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# GROSS ANATOMY OF NECK FASCIA

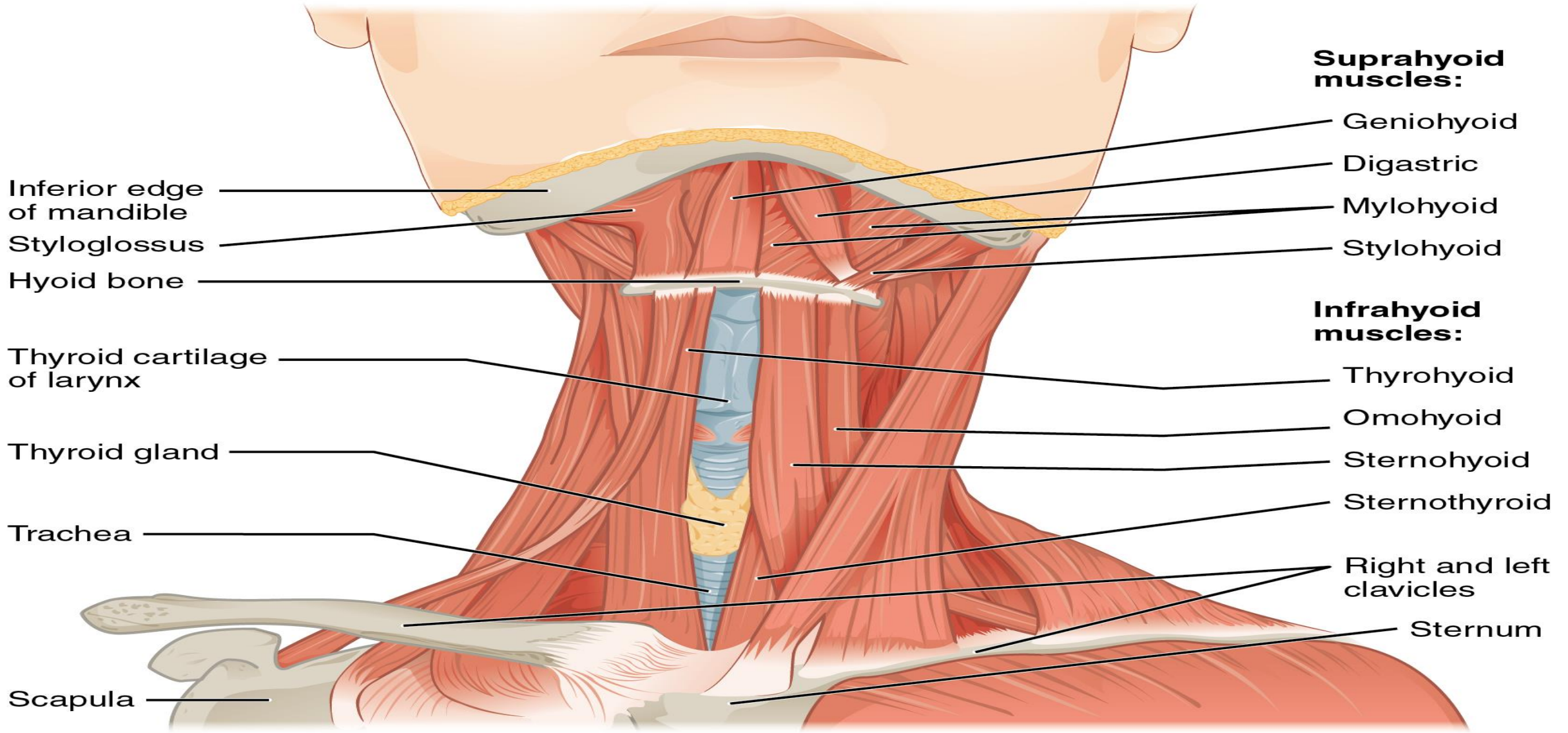
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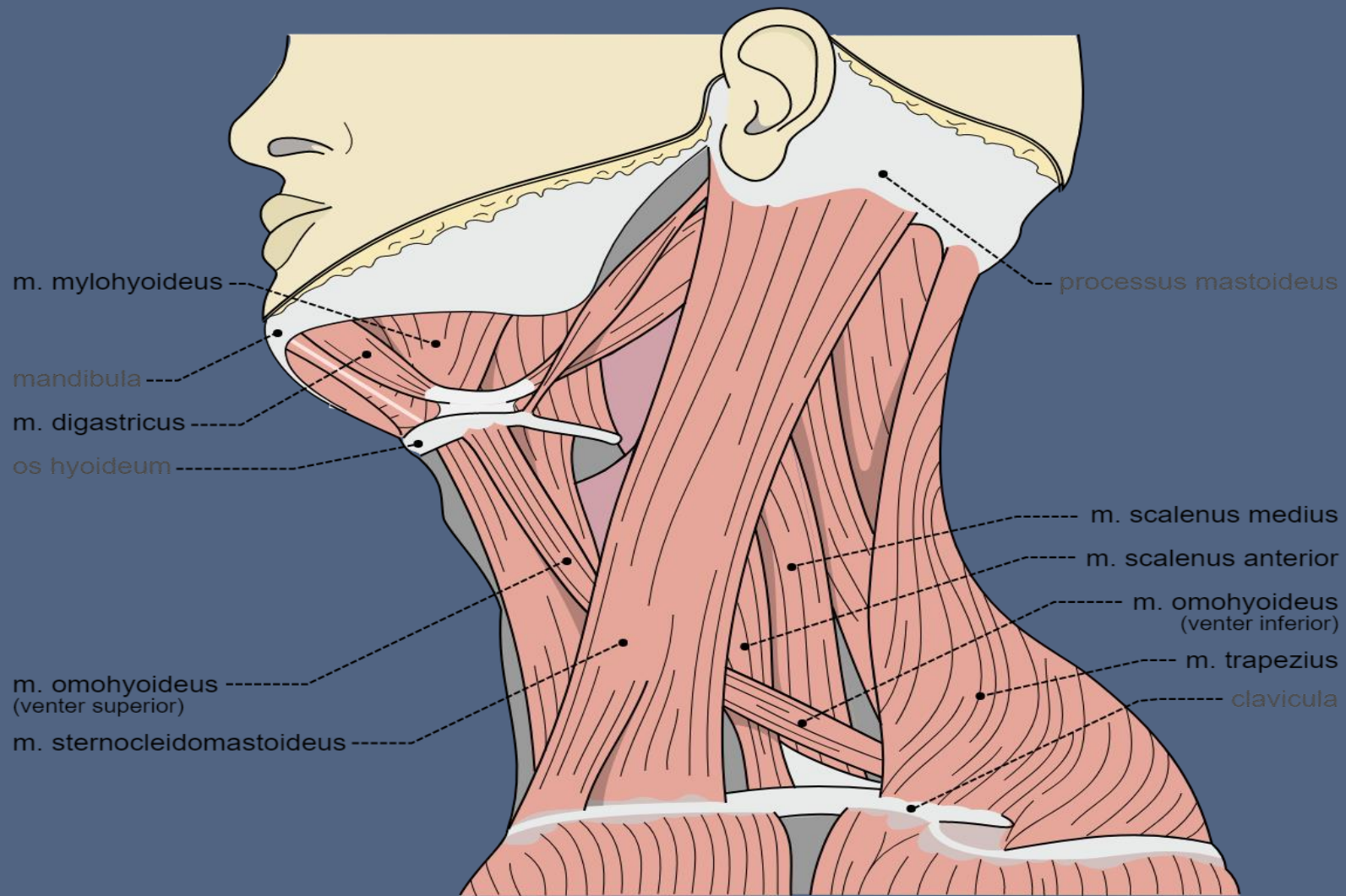
**DR. MAHVISH JAVED**

