



Neck-2

Dr. Heba Kalbouneh

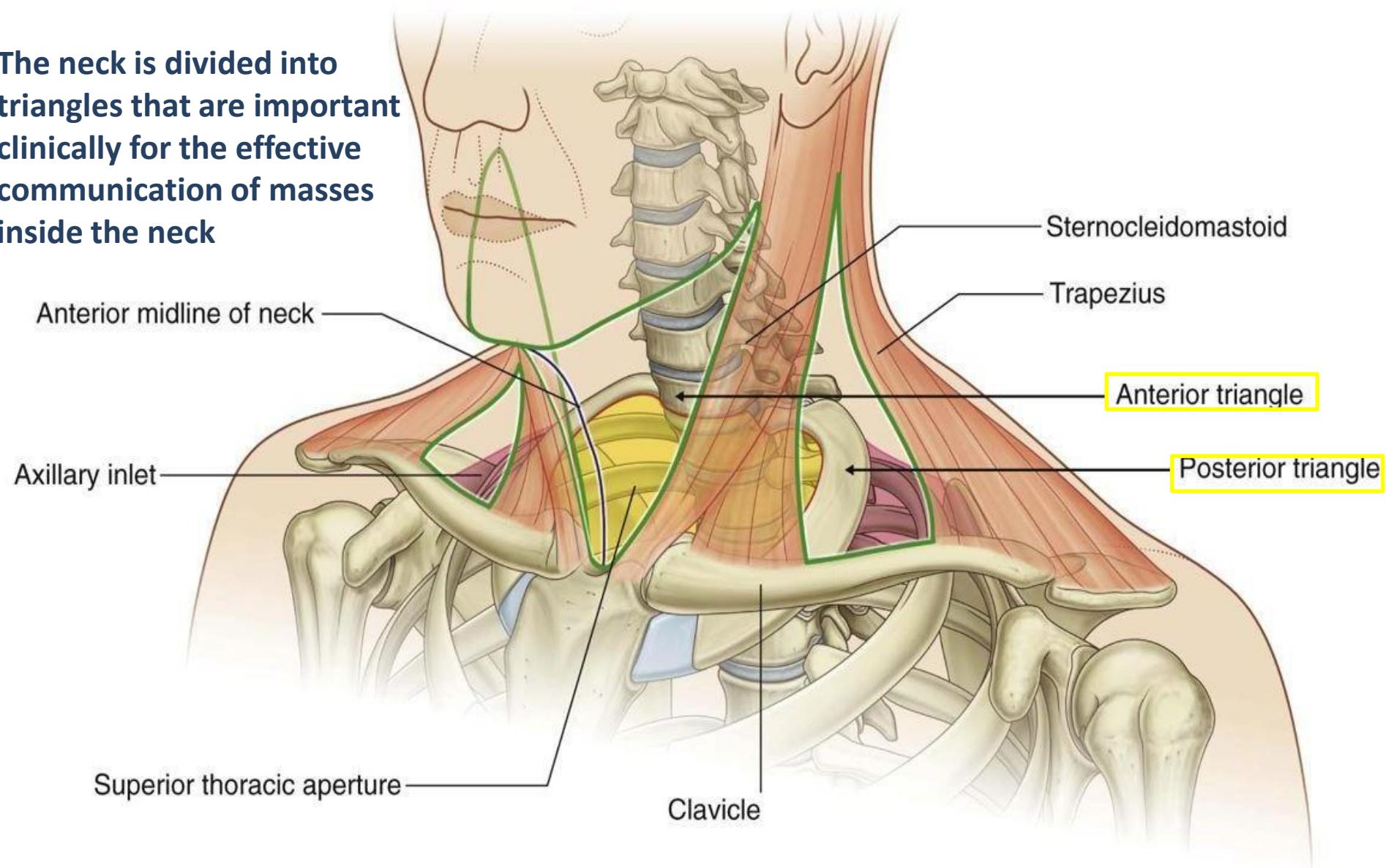
Associate Professor of Anatomy and Histology

Edited by : Yasmeen Alzoubi

Triangles of the neck

You have to be precise about the localization of masses inside the neck

The neck is divided into triangles that are important clinically for the effective communication of masses inside the neck



*This slide was in the video but not in the given slides

Side of the neck

These landmarks are important to understand the triangles of the neck

Midline

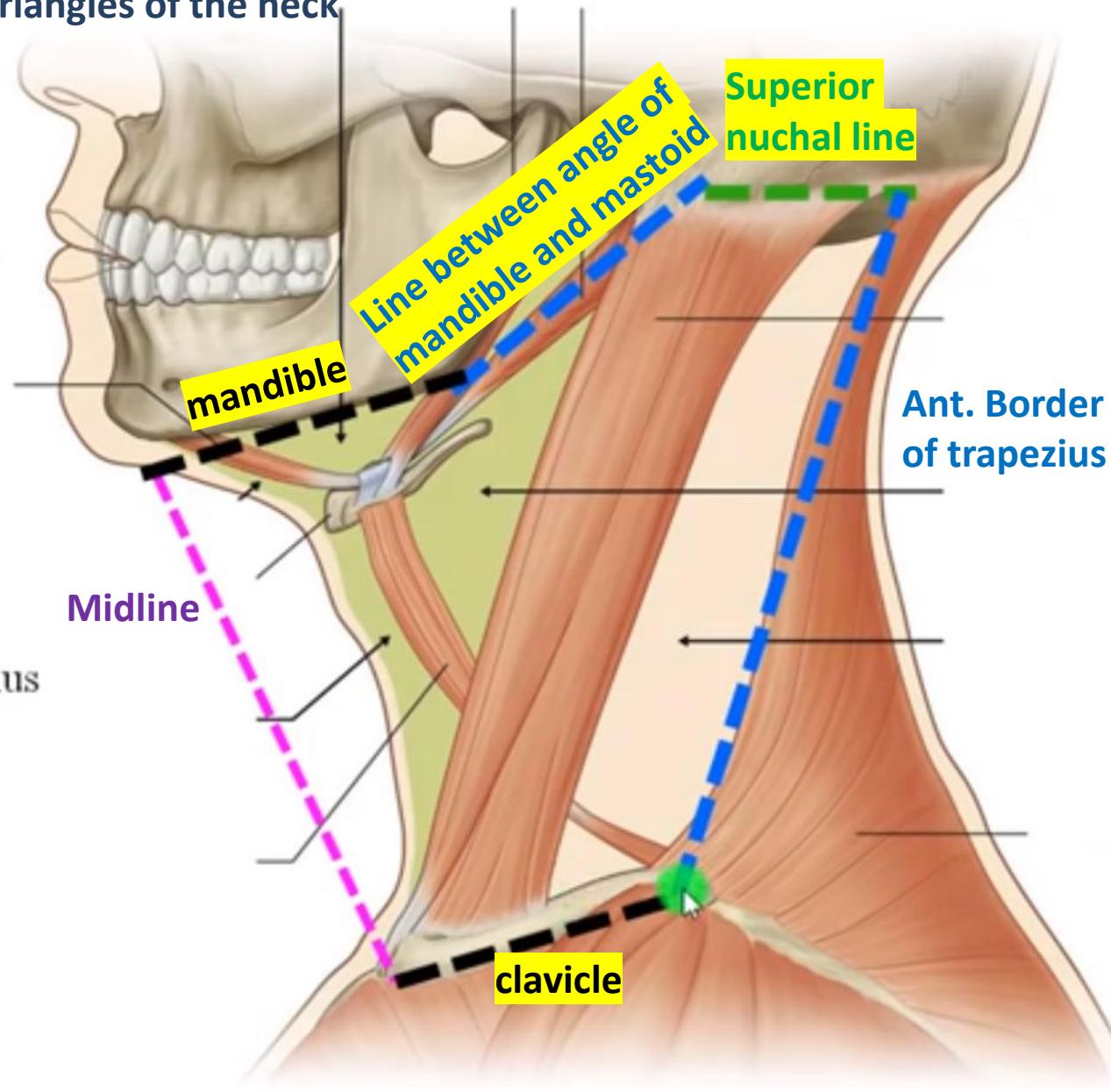
Lower border of mandible

Line between angle of mandible and mastoid

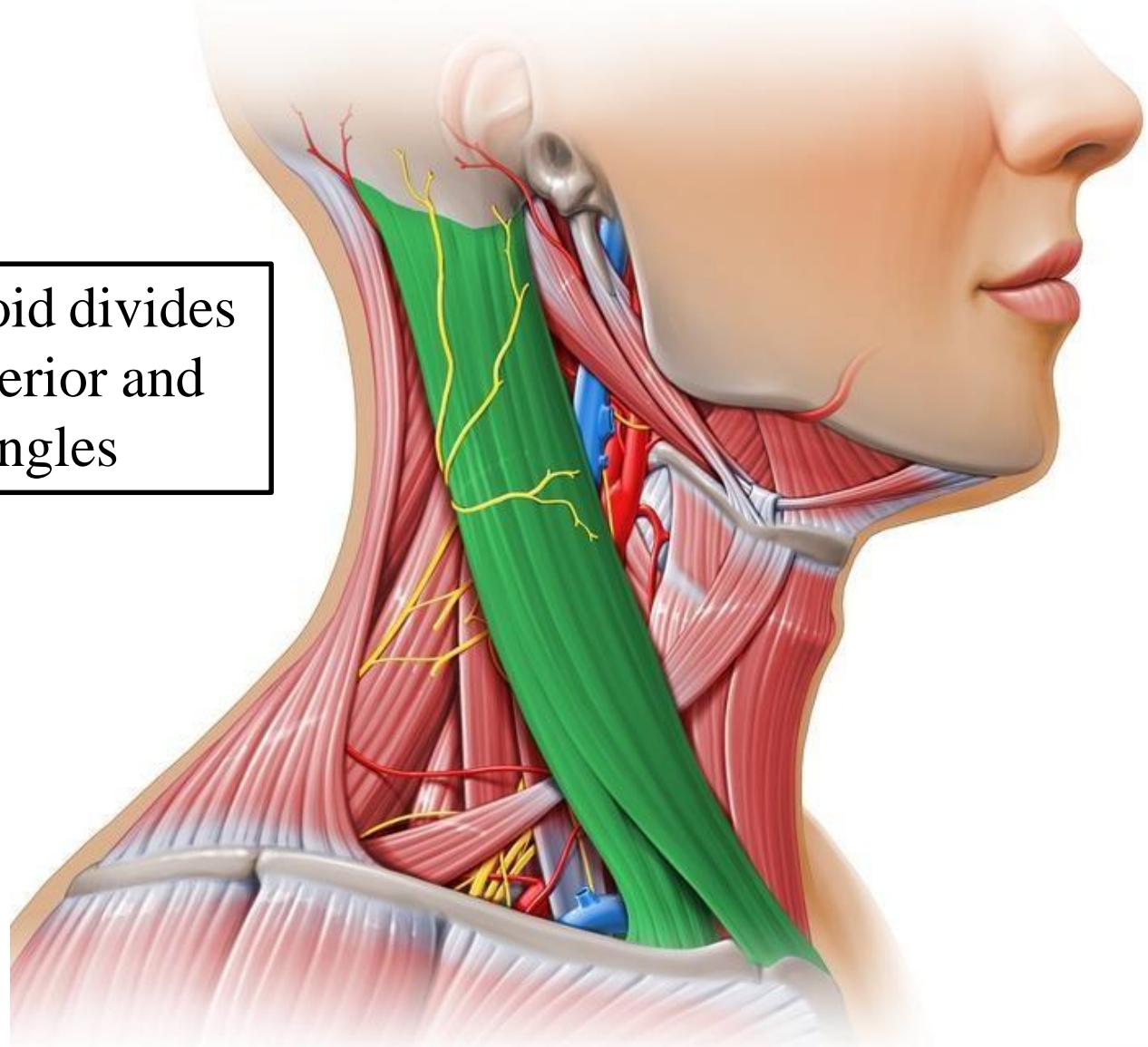
Superior nuchal line

Anterior border of trapezius

Clavicle

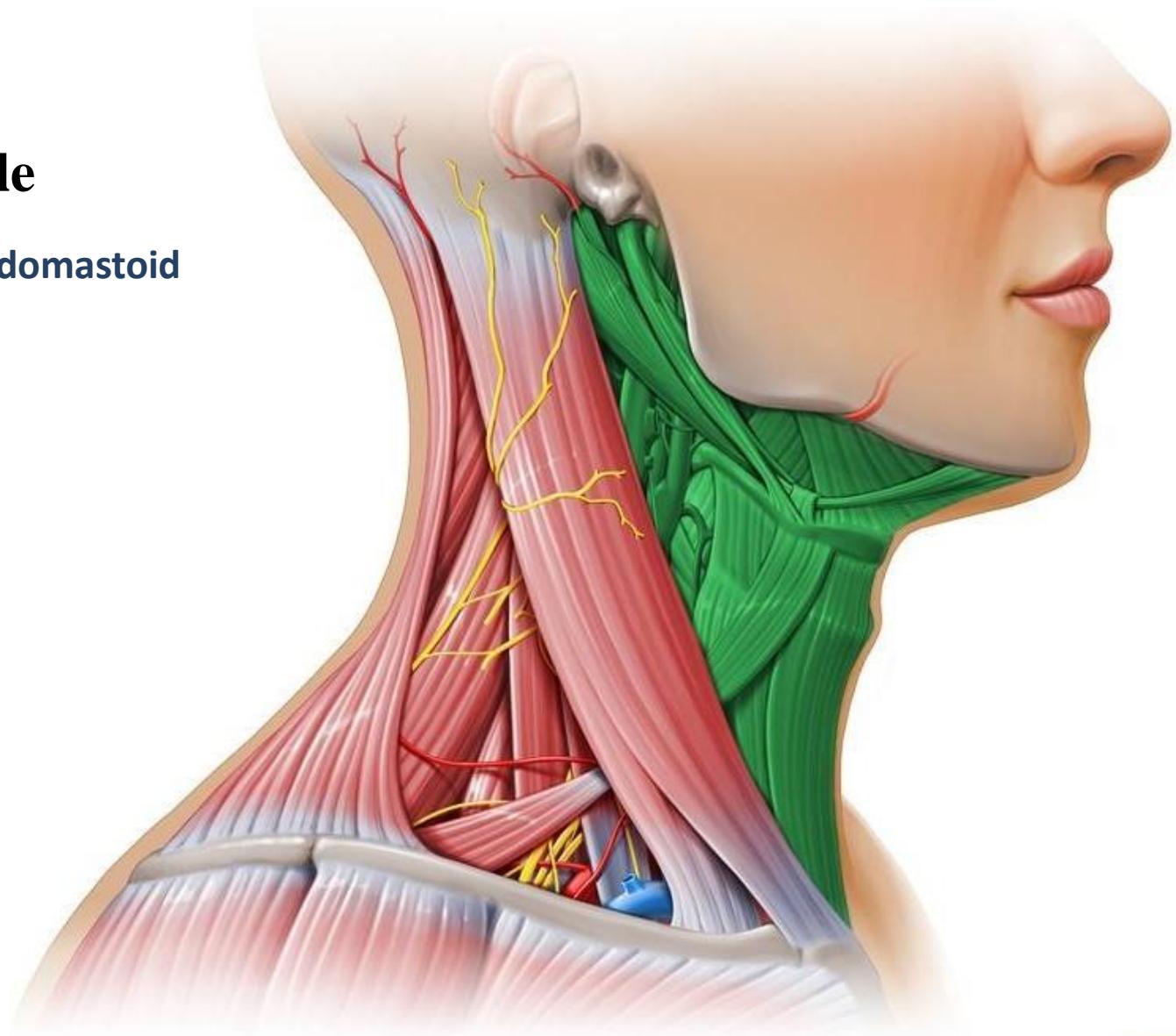


Sternocleidomastoid divides the neck into anterior and posterior triangles



Anterior triangle

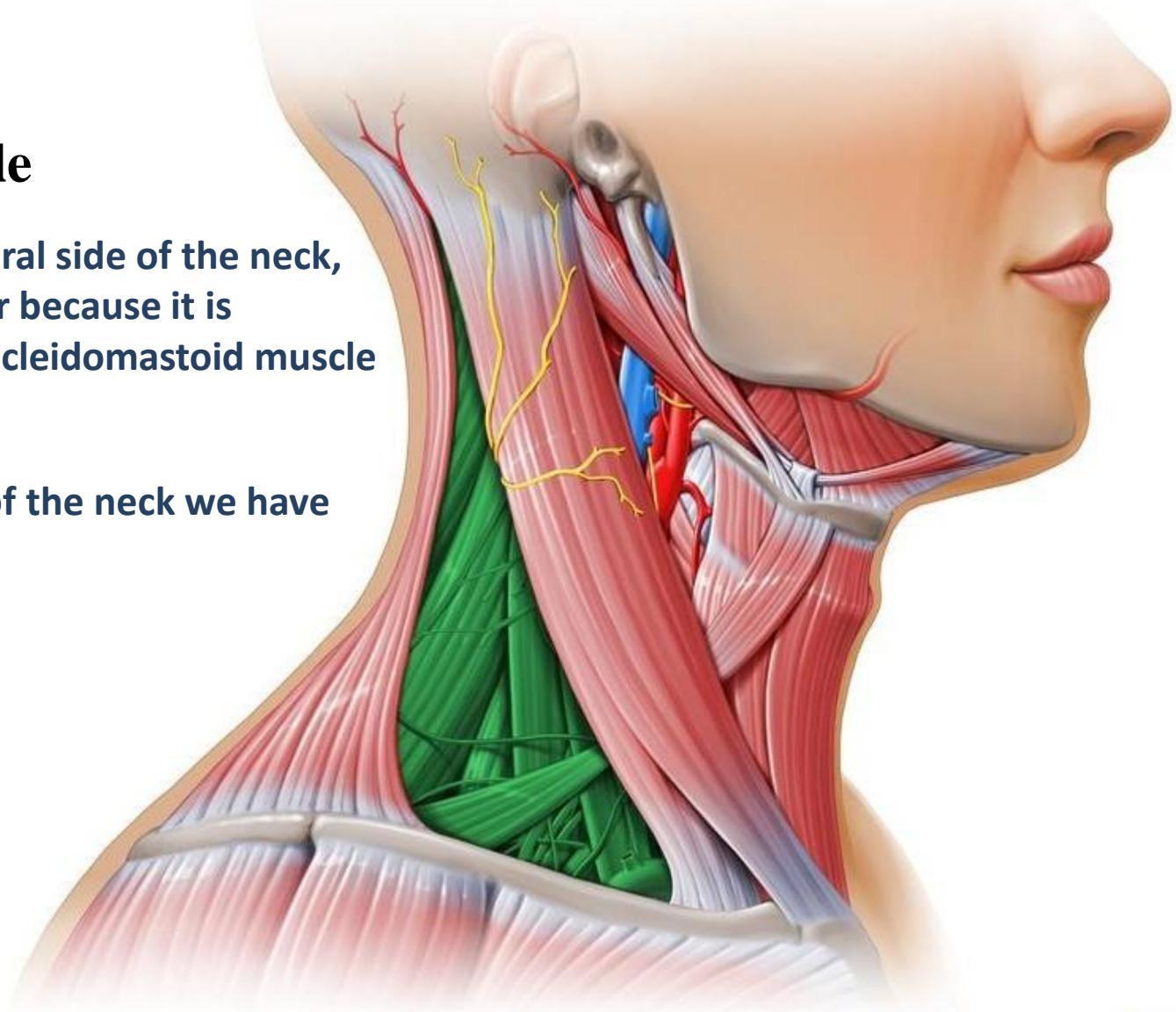
Anterior to sternocleidomastoid



Posterior triangle

It is located on the lateral side of the neck,
yet it is called posterior because it is
posterior to the Sternocleidomastoid muscle

On the posterior side of the neck we have
the trapezius muscles



Posterior triangle

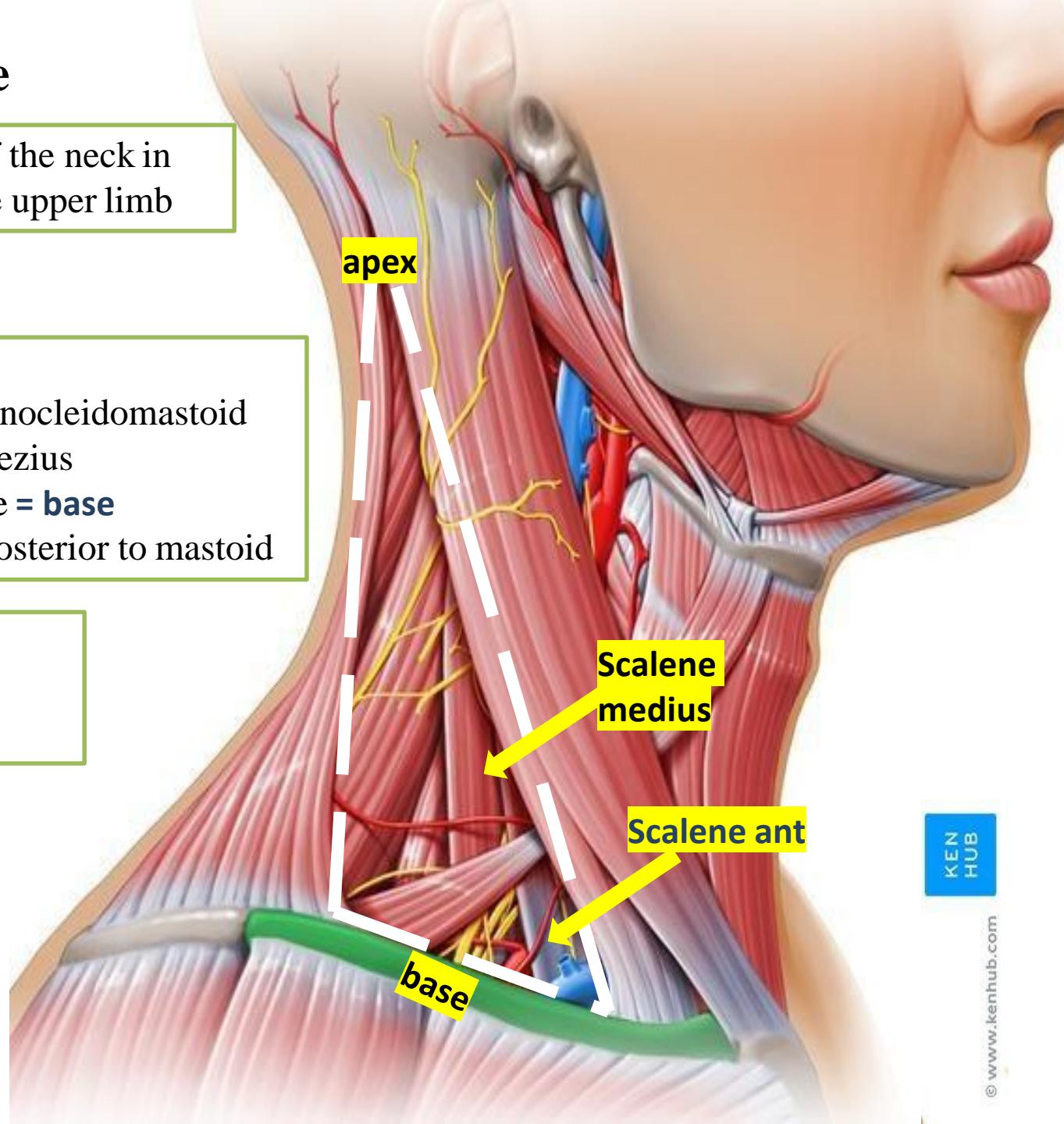
Is on the lateral aspect of the neck in direct continuity with the upper limb

Boundaries:

- ✓ Posterior border of sternocleidomastoid
- ✓ Anterior border of trapezius
- ✓ Middle third of clavicle = **base**
- ✓ Apex: occipital bone posterior to mastoid

Floor:

Muscles covered by prevertebral fascia



Sternocleidomastoid attached to the lateral third of the superior nuchal line

+ Trapezius is attached to the medial part of the superior nuchal line

= Apex formed by the meeting point of sternocleidomastoid and trapezius

The clavicular head of sternocleidomastoid is attached to medial third of the clavicle

+ Trapezius is attached to the lateral third of the clavicle & spine of scapula

= Base is formed by the middle third of the clavicle

Floor is formed by muscles the ones that we studied are scalene muscles

Brachial plexus and subclavian artery are located between scalene anterior and medius so

they can be viewed in the lower part of posterior triangle

Posterior Triangle

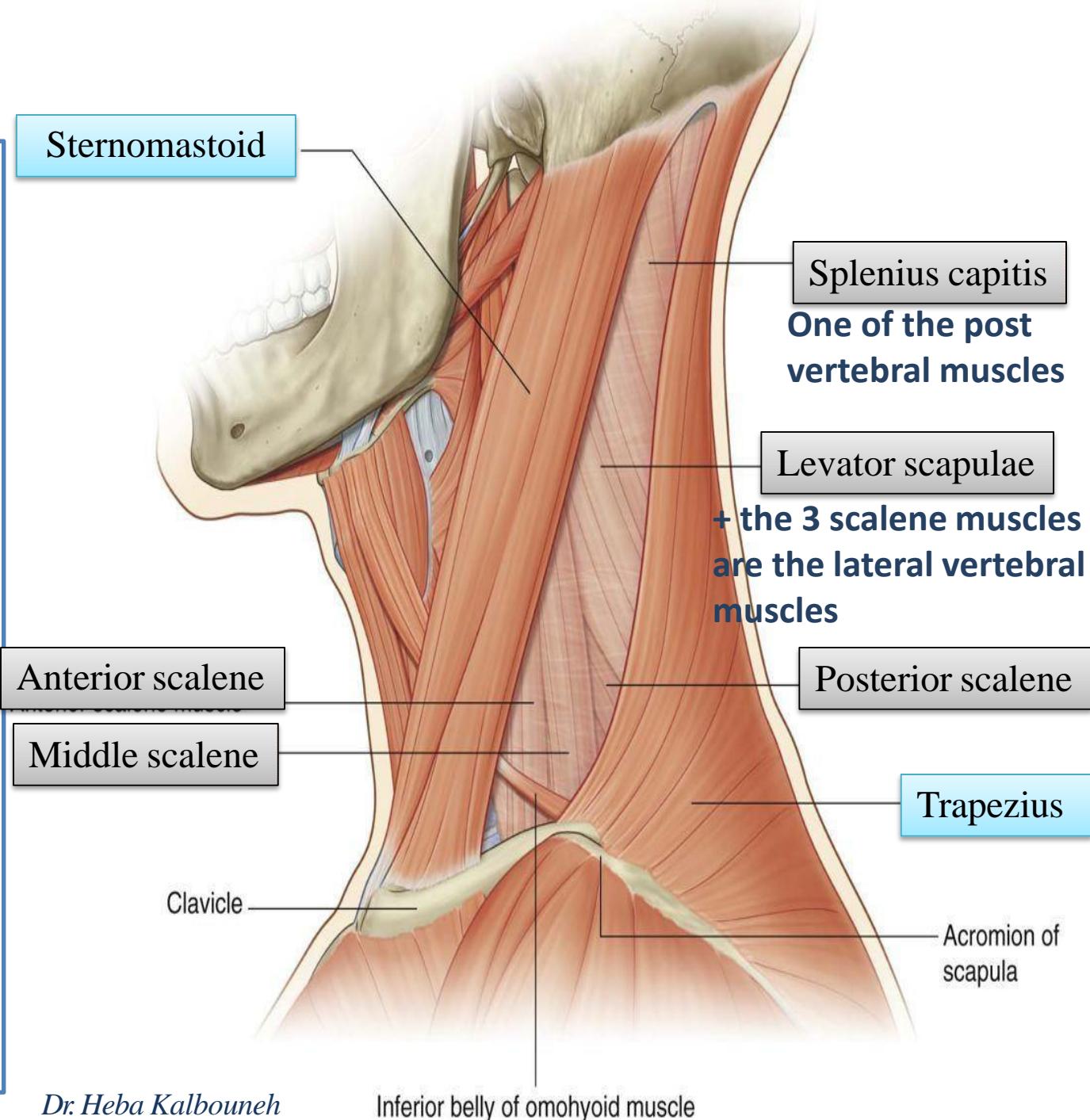
Floor:

Splenius capitis
Levator scapulae
Posterior scalene
Middle scalene
Anterior scalene

Read only the
muscles forming
the floor

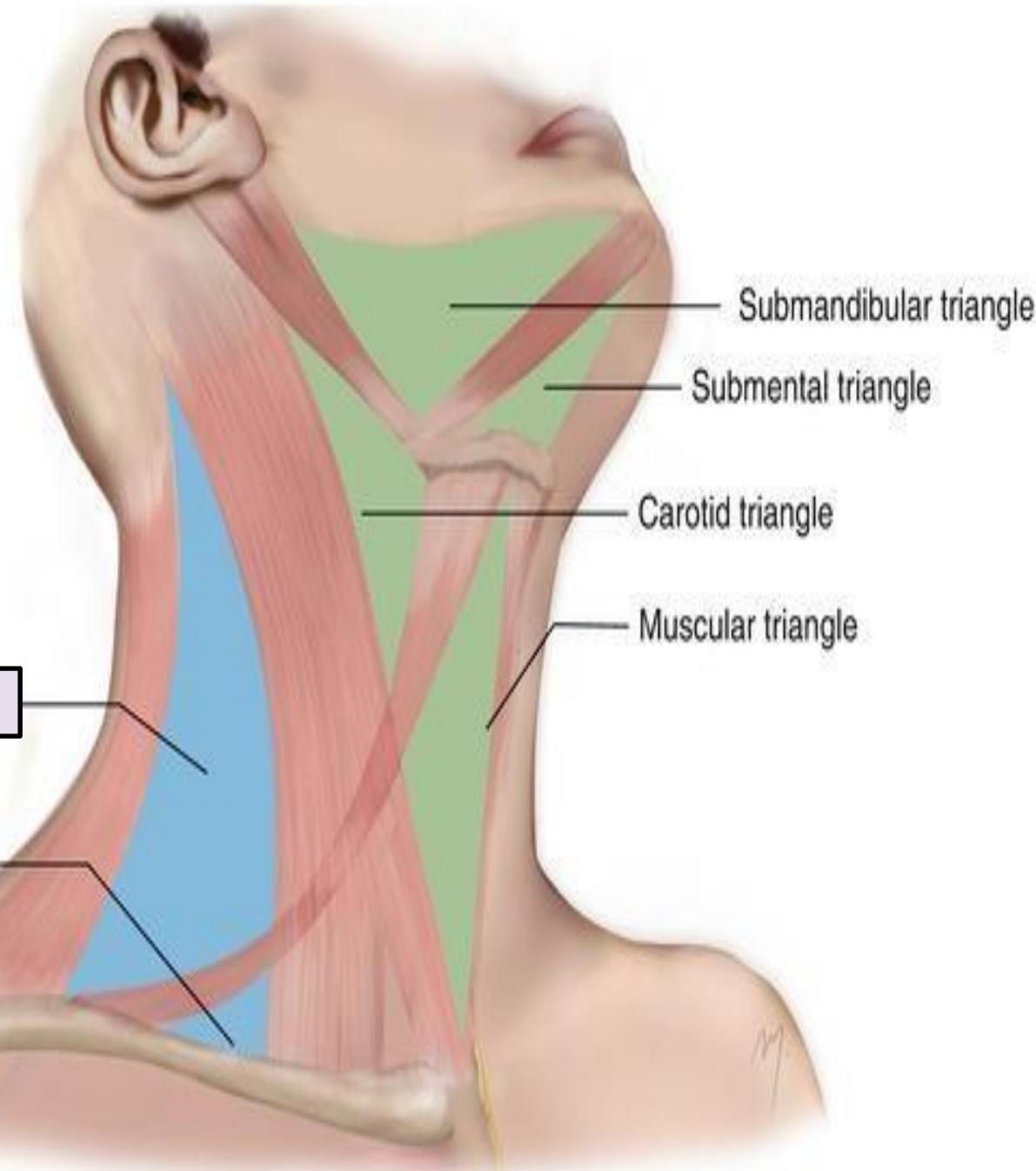
Roof:

Investing layer of
cervical fascia that
surrounds
sternocleidomastoid
and trapezius muscles



Posterior triangle

The posterior triangle of the neck is further subdivided by the inferior belly of the omohyoid muscle into a large occipital triangle above and a small supraclavicular (subclavian) triangle below



Levator scapulae is also located laterally

Infrathyroid muscles

Cross section through the neck (below hyoid)

Which are scalene muscles

Post. Triangle

Sternomastoid

Thyroid gland

Trachea

Esophagus

Lateral vertebral ms

Cervical vertebra

Postvertebral ms

Trapezius

Pretracheal layer

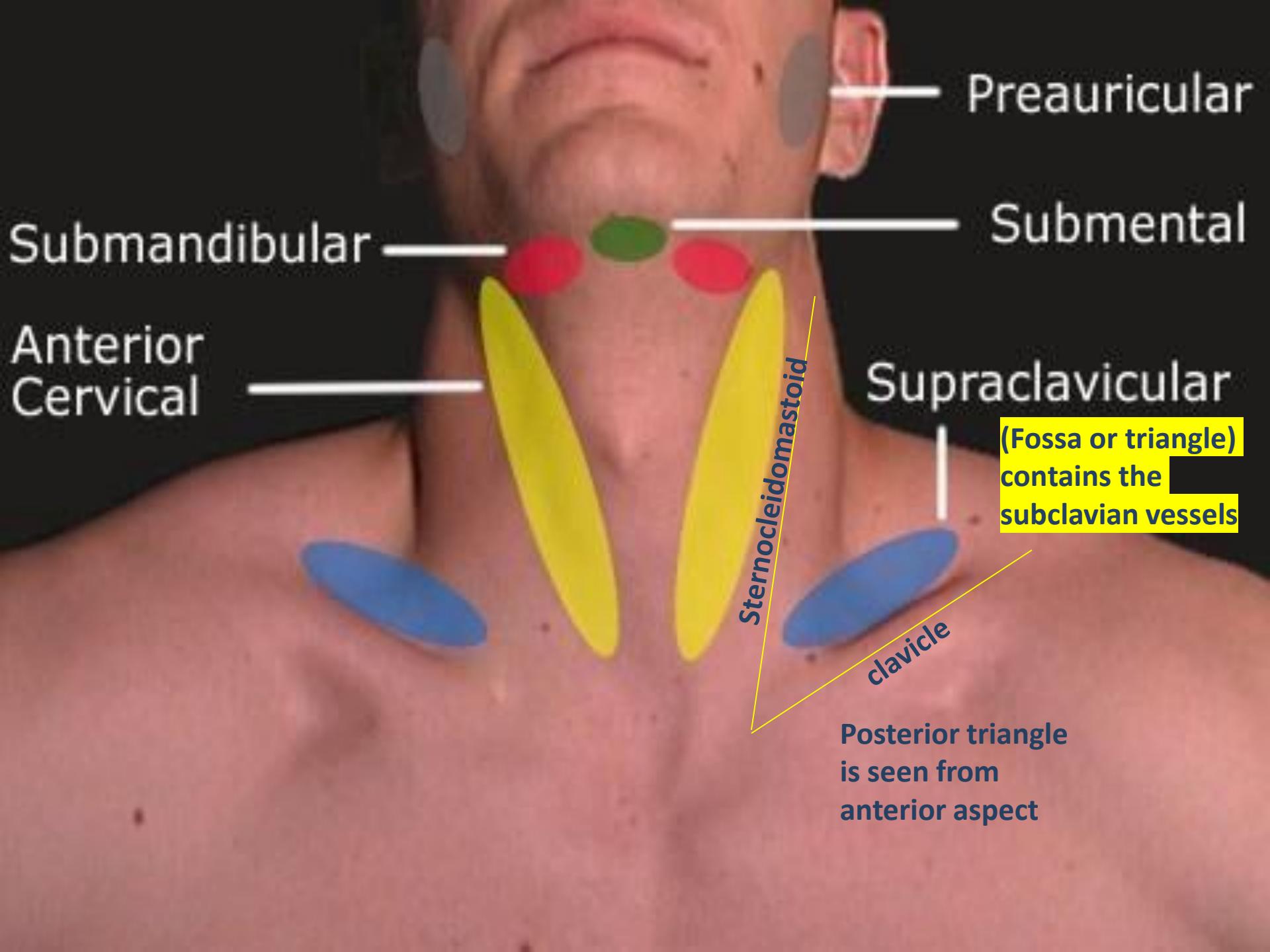
Carotid sheath

Prevertebral muscles

Investing layer
Deep fascia surrounding the whole neck (roof of post. Triangle)

Prevertebral layer
Prevertebral Fascia covers the lateral vertebral muscles (floor of post. Triangle)

vertebral canal containing spinal cord from which right and left cervical nerve are emerging



Are important to know! In the case of a lump or a swelling in the

Contents area you have to know the anatomical structures in the posterior

5 Veins: triangle to help you in the diagnosis

1. External jugular vein
2. Anterior jugular vein
3. Transverse cervical vein
4. Suprascapular vein
5. *Subclavian vein*

4 Arteries:

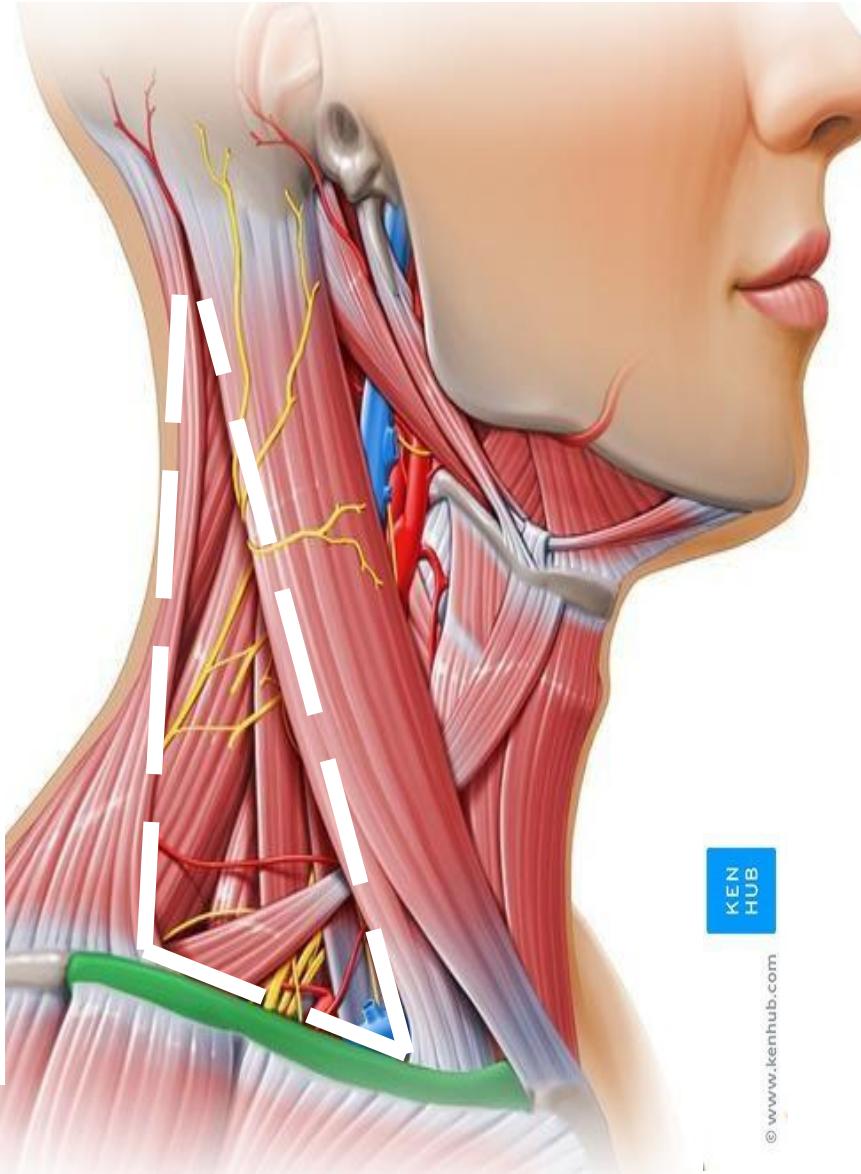
1. Occipital artery
2. Subclavian artery (3rd part)
3. Transverse cervical artery
4. Suprascapular artery

3 Nerves

1. Brachial plexus (trunks)
2. Accessory nerve
3. Branches of cervical plexus

1 Muscle

Inferior belly of omohyoid

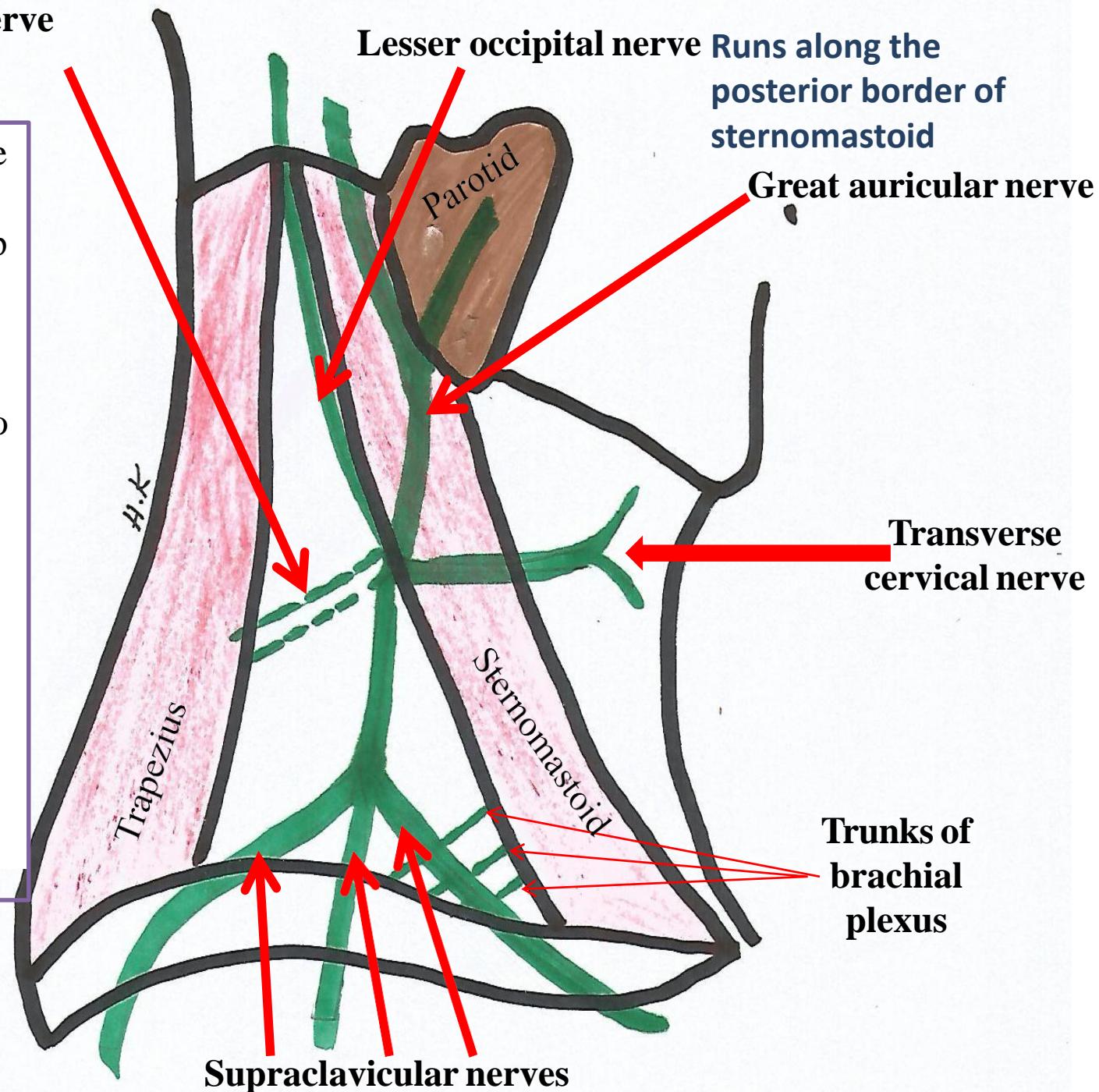


Spinal accessory nerve

Spinal accessory nerve is embedded in the investing layer of deep fascia (Which forms the roof of the posterior triangle), stretched between two muscles



The **superficial** location of the spinal accessory nerve as it crosses the posterior cervical triangle makes it susceptible to injury



Spinal accessory nerve course: emerging from jugular foramen with internal jugular vein and the cranial nerves IX,X & XI, the cranial root joins the vagus nerve while the spinal root passes downward under the cover of sternocleidomastoid and then backward across posterior triangle to supply trapezius

- Brachial plexus is formed between scalene anterior And medius it has five roots (from C5 to T1) that unite to form 3 trunks (upper, middle and lower) which appear at the lower part of the posterior triangle
- Trauma lower part of posterior triangle suspect injury to the trunks of brachial plexus
- Spinal accessory nerve injury as it passes in the posterior triangle → trapezius muscle paralysis → shoulder drop. The sternomastoid muscle is unaffected → it was supplied by a branch of the nerve before it entered the posterior triangle

Scalene anterior originates from cervical vertebra and inserted to the superior surface of the first rib (to scalene tubercle) it divides the subclavian artery to 3 parts

Inferior thyroid artery

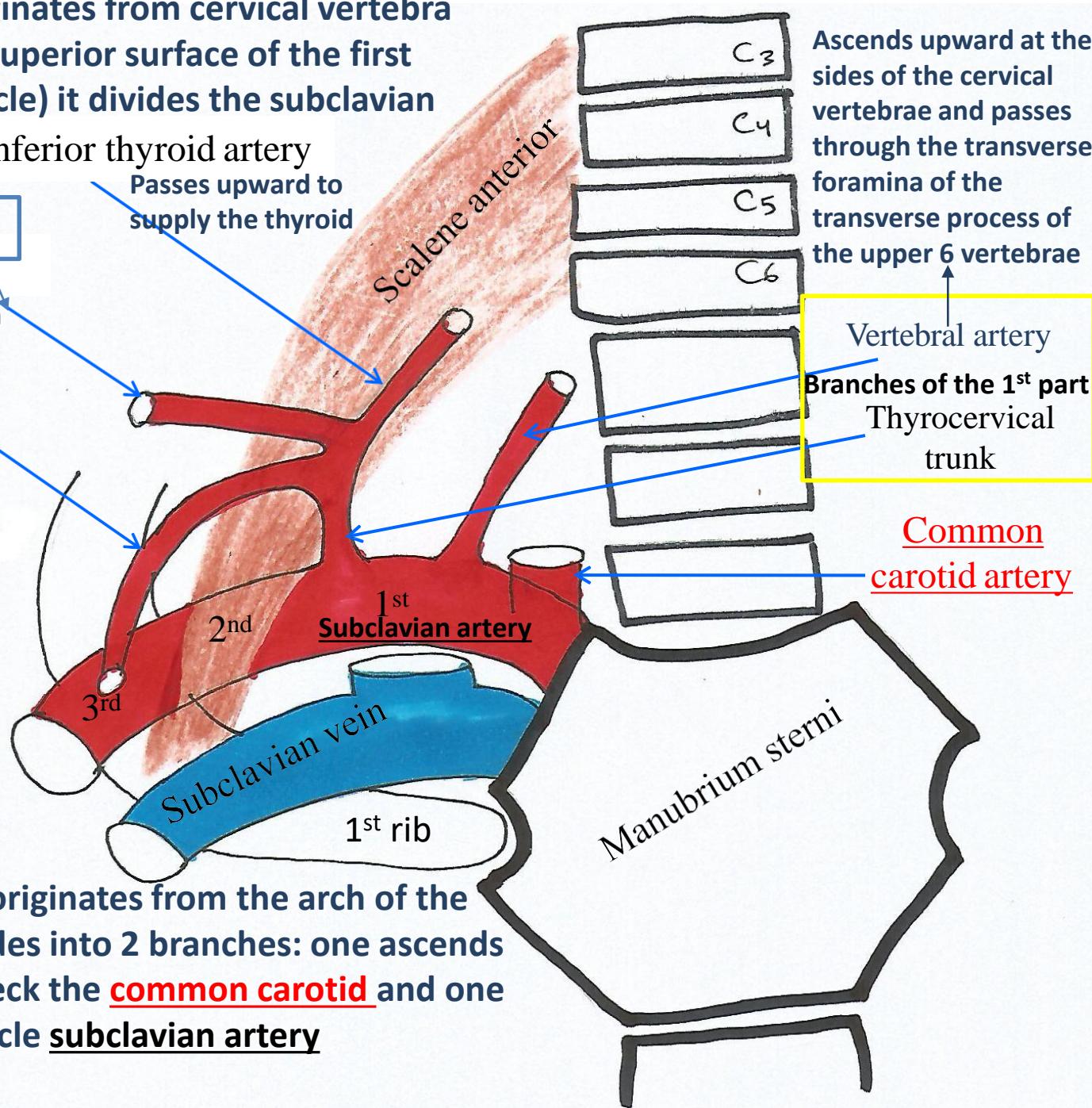
Passes upward to supply the thyroid

Transverse cervical artery

supplies muscles of the neck then it descends down to participate in the anastomosis around the scapula

