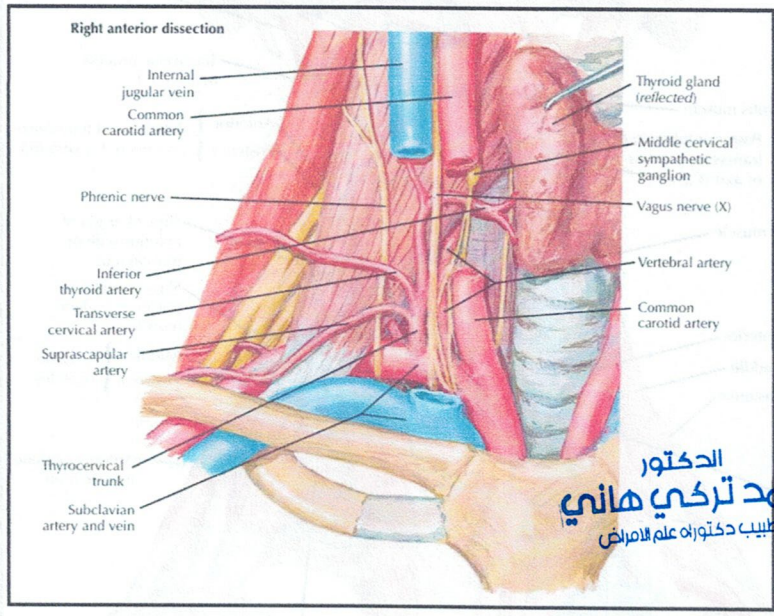
Think of this area as the "grand central station" of the human body—it's a dense, high-traffic junction where structures passing between the head, thorax, and upper limbs all converge.

The Root of the Neck is the junctional area between the thorax and the neck. It is the gateway through which all structures passing between the head and the thorax must traverse.

Boundaries: The Thoracic Inlet

The root of the neck is technically the area immediately superior to the superior thoracic aperture (thoracic inlet).



Anterior: Superior border of the manubrium of the sternum.
Lateral: First pair of ribs and their costal cartilages.
Posterior: Body of the T1 vertebra.

The Muscular Framework: The Scalenes

The scalene muscles are the "pillars" of the root of the neck. They are essential landmarks for identifying nerves and vessels.

The prevertebral muscles and the scalene muscles form the deep boundary of this region.

Anterior Scalene: Originates from C3–C6 transverse processes and inserts on the scalene tubercle of the 1st rib.

