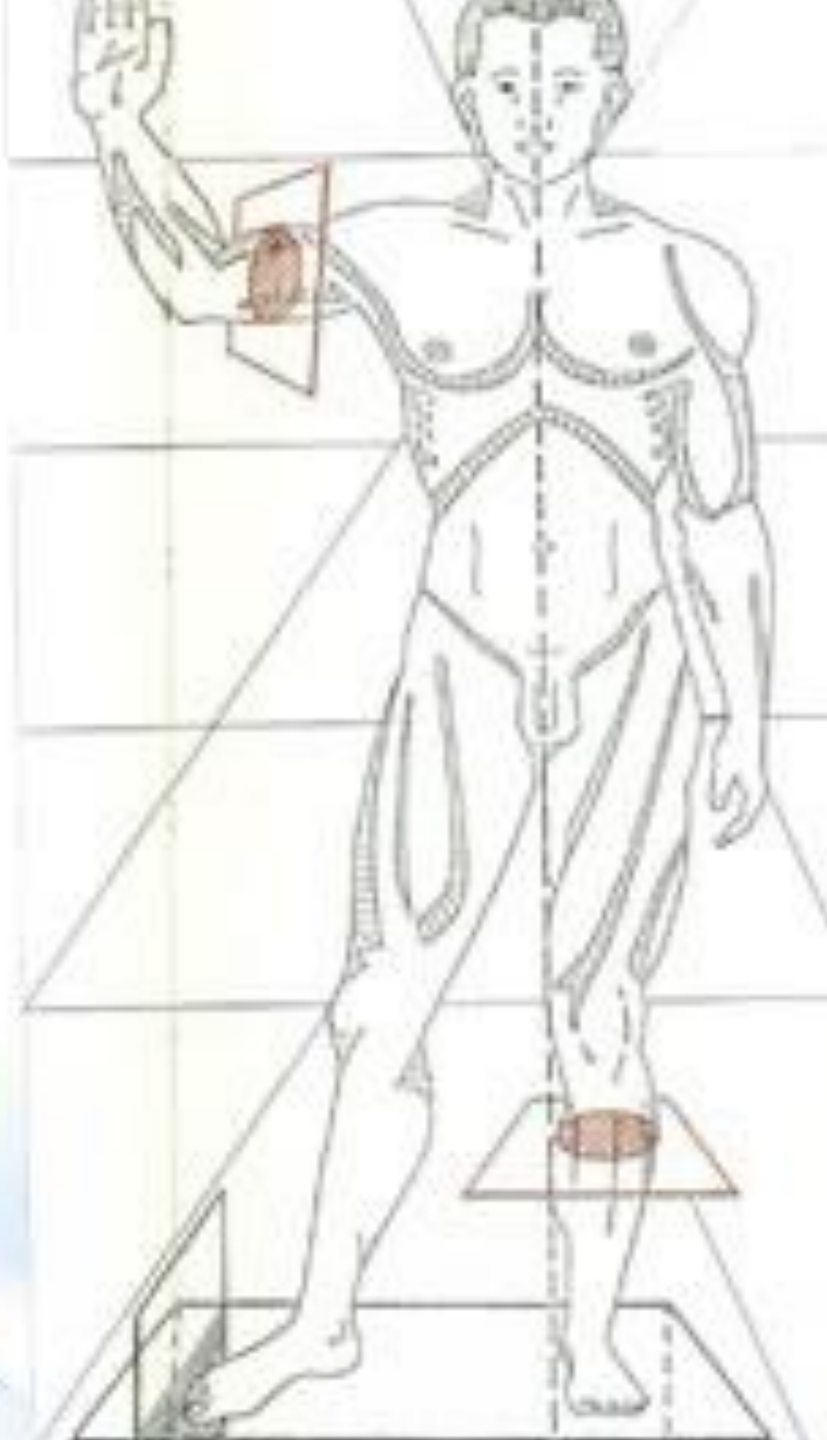
JUGULAR SYSTEM



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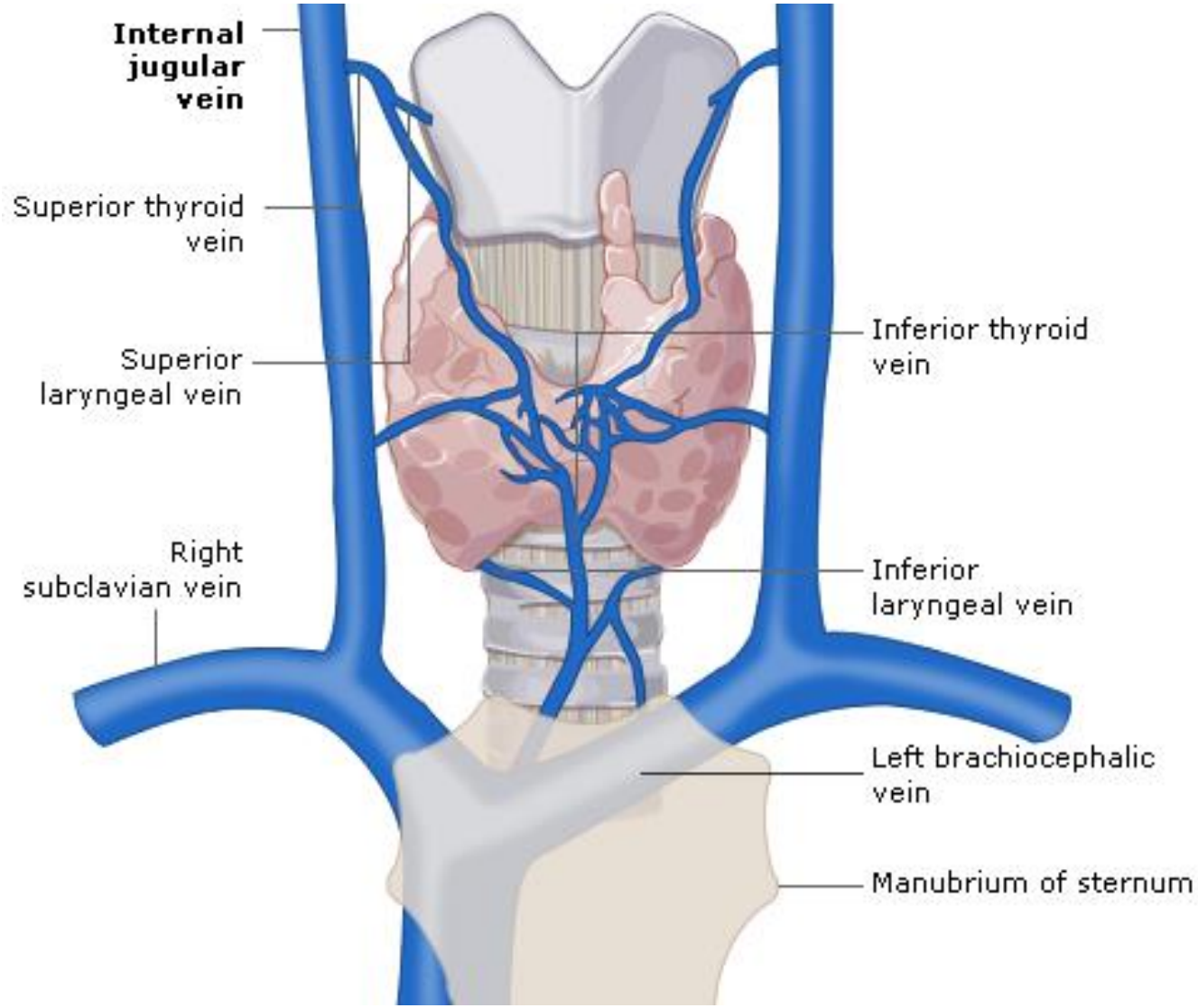
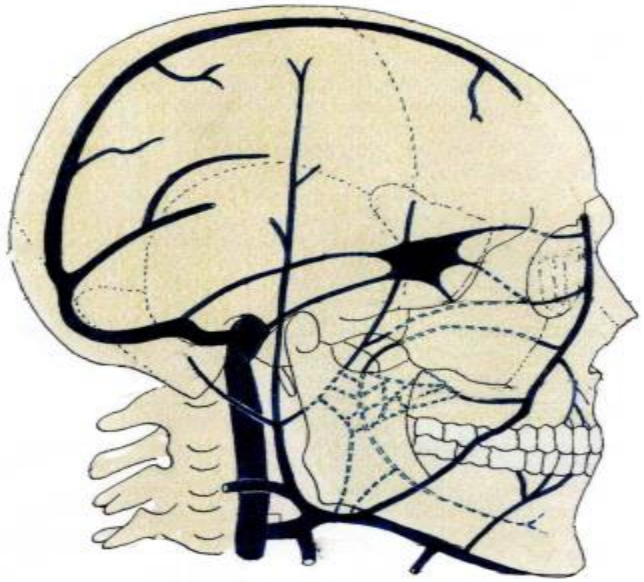


I – INTRODUCTION:

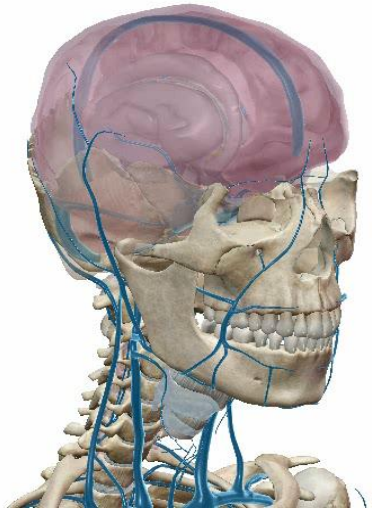
The jugular system plays a very important role. It ensures the venous drainage of most of the face, neck, and brain.