Suprascapular artery

passes downward towards the scapula, it enters suprascapular notch and supplies muscles of scapula (supraspinatus and infraspinatus)



Brachiocephalic artery originates from the arch of the aorta (right side) it divides into 2 branches: one ascends upwards through the neck the **common carotid** and one laterally under the clavicle **subclavian artery**

Ascends upward at the sides of the cervical vertebrae and passes through the transverse foramina of the transverse process of the upper 6 vertebrae

Vertebral artery

Branches of the 1st part
Thyrocervical trunk

Common
carotid artery

Arteries of the posterior triangle

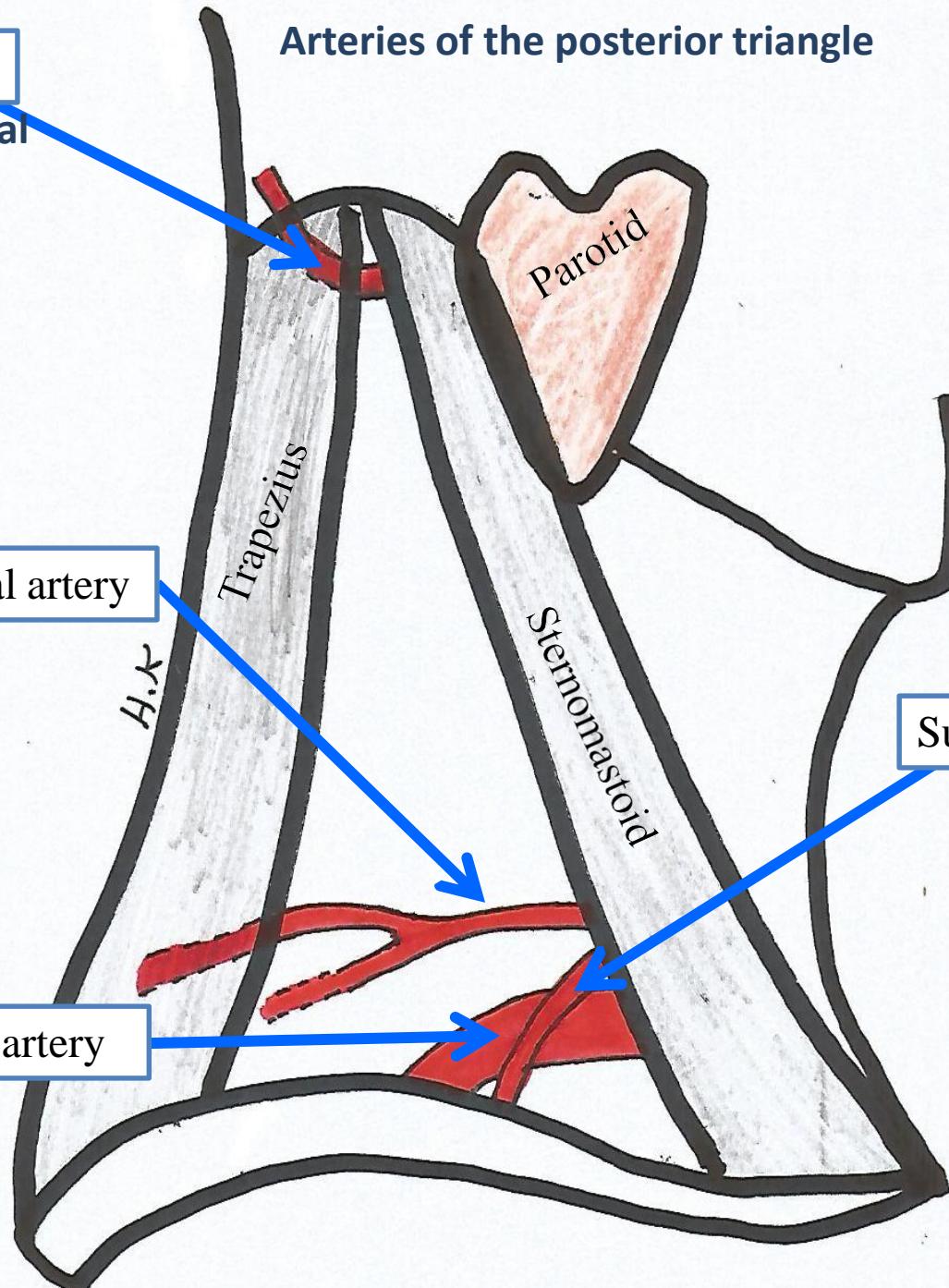
Occipital artery

Branch from external carotid artery

Transverse cervical artery

3rd part of subclavian artery

Suprascapular artery



Veins of the posterior triangle

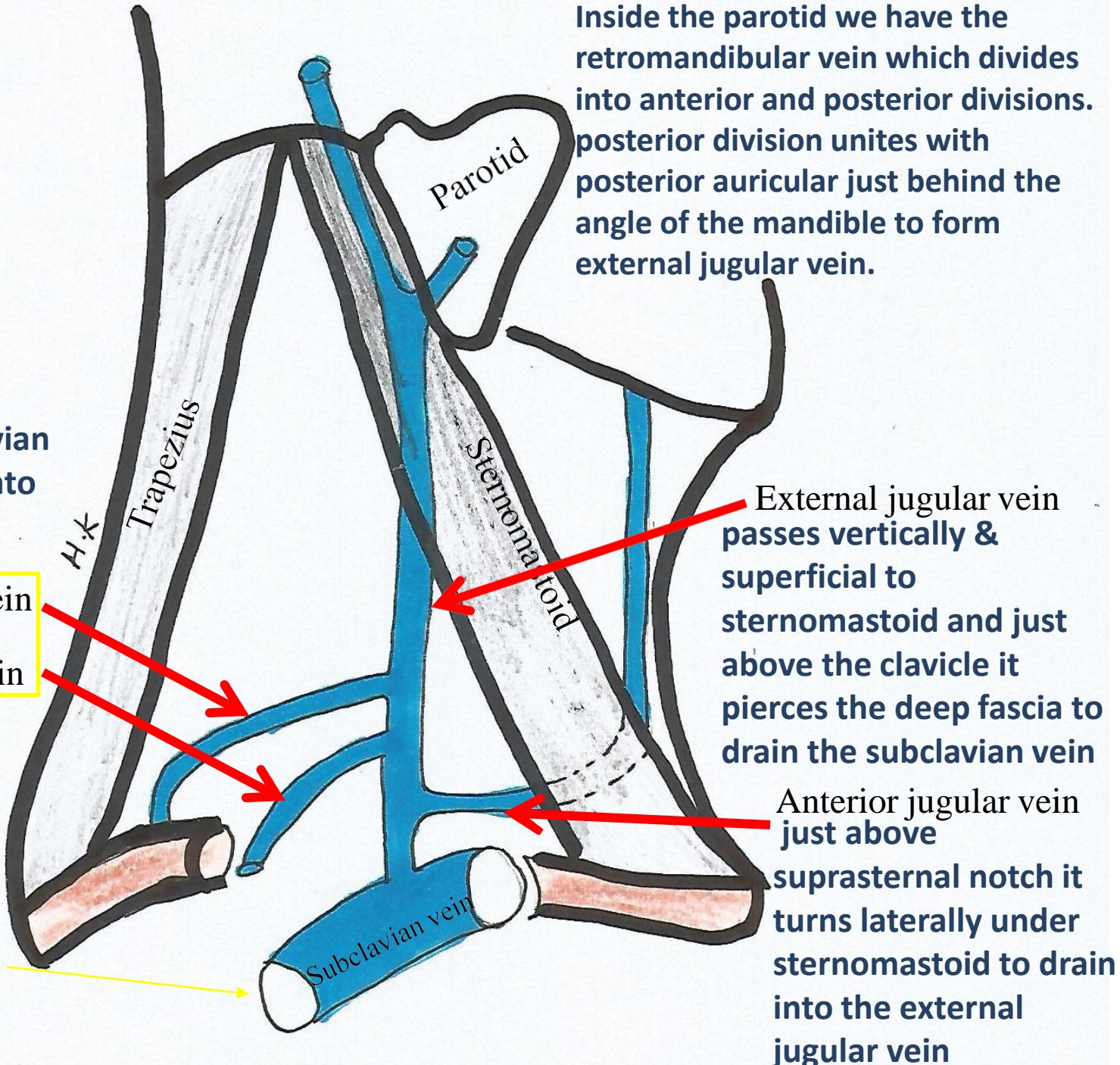
Inside the parotid we have the retromandibular vein which divides into anterior and posterior divisions. posterior division unites with posterior auricular just behind the angle of the mandible to form external jugular vein.

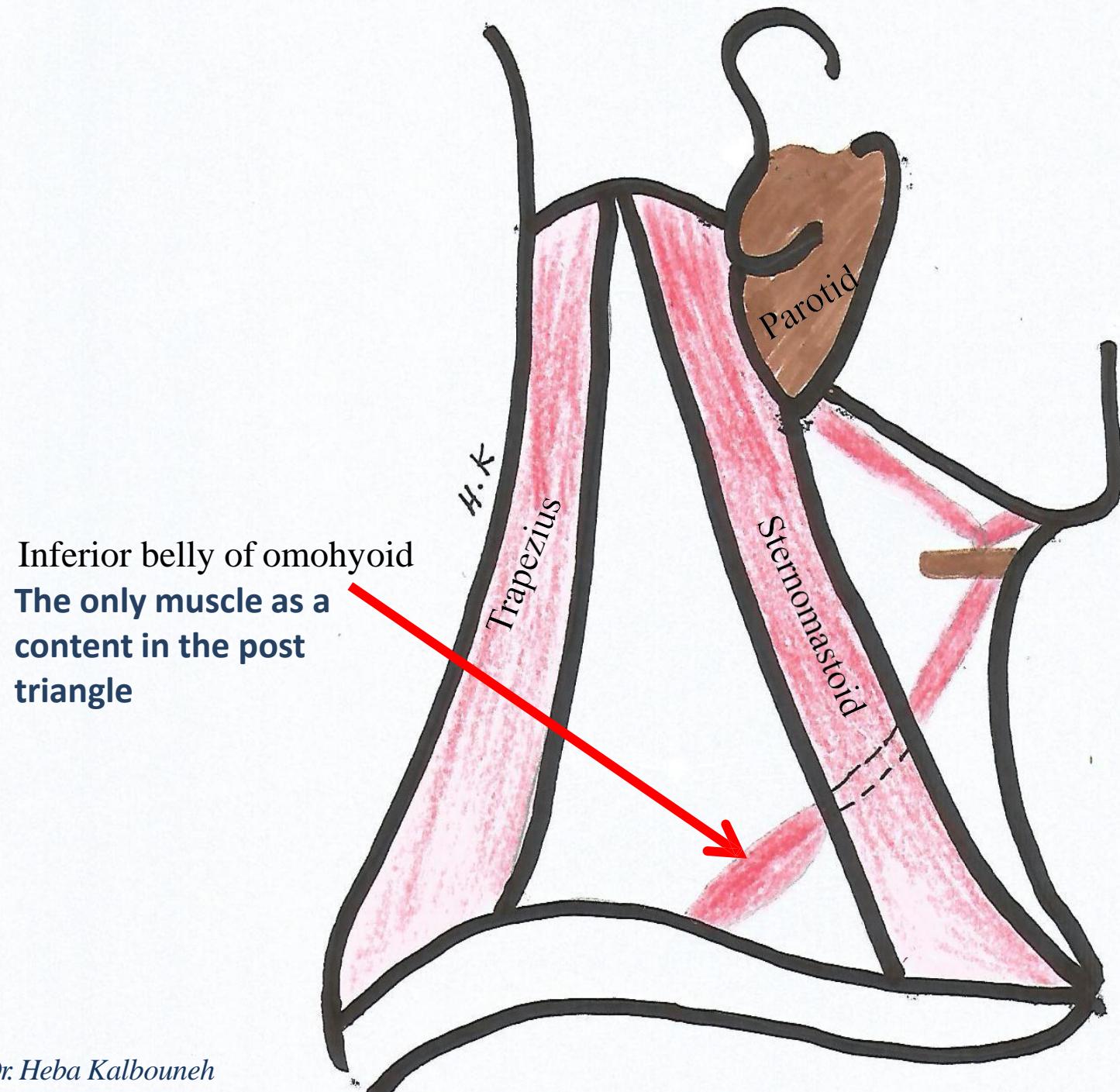
veins equivalent to branches of subclavian artery, they drain into EJV

Transverse cervical vein

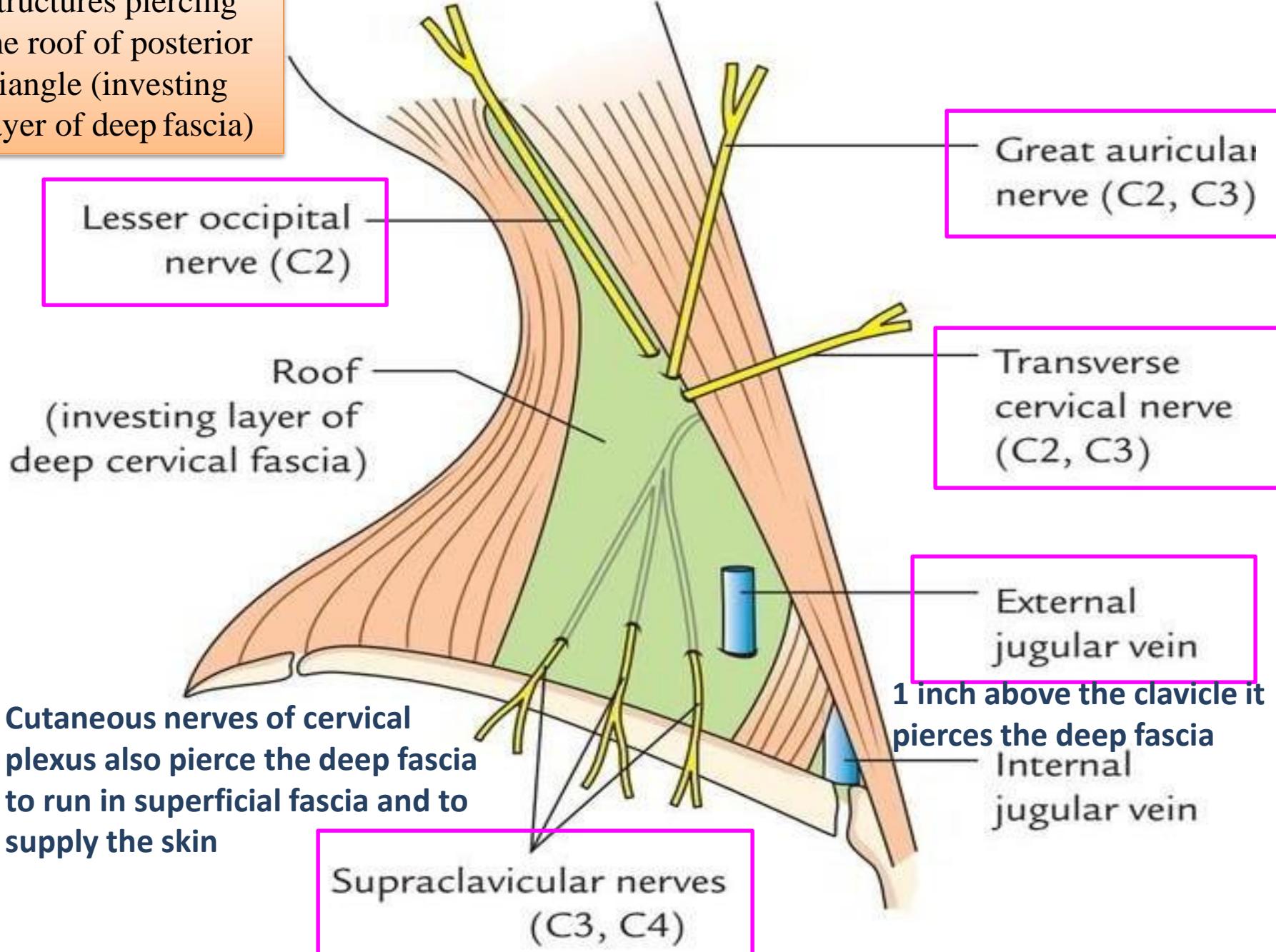
Suprascapular vein

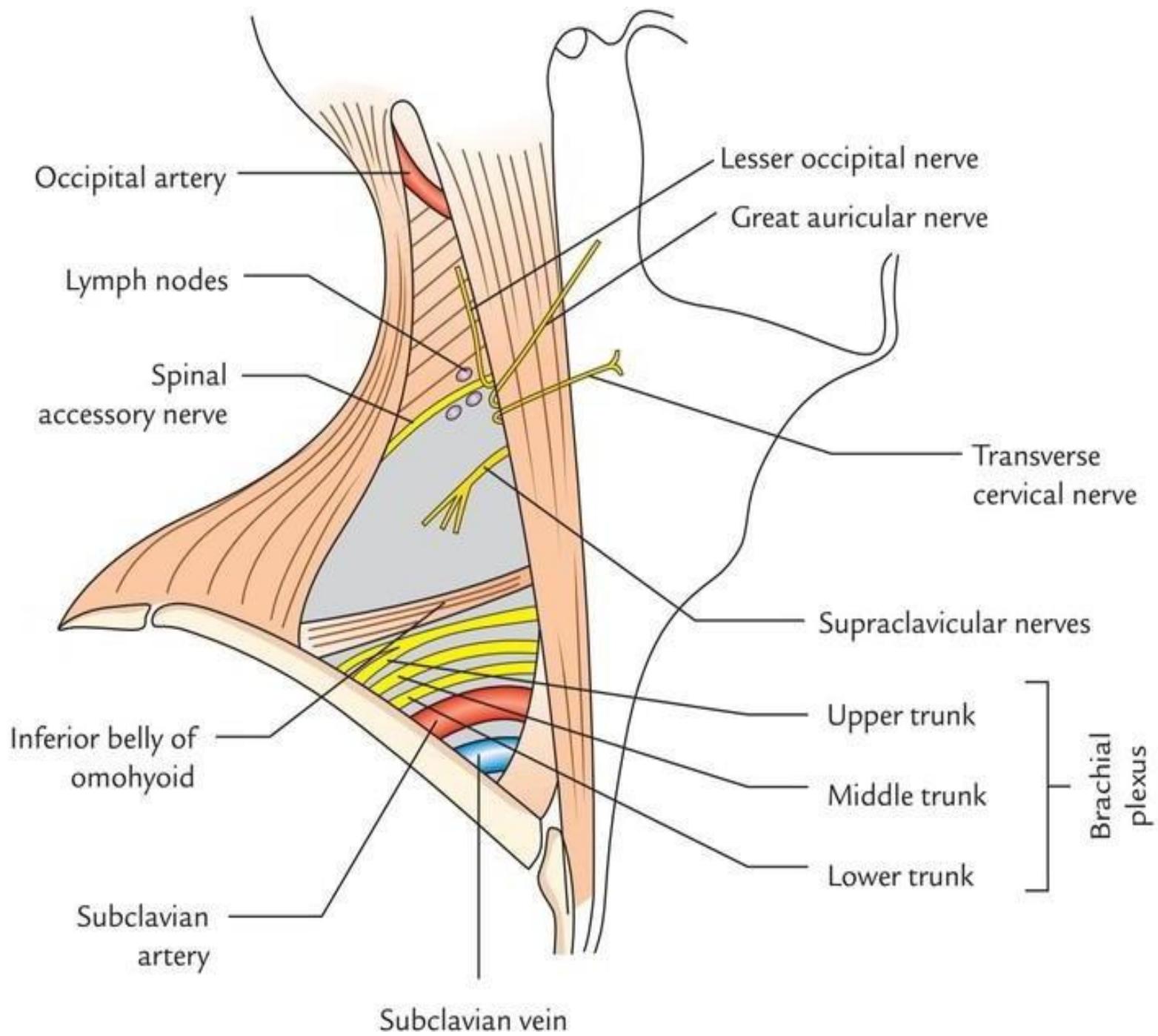
Sometimes the subclavian vein is high in position so it appears at the lower most part of the posterior triangle





Structures piercing
the roof of posterior
triangle (investing
layer of deep fascia)





Anterior triangle

Boundaries:

- **Superiorly:**

Body of the mandible

- **Posteriorly:**

Anterior border of the Sternocleidomastoid

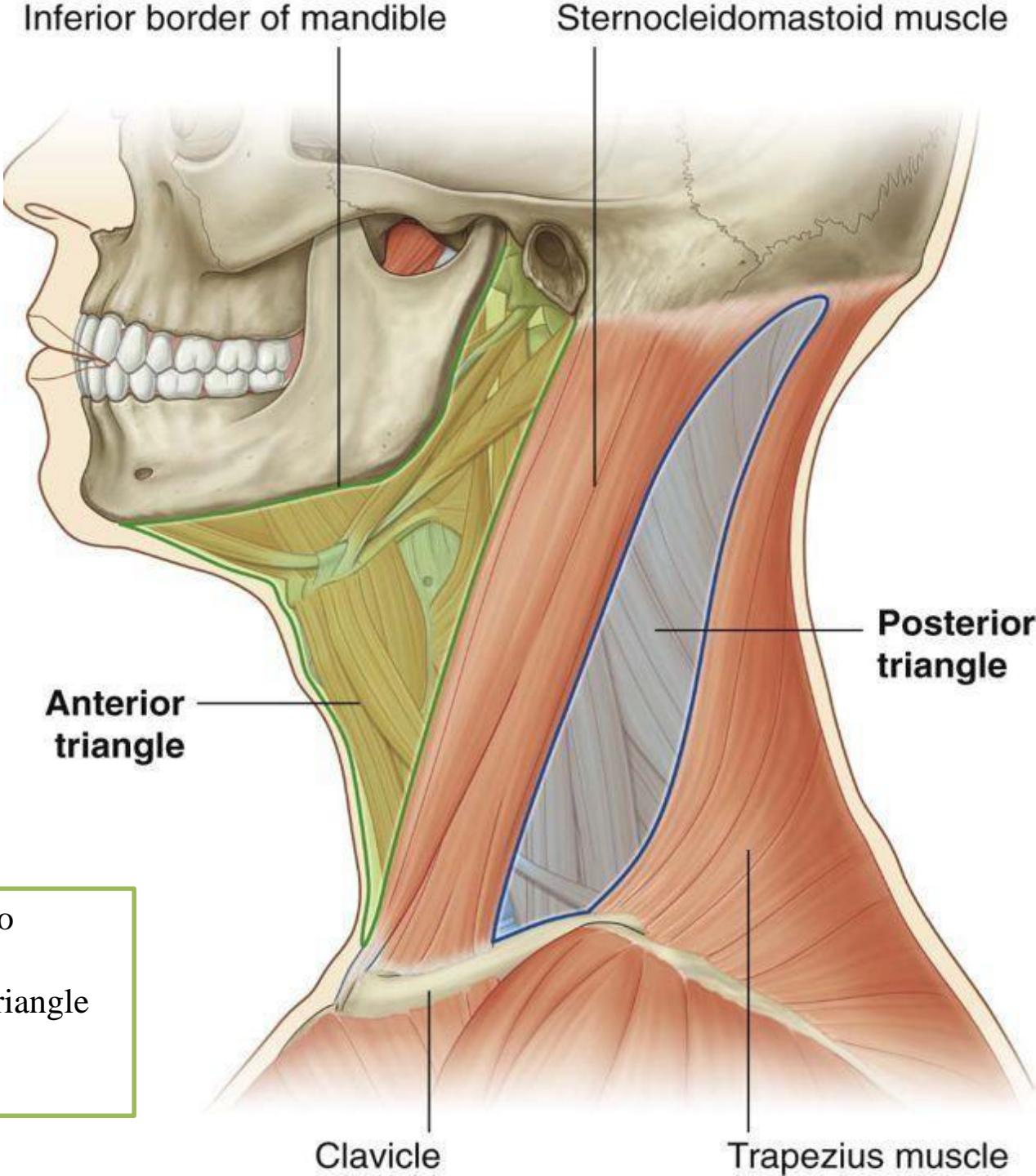
- **Anteriorly:**

Midline



It is further subdivided into

1. Carotid triangle
2. Submandibular (digastric) triangle
3. Submental triangle
4. Muscular triangle



Anterior triangle

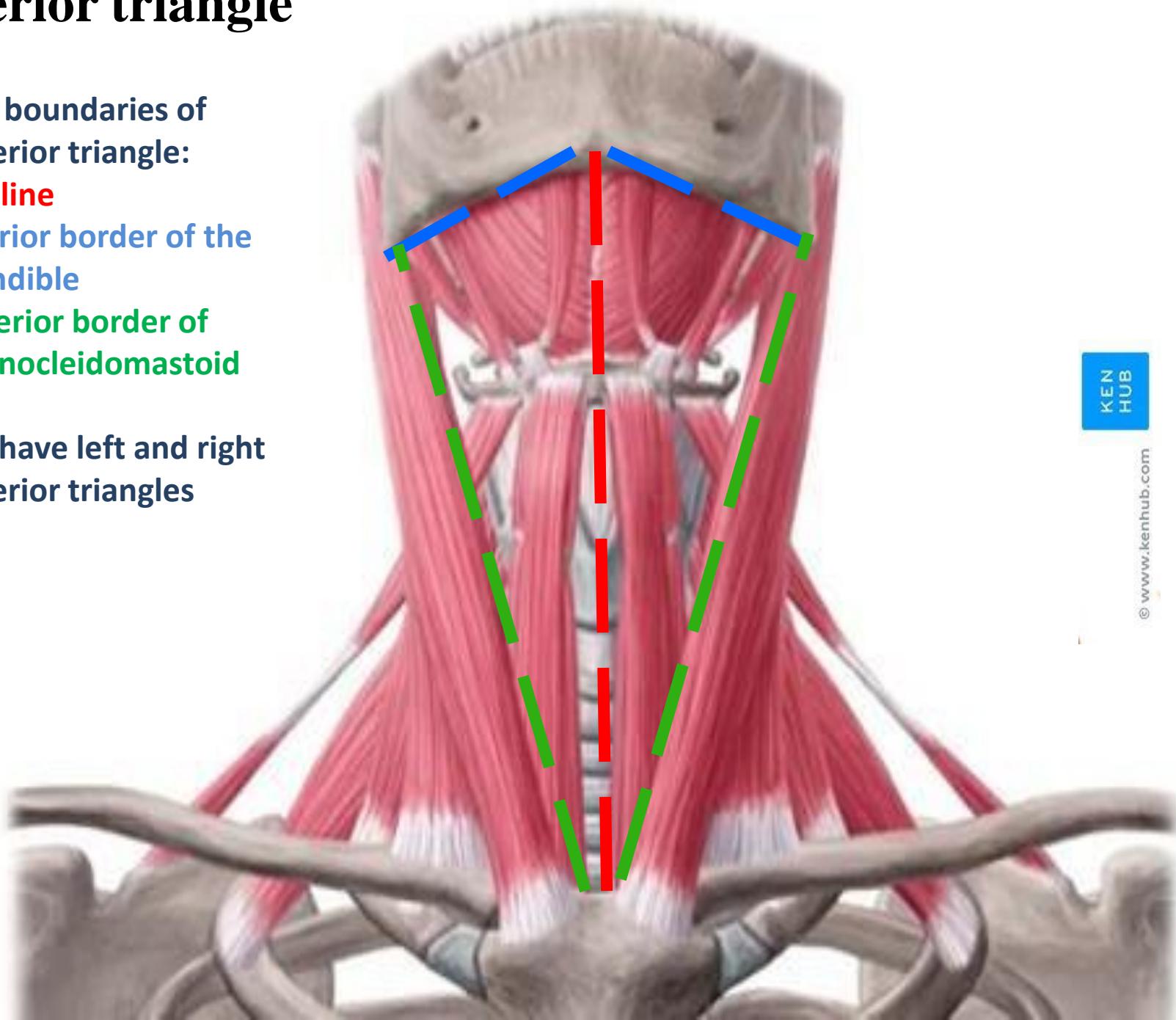
The boundaries of anterior triangle:

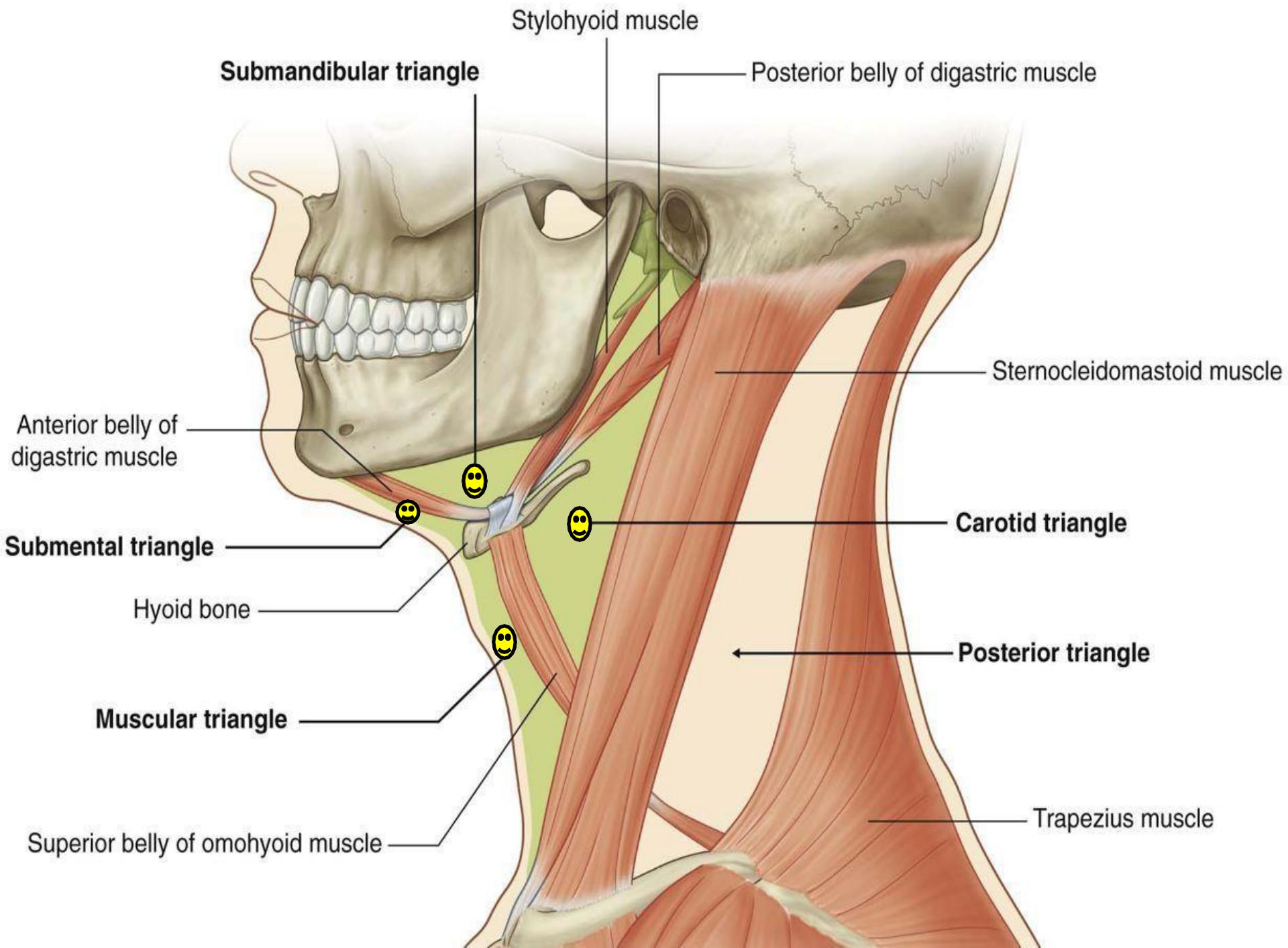
Midline

Inferior border of the mandible

Anterior border of sternocleidomastoid

We have left and right anterior triangles





Carotid triangle

Boundaries:

Superior:

Posterior belly of digastric

Lateral:

Sternocleidomastoid (ant.)

Border)

Inferior:

Superior belly of omohyoid

The main contents of carotid triangle are: **In bold are the most important**

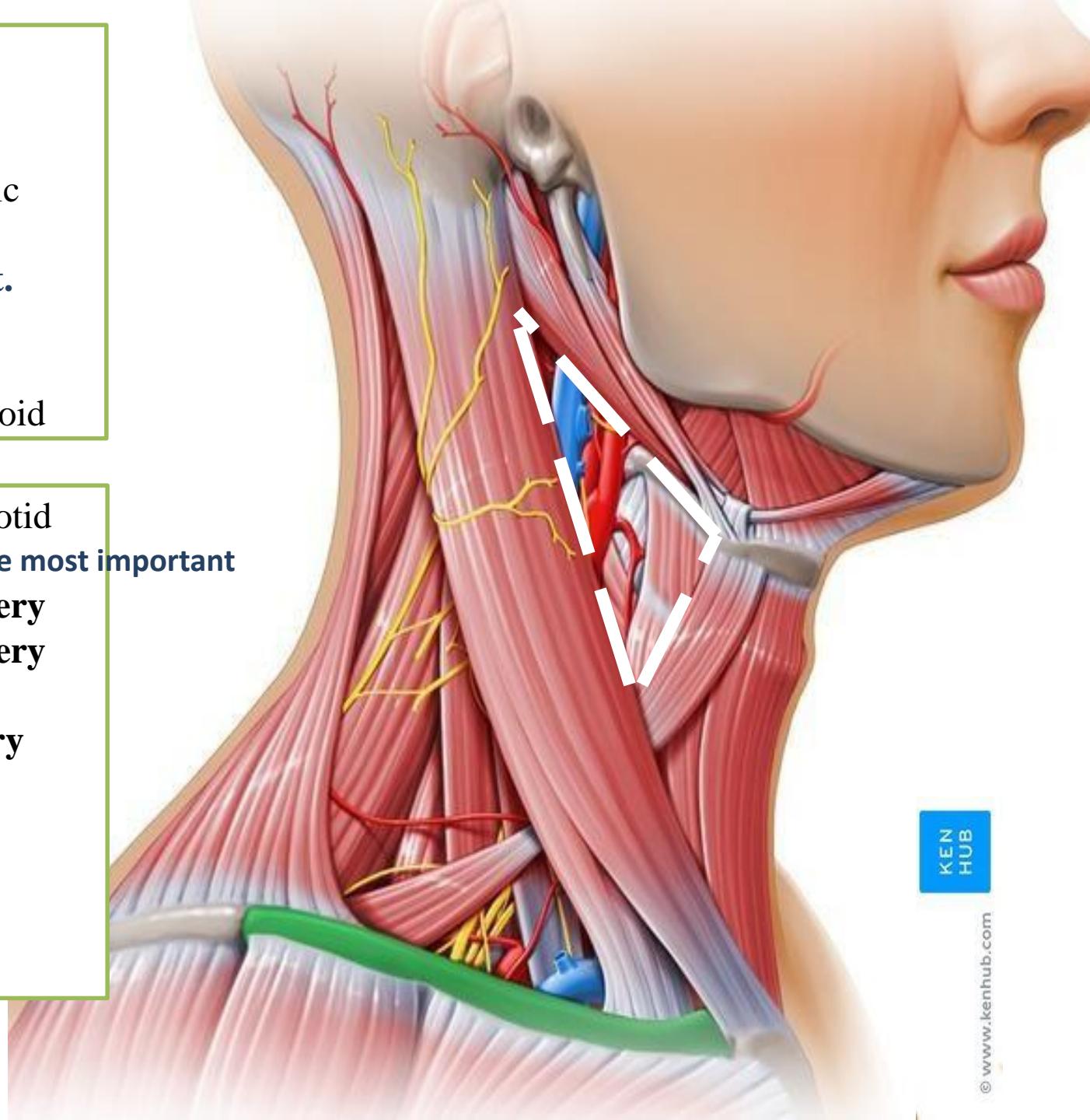
- 1- Common carotid artery
 - 2- External carotid artery
(and lower 5 branches)
 - 3- Internal carotid artery
 - 4- Internal jugular vein

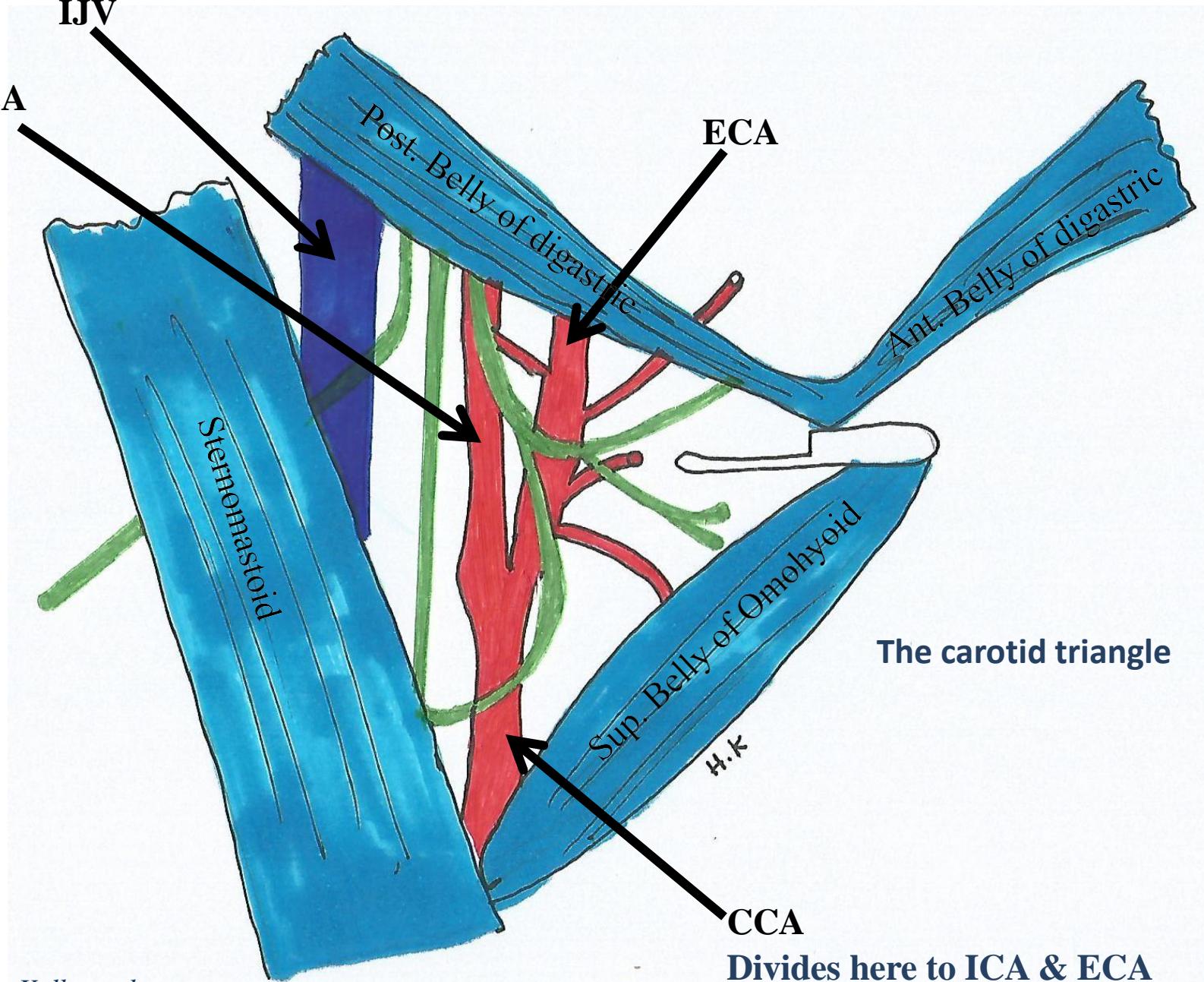
6 Vagus nerve

7 Accessory nerve

8 Hypoglossal nerve

9 Ansa cervicalis



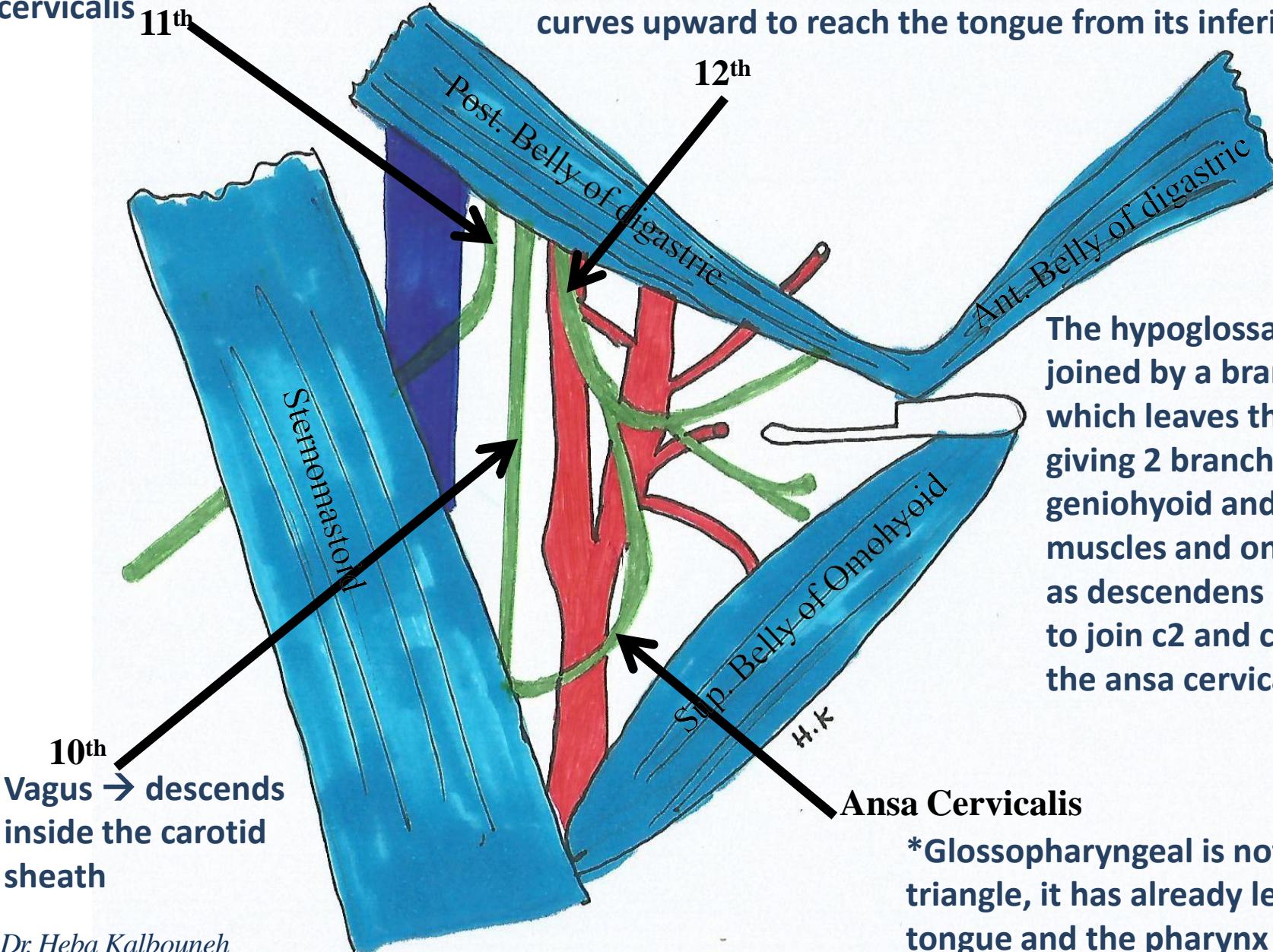


Nerves of carotid triangle
The lower 3 cranial + ansa cervicalis

11th

Emerging from the hypoglossal canal is the hypoglossal nerve it descends down in front of the carotid vessels then curves upward to reach the tongue from its inferior surface.

