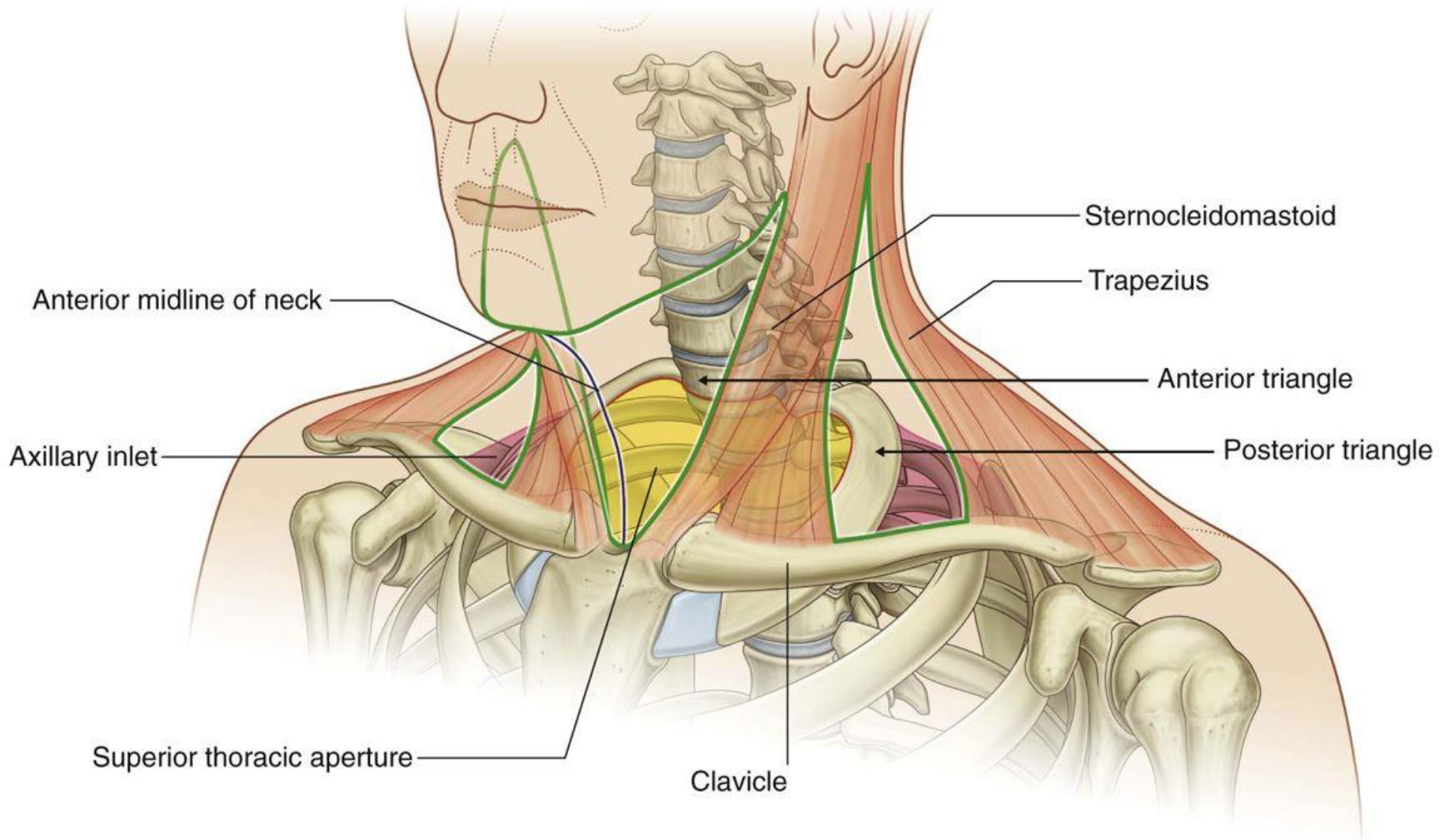




Neck-2

Dr. Heba Kalbouneh
DDS, MSc, DMD/PhD
Professor of Anatomy, Histology and Embryology

Triangles of the neck



Side of the neck

Midline

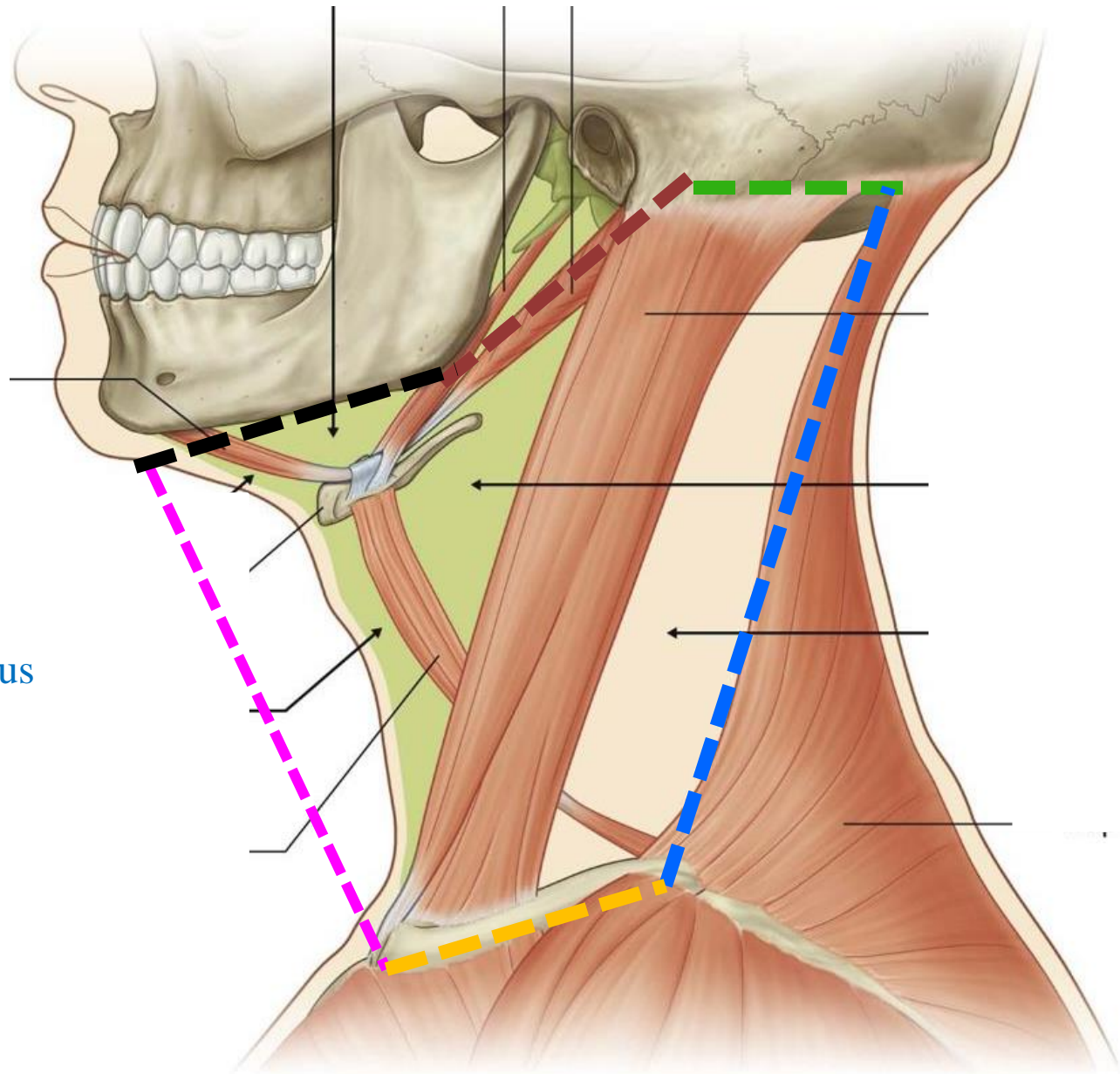
Lower border of mandible

Line between angle of mandible and mastoid

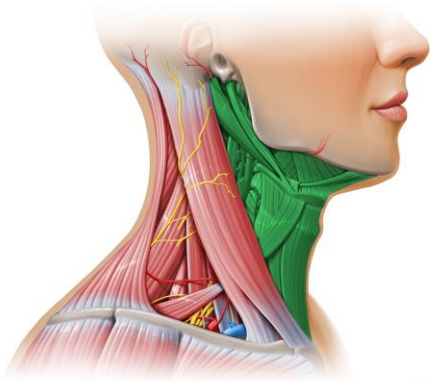
Superior nuchal line

Anterior border of trapezius

Clavicle

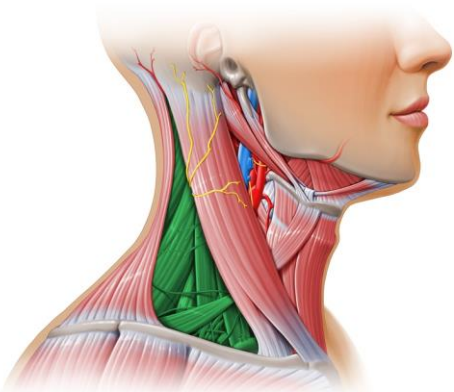


Sternocleidomastoid divides the neck into anterior and posterior triangles



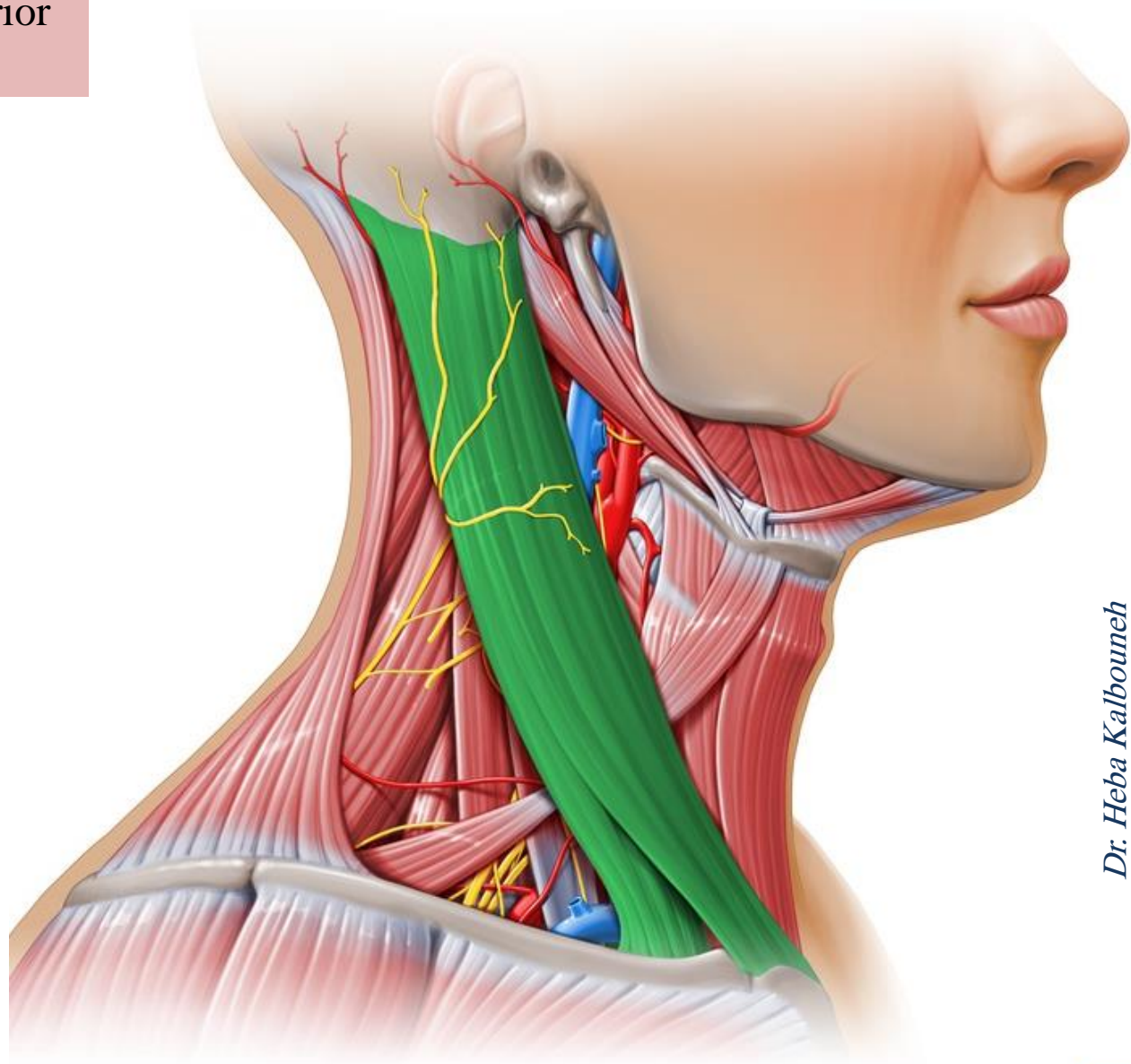
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Posterior triangle

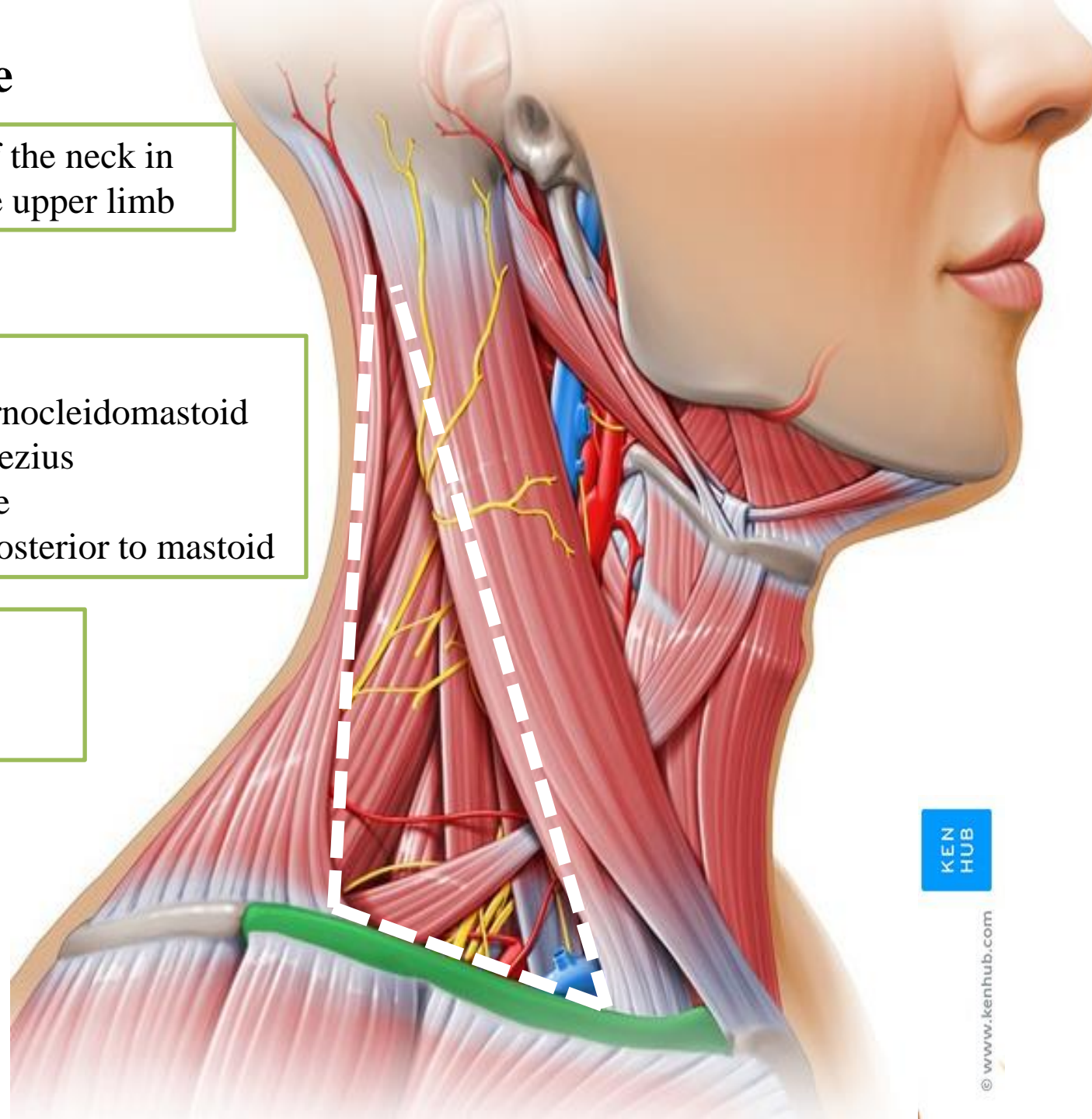
Is on the lateral aspect of the neck in direct continuity with the upper limb

Boundaries:

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

Floor:

Muscles covered by prevertebral fascia



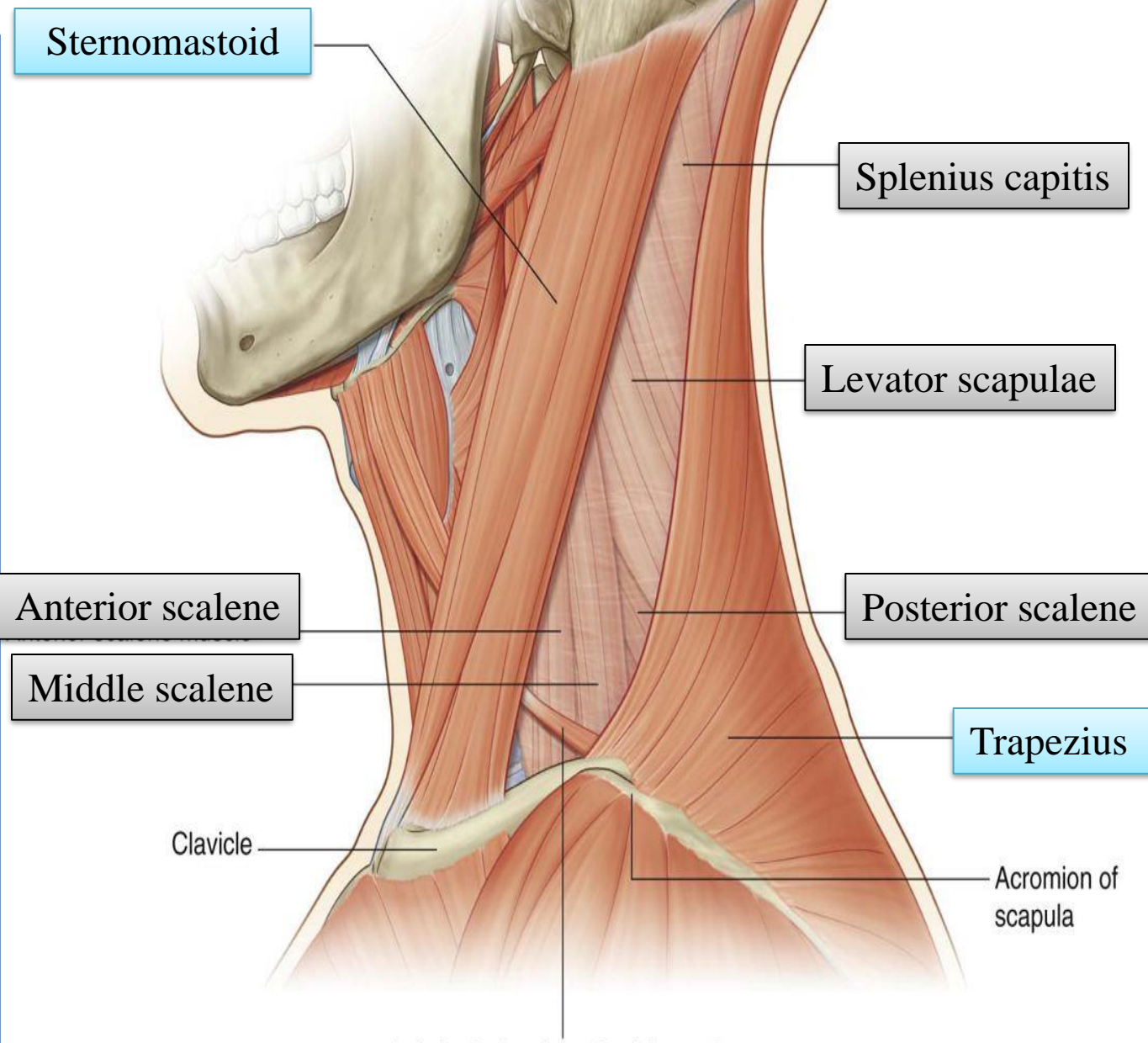
Posterior Triangle

Floor:

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

Roof:

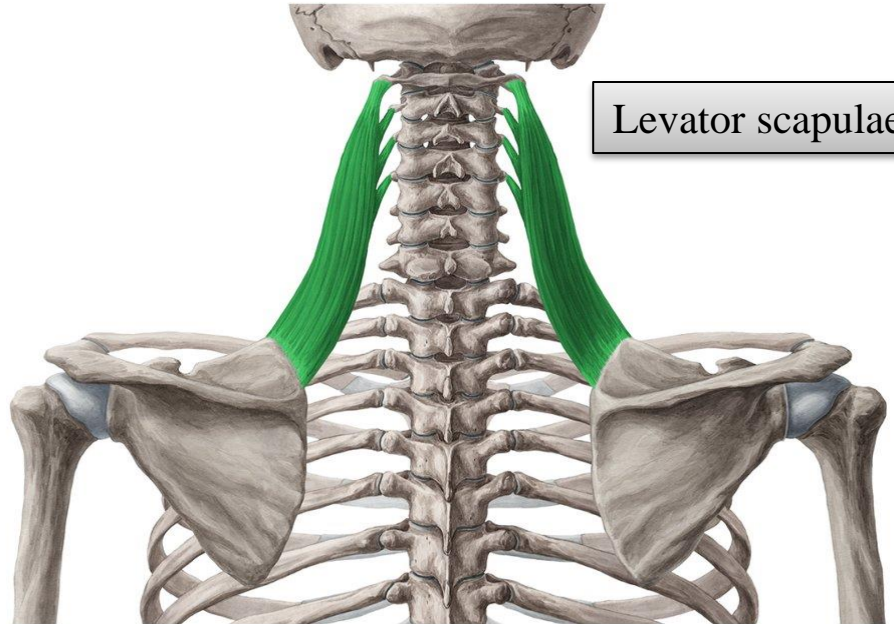
Investing layer of cervical fascia that surrounds sternomastoid and trapezius muscles



Splenius capitis



Levator scapulae



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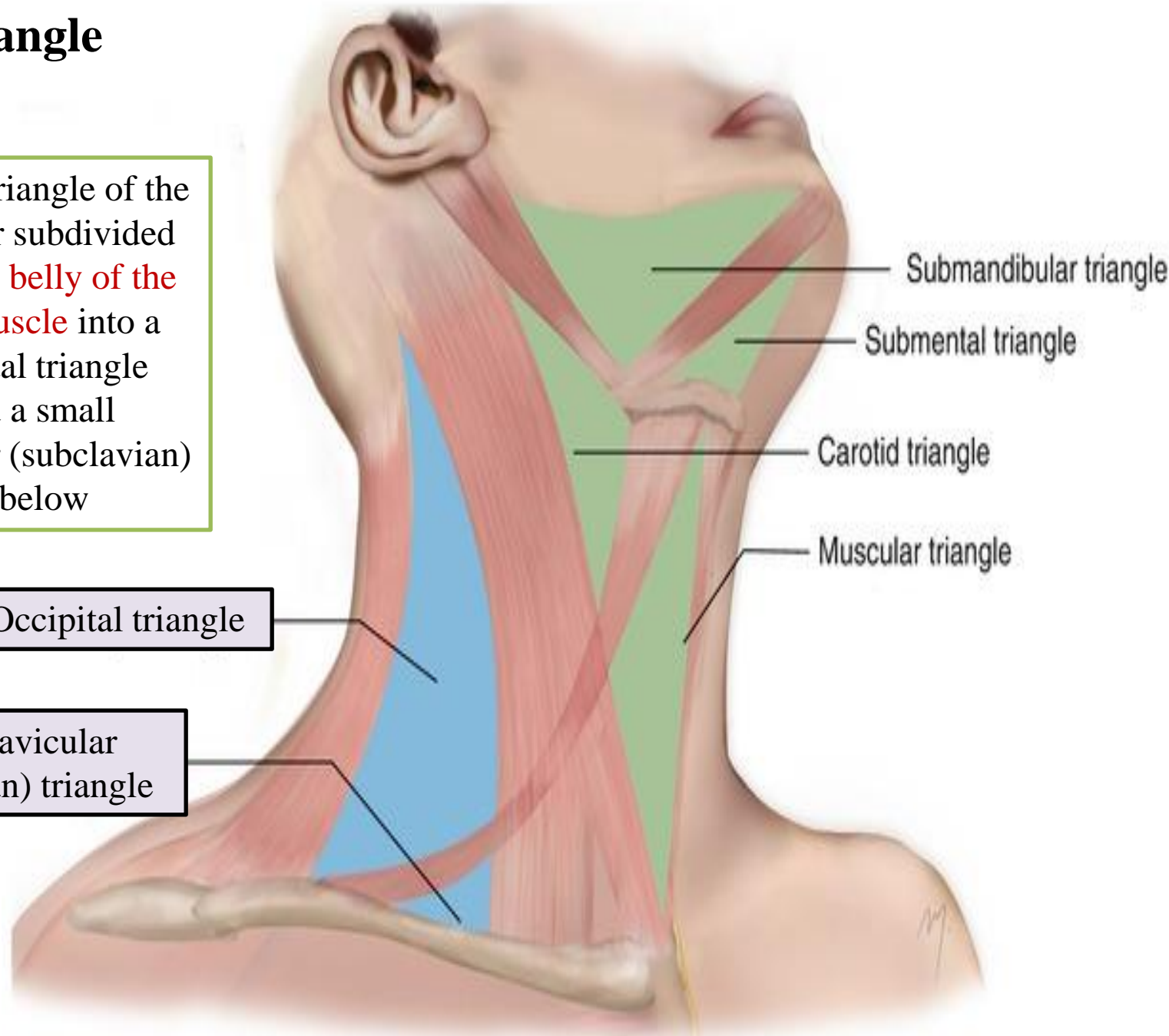


