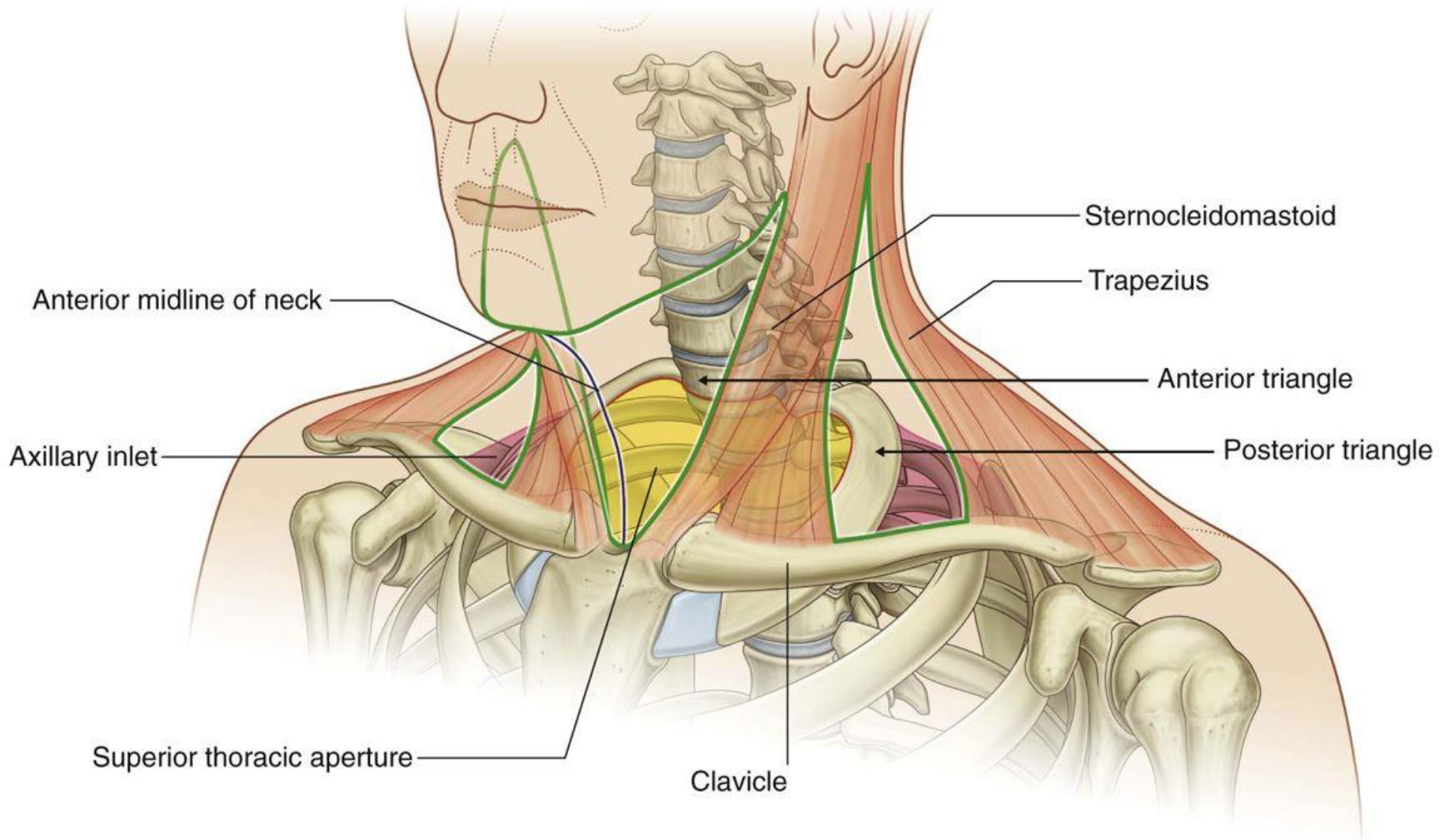




# Neck-2

Dr. Heba Kalbouneh  
Associate Professor of Anatomy and Histology

# Triangles of the neck



# Side of the neck

Midline

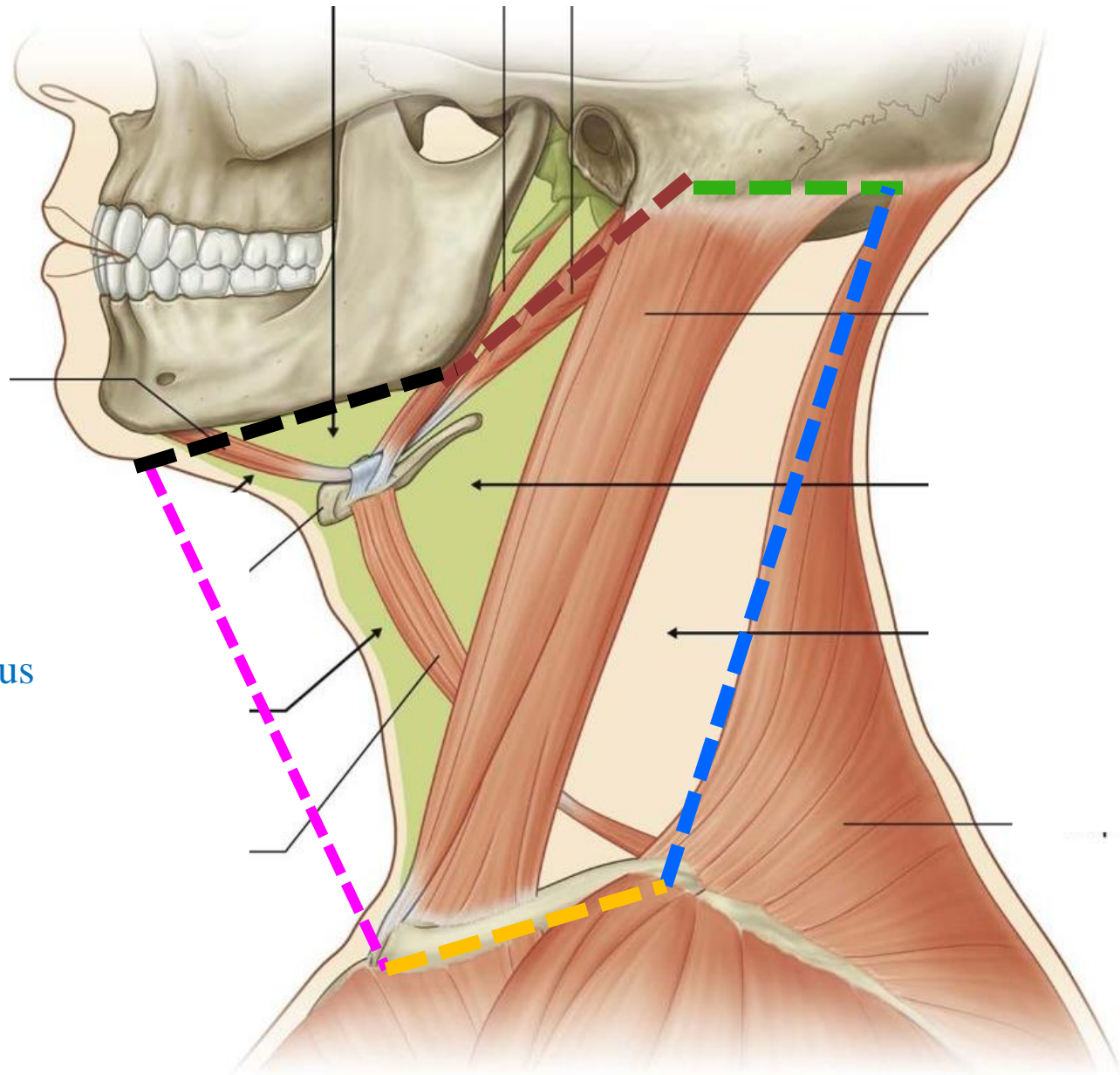
Lower border of mandible

Line between angle of mandible and mastoid

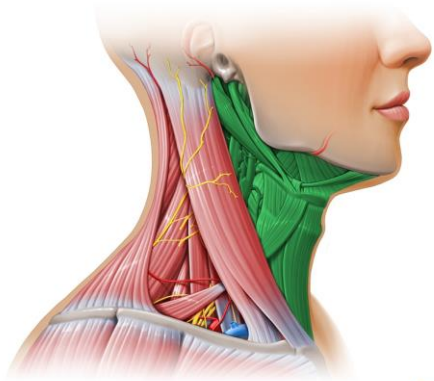
Superior nuchal line

Anterior border of trapezius

Clavicle

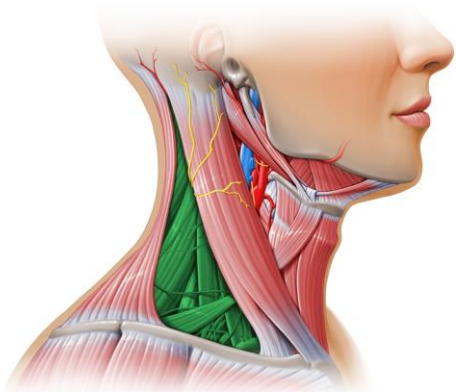


Sternocleidomastoid divides the neck into anterior and posterior triangles



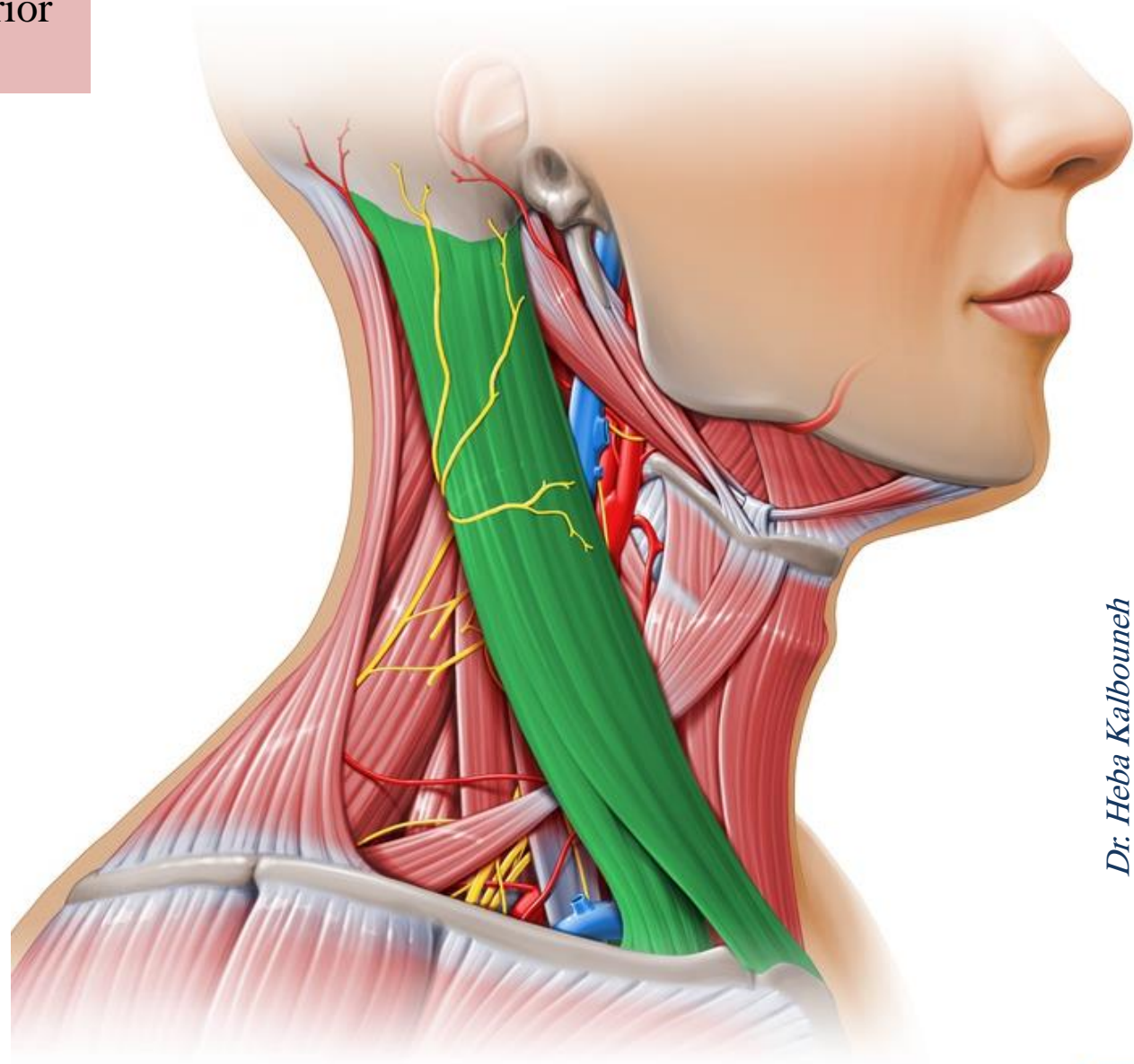
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Dr. Heba Kalbouneh

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# Posterior triangle

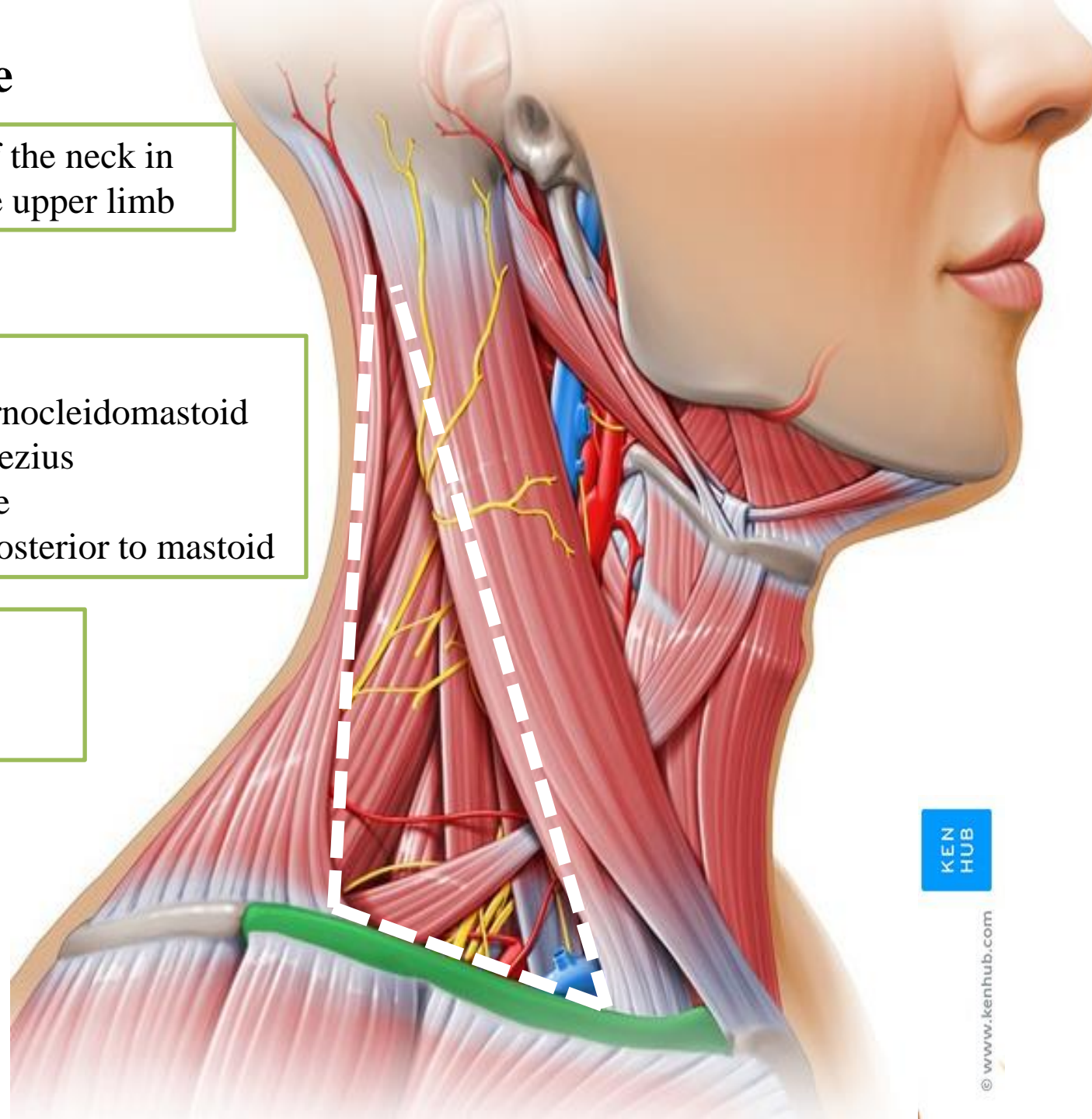
Is on the lateral aspect of the neck in direct continuity with the upper limb

## 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



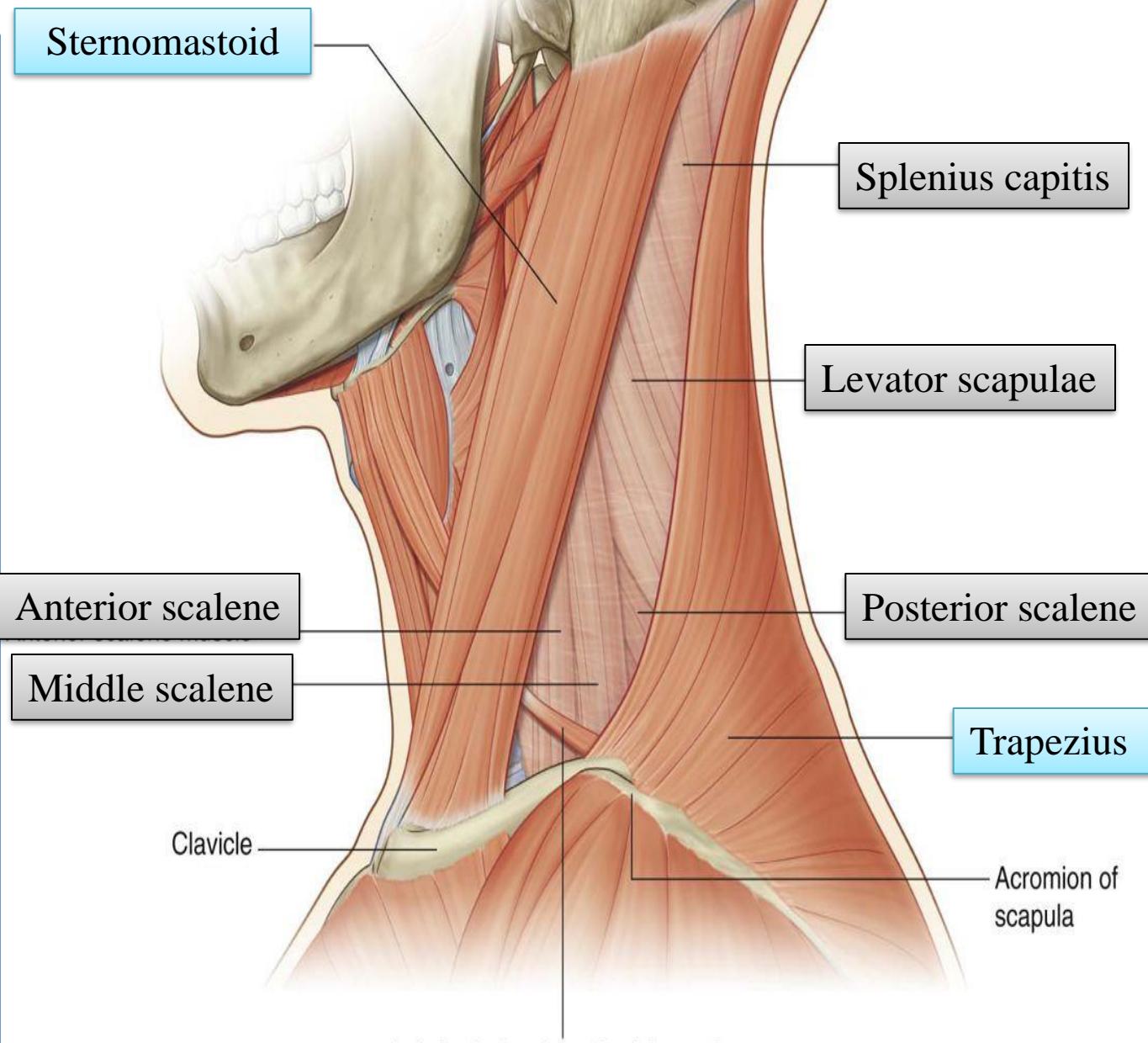
# Posterior Triangle

## Floor:

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

## Roof:

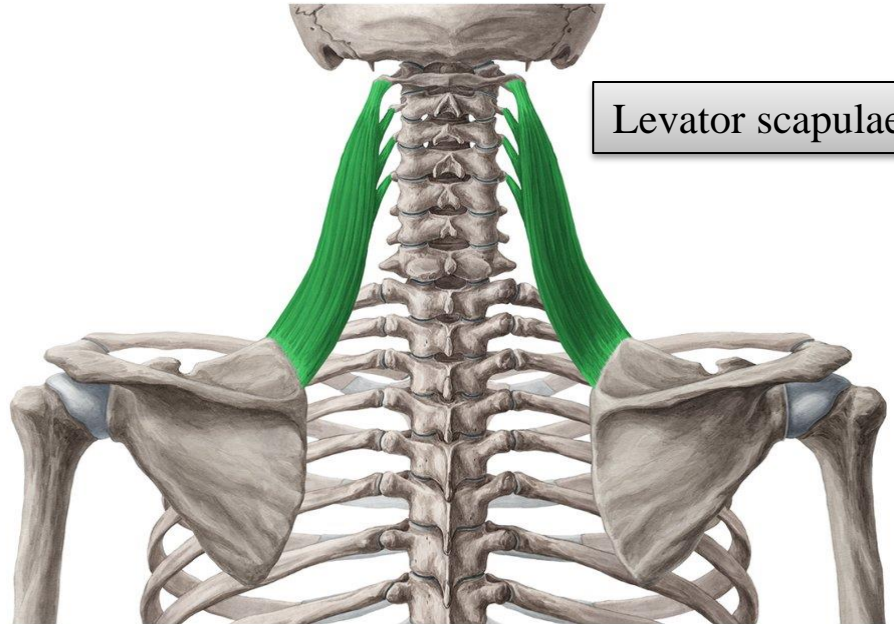
Investing layer of cervical fascia that surrounds sternomastoid and trapezius muscles



