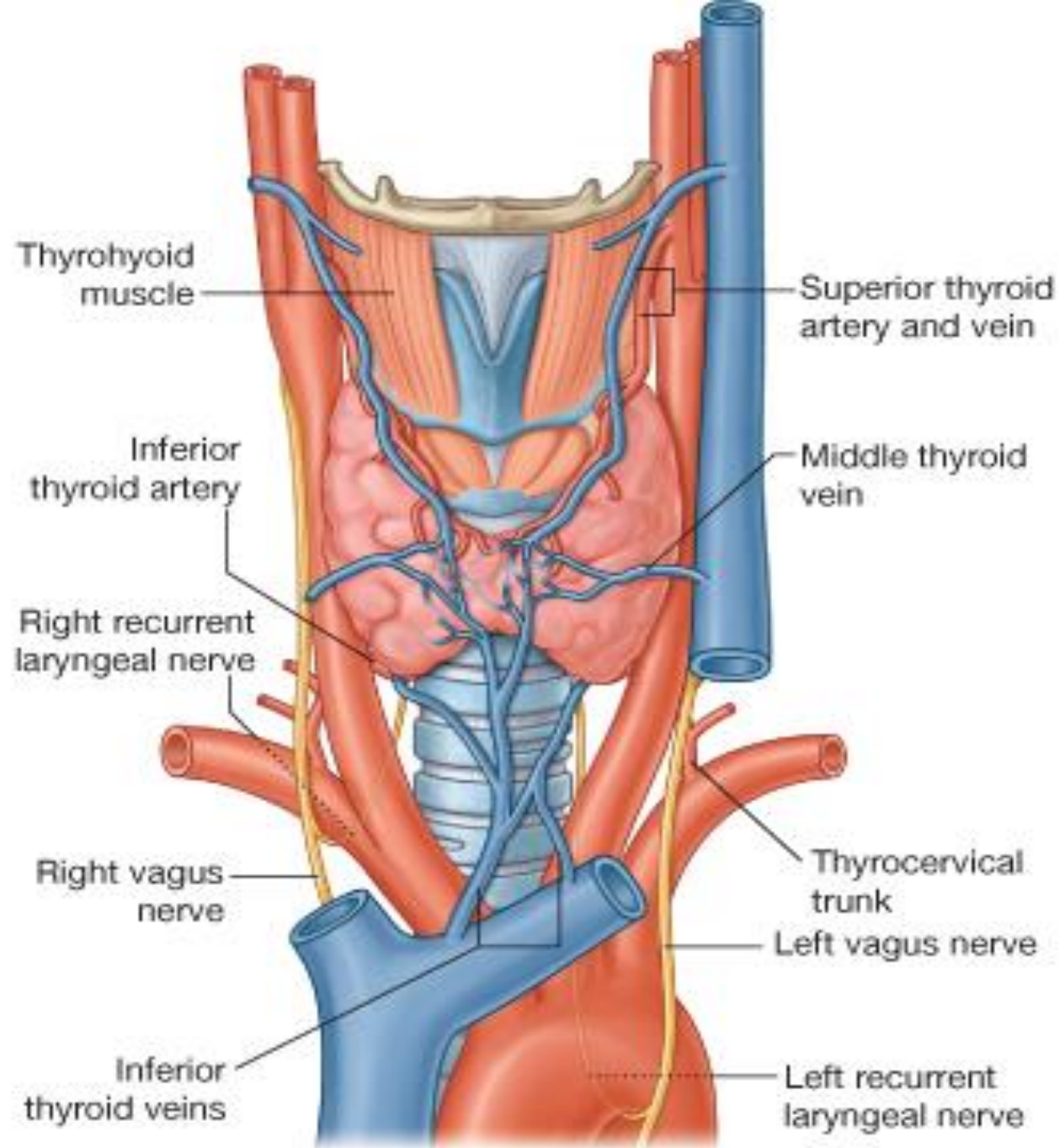


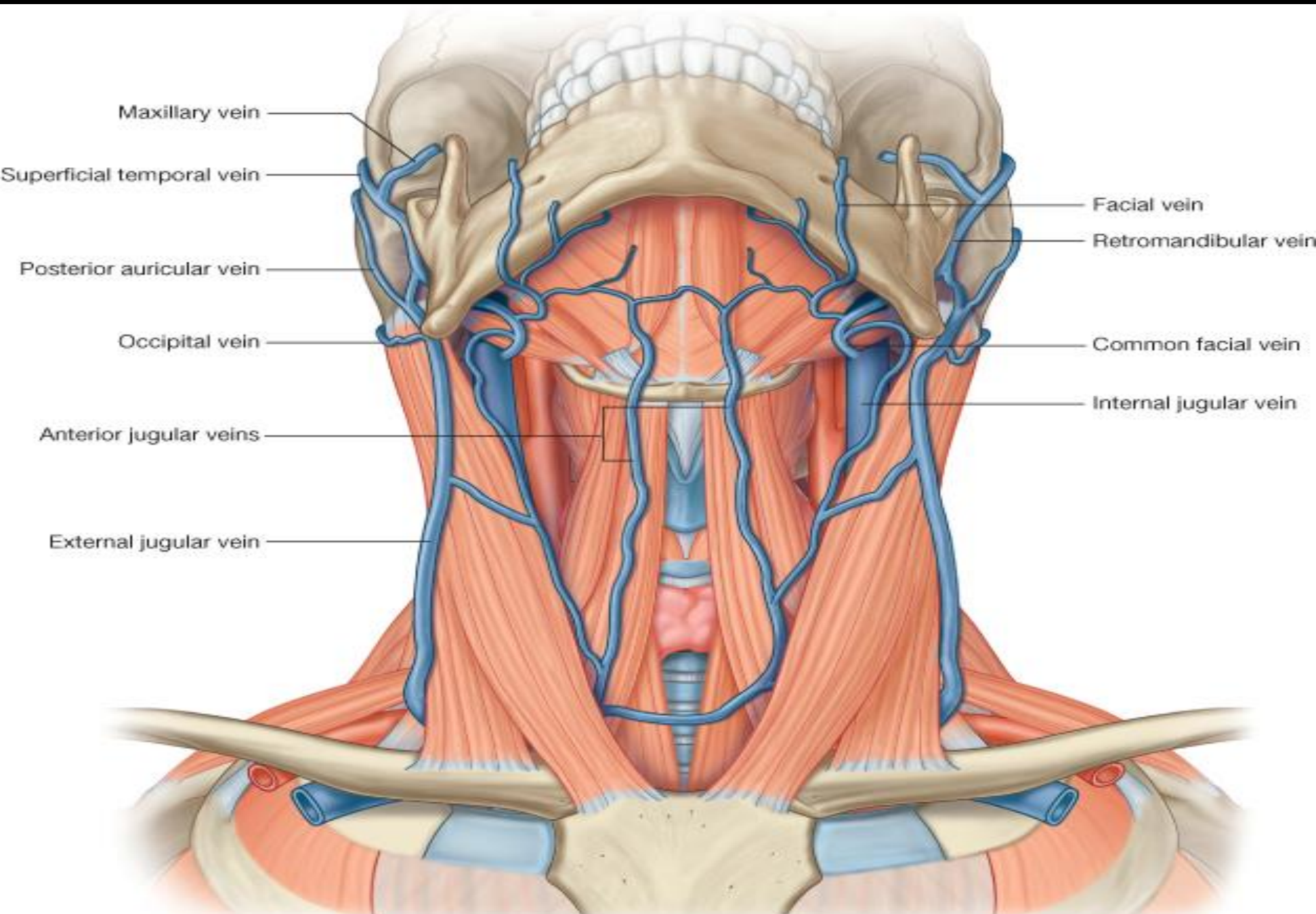