Lateral view of the jugular system

II – JUGULAR SYSTEM:

- The internal jugular system collects blood from the brain, part of the face, and the anterior region of the neck.
- The external jugular system drains the walls of the skull, the deep parts of the face, and the lateral and posterior regions of the neck.



III – INTERNAL JUGULAR VEIN:

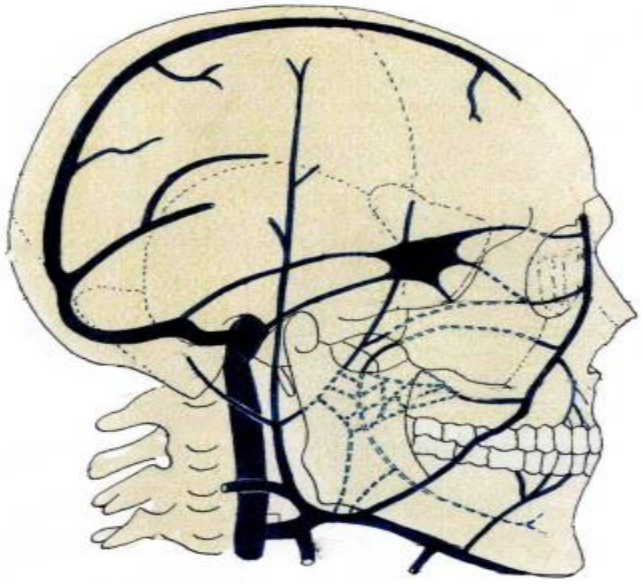
- It drains the brain, skull, face, and neck.

Origin

- The internal jugular vein emerges from the jugular foramen at the base of the skull.
- It passes between the mastoid process and the mandibular angle.

Termination

It ends at the base of the neck, where it joins to form the brachiocephalic vein.



Lateral view of the jugular system

Anatomical relations

➢ Superior portion:

It is related to,

- **Medially:**
  - The vagus nerve,
  - The hypoglossal nerve.

- **Posteriorly:**
  - The external acoustic meatus.

➢ In the neck:

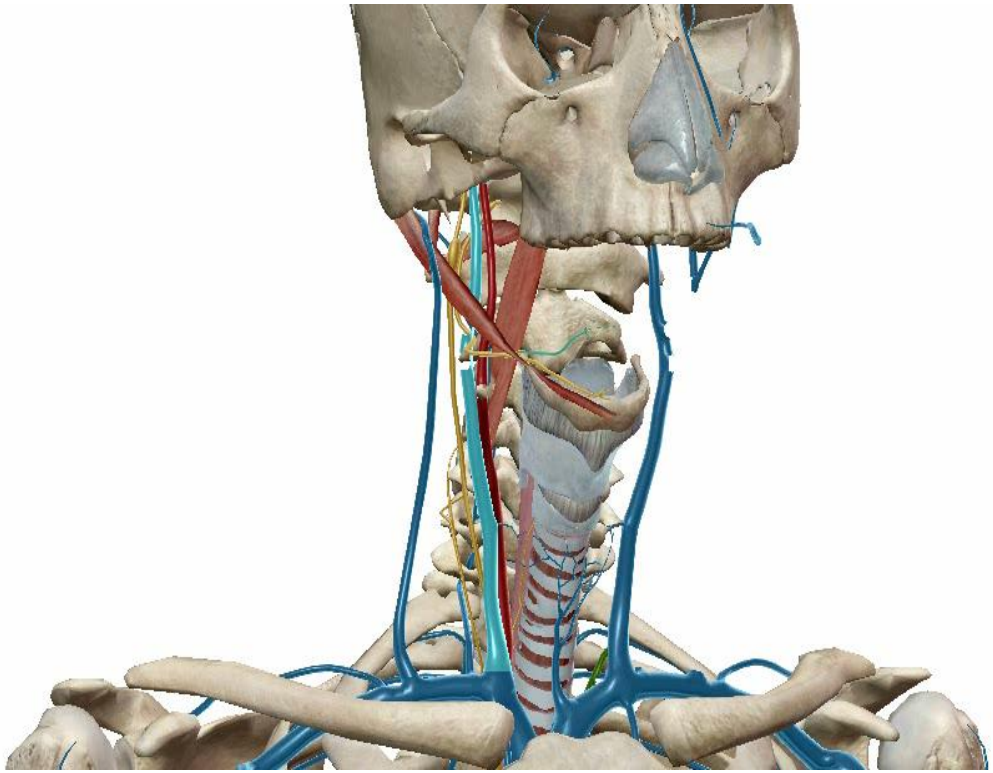
- The left internal jugular vein is more closely related to the arch of the thoracic duct.