Splenius capitis



Levator scapulae



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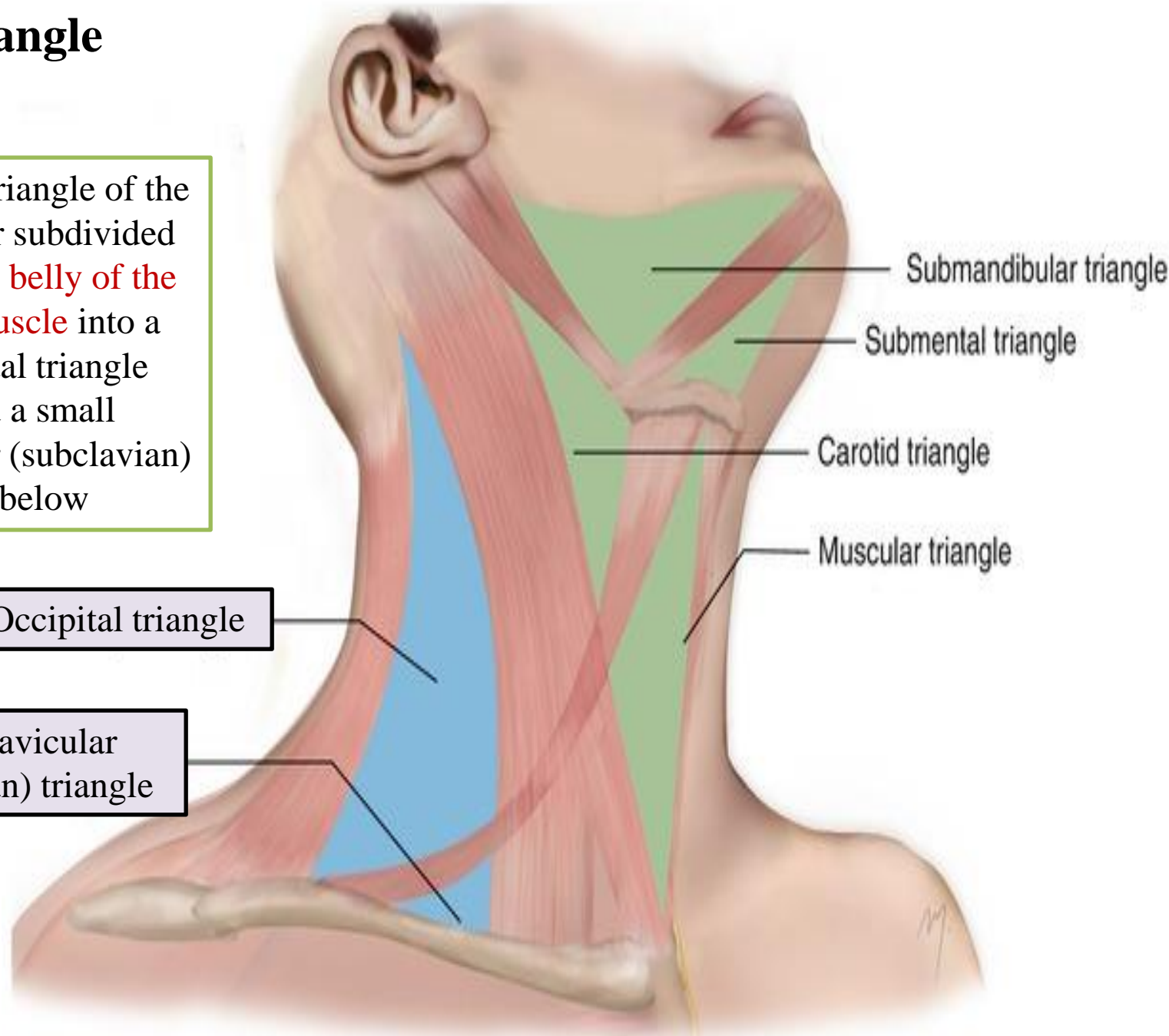


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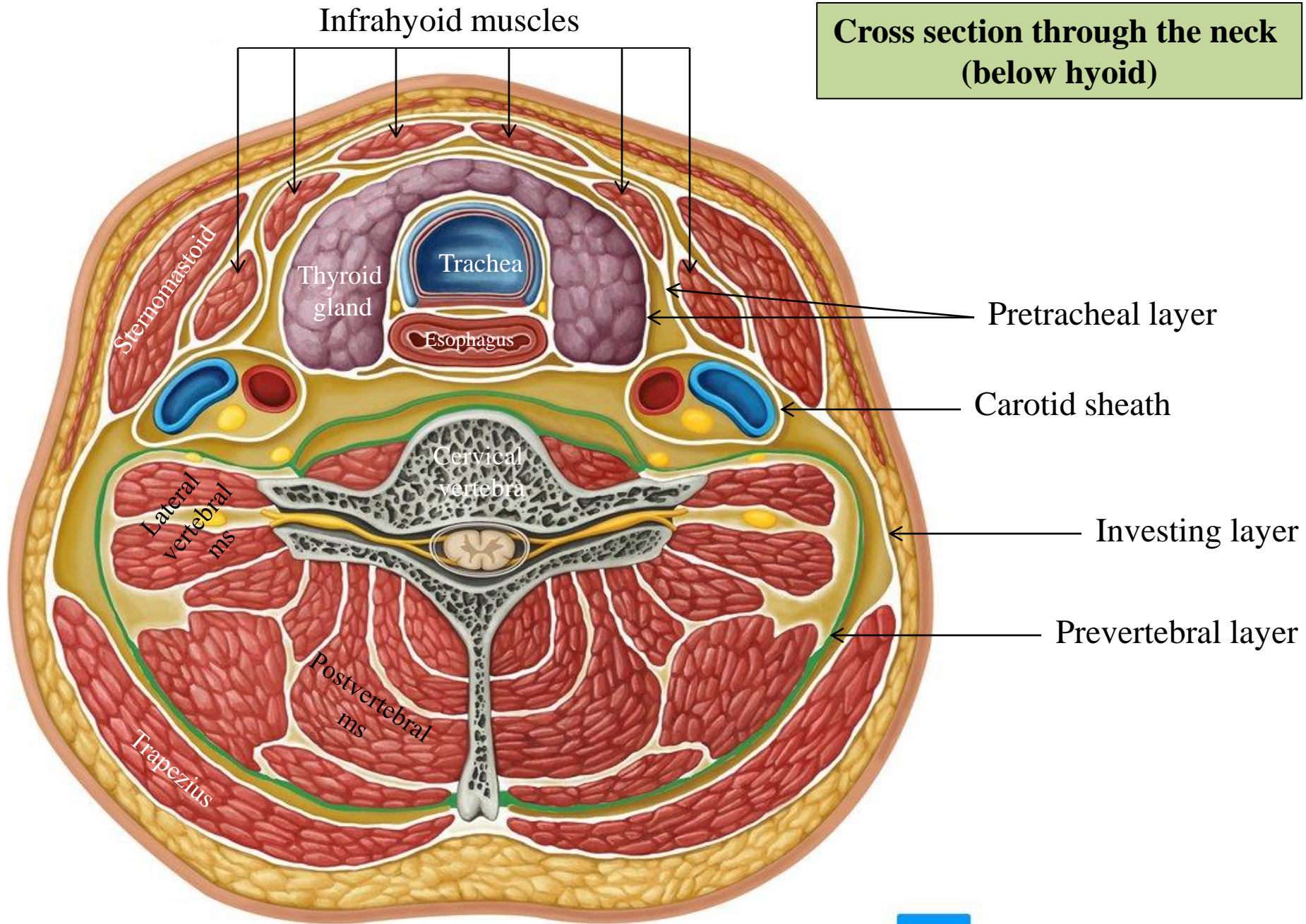
*Dr. Heba Kalbouneh*

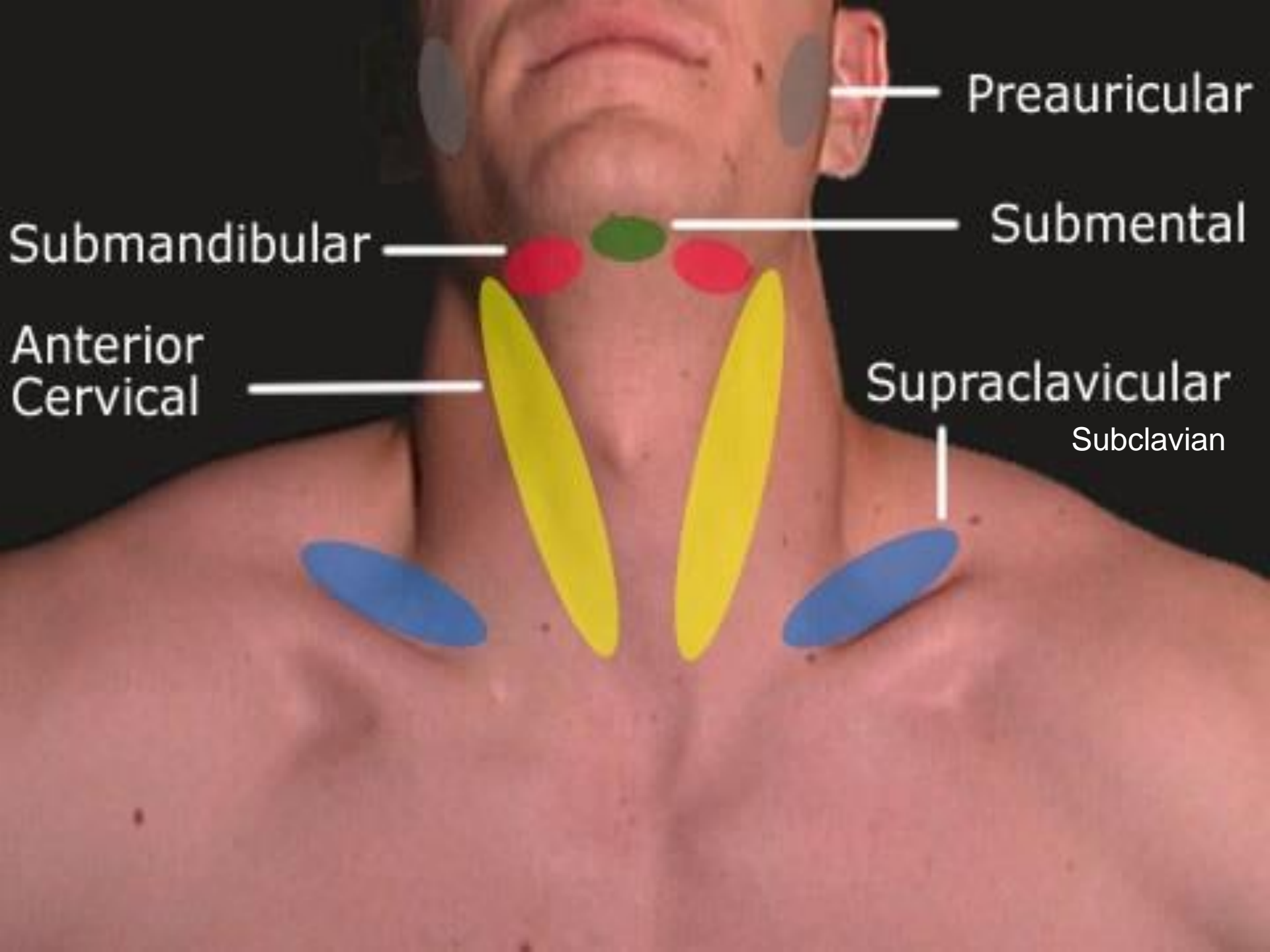
# Posterior triangle

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









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:

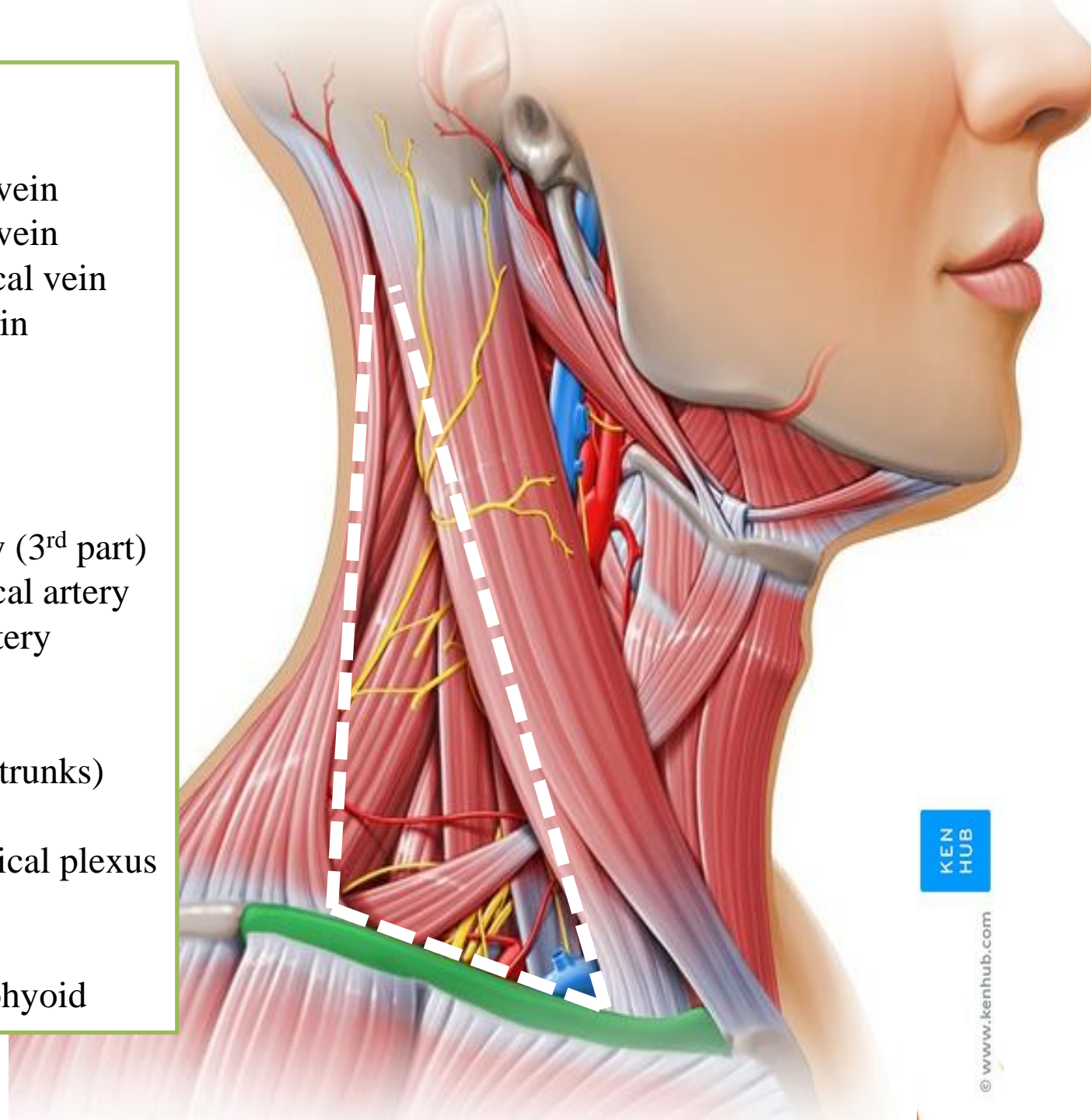
1. Occipital artery
2. Subclavian artery (3<sup>rd</sup> part)
3. Transverse cervical artery
4. Suprascapular artery