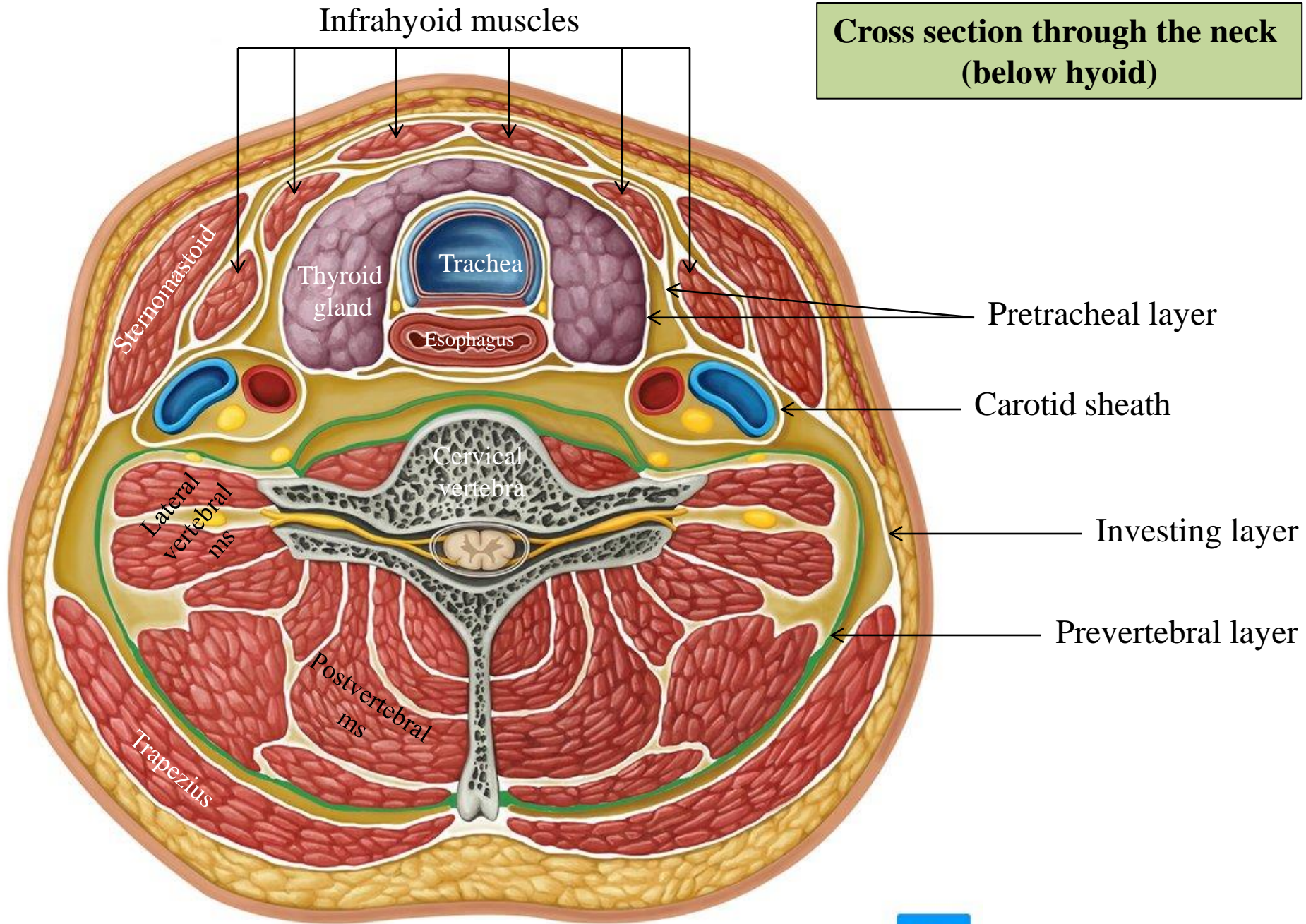
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Posterior triangle

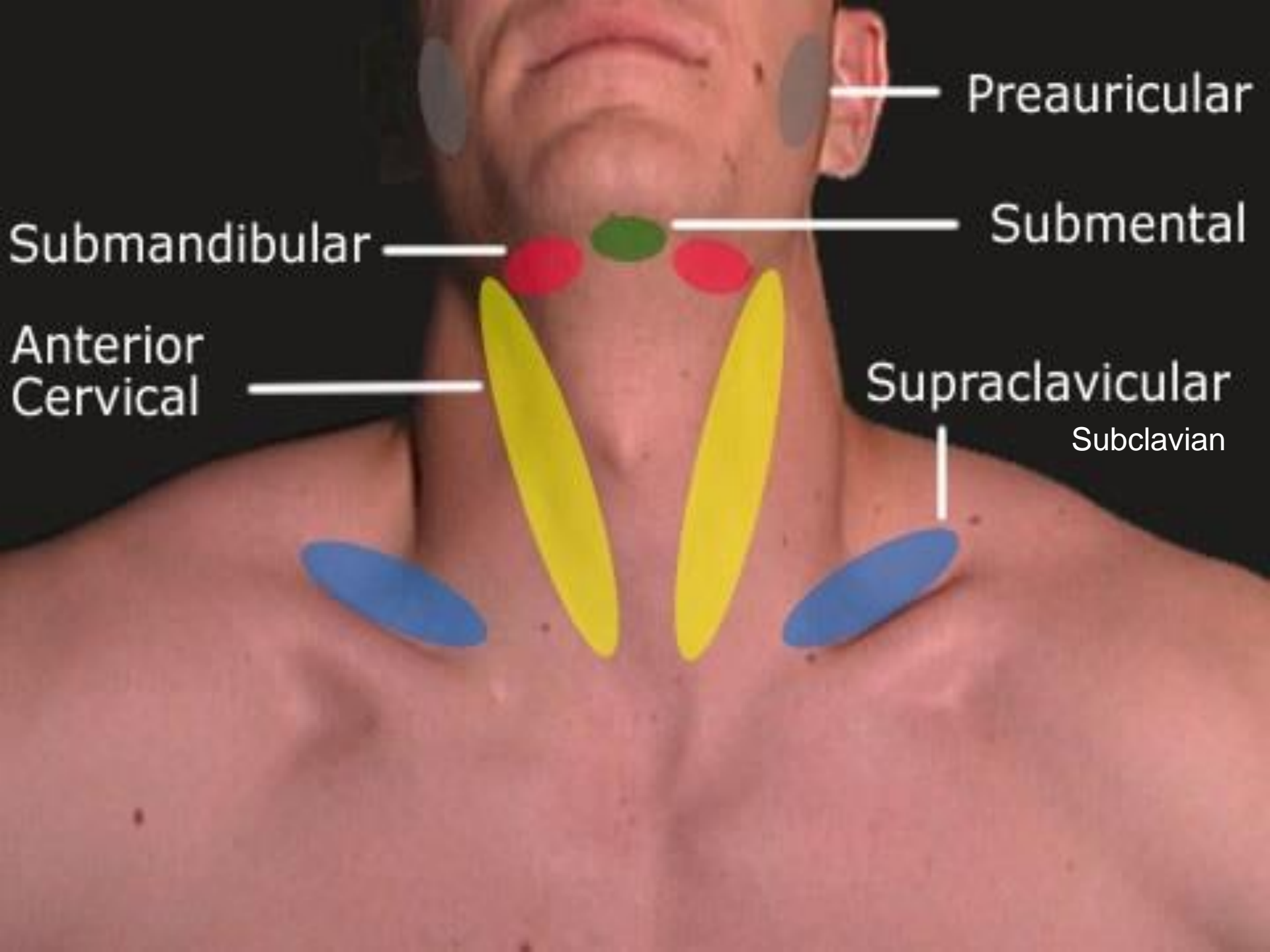
The posterior triangle of the neck is further subdivided by **the inferior belly of the omohyoid muscle** into a large occipital triangle above and a small supraclavicular (subclavian) triangle below





Cross section through the neck (below hyoid)

Dr. Heba Kalbouneh



Preauricular

Submental

Submandibular

Anterior
Cervical

Supraclavicular

Subclavian

Contents

5 Veins:

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

4 Arteries:

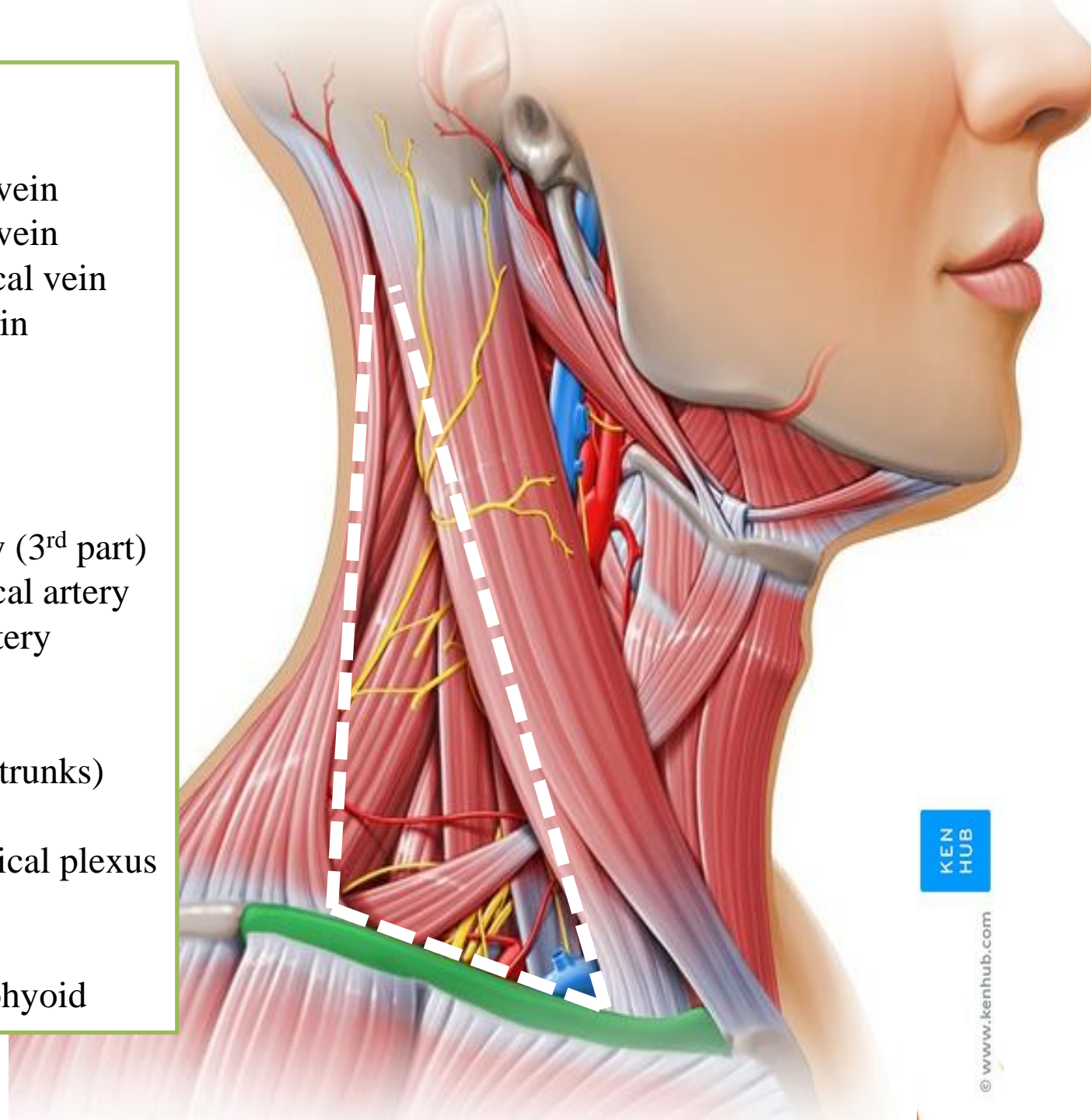
1. Occipital artery
2. Subclavian artery (3rd part)
3. Transverse cervical artery
4. Suprascapular artery

3 Nerves

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

1 Muscle

Inferior belly of omohyoid

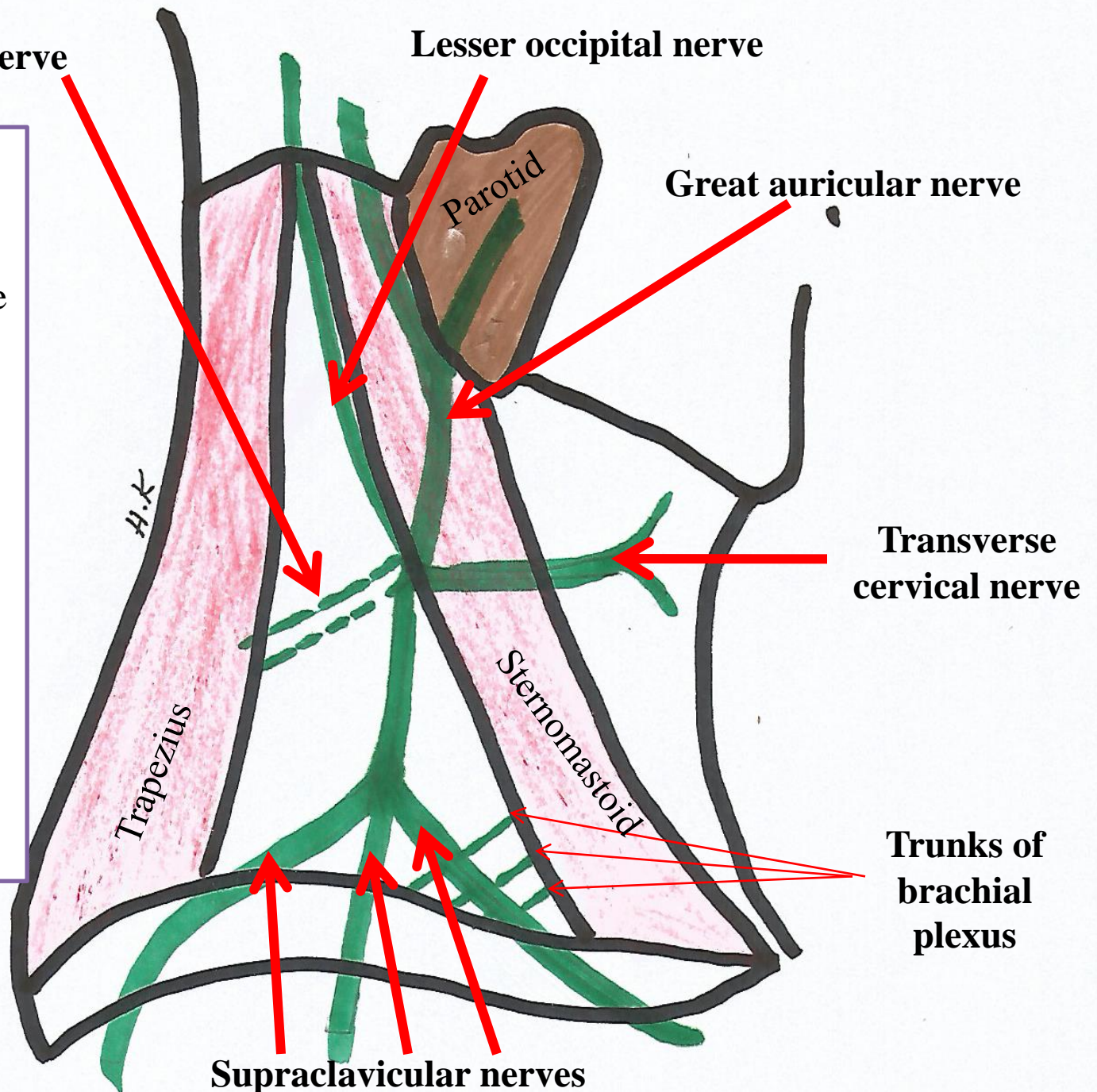


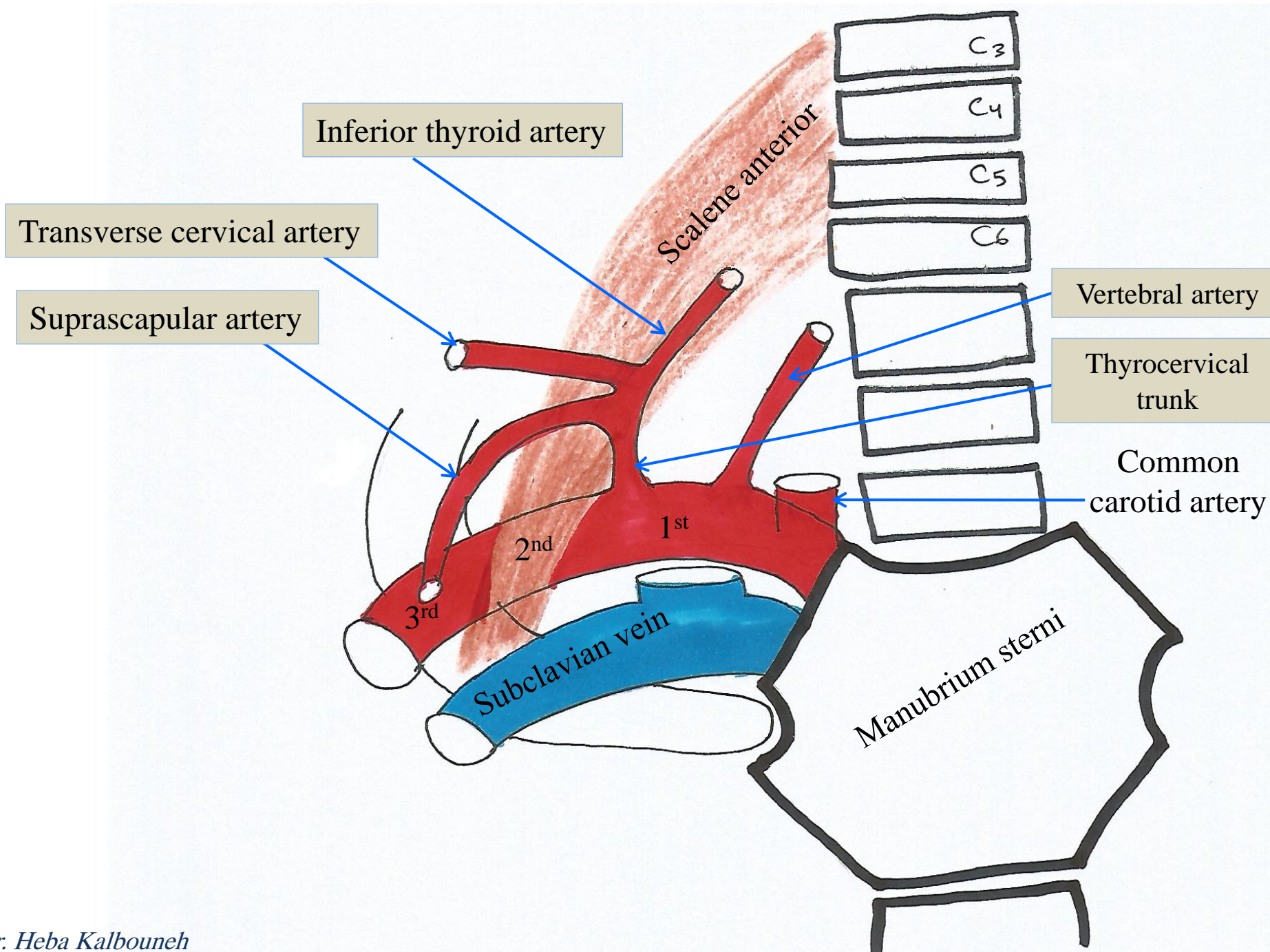
Spinal accessory nerve

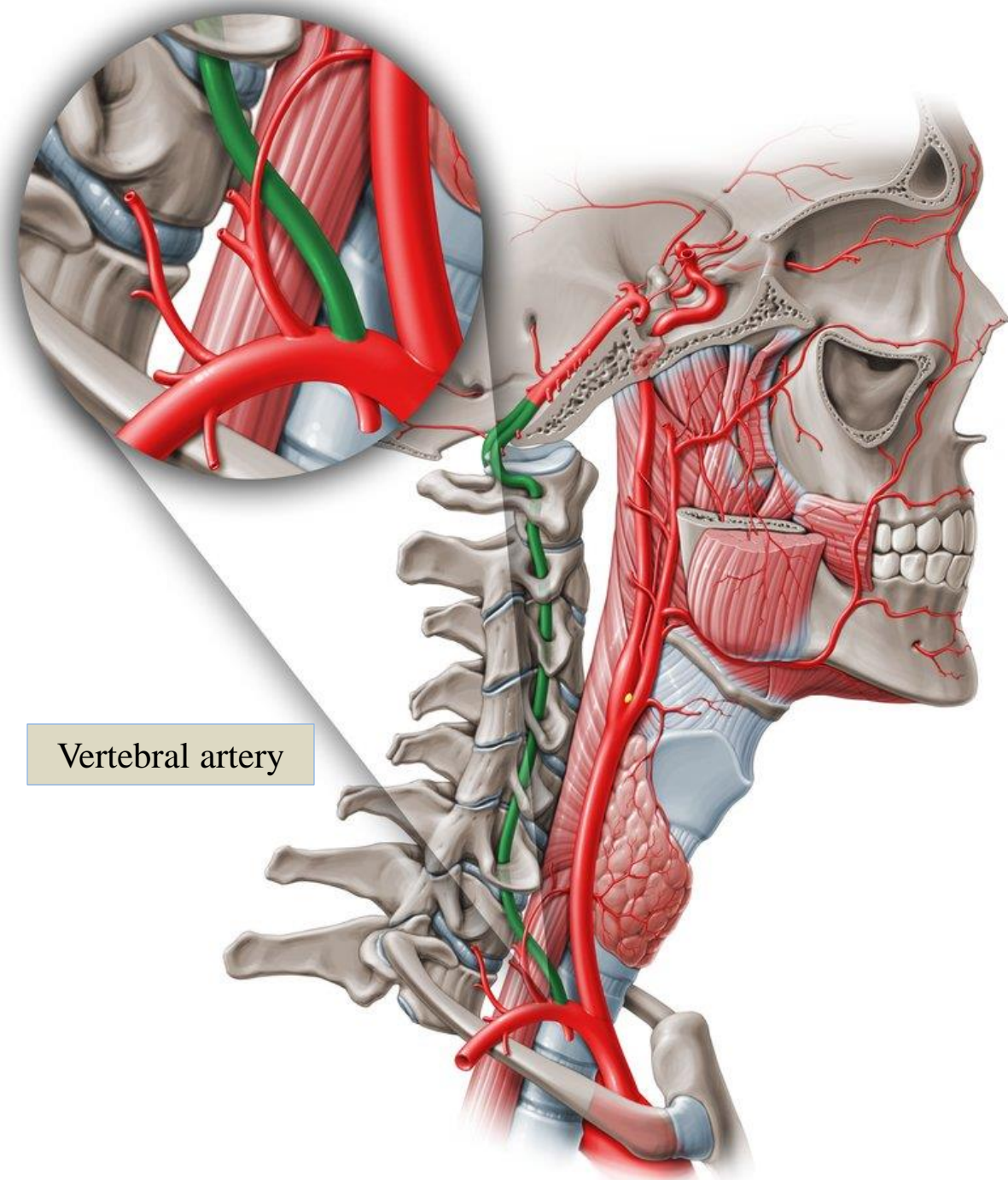
Spinal accessory nerve is embedded in the investing layer of deep fascia (Which forms the roof of the posterior triangle), stretched between two muscles