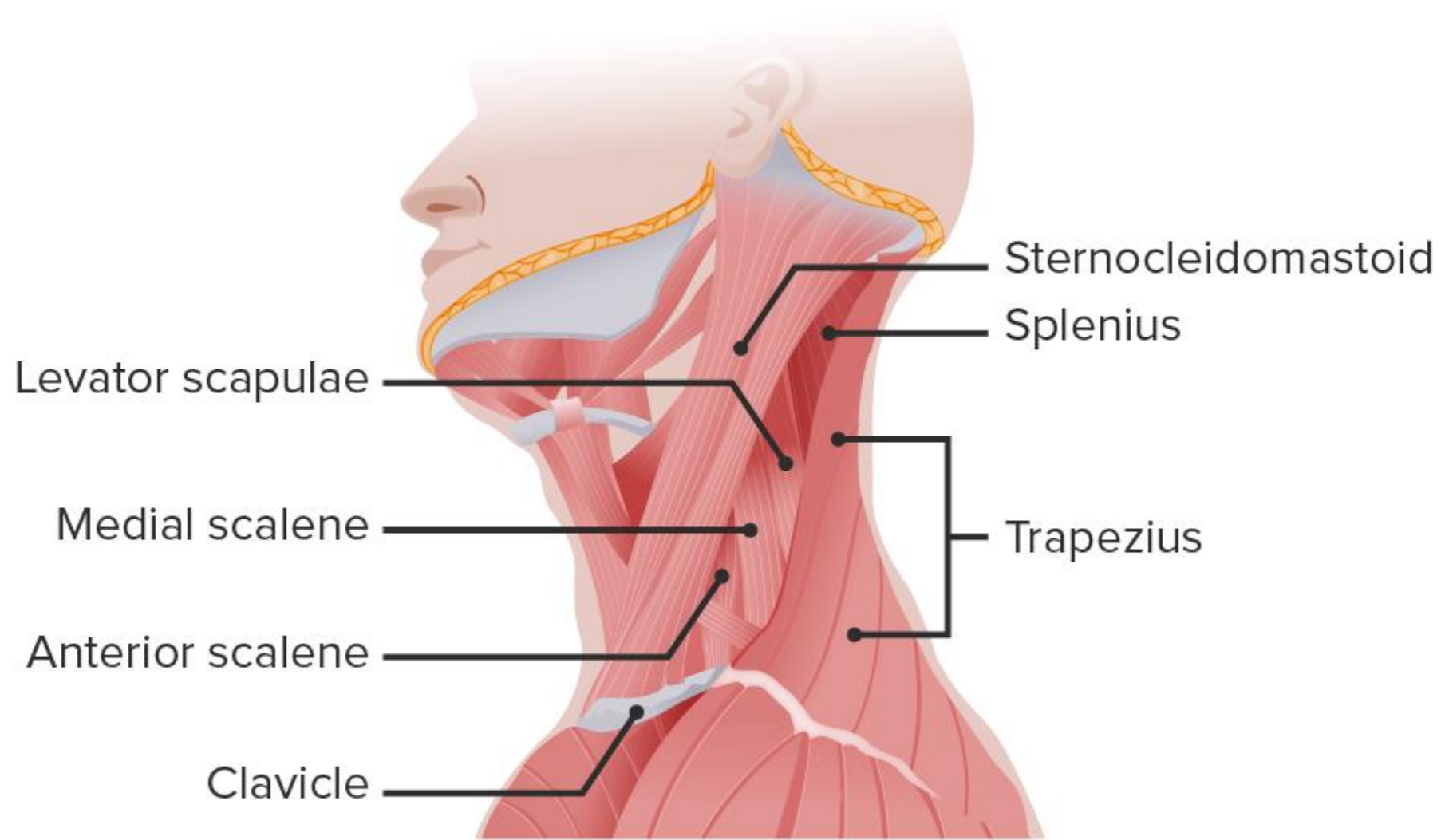
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Fascia is an **internal connective tissue** which forms bands or sheets that surround and support muscles, vessels and nerves in the body.

In the neck, these layers of fascia not only act to support internal structures, but also help to **compartmentalise** structures of the neck. There are two fascias in the neck – the superficial cervical fascia and the deep cervical fascia.



