

The Neck/ Part II

Superficial and Deep Cervical Fascia

- The superficial fascia of the neck forms a thin layer that encloses the cutaneous nerves, the platysma muscle, the superficial veins, and the superficial lymph nodes.
- It is composed of superficial thin fatty layer and deep membranous layer as the superficial fascia in the rest of the body except for the amount of fat.
- The deep fascia is a fibrous sheet that enclose the muscles, the vessels, and the viscera of the neck, it includes multiple layers; **the investing layer of deep cervical fascia, pretracheal layer, prevertebral layer and carotid sheath.**

- **Investing Layer (Investing Deep Fascia)**

The investing layer is a superficial layer of the deep fascia that encircles the neck; it covers the anterior and posterior triangles. It splits to enclose the trapezius and the sternocleidomastoid muscles. It splits to form the capsule around the submandibular salivary gland.

- **Pretracheal Layer (Pretracheal Fascia; Thyroid Capsule)**

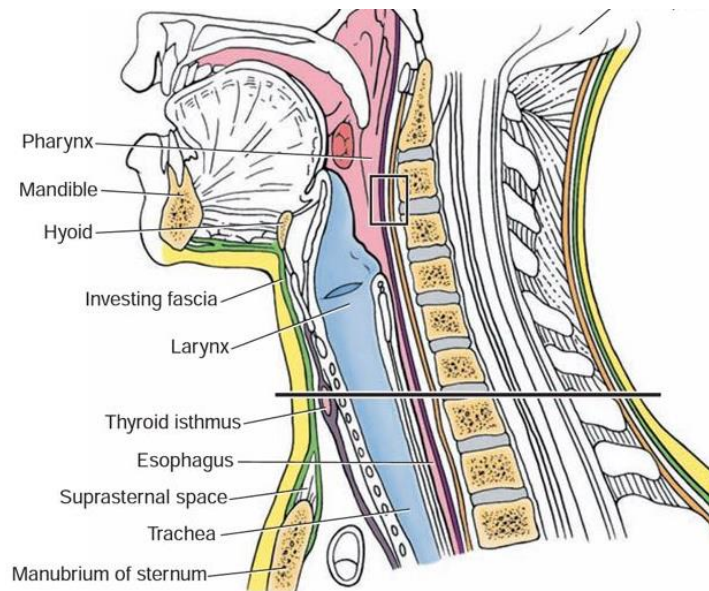
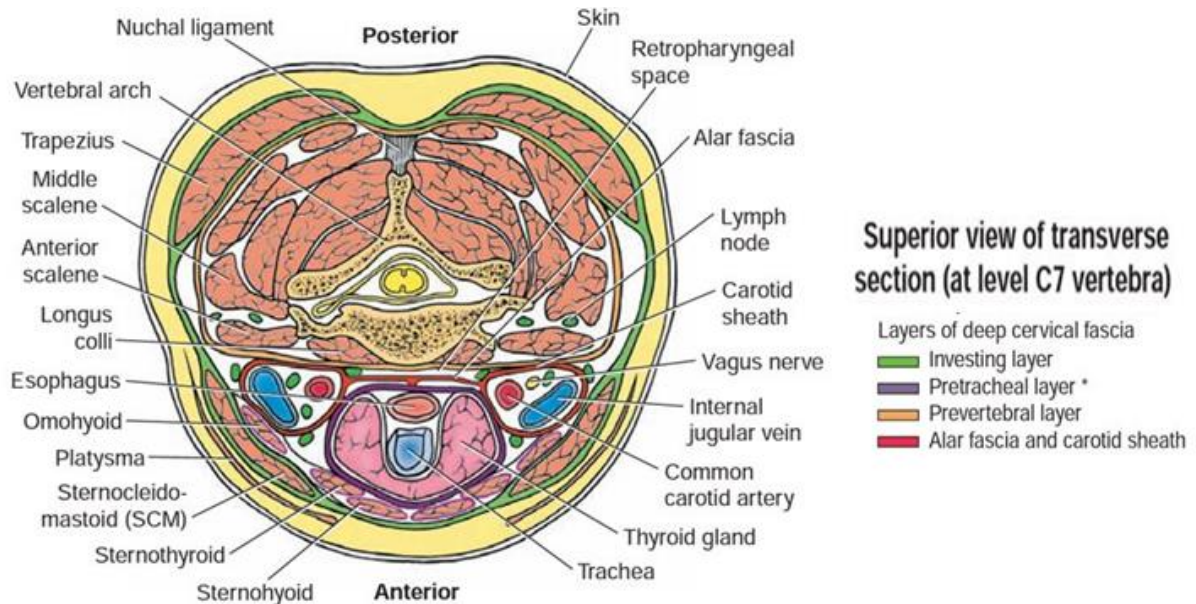
The pretracheal layer is a thin cylindrical layer that is attached to the thyroid cartilage from above. It surrounds the thyroid, larynx, and trachea. It encloses the infrahyoid muscles.

