



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

IN THE NAME OF ALLAH,
THE MOST GRACIOUS, THE MOST MERCIFUL

GROSS ANATOMY OF ANTERIOR TRIANGLE OF NECK

By

DR. MAHVISH JAVED

ASSISTANT PROFESSOR, ANATOMY DEPARTMENT

KGMC PESHAWAR

The **anterior triangle** is a region located at the front of the neck.

It is important to note that all triangles mentioned here are paired; they are located on both the left and the right sides of the neck.

BORDERS

The anterior triangle is situated at the front of the neck. It is bounded:

- **Superiorly** – inferior border of the mandible (jawbone).
- **Laterally** – anterior border of the sternocleidomastoid.
- **Medially** – sagittal line down the midline of the neck.
- **Investing fascia** covers the roof of the triangle, while visceral fascia covers the floor. It can be subdivided further into four triangles –

ANTERIOR TRIANGLE

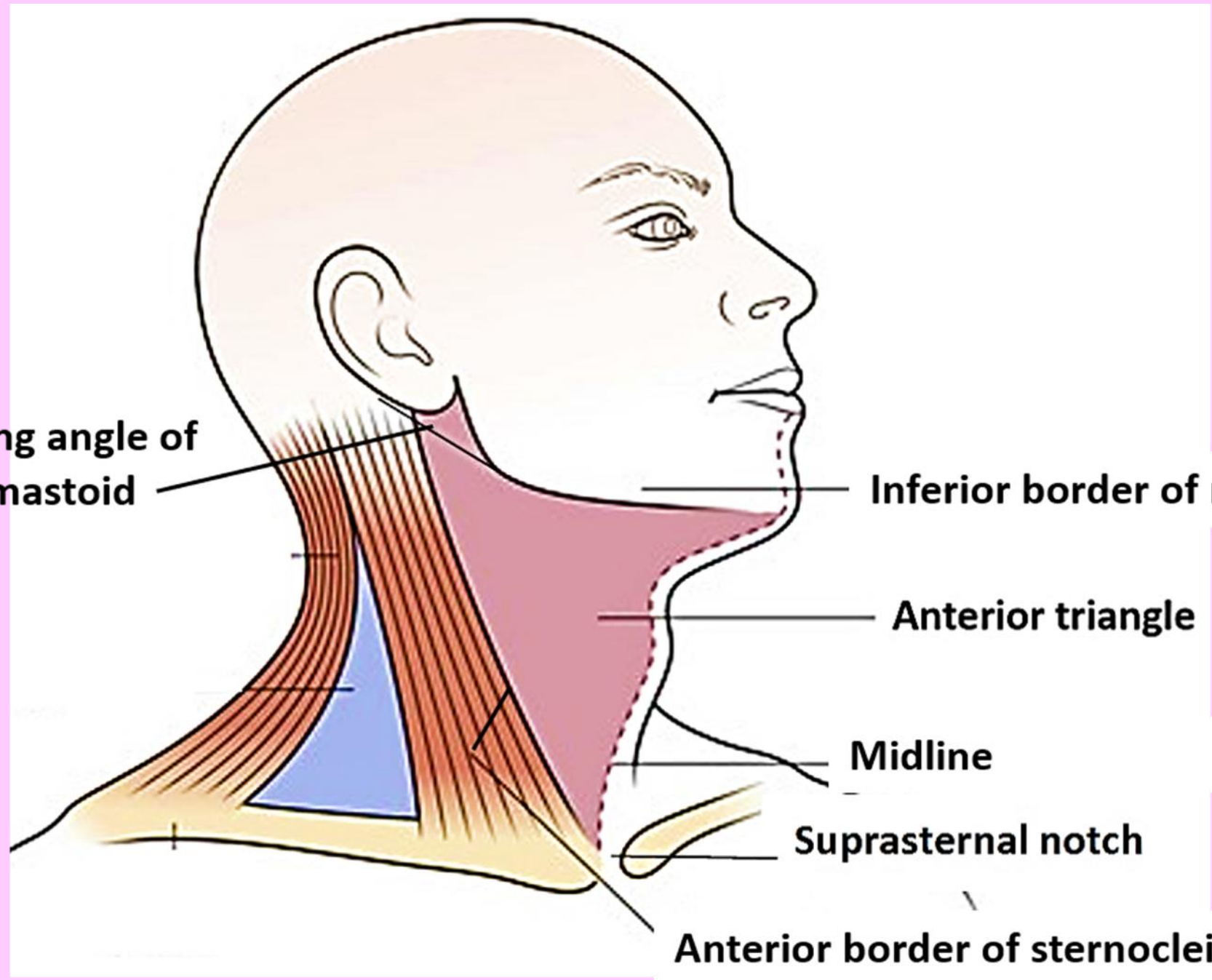
- **BOUNDARIES**

- Anterior border of the SCM muscle
- midline of the neck
- inferior border of the mandible

- **ROOF**

- Skin
- Superficial fascia and platysma muscle
- Investing layer of deep cervical fascia

