
بسم الله الرحمن الرحيم

THE POSTERIOR TRIANGLE OF THE NECK

By

DR. MAHVISH JAVED

Assistant Professor, Department of Anatomy

Khyber Girls Medical College Peshawar

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

BORDERS

- Its boundaries are as follows:
- **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.

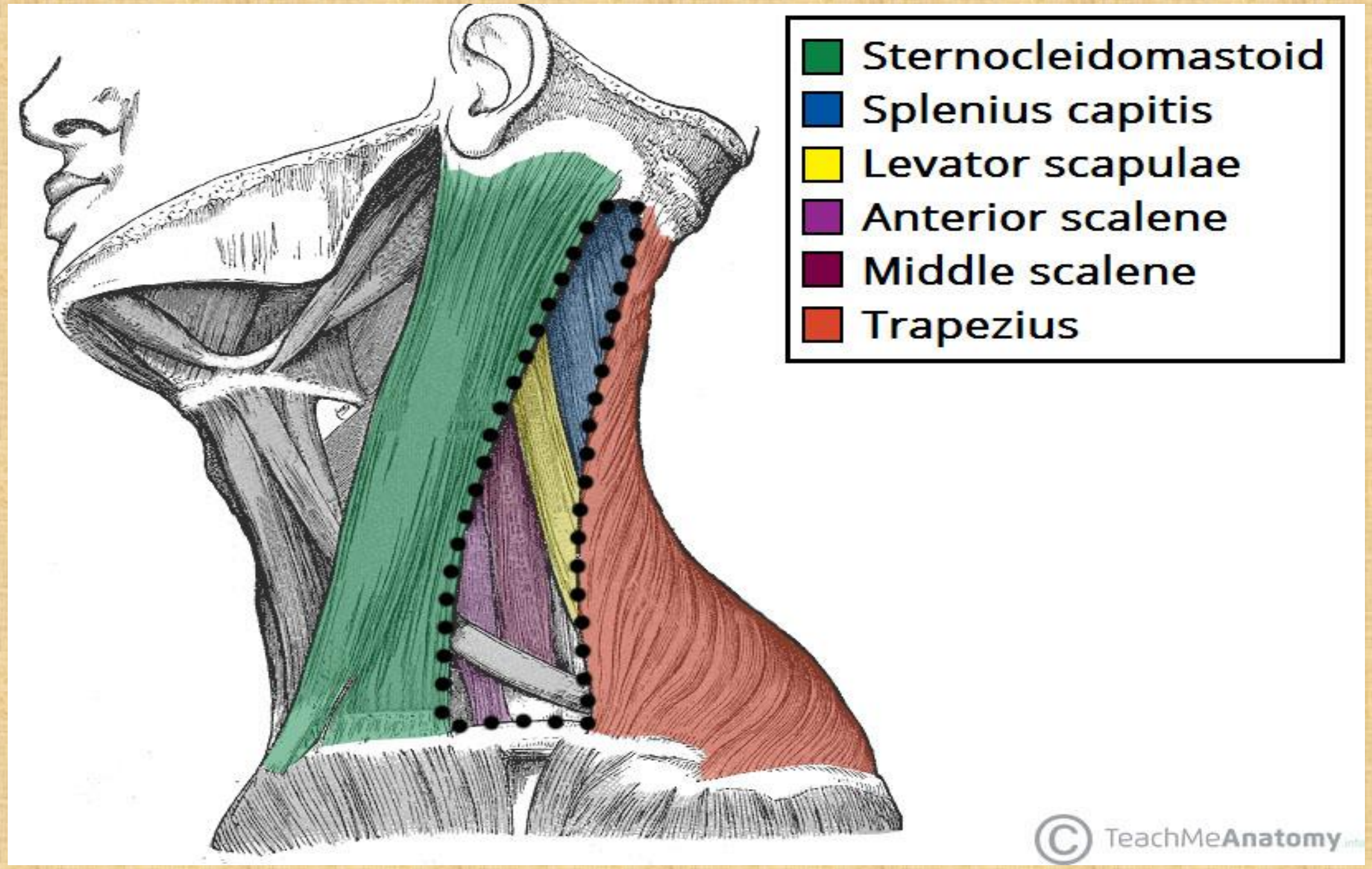
Posterior triangle

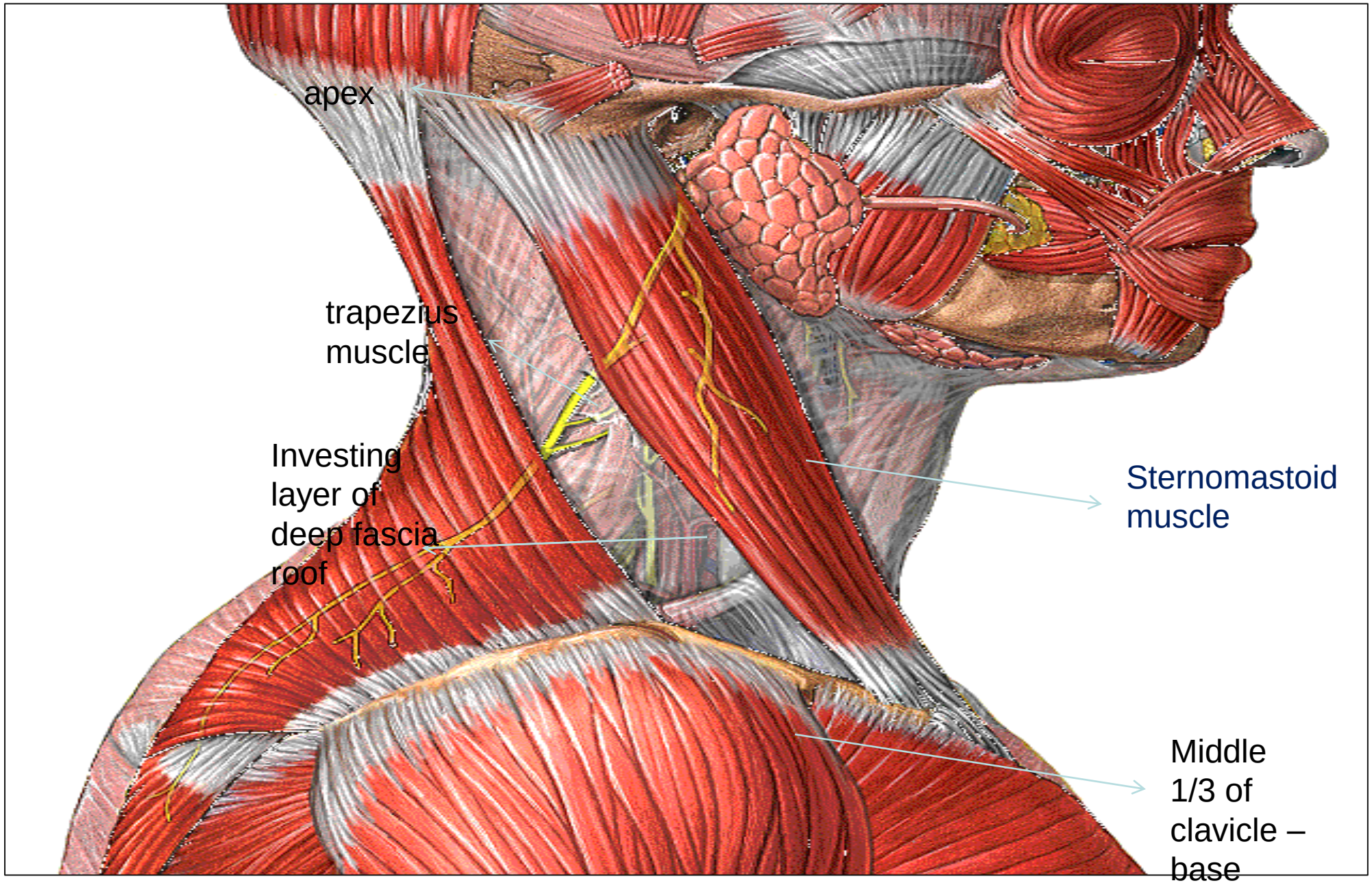
- Boundaries
  - SCM **anteriorly**
  - Trapezius muscle, **posteriorly**.
  - Clavicle, **inferiorly**.
- The apex of the triangle is formed by the occipital bone.
- The **ROOF** of the posterior triangle is formed by:
  - Skin
  - Superficial fascia
  - Platysma muscle
  - Investing layer of the deep cervical fascia