- **Prevertebral Layer (Prevertebral Fascia)**

The prevertebral layer is encircling the prevertebral muscles and the vertebral column. This fascia forms the floor of the posterior triangle.

• **Carotid Sheath**

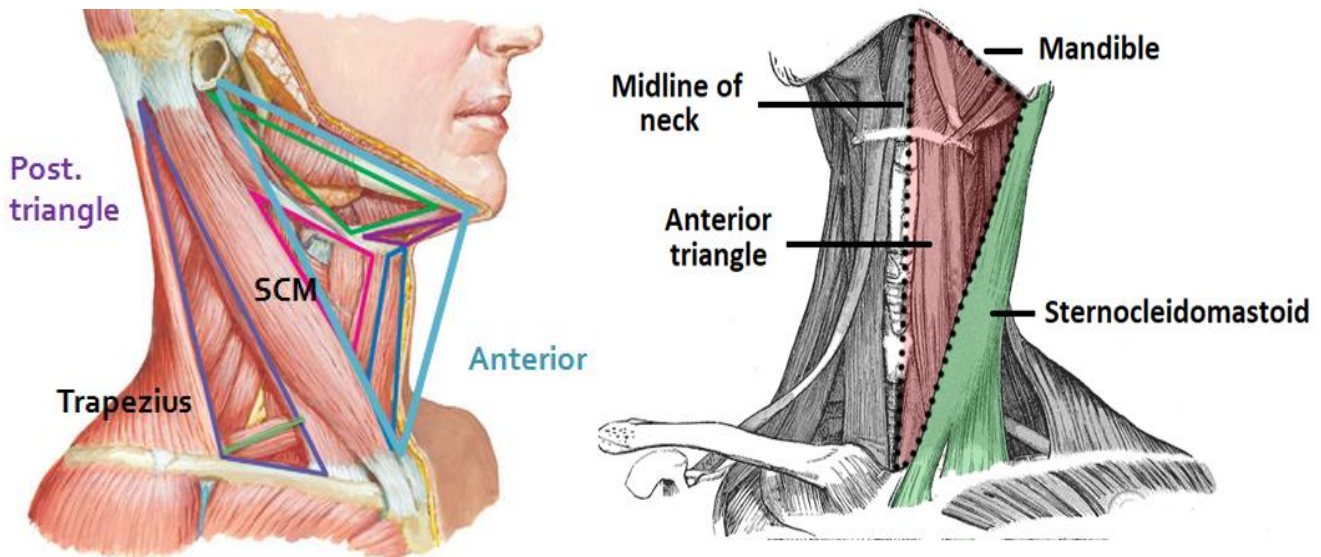
The carotid sheath is a contribution from the three layers of the prevertebral, the pretracheal, and the investing layers of the deep fascia that surround the common carotid arteries, the internal jugular vein, the vagus nerve, and the deep cervical lymph nodes.