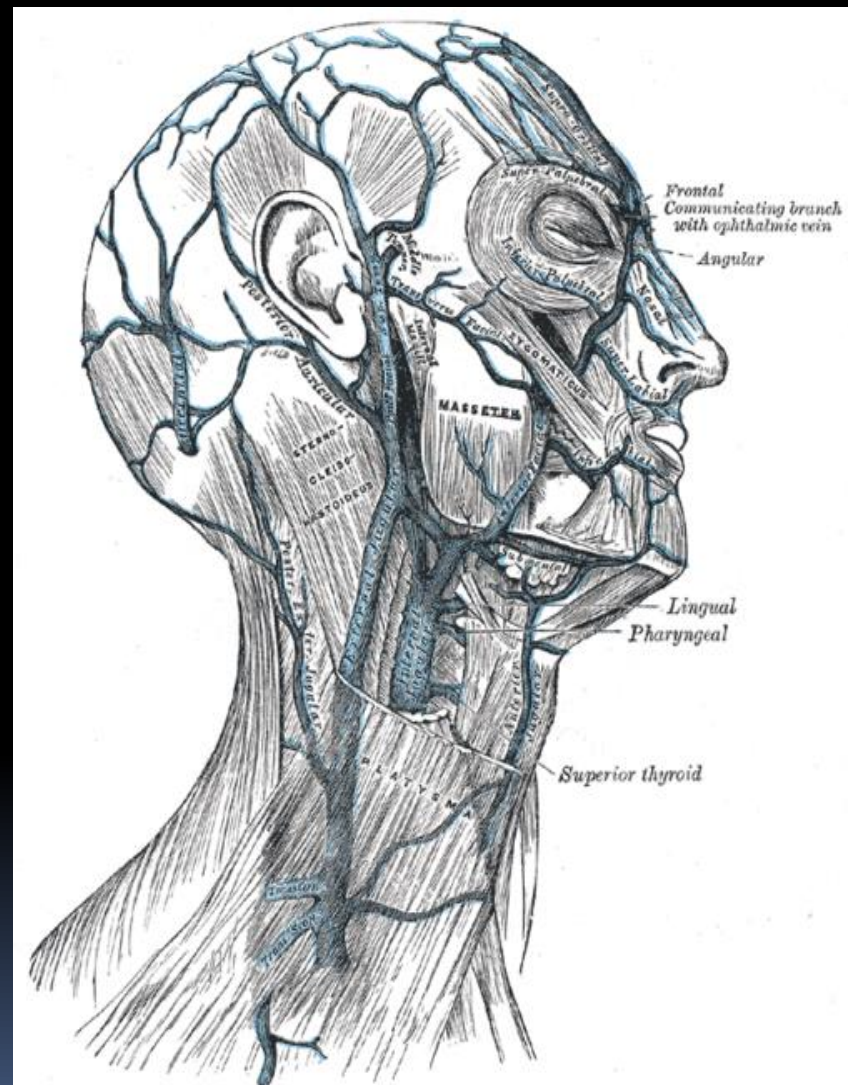
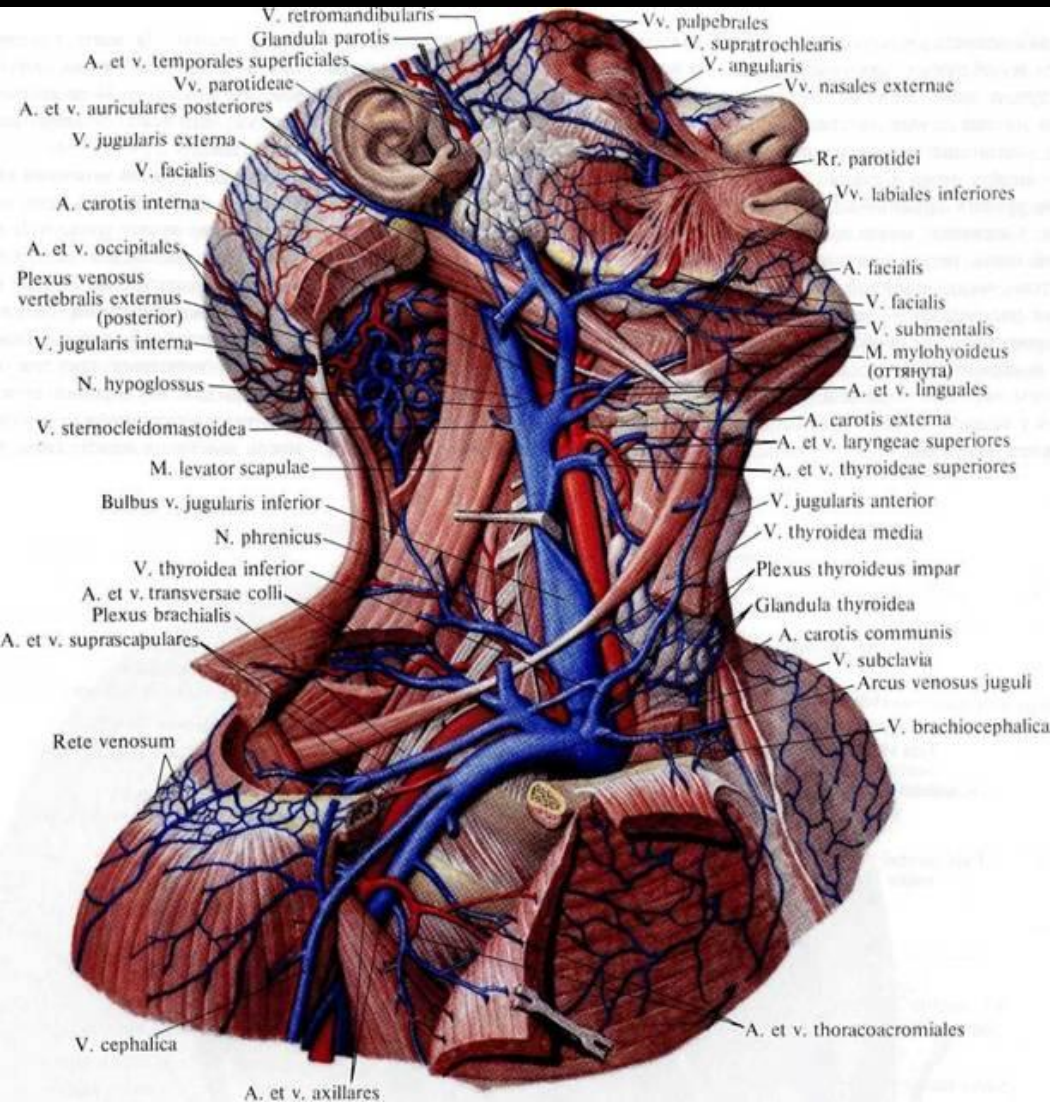