FLOOR

Formed by the following muscles from above downwards:

- Splenius Capitis
- Levator scapulae
- Posterior scalene
- Middle scalene
- Anterior scalene

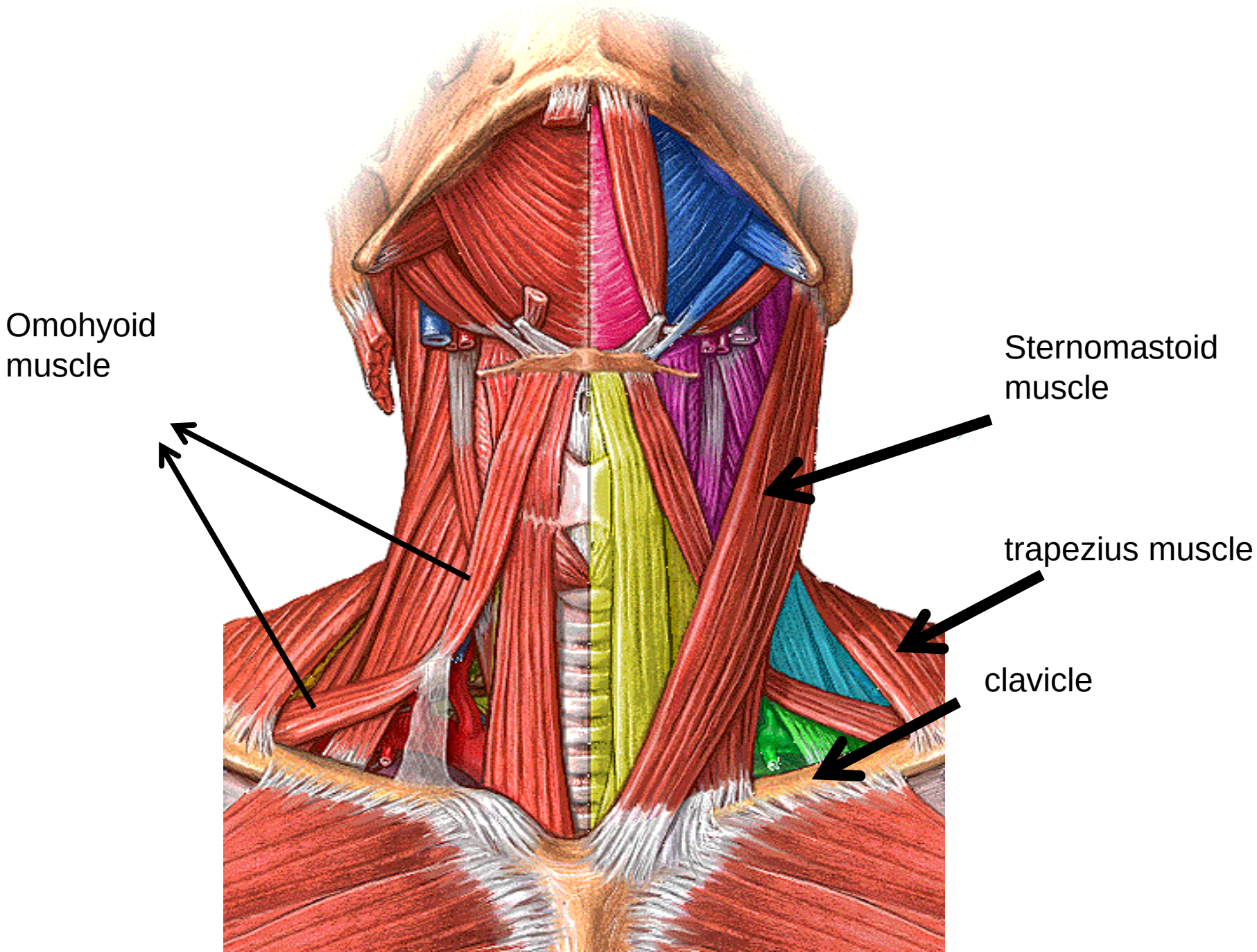

Sternocleidomastoid
Splenius capitis
Levator scapulae
Anterior scalene
Middle scalene
Trapezius
© TeachMeAnatomy


apex
trapezius muscle
Investing layer of deep fascia roof
Sternomastoid muscle
Middle 1/3 of clavicle – base