Cervical fascia in midsagittal view

Triangles of the Neck

The sternocleidomastoid muscle divides the neck into large anterior and posterior triangles; each of these contains smaller triangular spaces:

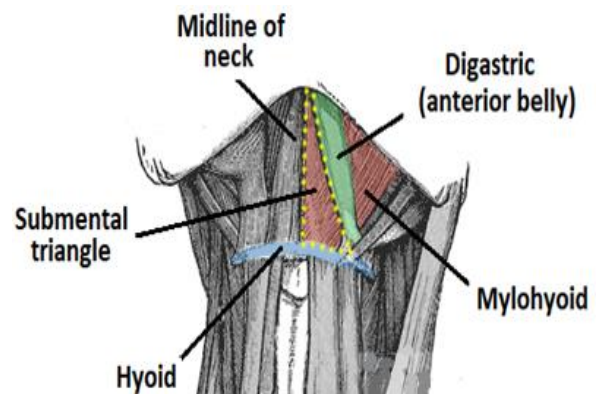
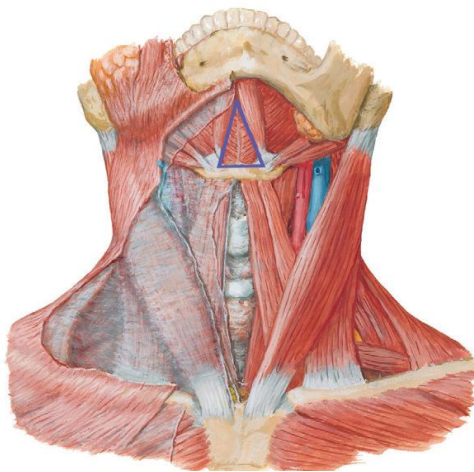


Anterior Triangle

- The boundaries are the sternocleidomastoid muscle, the midline of the neck, and the lower margin of the body of the mandible.
- Roof (lateral relation): Skin, superficial fascia, Platysma muscle and Investing layer of deep cervical fascia.
- **Subdivisions are:**
Submental triangle, Submandibular (digastric) triangle, Muscular triangle and Carotid triangle

1. Submental Triangle

- ✓ **Boundaries:**
Midline, hyoid bone, anterior belly of digastric.
- ✓ **Floor:**
Mylohyoid muscle.
- ✓ **Contents:**
Submental lymph nodes, anterior jugular vein.



- Clinical Note

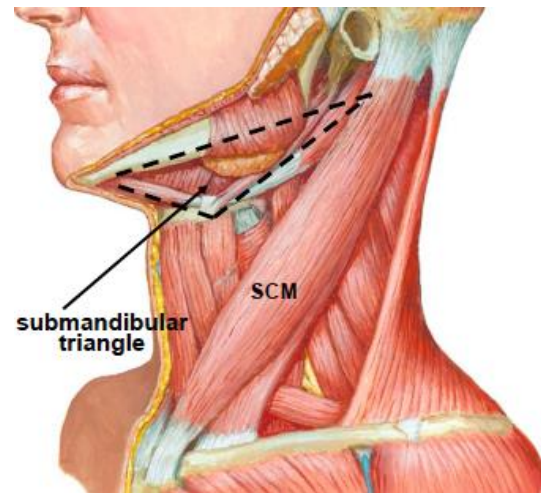
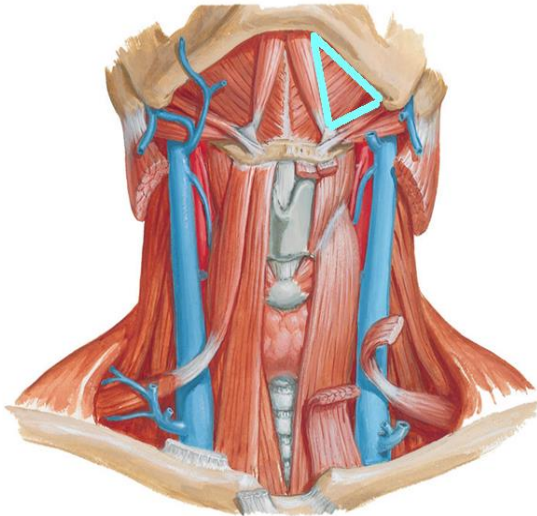
Submental space abscess: is one of the orofacial space infections, caused by infection either directly from the lower incisor or from the submental lymph nodes which drain the tip of the tongue, anterior floor of the mouth and lower incisors.