## 3 Nerves

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

## 1 Muscle

Inferior belly of omohyoid

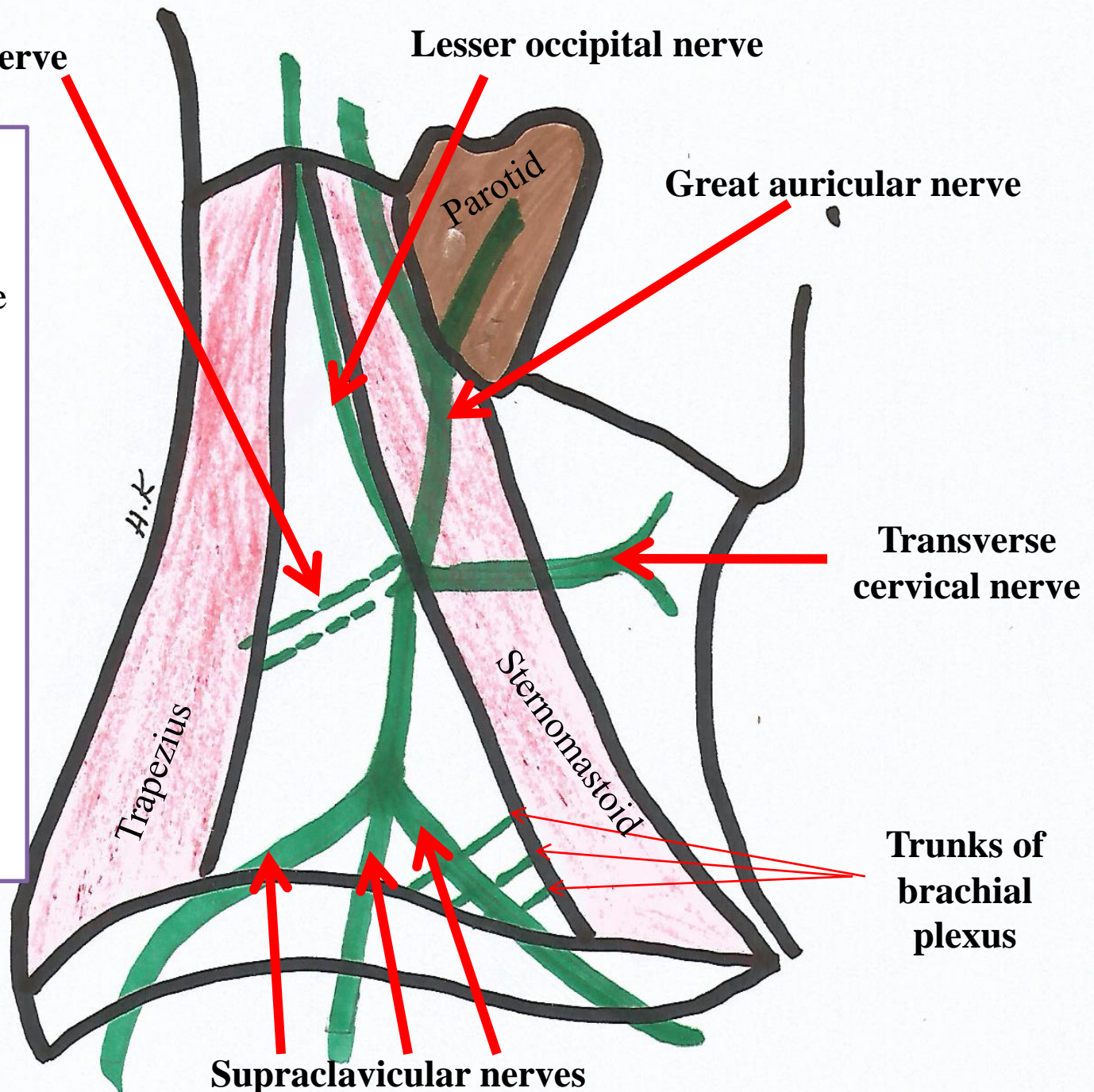


## Spinal accessory nerve

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



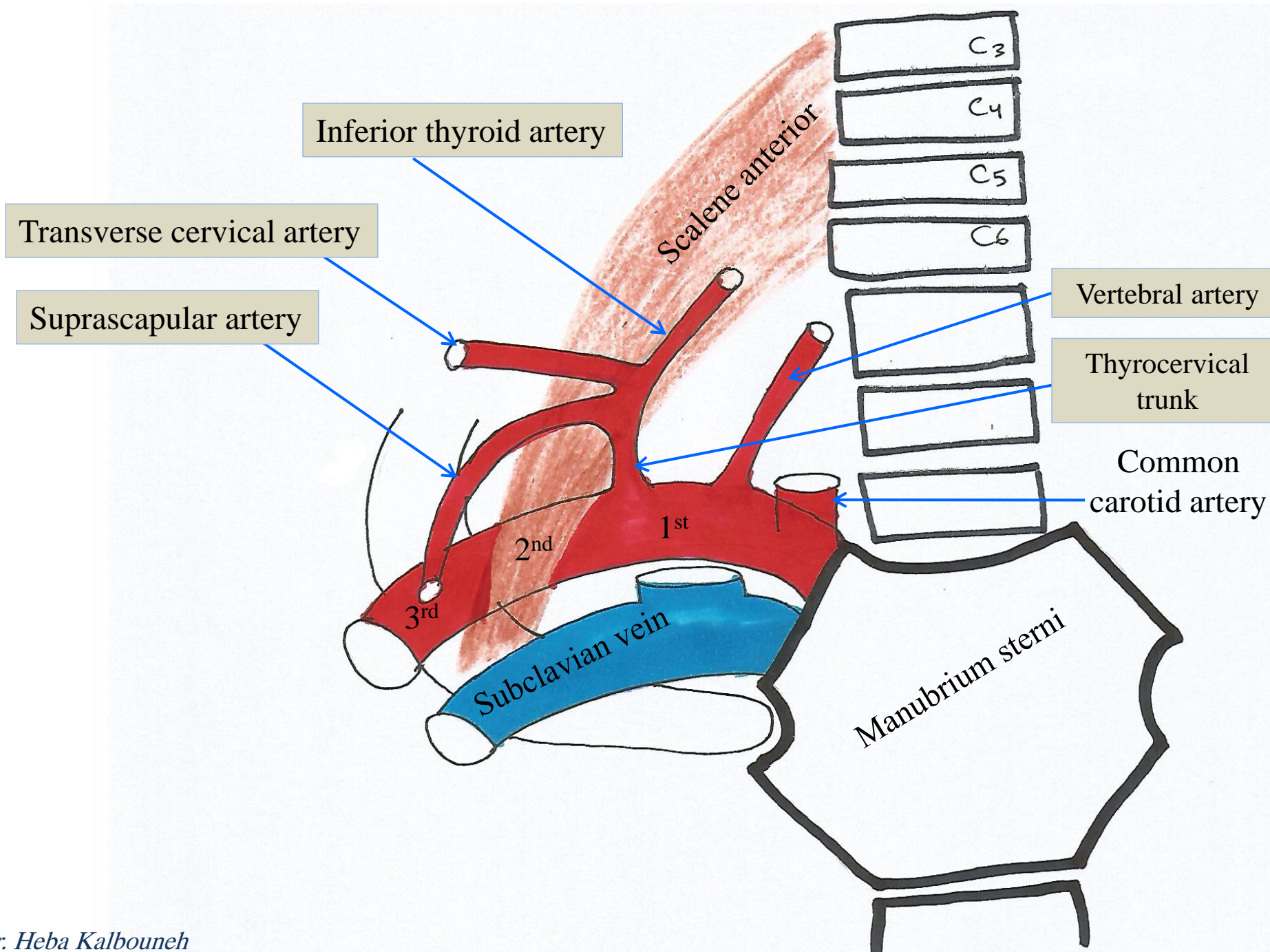
## Lesser occipital nerve

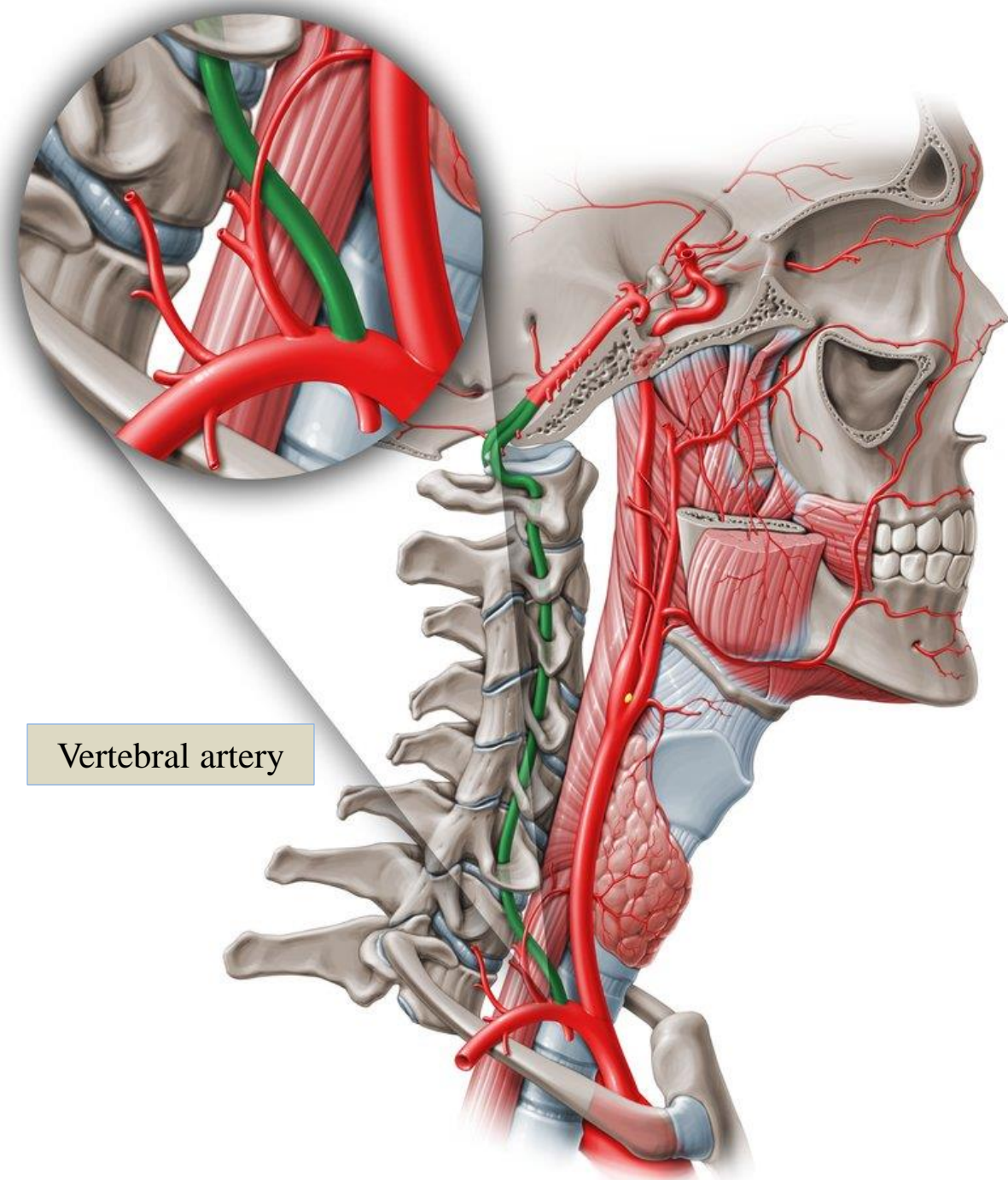
## Great auricular nerve

## Transverse cervical nerve

## Trunks of brachial plexus

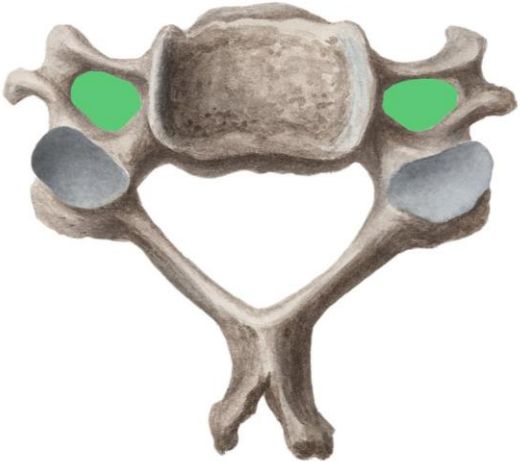
## Supraclavicular nerves

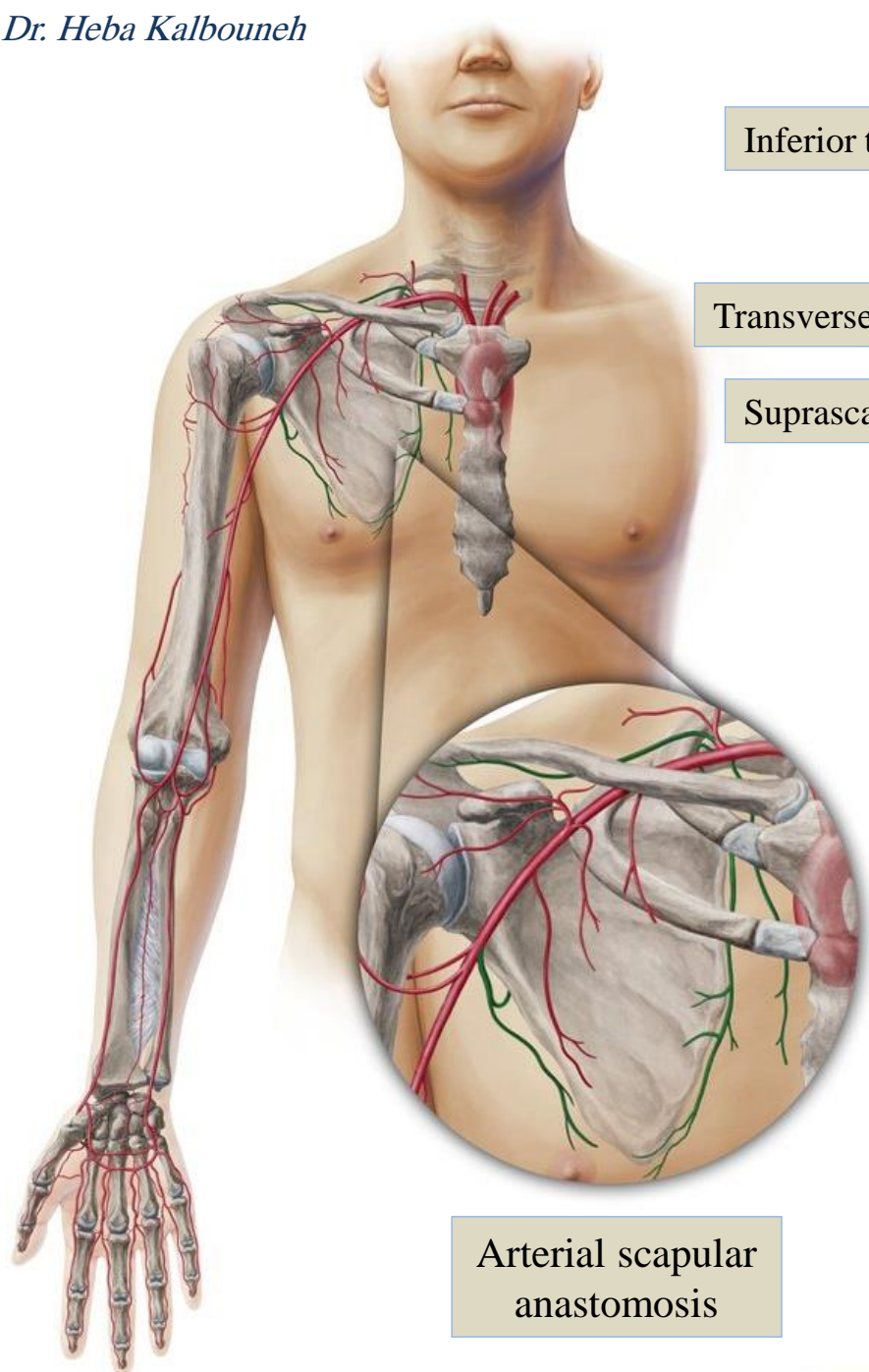




Vertebral artery

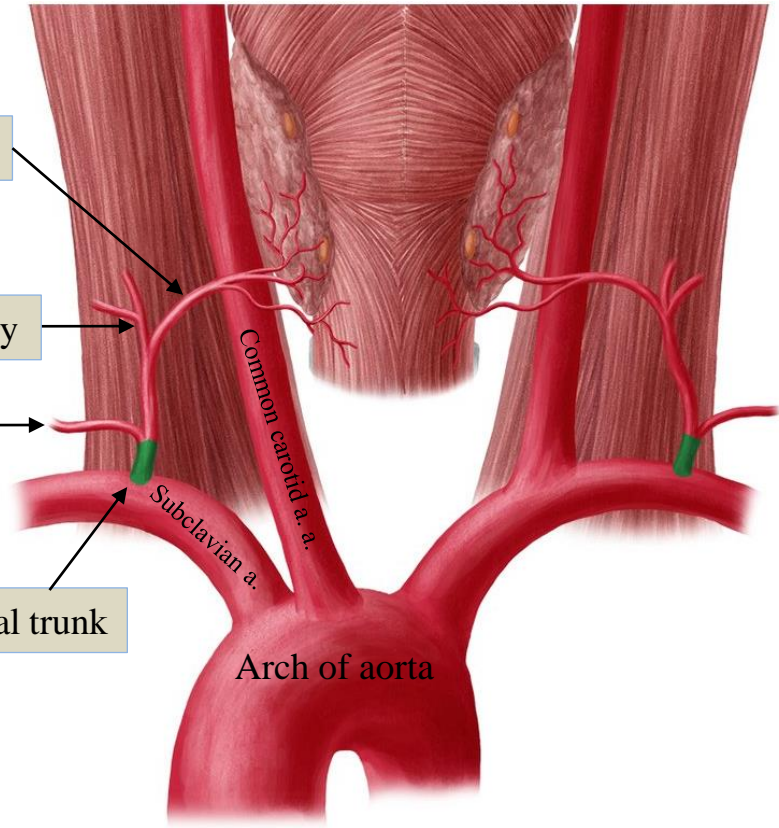
Foramen transversarium



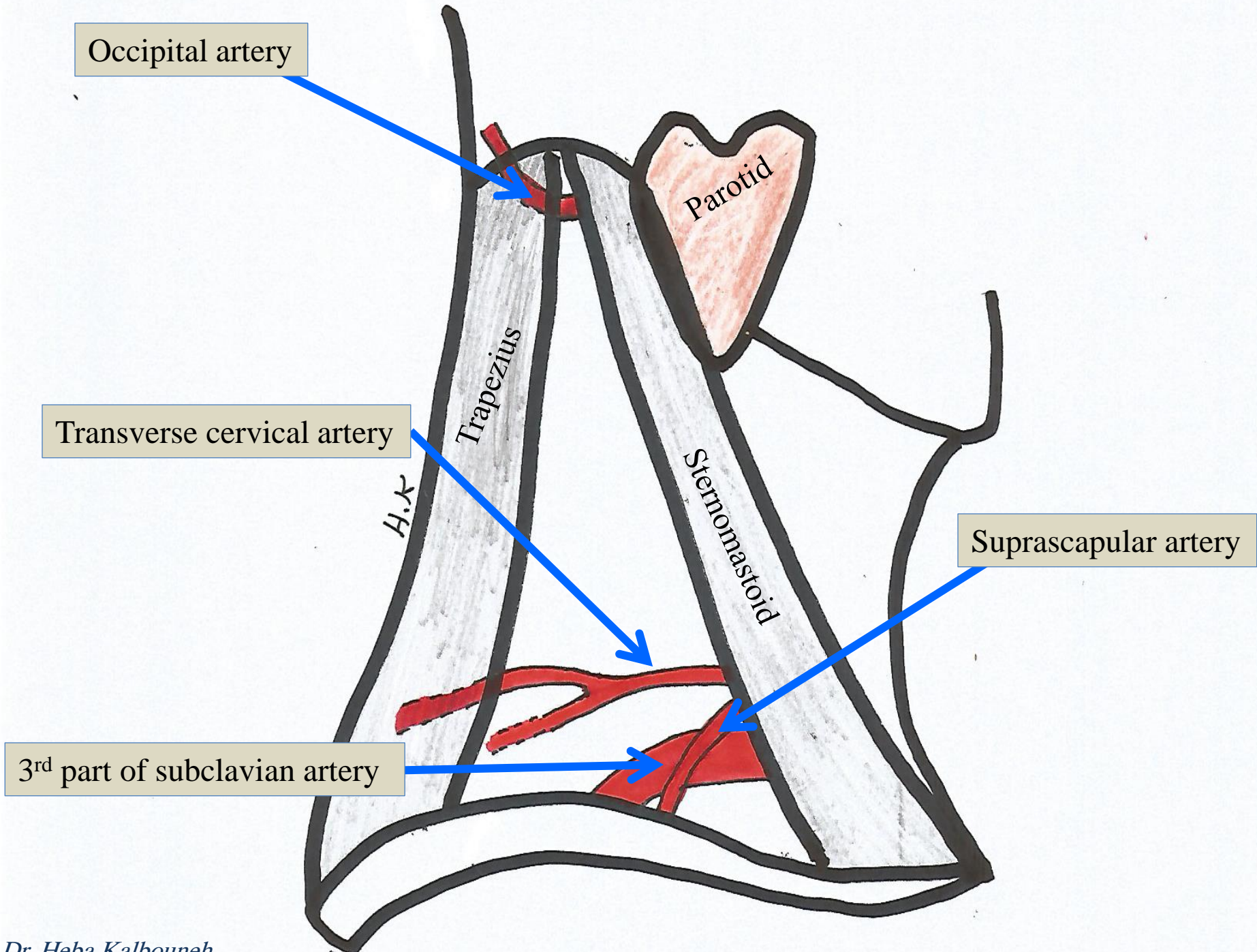


Arterial scapular anastomosis

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



Thyroid gland



Occipital artery

Transverse cervical artery

3<sup>rd</sup> part of subclavian artery

Suprascapular artery

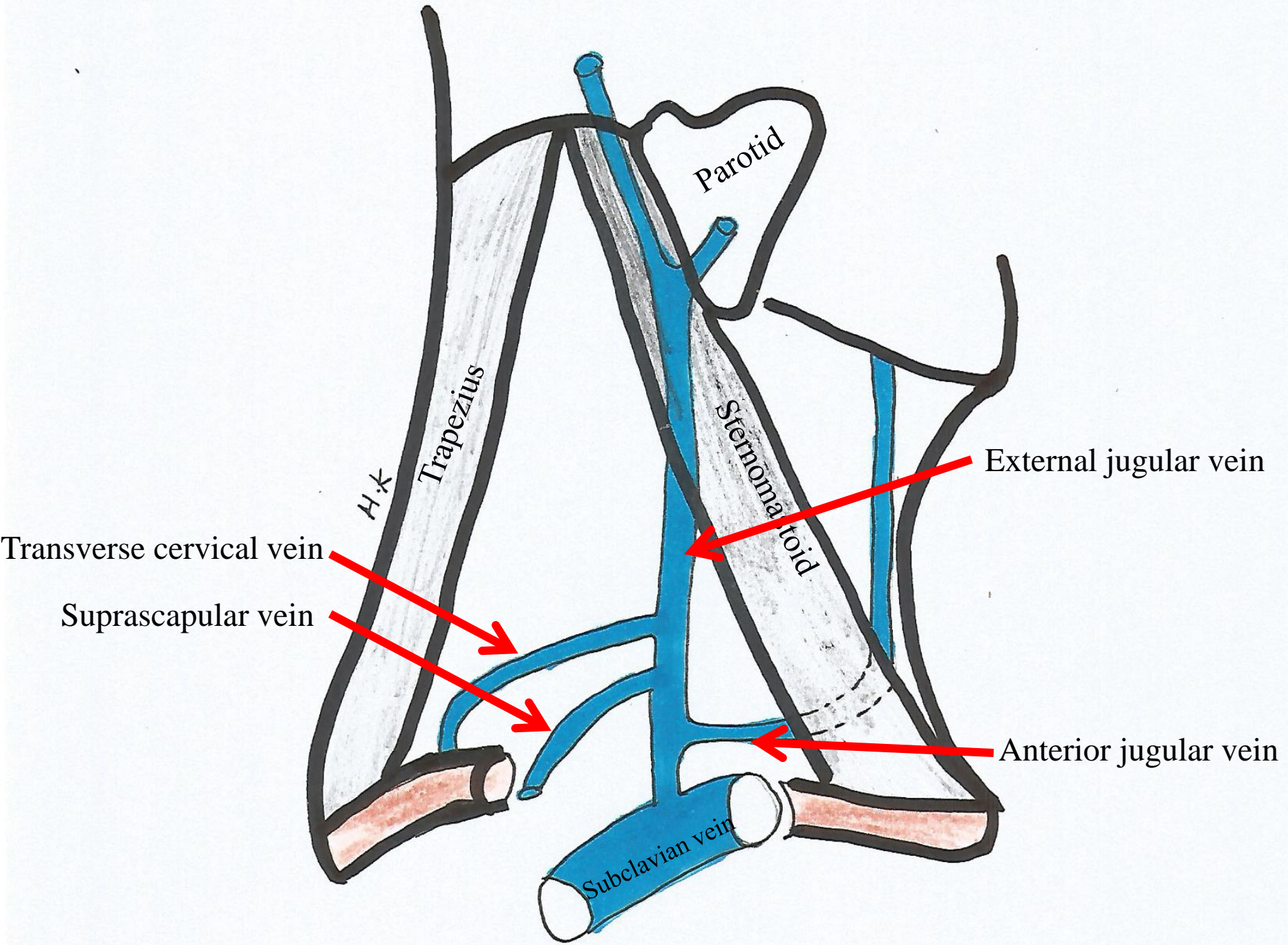
H.K

Trapezius

Sternomastoid

Parotid





Parotid

H.K.  
Trapezius

Sternocleidomastoid

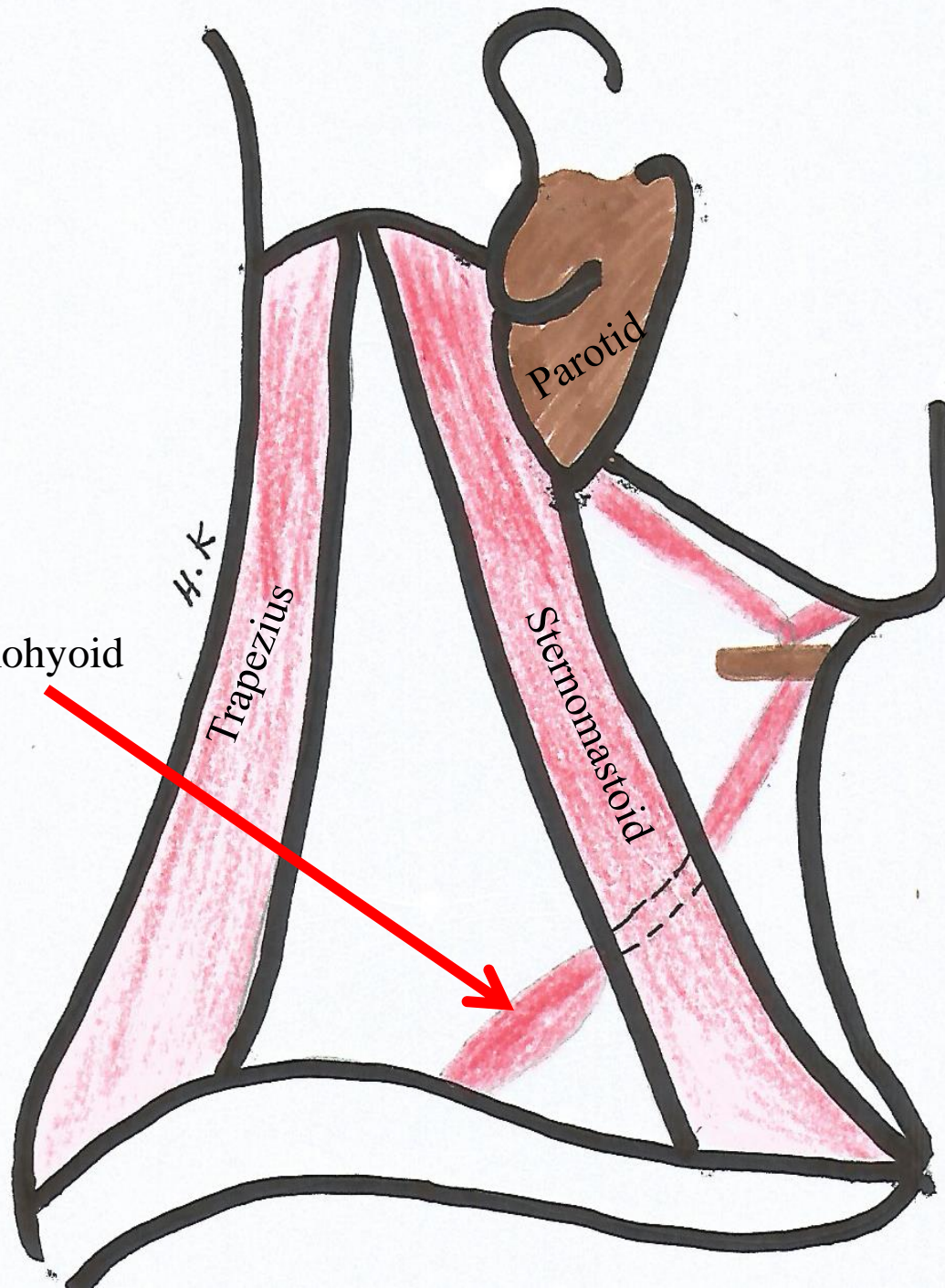
External jugular vein

Transverse cervical vein

Suprascapular vein

Anterior jugular vein

Subclavian vein



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)