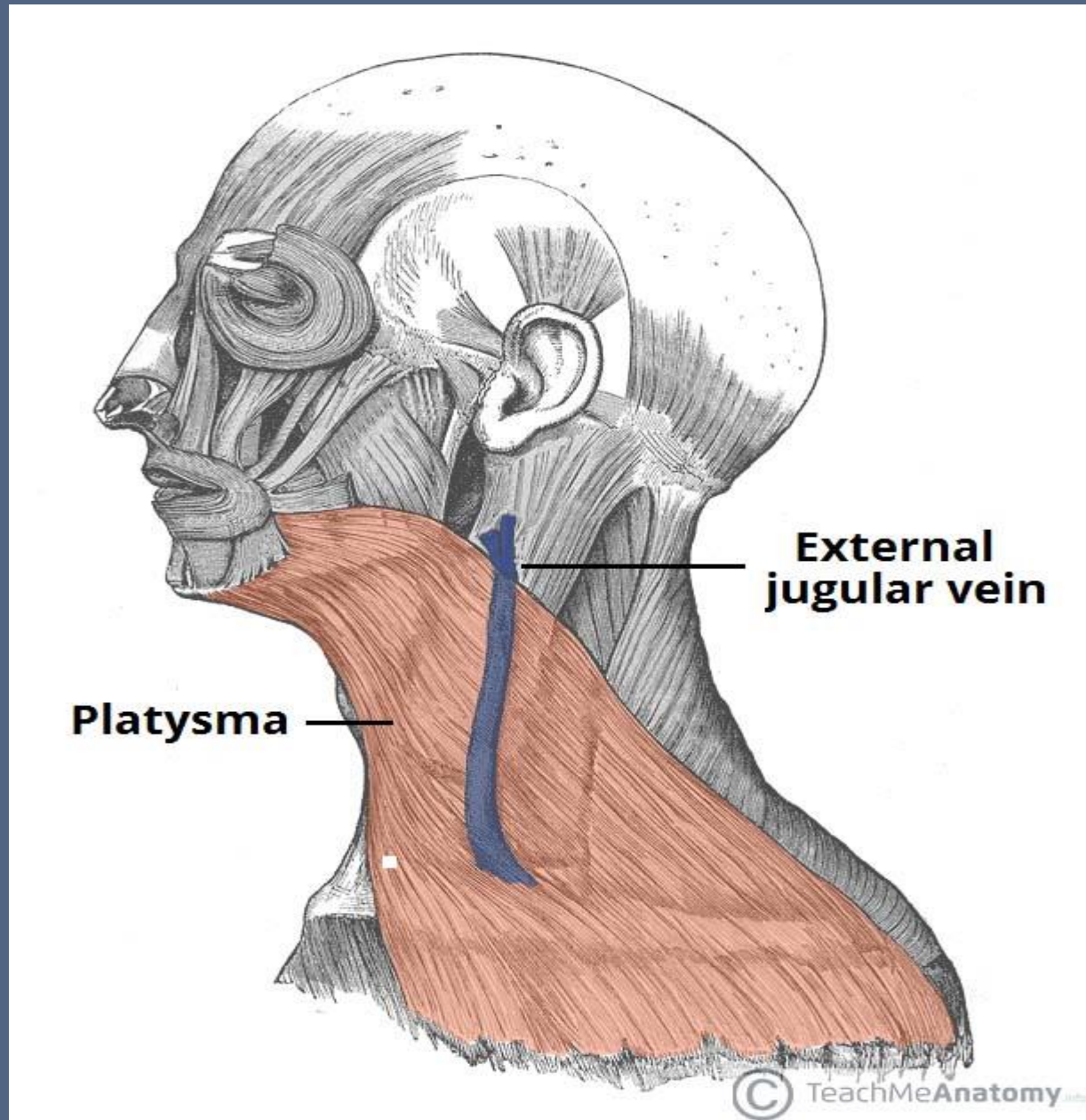






# PLATYSMA

- The superficial cervical fascia blends with the 'paper thin' platysma muscle. The **platysma** is a broad superficial muscle which lies anteriorly in the neck.
- It has two heads, which originate from the fascia of the pectoralis major and deltoid. The fibres from the two heads cross the clavicle, and meet in the midline, fusing with the muscles of the face. Superiorly, the platysma inserts into the inferior border of the **mandible**.
- Innervation to the platysma is via the cervical branch of the [facial nerve](#).



The platysma muscle, located within the superficial cervical fascia.



# SUPERFICIAL CERVICAL FASCIA

- The **superficial cervical fascia** lies between the dermis and the deep cervical fascia. It contains numerous structures:
- Neurovascular supply to the skin
- Superficial veins (e.g. the external jugular vein)
- Superficial lymph nodes
- Fat
- Platysma muscle