12th

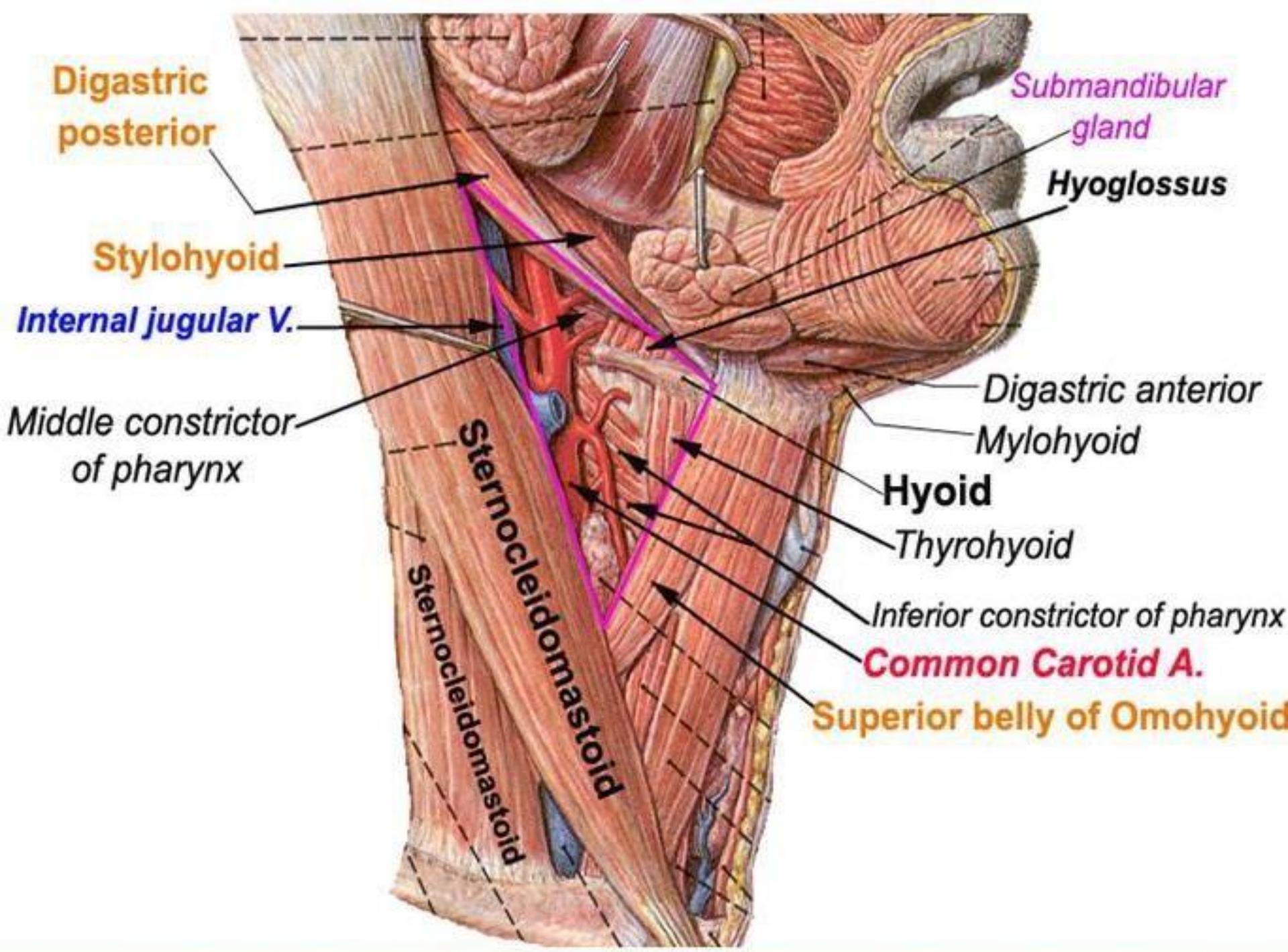


10th
Vagus → descends
inside the carotid
sheath

H.K

Ansa Cervicalis

*Glossopharyngeal is not inside the triangle, it has already left to the tongue and the pharynx



Submandibular triangle (Digastric)

Is located underneath body of mandible

Contents:

1. Submandibular gland
2. Submandibular lymph nodes
3. Facial artery
4. Facial vein

Boundaries:

Superiorly:

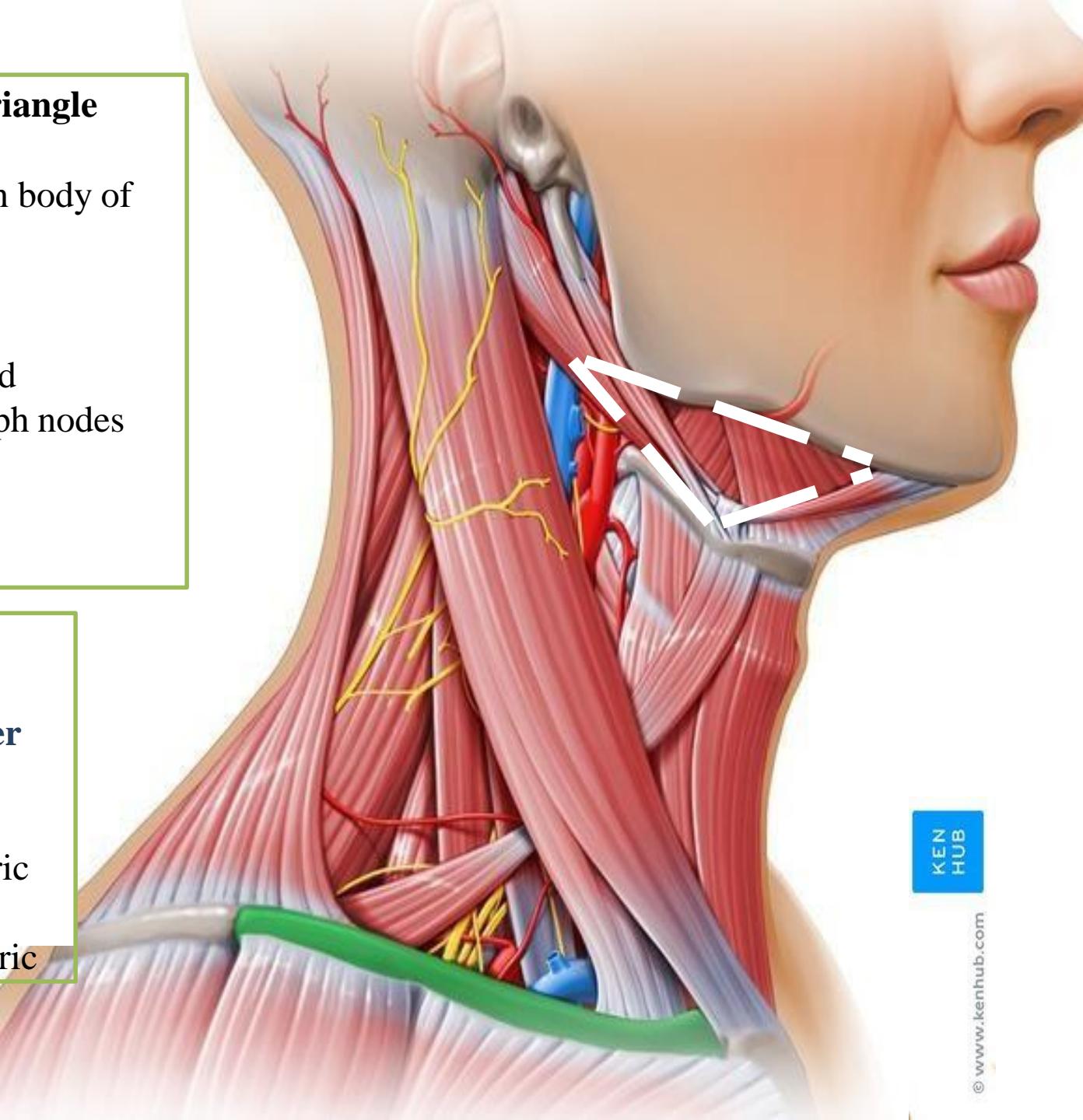
Body of mandible (**lower border**)

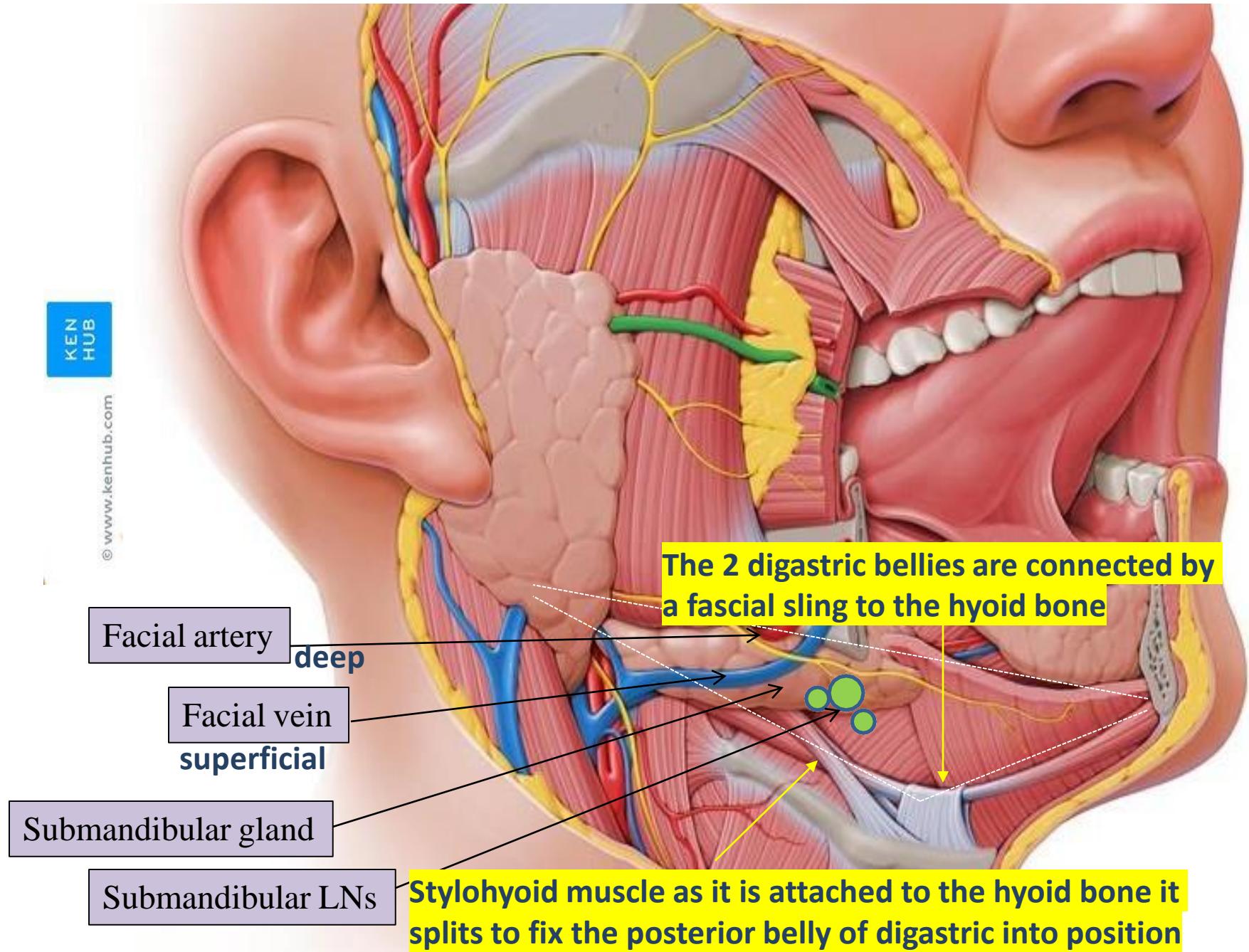
Anteriorly:

Anterior belly of digastric

Posteriorly:

Posterior belly of digastric





Muscular triangle

It is a slightly ‘dubious’ triangle, in reality having **four** boundaries

Contents:

- 1 Infrahyoid muscles
- 2 Larynx
- 3 Trachea
- 4 Thyroid and parathyroid glands
- 5 Pharynx
- 6 Esophagus

The boundaries:

Superiorly:

Hyoid bone

Medially:

Imaginary midline of the neck

Supero-laterally:

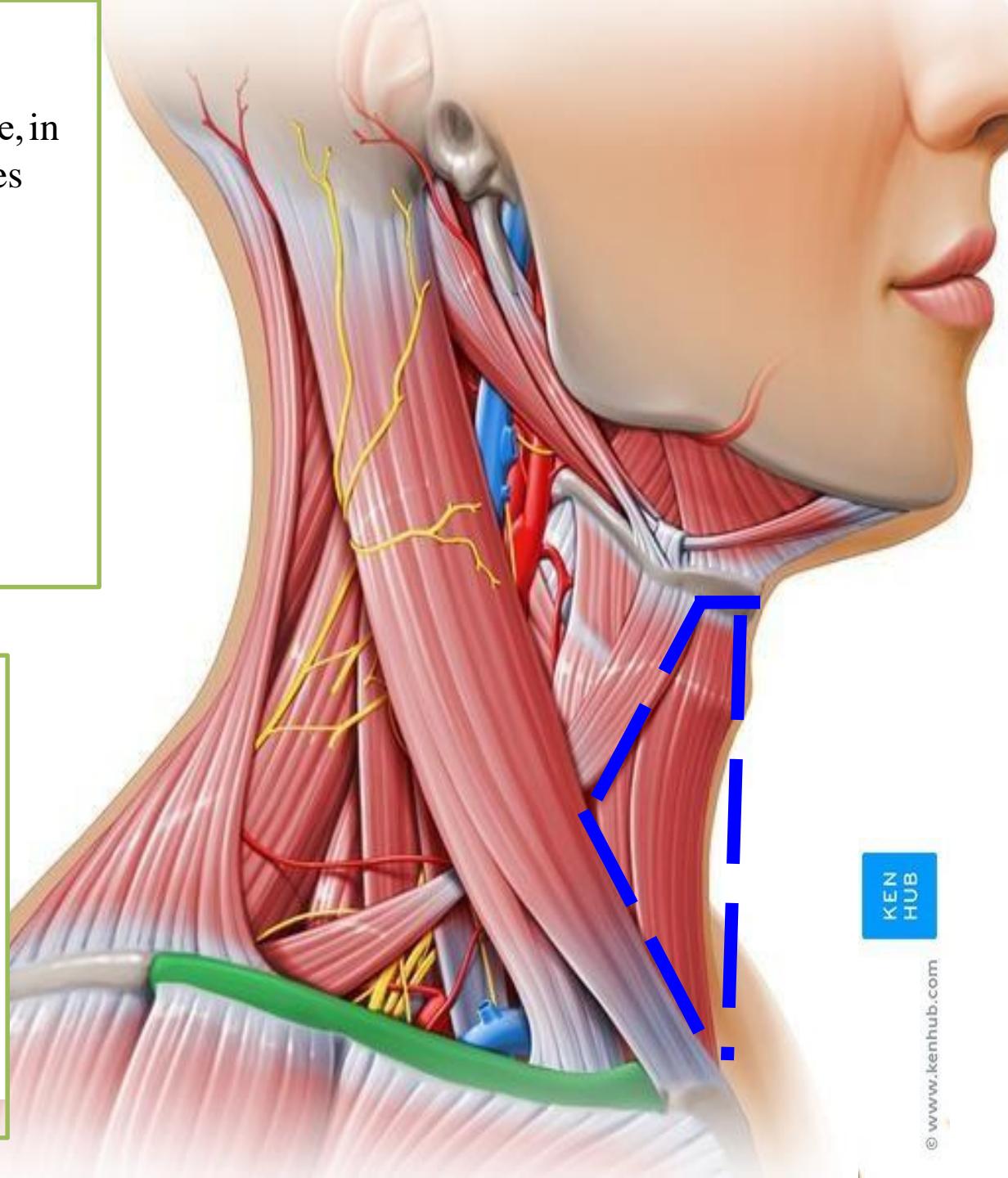
Superior belly of omohyoid

Infero-laterally:

Sternocleidomastoid (ant.

Border)

Dr. Heba Kalbouneh



Muscular triangle

KEN
HUB

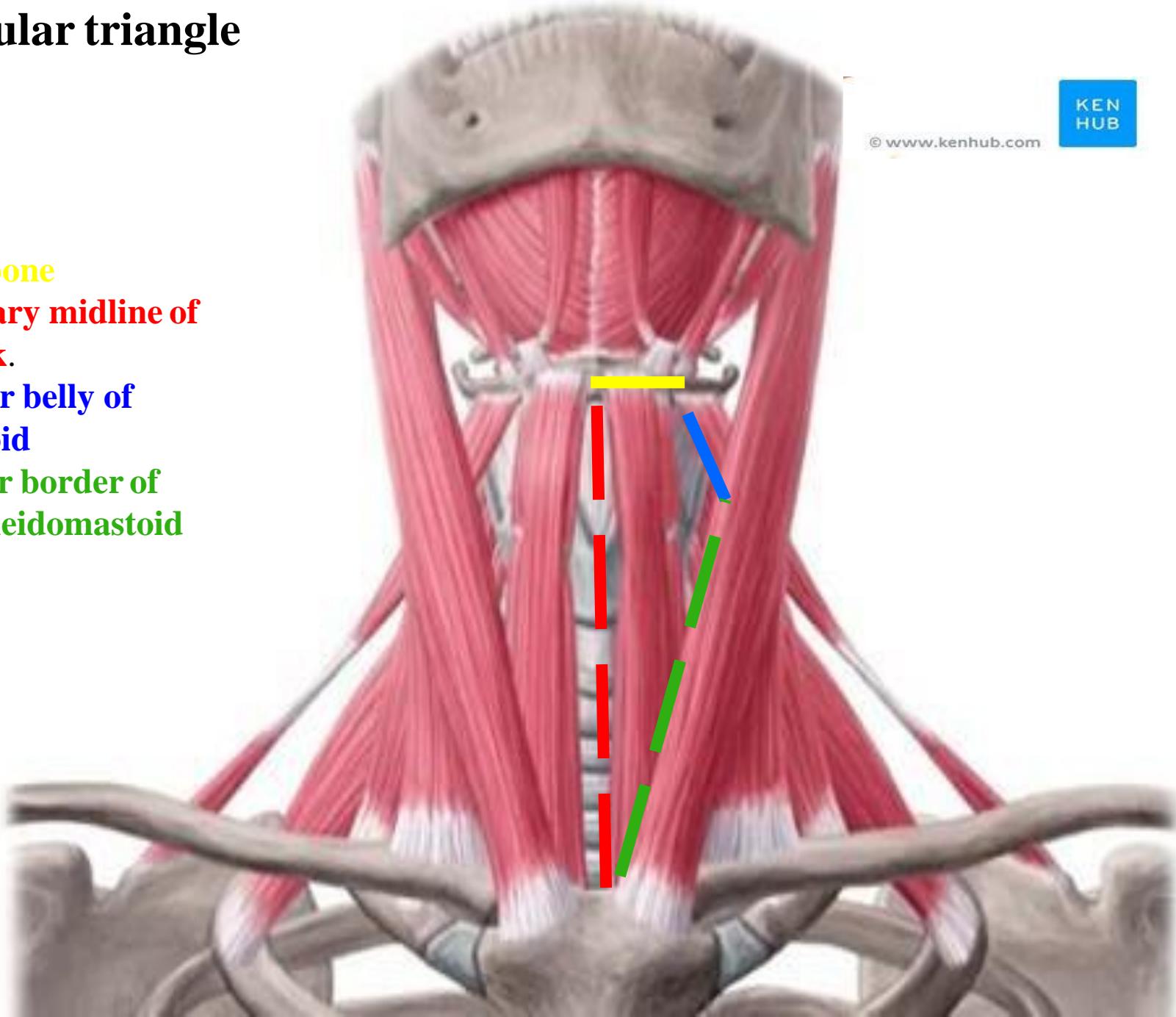
© www.kenhub.com

Hyoid bone

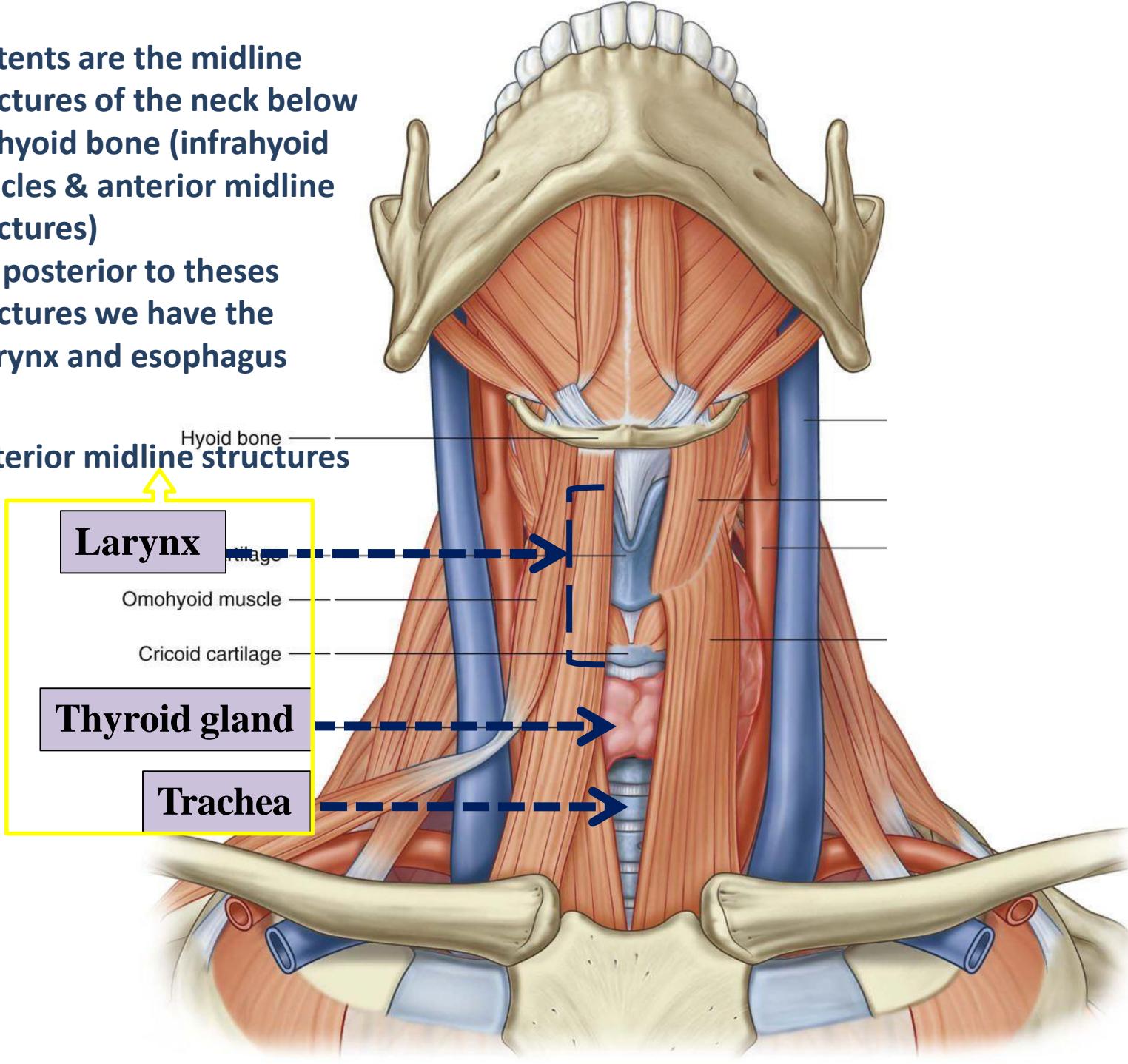
Imaginary midline of
the neck.