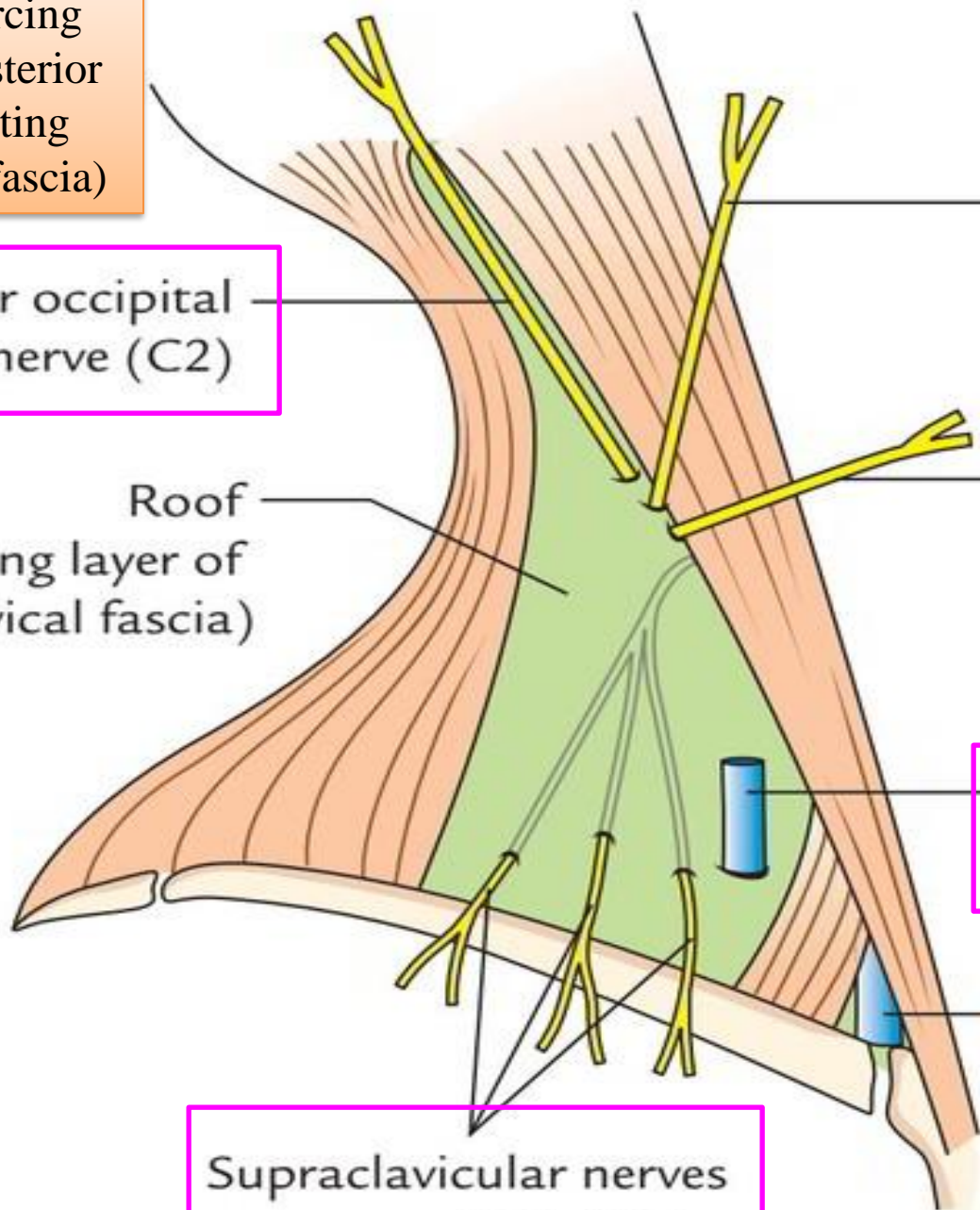
Great auricular nerve (C2, C3)

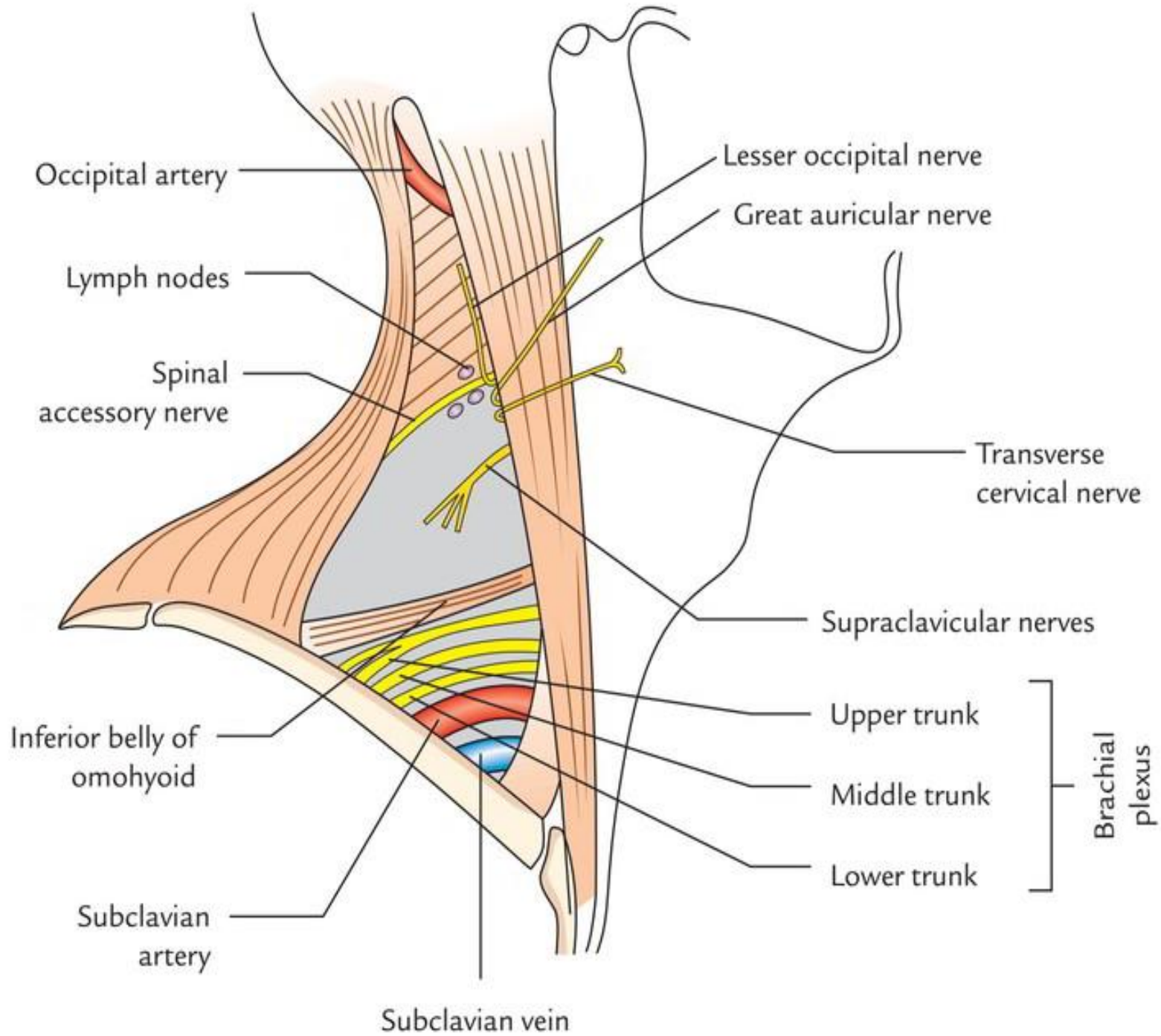
Transverse cervical nerve (C2, C3)

External jugular vein

Internal jugular vein

Supraclavicular nerves (C3, C4)