Imaginary line joining angle of mandible with the mastoid process



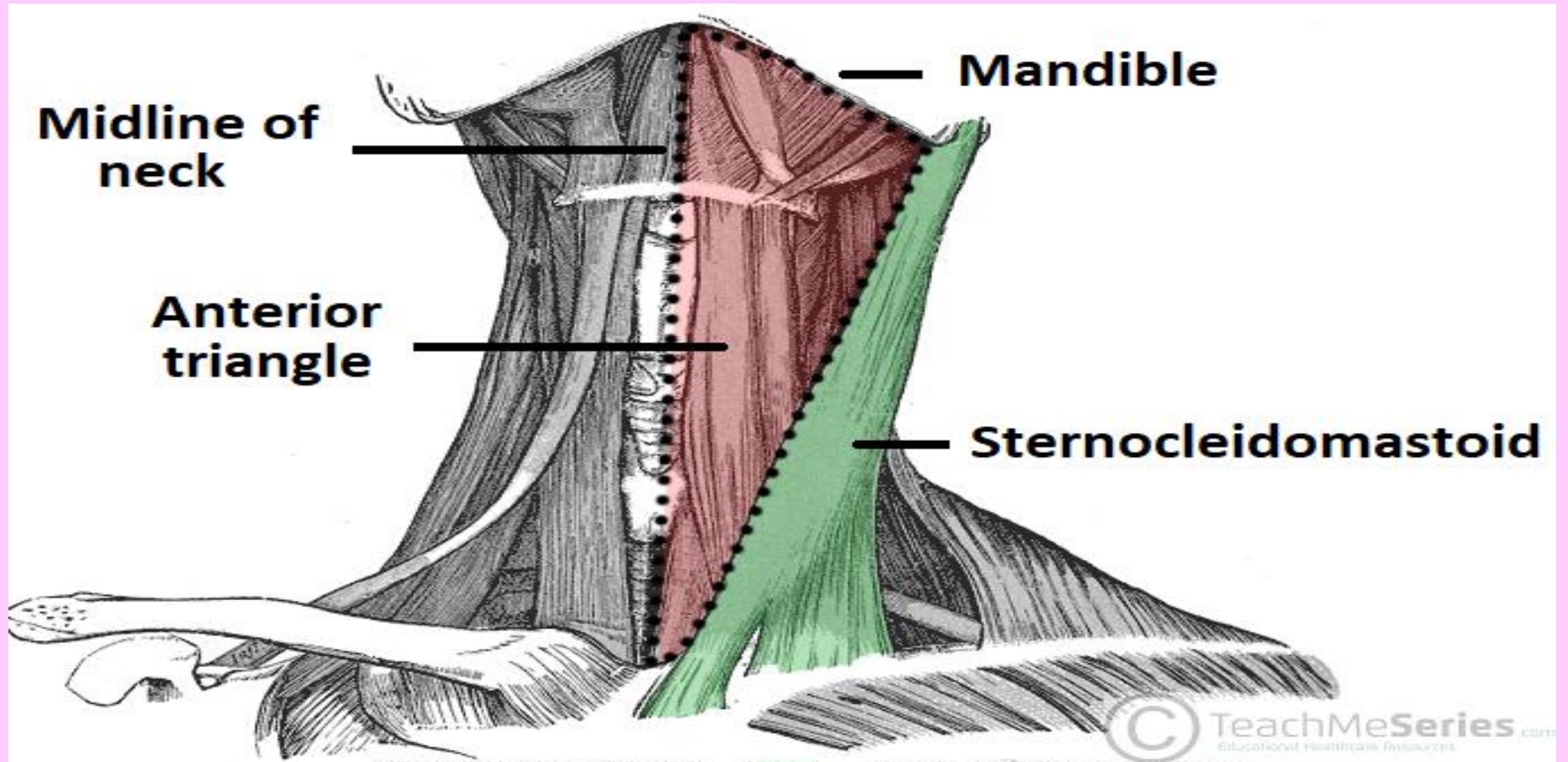
Inferior border of mandible

Anterior triangle

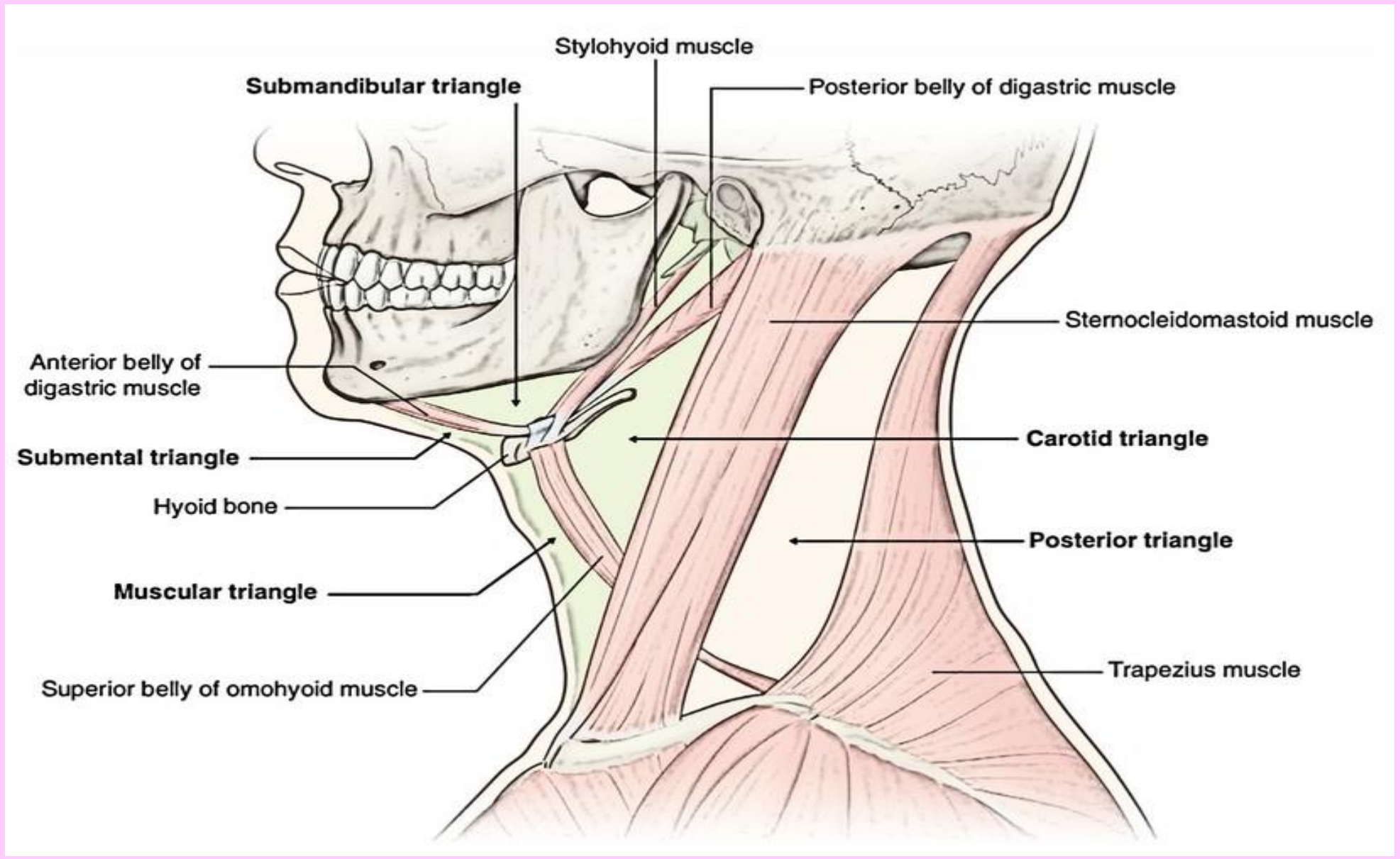
Midline

Suprasternal notch

Anterior border of sternocleidomastoid



BORDERS OF THE ANTERIOR TRIANGLE OF THE NECK.