CONTENTS

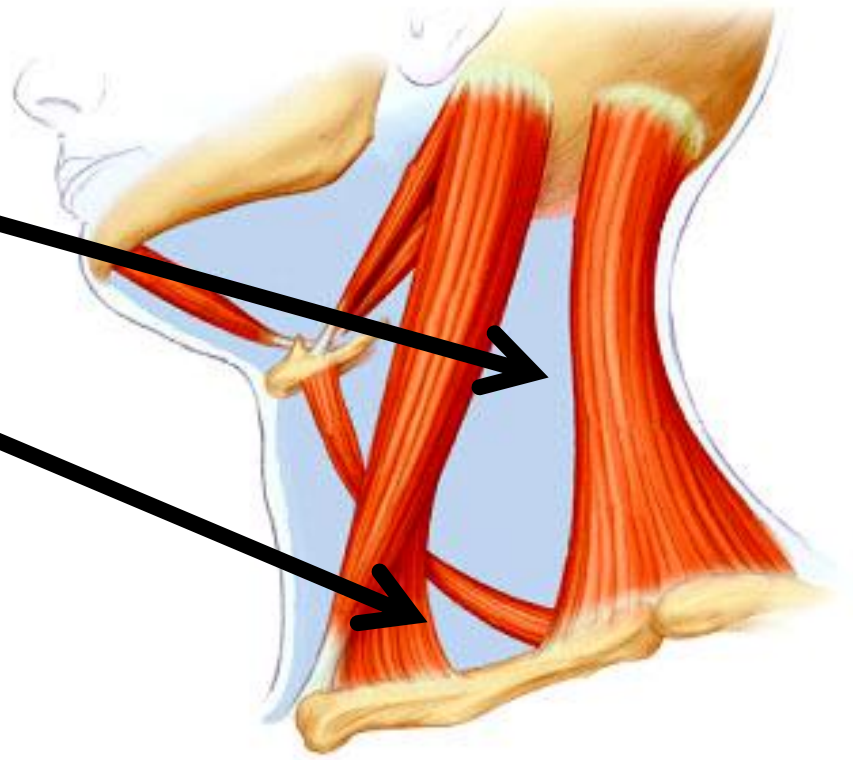
MUSCLES

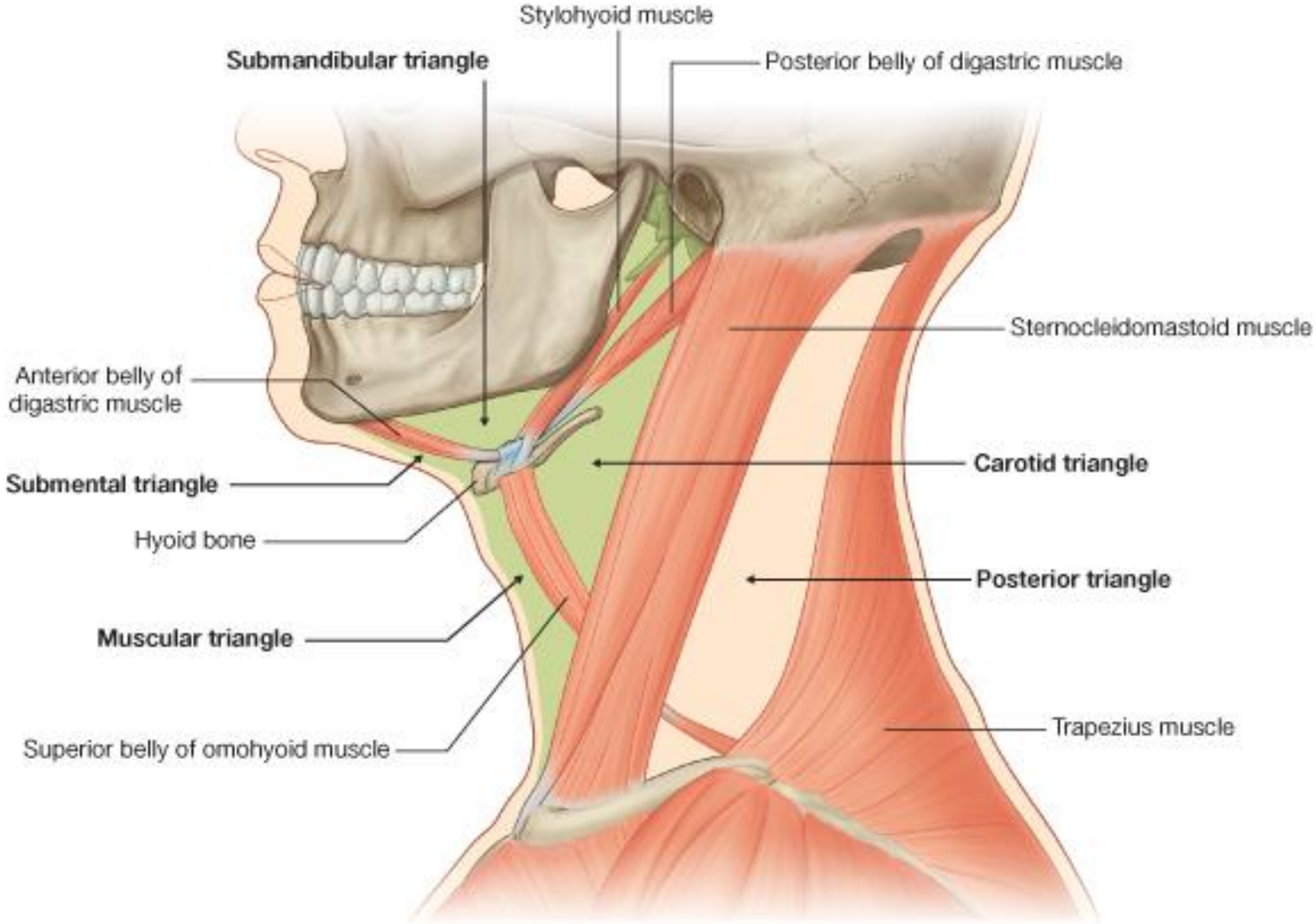
- The posterior triangle of the neck contains many muscles, which make up the borders and the floor of the area.
- A significant muscle in the posterior triangle region is the **omohyoid** muscle. It is split into two bellies by a tendon. The **inferior belly** crosses the posterior triangle, travelling in an supero-medial direction, and splitting the triangle into two. The muscle then crosses underneath the SCM to enter the anterior triangle of the neck.
- A number of vertebral muscles (covered by prevertebral fascia) form the **floor** of the posterior triangle:
- Splenius capitis
- Levator scapulae
- Anterior, middle and posterior scalenes


Omohyoid muscle
Sternomastoid muscle
trapezius muscle
clavicle

Triangles of posterior (lateral) region of neck

- Occipital triangle
- supraclavicular triangle





CONTENTS (CONTD)

Vasculature

- The **external jugular vein** is one of the major veins of the neck region. Formed by the retromandibular and posterior auricular veins, it lies **superficially**, entering the posterior triangle after crossing the **sternocleidomastoid** muscle. Within the posterior triangle, the external jugular vein pierces the investing layer of fascia and empties into the **subclavian vein**.
- The **subclavian vein** is often used as a point of access to the venous system, via a **central catheter**.

Vasculature (CONTD)

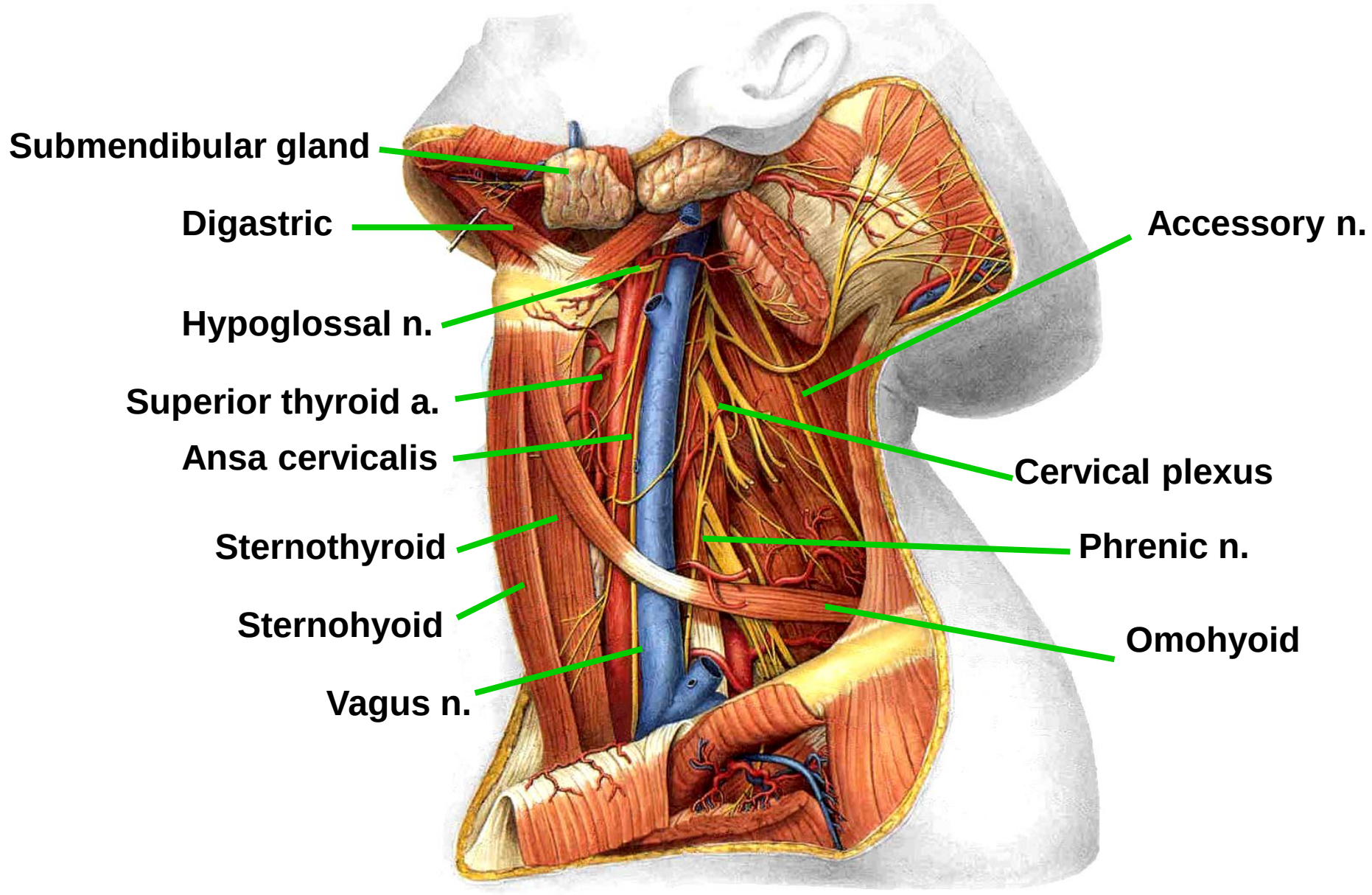
- The **transverse cervical** and **suprascapular** veins also lie in the posterior triangle