- **Medially:**
  - The common carotid artery,
  - The internal carotid artery,
  - The vagus nerve.

- **Laterally:**
  - it is crossed by the digastric muscle.

✓ Above the digastric muscle: it is related to the parotid gland.

✓ Below the omohyoid muscle: it is associated with the jugular lymph nodes.



Tributaries of the internal jugular vein

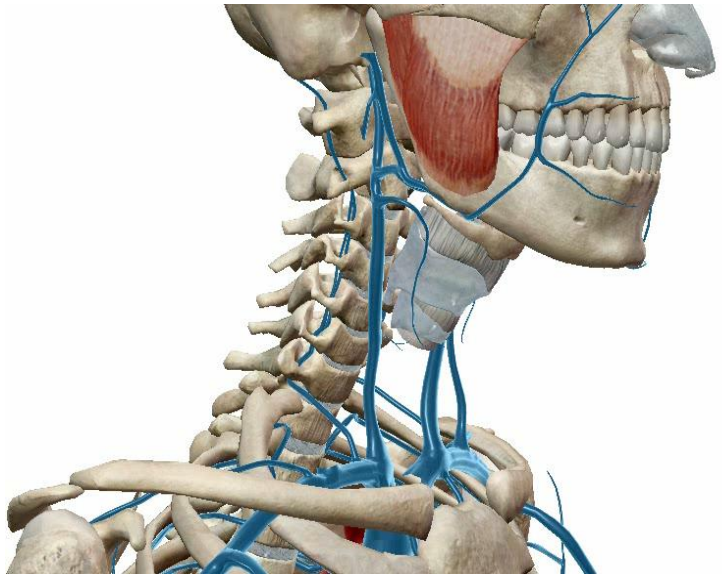
They drain the tongue and the submandibular region.

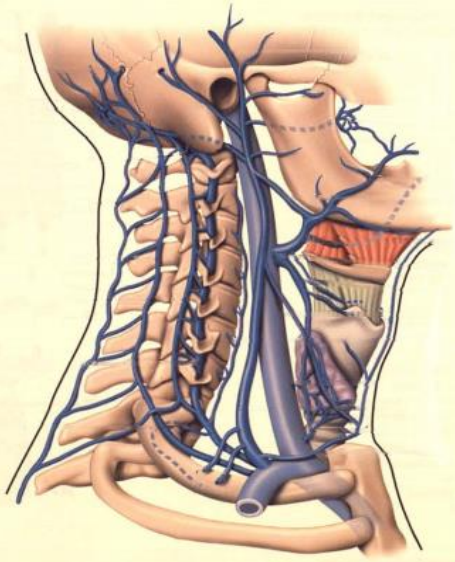
1. FACIAL VEIN:

- It originates at the medial angle of the eye, posterior to the facial artery.
- It follows the masseter muscle and the mandibular angle.
- It drains into the thyrolinguofacial trunk (TLF).
- It drains the soft tissues of the face.