2- Submandibular (digastric) triangle:

- ✓ **Boundaries:**
Lower margin of body of the mandible, anterior belly of digastric and posterior belly of digastric.
- ✓ **Floor:**
Mylohyoid and Hyoglossus muscles

✓ **Contents:**

submandibular gland, submandibular lymph nodes, Facial artery, facial vein, Hypoglossal nerve.

- **Clinical Note**

Submandibular space abscess: is very common space infection, caused by infection of the Submandibular lymph nodes, or direct spread of the abscess from the lower posterior teeth or could be spread from other spaces as sublingual space.

3- Muscular triangle✓ **Boundaries:**

- Midline
- Anterior border of sternocleidomastoid
- Superior belly of the omohyoid.

✓ **Contents:**

- Infrahyoid muscles (sternohyoid, sternothyroid and thyrohyoid)
- Thyroid and parathyroid glands.

4- Carotid triangle:

✓ **Boundaries:**

- Posterior belly of digastric
- Anterior border of sternocleidomastoid
- Superior belly of the omohyoid

✓ **Contents:**

- Carotid sheath (Deep cervical L.N., Internal Jugular V., common carotid A., & Vagus N.)
- Hypoglossal nerve

Posterior Triangle

- This is an area enclosed between sternomastoid anteriorly and trapezius muscle posteriorly; its apex lies high up at the back of the skull on the superior nuchal line where both muscles meet

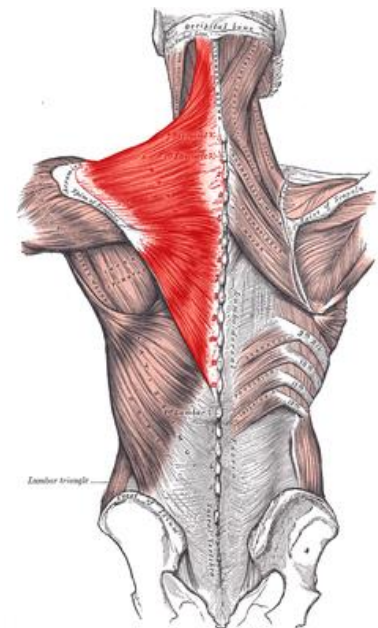
• Trapezius Muscle

It is one of the superficial muscles of the back:

- **Origin:** from (occipital bone, ligamentum nuchae and spines of all thoracic vertebrae.

Ligamentum nuchae: is a fibrous band (ligament) that extends from the external occipital protuberance over the spines of cervical vertebrae to C7, nuchae means neck.

- **Insertion:** Lateral third of the clavicle and spine of the scapula
- **Nerve supply:** Accessory nerve (CN XI)
- **Action:** elevation of the scapula (shoulder), pulling of the scapula medially



- **The boundaries of posterior triangle are:**

- Anteriorly : the posterior border of sternocleidomastoid muscle
- Posteriorly : the anterior border of trapezius muscle
- Inferiorly: the middle third of the clavicle

- **Roof is formed by:**

Skin, Superficial fascia, Platysma (inferior part of the triangle) and Investing layer of deep cervical fascia

- **Floor is formed by:**

The prevertebral fascia and prevertebral muscles (Scalenus anterior, Scalenus medius, Levator Scapulae, Splenius capitis and Semispinalis Capitis)

- **Subdivisions:**

formed by the inferior belly of Omohyoid muscle.