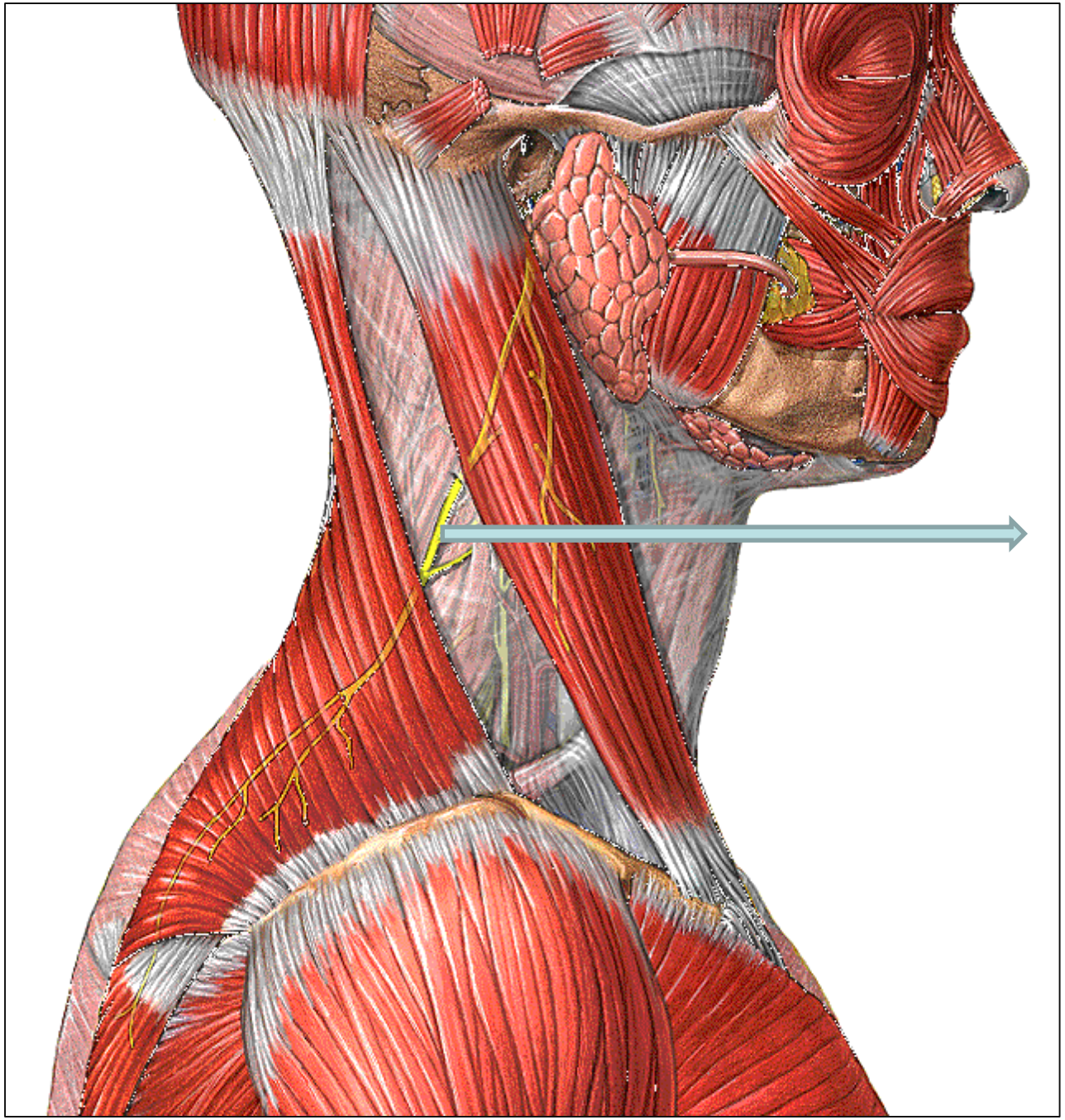
- The subclavian, transverse cervical and suprascapular veins are accompanied by their respective arteries in the posterior triangle.

- The distal part of the **subclavian artery** can be located as it emerges between the anterior and middle **scalene** muscles. As it crosses the first rib, it becomes the **axillary** artery, which goes onto supply the upper limb.