CONTENTS

- The contents of the **anterior triangle** include muscles, nerves, arteries, veins and lymph nodes.
- The muscles in this part of the neck are divided as to where they lie in relation to the [hyoid bone](#).
The **suprahyoid muscles** are located superiorly to the hyoid bone, **and infrahyoids inferiorly**.
- There are several important vascular structures within the anterior triangle. The **common carotid artery** bifurcates within the triangle into the **external and internal carotid branches**.
- The **internal vein jugular** can also be found within this area – it is responsible for venous drainage of the head and neck.

CONTENTS (CONTD)

- Numerous **cranial nerves** are located in the anterior triangle. Some pass straight through, and others give rise to branches which innervate some of the other structures within the triangle. The cranial nerves in the anterior triangle are the facial [VII], glossopharyngeal [IX], vagus [X], accessory [XI], and hypoglossal [XII] nerves. Cervical plexus upper and lower roots.

SUPRAHYOID MUSCLES

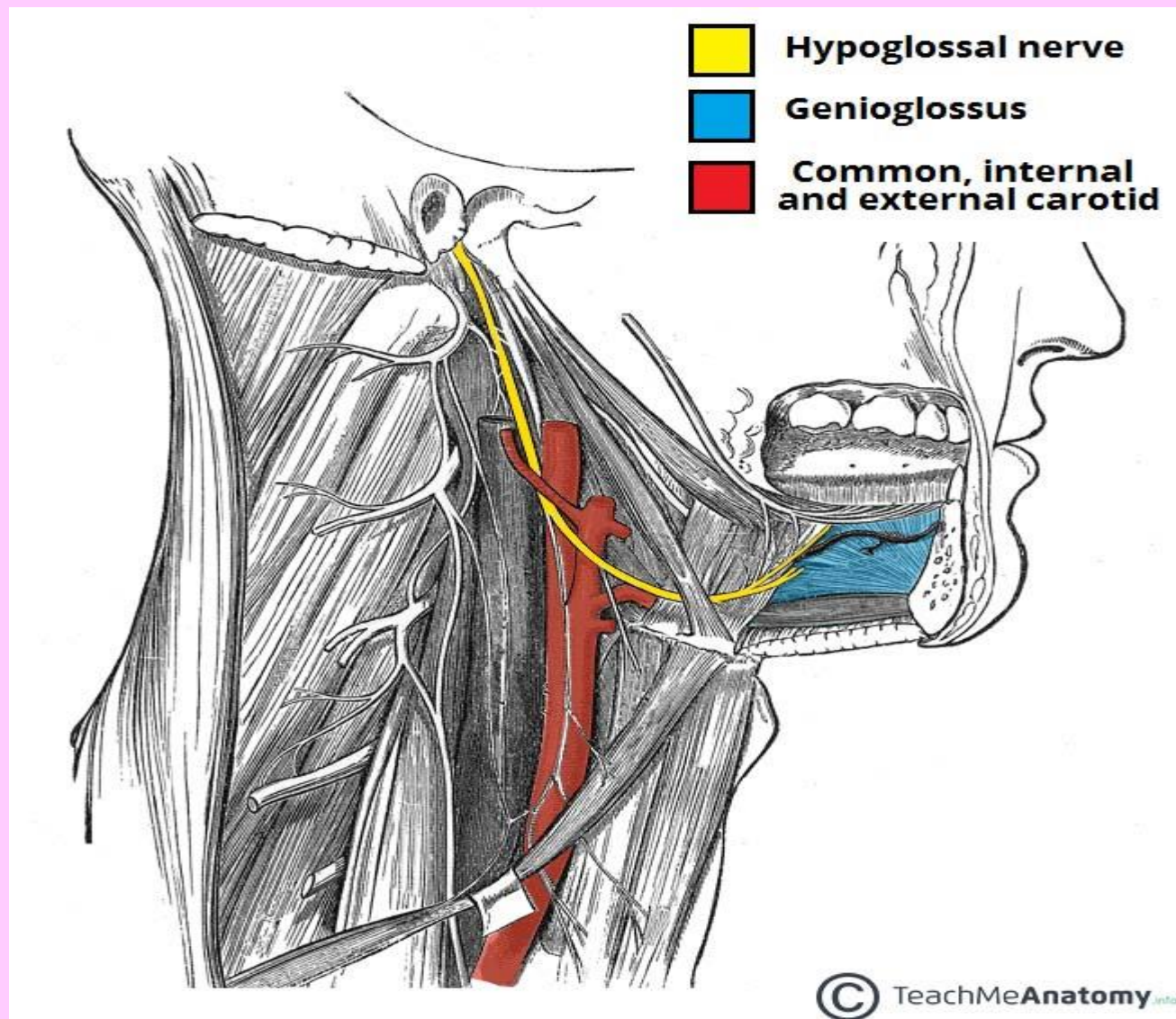
- Stylohyoid
- Digastric
- Mylohyoid
- Geniohyoid

INFRAHYOID MUSCLES

- Omohyoid
- Sternohyoid
- Thyrohyoid
- Sternothyroid

Table of Muscles

Muscle	Origin	Insertion	Action	Nerve Supply
Sternohyoid	sternum	hyoid		ansa
Omohyoid	Suprascapular notch	hyoid		ansa
Sternothyroid	Below sternohyoid on manubrium	Thyroid cartilage oblique line		ansa
Thyrohyoid	Thyroid cartilage oblique line	hyoid		C1-C2 (ansa)
Anterior Belly Digastric	----- intermediate tendon-----	Inner surface of mandible		Trigeminal nerve
Posterior Belly Digastric	Medial aspect of the mastoid process	-intermediate tendon-		Facial nerve
Mylohyoid	Mylohyoid line of mandible	Hyoid bone		Trigeminal nerve
Hyoglossus	Hyoid bone	Lateral side of tongue		hypoglossal
Stylohyoid	Styloid process	hyoid		Facial nerve



The extracranial anatomical course of the hypoglossal nerve, through the anterior triangle of the neck.