Superior belly of
omohyoid

Anterior border of
sternocleidomastoid



Contents are the midline structures of the neck below the hyoid bone (infrathyroid muscles & anterior midline structures) and posterior to these structures we have the pharynx and esophagus



Submental triangle

- ✓ Is situated underneath the chin
- ✓ Contents: Submental lymph nodes

Boundaries:

Inferiorly:

Hyoid bone

Medially:

Midline of the neck

Laterally:

Anterior belly of digastric

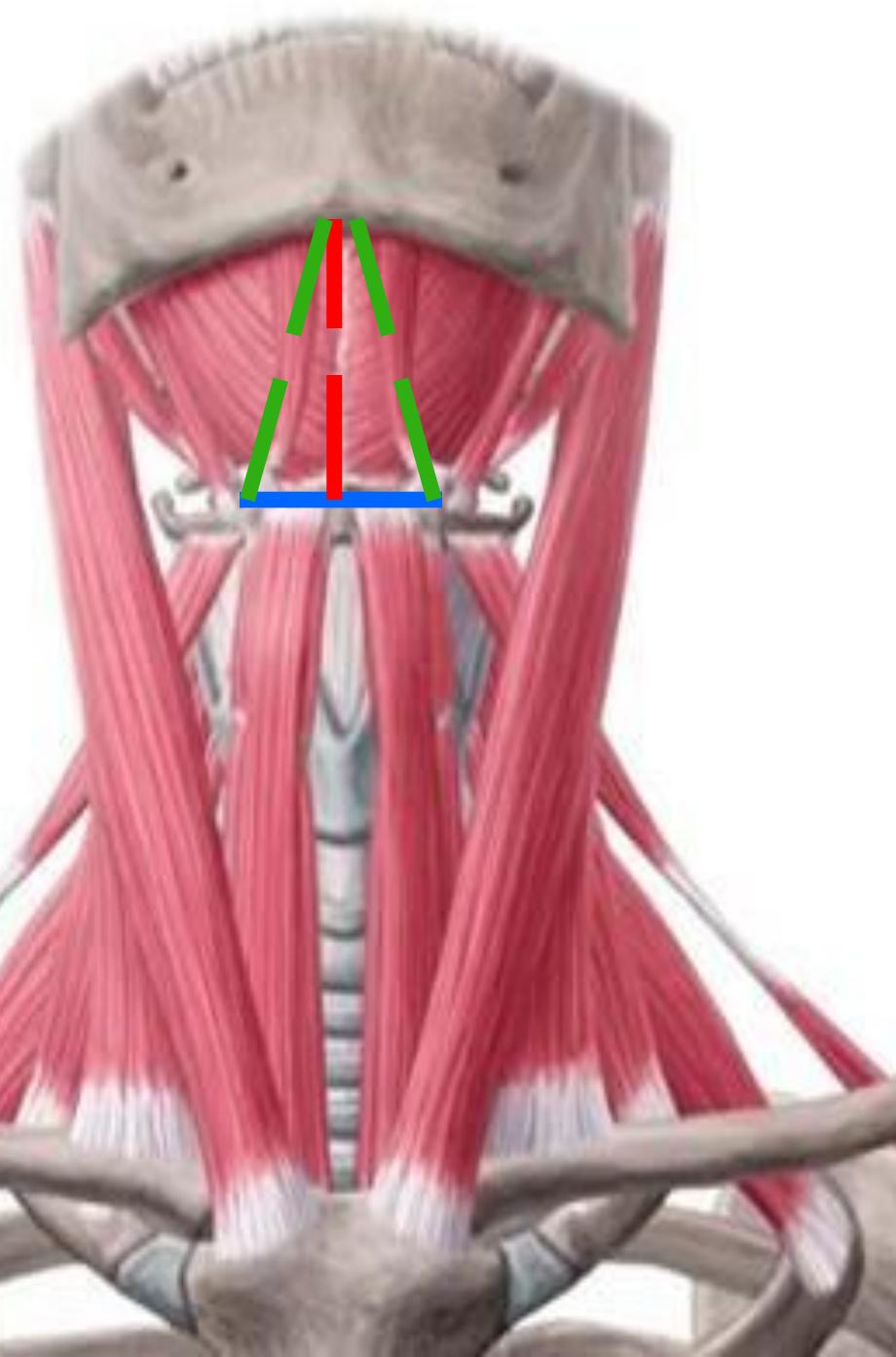
Floor:

Mylohyoid muscle

**Imaginary midline of
the neck.**

Hyoid bone

**Anterior belly of
digastric**



Lymphatic drainage of head and neck

Lymph nodes of face and scalp

Five groups of lymph nodes

1- Submandibular nodes

2- Submental nodes

3- Pre-auricular/ parotid nodes

4- Mastoid nodes

5- Occipital nodes

Form a ring around
the head

Pre-auricular/parotid nodes

Submental nodes

Submandibular nodes

Omohyoid muscle

Jugulo-omohyoid node

Occipital nodes

Mastoid nodes

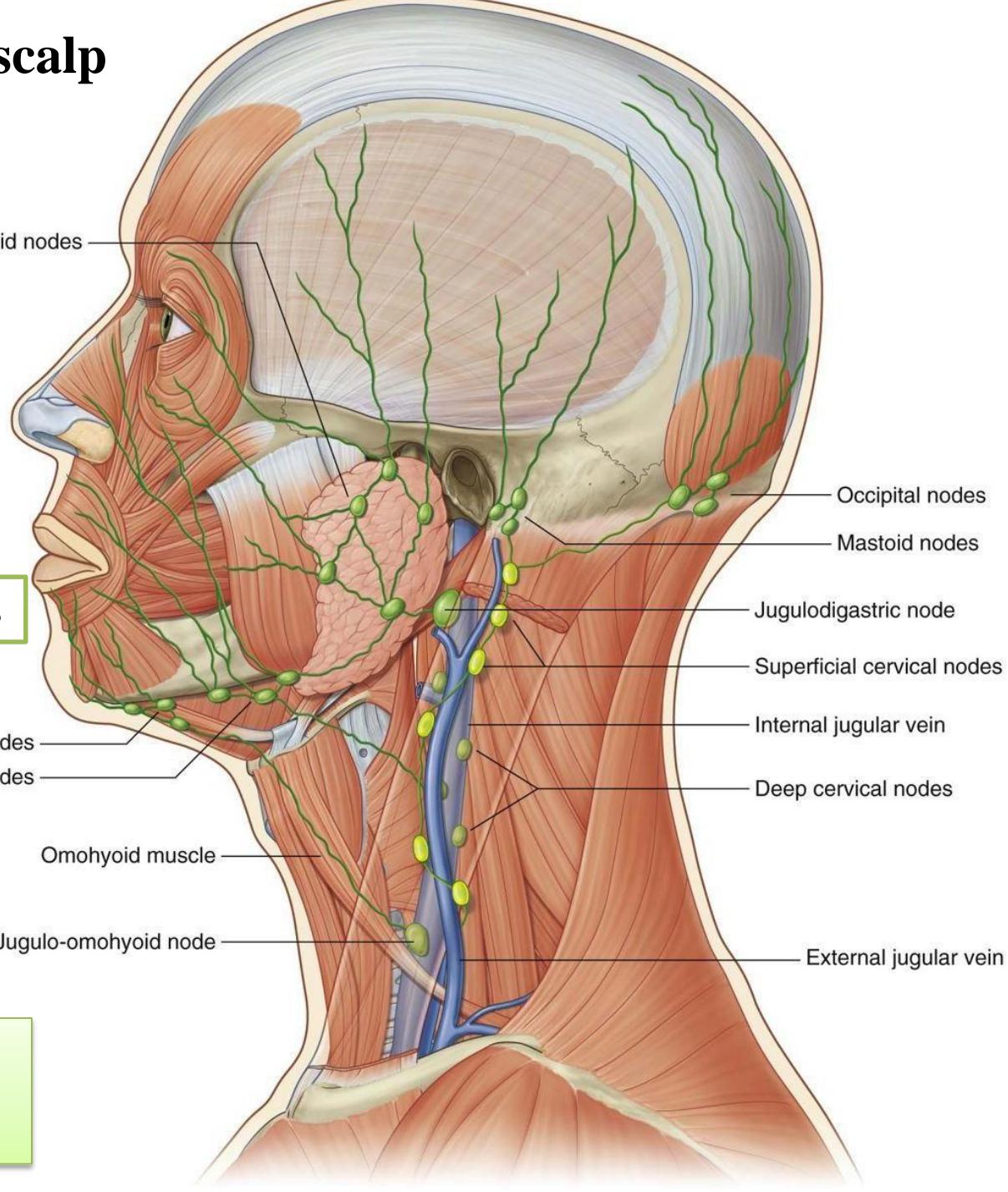
Jugulodigastric node

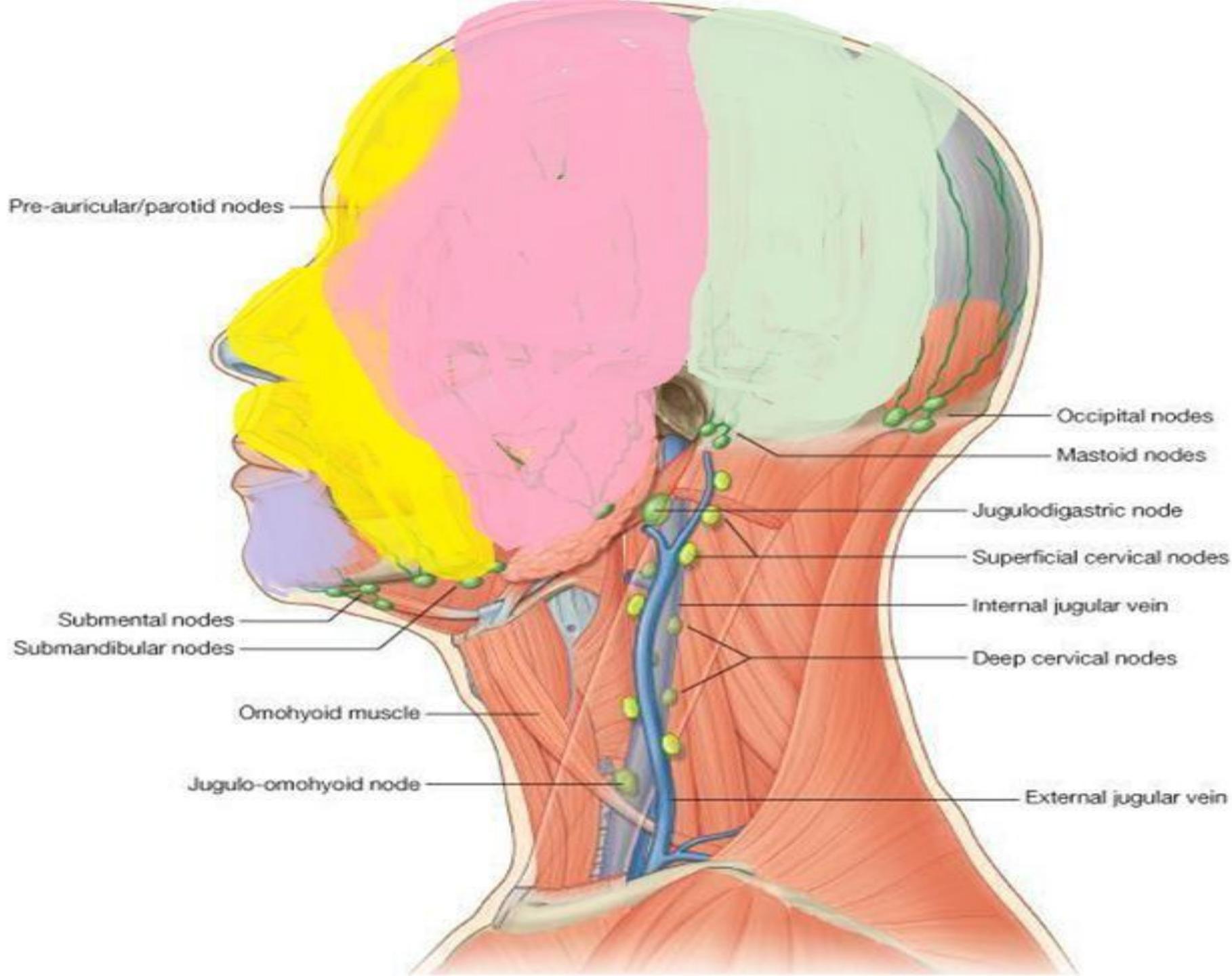
Superficial cervical nodes

Internal jugular vein

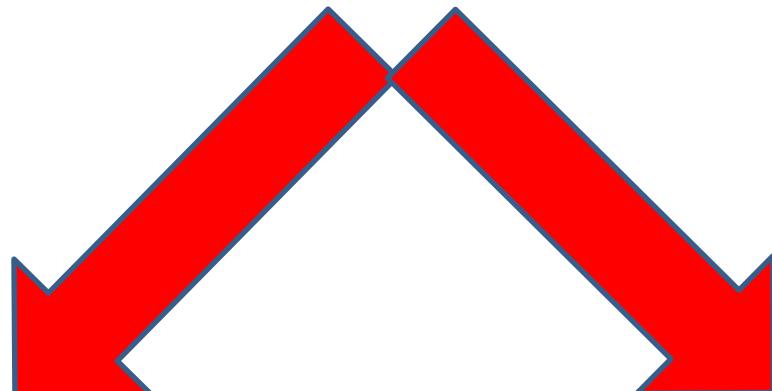
Deep cervical nodes

External jugular vein





Lymph nodes of the neck



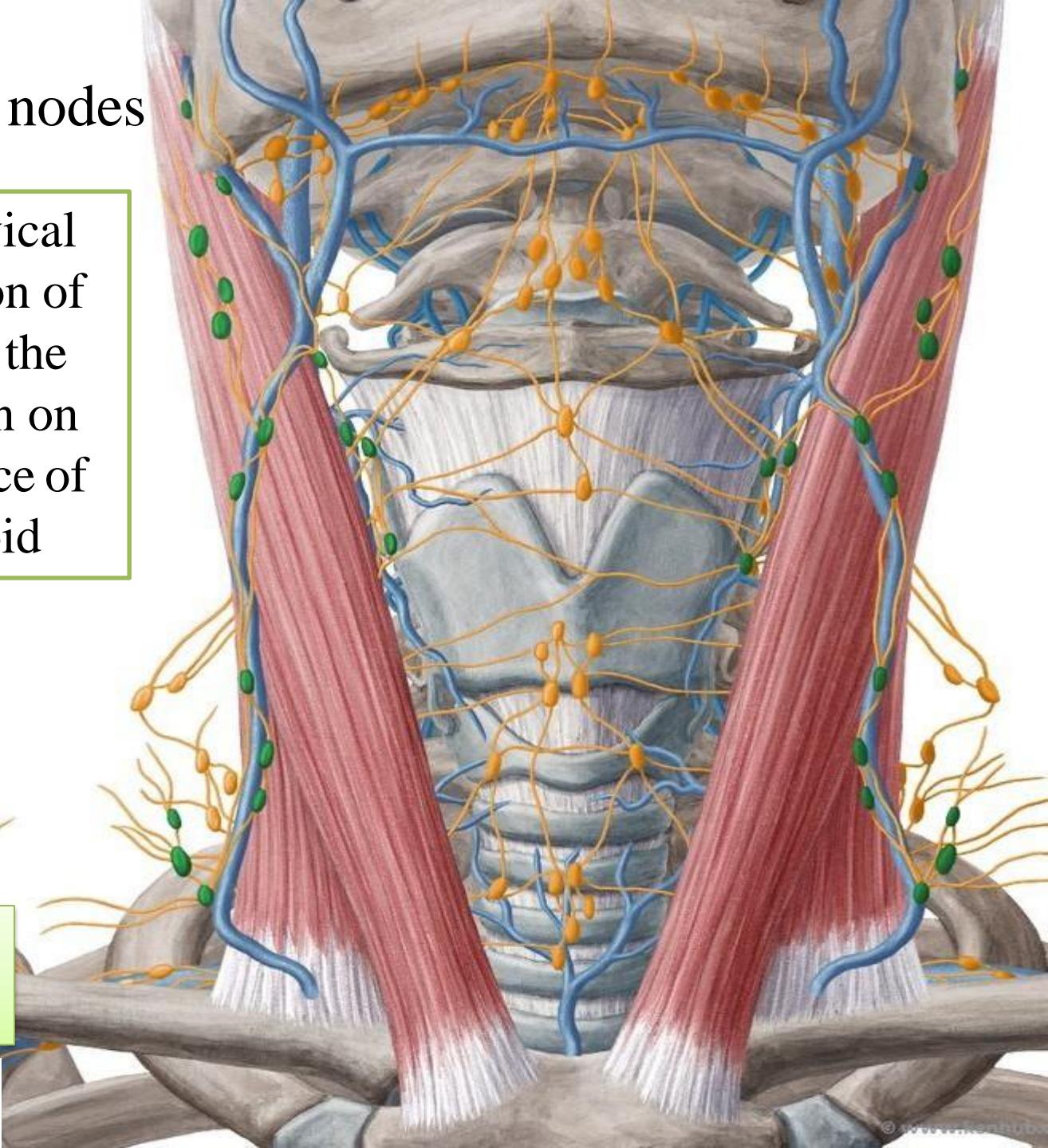
Superficial

Deep

Superficial cervical nodes

The superficial cervical nodes are a collection of lymph nodes along the external jugular vein on the superficial surface of sternocleidomastoid

Vertical along superficial veins



Deep cervical nodes

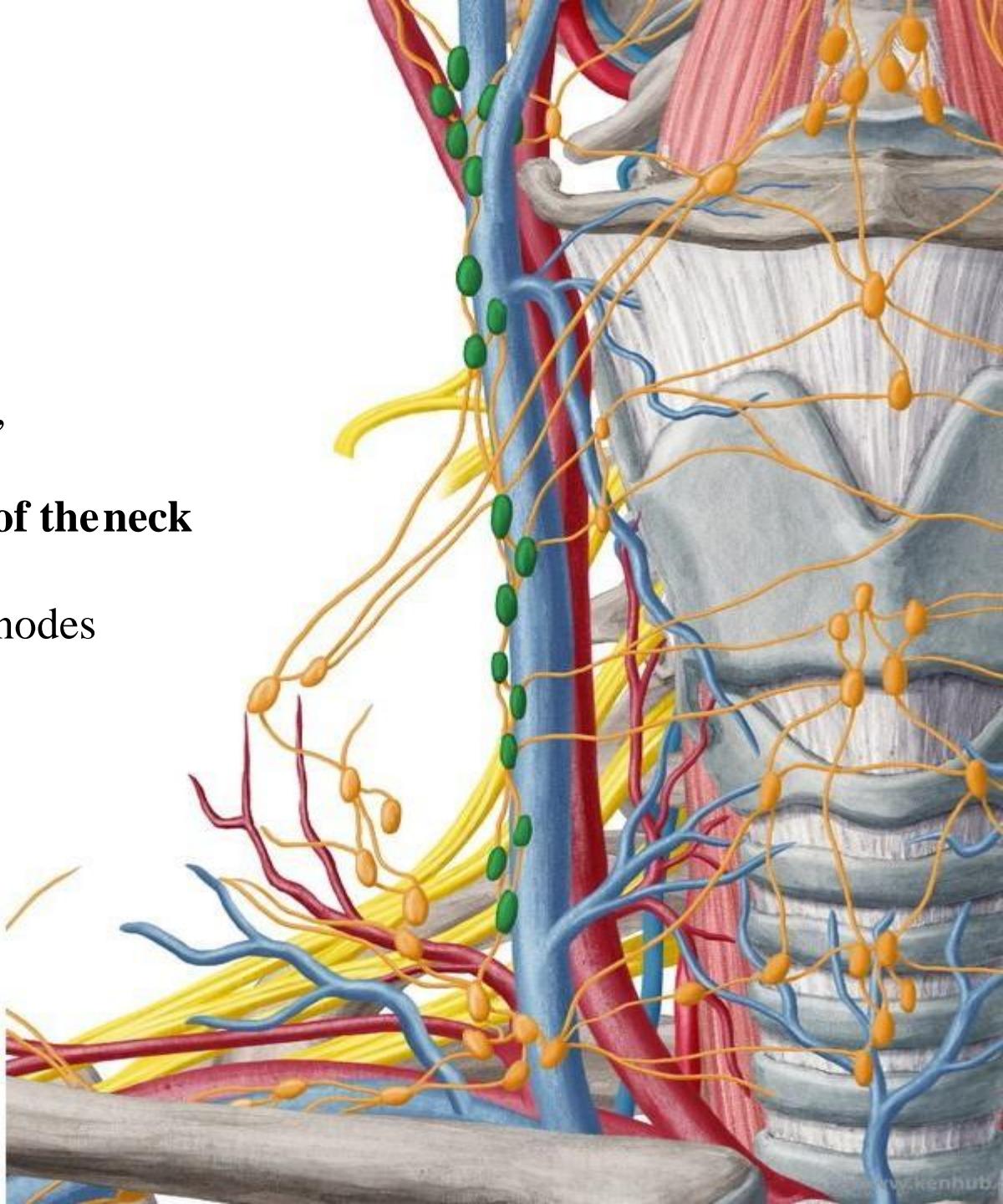
Deep Cervical Lymph nodes

1- Median group:

-Retropharyngeal, prelaryngeal,
pretracheal and paratracheal

2- Lateral group: At the side of the neck along internal jugular vein:

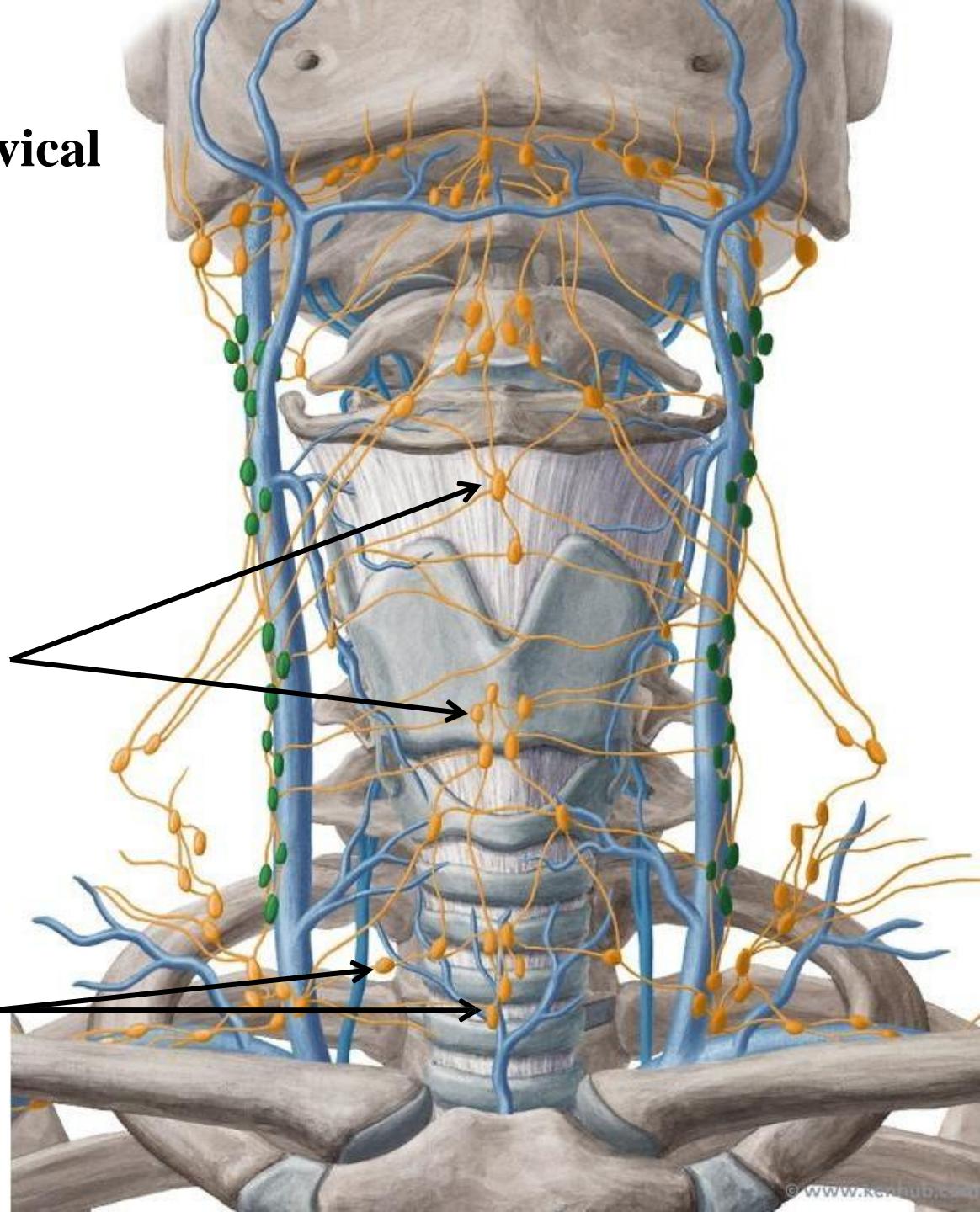
- Upper & lower deep cervical nodes



Median group of deep cervical lymph nodes

Prelaryngeal lymph nodes

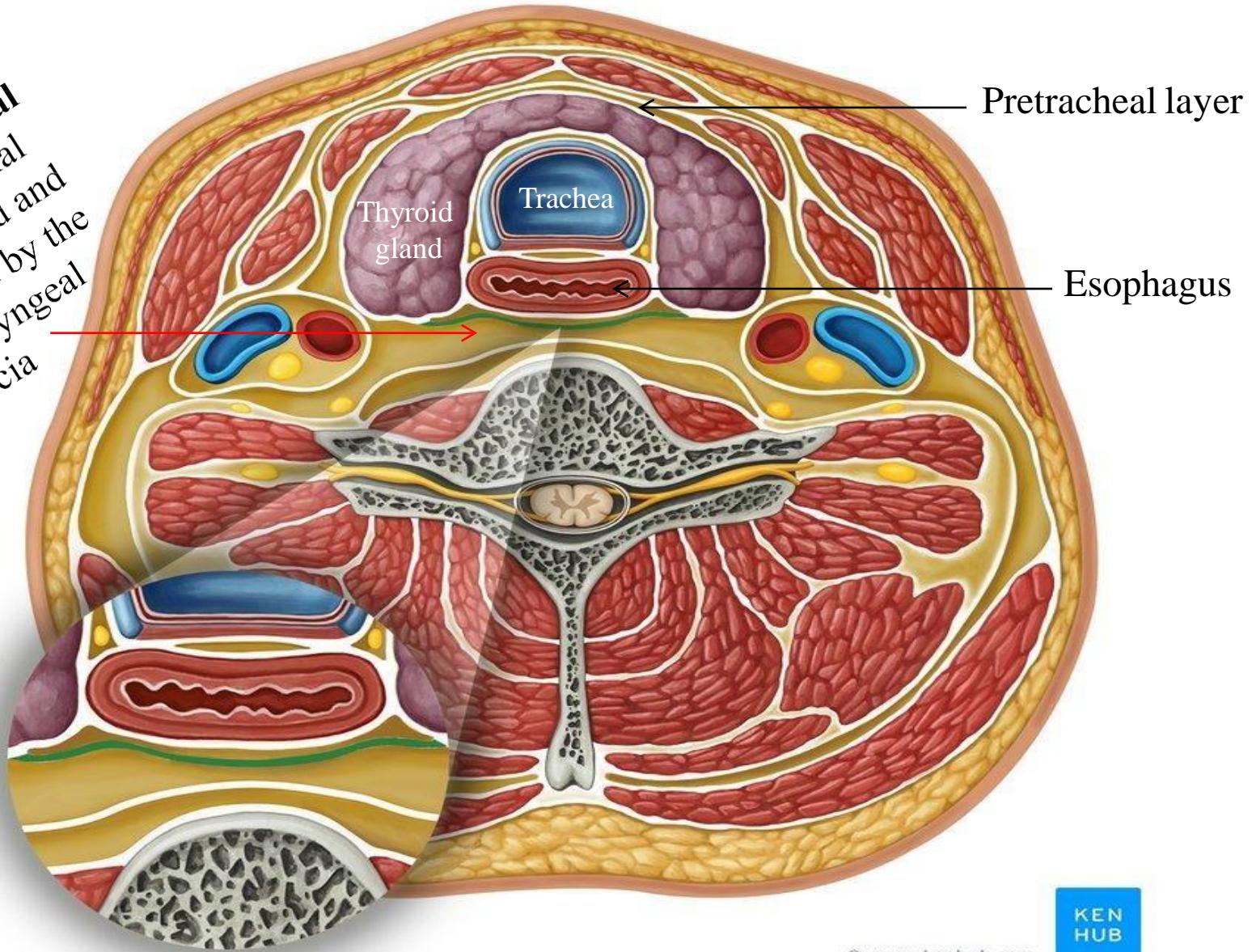
Pretracheal and
paratracheal lymph
nodes