2. PHARYNGEAL VEINS

3. SUPERIOR AND MIDDLE THYROID VEINS





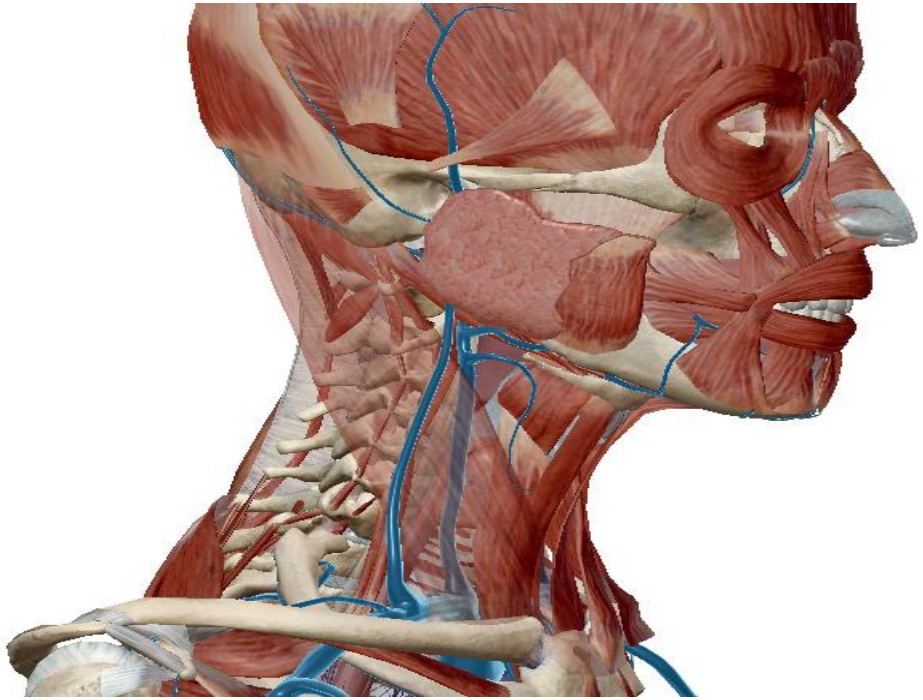
Lateral view of the jugular system

IV – EXTERNAL JUGULAR VEIN:

Visible beneath the cervical skin, it drains the parotid gland, the scalp, the maxilla, and the neck.

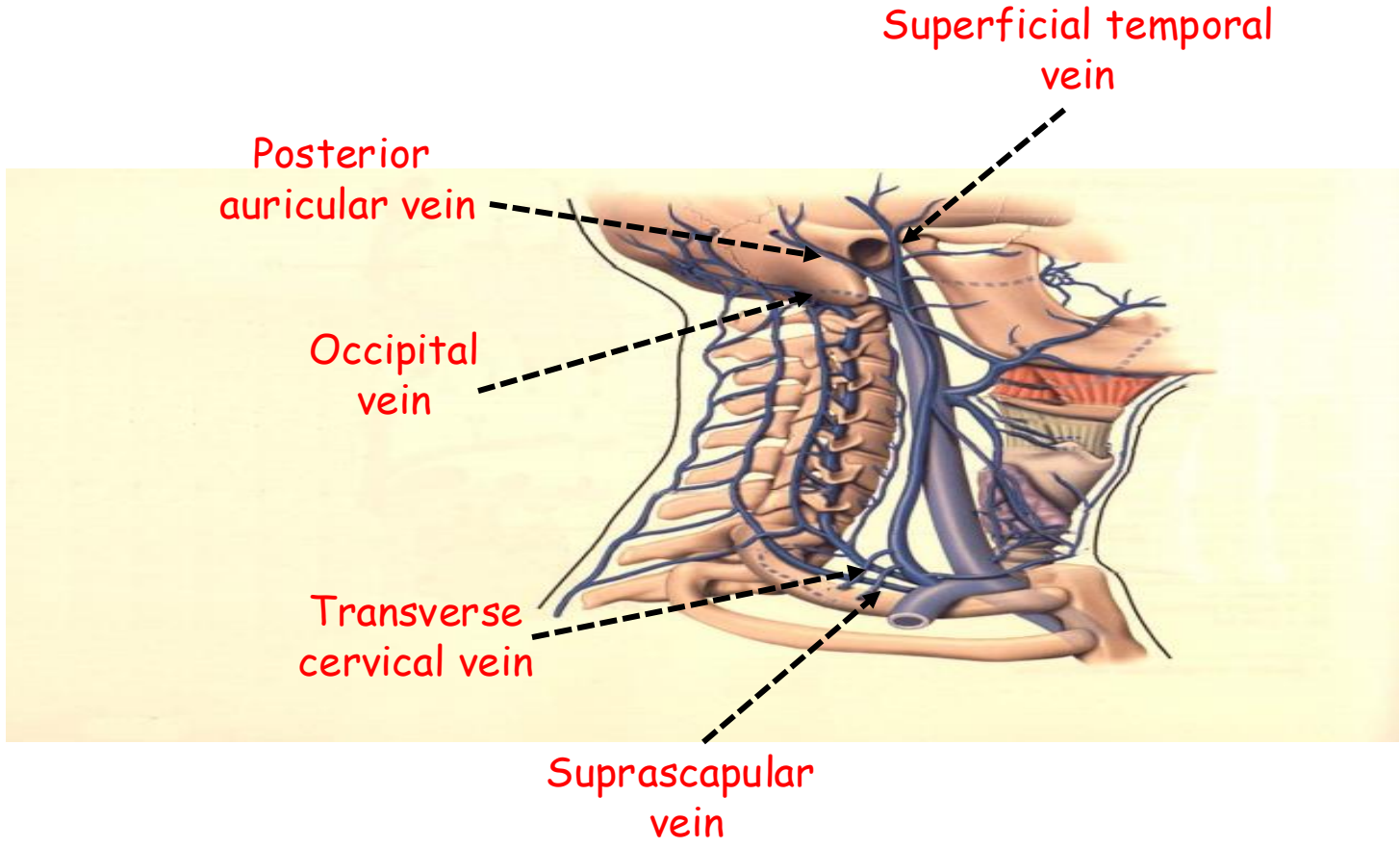
Trajectory:
It travels superficial to the external surface of the sternocleidomastoid muscle (SCM).