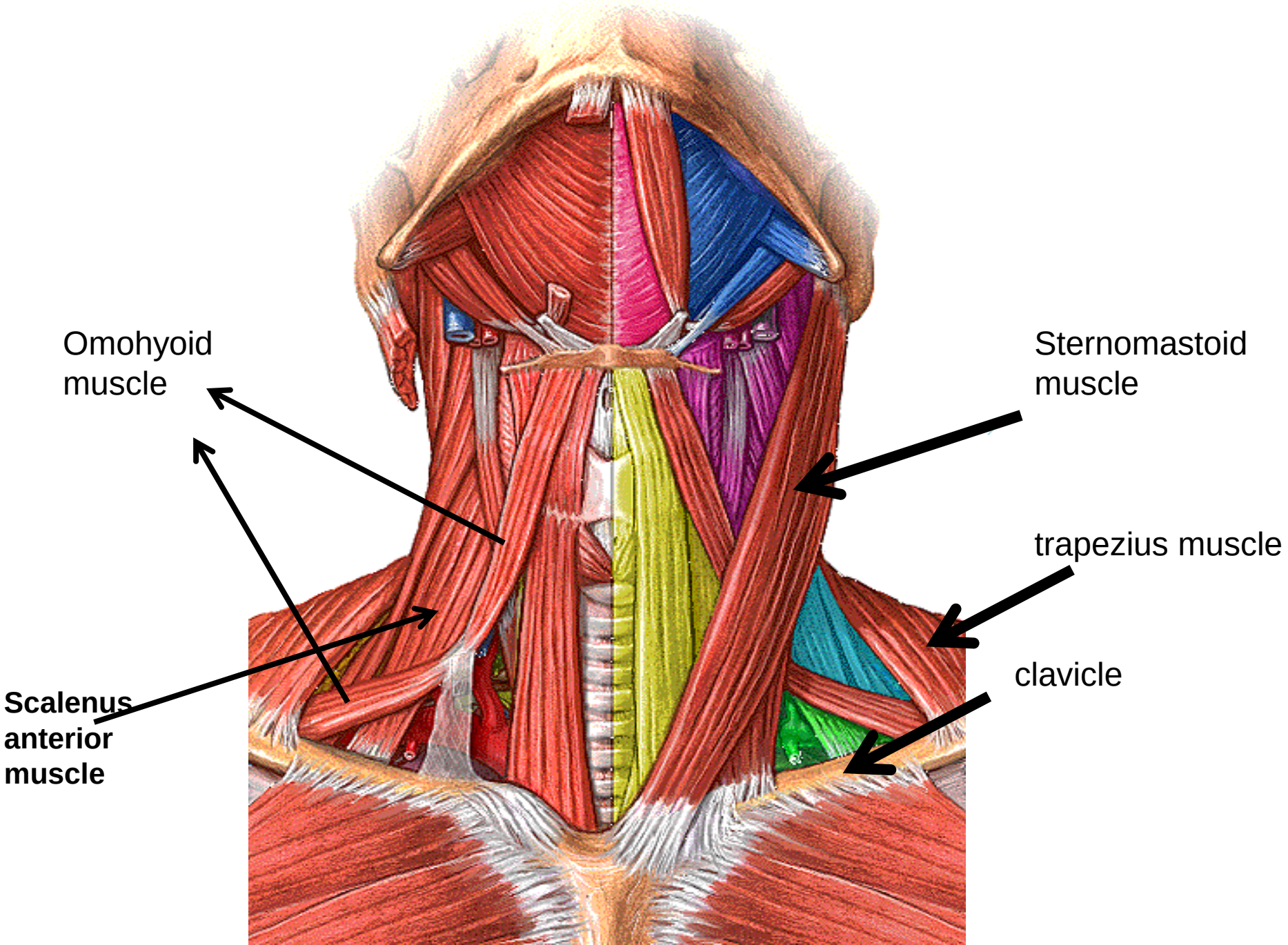
NERVES

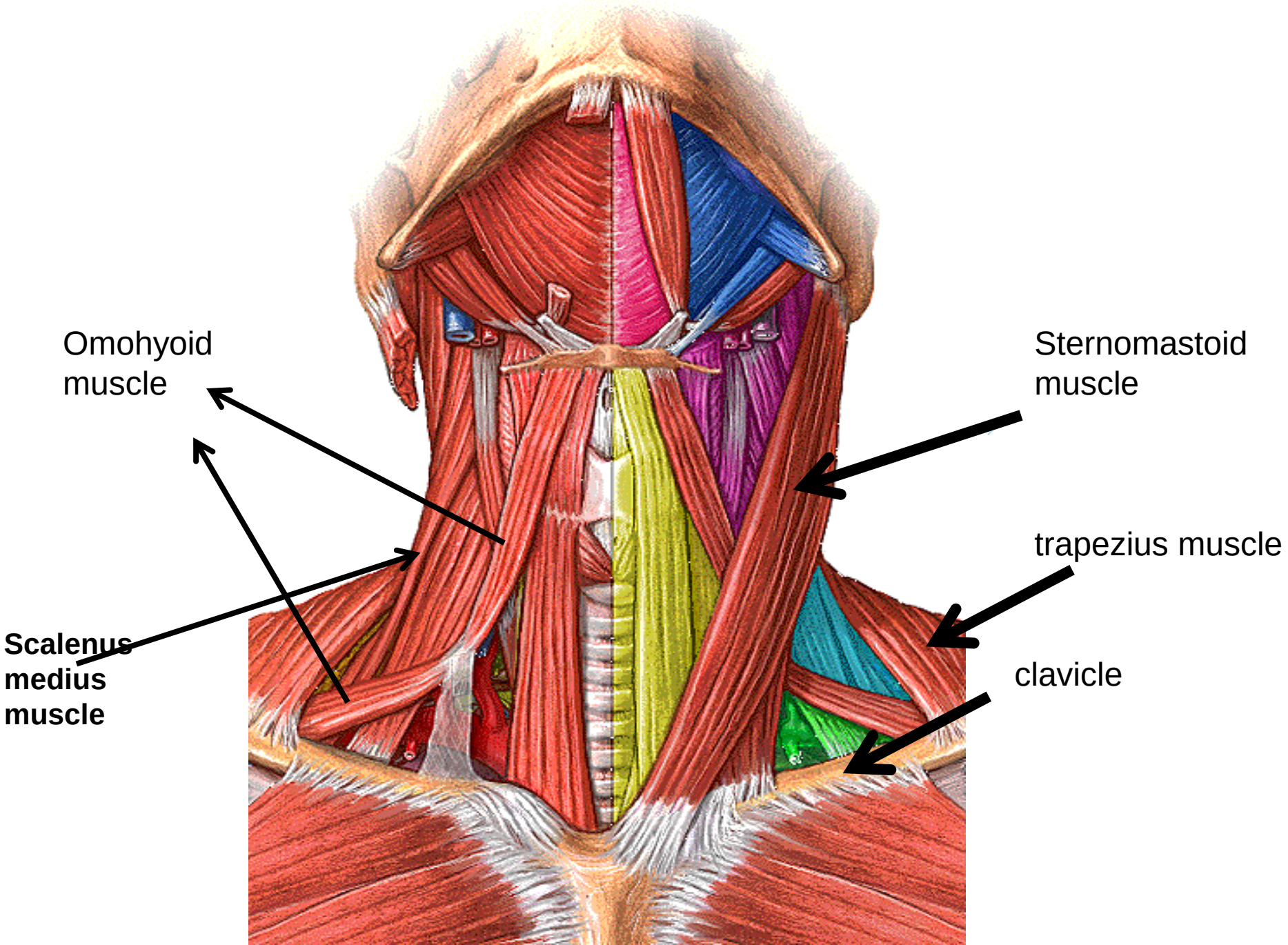
- The **accessory nerve (CN XI)** exits the cranial cavity, descends down the neck, innervates sternocleidomastoid and enters the posterior triangle. It crosses the posterior triangle in an oblique, inferoposterior direction, within the **investing** layer of fascia. It lies relatively **superficial** in the posterior triangle, leaving it vulnerable to injury.
- The **cervical plexus** forms within the muscles of the **floor** of the posterior triangle. A major branch of this plexus is the **phrenic nerve**, which arises from the anterior divisions of spinal nerves C3-C5. It descends down the neck, within the **prevertebral** fascia, to innervate the diaphragm.
- Other branches of the cervical plexus innervate the vertebral muscles, and provide cutaneous innervation to parts of the neck and scalp.
- The trunks of the **brachial plexus** also cross the floor of the posterior triangle.