Pretracheal layer posterior to the pharynx is called
Buccopharyngeal fascia

Anterior

The retropharyngeal space is a potential space of the head and neck, bounded by the buccopharyngeal fascia



KEN
HUB

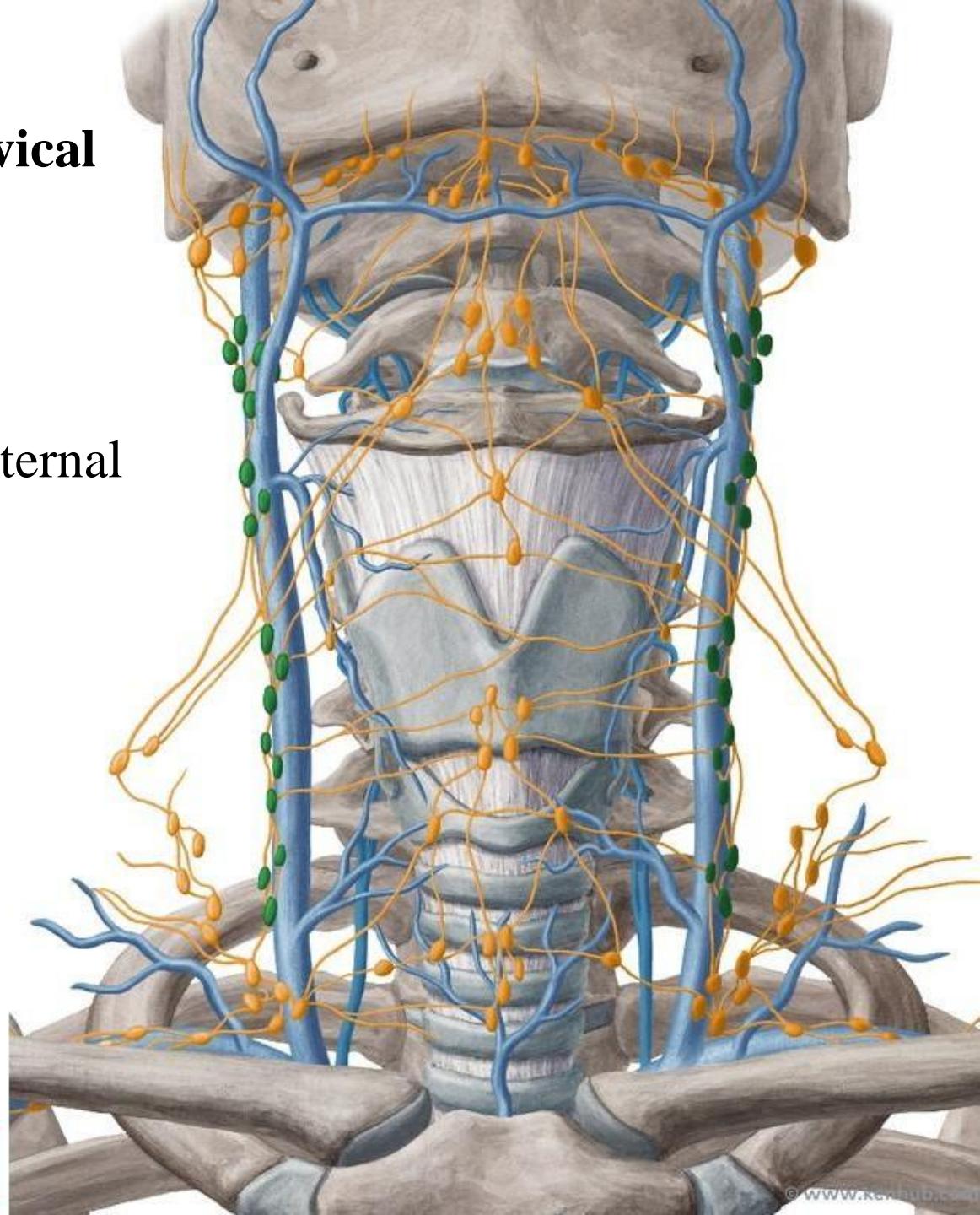
© www.kenhub.com

Dr. Heba Kalbouneh

Posterior

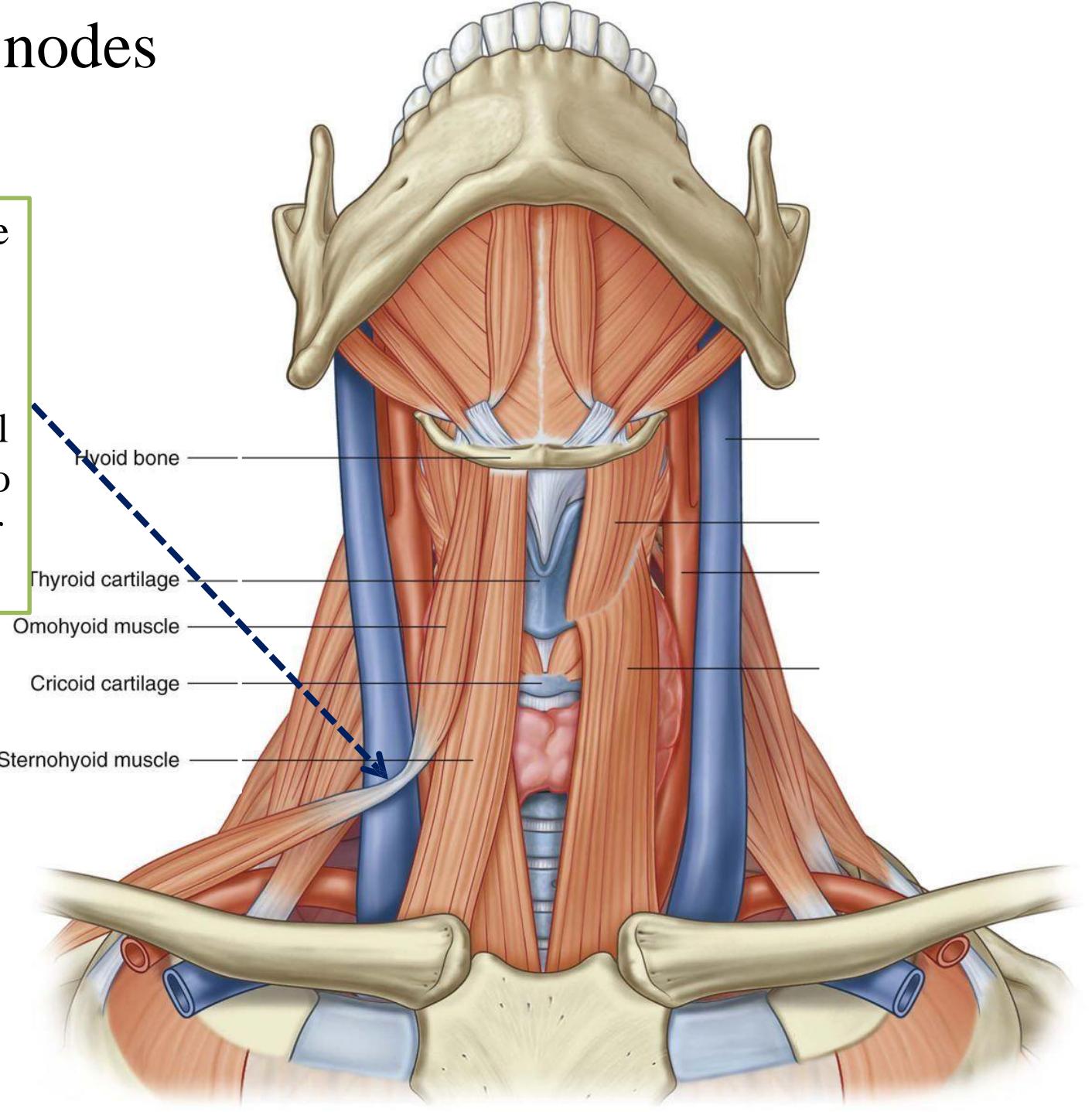
Lateral group of deep cervical lymph nodes

At side of neck along internal jugular vein



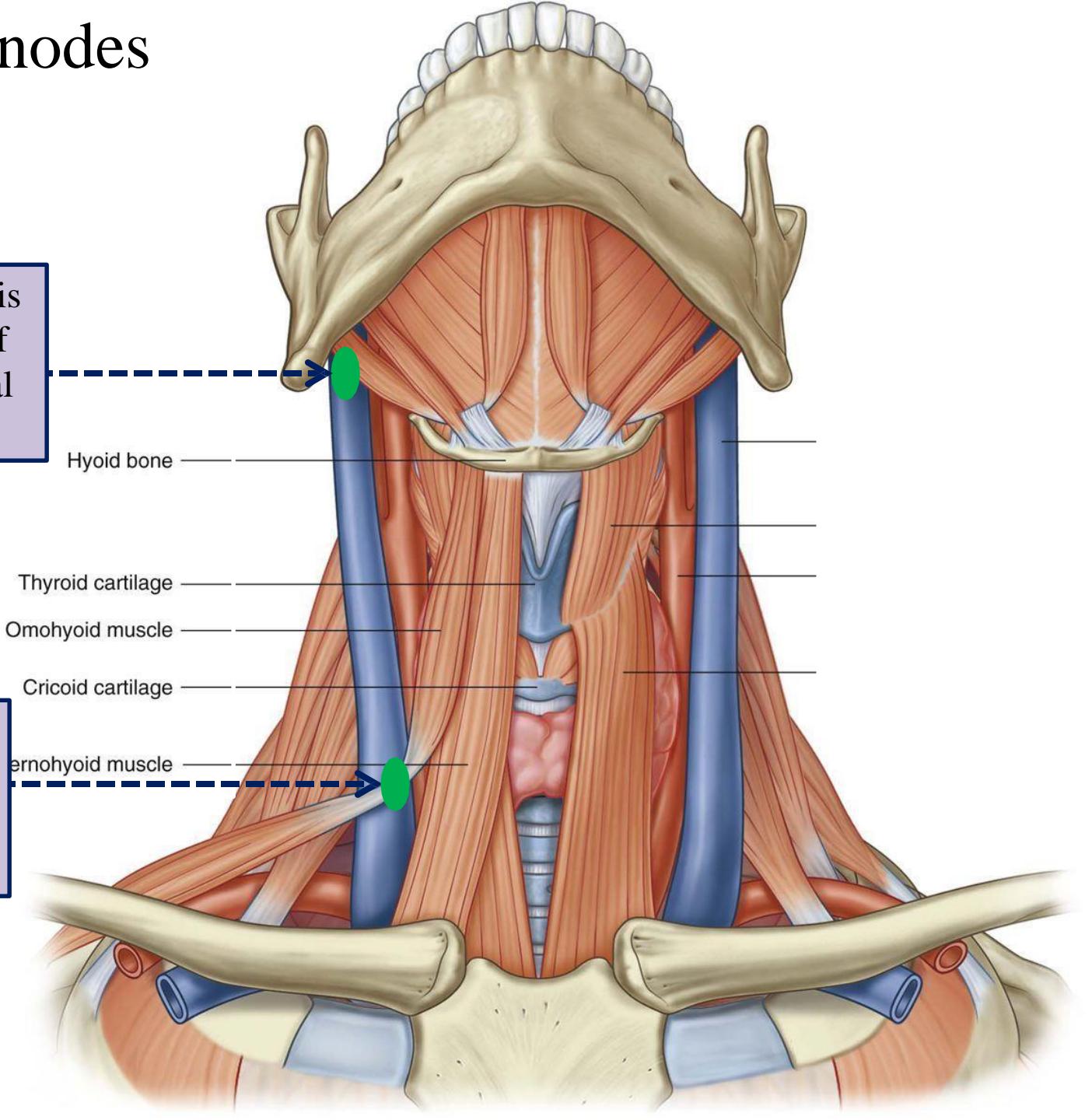
Deep cervical nodes

The intermediate tendon of the omohyoid muscle divides the deep cervical lymph nodes into upper and lower groups



Deep cervical nodes

Jugulo-digastric Node is where posterior belly of digastric crosses internal jugular vein



Jugulo-omohyoid node is at or just inferior to the intermediate tendon of omohyoid

Deep cervical nodes along Internal jugular vein

Two important nodes in the deep cervical group

1 – Jugulo-digastric node

This large node is where posterior belly of digastric crosses the internal jugular vein and receives lymphatic drainage from the tonsils and tongue



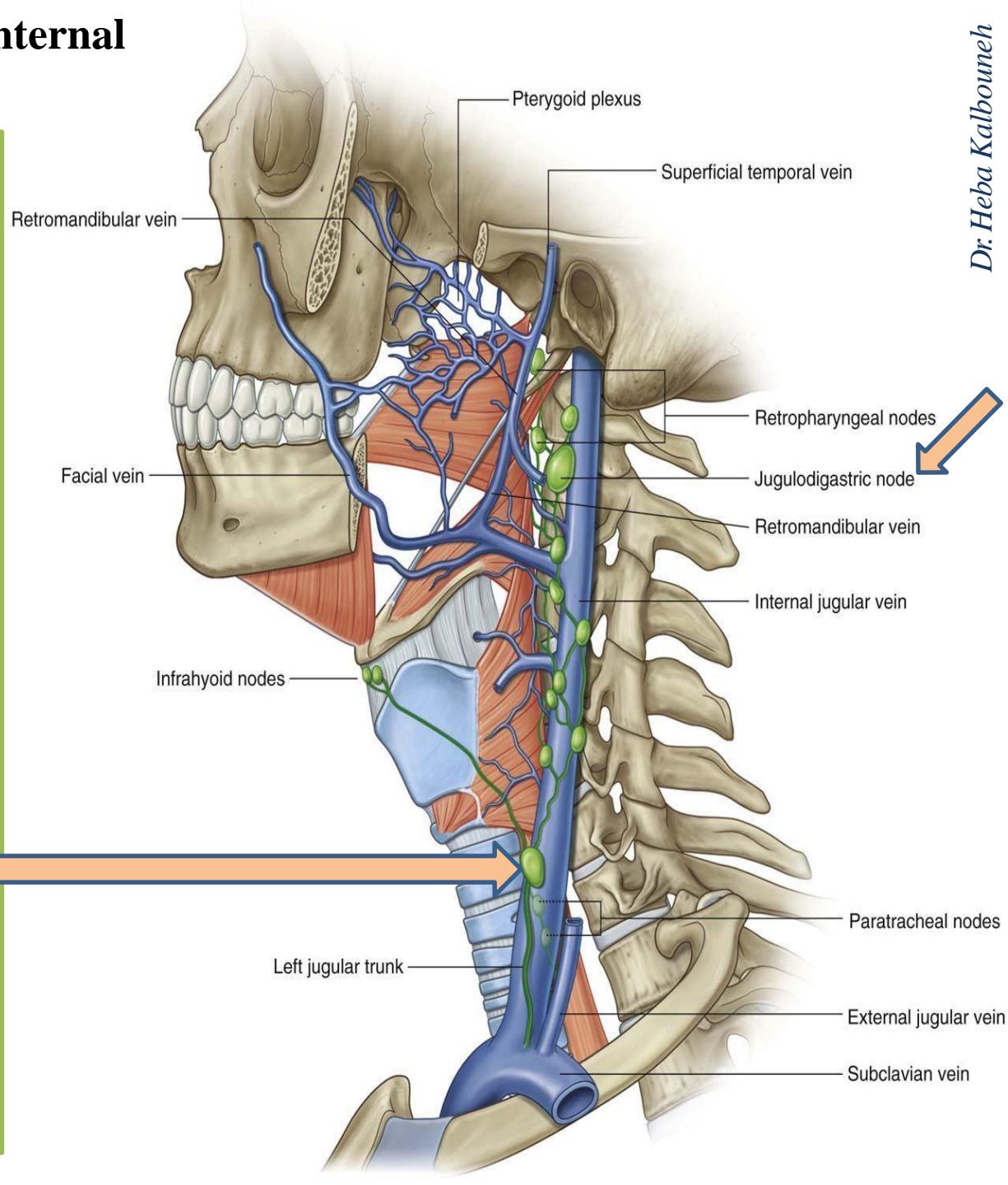
Enlarged jugulodigastric lymph nodes are commonly found in tonsillitis

2 - Jugulo-omohyoid node

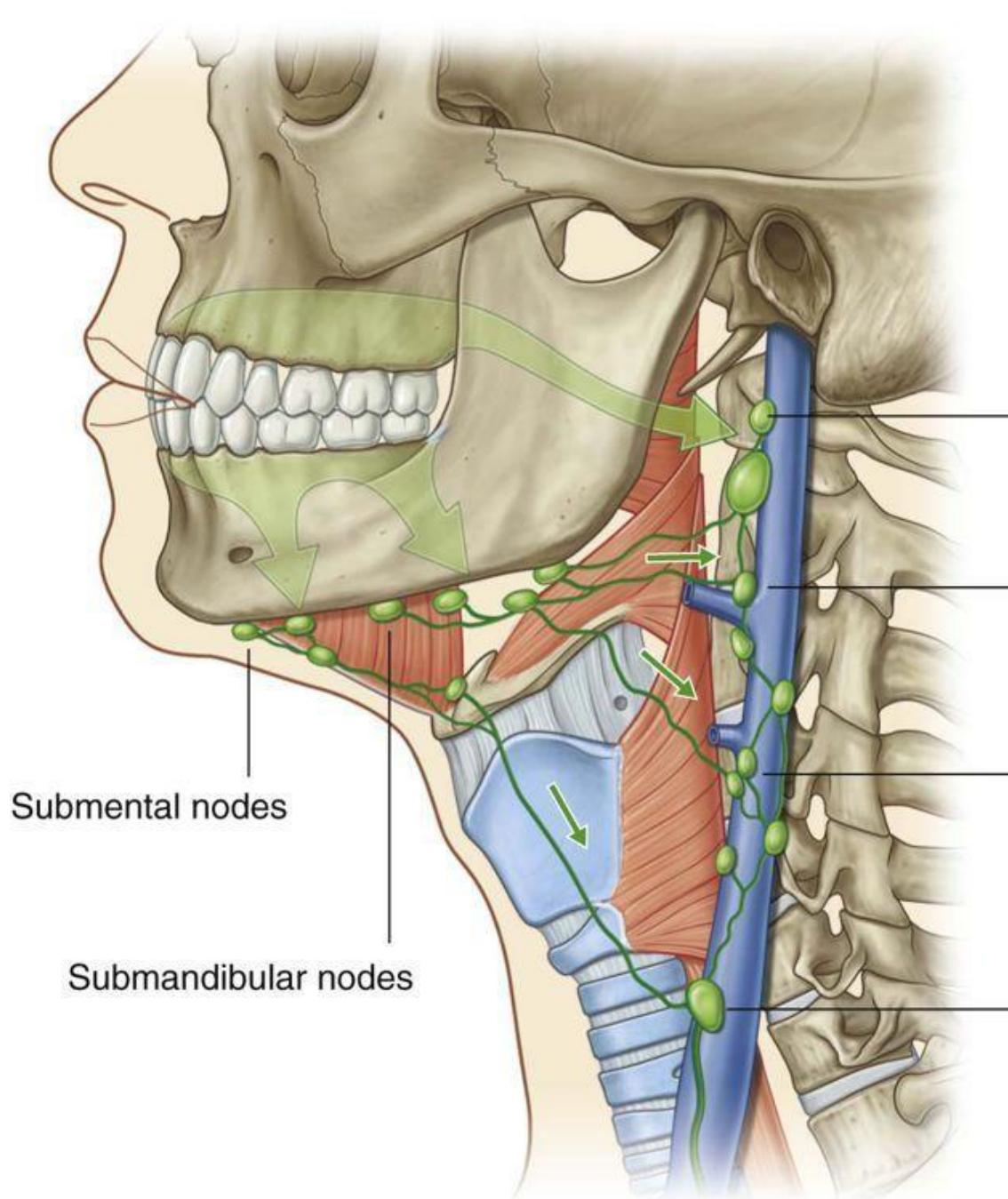
it is at or just inferior to the intermediate tendon of omohyoid