# Anterior triangle

## Boundaries:

### - Superiorly:

Body of the mandible

### - Posteriorly:

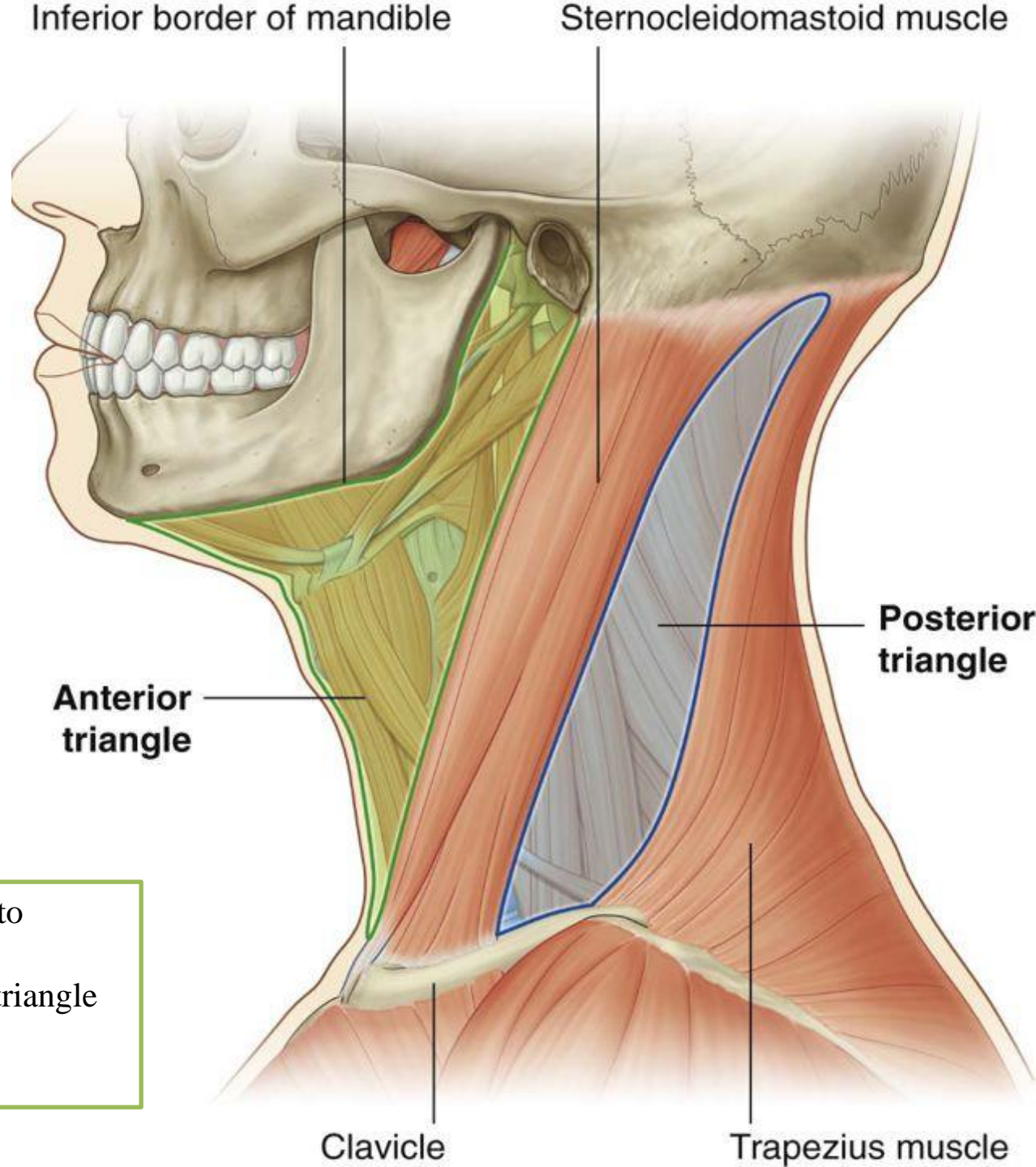
Sternocleidomastoid

### - Anteriorly:

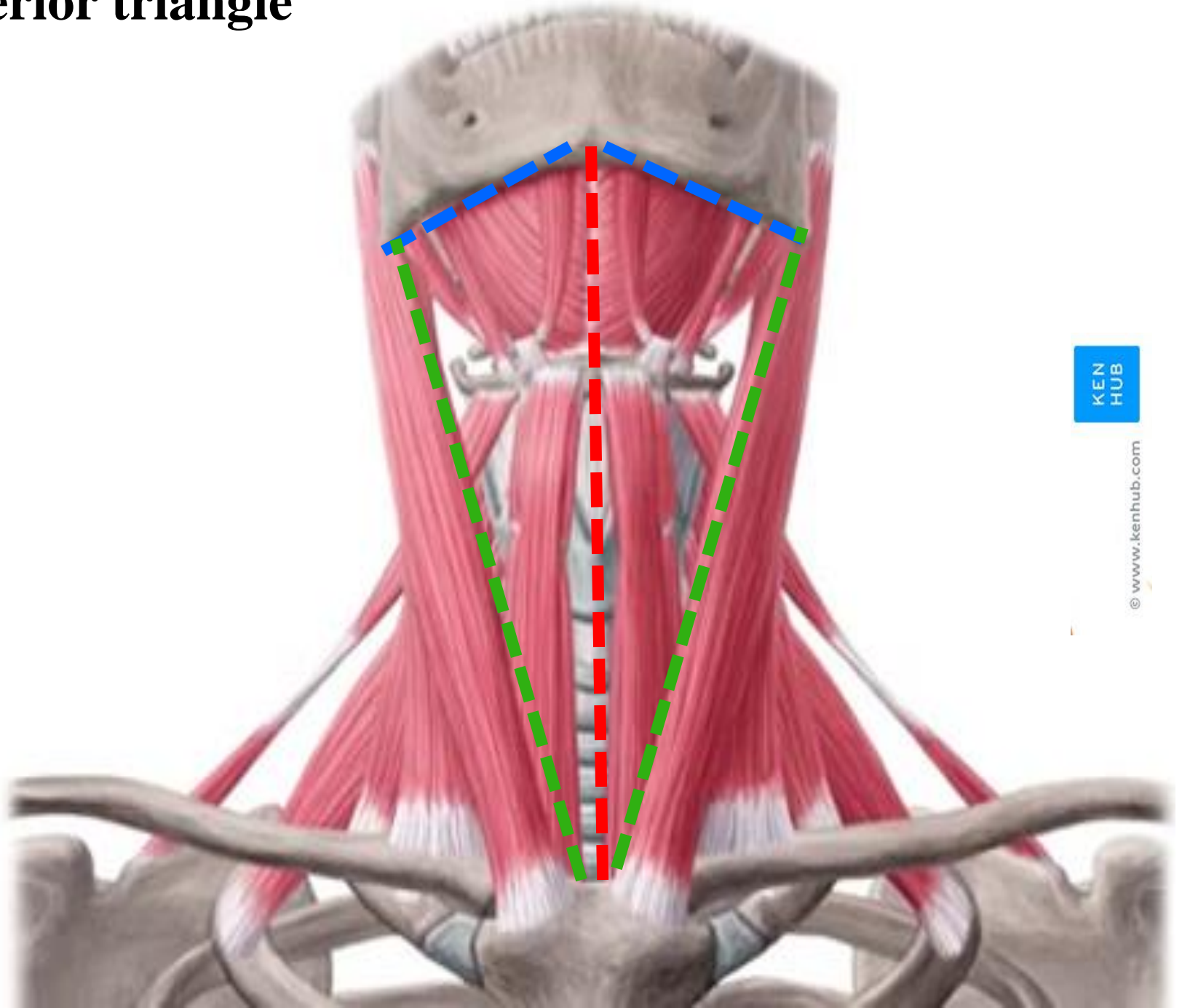
Midline



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

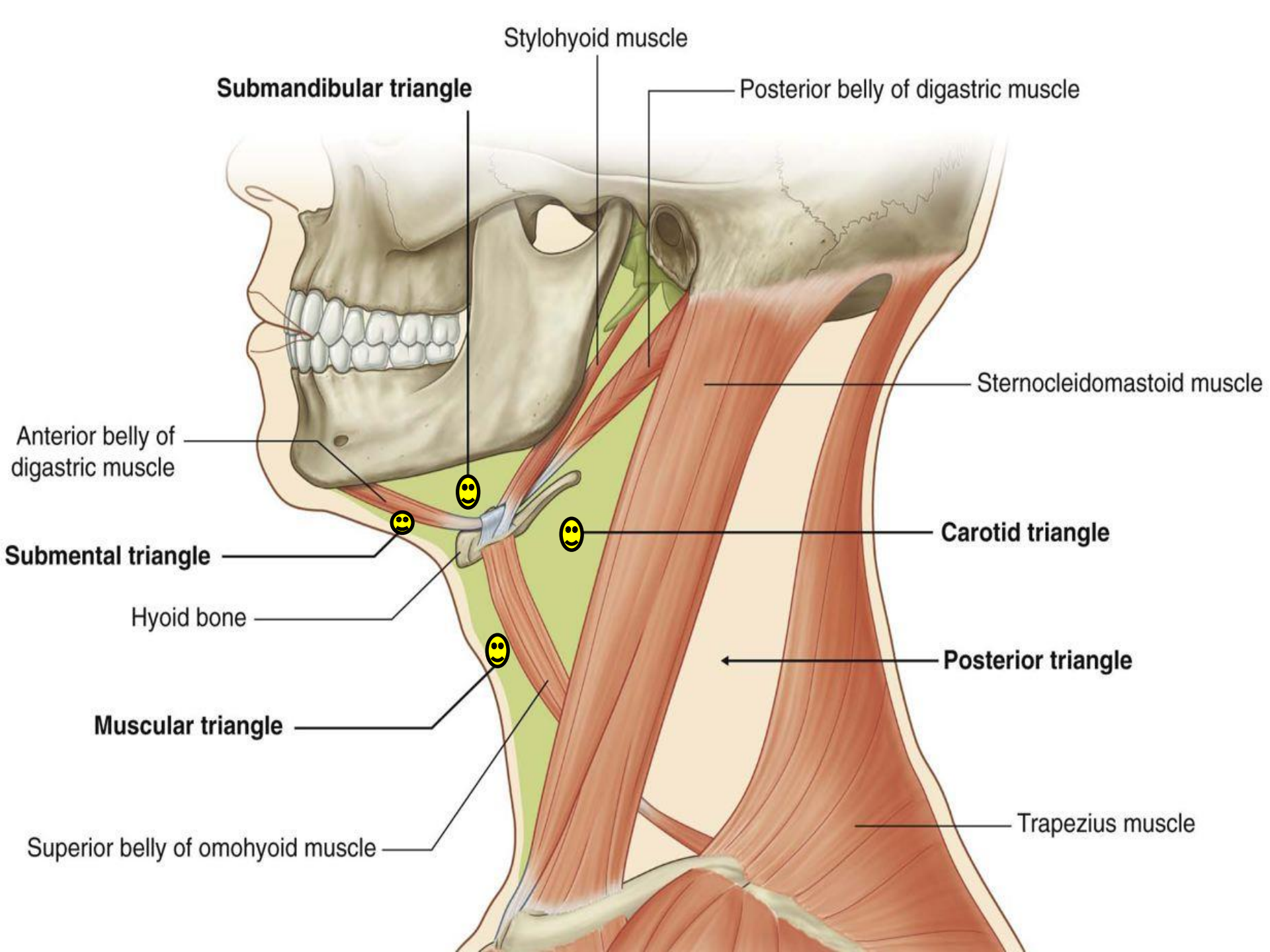


# Anterior triangle



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## Carotid triangle

### Boundaries:

#### Superior:

Posterior belly of digastric

#### Lateral:

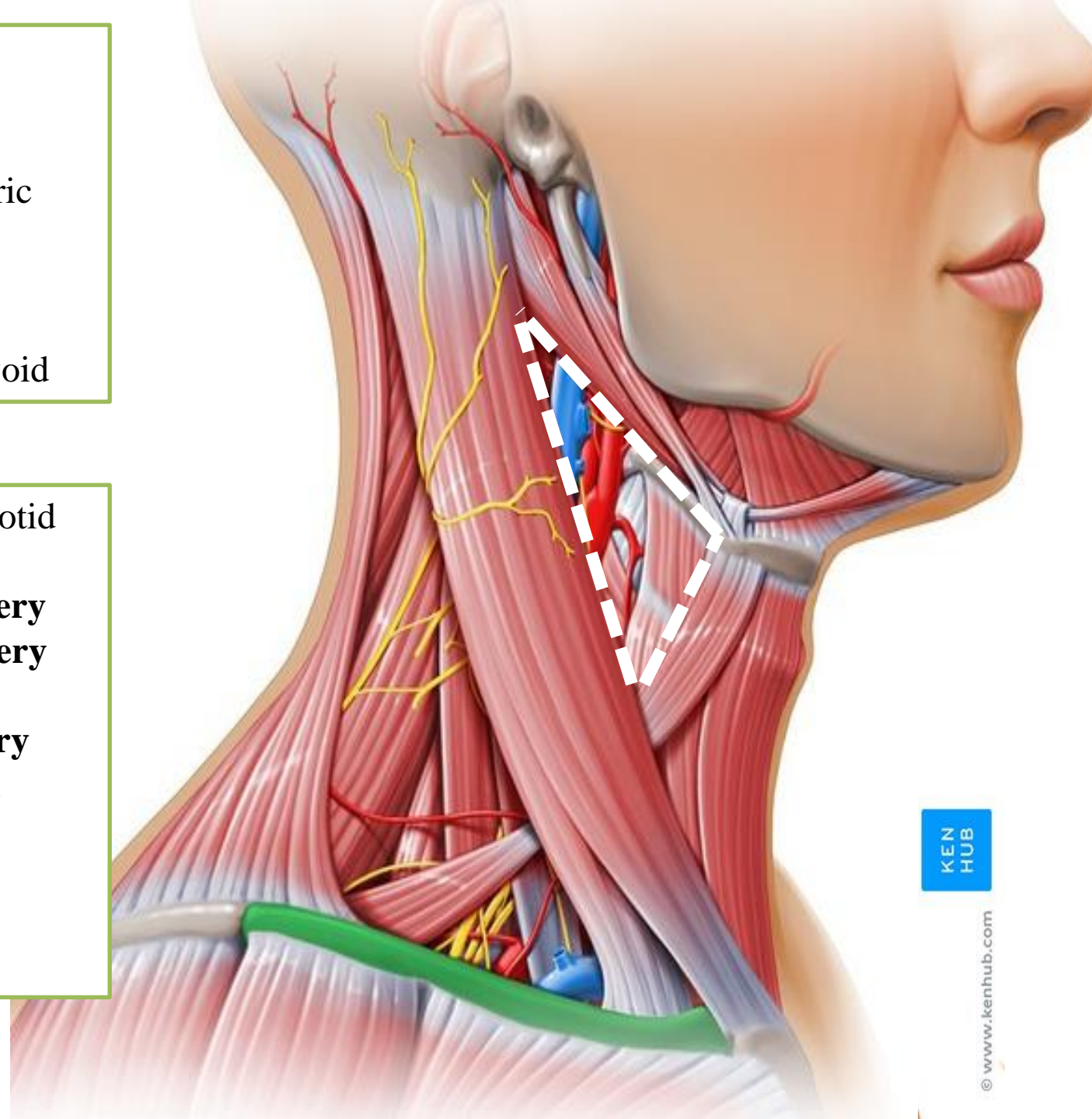
Sternocleidomastoid

#### Inferior:

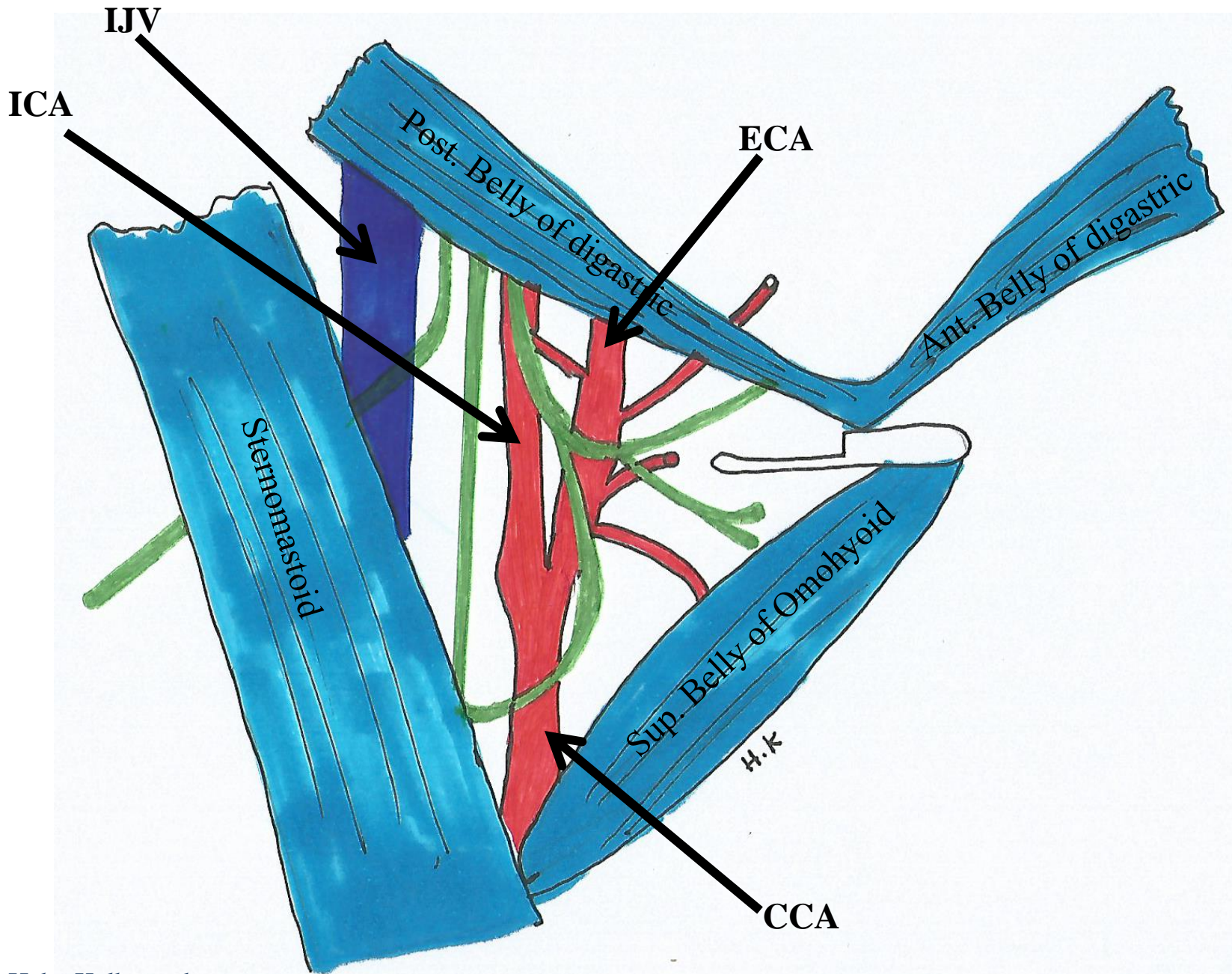
Superior belly of omohyoid

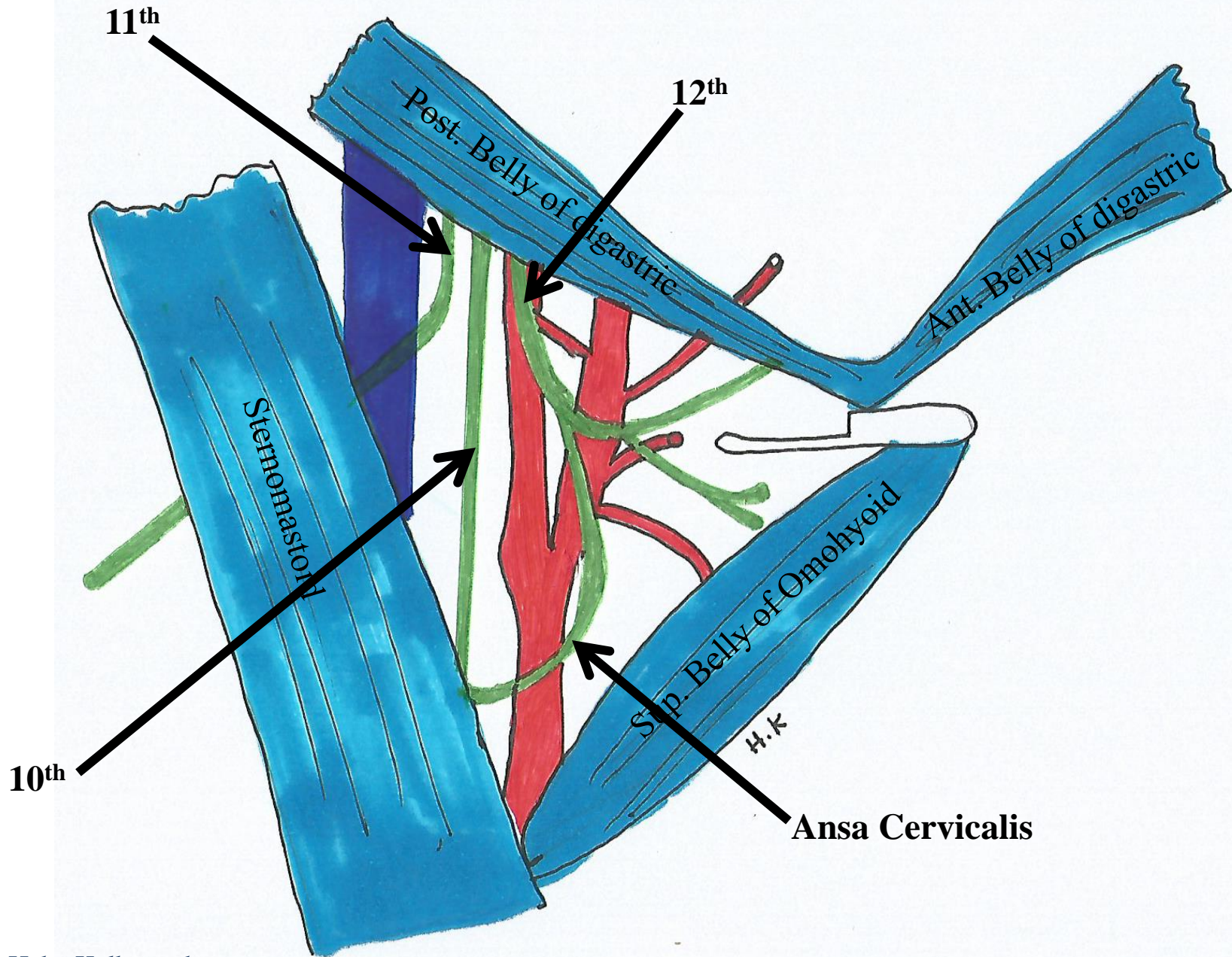
The main contents of carotid triangle are:

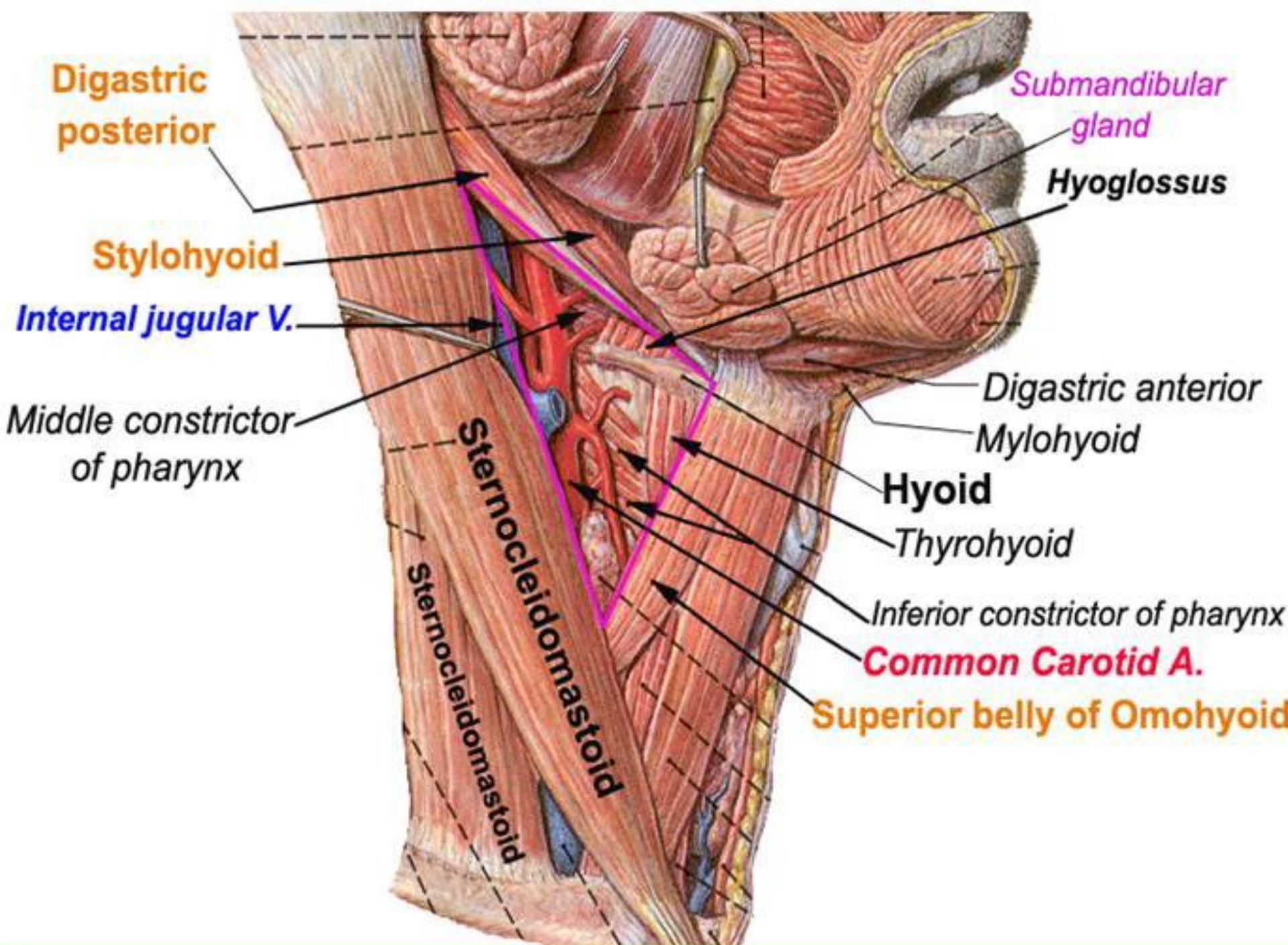
- 1- Common carotid artery
- 2- External carotid artery (and lower 5 branches)
- 3- Internal carotid artery
- 4- Internal jugular vein
- 6- Vagus nerve
- 7- Accessory nerve
- 8- Hypoglossal nerve
- 9- Ansa cervicalis











## **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:**

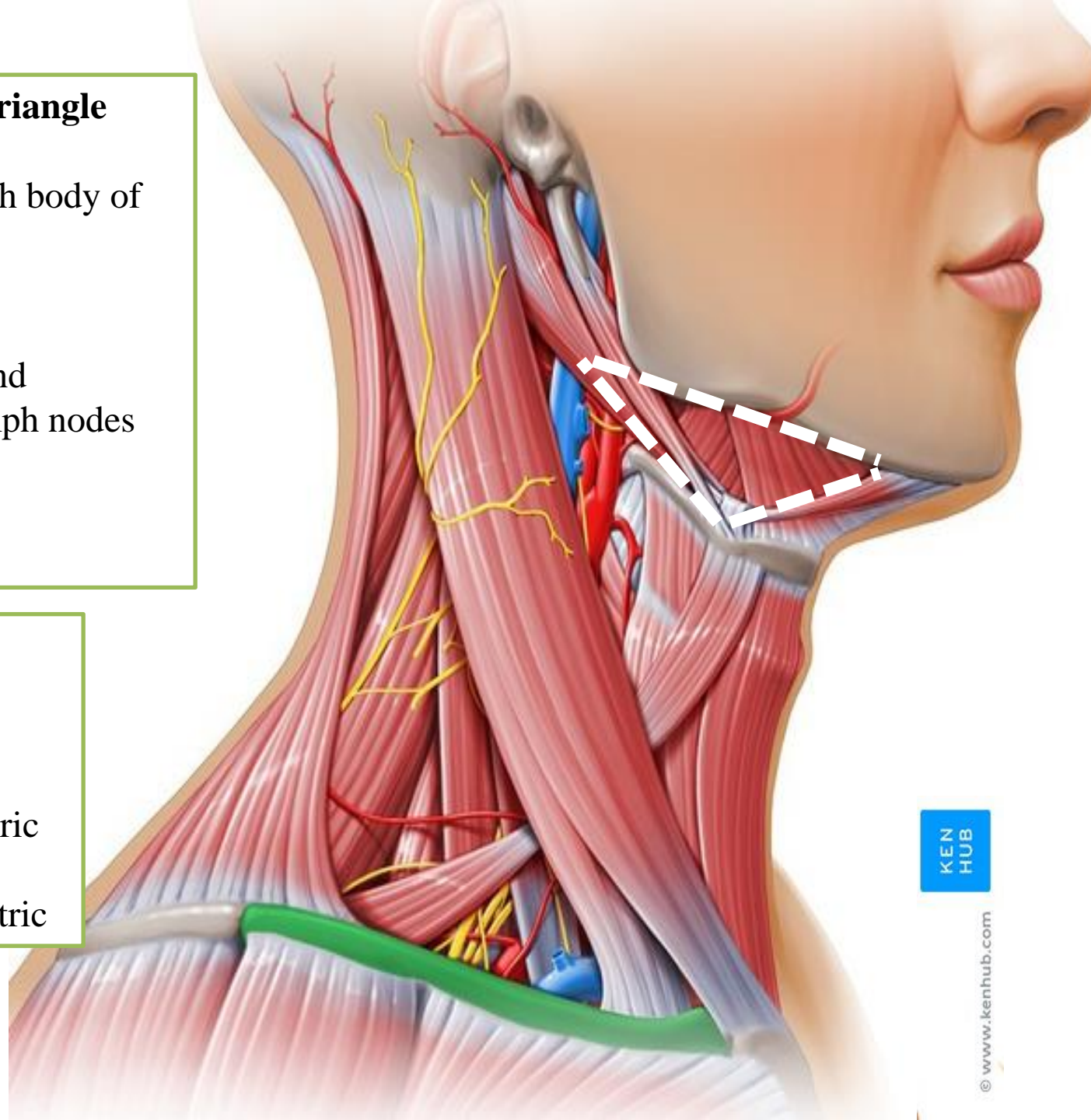
Body of mandible

#### **Anteriorly:**

Anterior belly of digastric

#### **Posteriorly:**

Posterior belly of digastric





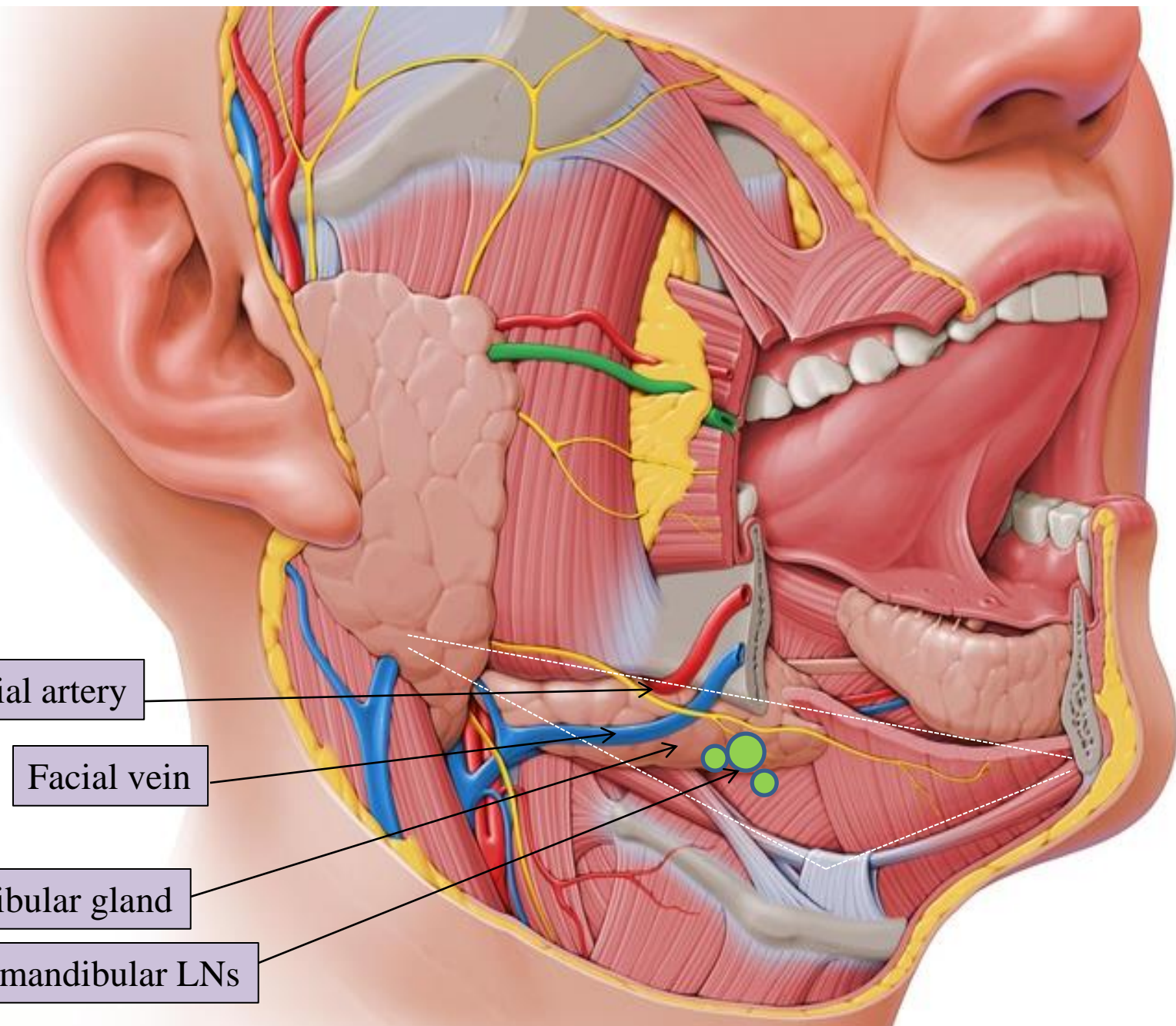
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Facial artery