SUBDIVISIONS

The anterior triangle is subdivided by the hyoid bone, suprahyoid and infrahyoid muscles into four triangles.

- **Carotid Triangle**

- The carotid triangle of the neck has the following boundaries:

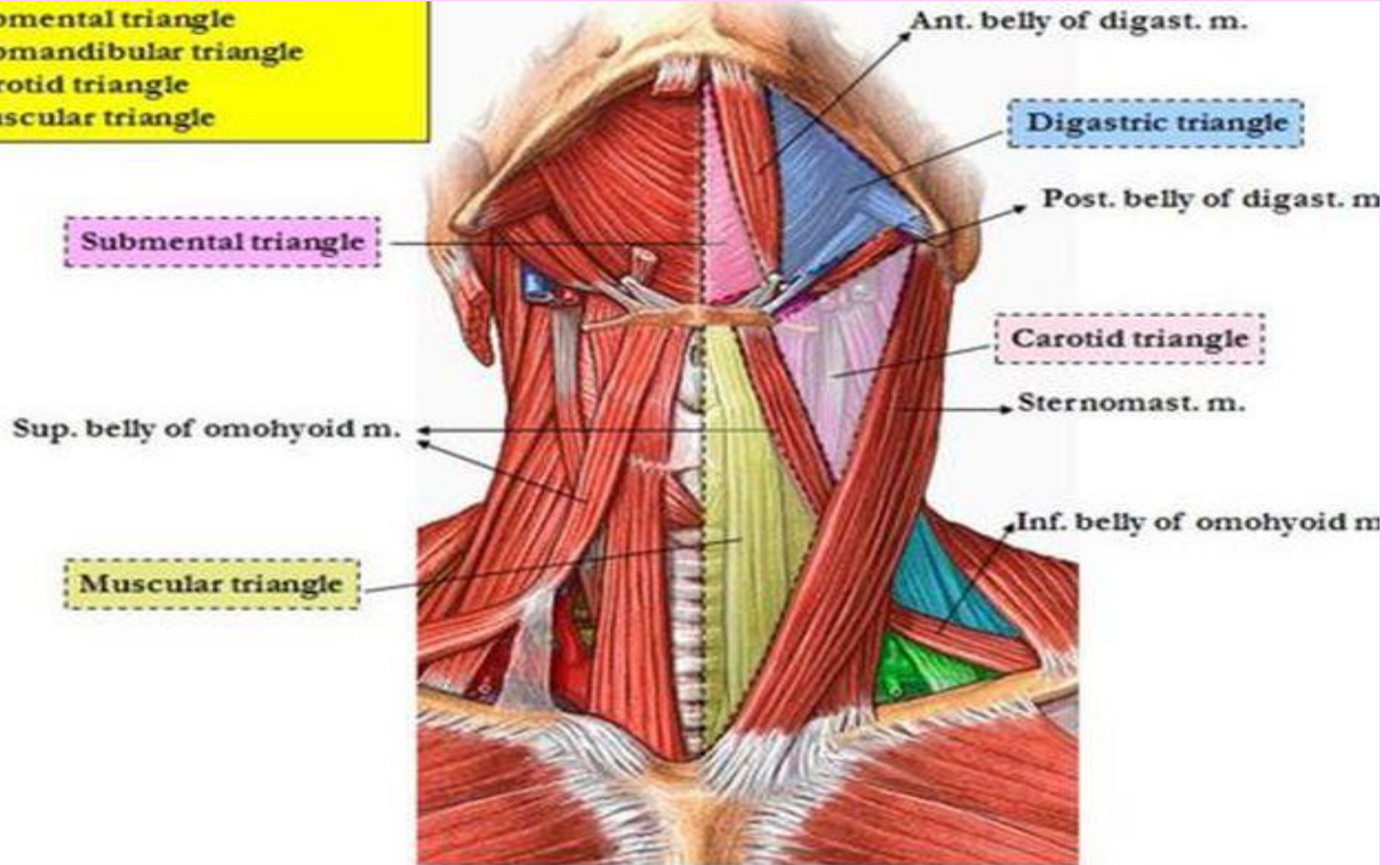
- **Superior** – posterior belly of the digastric muscle.

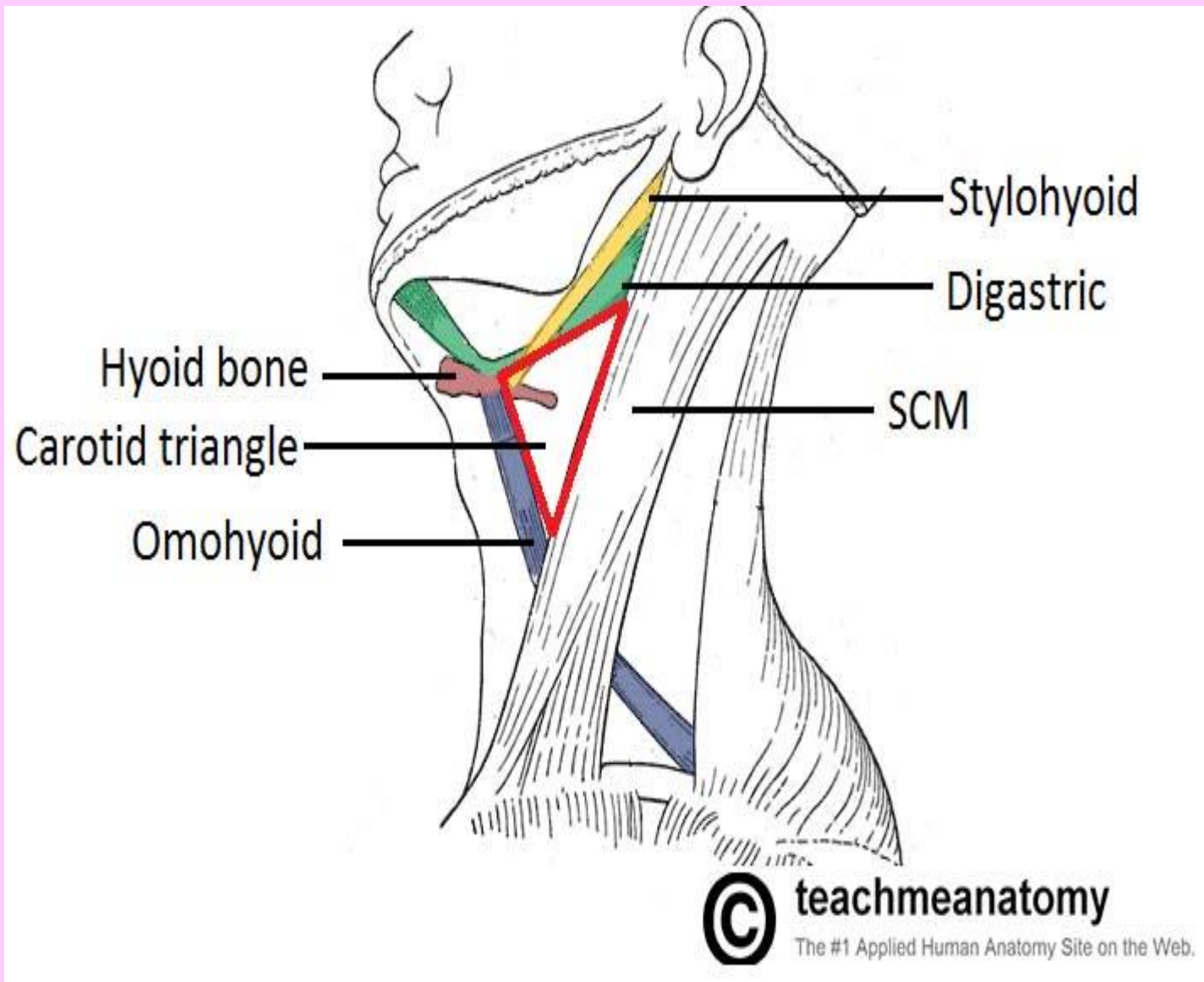
- **Lateral** – medial border of the sternocleidomastoid muscle.