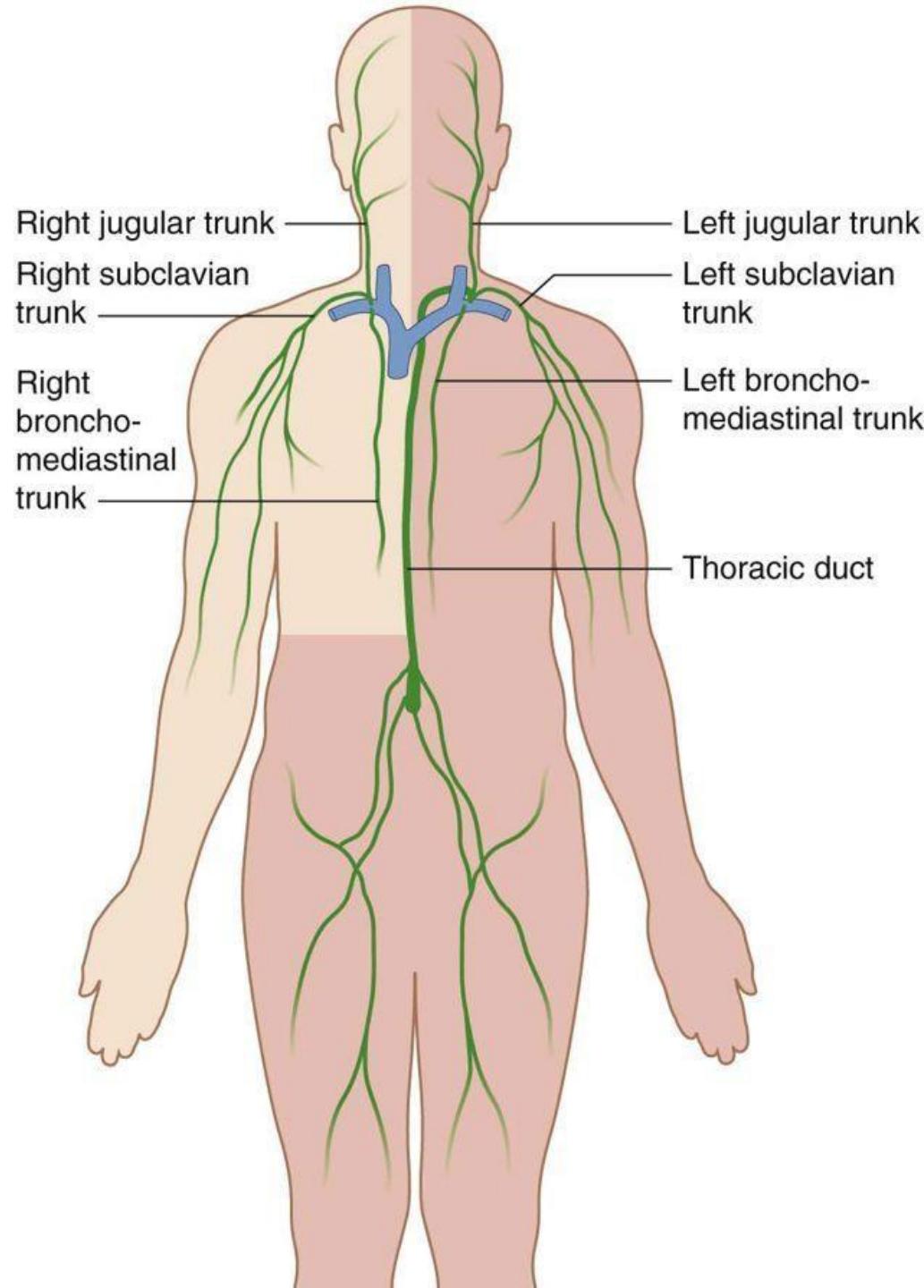
This node receives lymphatic drainage from the tongue

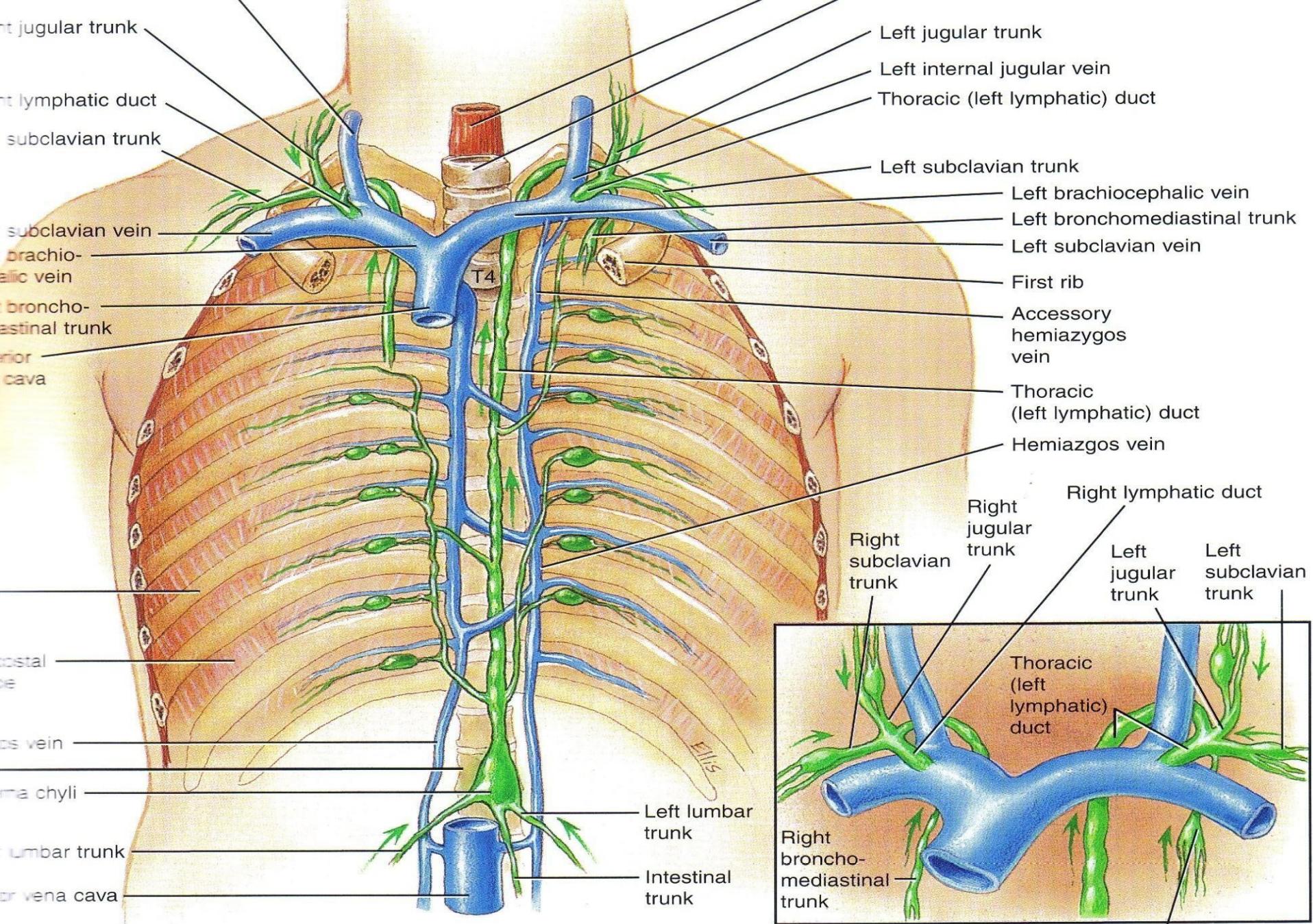


Deep cervical nodes



Fate of lymph drainage of head & neck





Overall anterior view

Detailed anterior view

Left broncho-
mediastinal trunk



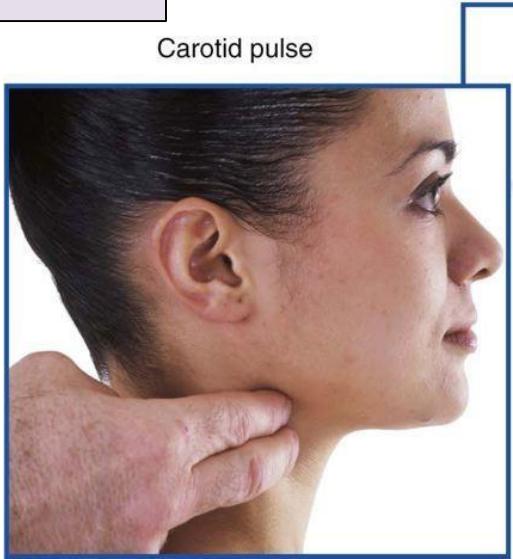
Temporal pulse
(superficial temporal artery)



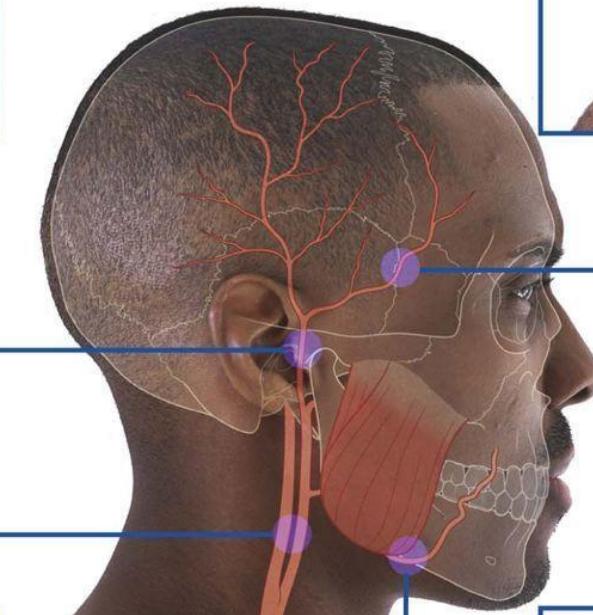
Temporal pulse
(anterior branch of
superficial temporal artery)

Pulse points

Where to take arterial pulses in the head and neck



Carotid pulse



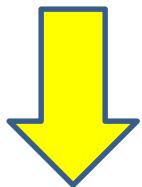
Facial pulse



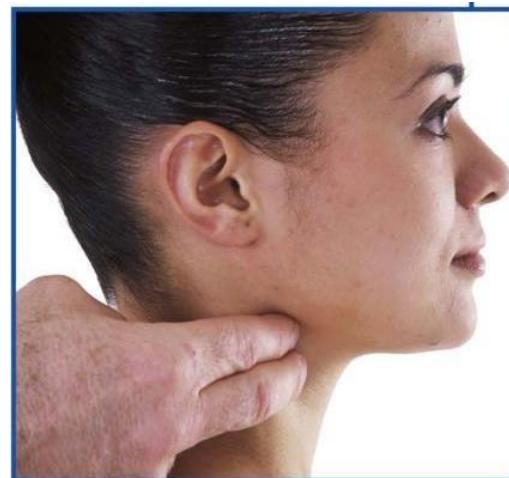
Carotid pulse

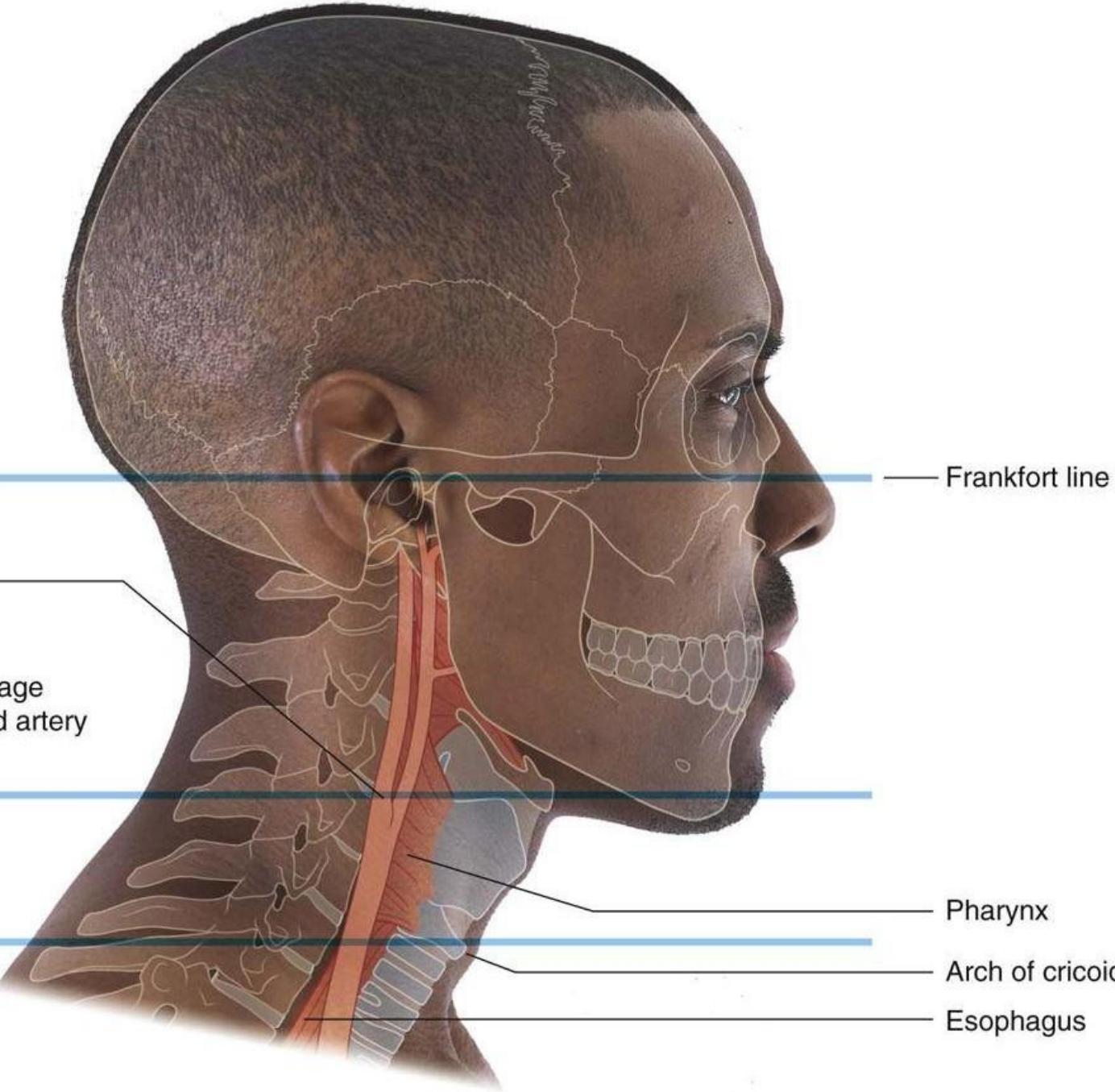
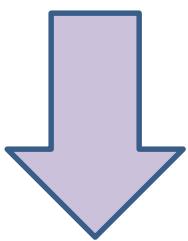
The carotid pulse is the strongest

To check *carotid pulse*

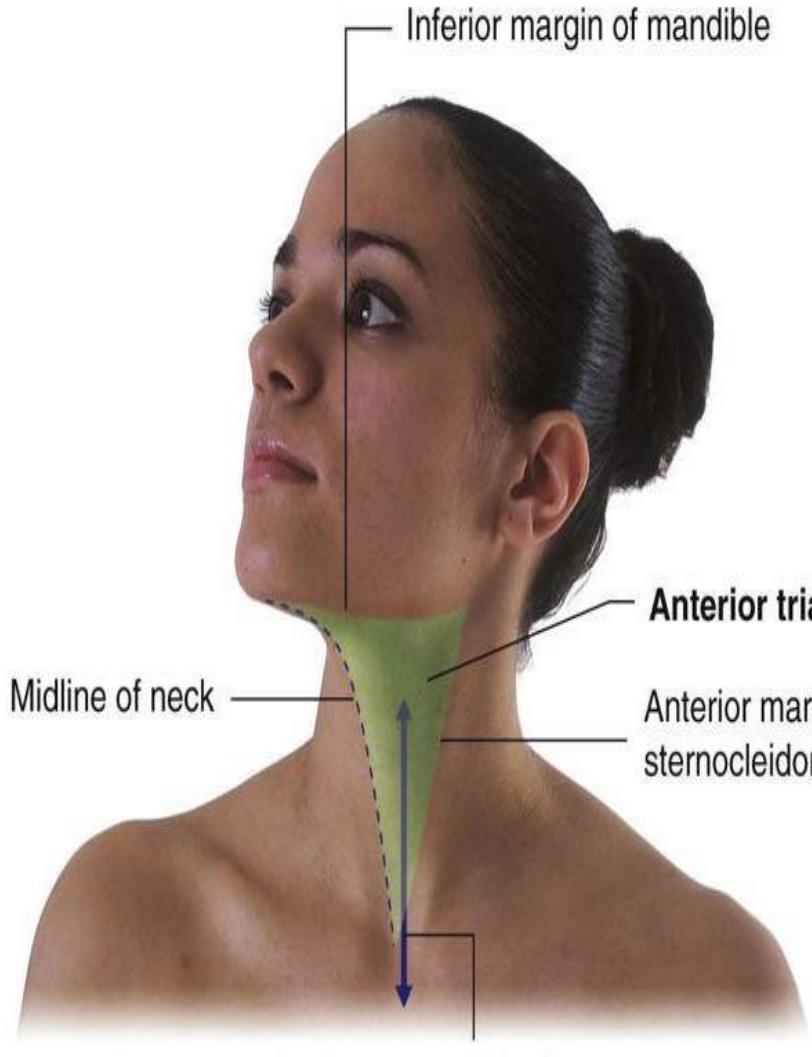


Place your index and middle fingers on the neck to the side of larynx (in carotid triangle), under the angle of the mandible

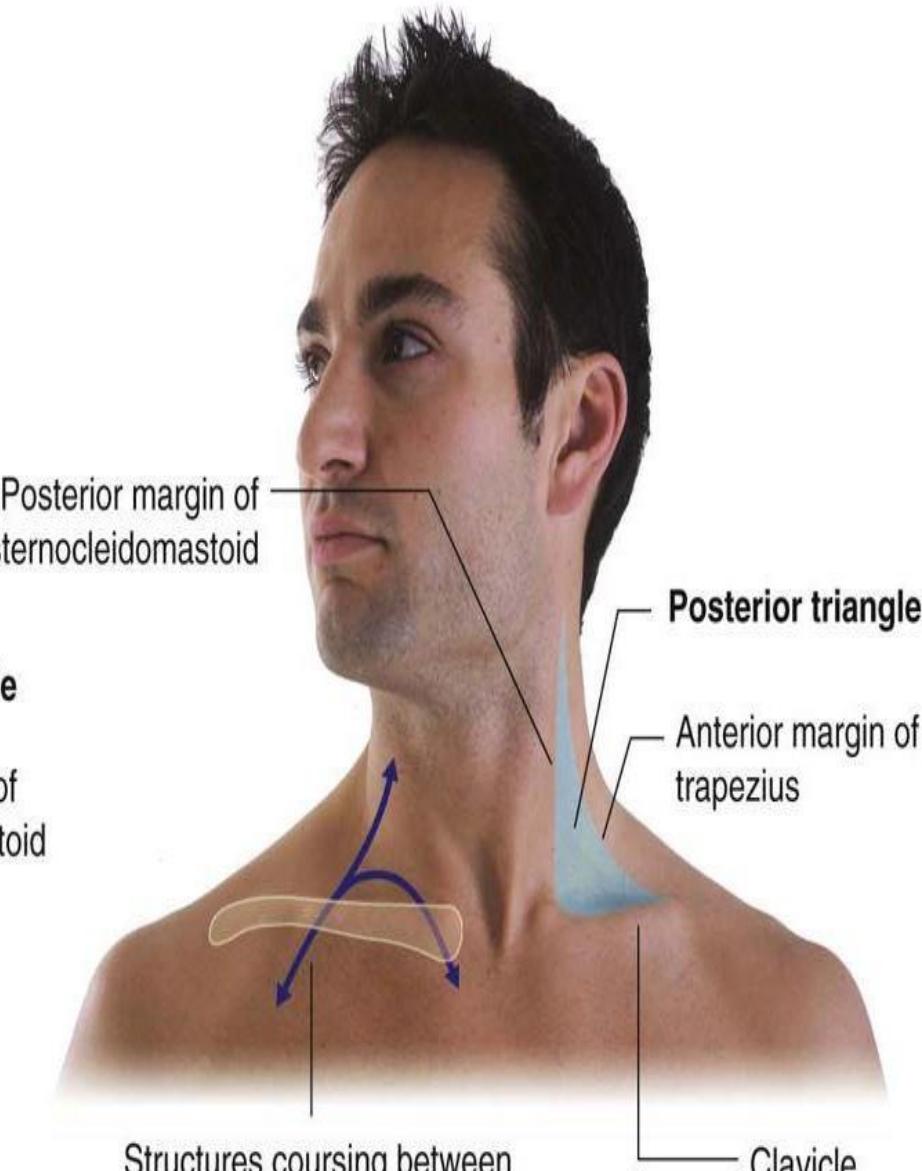




How to outline the anterior and posterior triangles of the neck

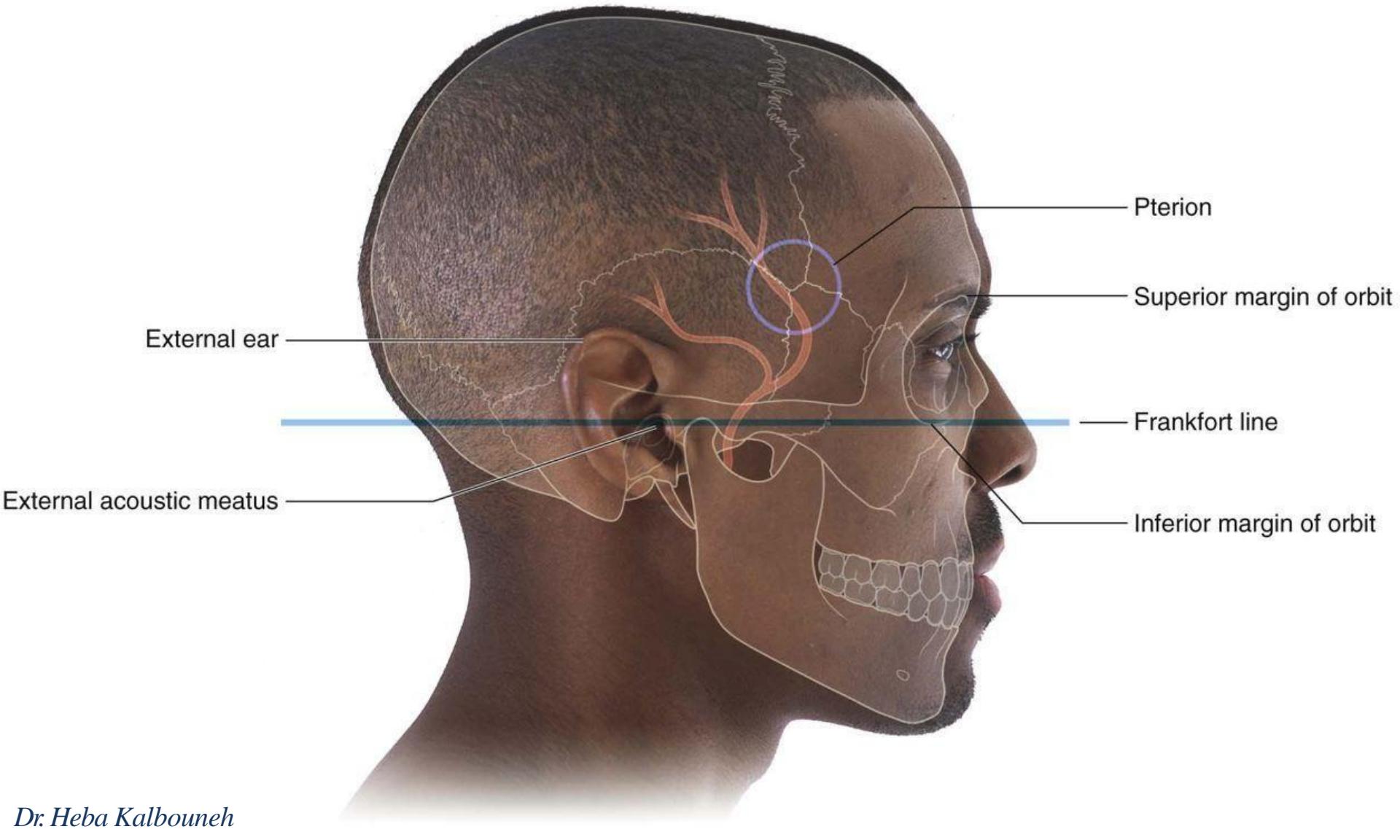


A
Structures coursing between head and thorax are associated with the anterior triangles



B
Structures coursing between thorax/neck and upper limb are associated with the posterior triangles

Estimating the position of the middle meningeal artery



Major features of the face