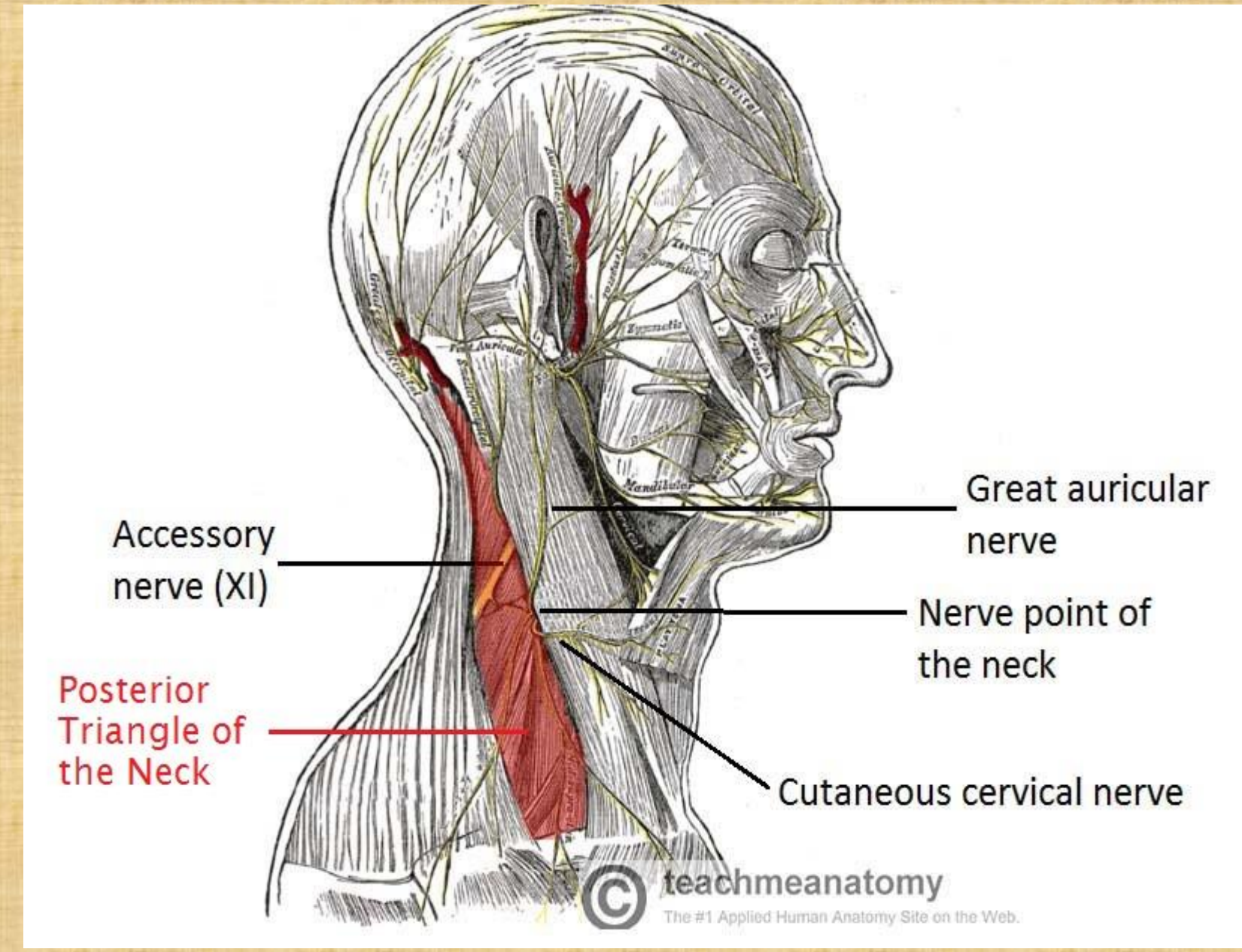

Submendibular gland
Digastric
Hypoglossal n.
Superior thyroid a.
Ansa cervicalis
Sternothyroid
Sternohyoid
Vagus n.
Accessory n.
Cervical plexus
Phrenic n.
Omohyoid



Spinal part of accessory nerve


Omohyoid muscle
Sternomastoid muscle
trapezius muscle
clavicle
Scalenus anterior muscle

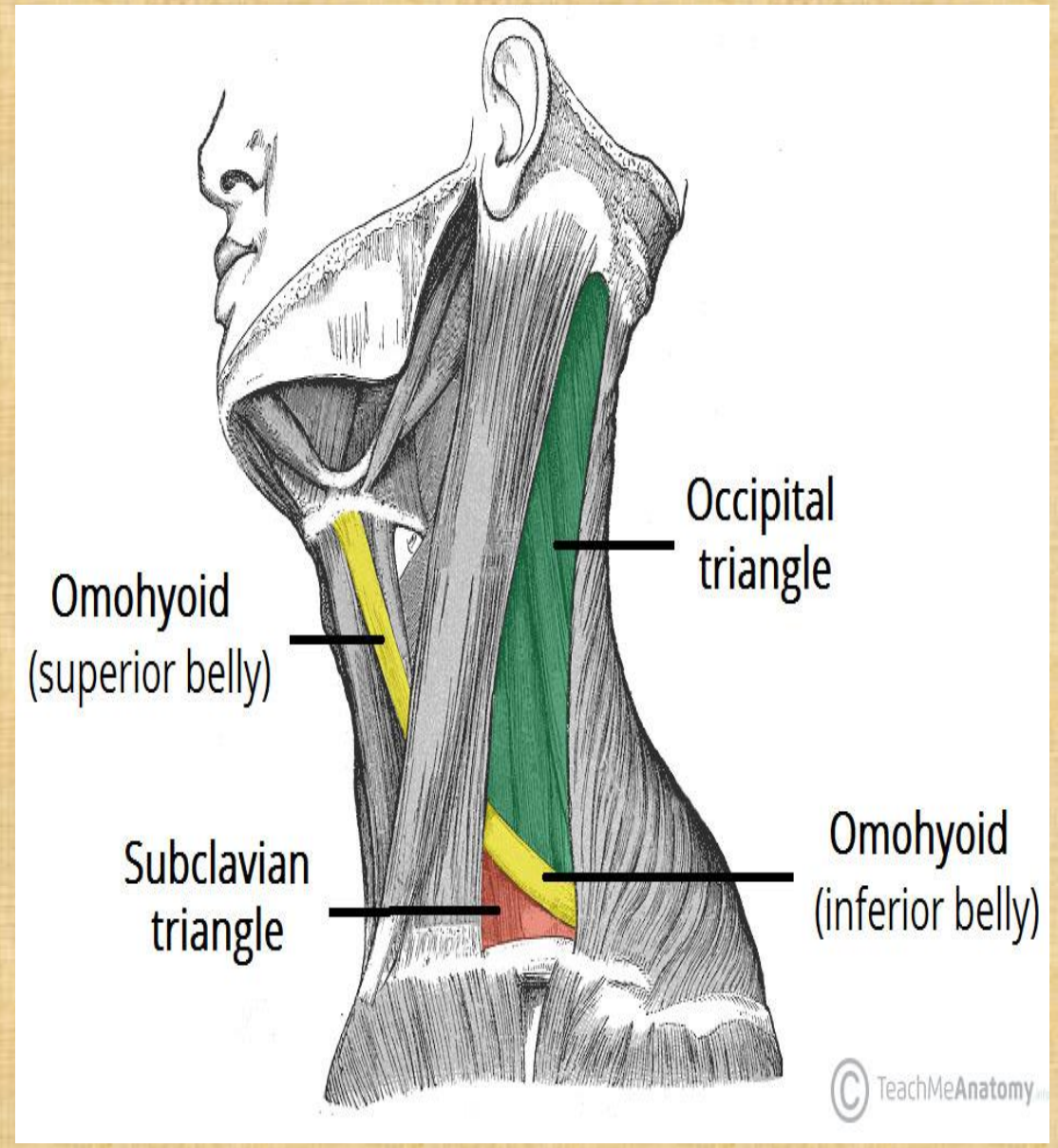

Omohyoid muscle
Sternomastoid muscle
trapezius muscle
clavicle
Scalenus medius muscle



Nerves within the posterior triangle of the neck.

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**. It is also known as the omoclavicular or supraclavicular triangle.



The posterior triangle is divided by the inferior belly of the omohyoid into the occipital and subclavian triangles.

Clinical Relevance
Cervical Plexus Nerve Block

For anaesthesia of the neck area, a **cervical plexus block** can be used.

Local anaesthetic is injected along the **posterior border** of sternocleidomastoid at the junction of its superior and middle thirds. This junction is where the cutaneous branches of the cervical plexus emerge, known as the **nerve point** of the neck.