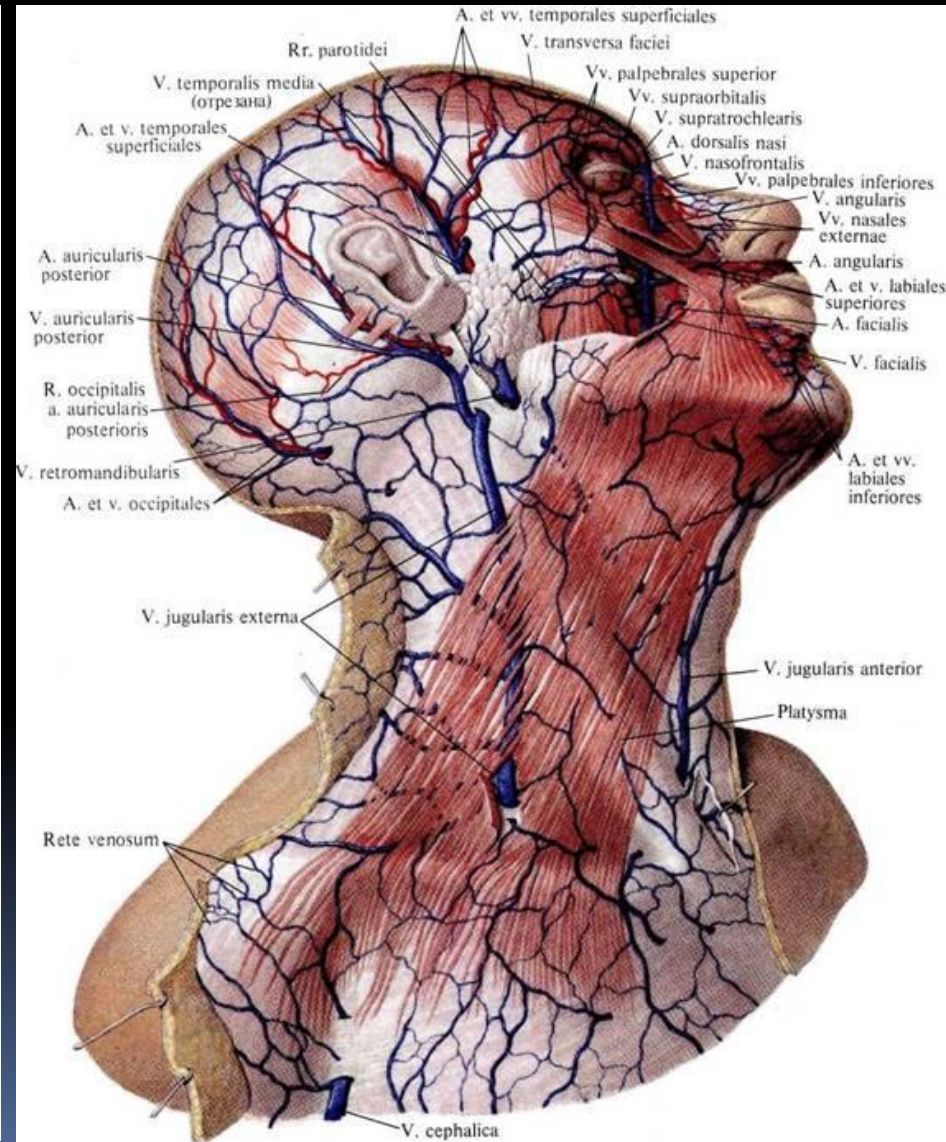
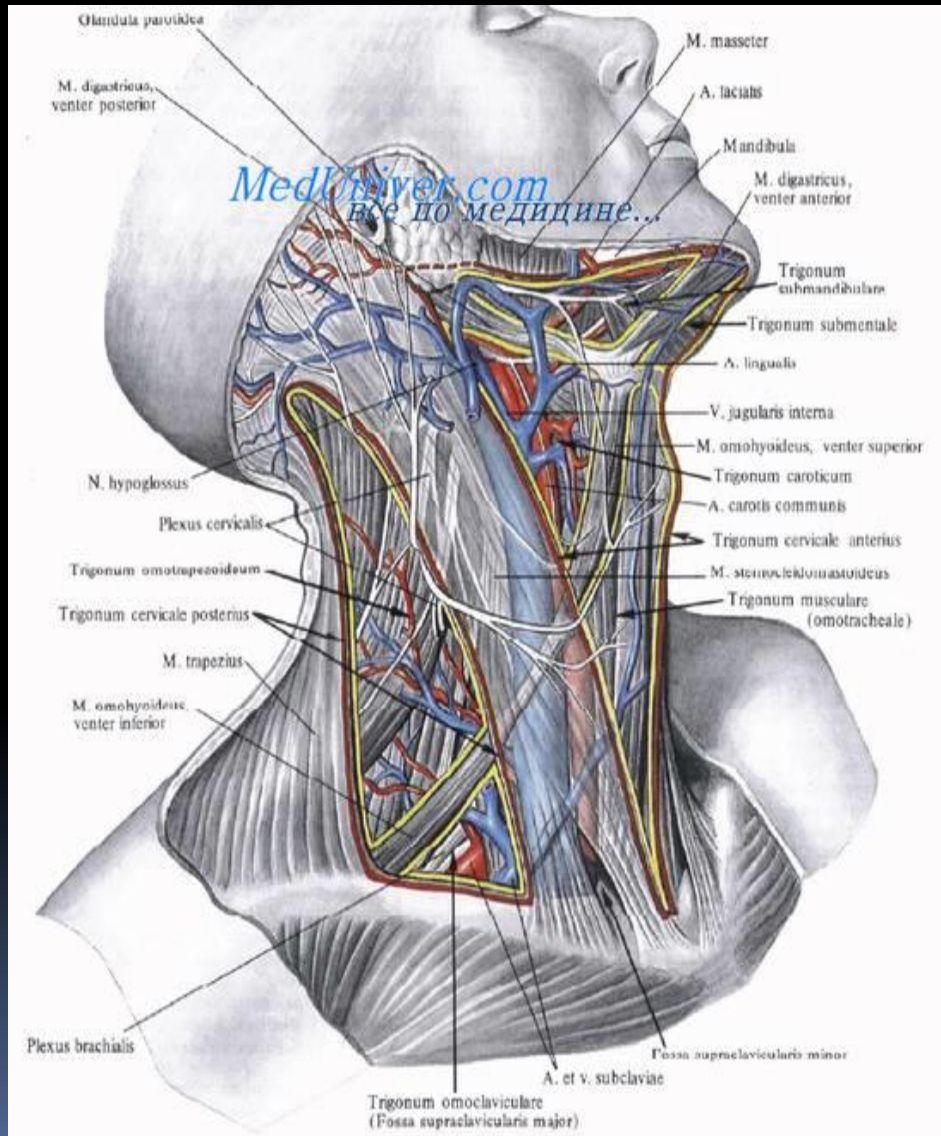




