# Neck

#### Posterior triangle and suprahyoid muscles

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### The posterior triangle of the neck

The posterior triangle of the neck is an anatomical area located in the lateral aspect of the neck.

#### **Borders**

- Anterior posterior border of the sternocleidomastoid.
- Posterior anterior border of the trapezius muscle.
- Inferior middle 1/3 of the clavicle.
- The posterior triangle of the neck is covered by the investing layer of fascia, and the floor is formed by the prevertebral fascia.



### Contents

- Muscles:
  - Inferior belly of the Omohyoid
  - Vertebral muscles: splenius capitis, Levator scapulae and anterior, middle and posterior scalenes.
- Vasculature:
  - External jugular vein, subclavian artery and vein, transverse cervical artery and vein and suprascapular a. & v.
- Nerves:
  - Accessary nerve (CN XI), branches of cervical plexus, phrenic nerve and brachial plexus
- Lymph nodes:
  - Level v: Occipital and Supraclavicular



### Subdivisions

- The omohyoid muscle splits the posterior triangle of the neck into two:
- The larger, superior part is termed the **occipital triangle**.
- The inferior triangle is known as the **subclavian triangle** and contains the distal portion of the subclavian artery.



### Trapezius Muscle

- Flat diamond-shaped muscle at back of neck and chest.
- Origin: occipital bone and spines of C7 T12
- Insertion: Lateral 1/3 of clavicle, acromion, spine of scapula
- Functions:
  - Its main function is to stabilize and move the scapula( elevation, depression, retraction).
  - Assists in abduction of shoulder above 90 degrees.
  - Extends the neck if both muscles contract and the scapulae are stable.
- Nerve supply: accessory nerve (CN11)
  - Dropped scapula/ winged scapula



## The scalene muscles

- Three paired muscles (anterior, middle and posterior), located in the lateral aspect of the neck.
- The scalenes act as accessory muscles of respiration, and perform flexion at the neck.

#### **Anterior Scalene**

- It lies on the lateral aspect of the neck, deep to the prominent sternocleidomastoid muscle.
- Attachments: Originates from the anterior tubercles of the transverse processes of **C3-C6**, and attaches onto the scalene tubercle, on the inner border of the **first rib**.
- Function: Elevation of the first rib. Ipsilateral contraction causes ipsilateral lateral flexion of the neck, and bilateral contraction causes anterior flexion of the neck.
- Innervation: Anterior rami of C5-C6.



#### Middle Scalene

- It is the **largest and longest** of the three scalene muscles.
- It has several long, thin muscles bellies arising from the cervical spine, which converge into one large belly that inserts into the first rib.
- Attachments: Originates from the posterior tubercles of the transverse processes of C2-C7, and attaches to the scalene tubercle of the first rib.
- Function: Elevation of the first rib. Ipsilateral contraction causes ipsilateral lateral flexion of the neck.
- Innervation: Anterior rami of C3-C8.

### **Posterior Scalene**

- It is the **smallest** and deepest of the scalene muscles.
- Attachments: Originates from the posterior tubercles of the transverse processes of C5-C7, and attaches into the second rib.
- Function: Elevation of the second rib, and ipsilateral lateral flexion of the neck.
- Innervation: Anterior rami of C6-C8.



### Anatomical Relationships of scalene muscles

- The **brachial plexus and subclavian artery** pass between the anterior and middle scalene muscles.
  - The subclavian artery is located posterior to the anterior scalene.
- The subclavian vein and phrenic nerve pass anteriorly to the anterior scalene – the subclavian vein courses horizontally across it, while the phrenic nerve runs vertically down the muscle.
- The brachial plexus is a network of nerve fibres that supplies the skin and musculature of the upper limb. It begins in the root of the neck, passes through the axilla, and runs through the entire upper extremity.
  - C5, C6, C7 and C8, and the first thoracic spinal nerve, T1.
- Phrenic nerve : arises from the anterior divisions of spinal nerves C3-C5. It descends down the neck, within the prevertebral fascia, to innervate the diaphragm.



 The accessory nerve (CN XI) innervates sternocleidomastoid and enters the posterior triangle. It crosses the posterior triangle in an oblique, inferoposterior direction, within the investing layer of fascia. It lies relatively superficial in the posterior triangle, leaving it vulnerable to injury.



### Suprahyoid and infrahyoid muscles

Suprahyoid Muscles	Infrahyoid Muscle	Digastric (anterior belly) Mylohyoid Genichvoid Stylohyoid
•Stylohyoid	•Omohyoid	Digastric
<ul> <li>Digastric</li> </ul>	<ul> <li>Sternohyoid</li> </ul>	(posterior belly)
<ul> <li>Mylohyoid</li> </ul>	<ul> <li>Thyrohyoid</li> </ul>	
•Geniohyoid	<ul> <li>Sternothyroid</li> </ul>	CheachMeAnatomy

## Suprahyoid muscles



#### **Stylohyoid**

- The stylohyoid muscle is a thin muscular strip, which is located superiorly to the posterior belly of the digastric muscle.
- Attachments: Arises from the styloid process of the temporal bone and attaches to the lateral aspect of the hyoid bone.
- Actions: Initiates a swallowing action by pulling the hyoid bone in a posterior and superior direction.
- Innervation: Stylohyoid branch of the facial nerve (CN VII).



#### Digastric

- The digastric is comprised of two muscular bellies, which are connected by a tendon
- Attachments:
  - The anterior belly arises from the digastric fossa of the mandible.
  - The posterior belly arises from the mastoid process of the temporal bone.
  - The two bellies are connected by an intermediate tendon, which is attached to the hyoid bone via a fibrous sling.
- Actions: Depresses the mandible and elevates the hyoid bone.
- Innervation:
- The anterior belly is innervated by the inferior alveolar nerve, a branch of the mandibular nerve (which is derived from the trigeminal nerve, CN V).
- The posterior belly is innervated by the digastric branch of the facial nerve.





### **Mylohyoid**

- The mylohyoid is a broad, triangular shaped muscle. It forms the floor of the oral cavity and supports the floor of the mouth.
- Attachments: Originates from the mylohyoid line of the mandible, and attaches onto the hyoid bone.
- Actions: Elevates the hyoid bone and the floor of the mouth.
- Innervation: Inferior alveolar nerve, a branch of the mandibular nerve (which is derived from the trigeminal nerve).



### Geniohyoid

- The geniohyoid is located close to the midline of the neck, deep to the mylohyoid muscle.
- Attachments: Arises from the inferior mental spine of the mandible. It then travels inferiorly and posteriorly to attach to the hyoid bone.
- Actions: Depresses the mandible and elevates the hyoid bone.
- Innervation: C1 nerve roots that run within the hypoglossal nerve.



The arterial supply :

• Branches of the facial artery, occipital artery, and lingual artery.