KEY FACTS ABOUT THE TRIANGLES OF THE NECK

Definition	Two triangular areas found anterior and posterior to the sternocleidomastoid muscles which contain the visceral structures of the neck.
Anterior triangle	Borders: - Superior - inferior border of mandible - Medial - midline of neck - Lateral - anterior boeder of sternocleidomastoid muscle Subdivisions: - Muscular (omotracheal) triangle - Carotid triangle - Submandibular triangle - Submental triangle
Posterior triangle	Borders: - Anterior - posterior margin of sternocleidomastoid muscle - Posterior - anterior margin of trapezius muscle - Inferior - middle one-third of clavicle Subdivisions: - Occipital triangle - Supraclavicular (omoclavicular) triangle

Sternocleidomastoid Muscles

- This quadrilateral space is divided by the **Sternocleidomastoid** muscle into two main triangles .
- It passes obliquely upwards and backwards from its site of origin at the **clavicle** and **sternum** to its point of insertion on the **mastoid process** and the **occipital bone** .
- The triangle in front of this muscle is the **anterior triangle** and the one behind it is the **posterior triangle .**

CONTENTS: NERVES

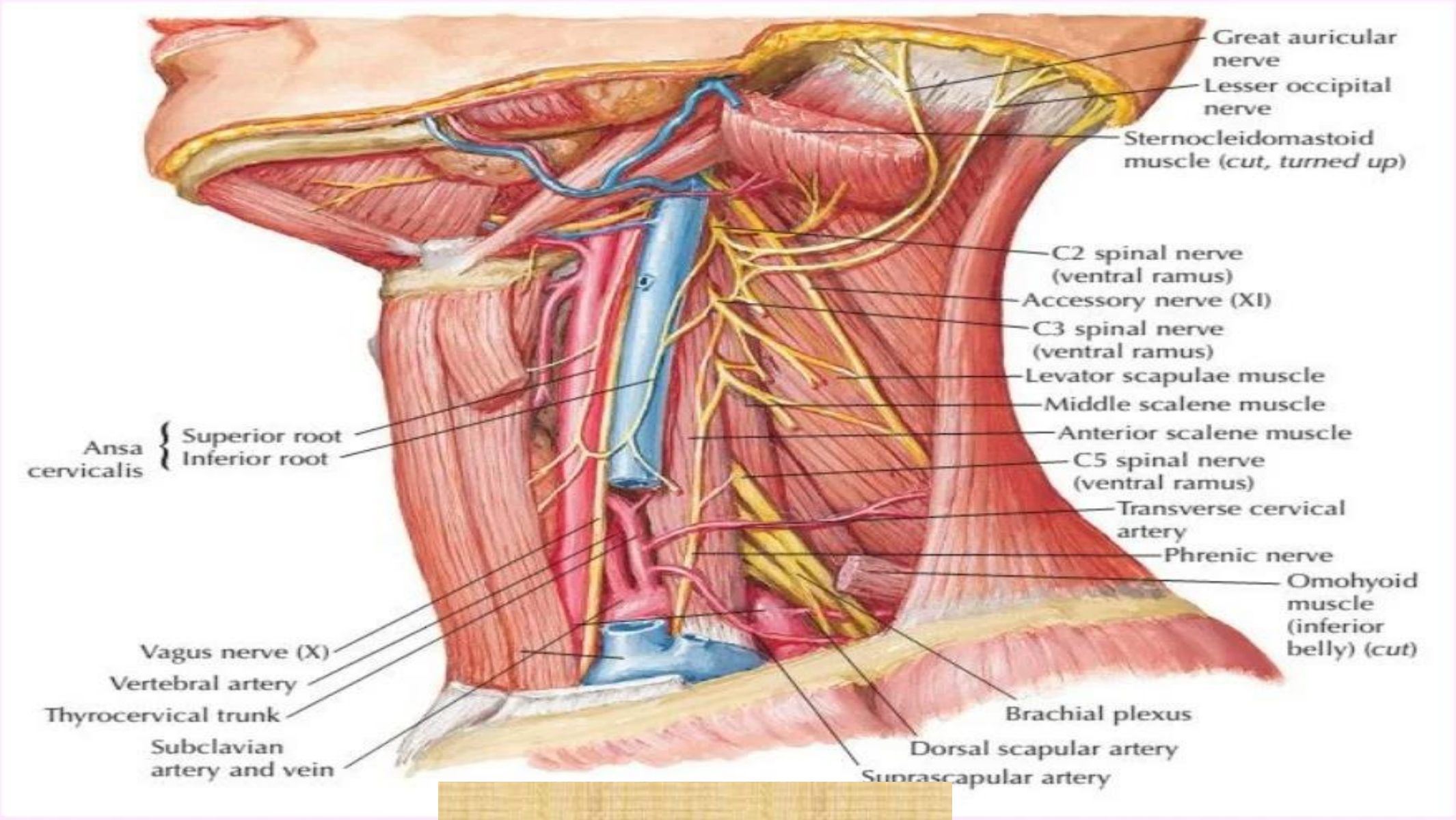
- Spinal acessory nerve.
- Branches of Cervical plexus
  - Lesser occipital
  - Transverse cervical
  - Great auricular
  - Supraclavicular
- Roots and trunks of brachial plexus.
- Dorsal scapular
- Long thoracic
- Phrenic