- **Occipital triangle:**

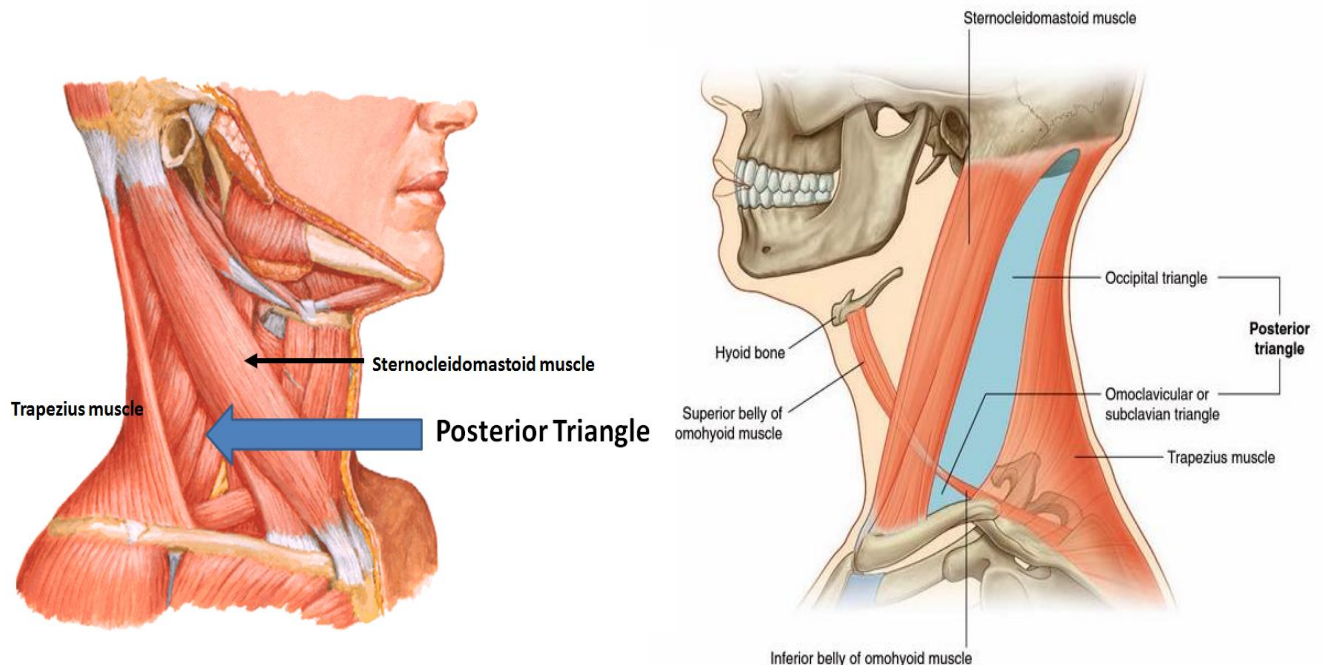
- ✓ Boundaries: Sternocleidomastoid, trapezius, inferior belly of omohyoid

- **Omoclavicular (subclavian) triangle:**

- ✓ Boundaries: Sternocleidomastoid, inferior belly of omohyoid, clavicle.

- **Contents:**

- Arteries: occipital artery (branch of external carotid artery), third part of subclavian artery
- Nerves: accessory nerve (CN XI), Cervical plexus and brachial plexus
- Lymph nodes: occipital lymph nodes and supraclavicular lymph nodes



Head and Neck Lymph Drainage

• Collar Group (superficial group)

Several nodes arranged in a ring, beneath the superficial fascia (subfascial) around the junction of the head and neck as follows:

1. **Occipital nodes:** Located over the occipital bone on the back of the skull, they receive lymph from the back of the scalp.
2. **Mastoid (retroauricular) nodes:** Located behind the ear over the mastoid process, they receive lymph from the scalp above the ear, the auricle, and the external auditory meatus.
3. **Parotid (preauricular) nodes:** Located on or within the parotid salivary gland, they receive lymph from the scalp above the parotid gland, lateral thirds of the eyelids, the parotid gland, the auricle, and the external auditory meatus.
4. **Buccal (facial) nodes:** One or two nodes lie in the cheek over the buccinator.

5. **Submandibular nodes:** Located superficial to the submandibular salivary gland just below the lower margin of the jaw, they receive lymph from the front of the scalp; the nose; the cheek; the upper lip and the lower lip (except the central part); (the frontal, maxillary, and ethmoid sinuses) ; the upper and lower teeth (except the lower incisors); the anterior two thirds of the tongue (except the tip); the floor of the mouth and vestibule; and the gums.
6. **Submental nodes:** Located in the submental triangle just below the chin, they drain lymph from the tip of the tongue, the floor of the anterior part of the mouth, the incisor teeth, the center part of the lower lip, and the skin over the chin.