Termination:
It ends at the base of the neck, forming the brachiocephalic vein.



Tributaries of the external jugular vein:

1. SUPERFICIAL TEMPORAL VEIN
2. OCCIPITAL VEIN
3. POSTERIOR AURICULAR VEIN
4. TRANSVERSE CERVICAL VEIN
5. SUPRASCAPULAR VEINS



Lateral view of the jugular system

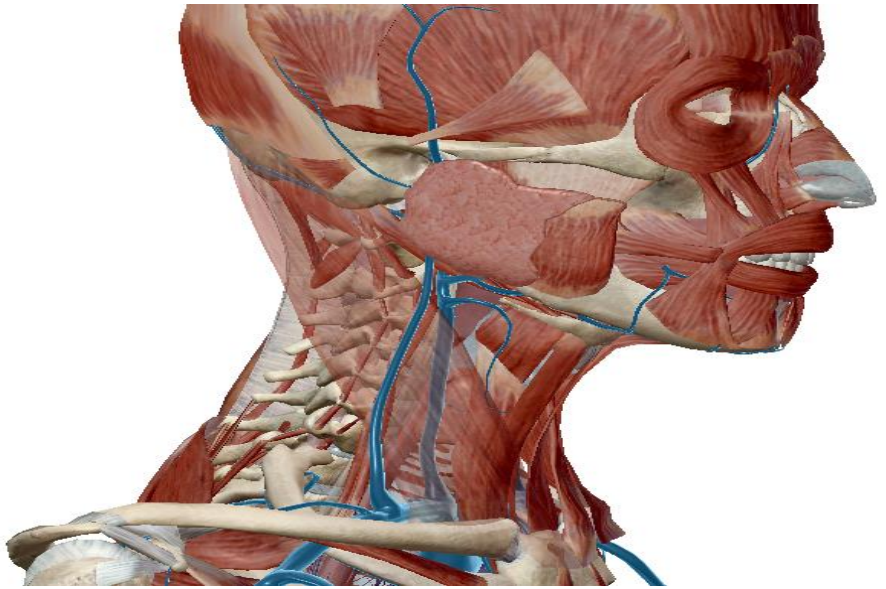
V – ANTERIOR JUGULAR VEIN:

- It is visible beneath the cervical skin.
- It drains the parotid gland, the scalp, the maxilla, and the neck.

Course
It runs superficial to the anterolateral surface of the sternocleidomastoid muscle (SCM).

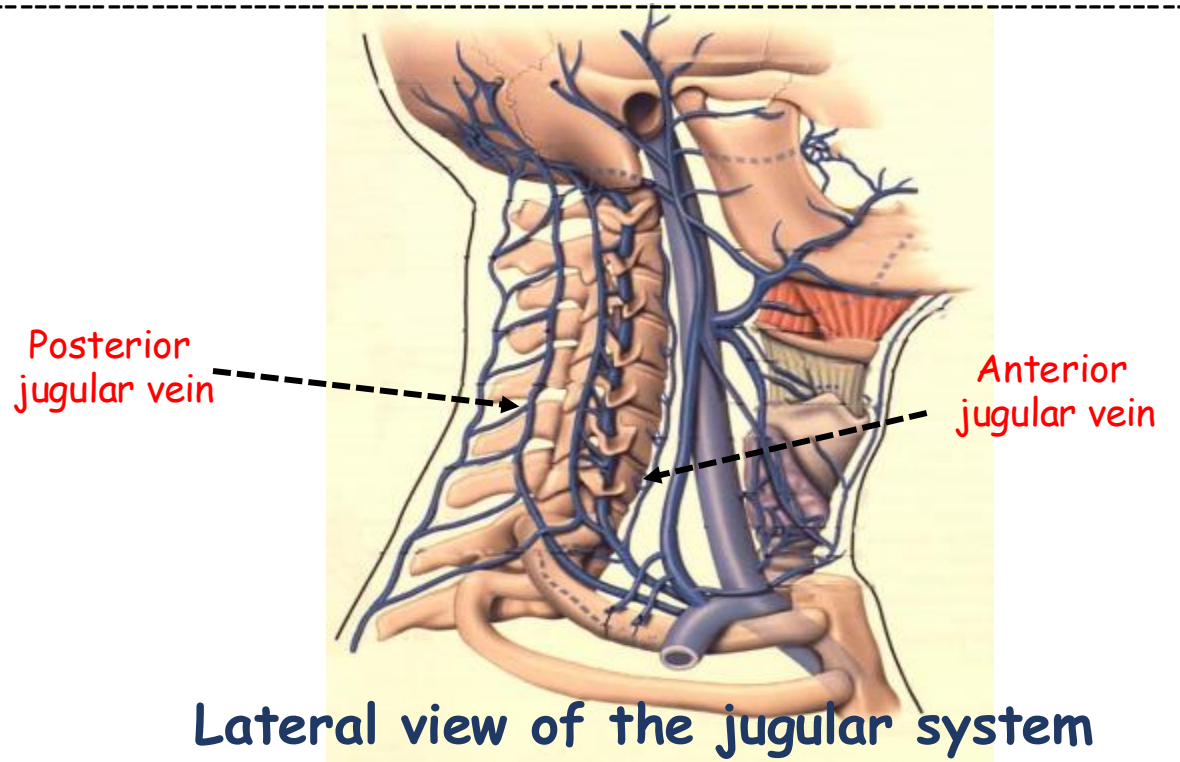
Termination
It ends at the base of the neck in the subclavian vein.