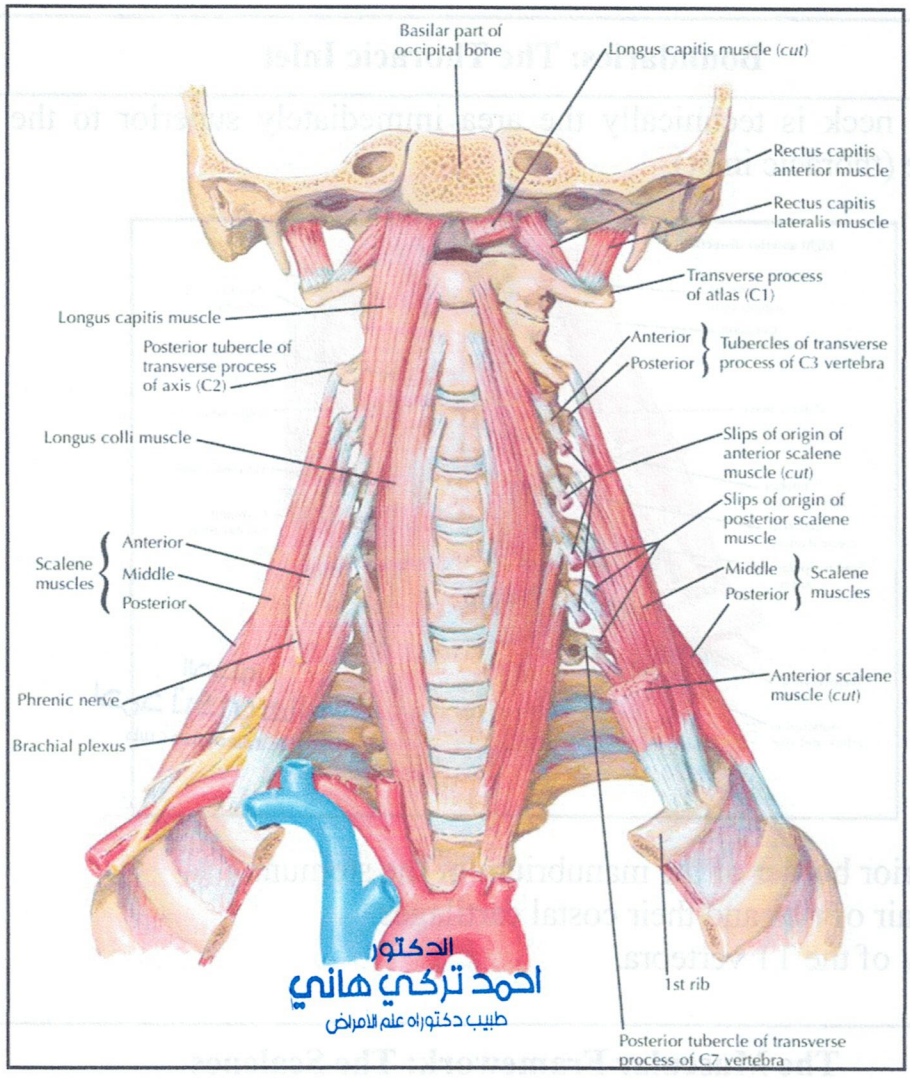
Key Landmark: The phrenic nerve runs vertically down its anterior surface.

Middle Scalene: The largest scalene. It inserts on the 1st rib posterior to the subclavian groove.

Posterior Scalene: Inserts on the 2nd rib.

The Interscalene Triangle: This is the gap between the anterior and middle scalene. It contains the brachial plexus and the subclavian artery. (Note: The subclavian vein does not pass through here; it runs anterior to the anterior scalene).

Longus Colli & Longus Capitis: Deep neck flexors located anterior to the vertebral bodies.



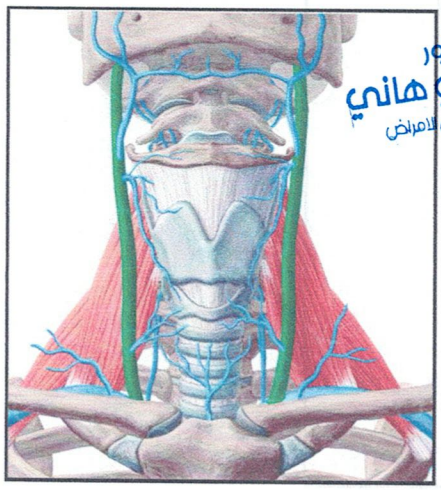
Venous Drainage

Venous drainage is divided into superficial and deep systems. The main event here is the formation of the Brachiocephalic Veins. The Internal Jugular Vein (IJV) joins the Subclavian Vein posterior to the sternoclavicular joint. This junction is called the **Venous Angle**.

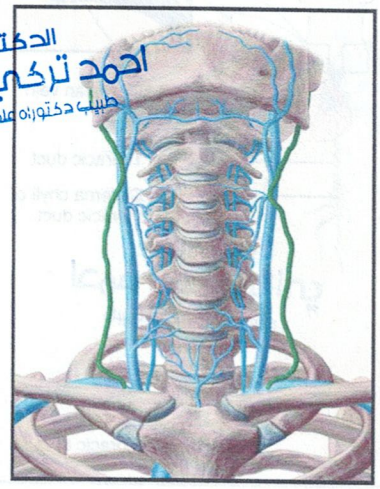
Internal Jugular Vein (IJV): The direct continuation of the sigmoid sinus. It exits the skull via the jugular foramen and joins the subclavian vein to form the Brachiocephalic vein.