•Perivisceral Group

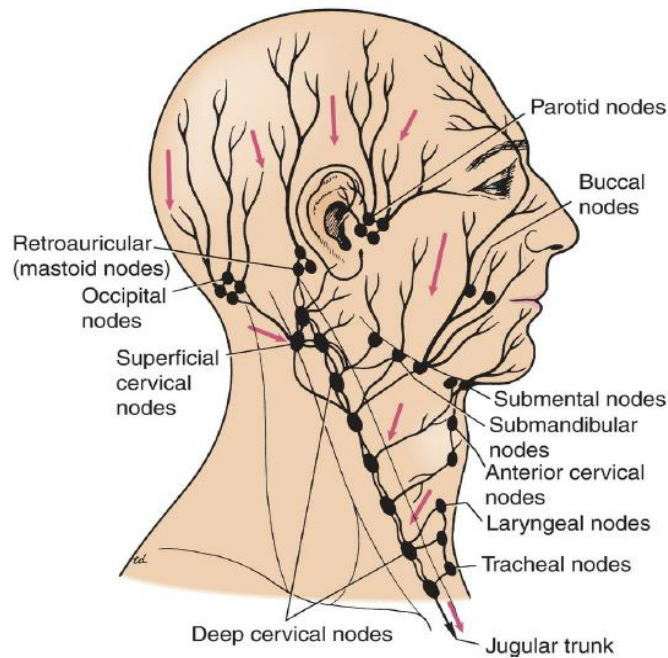
They lie close to the median viscera (pretracheal, retropharyngeal, prelaryngeal,...etc)

•Deep Cervical Nodes

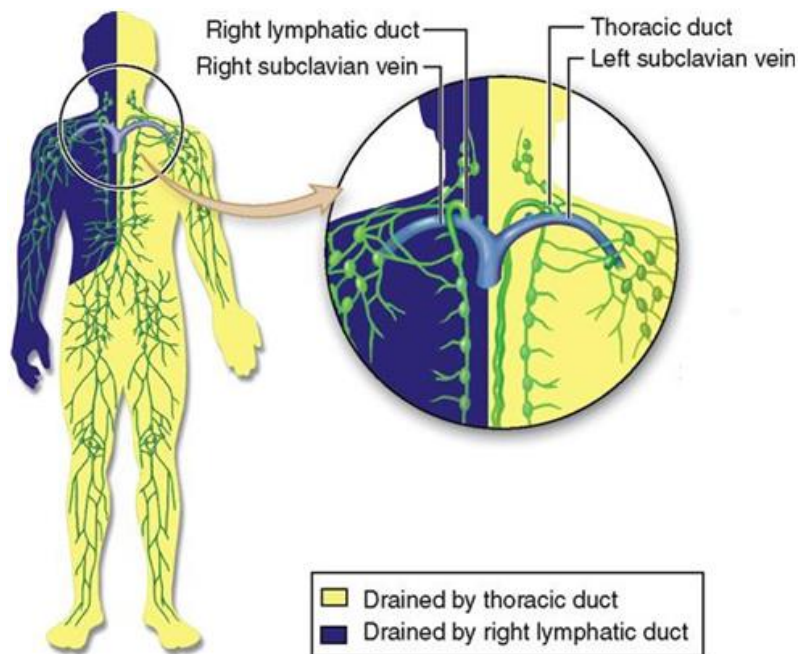
a) Jugular chain: lie vertically along the course of the internal jugular vein, within the carotid sheath, from the base of the skull to the root of the neck. They receive lymph from all the groups of regional nodes in the head and neck. They are arranged in three groups according to their relation to internal jugular vein:

- **upper jugular (jugulodigastric, tonsillar)** lymph nodes: are the main drainage of tonsils and located close to the posterior belly of digastric.
- **mid-jugular (jugulo-omohyoid):** they located midway between the other two jugular nodes; where the omohyoid muscle cross the internal jugular vein.
- **lower jugular (infraomohyoid)**

b) Supraclavicular Lymph nodes: they lie in subclavian triangle above the clavicle.



The lymph vessels from the deep cervical nodes join to form the jugular trunks. The jugular trunk usually empties (drains) into the thoracic duct (on the left) and into the lymphatic duct (on the right).



This is the End of the Lecture – Good Luck