Tributaries
It receives the submental veins.



VI – POSTERIOR JUGULAR VEIN:

- It drains the posterior scalp.
- It originates from the suboccipital plexus.
- It ends in the jugulo-subclavian venous confluence.



Lateral view of the jugular system

VII – CLINICAL APPLICATIONS:

❖ Jugular venous distention :

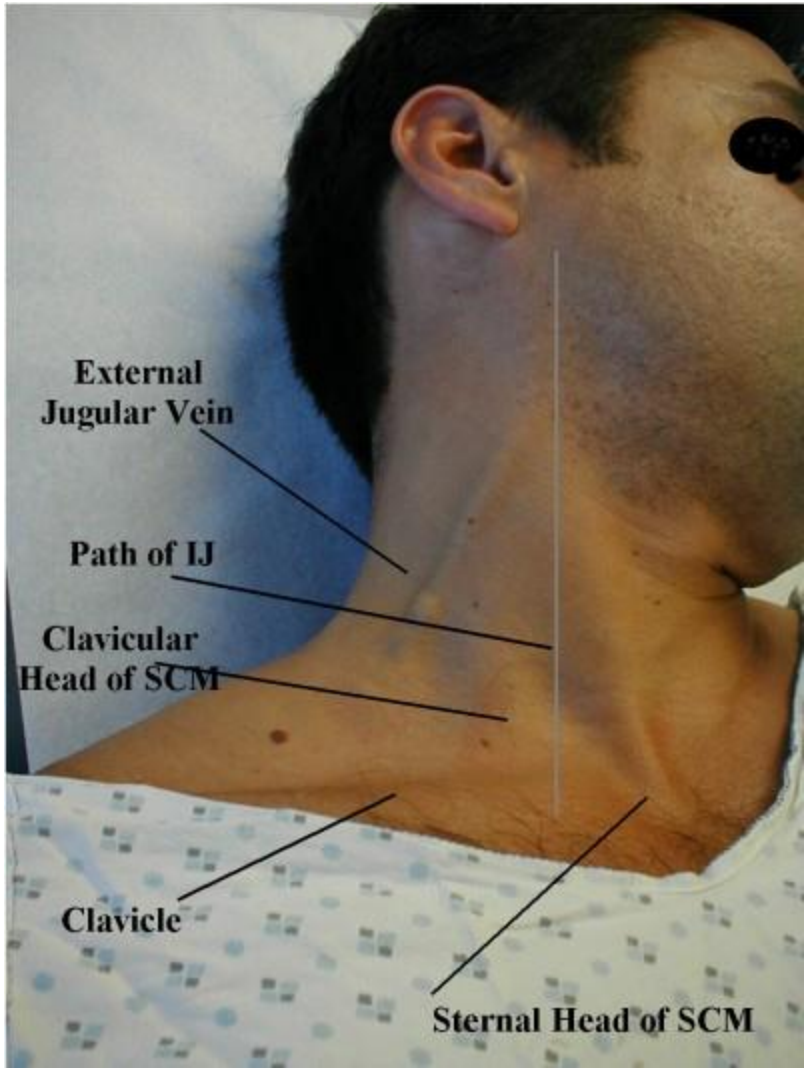
- This refers to the visible swelling or engorgement of the external jugular vein in the neck, typically observed when the patient is in a semi-upright position.