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

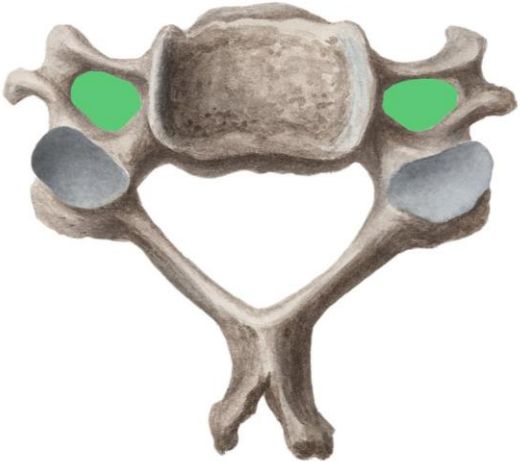


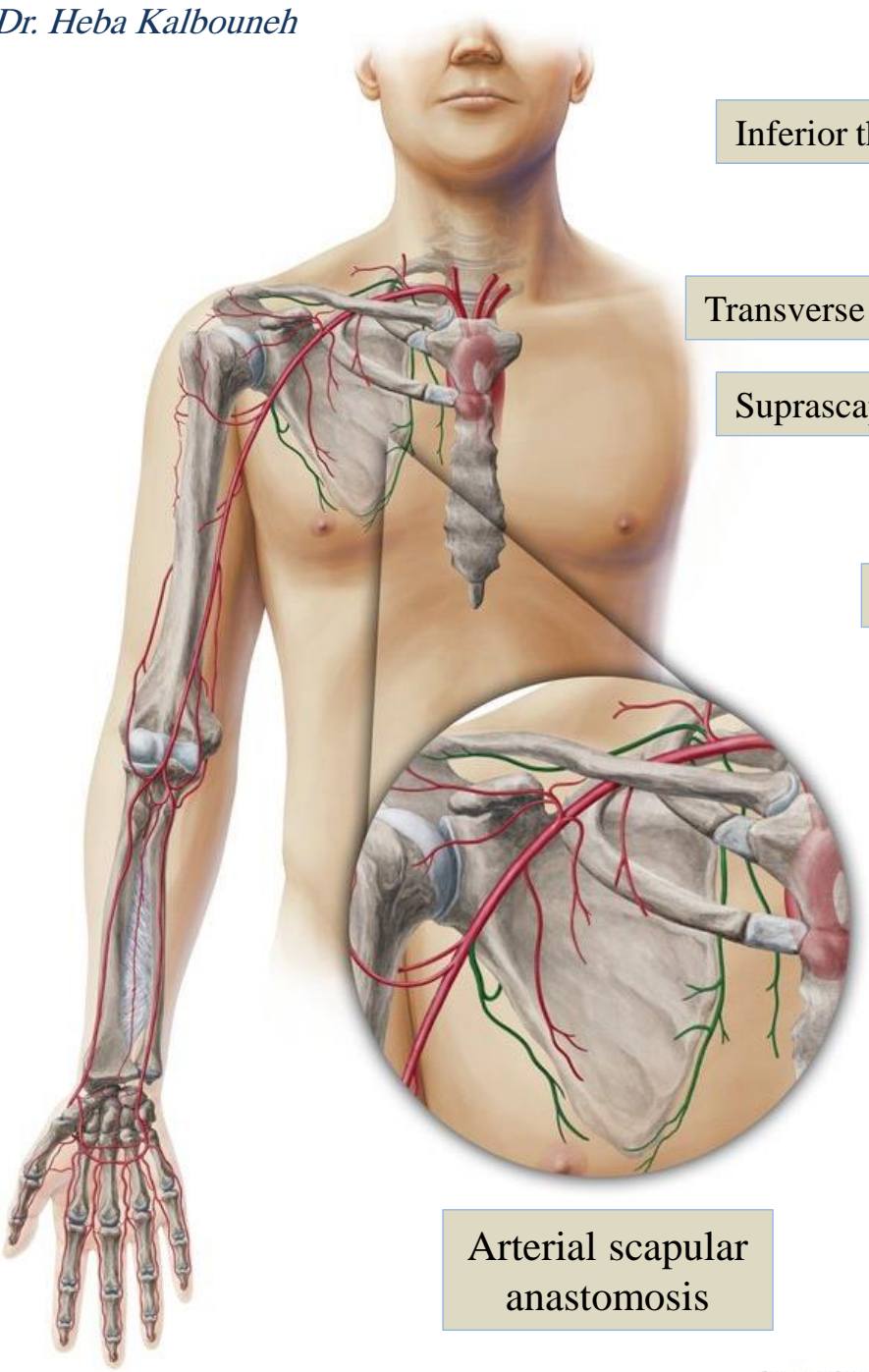




Vertebral artery

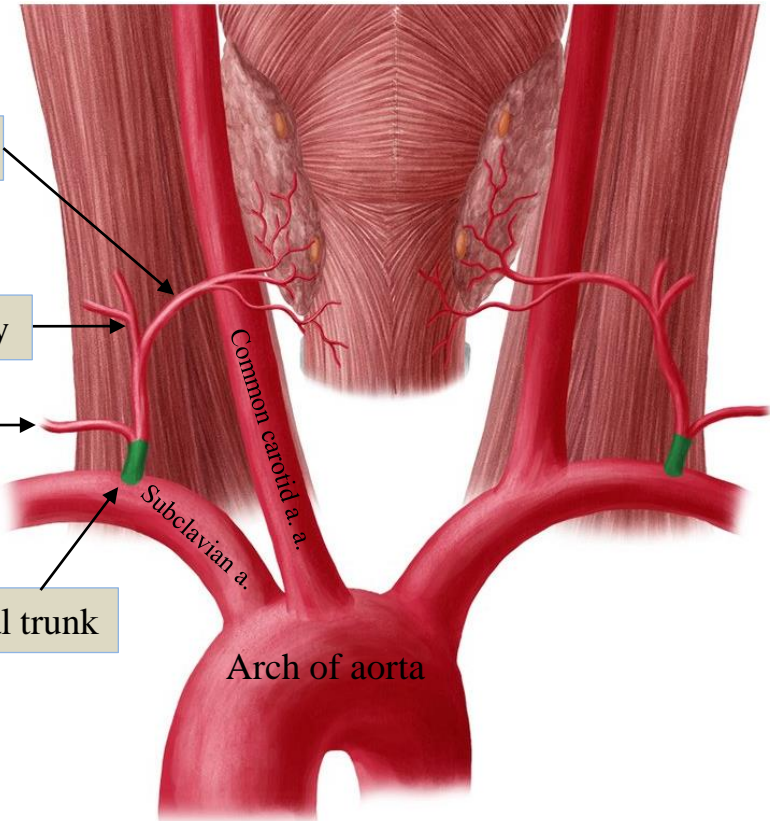
Foramen transversarium



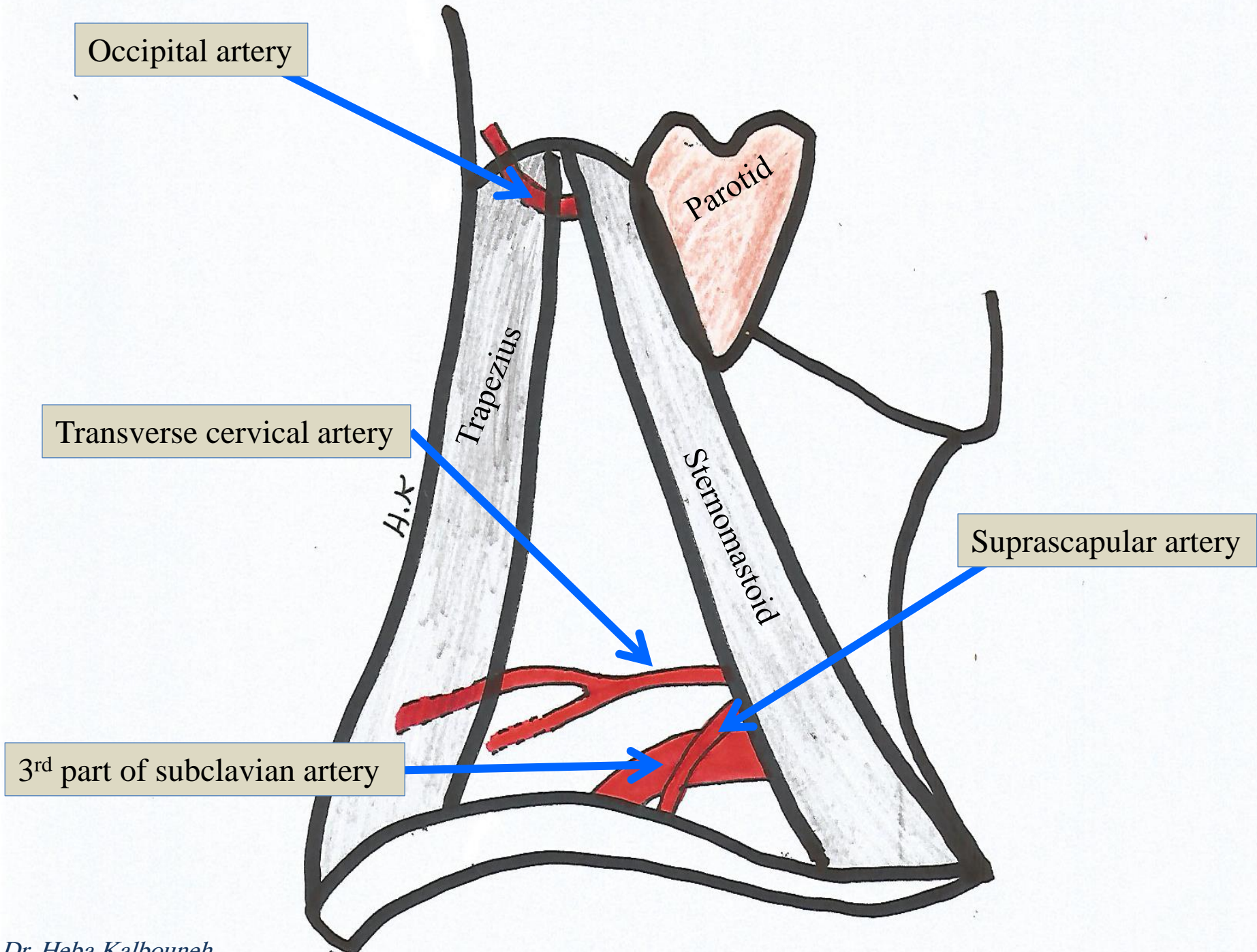


Arterial scapular anastomosis

- Inferior thyroid artery
- Transverse cervical artery
- Suprascapular artery
- Thyrocervical trunk



Thyroid gland



Occipital artery

Transverse cervical artery

3rd part of subclavian artery

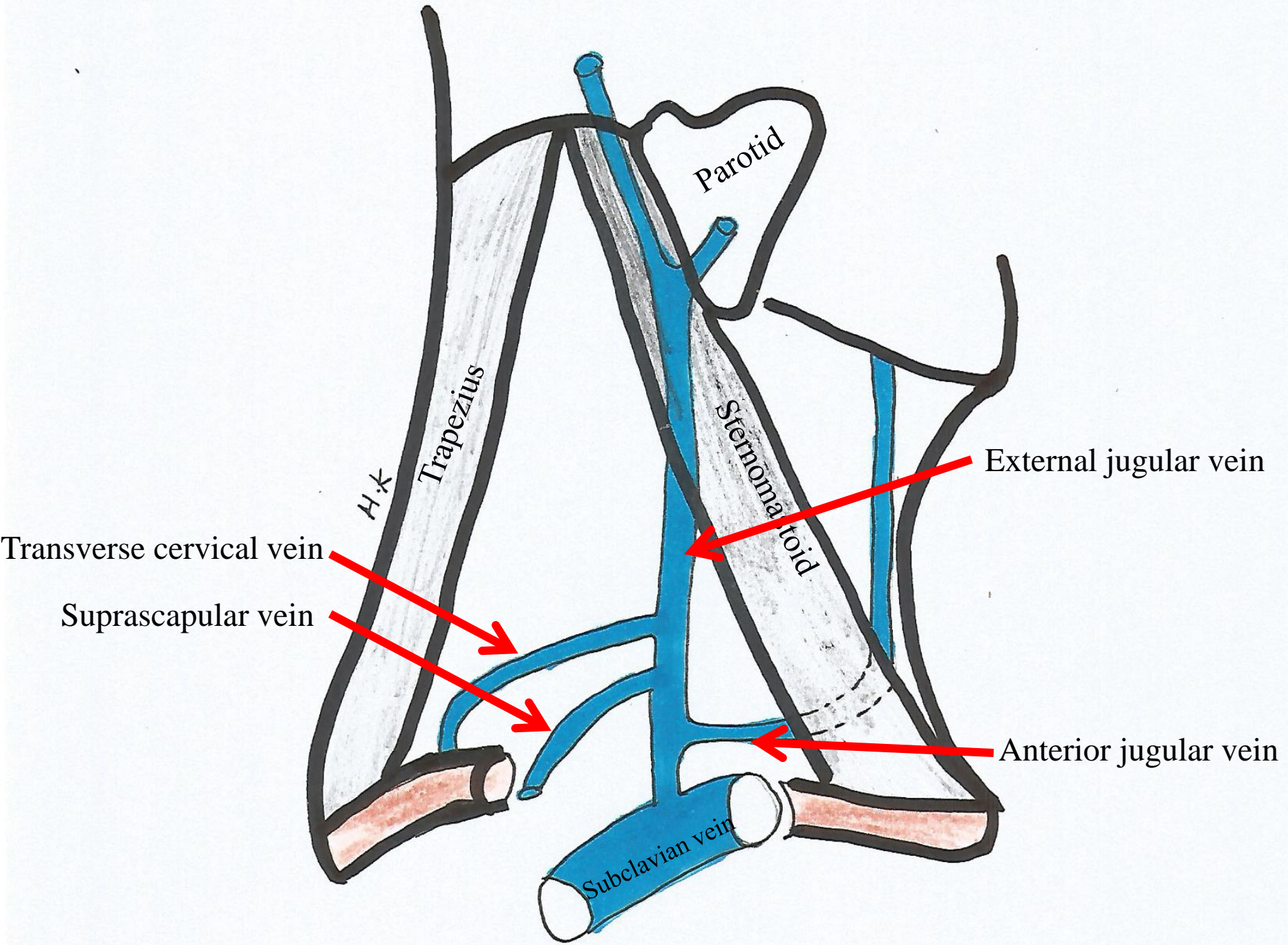
Suprascapular artery

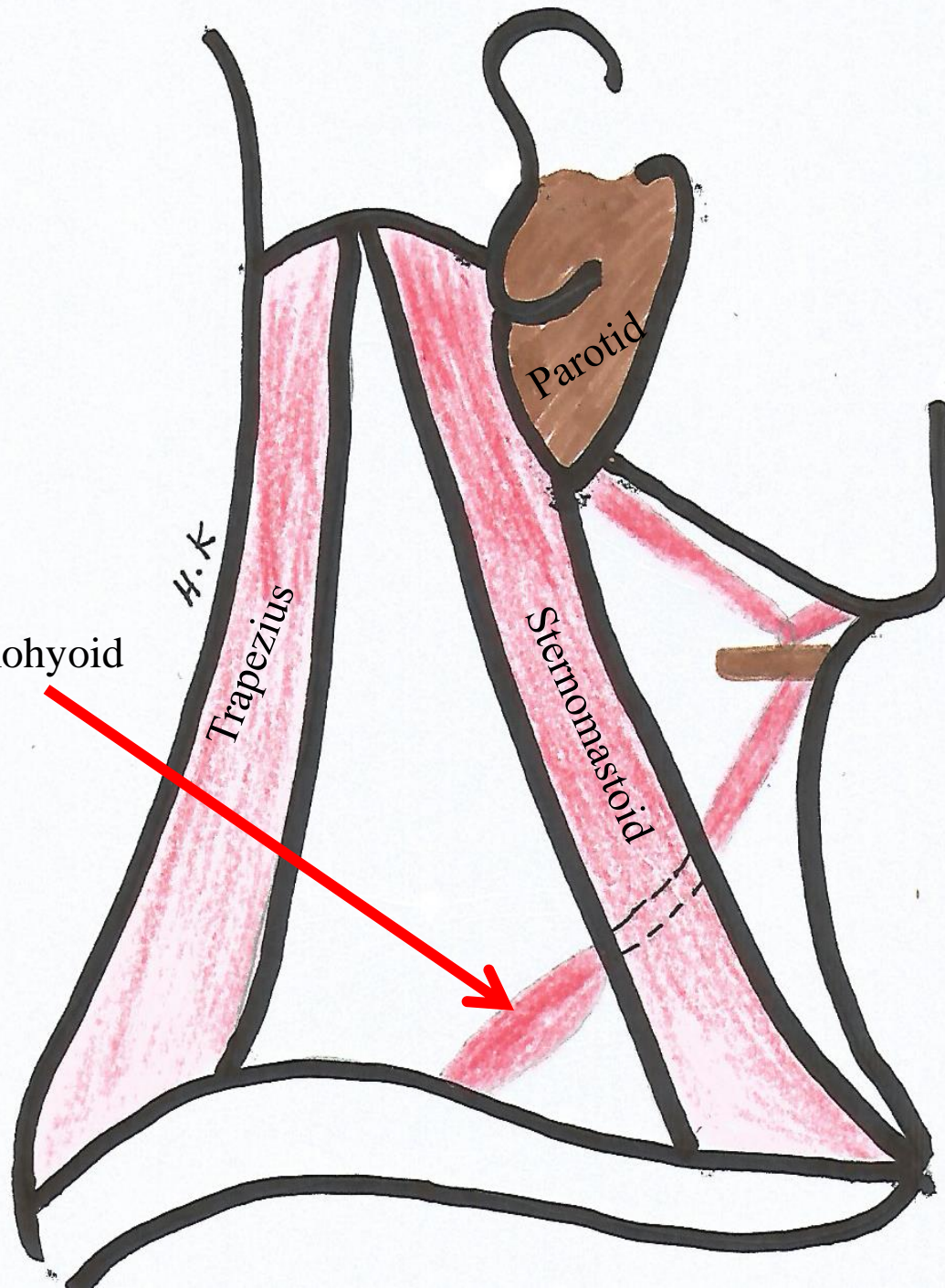
Trapezius

Sternomastoid

Parotid

H.K.





Inferior belly of omohyoid

H.K.

Trapezius

Parotid

Sternomastoid

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

Lesser occipital nerve (C2)

Roof (investing layer of deep cervical fascia)

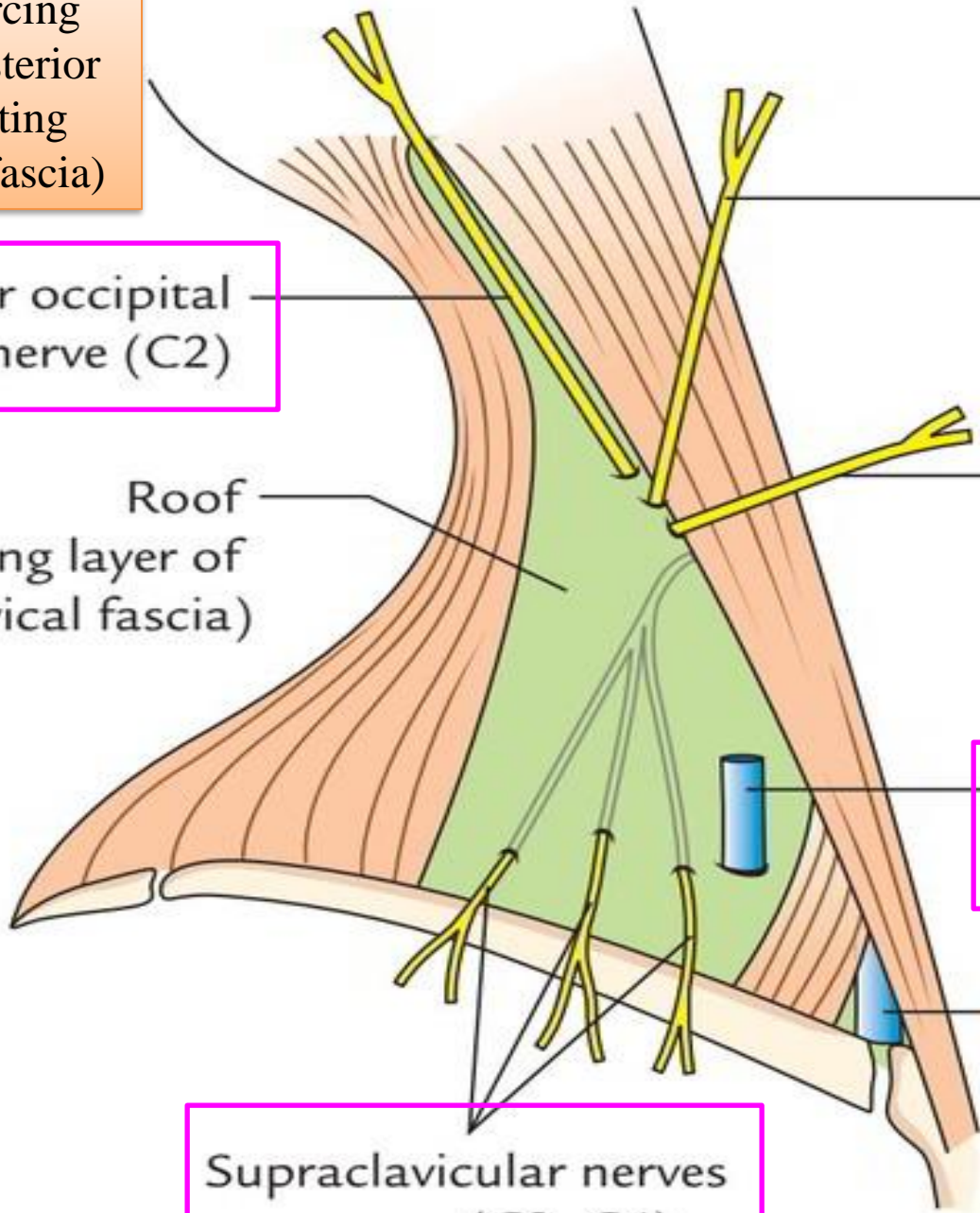
Great auricular nerve (C2, C3)

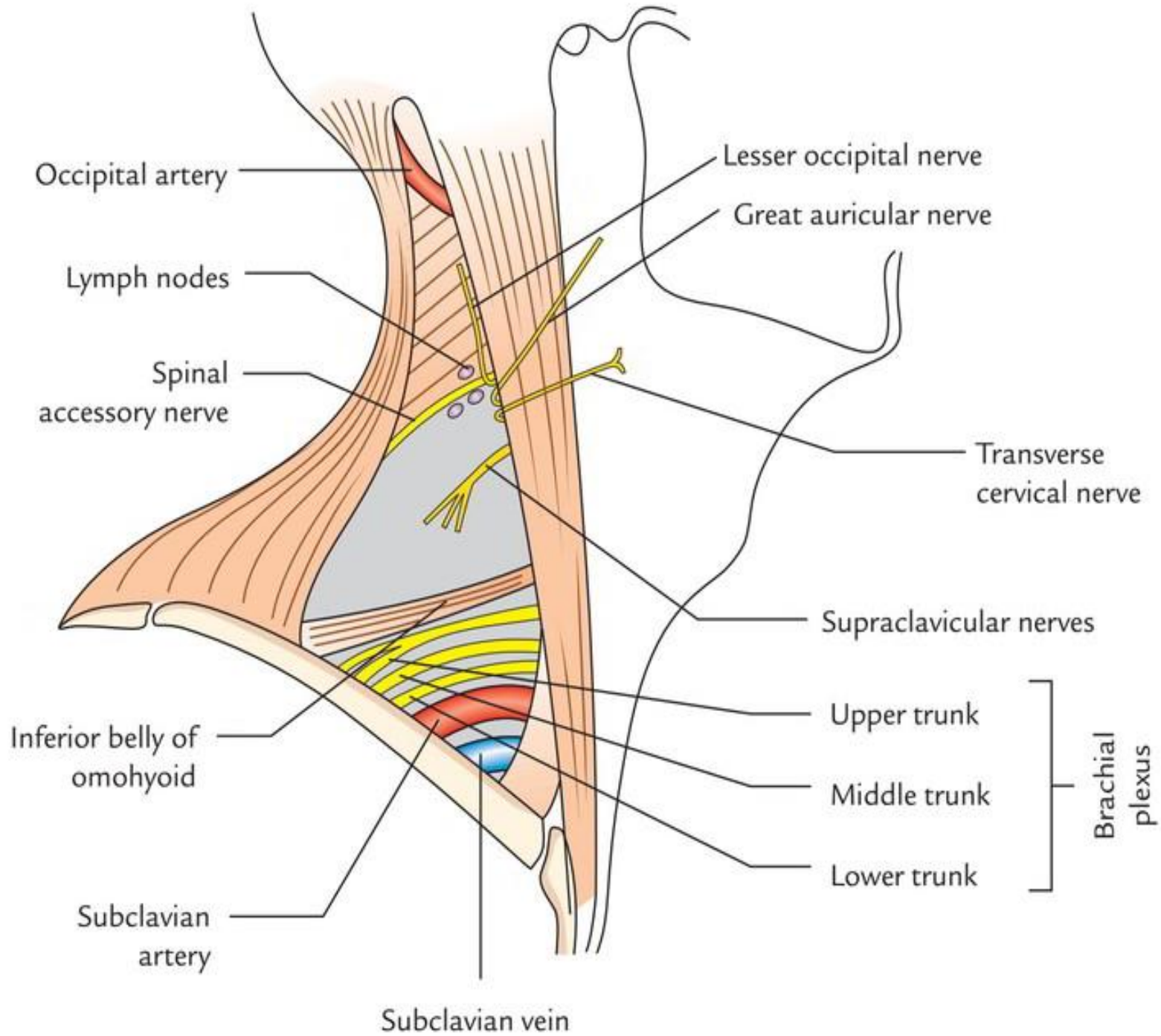
Transverse cervical nerve (C2, C3)