External Jugular Vein (EJV): Formed by the union of the posterior auricular vein and the posterior division of the retromandibular vein. It drains into the subclavian vein.

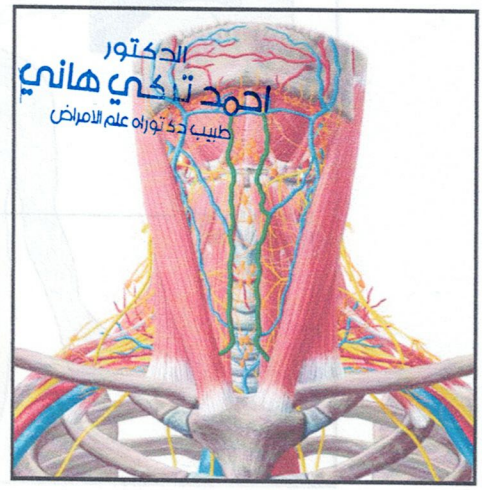
Anterior Jugular Vein: Drains the anterior submental region; often joins across the midline via the venous arch.



Internal Jugular vein



External jugular vein



Anterior jugular vein

Lymph Drainage of the Head and Neck

Lymphatic drainage follows a predictable pattern, eventually reaching the deep cervical nodes.

Superficial Ring (Pericervical Collar): Includes Submental, Submandibular, Parotid, Mastoid, and Occipital nodes.

Deep Cervical Nodes: Located along the Internal Jugular Vein.

Jugulodigastric Node (tonsillar node): Drains the tonsils and tongue.

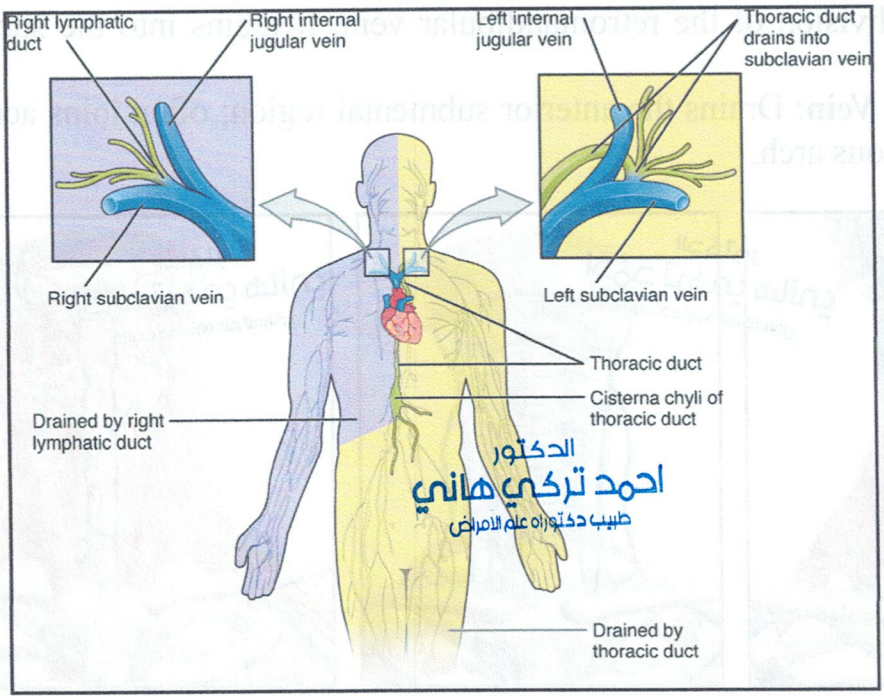
Jugulo-omohyoid Node: Drains the tongue.

All lymph from the head and neck eventually drains into the Jugular Lymphatic trunks.