# V. RETROMANDIBULARIS

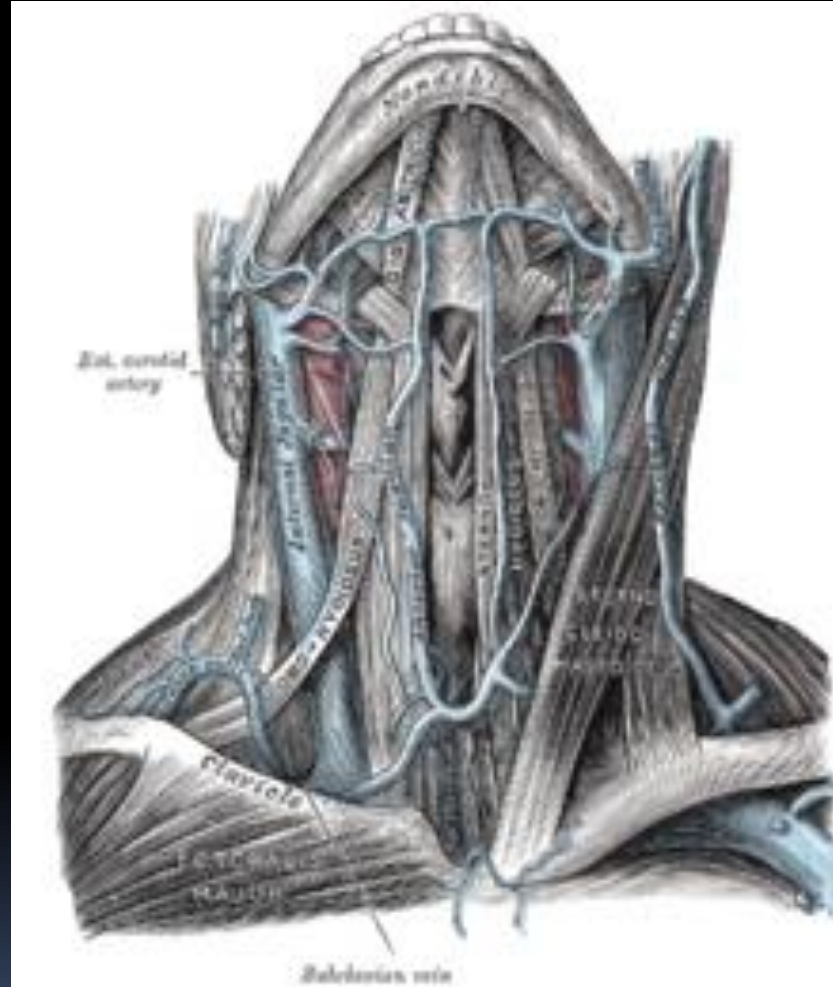
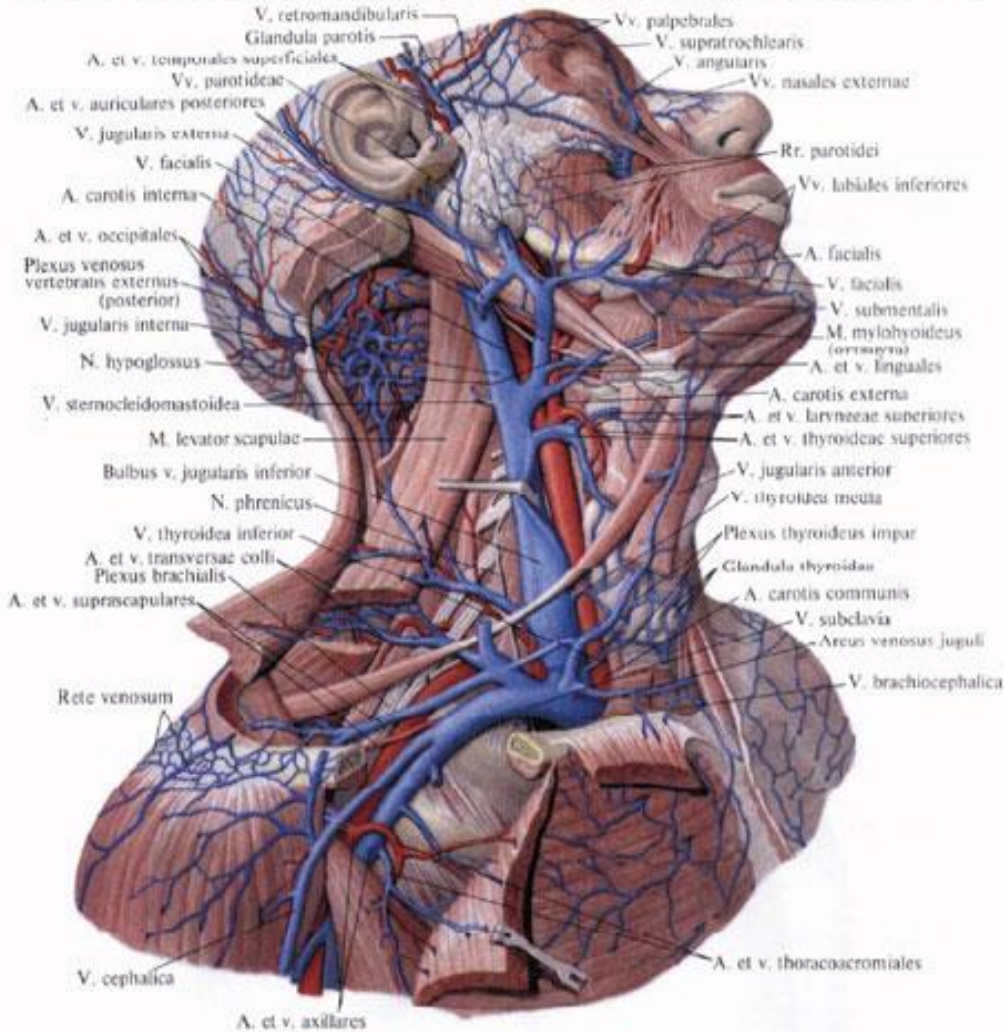


# External jugular vein



# Anterior jugular vein

## Вены и артерии головы, шеи и пояса верхней конечности, вид сбоку



# External jugular vein

The external jugular vein begins in the substance of the parotid gland, and is formed by the union of the posterior auricular vein and the posterior division of the retromandibular vein. It runs down the neck in a line drawn from the angle of the mandible to the middle of the clavicle, at the posterior border of the sternocleidomastoid and then crossing it, ending in the subclavian vein or venous angle. In its course external jugular vein is covered by the platysma.