External jugular vein

Internal jugular vein

Supraclavicular nerves (C3, C4)





Anterior triangle

Boundaries:

- Superiorly:

Body of the mandible

- Posteriorly:

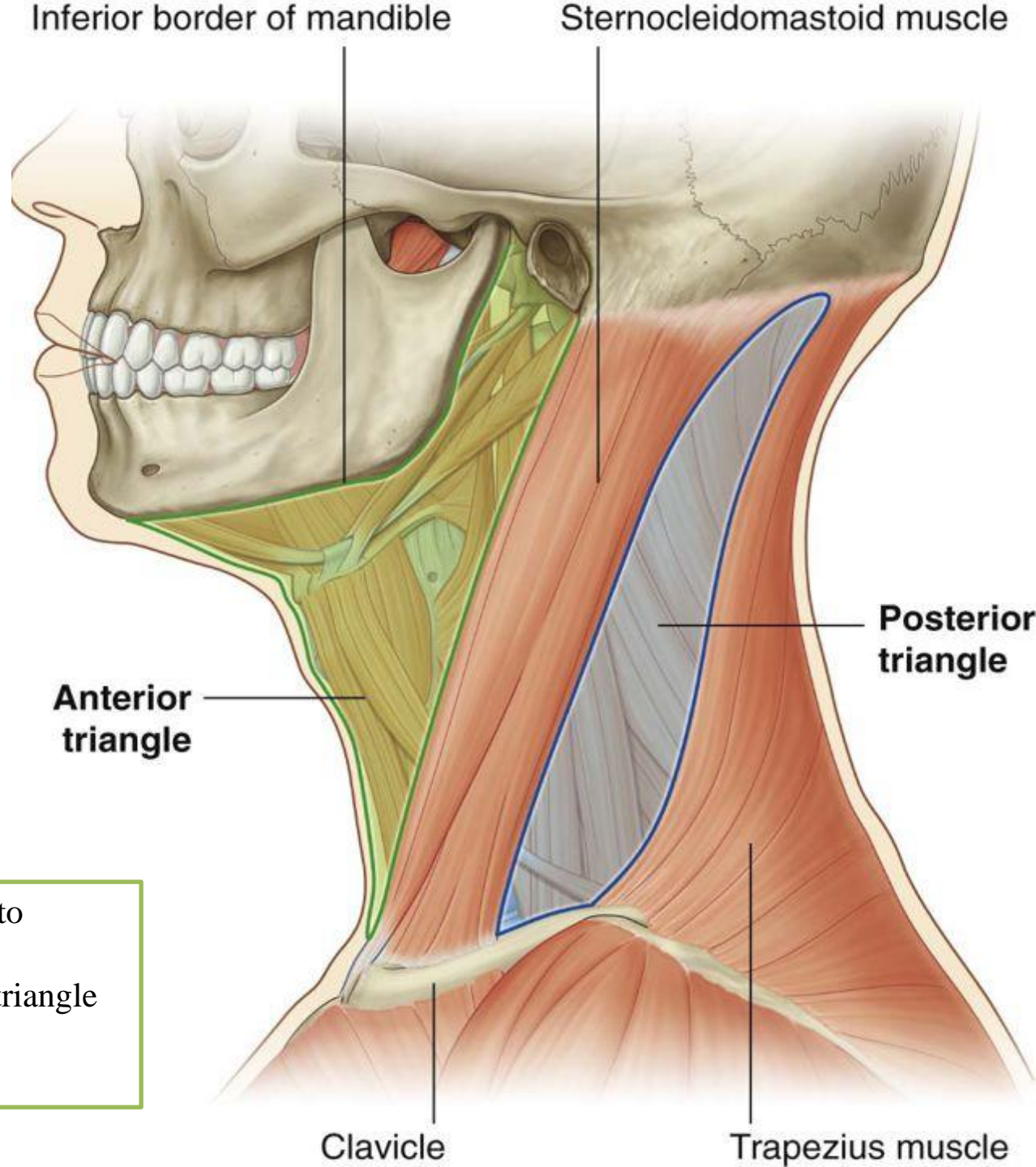
Sternocleidomastoid

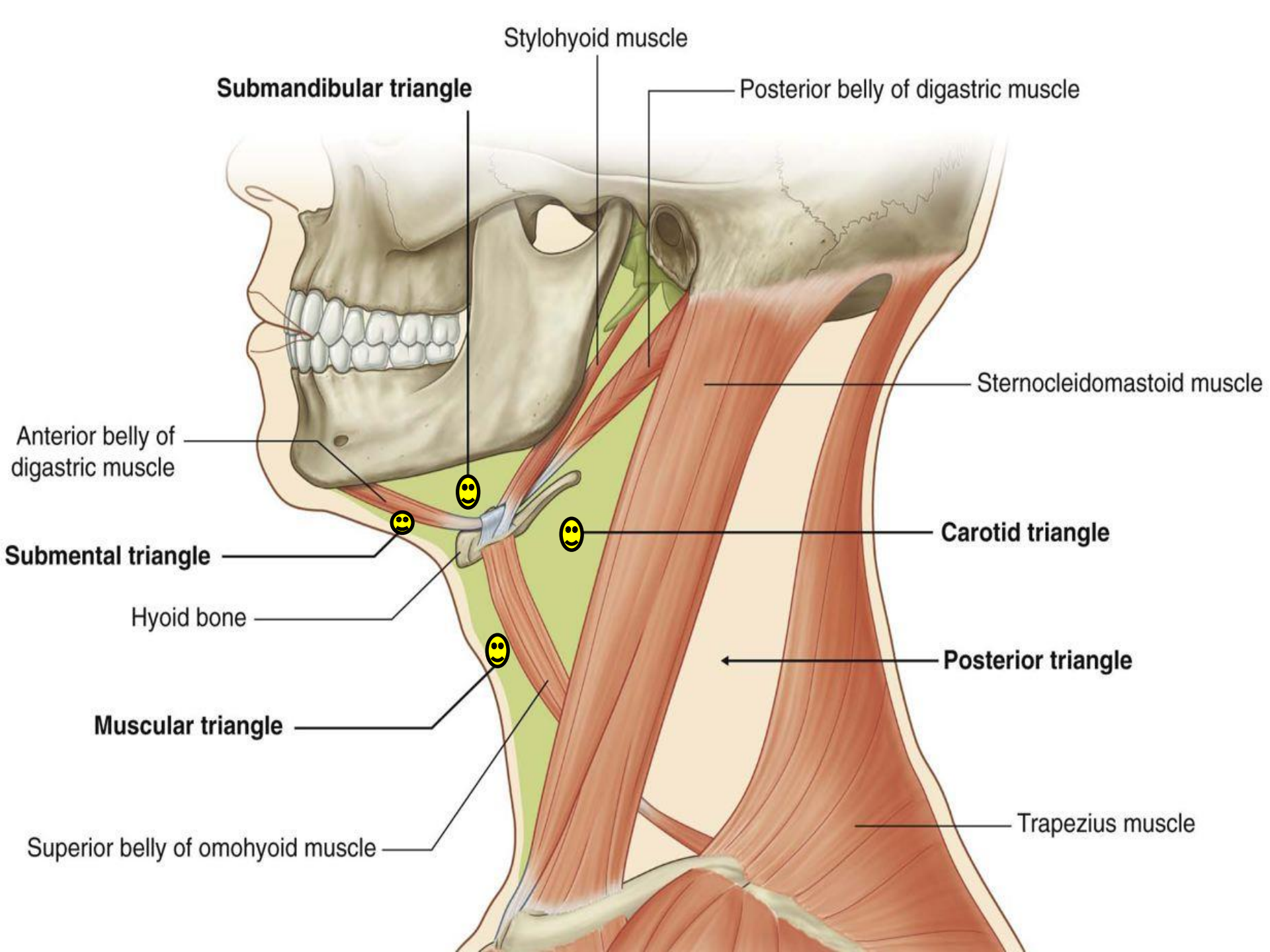
- Anteriorly:

Midline



- It is further subdivided into
1. Carotid triangle
 2. Submandibular (digastric) triangle
 3. Submental triangle
 4. Muscular triangle





Carotid triangle

Boundaries:

Superior:

Posterior belly of digastric

Lateral:

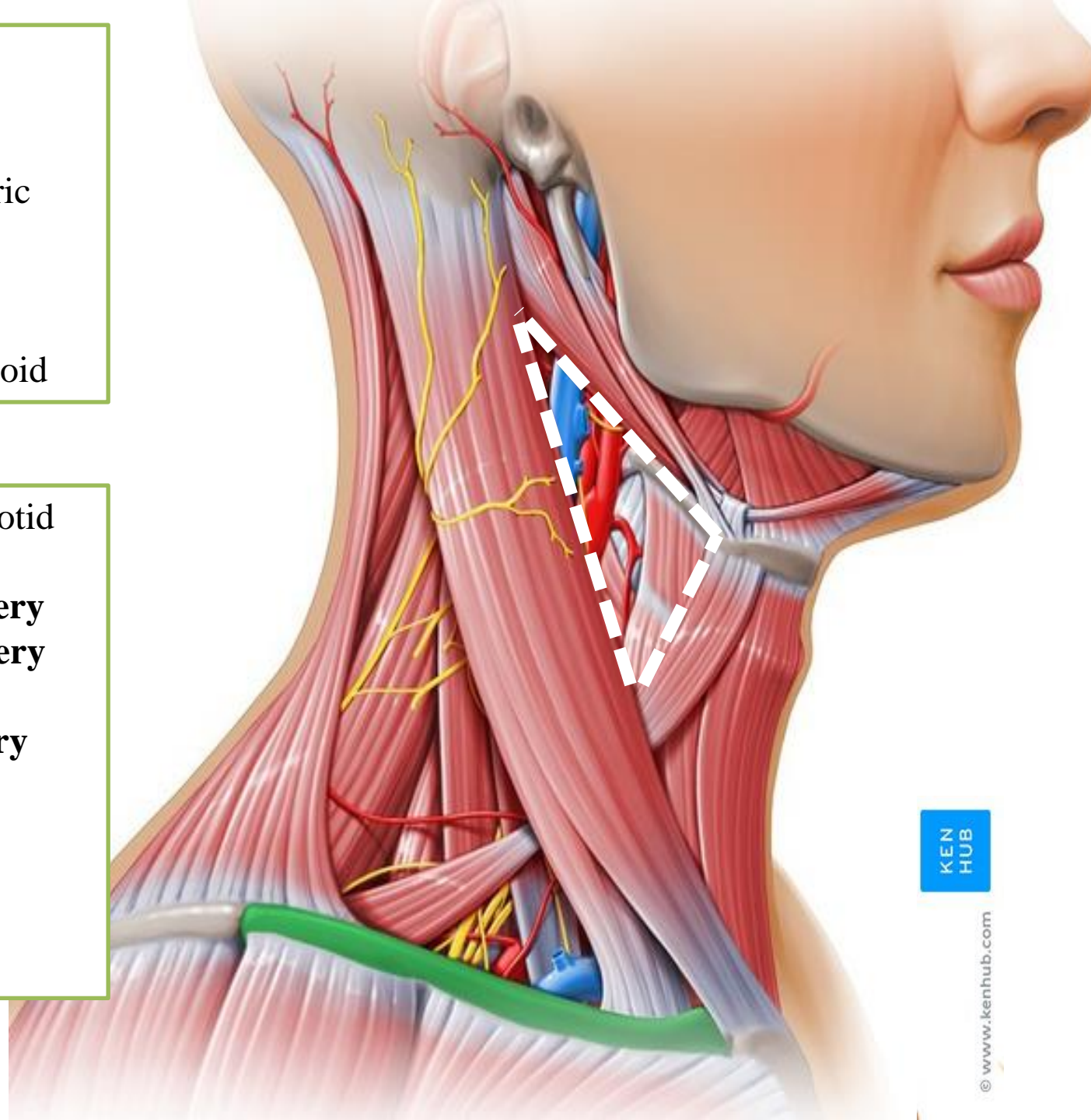
Sternocleidomastoid

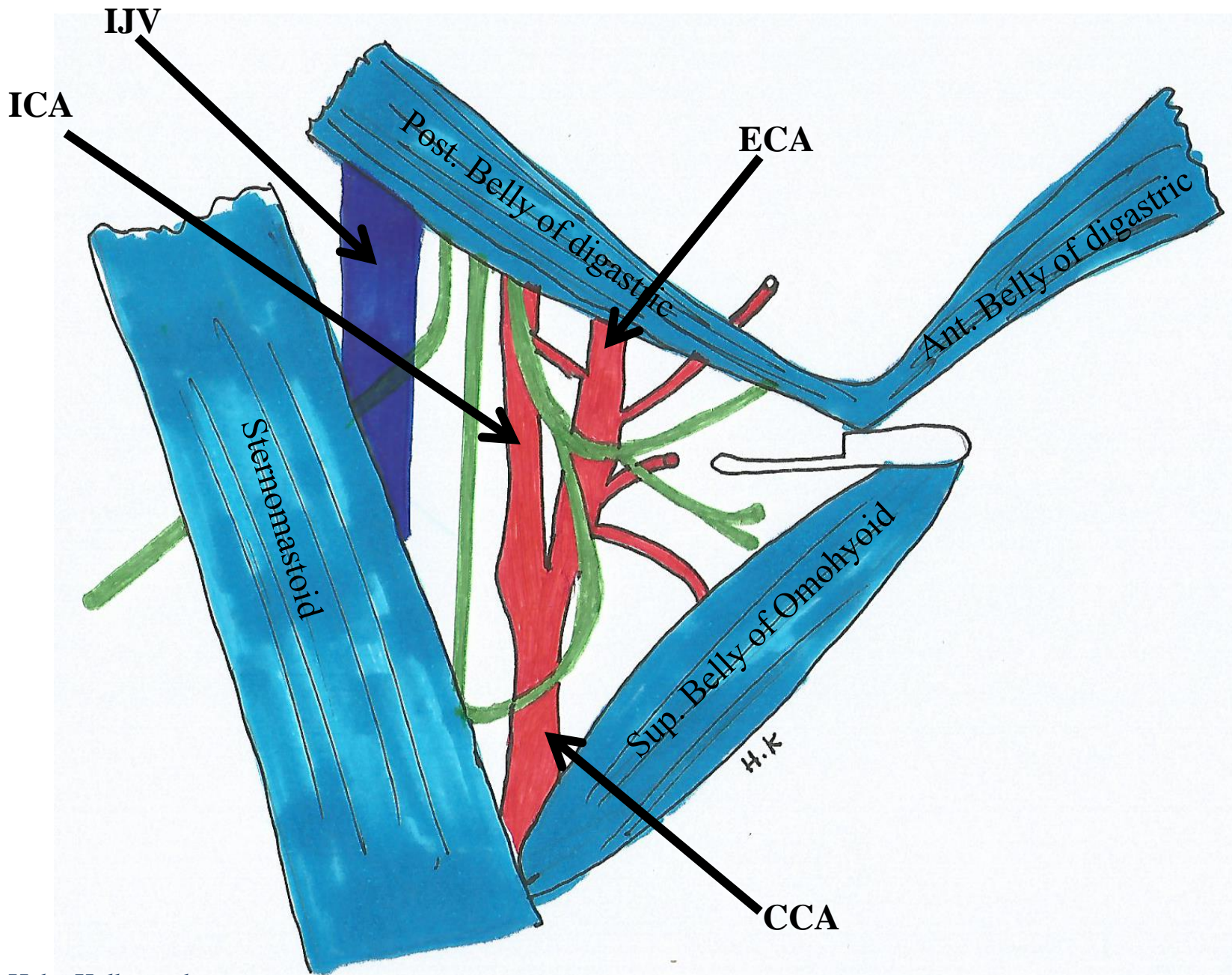
Inferior:

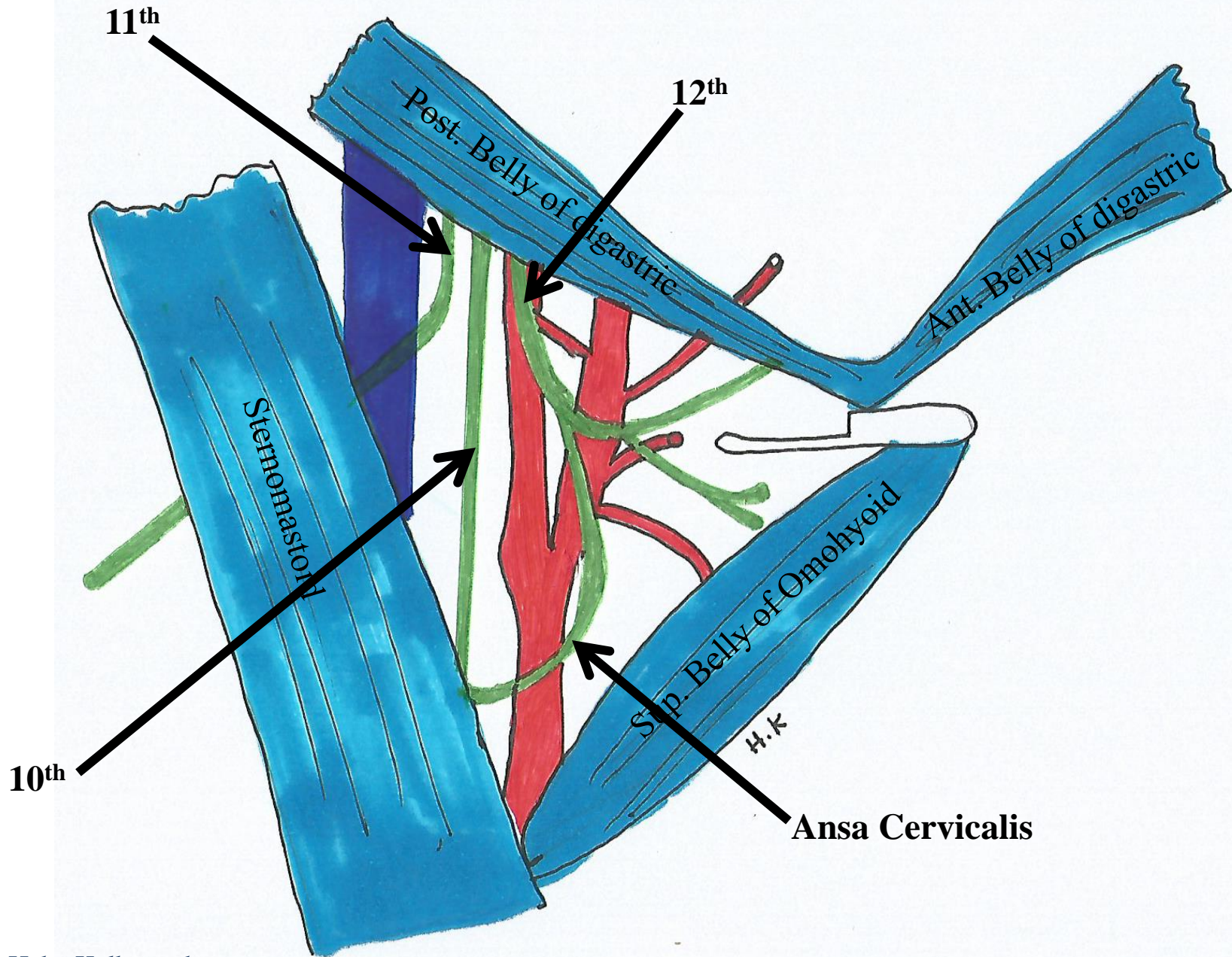
Superior belly of omohyoid

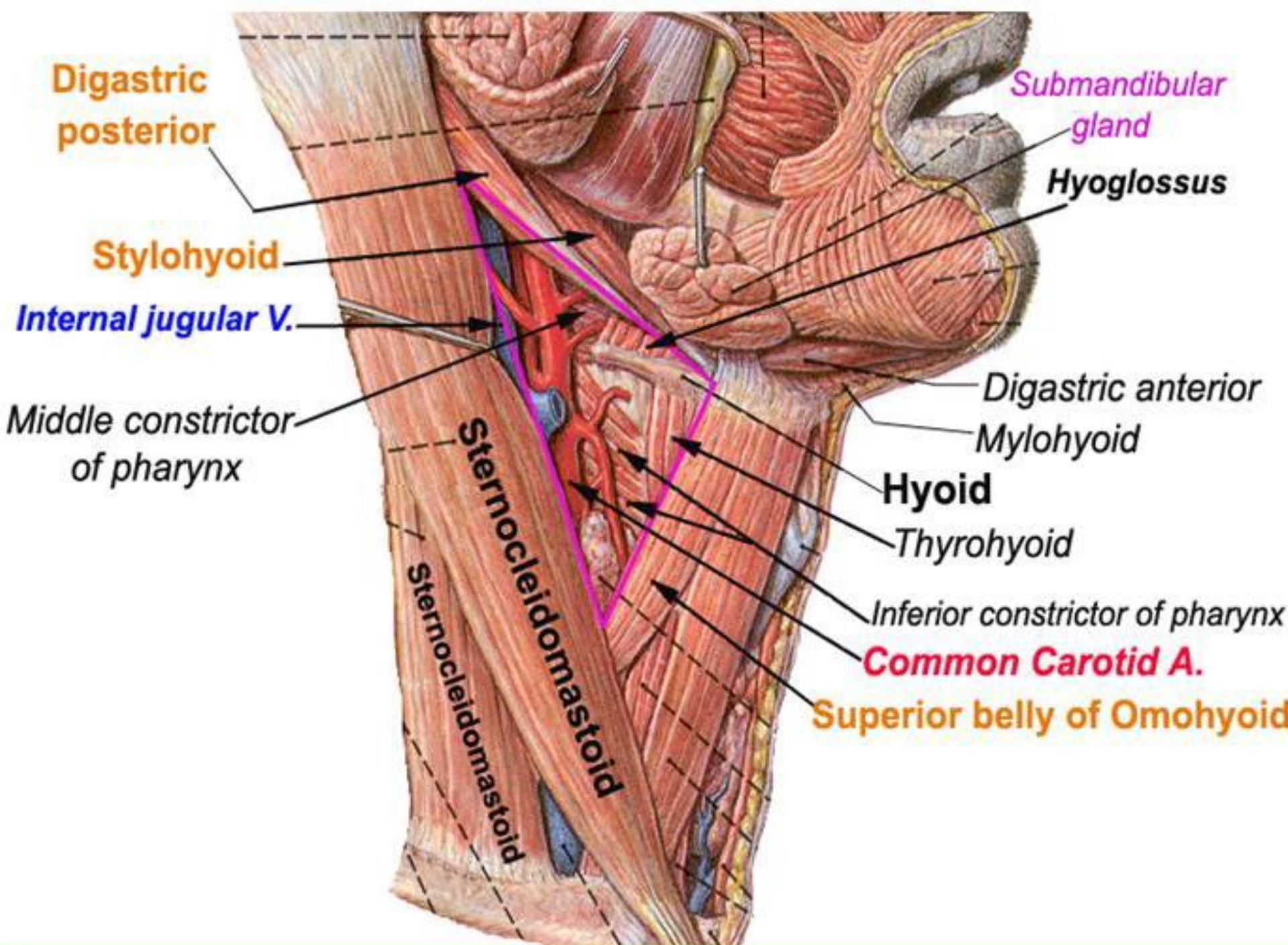
The main contents of carotid triangle are:

- 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









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:

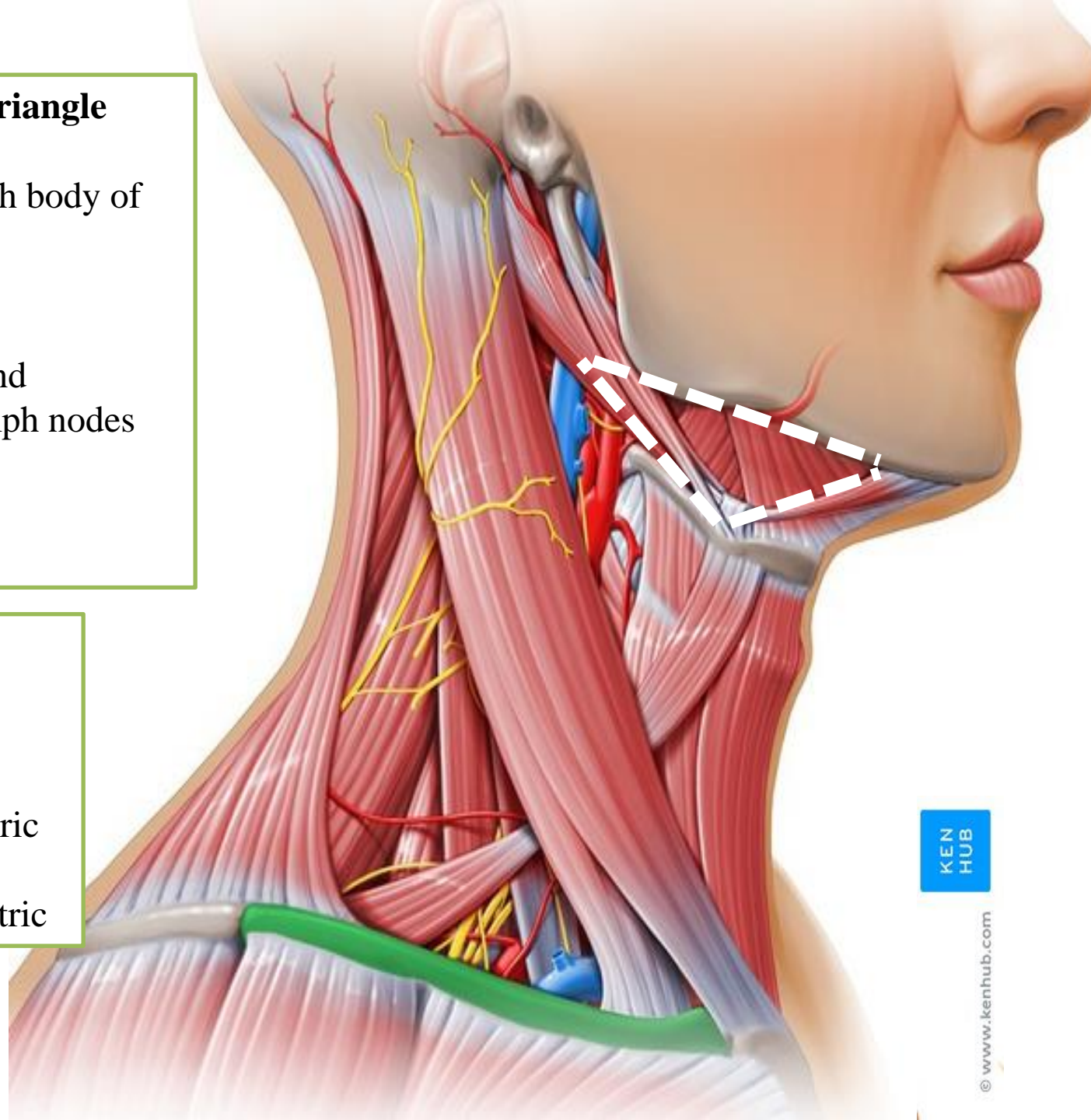
Body of mandible

Anteriorly:

Anterior belly of digastric

Posteriorly:

Posterior belly of digastric





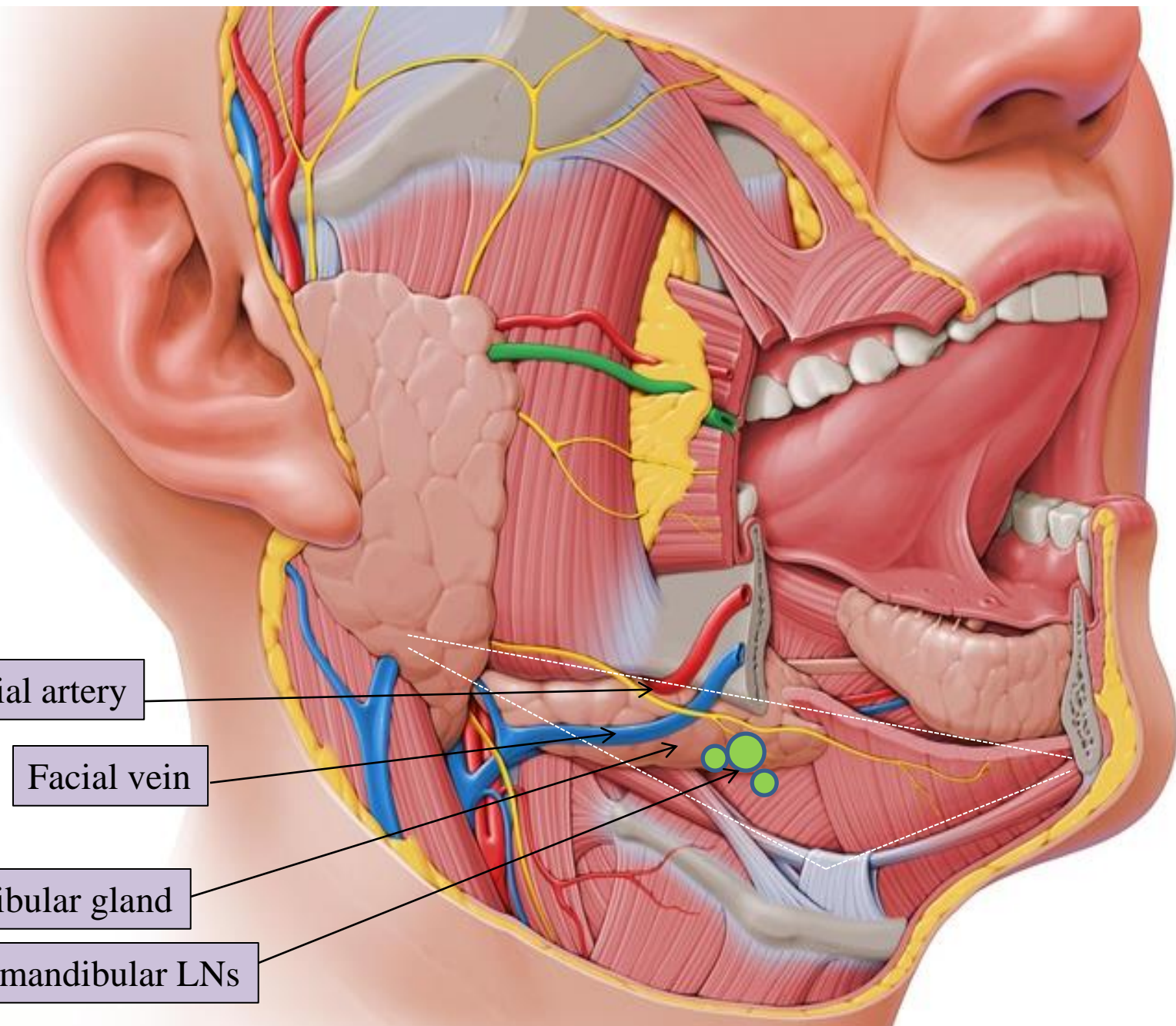
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Facial artery

Facial vein

Submandibular gland

Submandibular LNs



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:

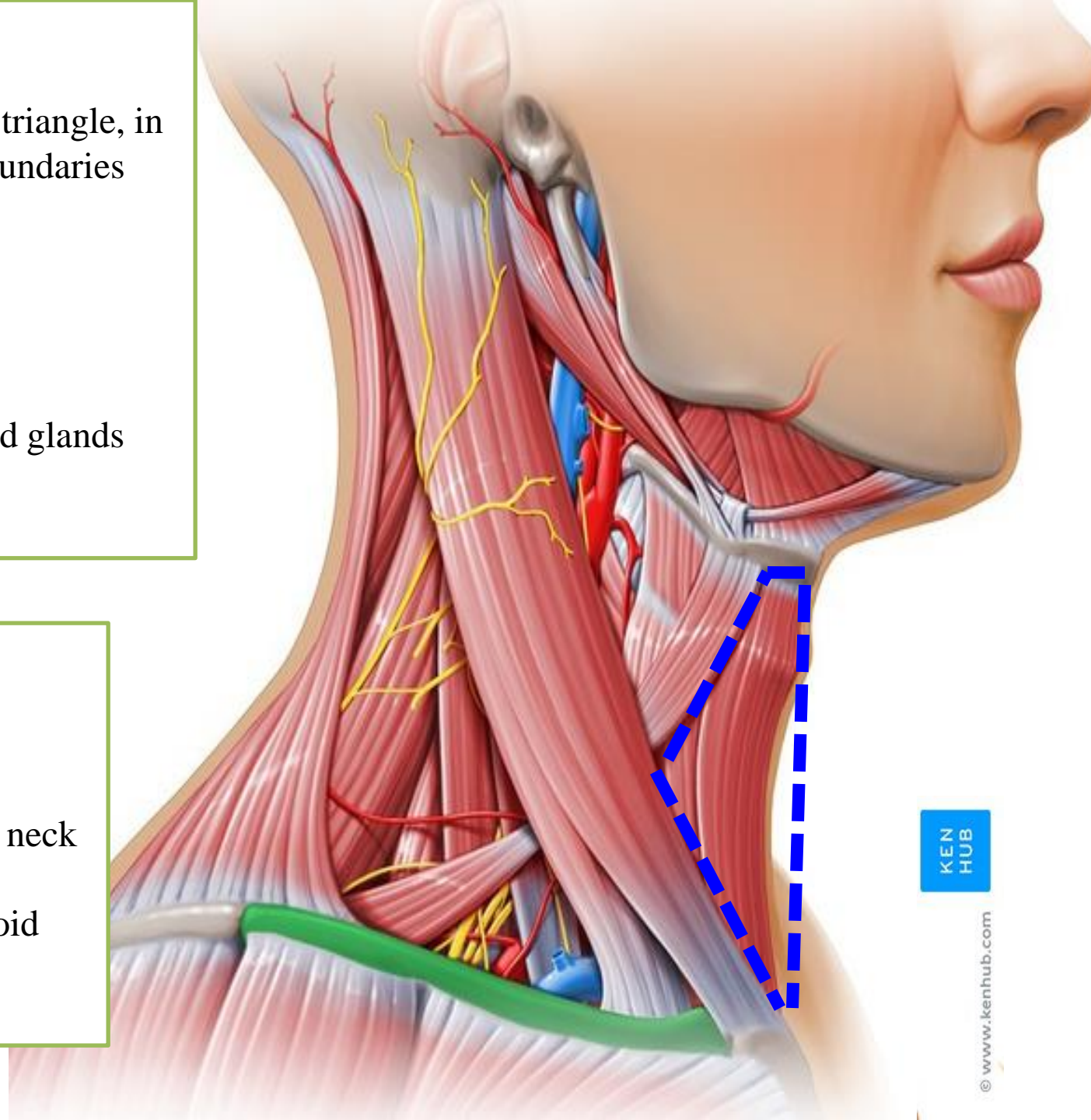
Imaginary midline of the neck

Supero-laterally:

Superior belly of omohyoid

Infero-laterally:

Sternocleidomastoid

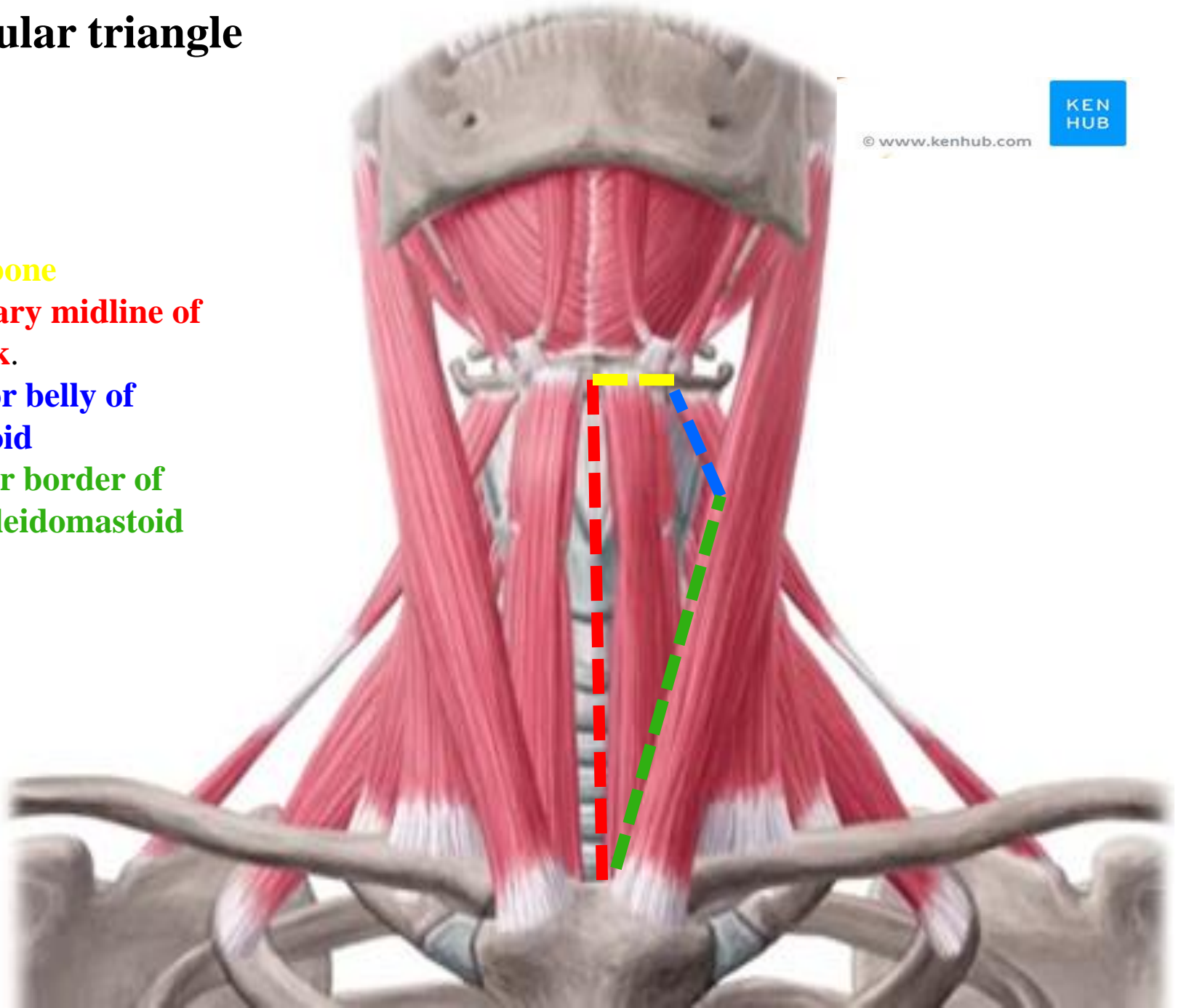


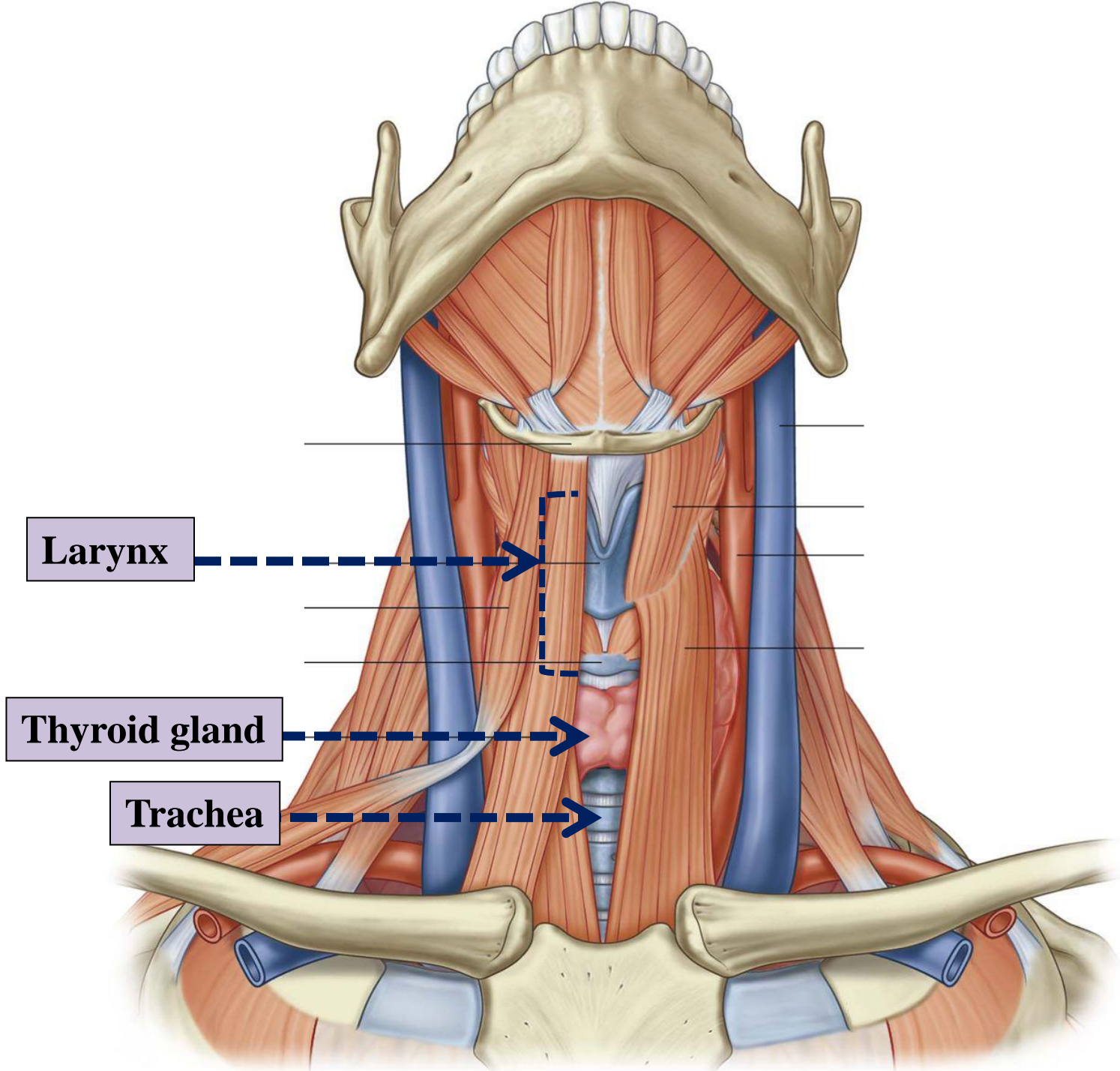
Muscular triangle

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Hyoid bone
**Imaginary midline of
the neck.**
**Superior belly of
omohyoid**
**Anterior border of
sternocleidomastoid**





Submental triangle

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

Boundaries:

Inferiorly:

Hyoid bone

Medially:

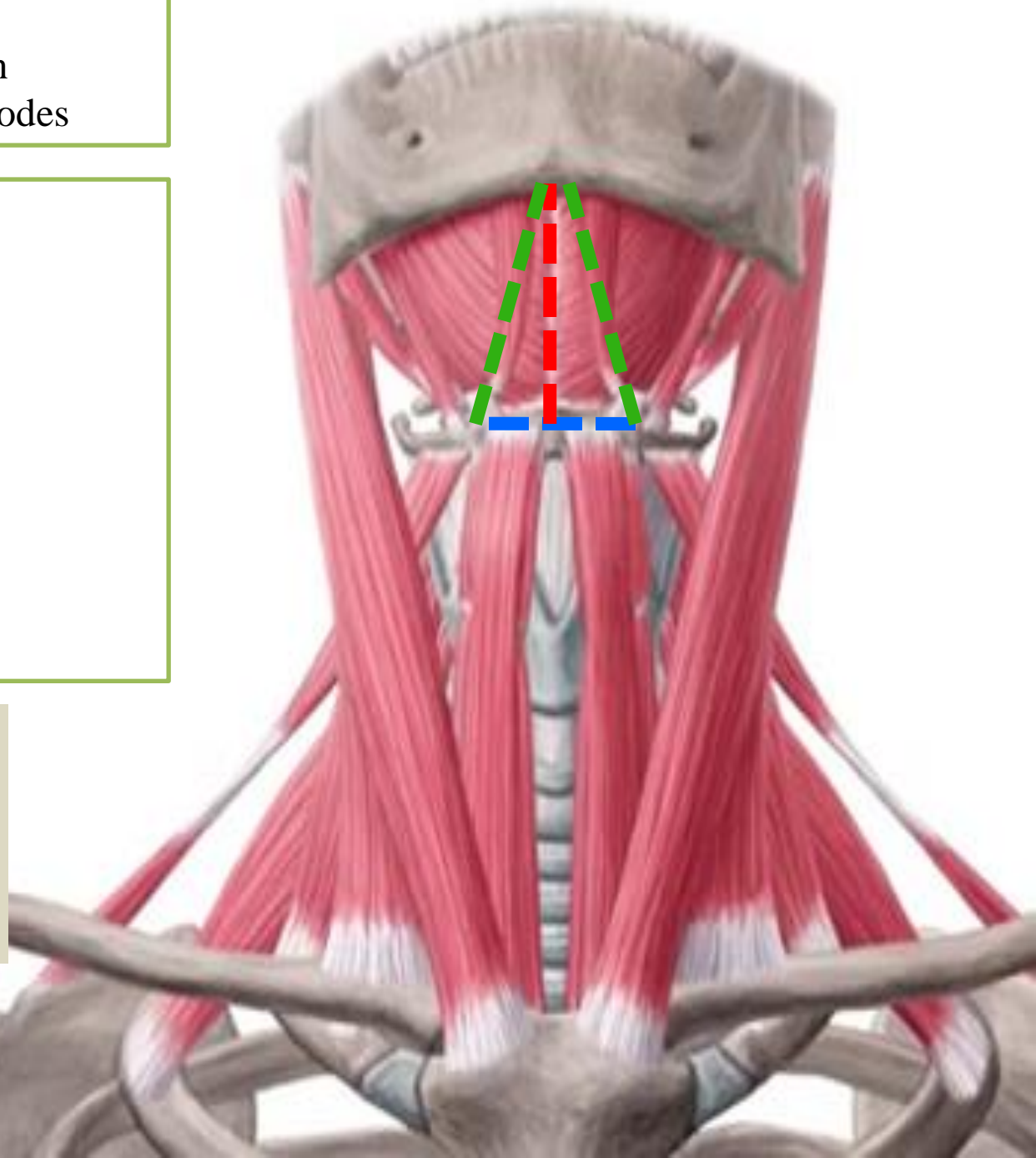
Midline of the neck

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- Submental nodes

2- Submandibular 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

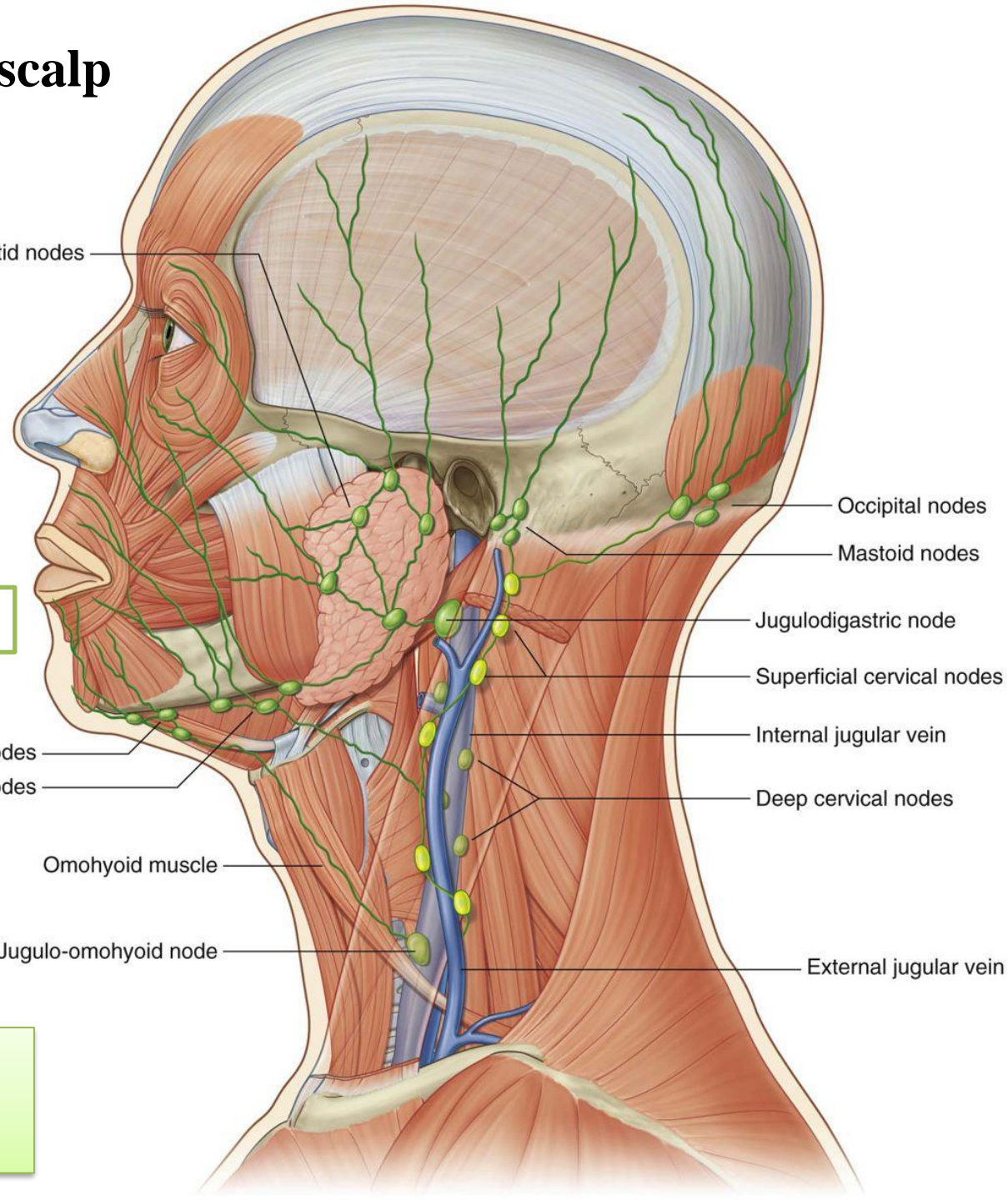
Jugulodigastric node

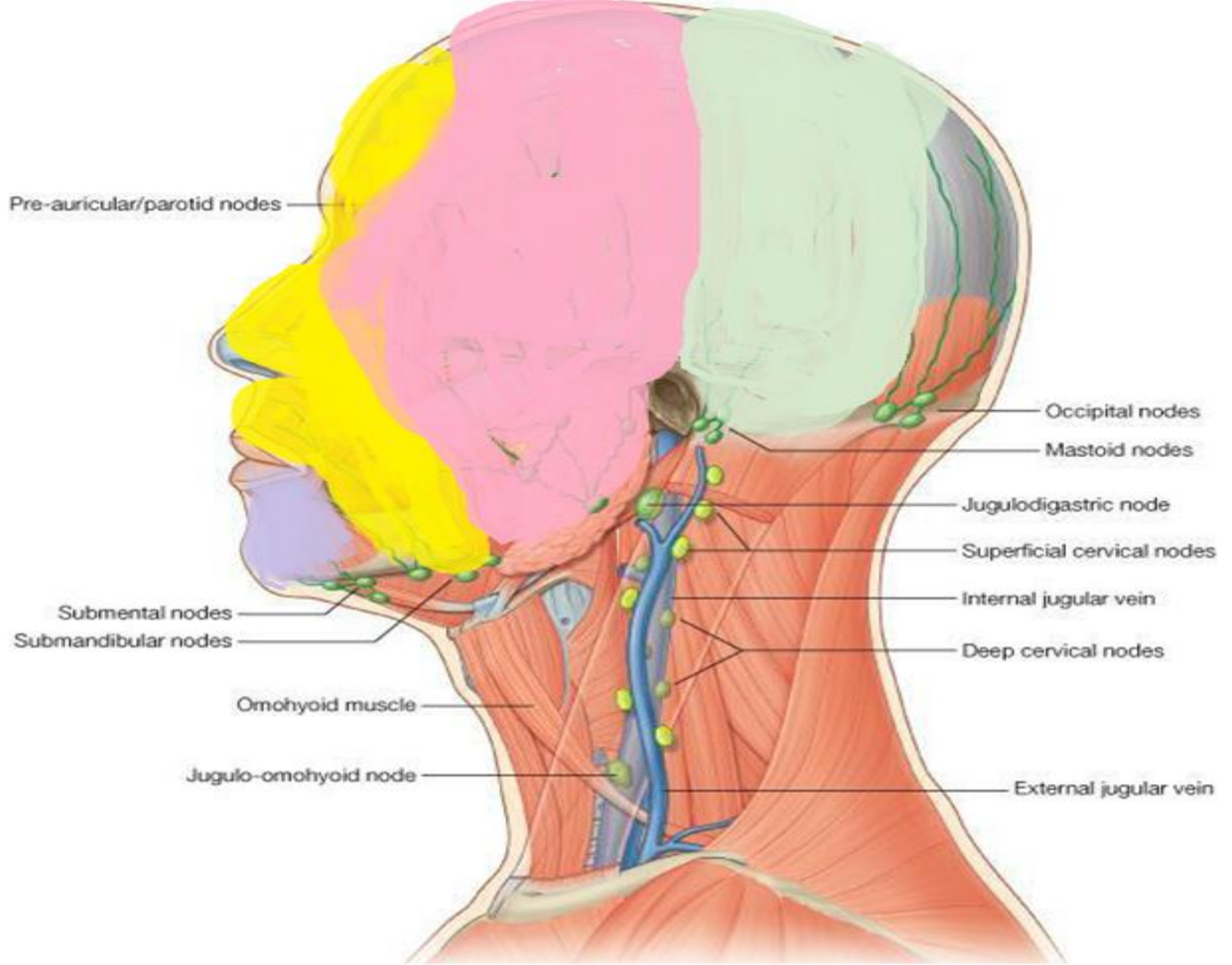
Superficial cervical nodes

Internal jugular vein

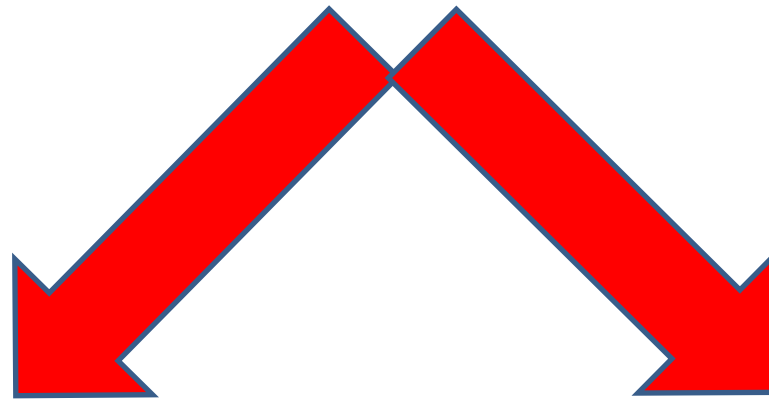
Deep cervical nodes

External jugular vein





Lymph nodes of the neck



Superficial

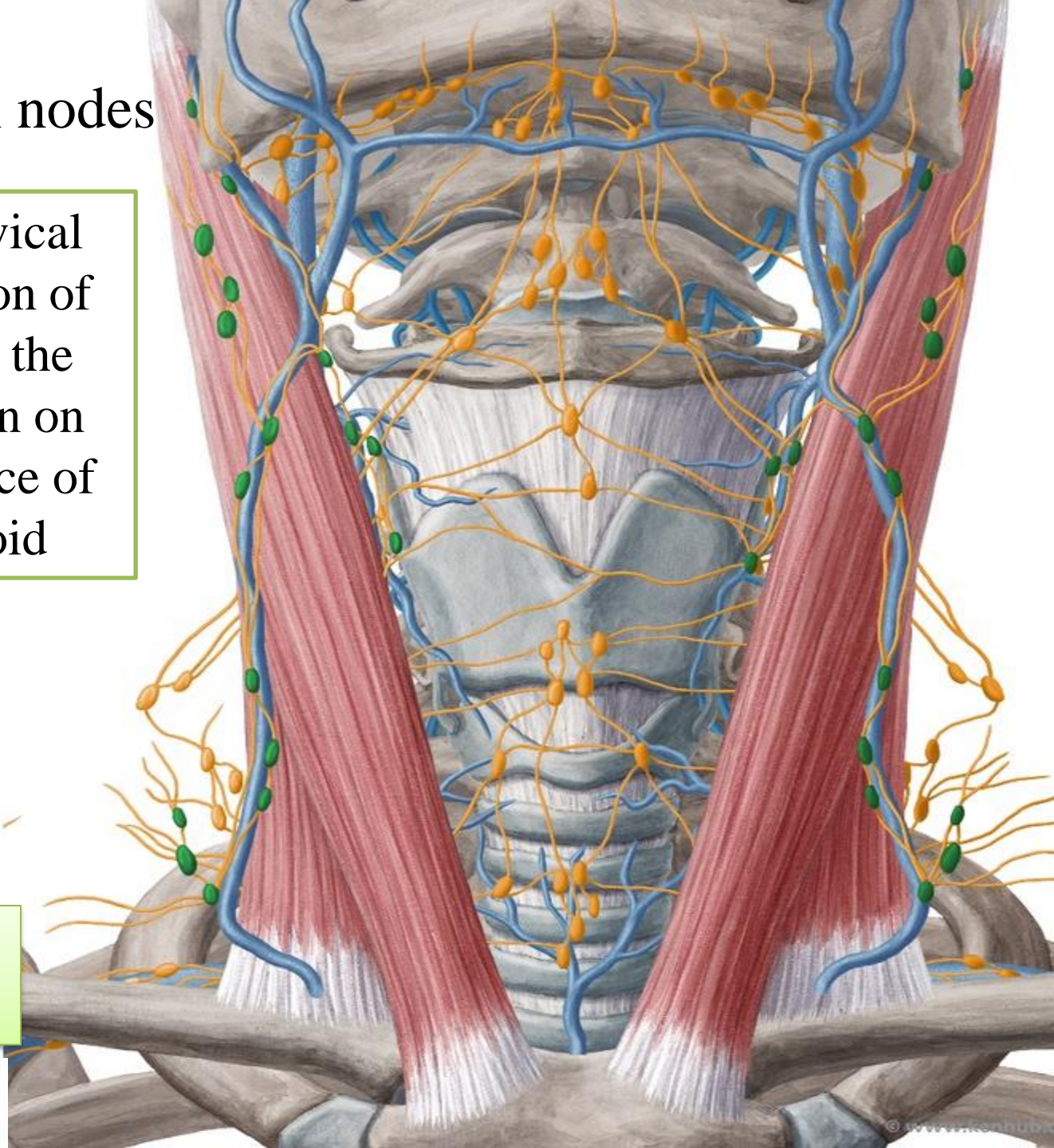
Deep

Superficial cervical nodes

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

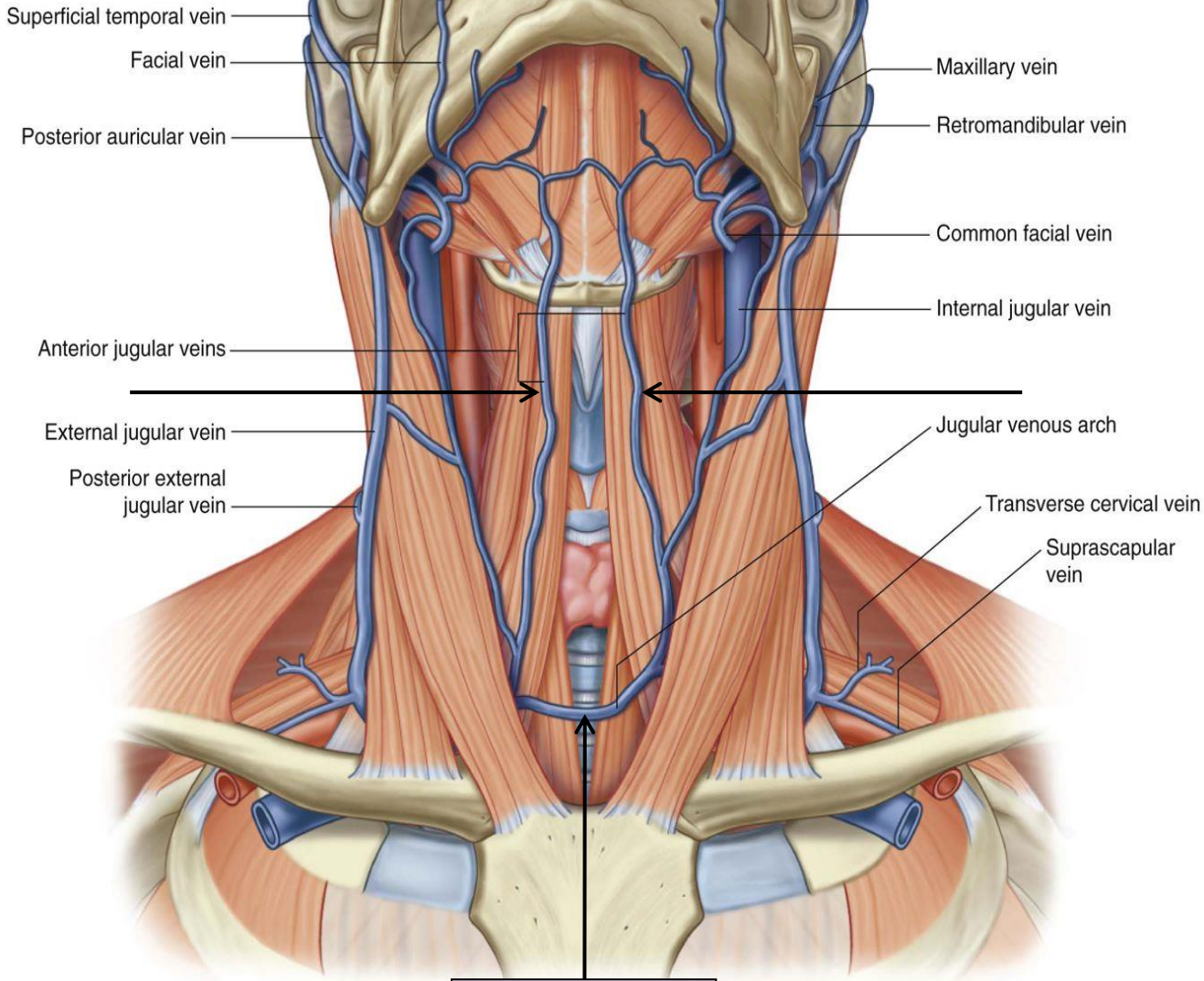
Dr. Heba Kalbouneh

Vertical along superficial veins



Superficial Veins

Anterior jugular veins



Jugular arch

Deep cervical nodes

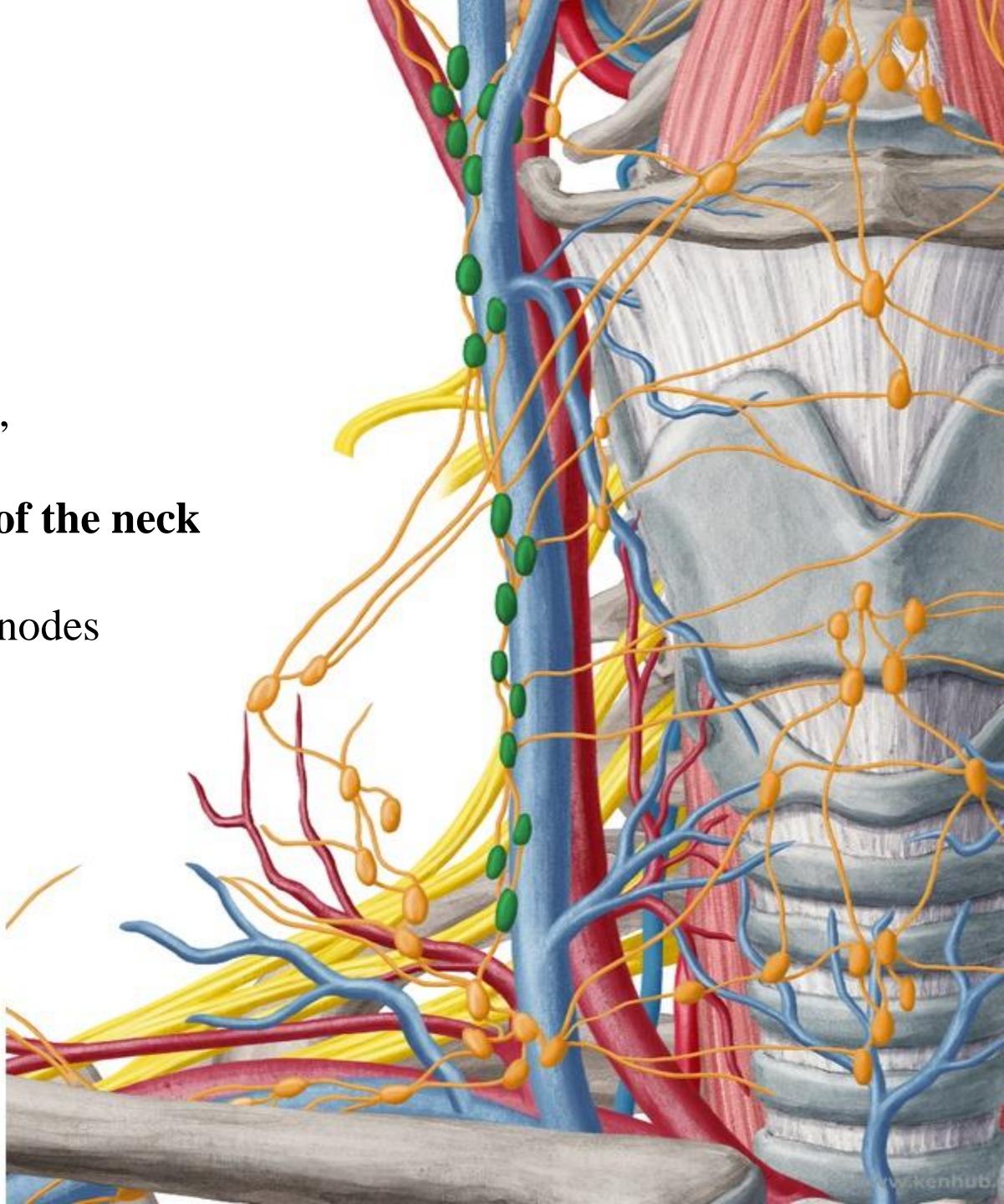
Deep Cervical Lymph nodes

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

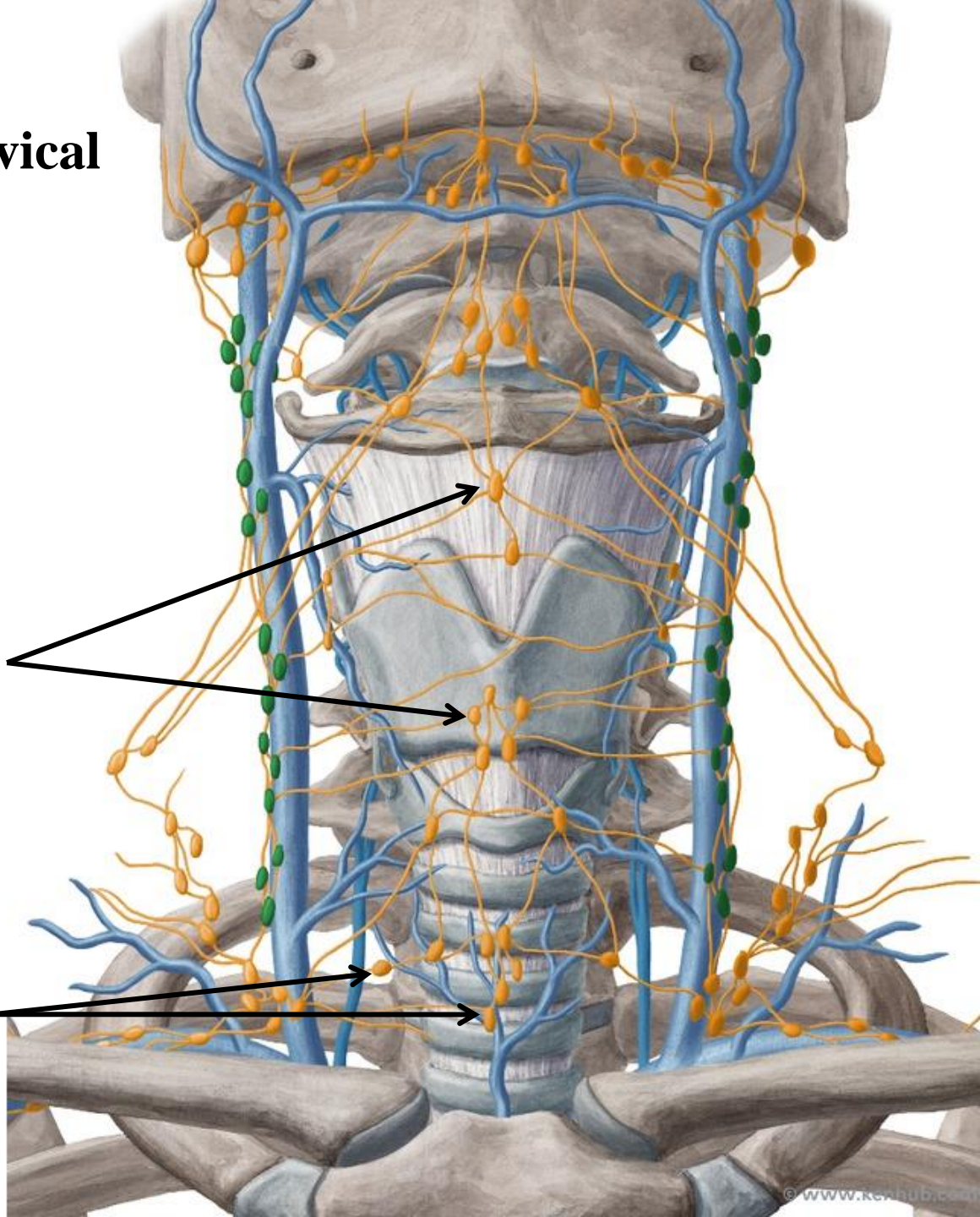


Median group of deep cervical lymph nodes

Dr. Heba Kalbouneh

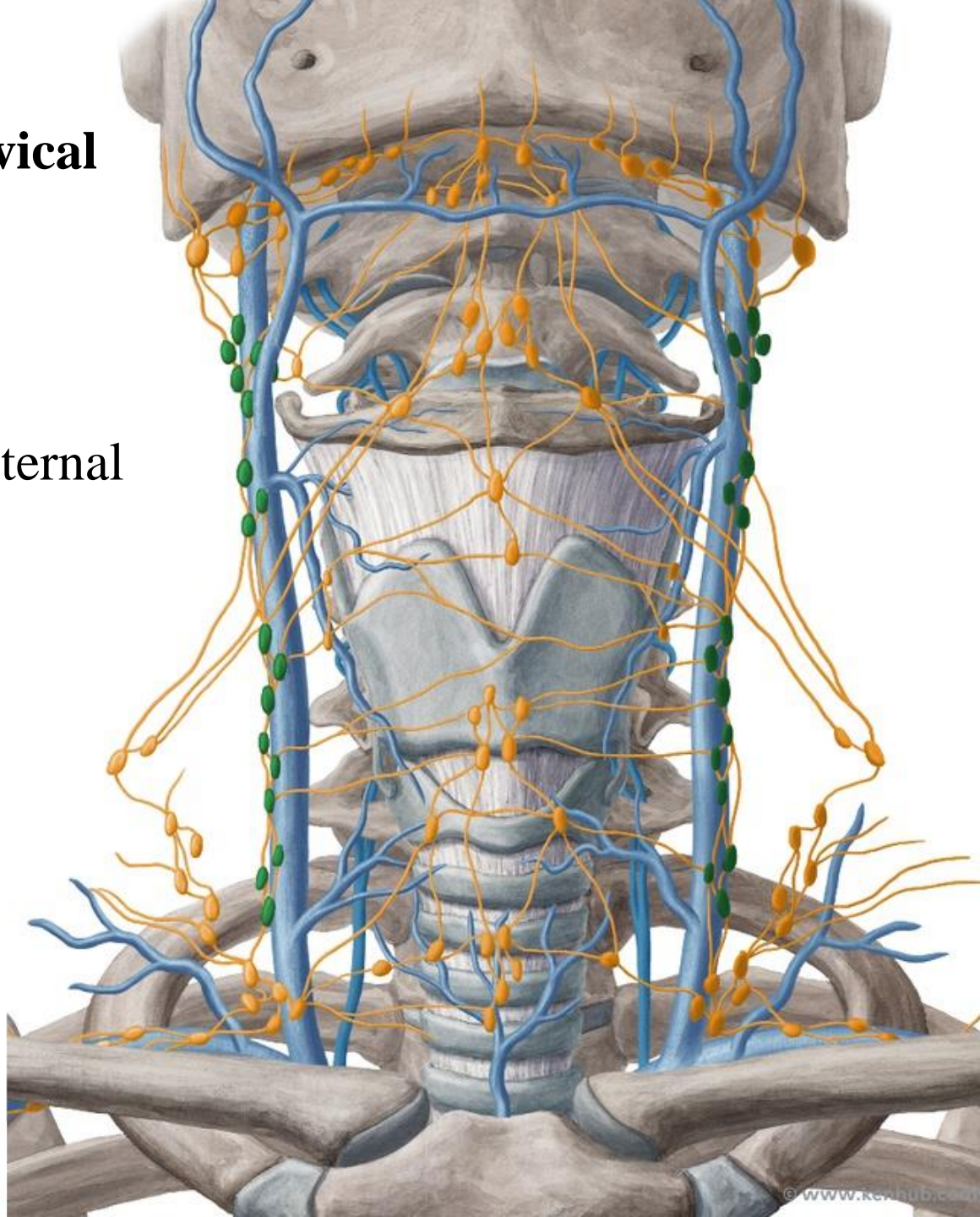
Prelaryngeal lymph nodes