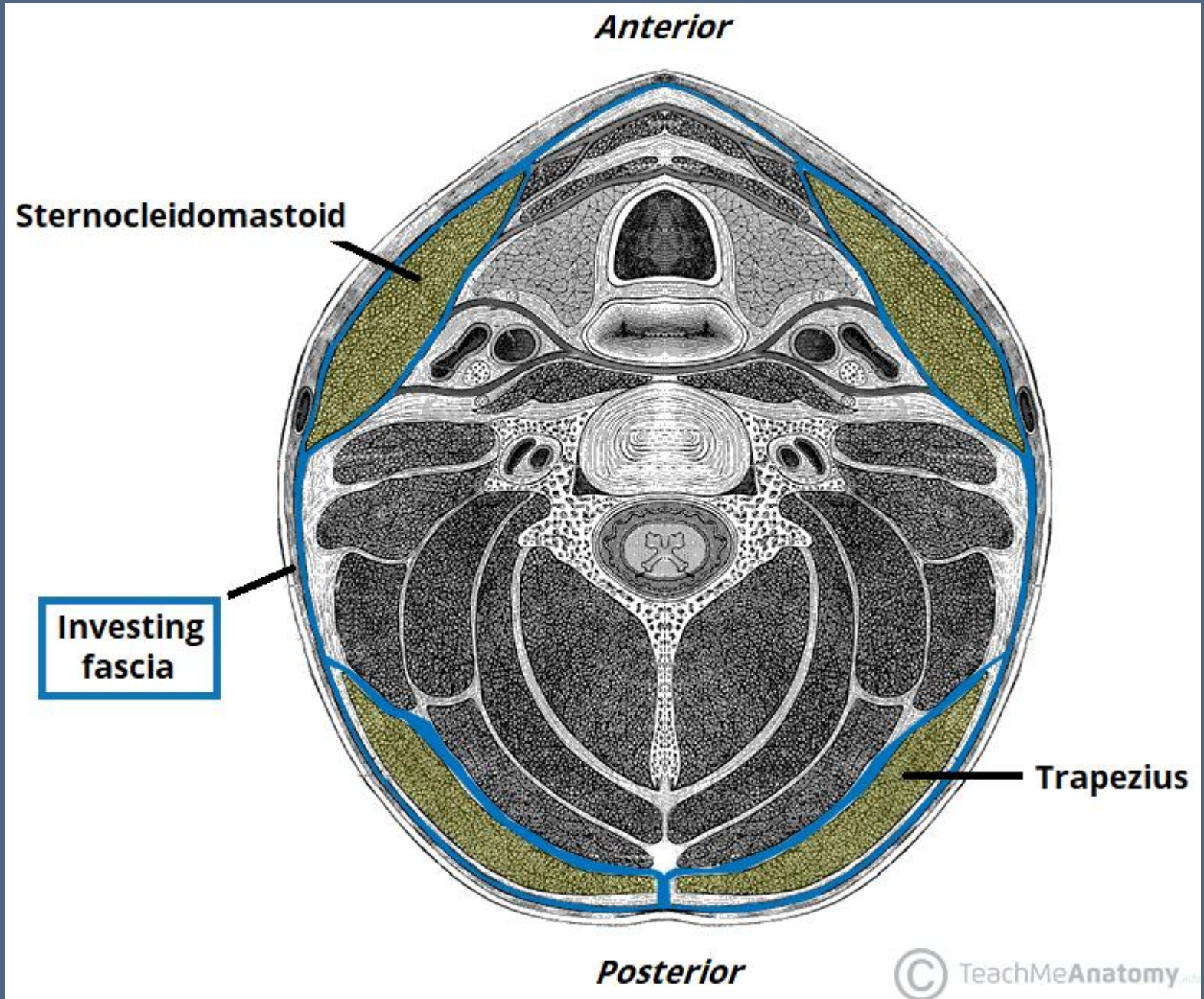
# DEEP CERVICAL FASCIA

- The **deep cervical fascia** lies, as its name suggests, 'deep' to the superficial fascia and platysma muscle. This fascia is organised into several layers. These layers act like a shirt collar, supporting the structures and vessels of the neck.
- We shall now look at the layers of the deep cervical fascia in more detail (superficial to deep):

# DEEP CERVICAL FASCIA (CONTD)

- Investing Layer
- The **investing layer** is the most superficial of the deep cervical fascia.
- It surrounds all the structures in the neck. Where it meets the **trapezius** and **sternocleidomastoid** muscles, it splits into two, completely surrounding them.
- The investing fascia can be thought of as a tube; with superior, inferior, anterior and posterior attachments:
- **Superior** – attaches to the external occipital protuberance and the superior nuchal line of the skull.
- **Anteriorly** – attaches to the hyoid bone.
- **Inferiorly** – attaches to the spine and acromion of the scapula, the clavicle, and the manubrium of the sternum.
- **Posterior** – attaches along the nuchal ligament of the vertebral column