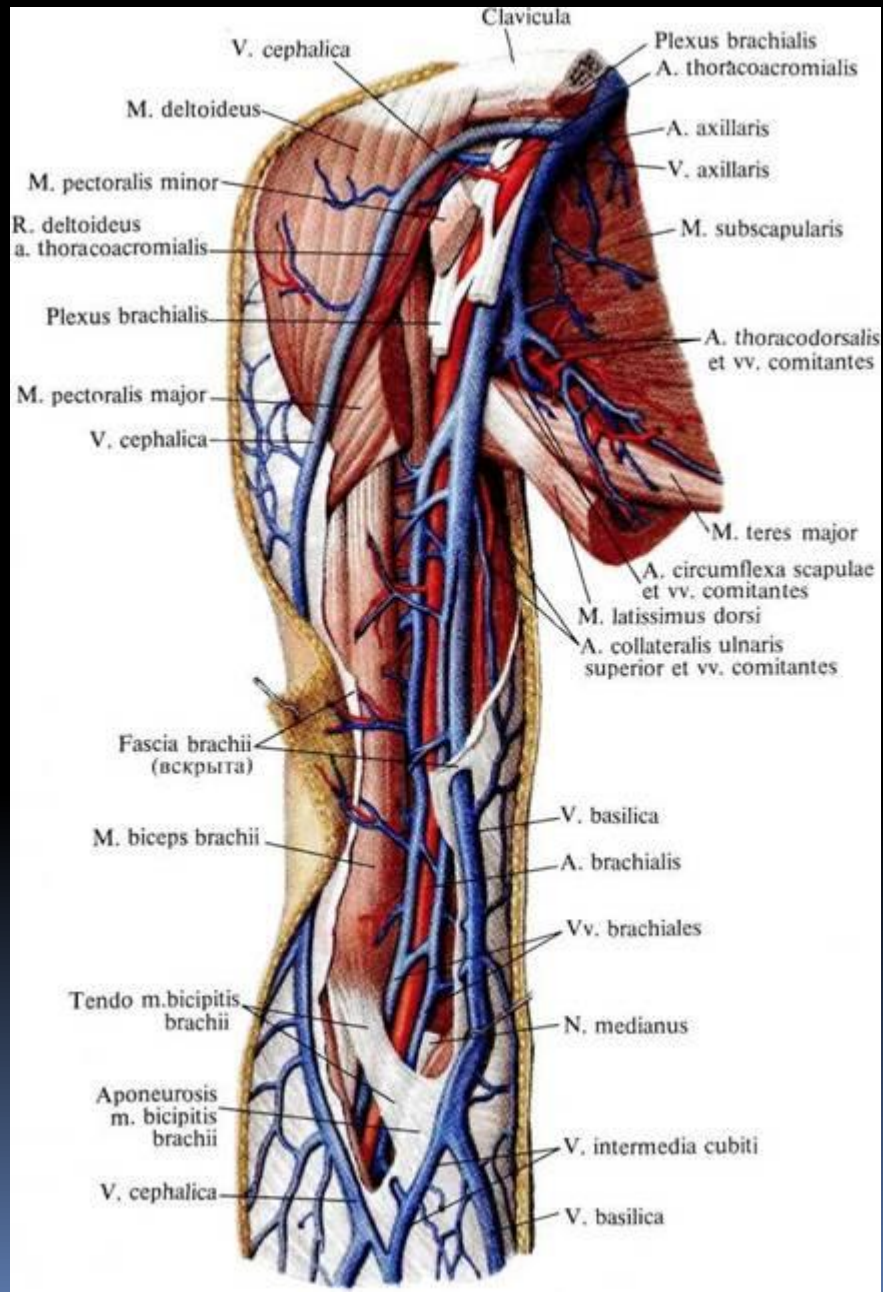
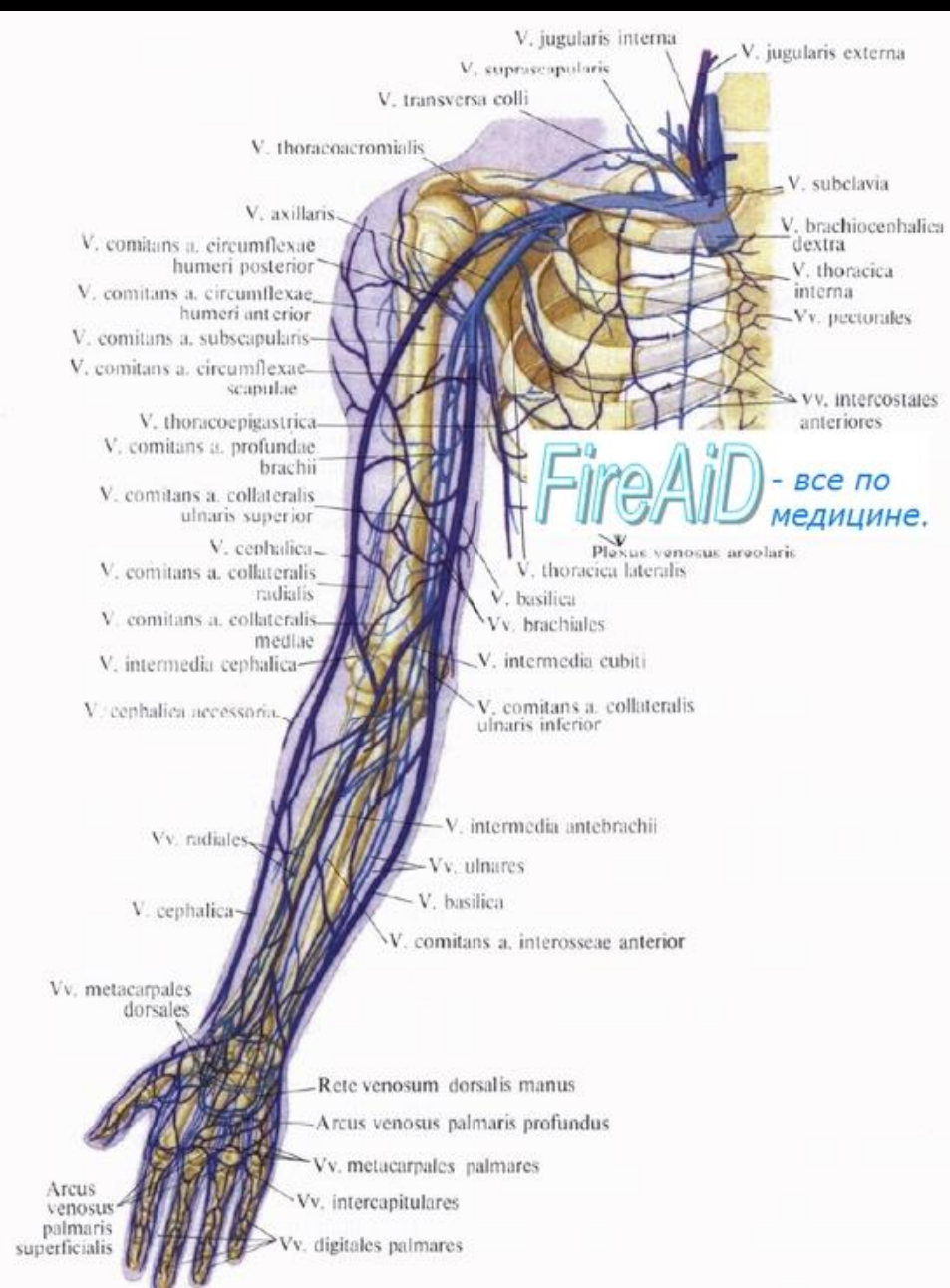
The tributaries are:

- 1.v. auricularis posterior;
- 2.v. occipitalis;
3. posterior branch of the retromandibular vein

## Anterior jugular vein

The anterior jugular vein (*v. jugularis anterior*) begins near the hyoid bone by the confluence of several superficial veins from the submandibular region. It descends between the median line and the anterior border of the Sternocleidomastoideus, and, at the lower part of the neck, passes beneath that muscle to open into the termination of the external jugular. Most frequently there are two anterior jugulars, a right and left; but sometimes only one. Just above the sternum the two anterior jugular veins communicate by a transverse trunk, the venous jugular arch (*arcus venosus juguli*).

# The veins of the upper extremity



# The veins of the upper extremity

The veins of the upper extremity are divided into two sets, superficial and deep.

The superficial veins are:

1. The cephalic vein;
2. The basilic vein;
3. The median cubital vein.

The superficial veins are placed immediately beneath the integument.

The cephalic vein (v. cephalica) begins in the radial part of the dorsal venous network and winds upward around the radial border of the forearm. In the arm it ascends in the groove along the lateral border of the Biceps brachii (sulcus bicipitalis lateralis). In the upper third of the arm it passes between the Pectoralis major and Deltoideus. Then it pierces the fascia in deltoideopectoral triangle and ends in the axillary vein just below the clavicle.

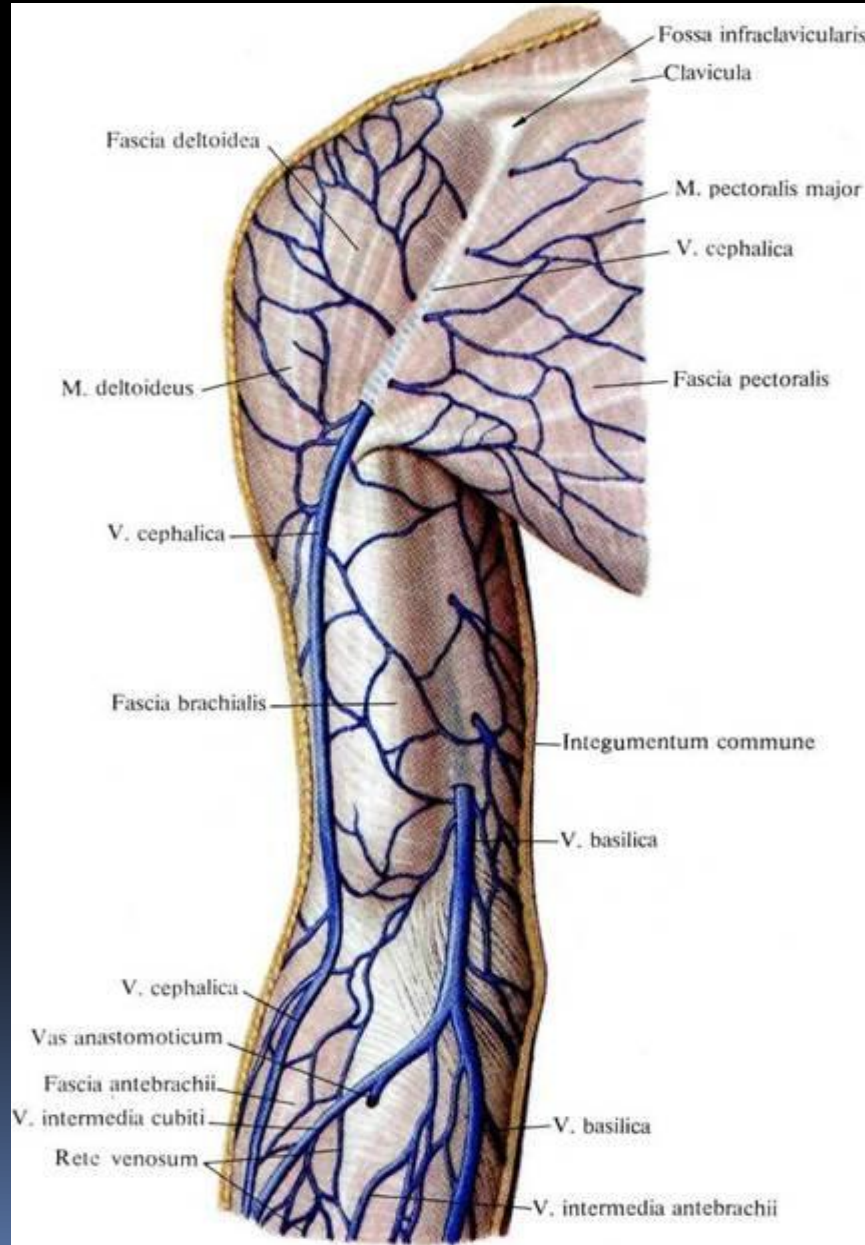
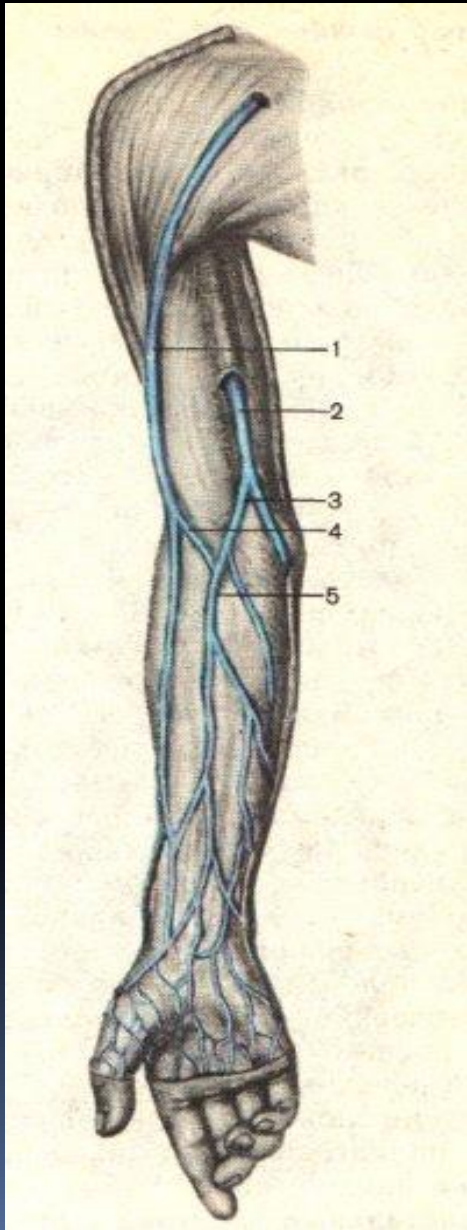
Below the front of the elbow it gives off the v. mediana cubiti which anastomoses with the basilic vein.