- **Inferior** – superior belly of the omohyoid muscle.

- The main contents of the carotid triangle are the **common carotid artery** (which bifurcates within the carotid triangle into the external and internal carotid arteries), the **internal jugular vein**, and the **hypoglossal** and **vagus nerves**.

- Submental triangle
- Submandibular triangle
- Carotid triangle
- Muscular triangle



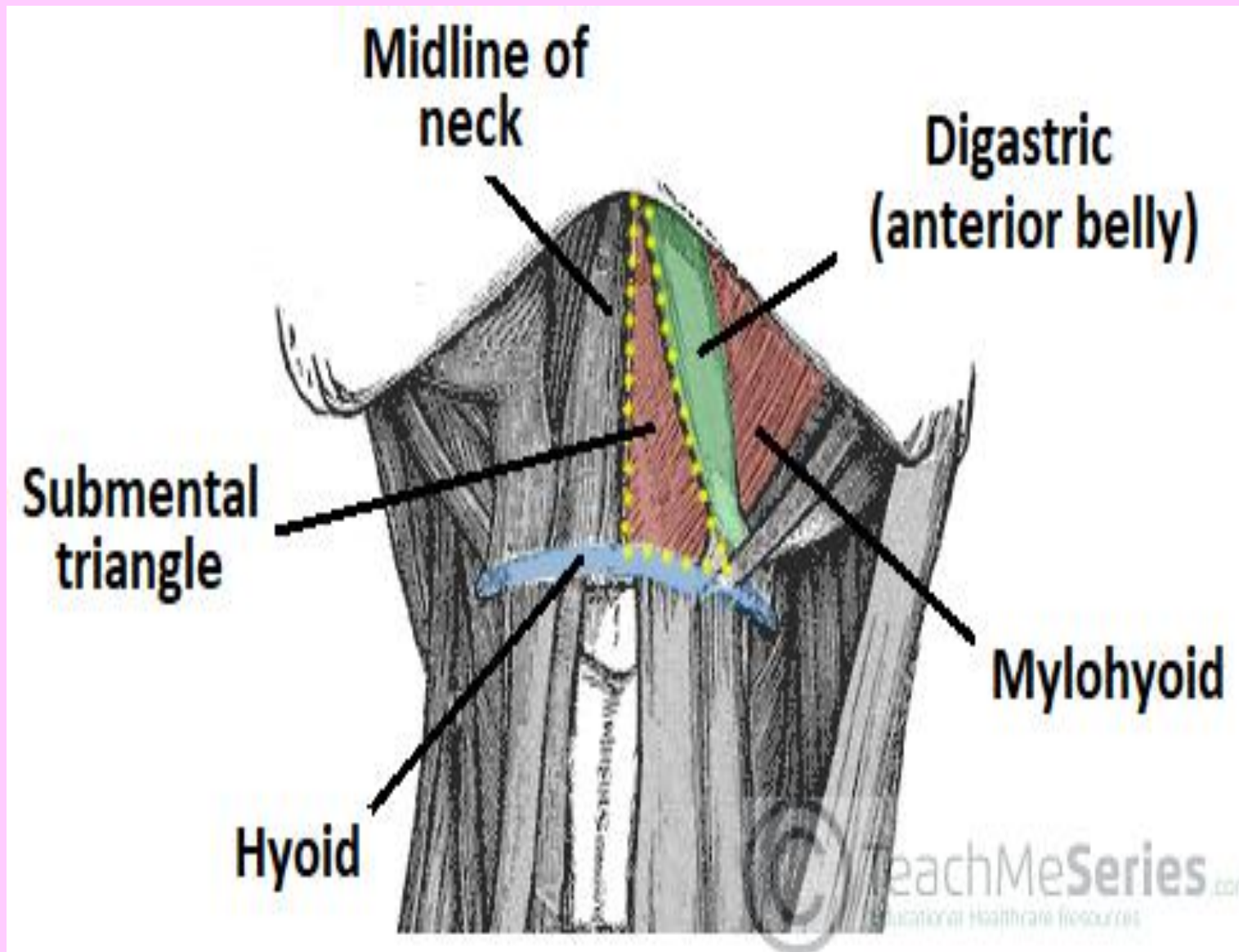


CAROTID TRIANGLE OF THE NECK

Submental Triangle

The **submental triangle** in the neck is situated underneath the chin. It contains the submental **lymph nodes**, beginning of **anterior jugular vein** which filter lymph draining from the floor of the mouth and parts of the tongue.

- It is bounded:
- **Inferiorly** – hyoid bone.
- **Medially** – midline of the neck.
- **Laterally** – anterior belly of the digastric
- The floor of the submental triangle is formed by the **mylohyoid muscle**, which runs from the mandible to the hyoid bone.