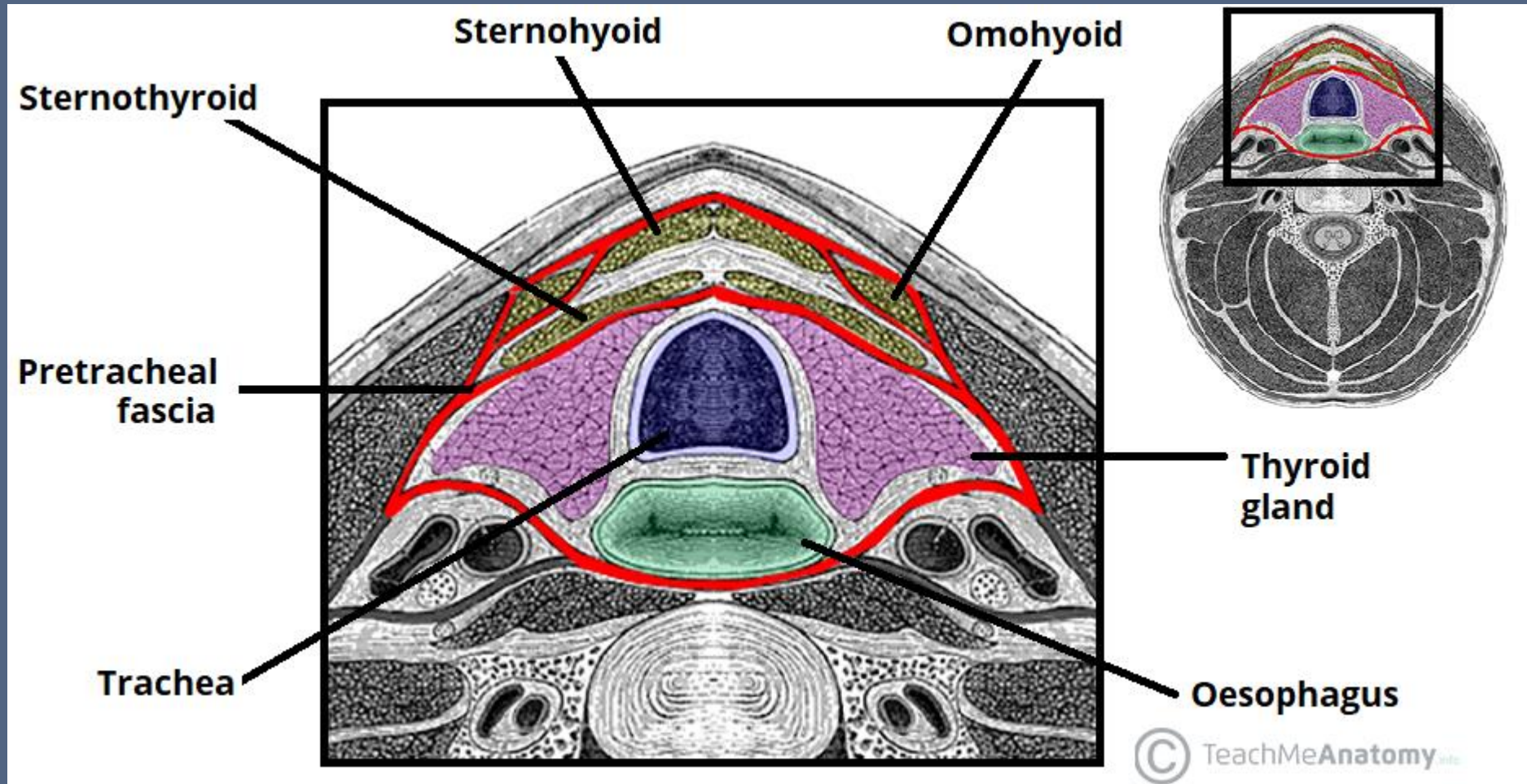


Transverse section of the neck, with the investing layer of fascia highlighted in blue

# DEEP CERVICAL FASCIA (CONTD)

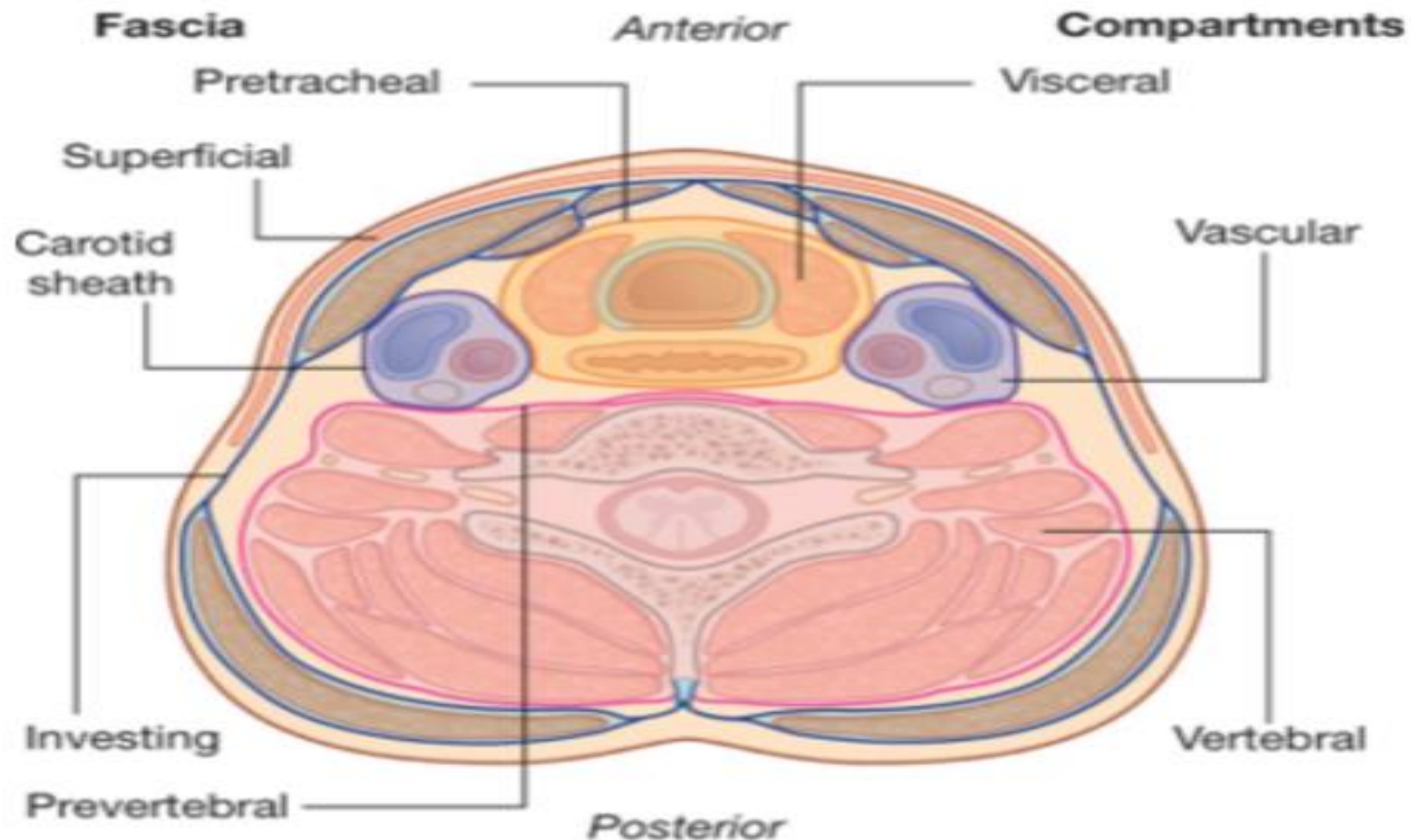
## Pretracheal Layer

- The **pretracheal layer** of fascia is situated in the anterior neck. It spans between the hyoid bone superiorly and the thorax inferiorly (where it fuses with the pericardium).
- The trachea, oesophagus, thyroid gland and infrhyoid muscles are enclosed by the pretracheal fascia. Anatomically, it can be divided into two parts:
  - **Muscular part** – encloses the infrahyoid muscles.
  - **Visceral part** – encloses the thyroid gland, trachea and oesophagus.
- The posterior aspect of the visceral fascia is formed by contributions from the **buccopharyngeal fascia** (a fascial covering of the pharynx).



Transverse section of the neck, showing the pretracheal fascia in red.