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:

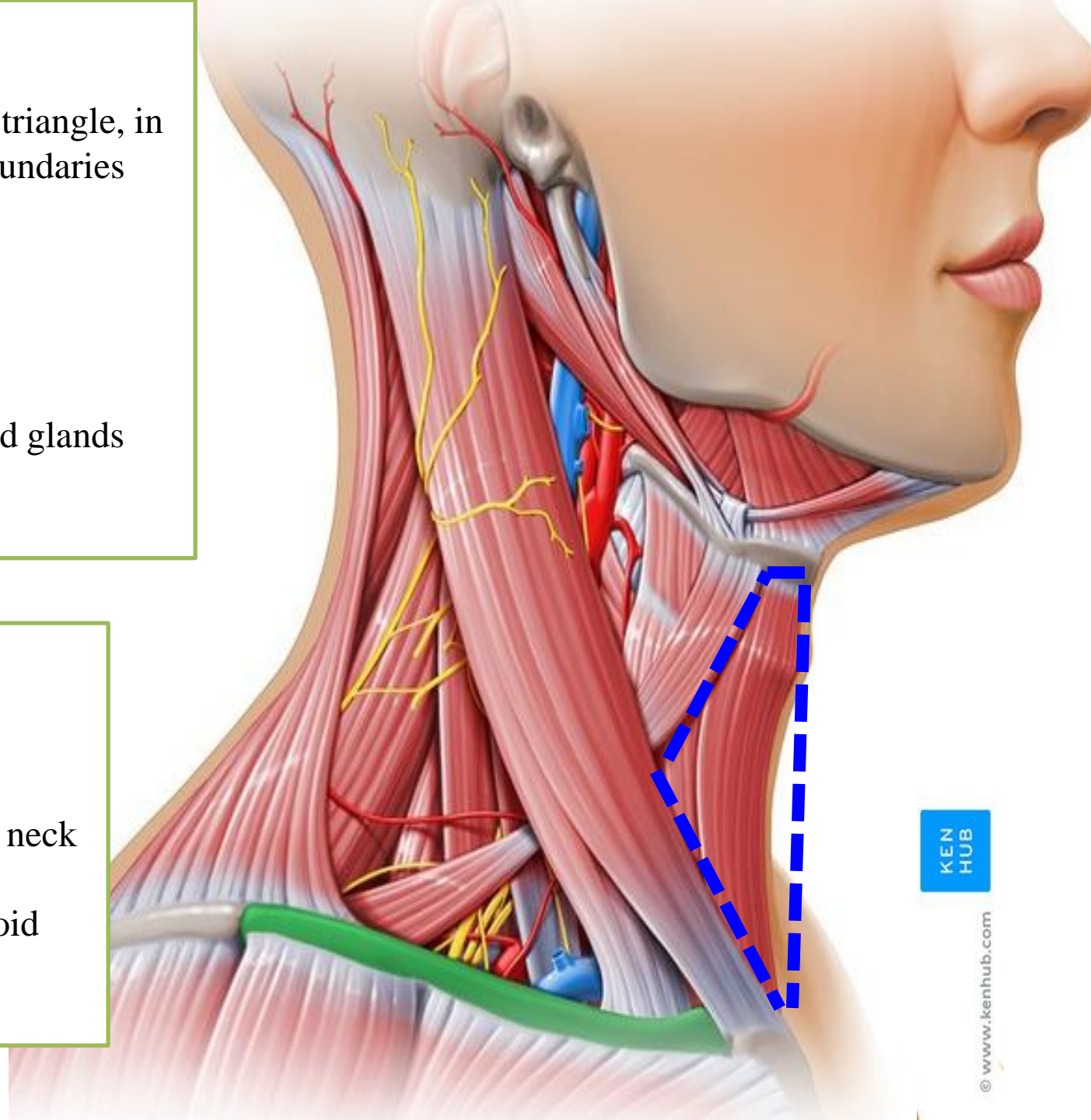
Imaginary midline of the neck

#### Supero-laterally:

Superior belly of omohyoid

#### Infero-laterally:

Sternocleidomastoid

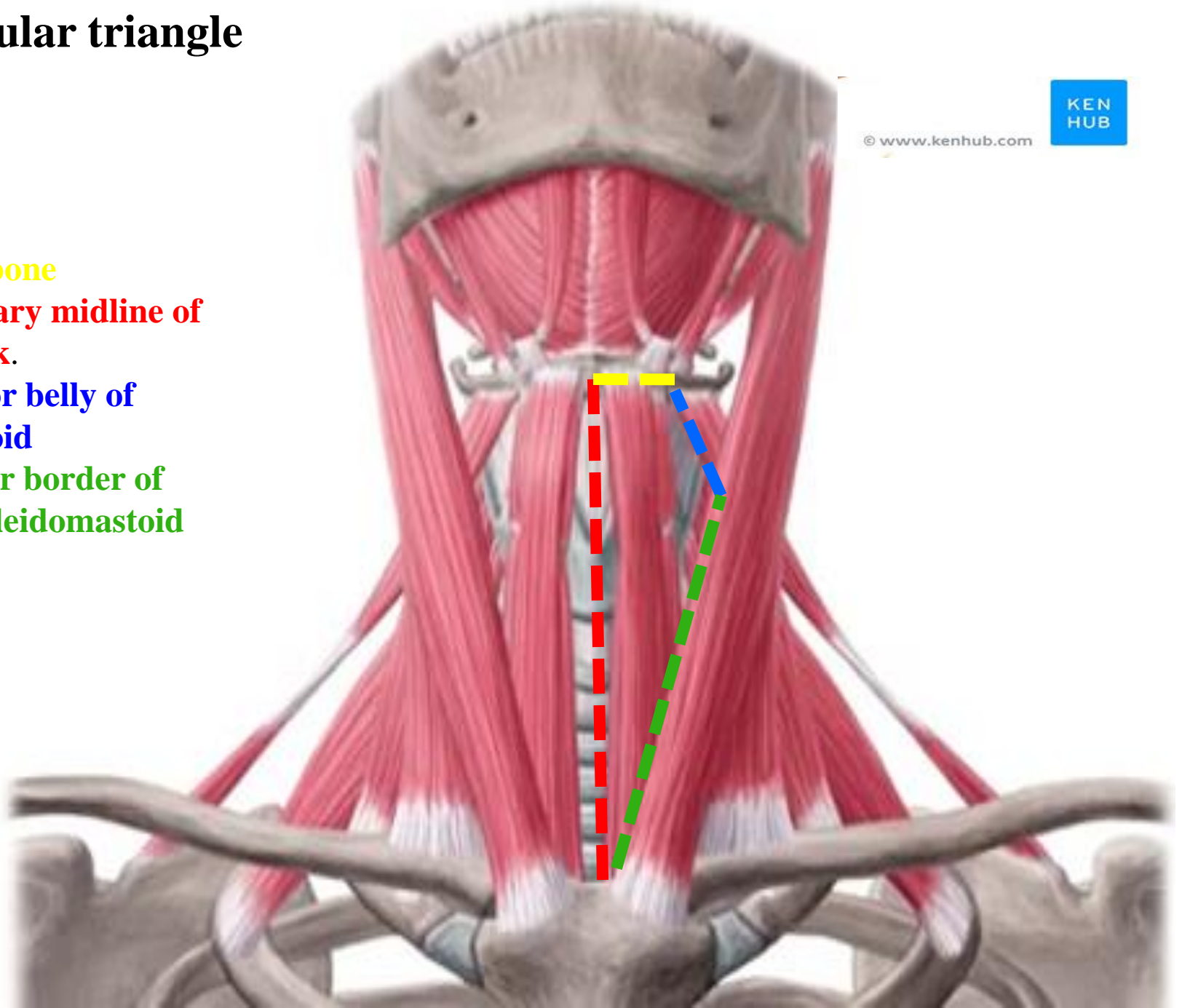


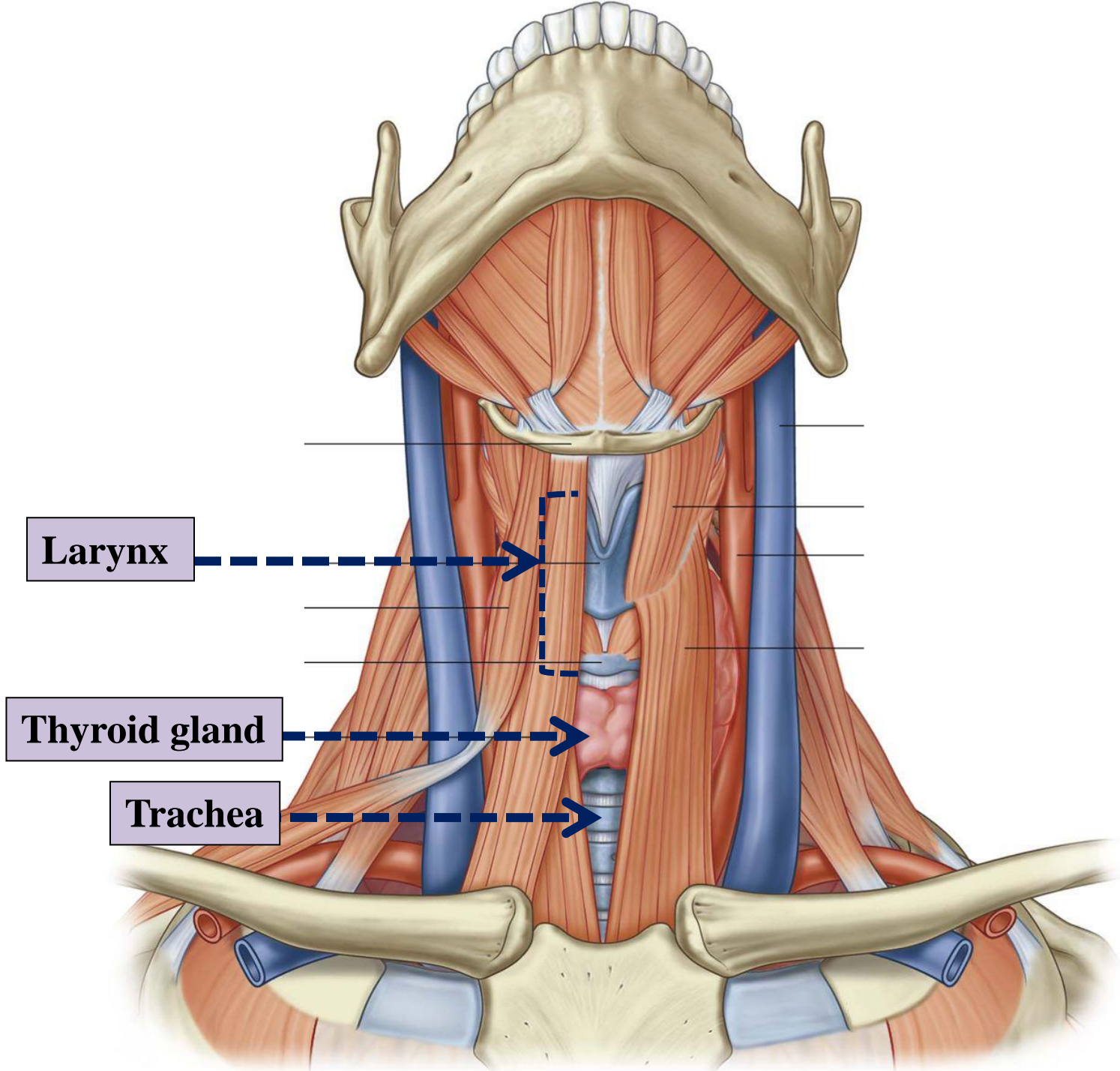
# Muscular triangle

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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:

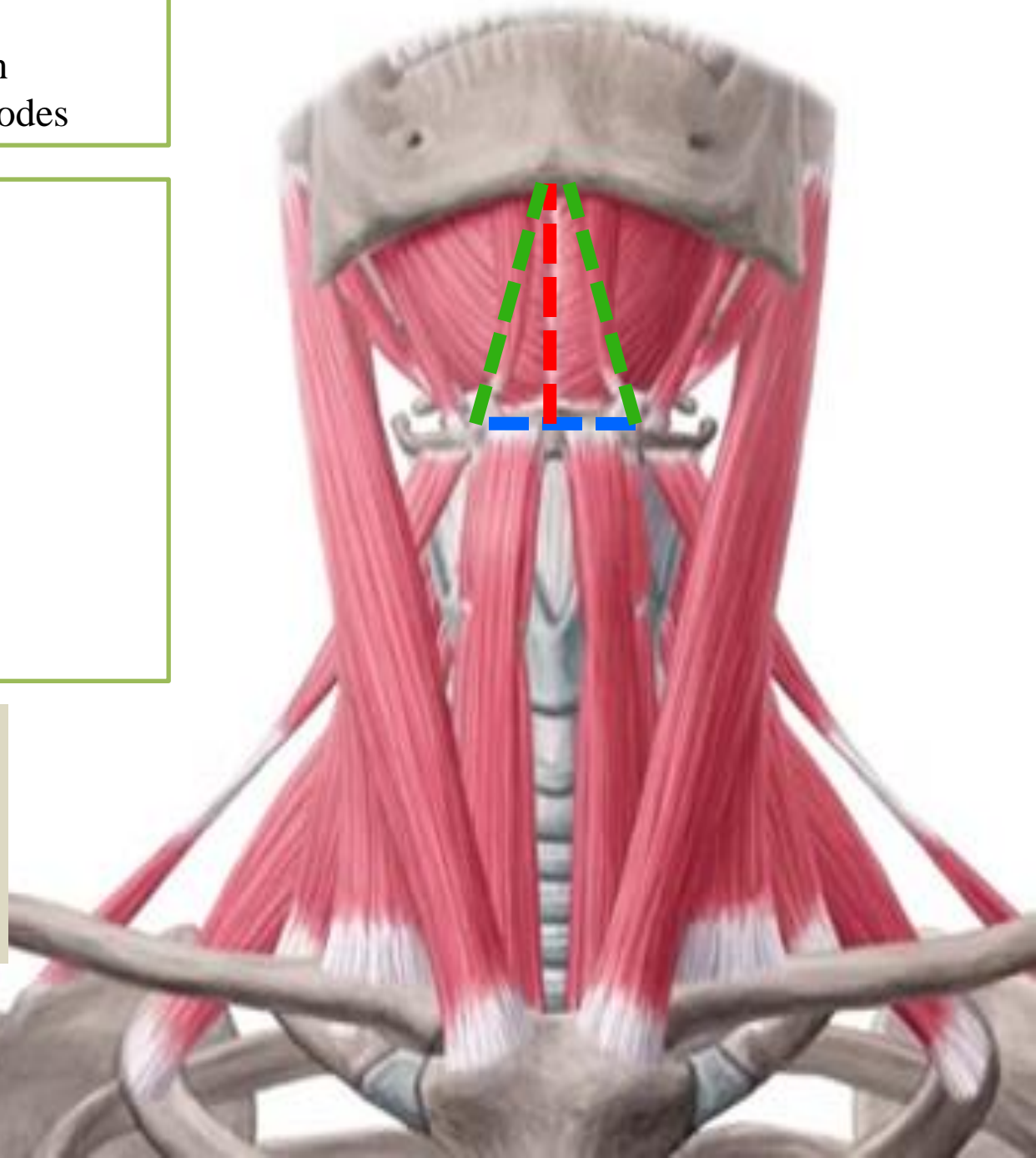
Midline of the neck

#### 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

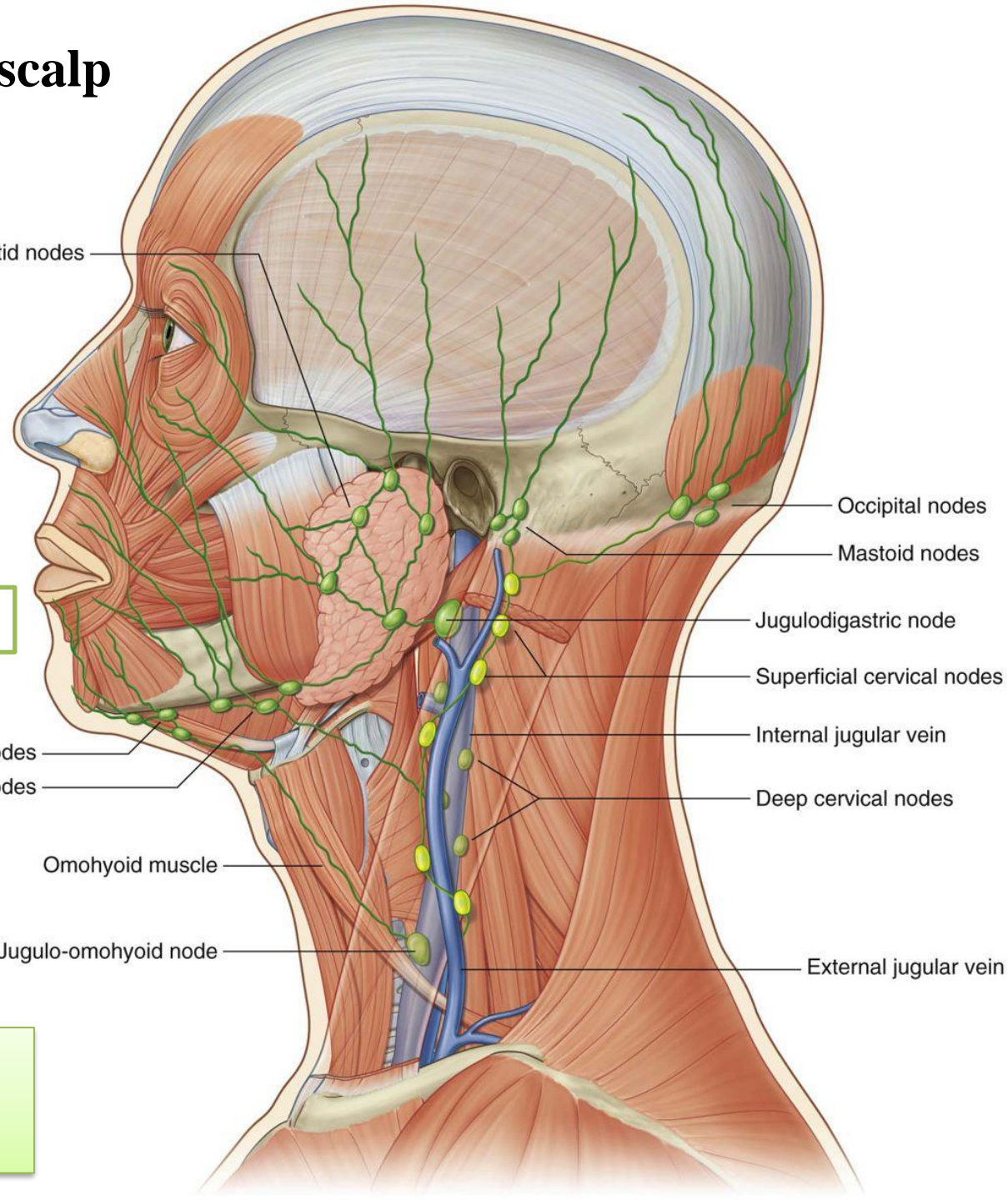
Jugulodigastric node

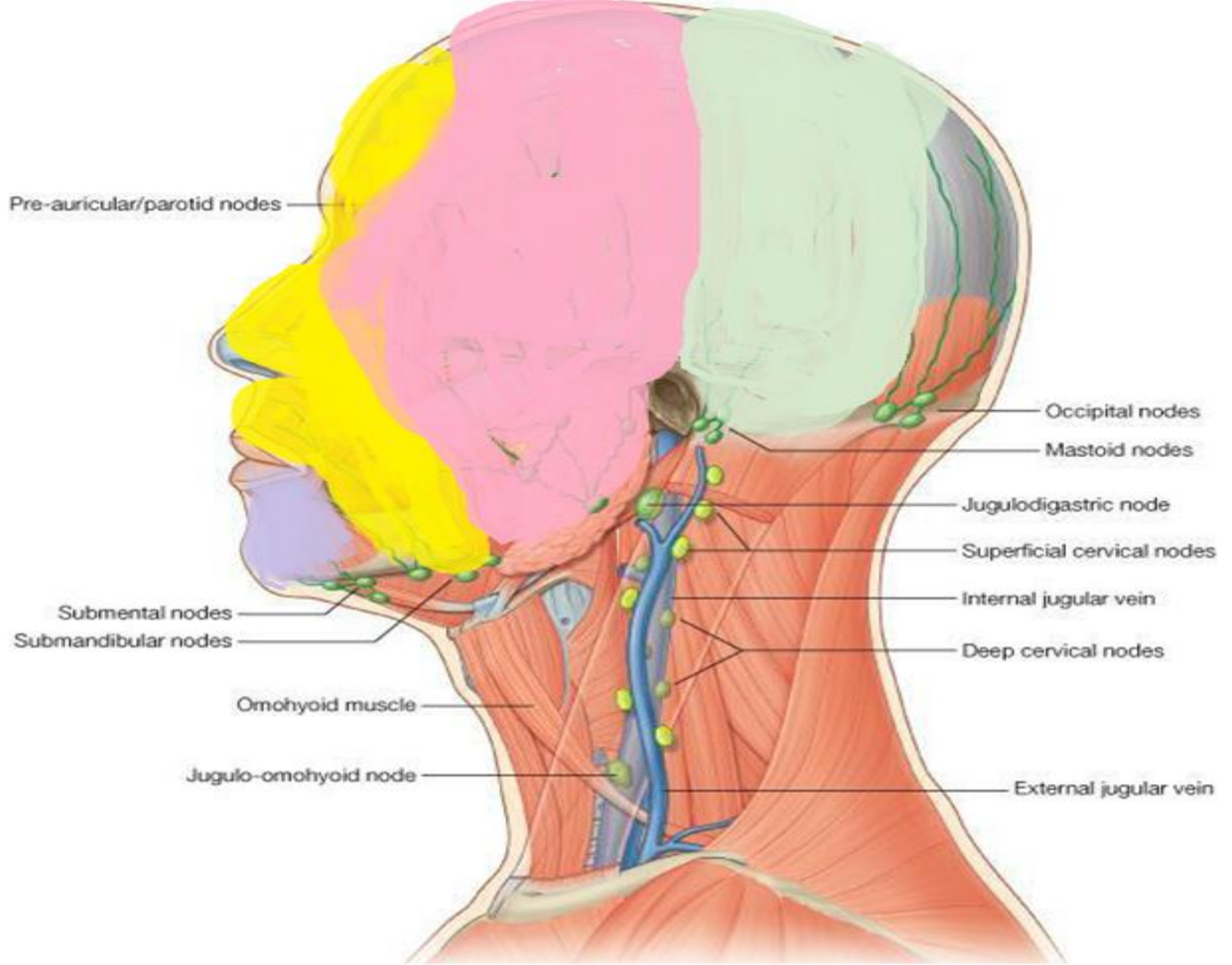
Superficial cervical nodes

Internal jugular vein

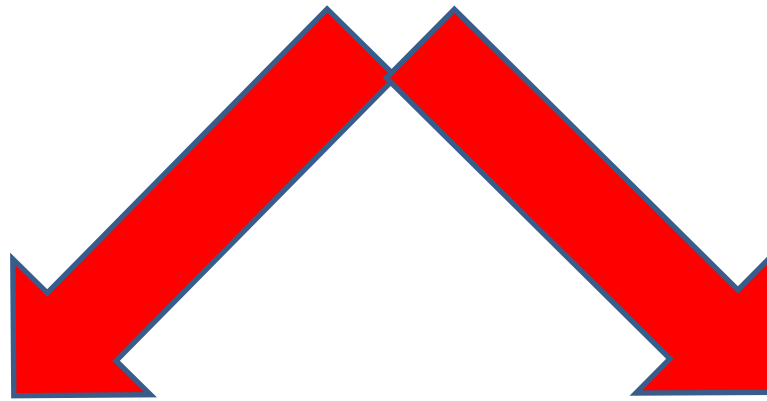
Deep cervical nodes

External jugular vein





# Lymph nodes of the neck

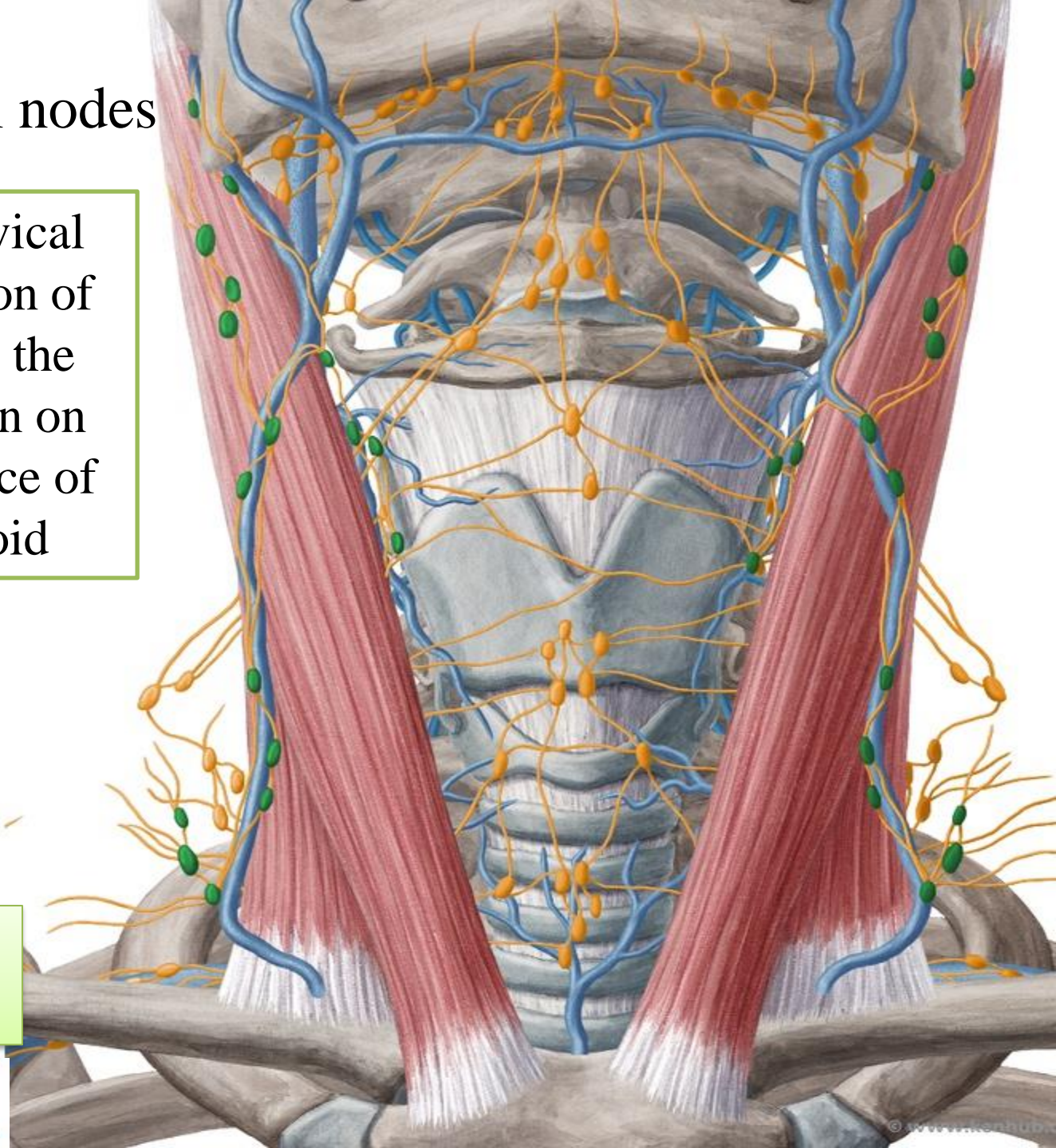


Superficial

Deep

# Superficial cervical nodes

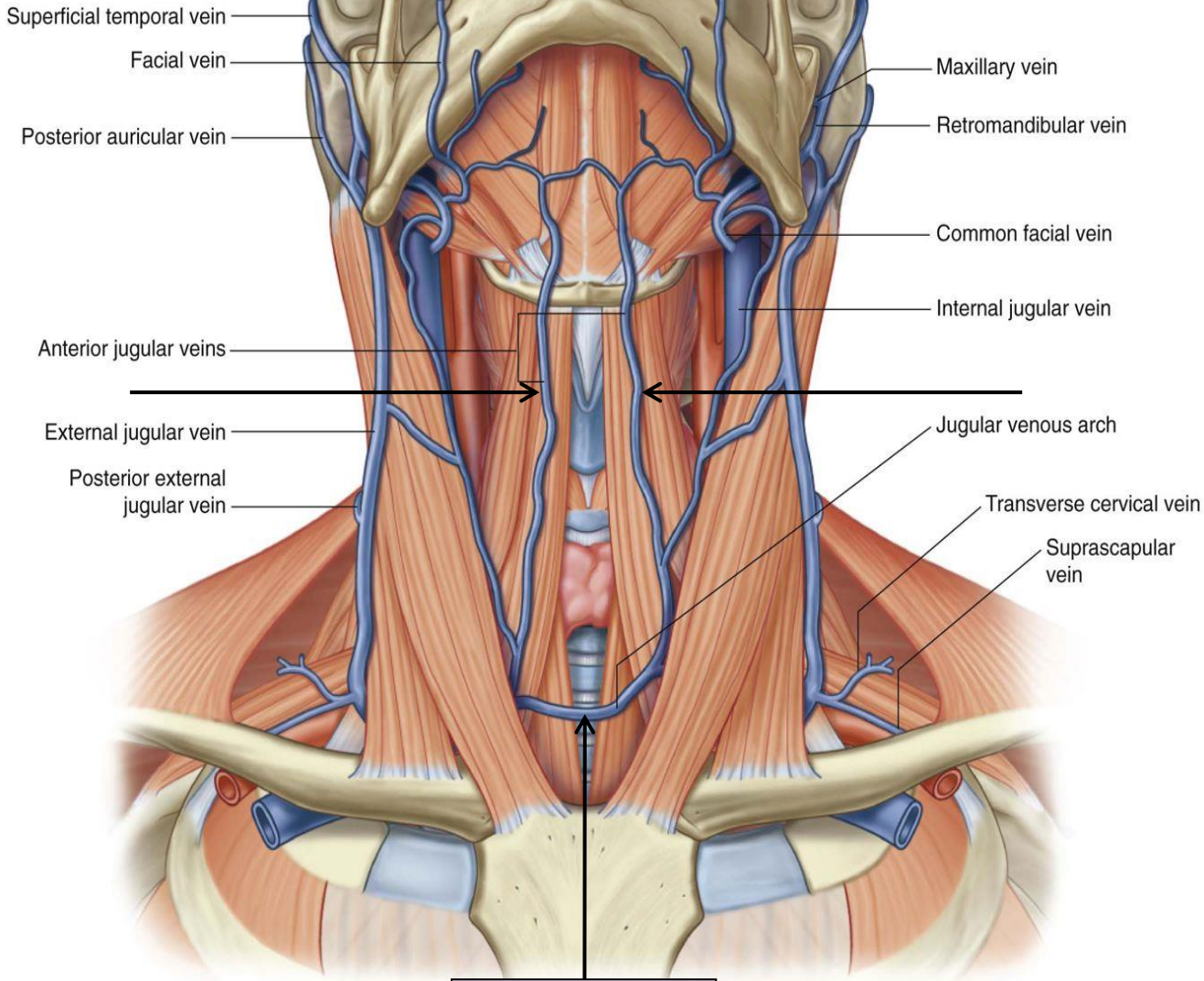
The superficial cervical nodes are a collection of lymph nodes along the external jugular vein on the superficial surface of sternocleidomastoid