THE SUBMENTAL TRIANGLE OF THE NECK.

SUBMANDIBULAR TRIANGLE

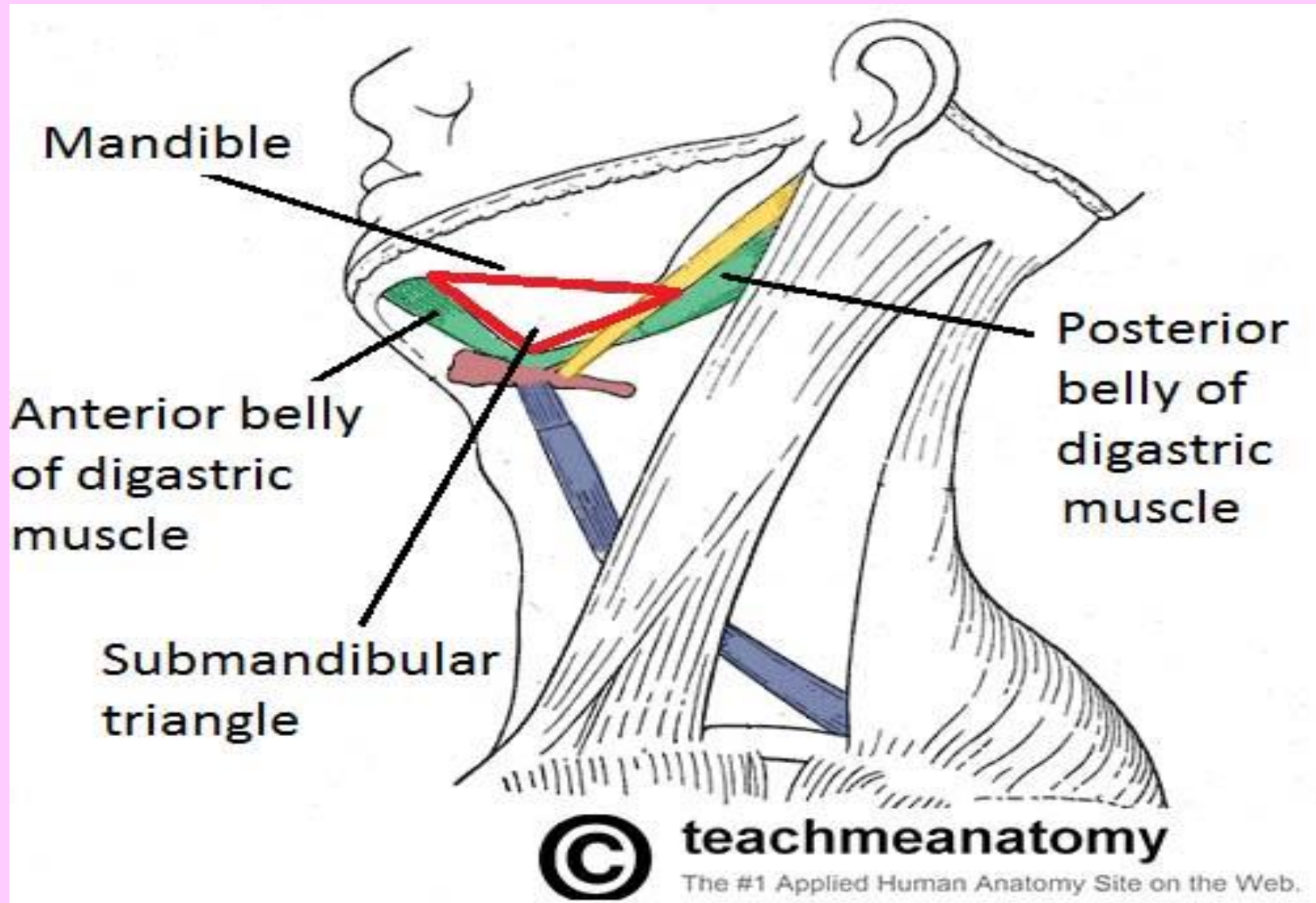
The submandibular triangle is located underneath the body of the [mandible](#). It contains the submandibular gland (salivary), and lymph nodes. The **facial artery** and vein also pass through this area.

The boundaries of the submandibular triangle are:

- **Superiorly** – body of the mandible.
- **Anteriorly** – anterior belly of the digastric muscle.
- **Posteriorly** – posterior belly of the digastric muscle.