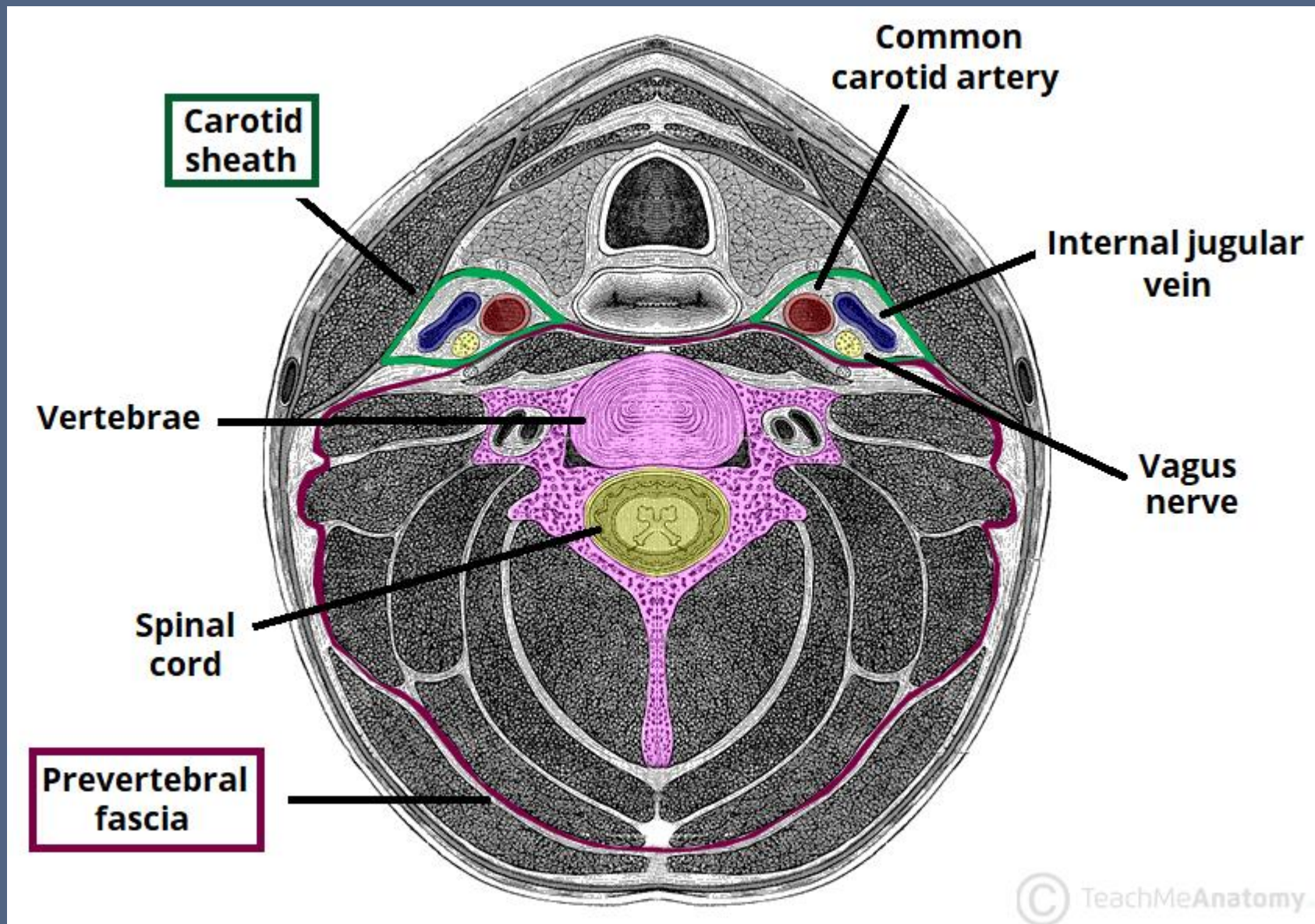




# DEEP CERVICAL FASCIA (CONTD)

## Prevertebral Layer

- The **prevertebral fascia** surrounds the vertebral columns and its associated muscles; scalene muscles, prevertebral muscles, and the deep muscles of the back.
- It has attachments along the antero-posterior and supero-inferior axes:
- **Superior attachment** – base of the skull.
- **Anterior attachment** – transverse processes and vertebral bodies of the vertebral column.
- **Posterior attachment** – along the nuchal ligament of the vertebral column
- **Inferior attachment** – fusion with the endothoracic fascia of the ribcage.
- The anterolateral portion of prevertebral fascia forms the floor of the **posterior triangle of the neck**. It also surrounds the brachial plexus as it leaves the neck and subclavian artery as it passes through the lower neck region – in doing so, it forms the **axillary sheath**.



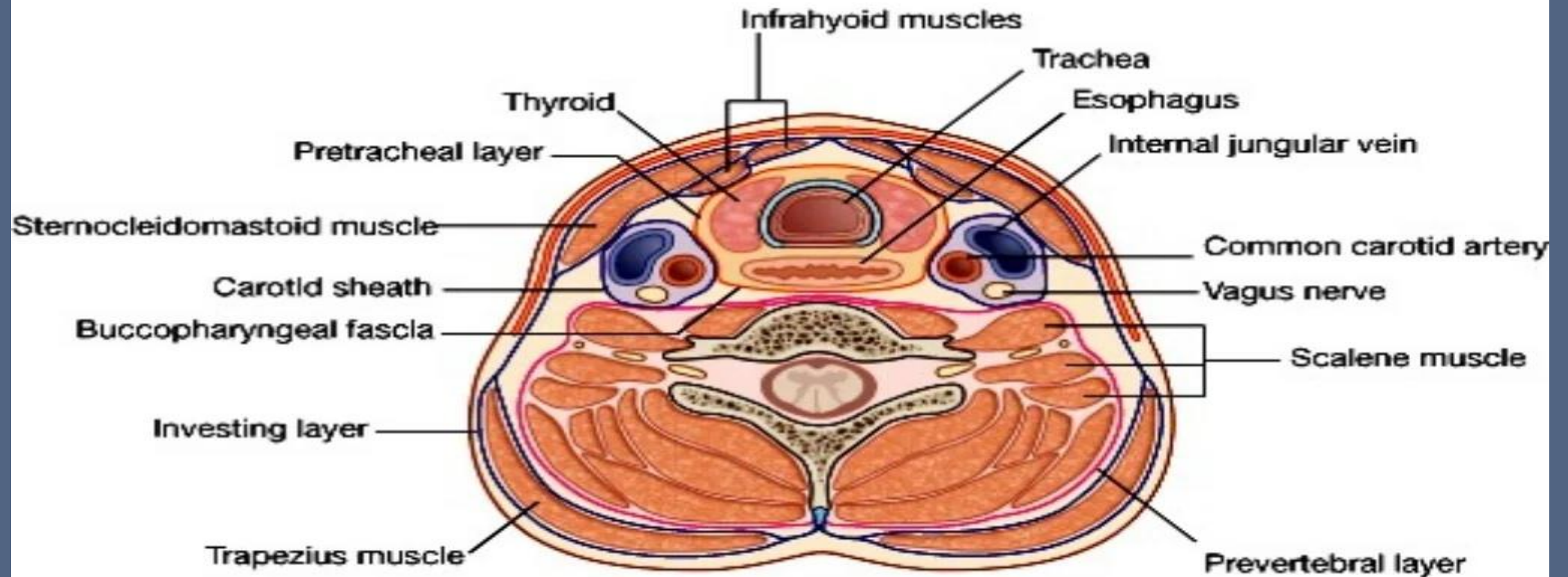
The carotid sheath and prevertebral fascia of the neck.