Lymphatic Entry: This is where the major lymphatic ducts empty into the venous system.

Thoracic Duct (left): The thoracic duct is the largest lymphatic vessel in the body, transporting lymph from most of the body back into the venous system. It enters the neck through the superior thoracic aperture to the left of the esophagus. It arches laterally and enters the "Venous Angle".

Right Lymphatic Duct: A much smaller vessel that drains the right upper quadrant of the body into the right venous angle.



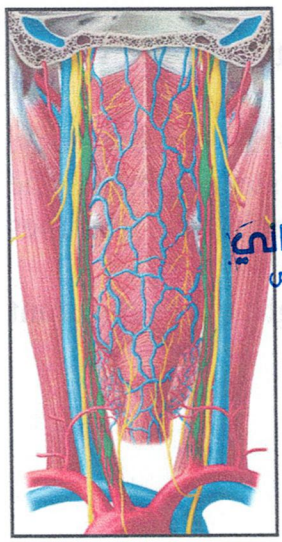
Main Nerves of the Neck

The neck houses four major nerve systems:

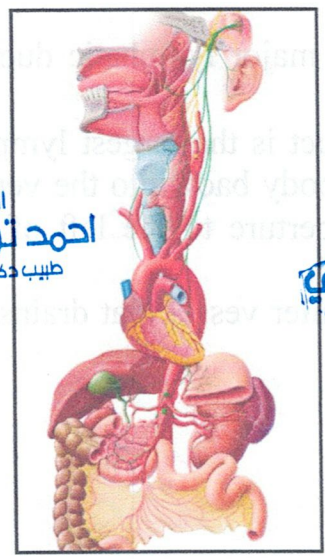
Vagus Nerve (CN X): Descends within the carotid sheath. It gives off the Recurrent Laryngeal Nerves (the right loops under the subclavian artery; the left loops under the arch of the aorta).

Phrenic Nerve (C3-C5): Descends on the anterior surface of the anterior scalene muscle to provide motor supply to the diaphragm.

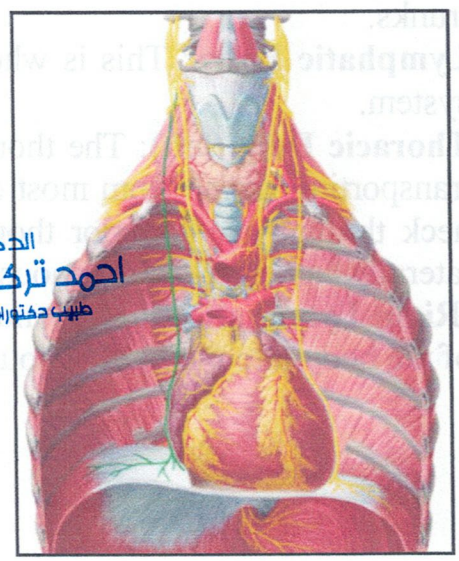
Cervical Sympathetic Trunk: Sits posterior to the carotid sheath. It includes the Stellate Ganglion (a fusion of the inferior cervical and first thoracic ganglia), which is clinically vital for "Stellate Ganglion Blocks" to treat chronic pain.



Sympathetic trunk



Left vagus nerve



Phrenic nerve

Cervical and Brachial Plexuses

Cervical Plexus (C1–C4)

Location: Deep to the Internal Jugular Vein and SCM.

Branches:

Cutaneous (Sensory): Lesser occipital, Great auricular, Transverse cervical, and Supraclavicular nerves.

Motor: Ansa cervicalis (to strap muscles) and Phrenic nerve.