Pretracheal and paratracheal lymph nodes



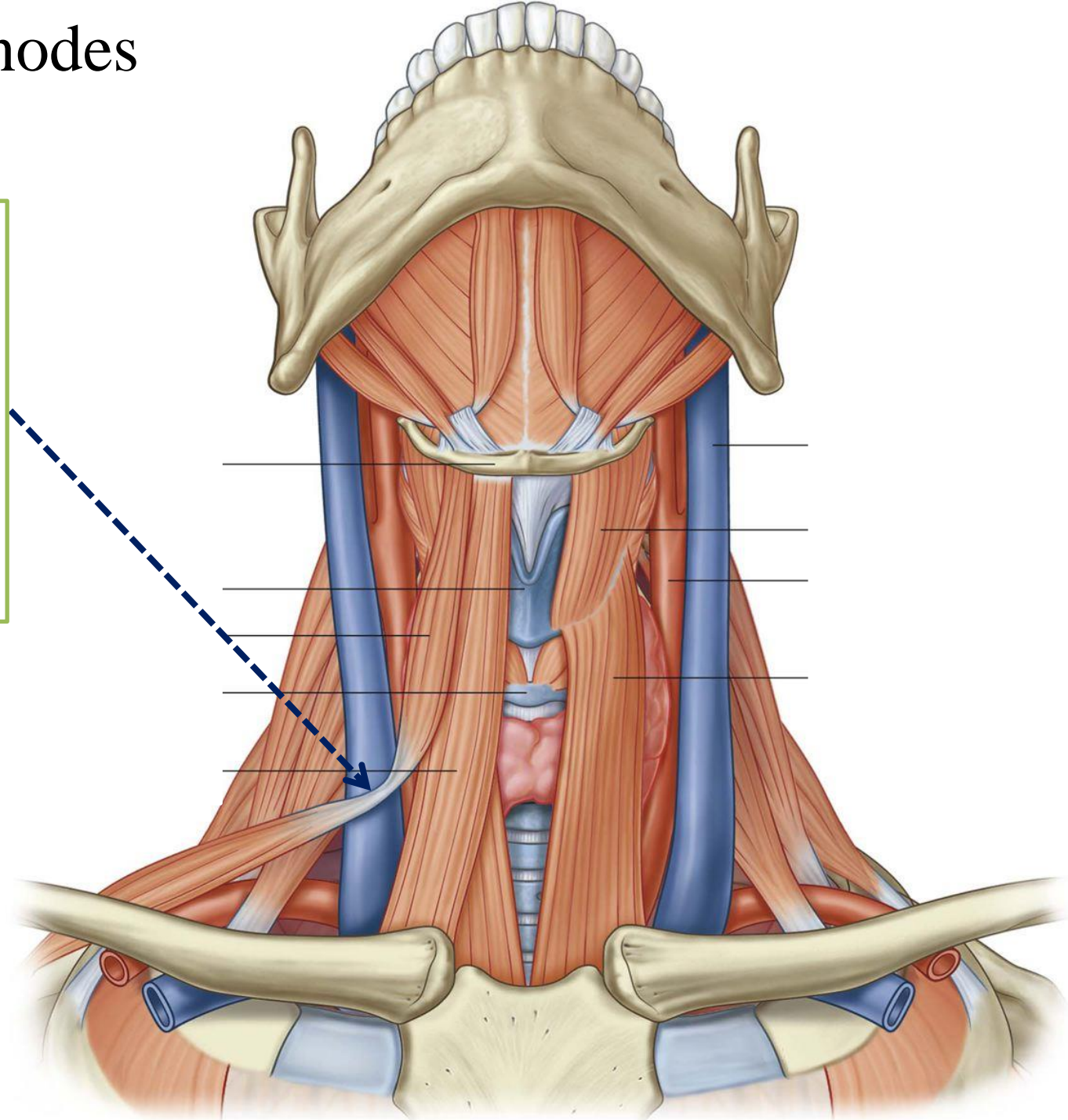
Lateral group of deep cervical lymph nodes

At side of neck along internal jugular vein



Deep cervical nodes

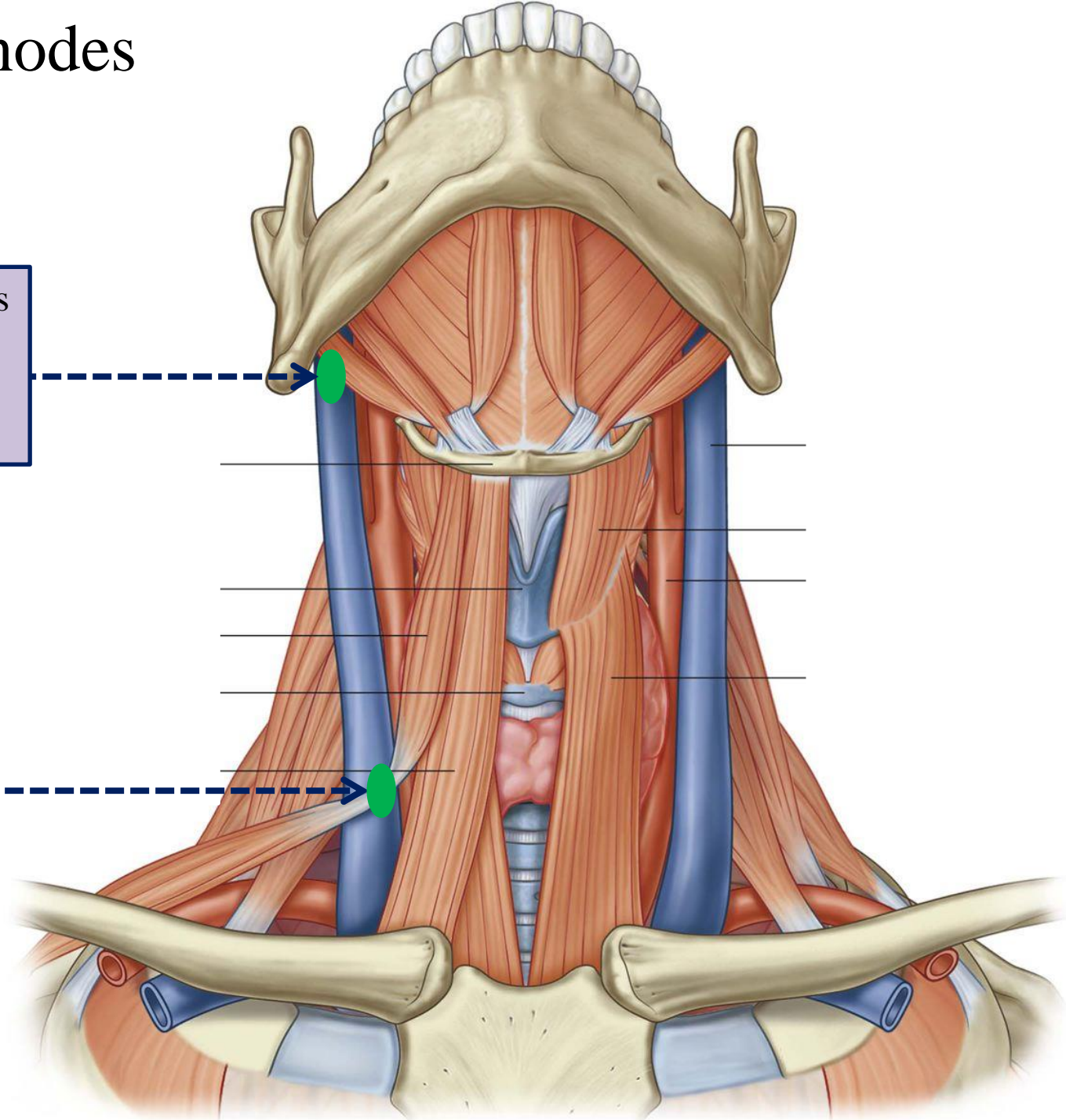
The intermediate tendon of the omohyoid muscle divides the deep cervical lymph nodes into upper and lower groups



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



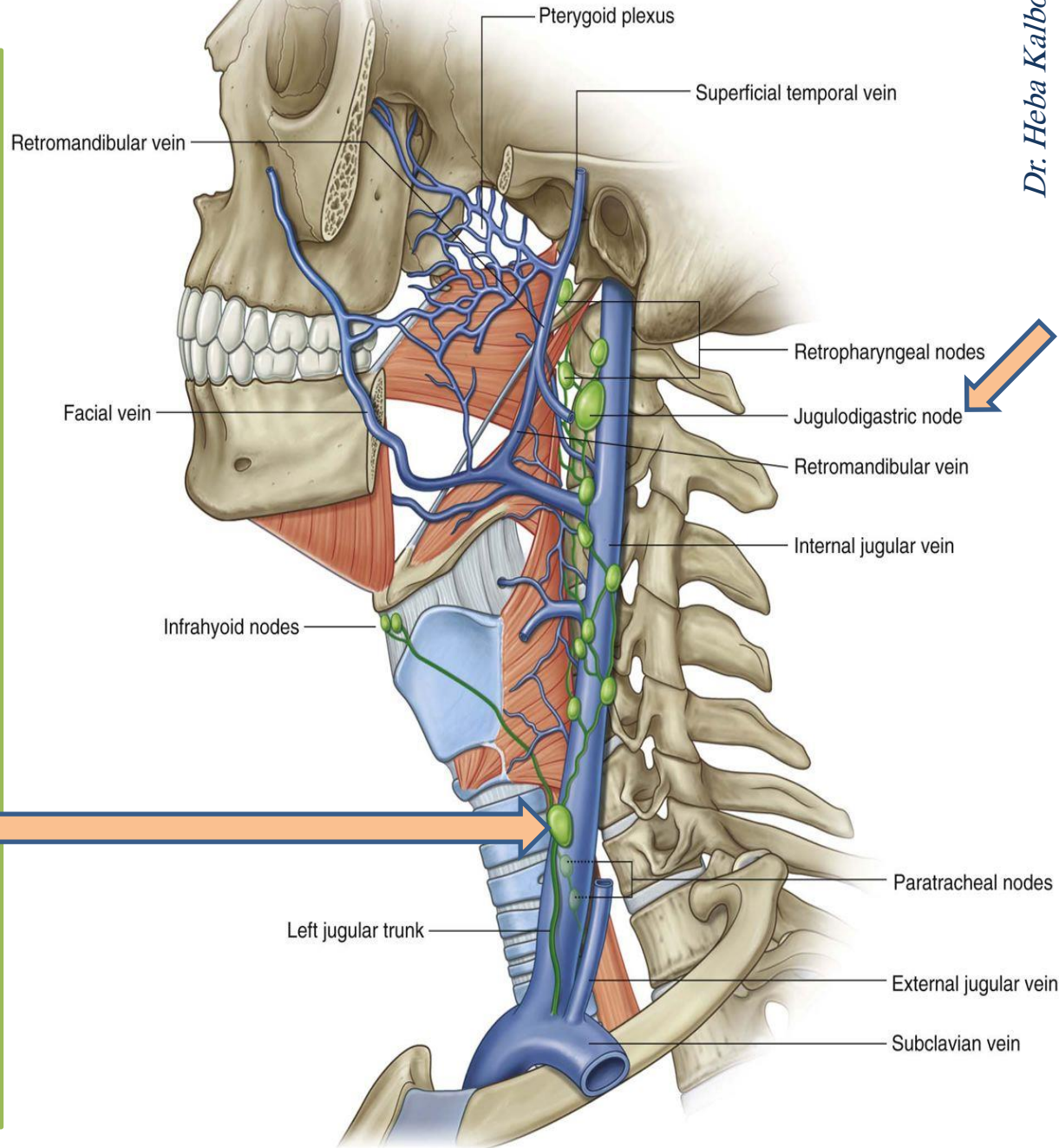
Enlarged jugulodigastric lymph nodes are commonly found in tonsillitis

2 - Jugulo-omohyoid node

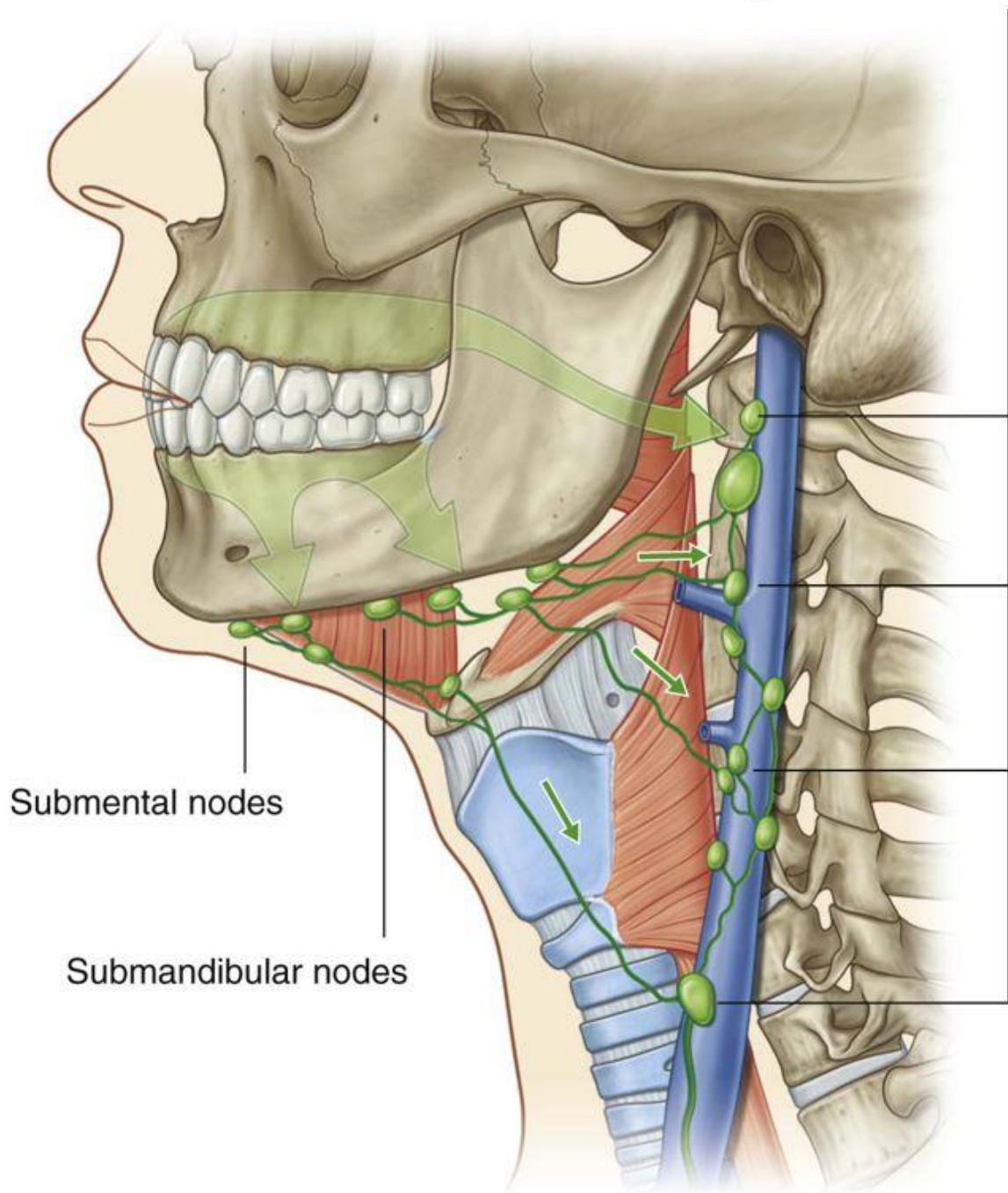
it is at or just inferior to the intermediate tendon of omohyoid



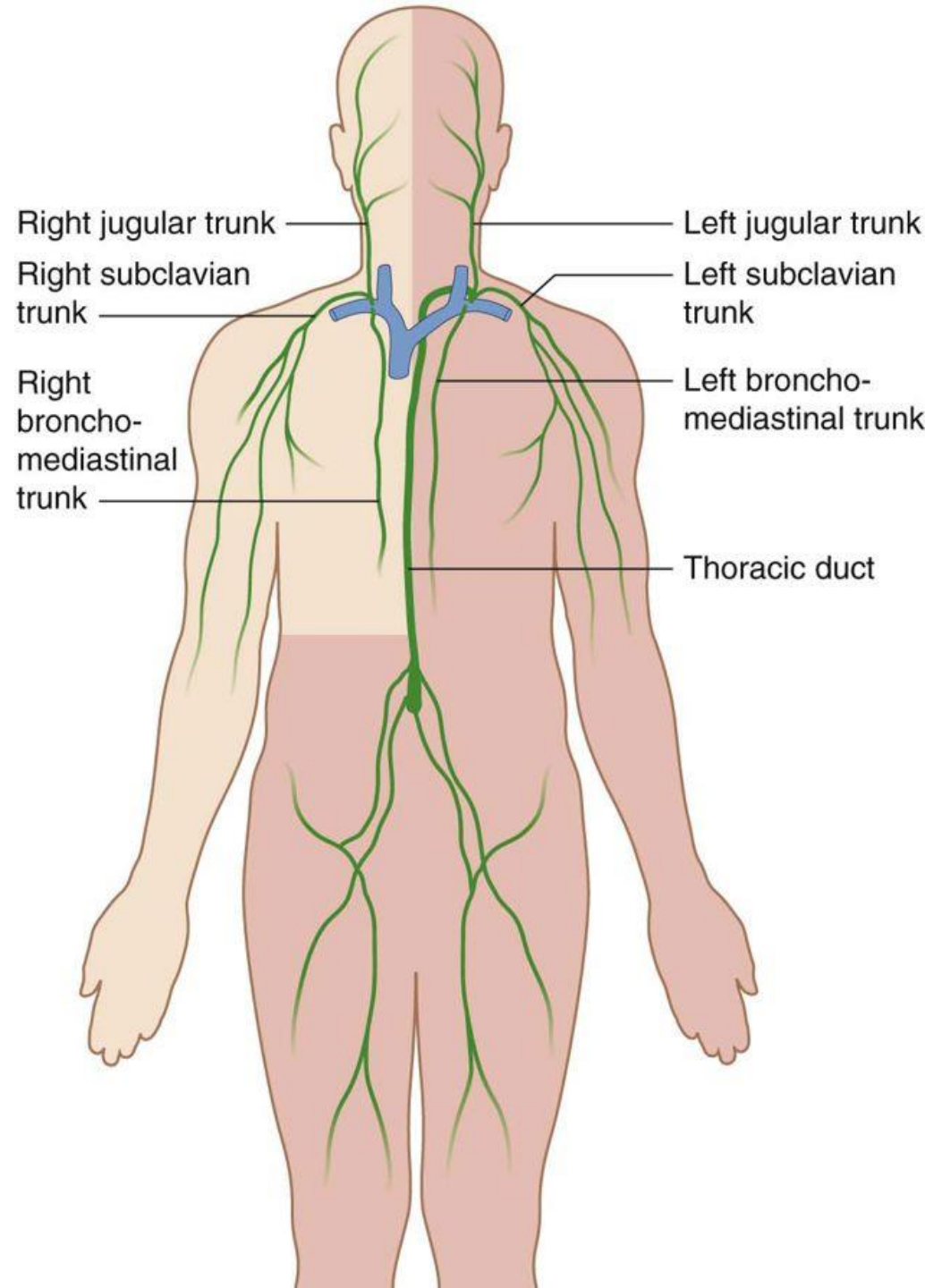
This node receives lymphatic drainage from the tongue

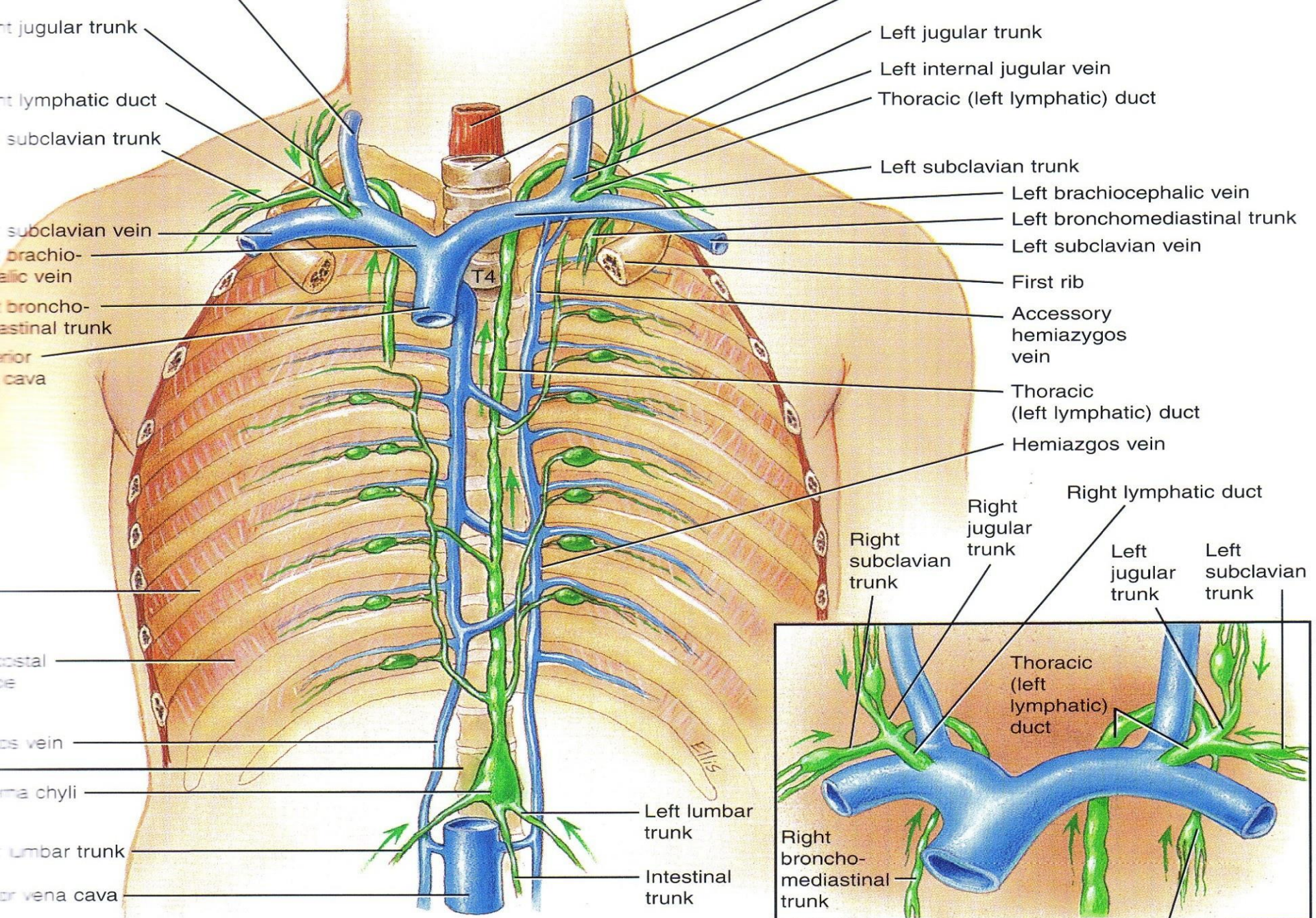


Deep cervical nodes



Fate of lymph drainage of head & neck

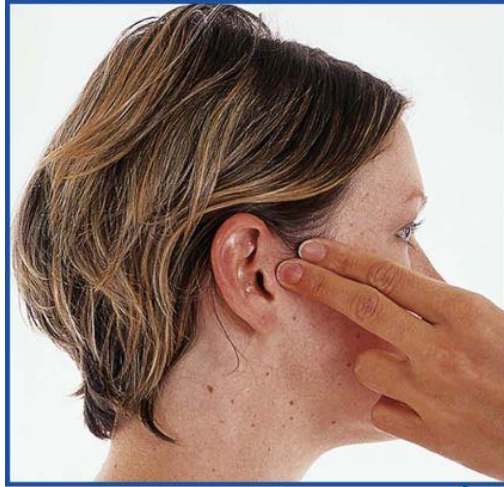




Overall anterior view

Detailed anterior view

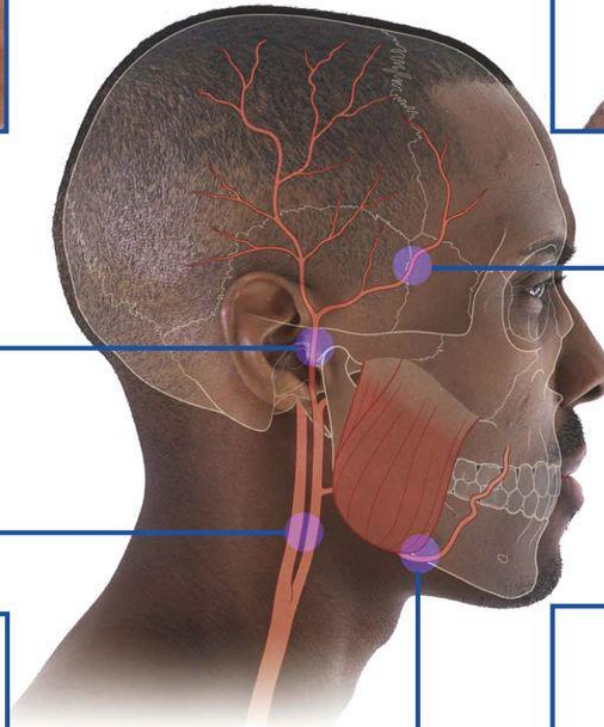
Left bronchomediastinal trunk



Temporal pulse
(superficial temporal artery)