SUBMANDIBULAR TRIANGLE

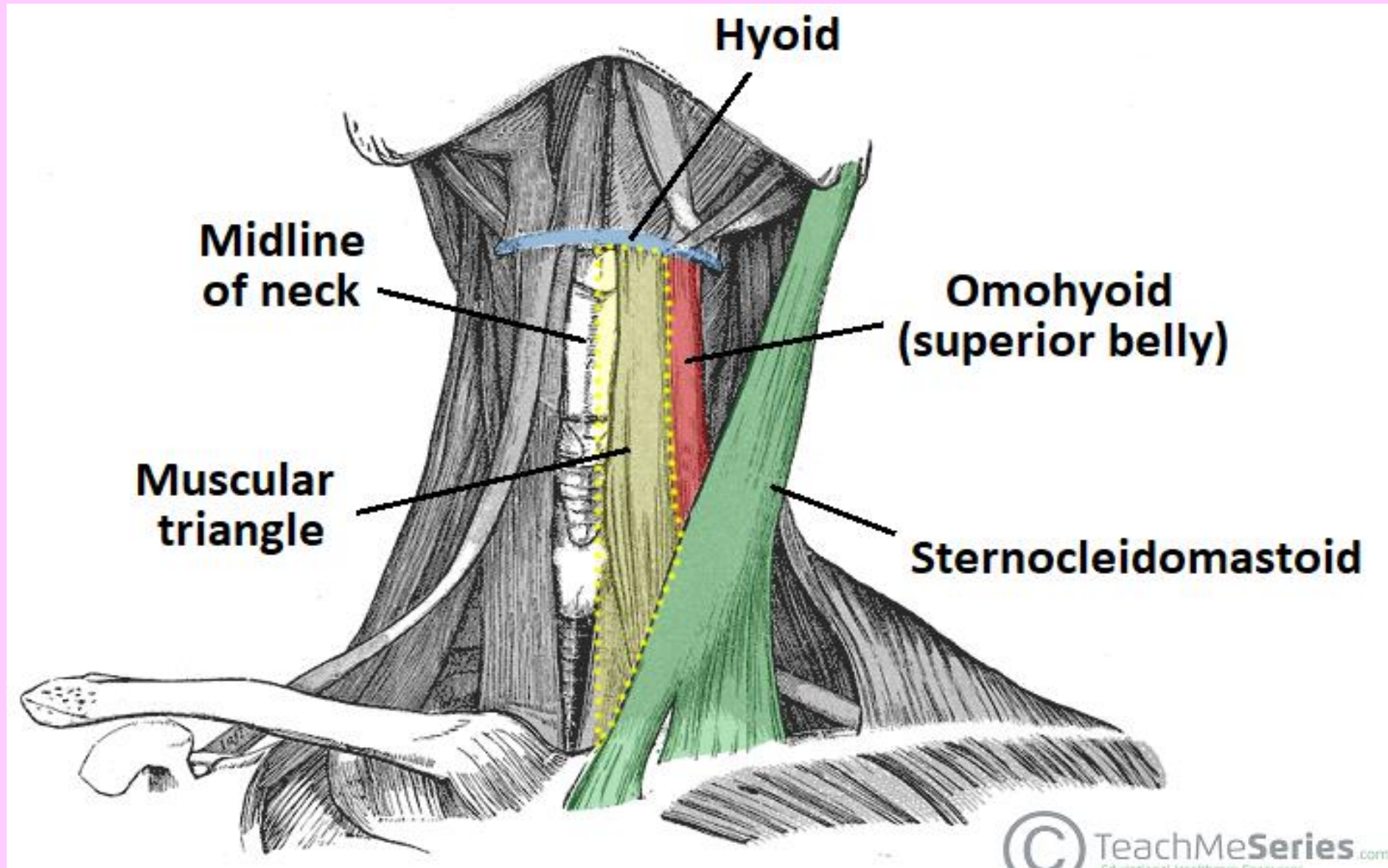
- **Borders**
 - Inferior border of the mandible
 - Posterior digastric
 - Anterior digastric
- **Floor of the triangle**
 - Hyoglossus
 - Mylohyoid
 - Middle constrictor
- **Roof** is made of the:
 - Skin
 - Superficial fascia with platysma
 - Deep cervical fascia
- Submandibular triangle is **paired**