# The veins of the upper extremity

The basilic vein (v. basilica) begins in the ulnar part of the dorsal venous network. It runs up the posterior surface of the ulnar side of the forearm and inclines forward to the anterior surface below the elbow, where it is joined by the vena mediana cubiti. It then runs upward along the medial border of the Biceps brachii (sulcus bicipitalis medialis), perforates the fascia a little below the middle of the arm, and drains into v. brachialis.

The median cubital vein (v. mediana cubiti) connects the v. basilica and v. cephalica in the region of the elbow, it receives blood from the v. mediana antebrachii, which carry blood from palmar side of the hand and forearm.

# The veins of the upper extremity



# The veins of the upper extremity

The deep veins follow the course of the arteries. They are generally arranged in pairs, and are situated one on either side of the corresponding artery.

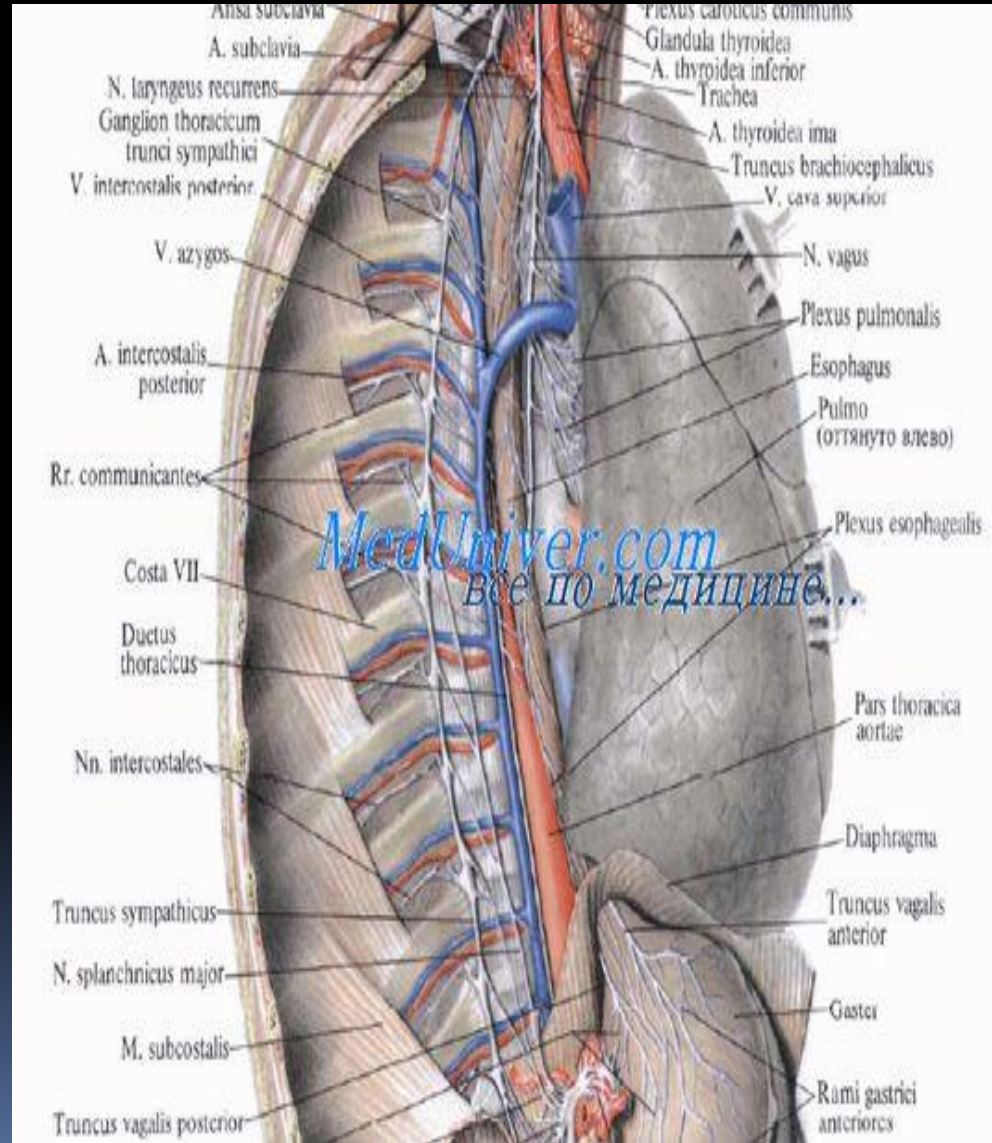
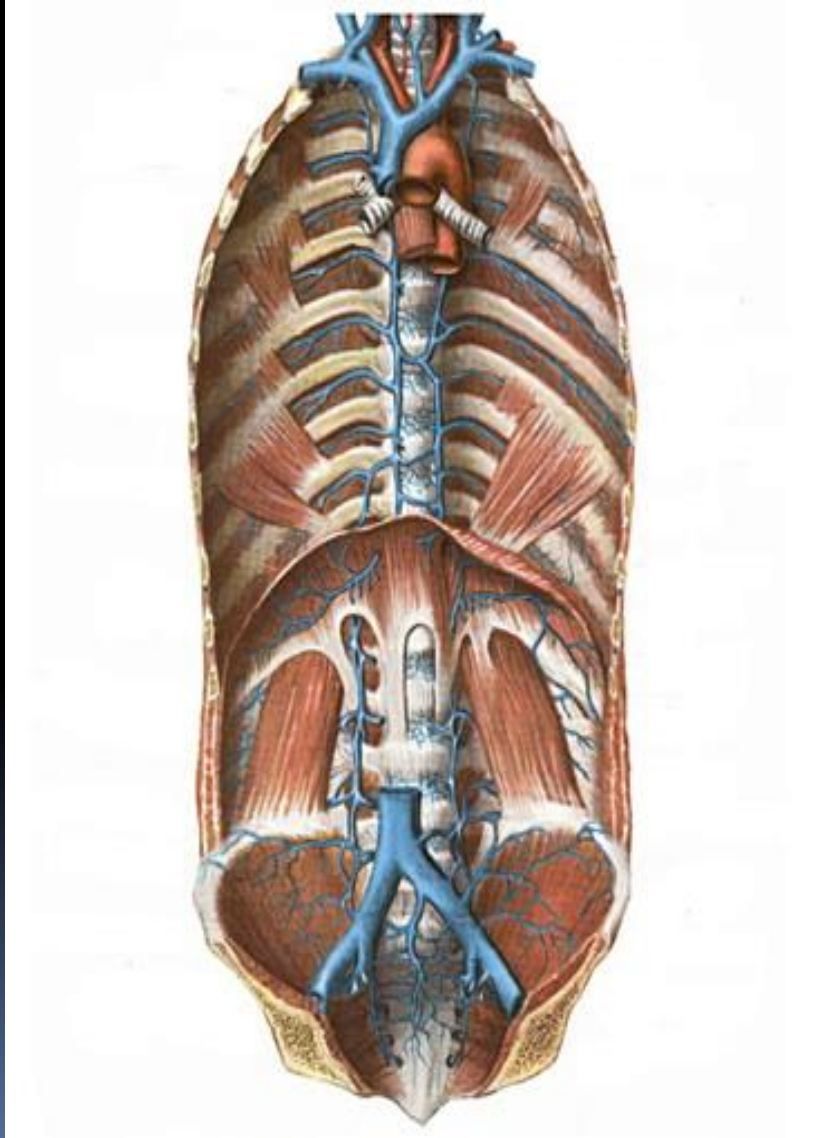
The deep veins of the forearm are paired radial and ulnar veins; they unite in front of the elbow to form the brachial veins.