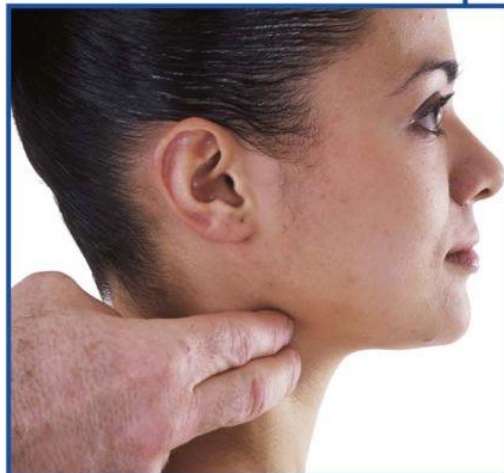
Temporal pulse
(anterior branch of
superficial temporal artery)



Carotid pulse

Facial pulse

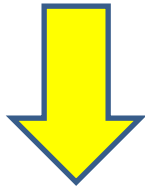
Pulse points
Where to take
arterial pulses in the
head and neck



Carotid pulse

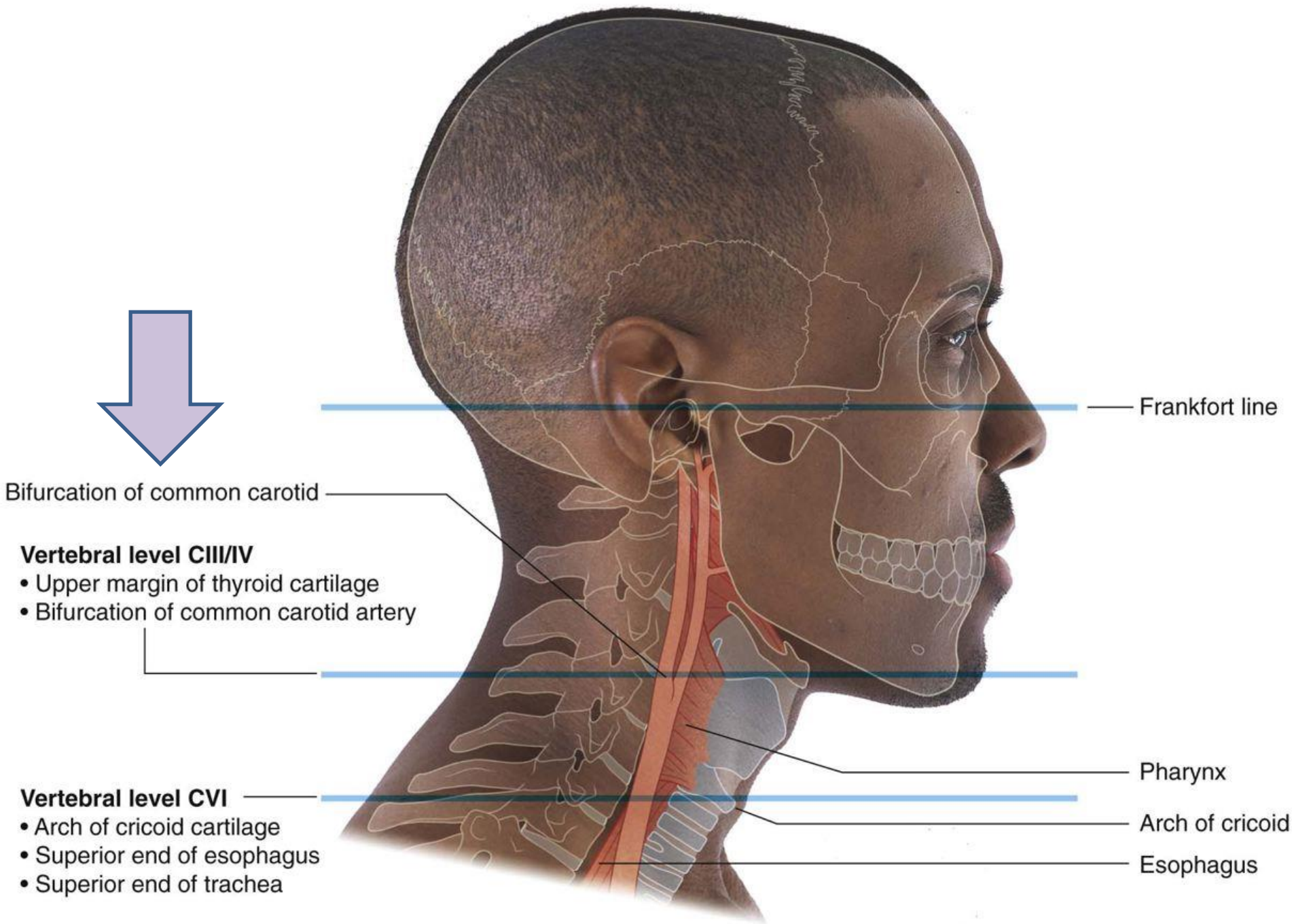
The carotid pulse is the strongest

To check *carotid pulse*

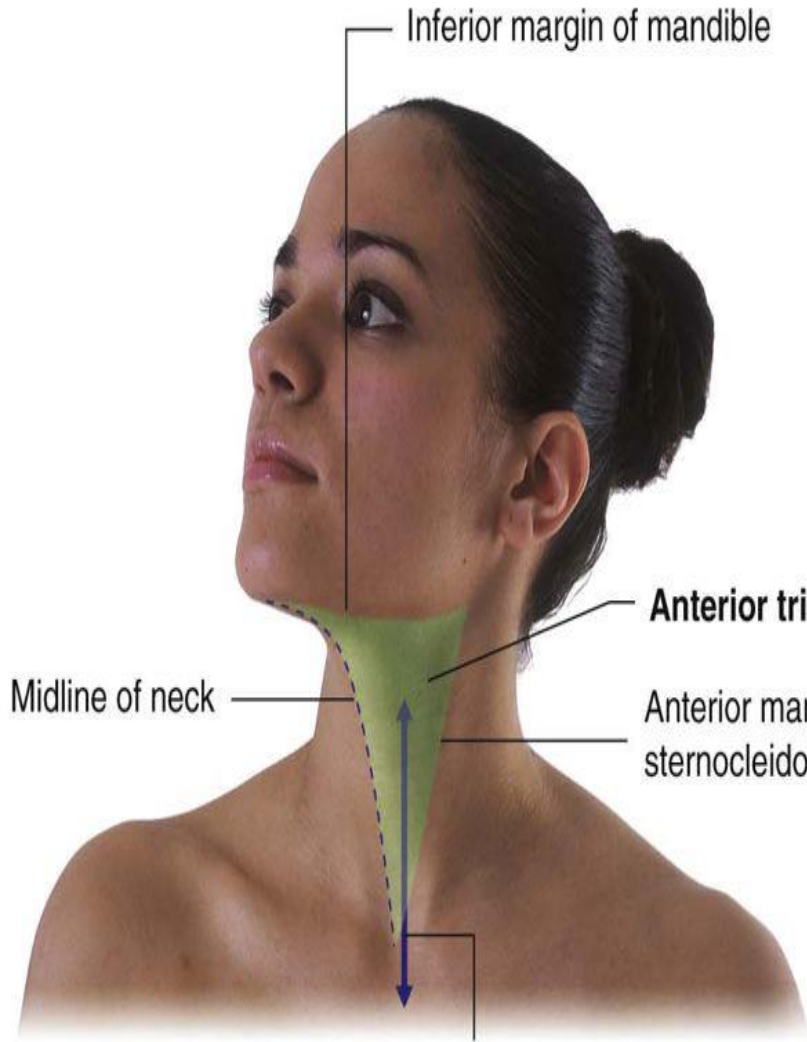


Place your index and middle fingers on the neck to the side of larynx (in carotid triangle), under the angle of the mandible



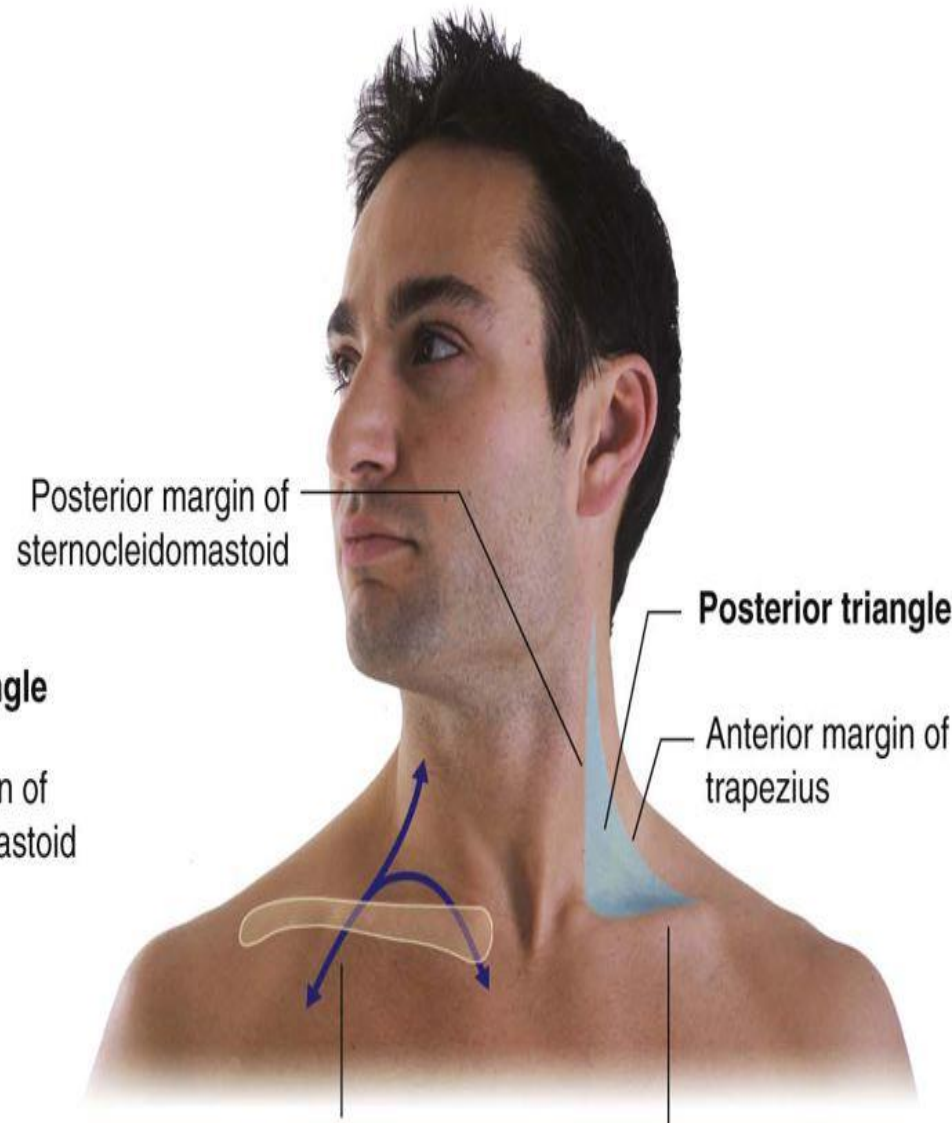


How to outline the anterior and posterior triangles of the neck



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

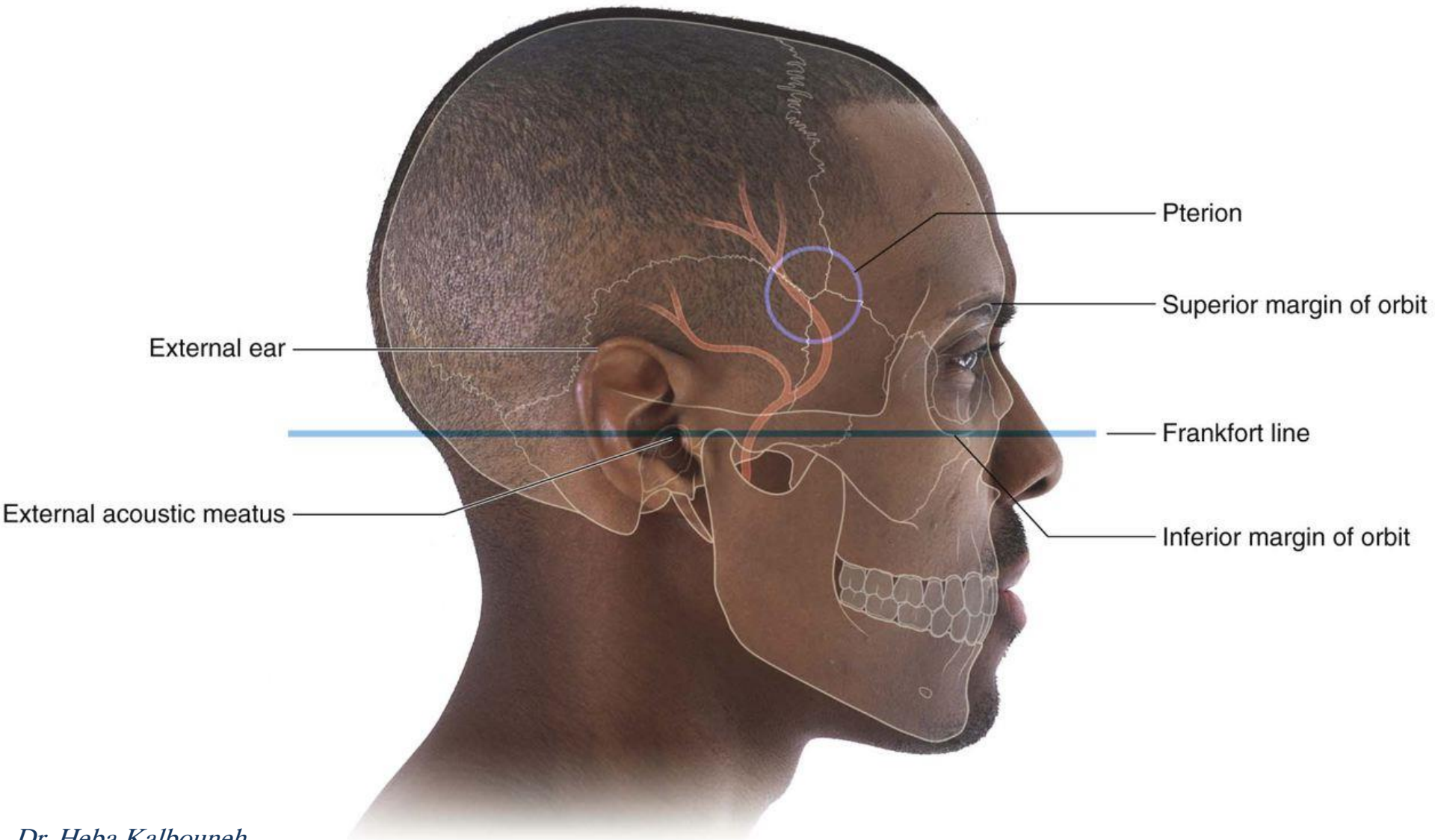
A



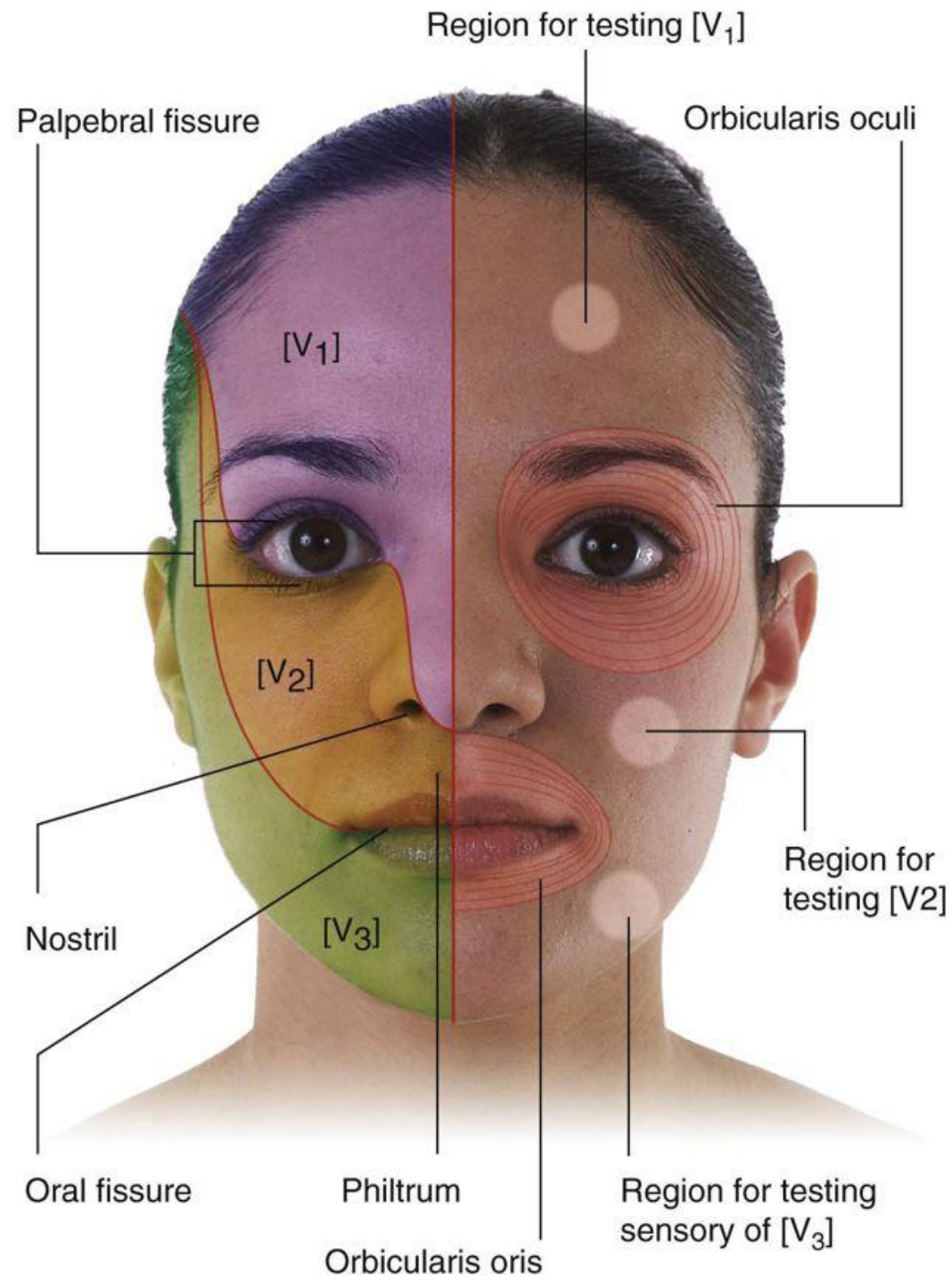
Structures coursing between thorax/neck and upper limb are associated with the posterior triangles

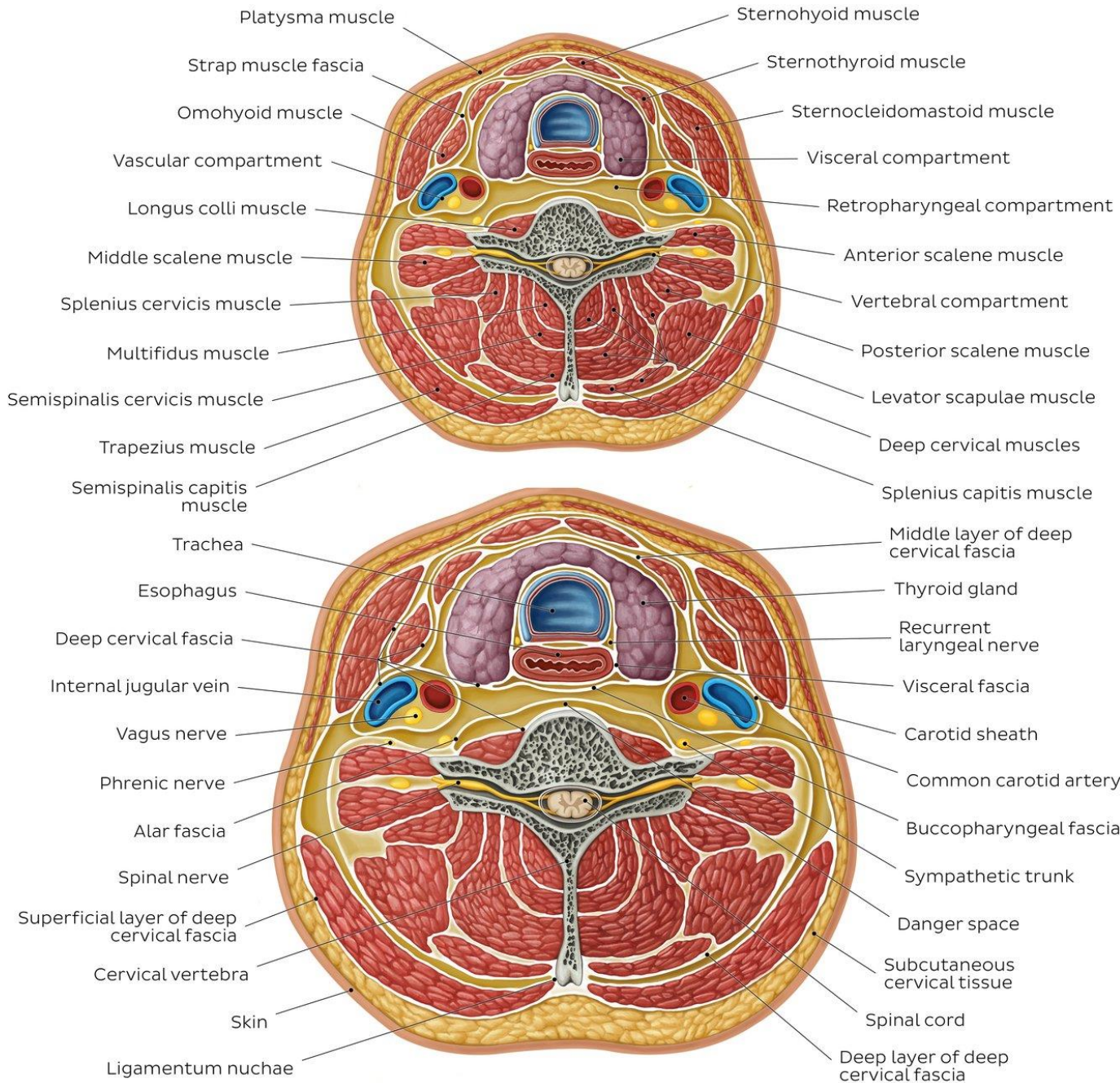
B

Estimating the position of the middle meningeal artery



Major features of the face





Anterior triangle

Carotid triangle

Submandibular triangle

Submental triangle

Muscular triangle

Posterior triangle

Occipital triangle

Omoclavicular triangle