# DEEP CERVICAL FASCIA (CONTD)

## Carotid Sheath

- The **carotid sheaths** are paired structures on either side of the neck, which enclose an important neurovascular bundle of the neck.
- The contents of the carotid sheath are:
  - Common carotid artery
  - Internal jugular vein.
  - Vagus nerve.
  - Accompanying cervical lymph nodes.
- The fascia of the carotid sheath is formed by **contributions** from the pretracheal, prevertebral, and investing fascia layers. The carotid artery bifurcates within the sheath into the external and internal carotid arteries.
- The carotid fascia is organised into a column, which runs between the base of the skull to the **thoracic mediastinum**. This is of clinical importance as a pathway for the spread of infection.



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## KEY FACTS ABOUT CERVICAL FASCIAS

Superficial cervical fascia

Subcutaneous connective tissue located between the dermis and investing layer of deep cervical fascia

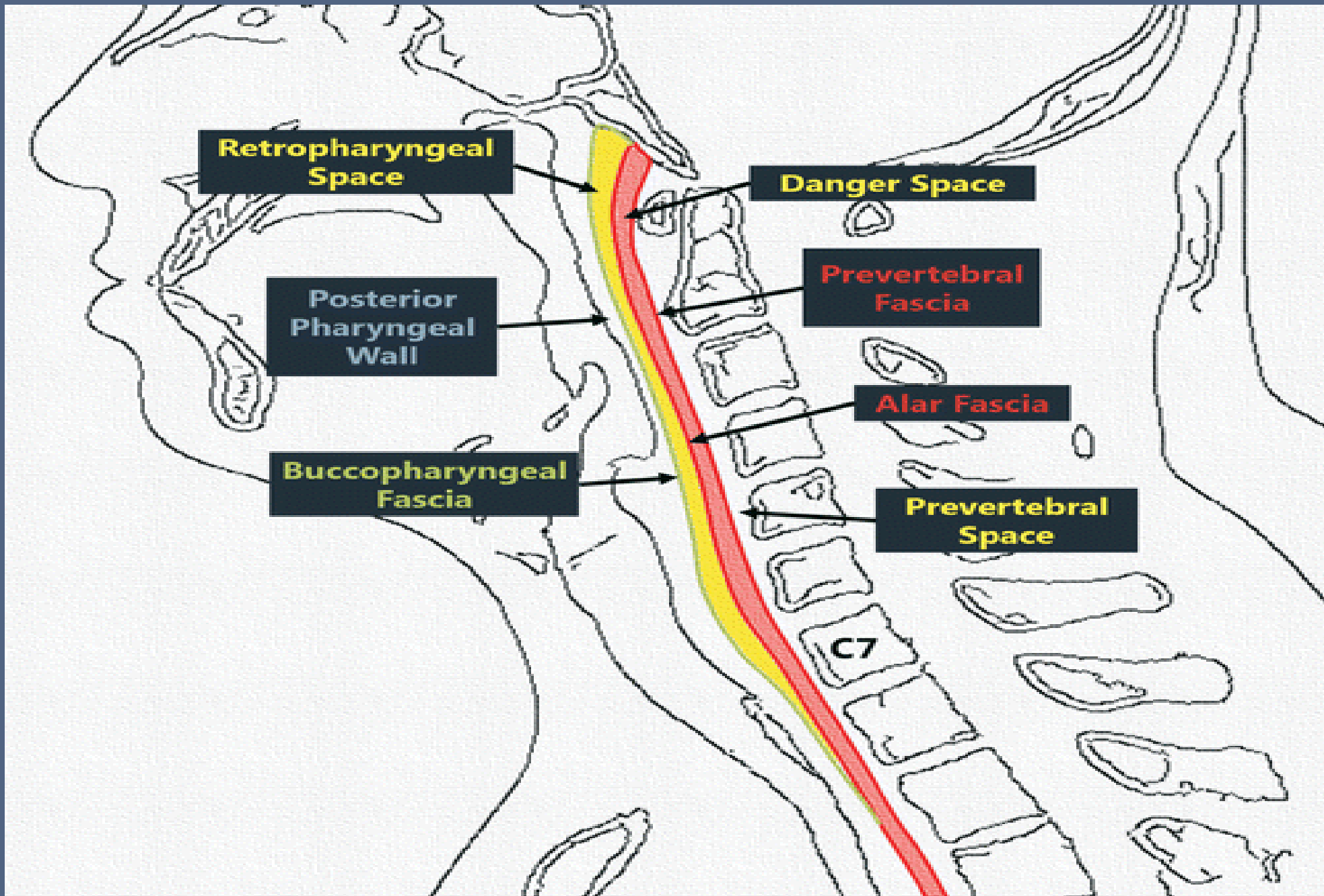
Deep cervical fascia

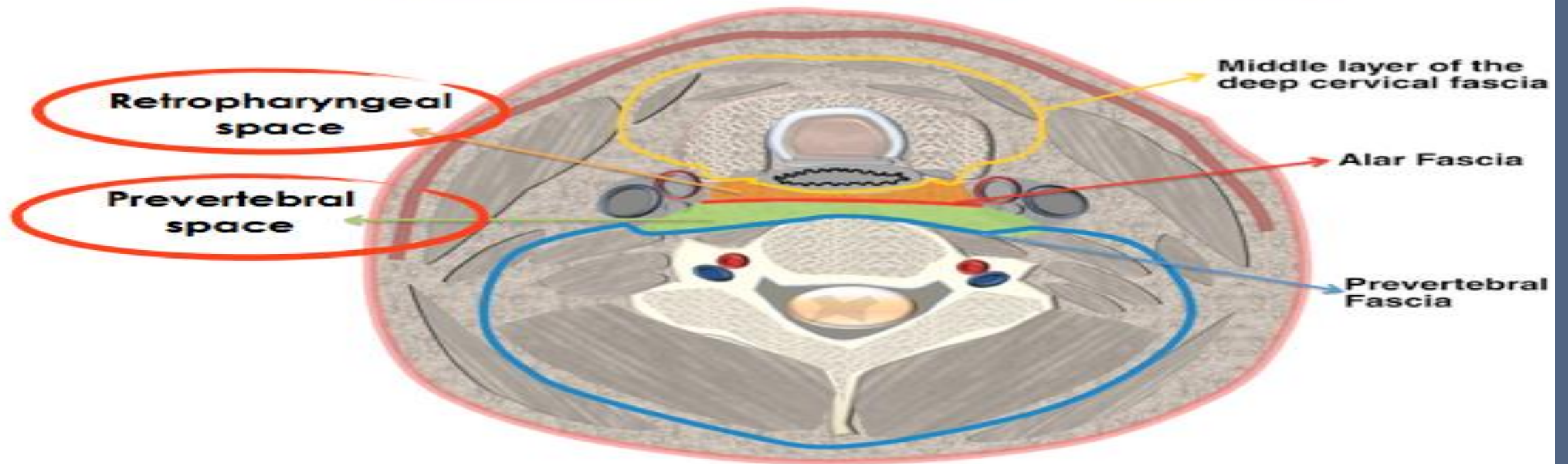
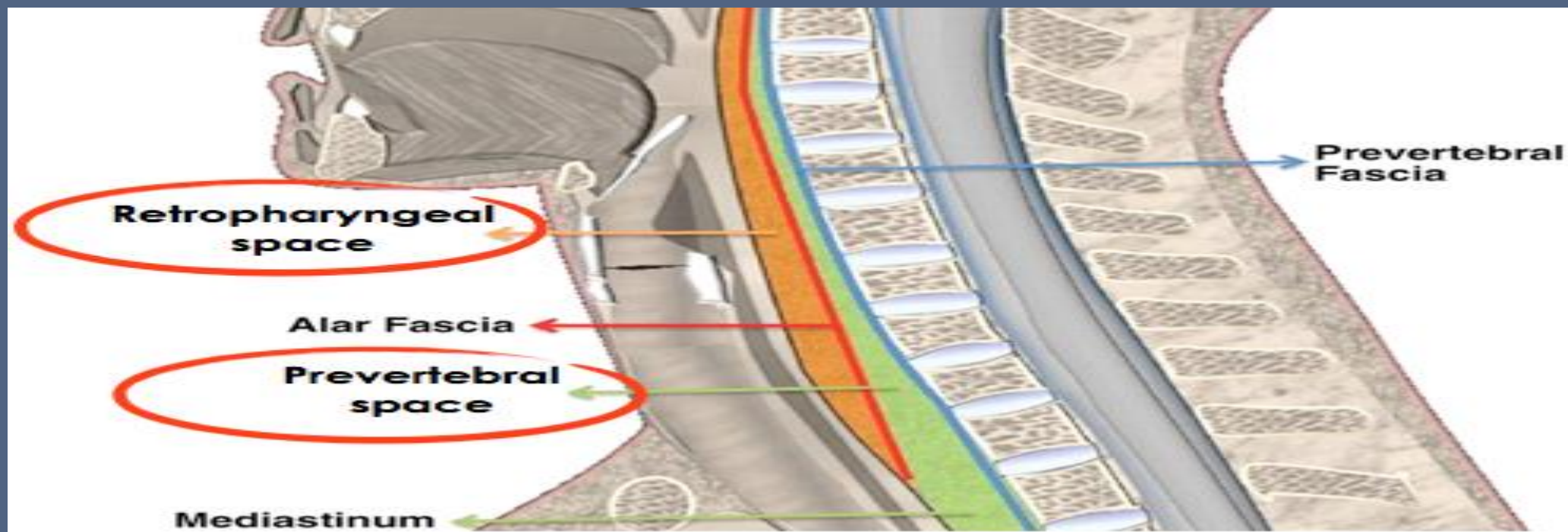
Investing layer: most superficial, enclosing trapezius, sternocleidomastoid, submandibular and parotid glands  
Pretracheal layer: occupies the anterior part of the neck, consisting of muscular and visceral parts  
Prevertebral layer: encloses vertebral column, longus colli and longus capitis muscles  