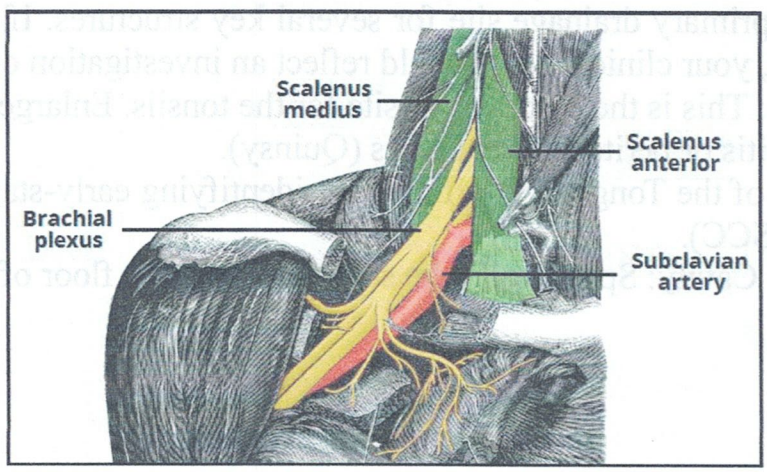
Brachial Plexus (C5–T1)

Location: Only the Roots and Trunks are found in the neck.

Course: They emerge through the interscalene triangle (between the Anterior and Middle scalene muscles) along with the subclavian artery.

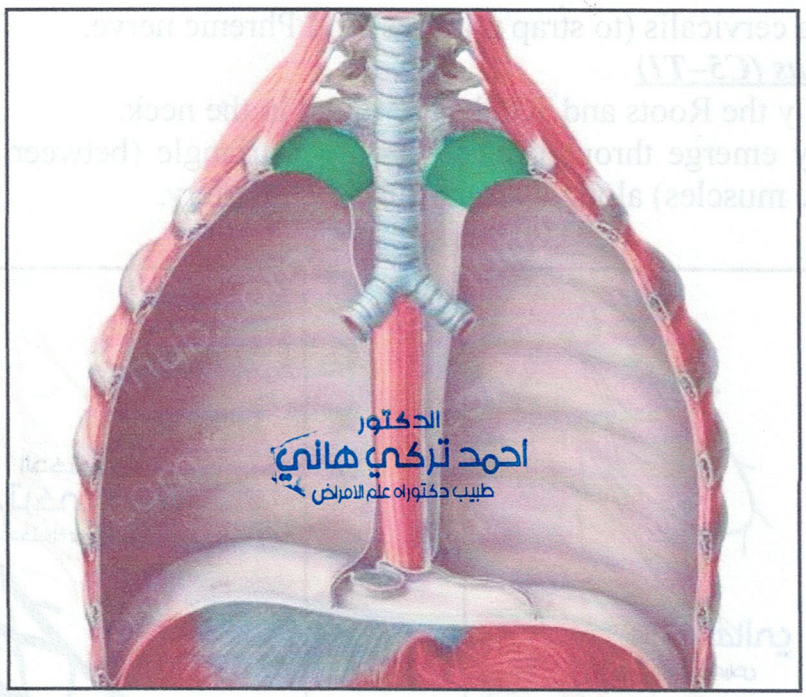
Cervical plexus

Brachial plexus



Viscera and Cupula

Cervical Pleura (Cupula): The apex of the lungs actually extends into the root of the neck, rising about 2–3 cm above the medial third of the clavicle.
Trachea & Esophagus: These midline structures descend into the mediastinum here.



Summary Clinical Notes

Because the apex of the lung and the cervical pleura rise above the level of the first rib, a puncture wound to the base of the neck can result in a **pneumothorax** (collapsed lung), even if the chest wall itself is intact.

The "**Tonsillar Node**"
This node is the primary drainage site for several key structures. If you find isolated enlargement here, your clinical note should reflect an investigation of:

- Palatine Tonsils: This is the #1 drainage site for the tonsils. Enlargement is classic in acute tonsillitis or peritonsillar abscess (Quinsy).
- Posterior Third of the Tongue: Significant for identifying early-stage squamous cell carcinoma (SCC).
- Pharynx & Oral Cavity: Specifically the soft palate and the floor of the mouth.