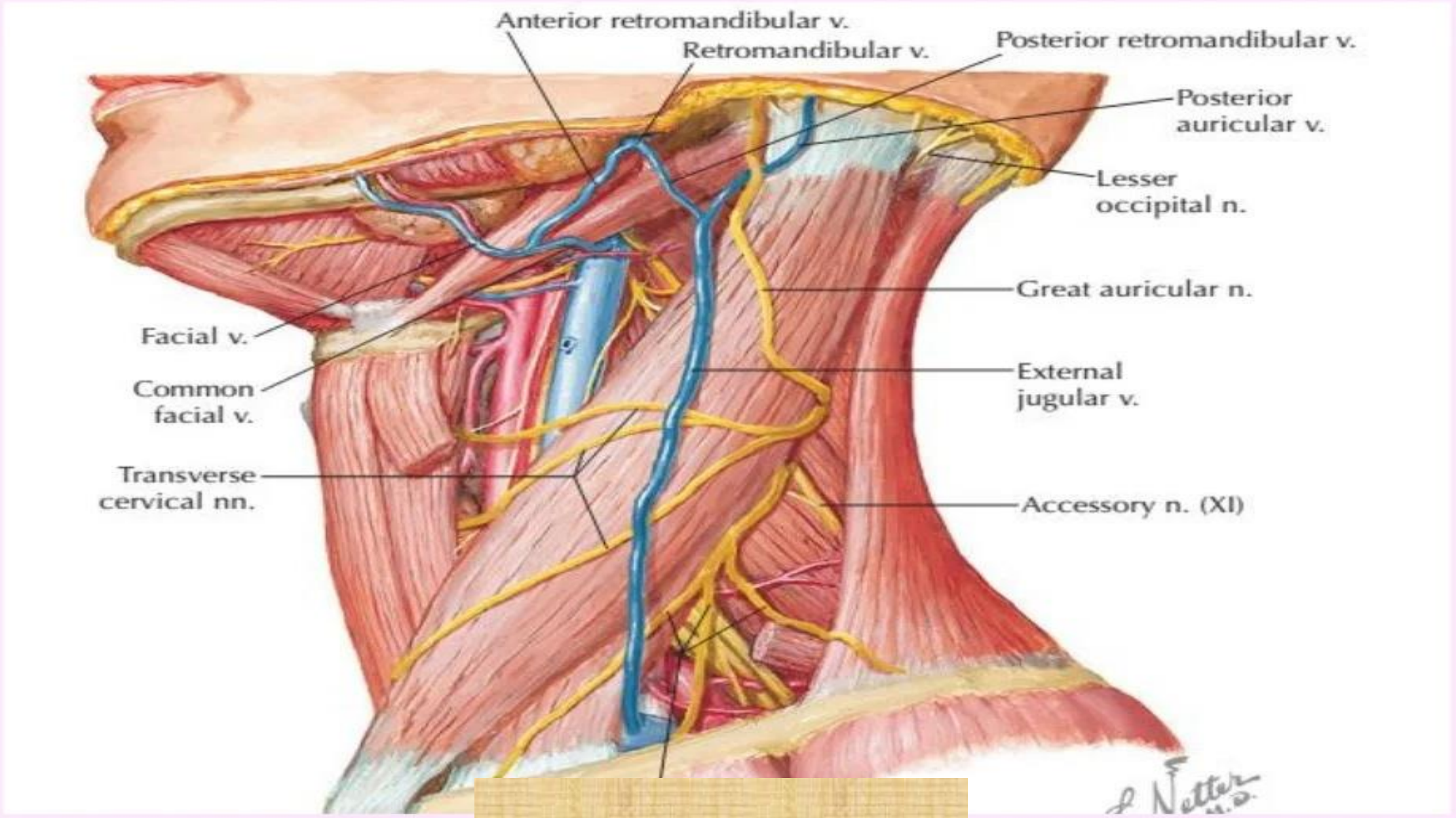
Nerves in posterior triangle

1-Cervical plexus	2-Brachial plexus	3- spinal root of accessory nerve (11th cranial nerve)
1- four muscular branches 2- four cutaneous branches	Roots , trunks and their branches 1- dorsal scapular nerve –c5(nerve to rhomboids) 2- nerve to subclavius – c5 &c6 3- nerve to serratus anterior –c5,6 &7 Suprascapular nerve – c5&6	It is the most important structure in the occipital triangle

VESSELS

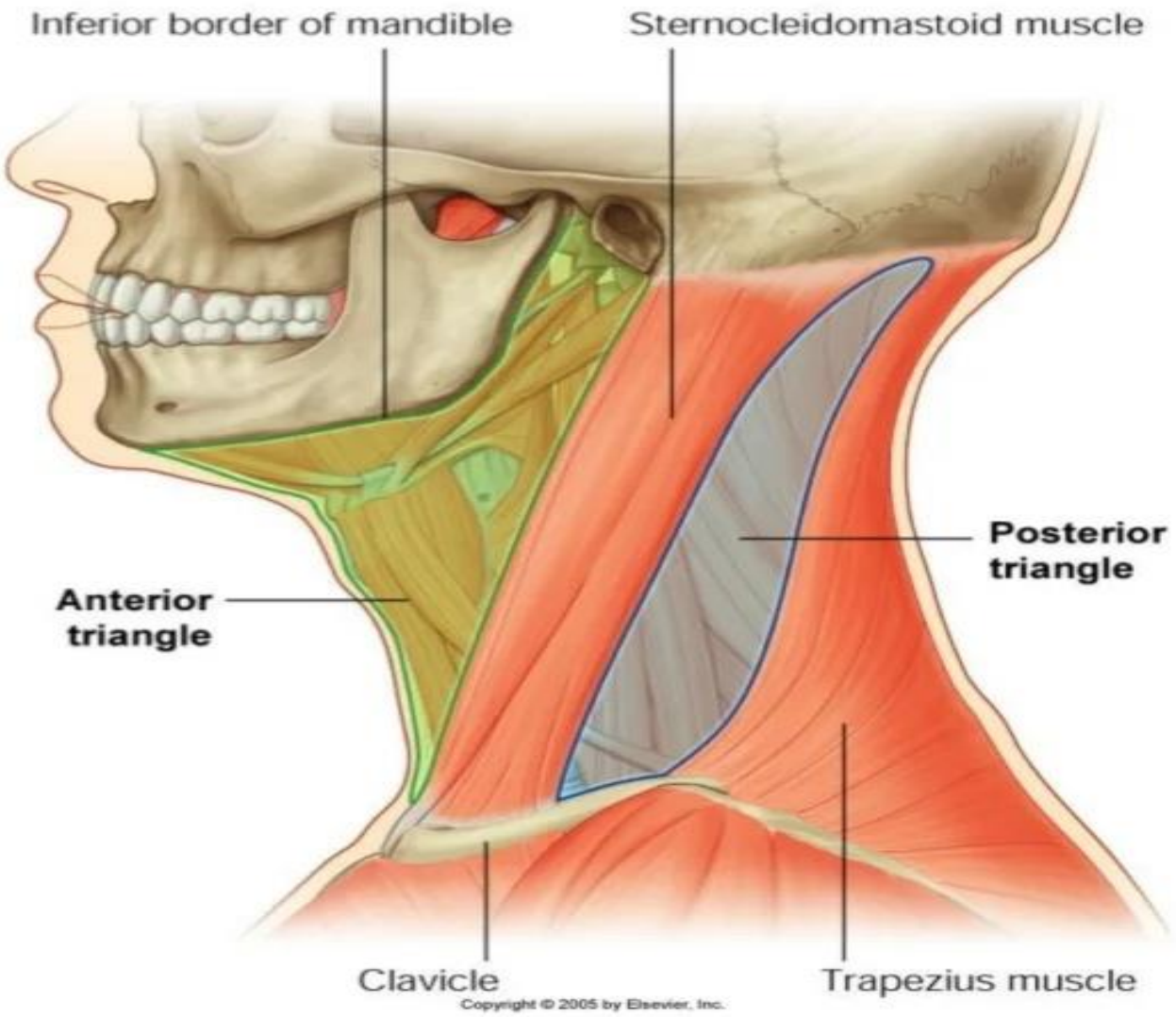
- **Arteries**
  - Subclavian artery
  - Transverse Cervical artery
  - Suprascapular artery
- **Vein**
  - External jugular vein (terminal part)
- **Lymph Nodes**
  - Occipital
  - Supraclavicular


Great auricular nerve
Lesser occipital nerve
Sternocleidomastoid muscle (cut, turned up)
C2 spinal nerve (ventral ramus)
Accessory nerve (XI)
C3 spinal nerve (ventral ramus)
Levator scapulae muscle
Middle scalene muscle
Anterior scalene muscle
C5 spinal nerve (ventral ramus)
Transverse cervical artery
Phrenic nerve
Omohyoid muscle (inferior belly) (cut)
Ansa cervicalis
Superior root
Inferior root
Vagus nerve (X)
Vertebral artery
Thyrocervical trunk
Subclavian artery and vein
Brachial plexus
Dorsal scapular artery
Suprascapular artery


Anterior retromandibular v.
Retromandibular v.
Posterior retromandibular v.
Posterior auricular v.
Lesser occipital n.
Great auricular n.
Facial v.
Common facial v.
External jugular v.
Transverse cervical nn.
Accessory n. (XI)

CLINICAL SIGNIFICANCE OF THE POSTERIOR TRIANGLE

- The Accessory Nerve may be damaged, while taking lymph node biopsy.
- The External Jugular Vein is present in a superficial location here and this makes it vulnerable to injury.


Inferior border of mandible
Sternocleidomastoid muscle
Posterior triangle
Anterior triangle
Clavicle
Trapezius muscle
Copyright © 2005 by Elsevier, Inc.

THANK YOU