- It is a key clinical sign of elevated central venous pressure and may indicate:

✓ Right-sided heart failure, where the heart struggles to pump blood effectively, causing venous backflow.

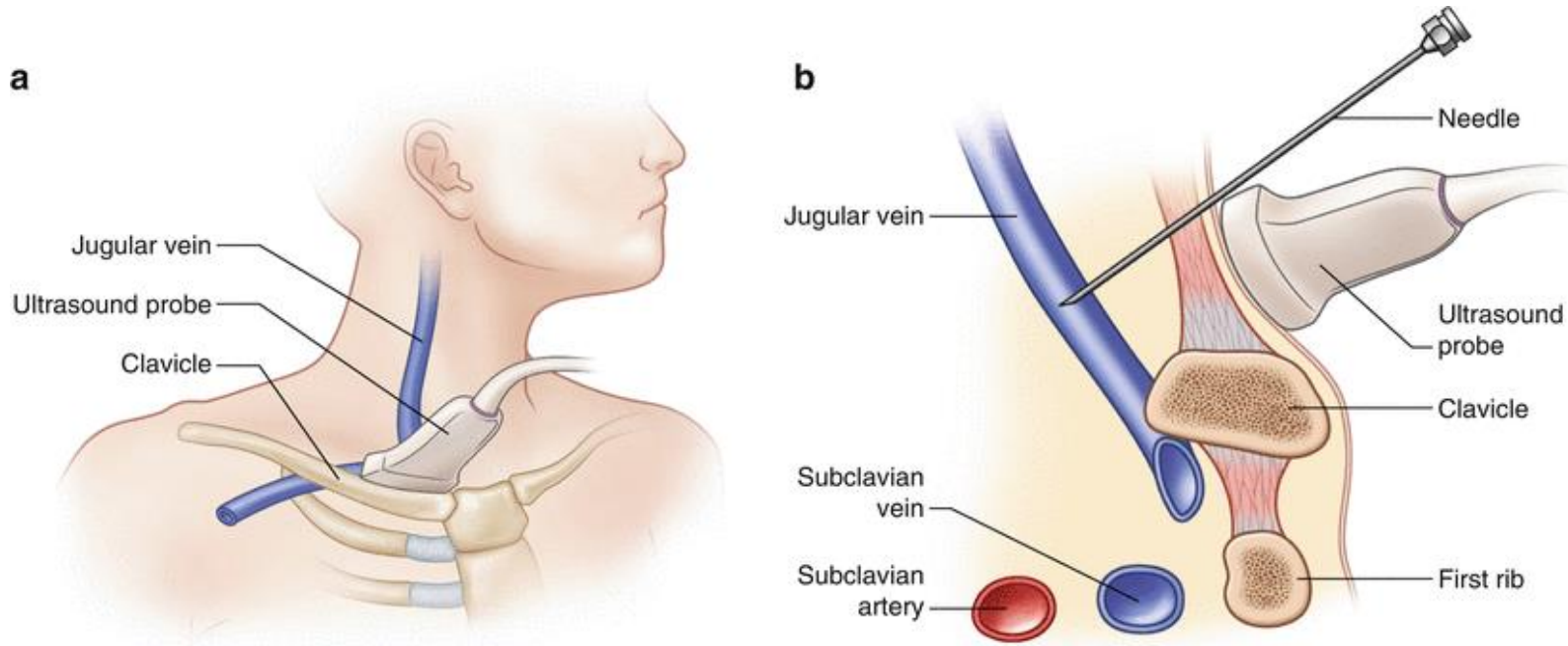
✓ Constrictive pericarditis, where the pericardium becomes thickened and limits cardiac filling.

✓ Large pericardial effusion, where fluid accumulation around the heart compresses the chambers and impedes venous return.



❖ Internal jugular vein catheterization:

- A catheter is inserted into a large-caliber vein in the neck, specifically the internal jugular vein.
- This is an invasive procedure that carries certain risks, including accidental arterial puncture—where the carotid artery is mistakenly punctured instead of the vein.
- Such a complication may lead to the formation of a hematoma, which can become infected or compress the carotid artery, potentially causing serious consequences.



VIII – CONCLUSION:

- The jugular venous system plays a crucial role in draining blood from the brain, face, and neck.

- Comprised of both deep (internal jugular) and superficial (external and anterior jugular) veins, it provides multiple pathways for venous return.

- Clinically, it is important not only for diagnostic observation, such as in jugular venous distention, but also for therapeutic access, like central venous catheterization.