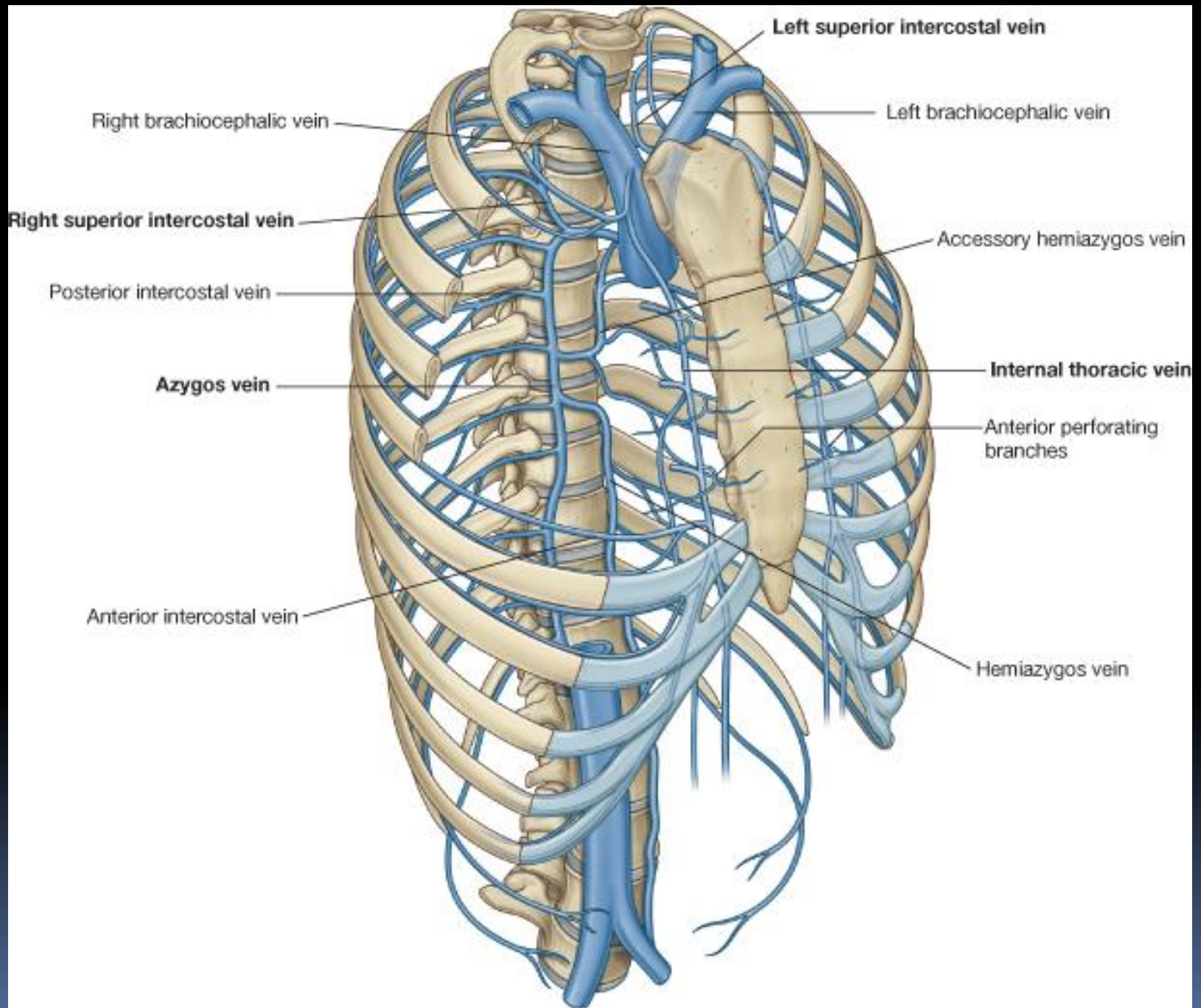
The brachial veins (*vv. brachiales*) are placed one on either side of the brachial artery, near the lower margin of the Subscapularis, they join the axillary vein (unpaired vein);

The axillary vein (*v. axillaris*) ascends and ends at the outer border of the first rib as the subclavian vein.

The subclavian vein (*v. subclavia*), the continuation of the axillary, extends from the outer border of the first rib to the sternal end of the clavicle, where it unites with the internal jugular to form the innominate vein.

# Vena azygos and vena hemiazygos





# Vena azygos

**The azygos vein (*v. azygos*) begins opposite the first or second lumbar vertebra, by a branch, the ascending lumbar vein. It enters the thorax through the right crus of the diaphragm, and passes along the right side of the vertebral column to the Th IV-V vertebra, where it arches forward over the root of the right lung, and ends in the superior vena cava.**

**It carries blood from:**

- 1. Organs of the mediastinum;**
- 2. Nine inferior intercostal veins;**
- 3. Veins of the vertebral plexus.**
- 4. V. intercostalis superior dextra, created by the merger of three right superior intercostal veins.**

## **Vena Hemiazygos**

**The Hemiazygos Vein (*v. hemiazygos*) begins in the left ascending lumbar vein. It enters the thorax, through the left crus of the diaphragm, and, ascending on the left side of the vertebral column, at the level of the VII-VIII thoracic vertebra passes across the column to end in the azygos vein.**

**It receives blood from:**

- 1. Organs of the mediastinum;**
- 2. Inferior left intercostal veins;**
- 3. Veins of the vertebral plexus.**

The Accessory Hemiazygos Vein (*v. hemiazygos accessoria*) descends on the left side of the vertebral column. It crosses the body of the eighth thoracic vertebra to join the azygos vein or ends in the hemiazygos. It receives veins from the upper left intercostal spaces.

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