Carotid sheath: contains the common carotid arteries, internal carotid arteries, internal jugular vein, the vagus nerve (CN X), some deep cervical lymph nodes, carotid sinus nerve, and sympathetic nerve fibres



# Clinical Relevance: Fascial Spaces of the Neck

- The neck fascia **compartmentalises** structures within the neck. These layers of tough fascia can limit the spread of infection (for example, a superficial skin abscess may be prevented from spreading deeper into the neck by the investing fascia).
- However, infections that reach the **potential spaces** between the neck fascia have a well-defined spread:
- **Retropharyngeal space** – located between the buccopharyngeal fascia (posterior aspect of the visceral pretracheal fascia) and the prevertebral fascia.
  - Extends from the base of the skull to the posterior mediastinum.
- **Visceral space** – enclosed by the visceral pretracheal fascia.
  - Extends from the hyoid bone to the superior mediastinum.







# Fascial Spaces

- Loose areolar, connective tissue fills the spaces between the various layers of deep cervical fascia. They are potential spaces and become actual spaces only when invaded and displaced by infective material (pus), blood or occasionally by air (surgical emphysema).



<http://prosites-otohouston.homestead.com/NECKABSCESS.html>

(Liebgott, Bernard. *The Anatomical Basis of Dentistry*, 2nd Ed. Elsevier, 2001.

**THANK YOU**