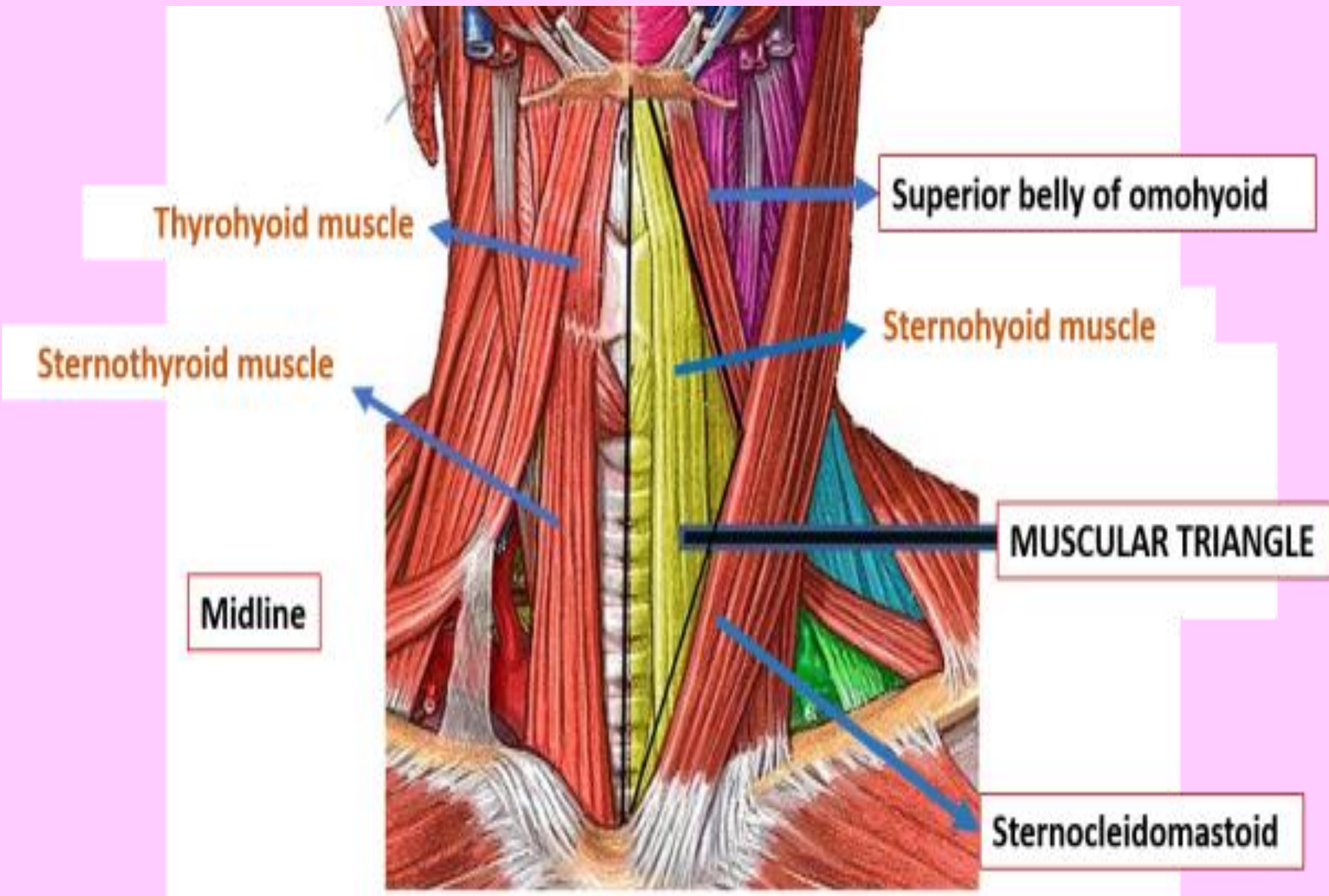
LATERAL VIEW OF THE NECK, SHOWING THE
SUBMANDIBULAR TRIANGLE

Muscular Triangle

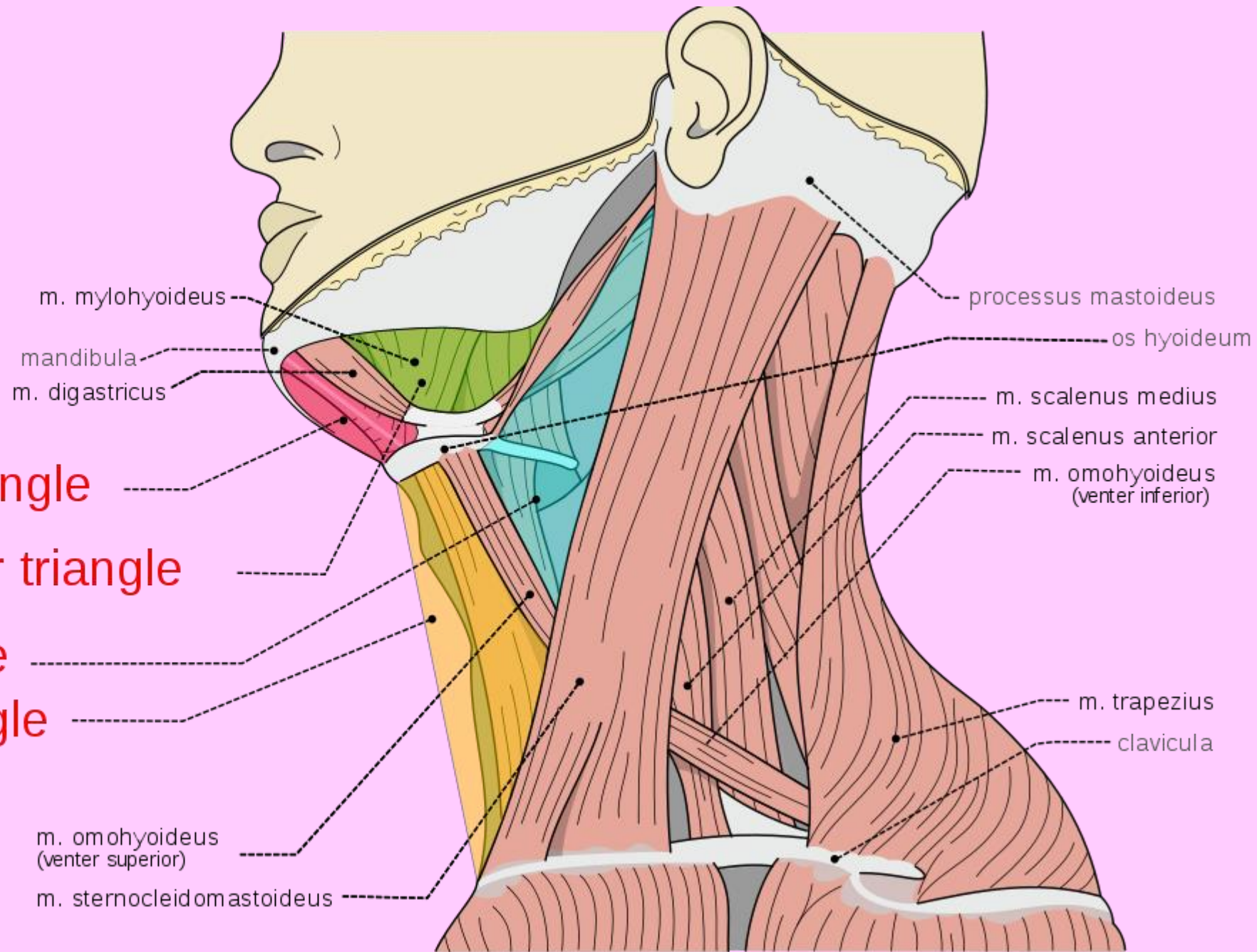
- The muscular triangle is situated more **inferiorly** than the subdivisions. It is a slightly ‘dubious’ triangle, in reality having **four** boundaries. The muscular triangle contains some muscles and organs – the **infrahyoid** muscles, the **pharynx**, and the **thyroid, parathyroid** glands.
- The boundaries of the muscular triangle are:
- **Superiorly** – hyoid bone.
- **Medially** – imaginary midline of the neck.
- **Supero-laterally** – superior belly of the omohyoid muscle.
- **Infero-laterally** – inferior portion of the sternocleidomastoid muscle.



MUSCULAR TRIANGLE OF THE NECK.



Anterior triangle



BORDERS, SUBDIVISIONS AND CONTENTS OF THE ANTERIOR TRIANGLE

Definition	Triangular area of the neck found anteriorly to the
Borders	Superior - inferior border of mandible Medial - midline of neck Lateral - anterior border of sternocleidomastoid muscle
Subdivisions	Muscular (omotracheal) triangle Carotid triangle Submandibular triangle Submental triangle
Contents	Muscles: thyrohyoid, sternothyroid, sternohyoid muscles Organs: thyroid gland, parathyroid glands, larynx, trachea, esophagus, submandibular gland, caudal part of the parotid gland Arteries: superior and inferior thyroid, common carotid, external carotid, internal carotid artery (and sinus), facial, submental, lingual arteries Veins: anterior jugular veins, internal jugular, common facial, lingual, superior thyroid, middle thyroid veins, facial vein , submental vein, lingual veins Nerves: vagus nerve (CN X), hypoglossal nerve (CN XII), part of sympathetic trunk, mylohyoid nerve

Clinical Relevance

Medical Uses of the Carotid Triangle

- In the carotid triangle, many of the vessels and nerves are relatively **superficial**, and so can be accessed by surgery. The carotid arteries, internal jugular vein, vagus and hypoglossal nerves are frequent targets of this surgical approach.
- The carotid triangle also contains the carotid sinus – a **dilated** portion of the common carotid and internal carotid arteries. It contains specific sensory cells, called **baroreceptors**. The baroreceptors **detect stretch** as a measure of blood pressure. The **glossopharyngeal nerve** feeds this information to the brain, and this is used to regulate blood pressure.
- In some people, the baroreceptors are hypersensitive to stretch. In these patients, **external pressure** on the carotid sinus can cause slowing of the heart rate and a decrease in blood pressure. The brain becomes **underperfused**, and syncope results. In such patients, checking the pulse at the carotid triangle is not advised.



THANK YOU