Vertical along superficial veins

# Superficial Veins

## Anterior jugular veins



Jugular arch

# Deep cervical nodes

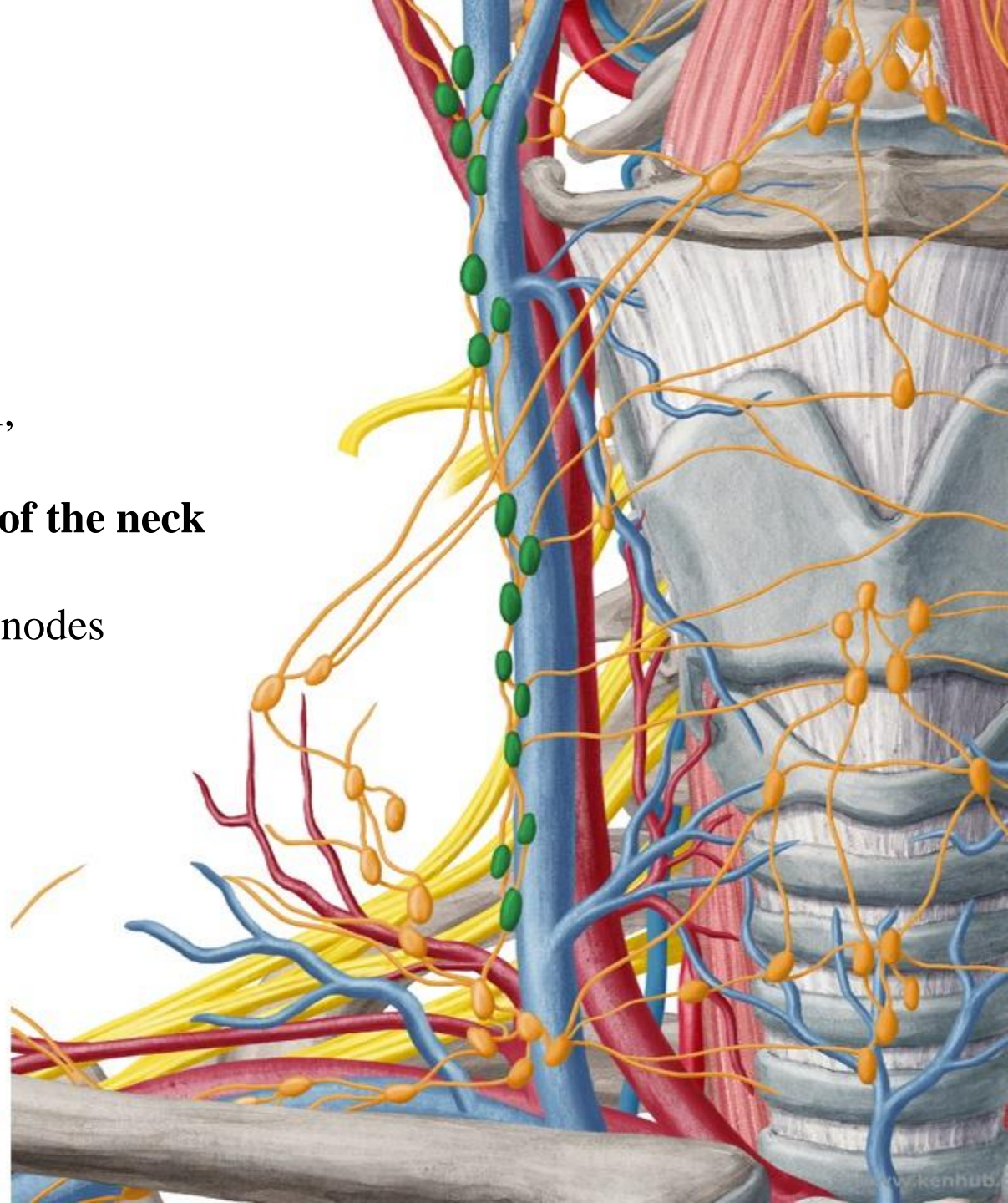
## Deep Cervical Lymph nodes

### 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



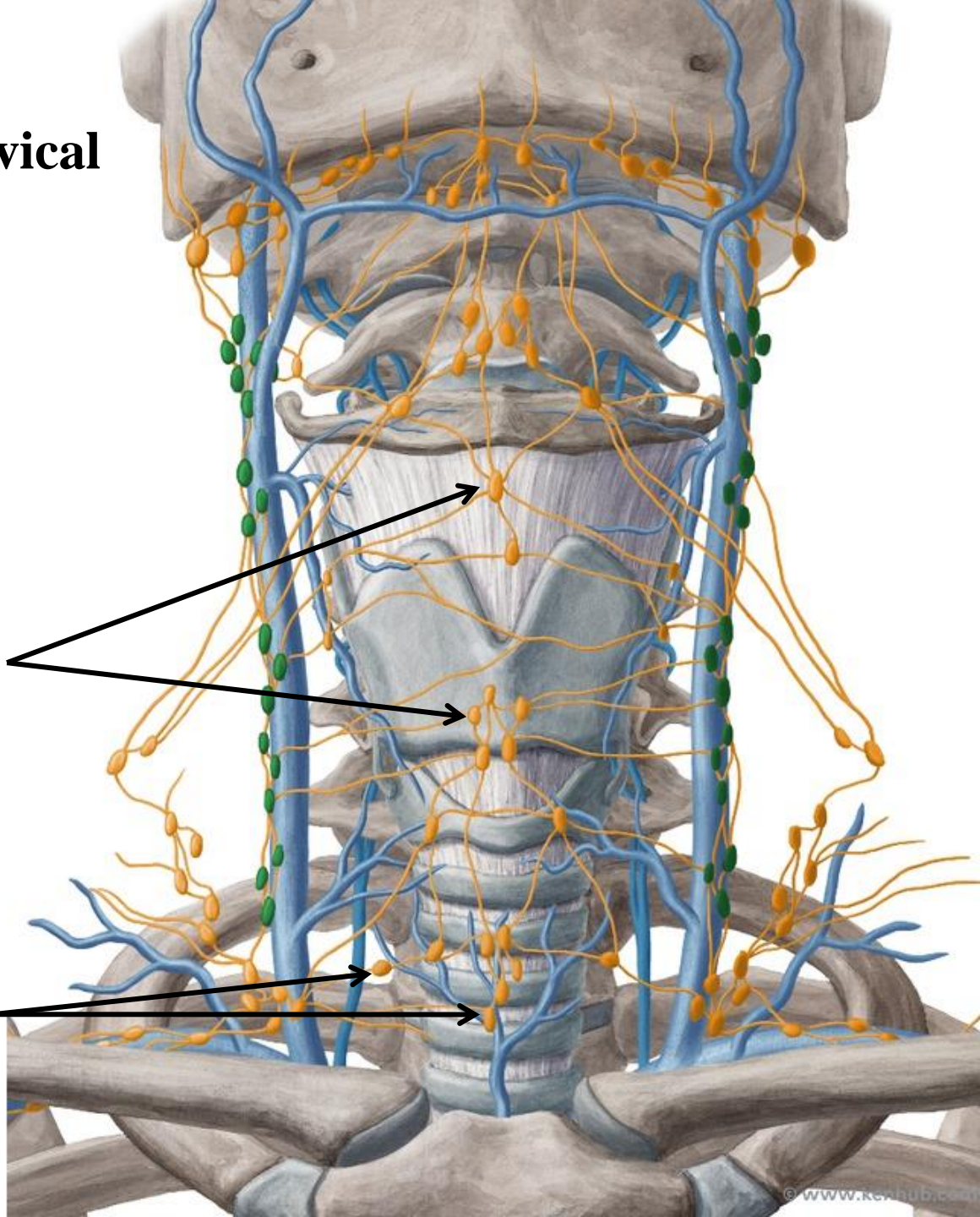


# Median group of deep cervical lymph nodes

Dr. Heba Kalbouneh

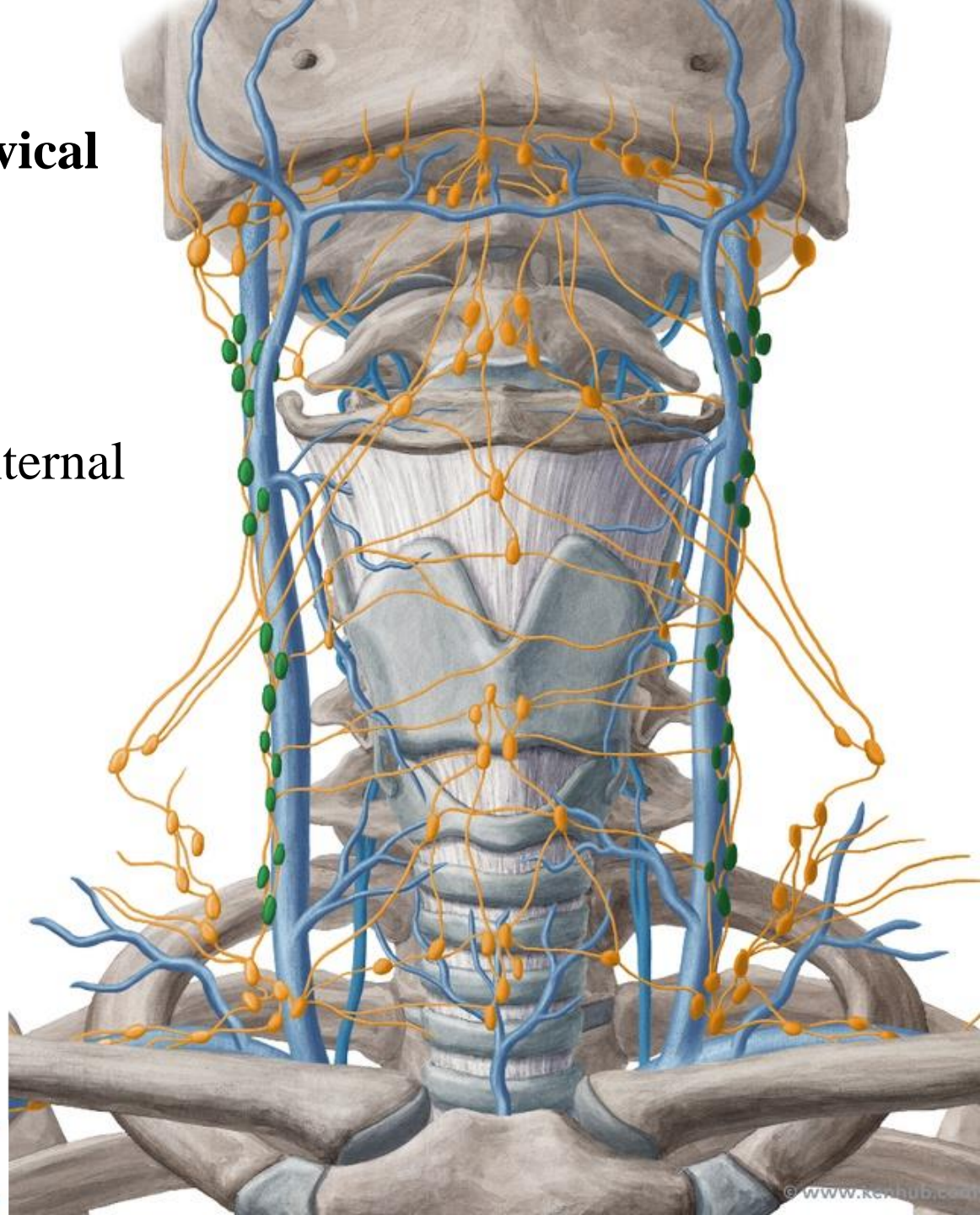
Prelaryngeal lymph nodes

Pretracheal and paratracheal lymph nodes



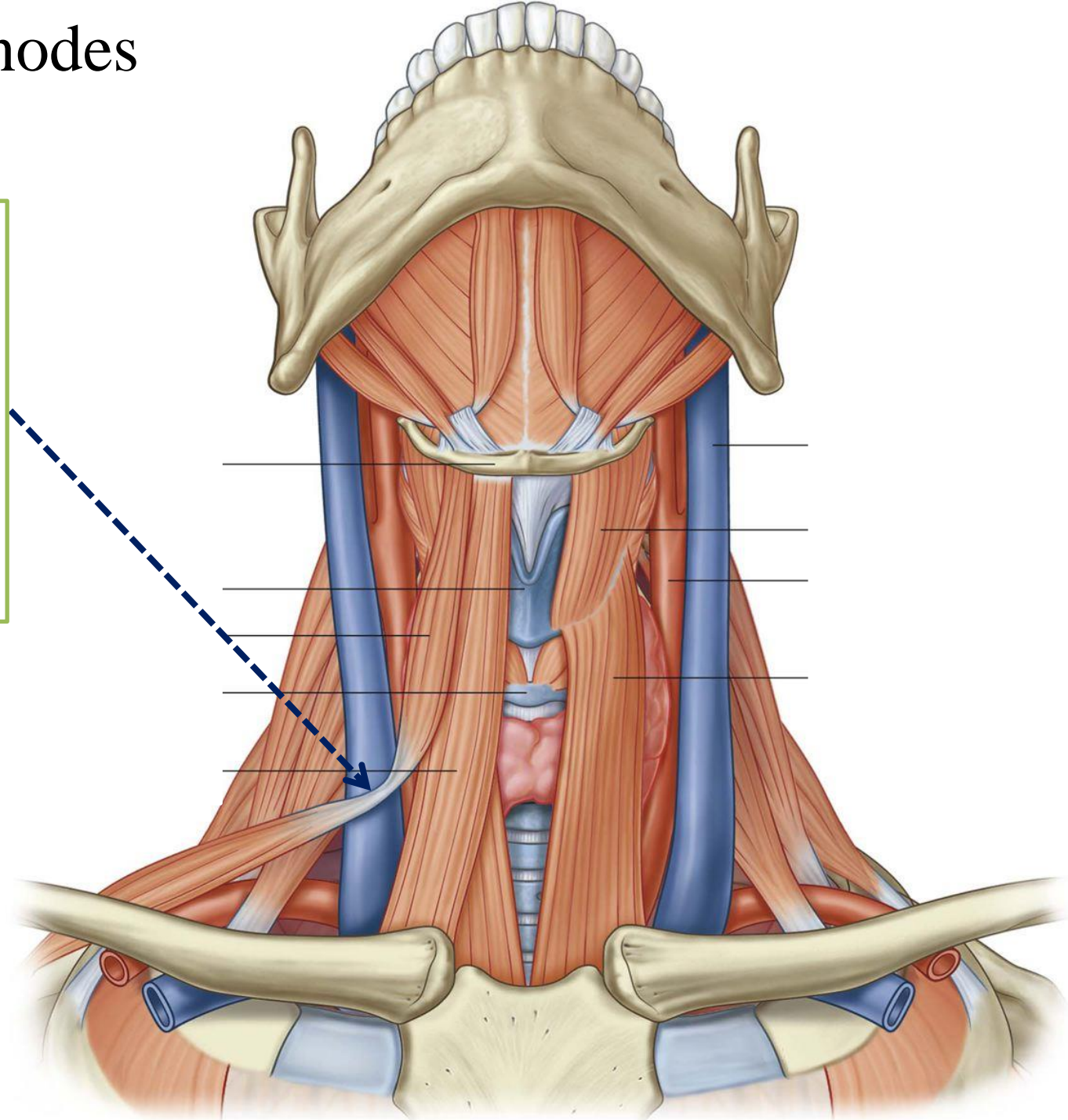
# Lateral group of deep cervical lymph nodes

At side of neck along internal jugular vein



# Deep cervical nodes

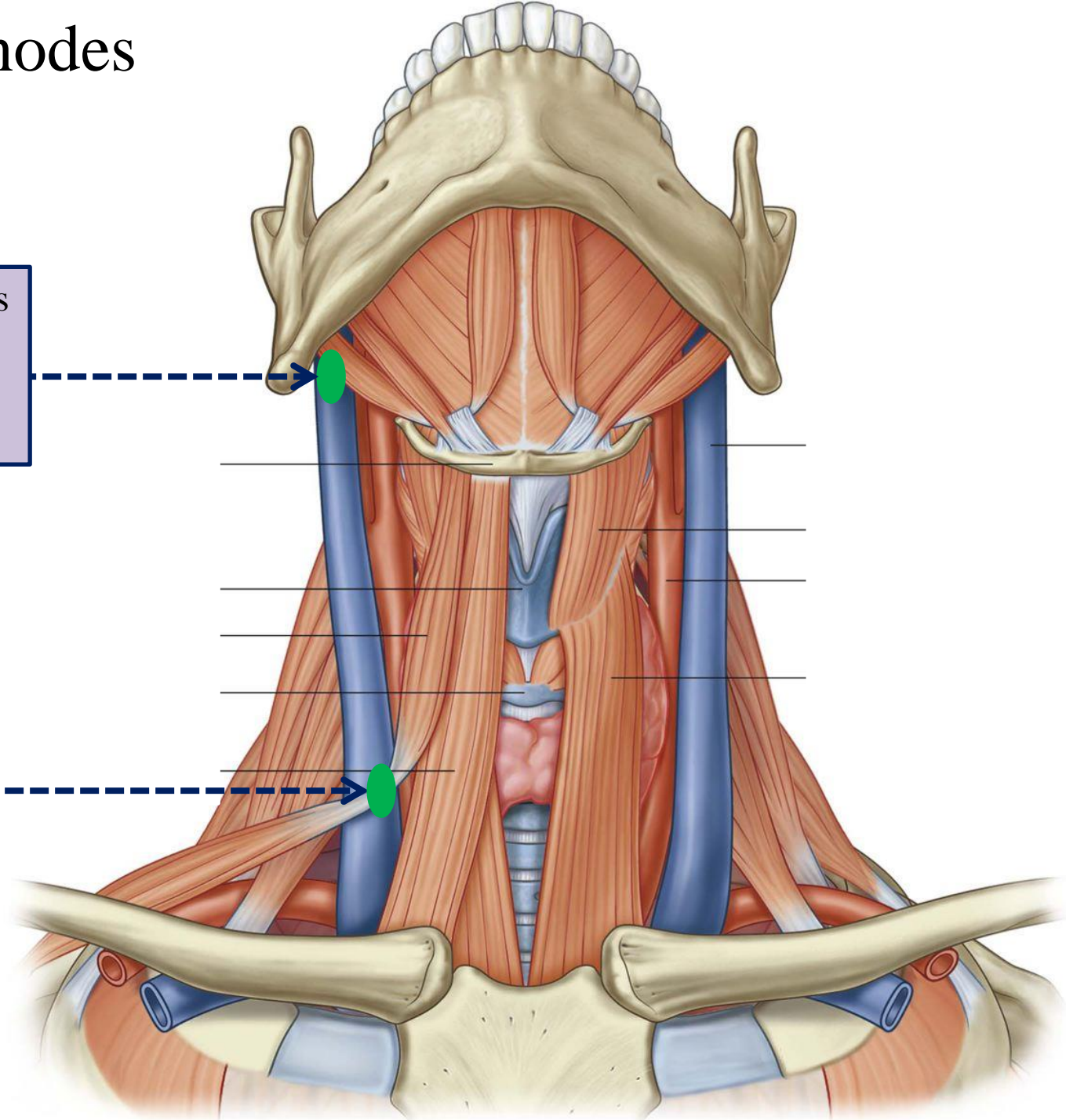
The intermediate tendon of the omohyoid muscle divides the deep cervical lymph nodes into upper and lower groups



# 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



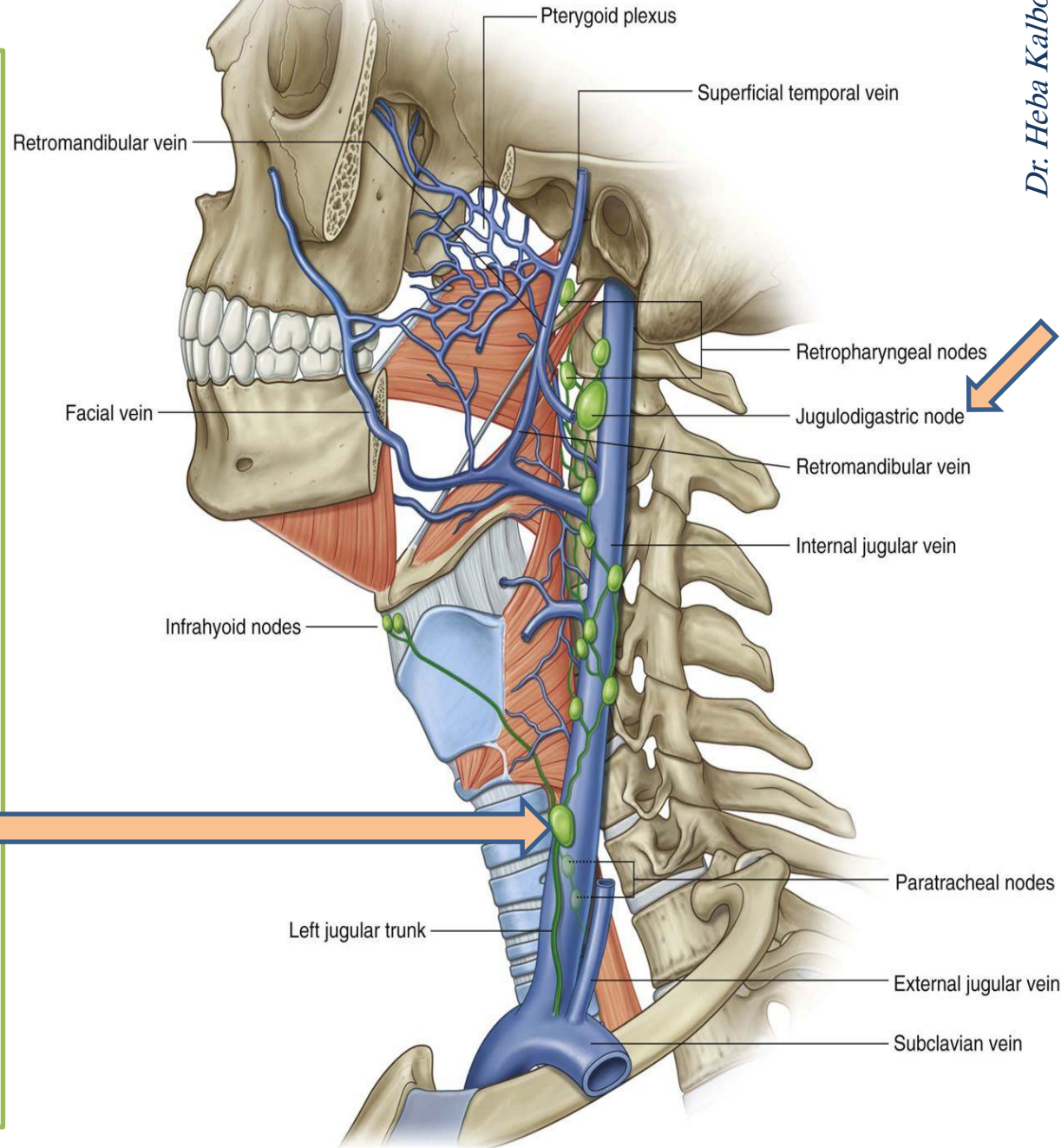
**Enlarged jugulodigastric lymph nodes are commonly found in tonsillitis**

## 2 - Jugulo-omohyoid node

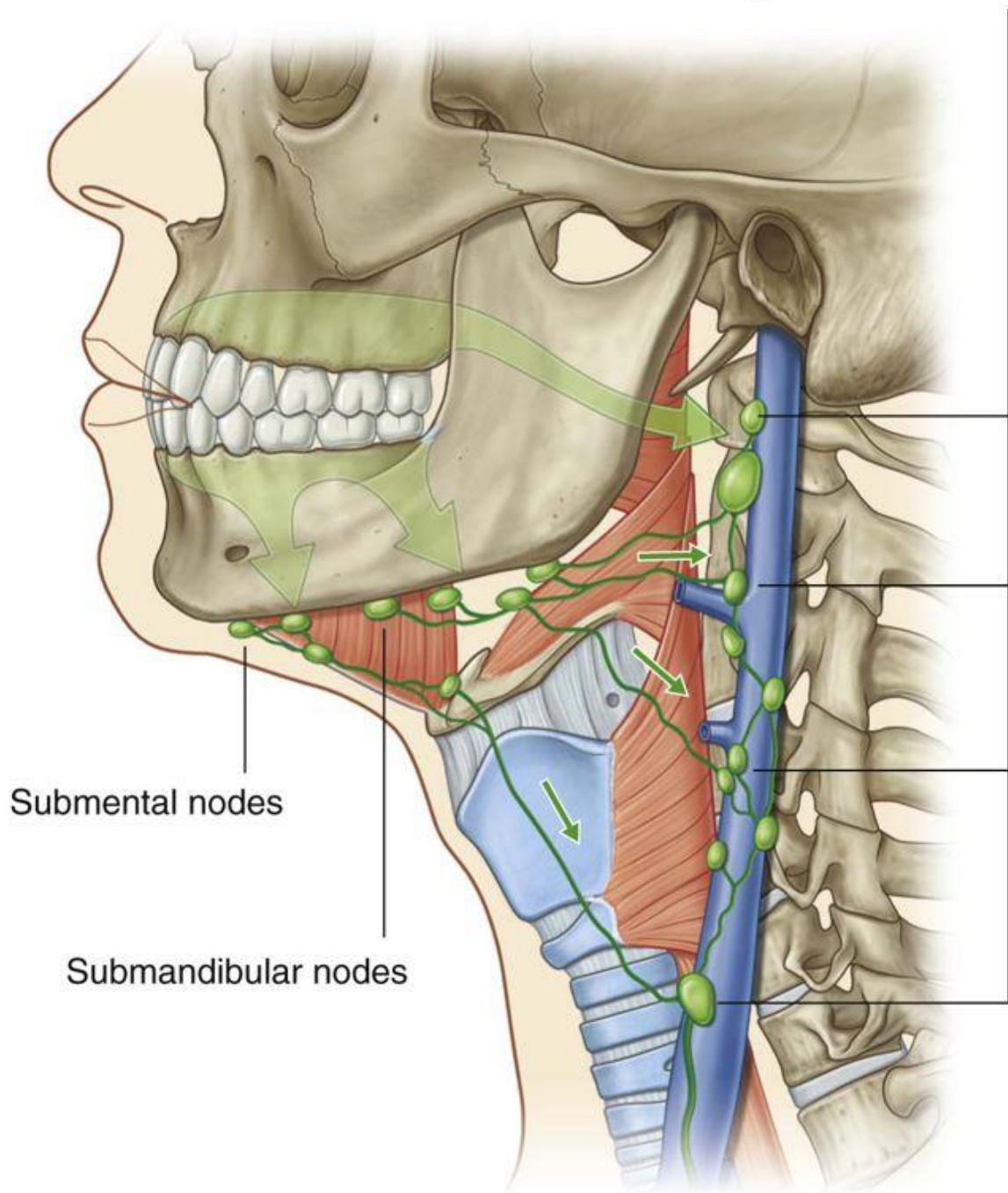
it is at or just inferior to the intermediate tendon of omohyoid



**This node receives lymphatic drainage from the tongue**



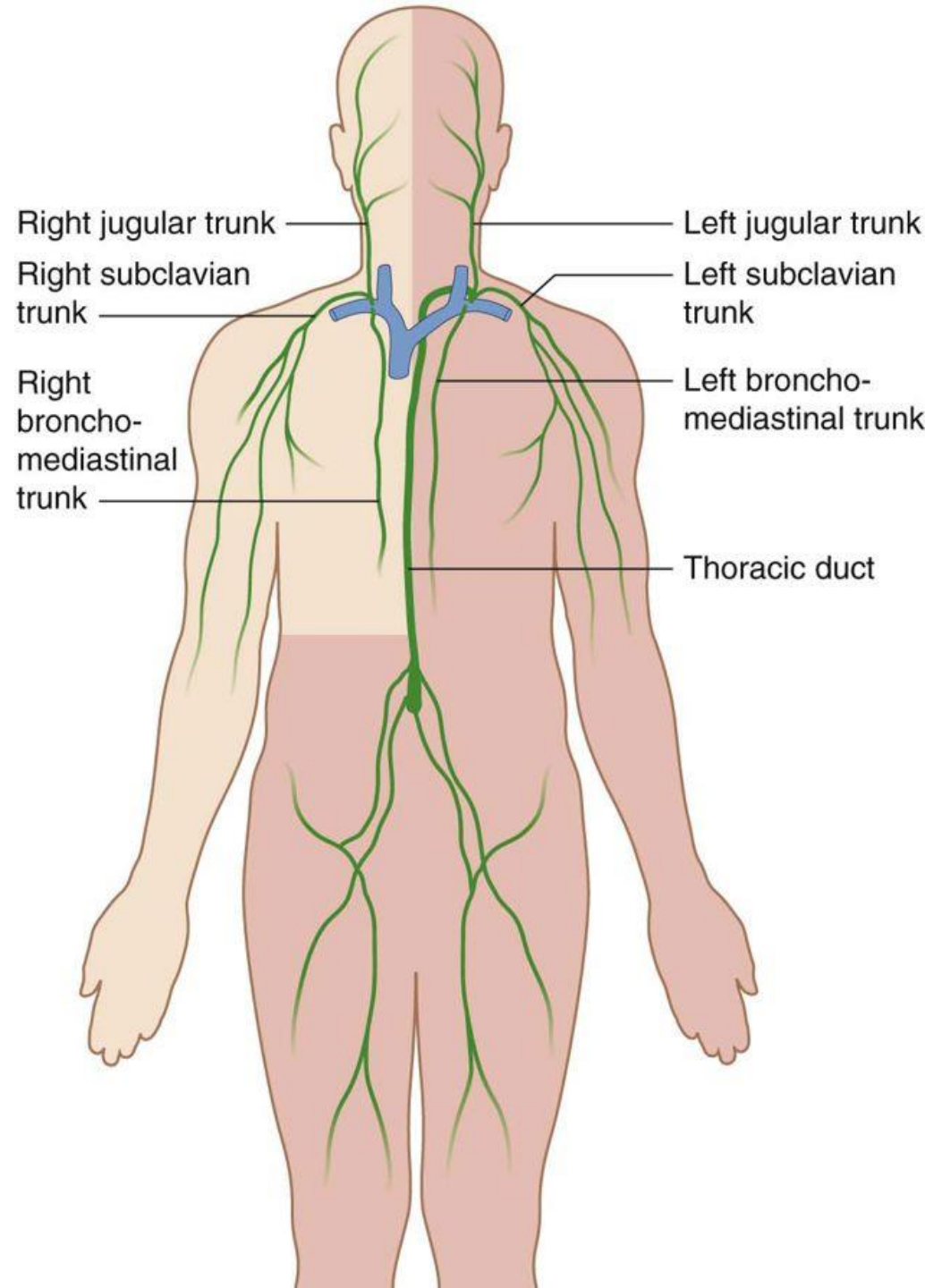
Deep cervical nodes

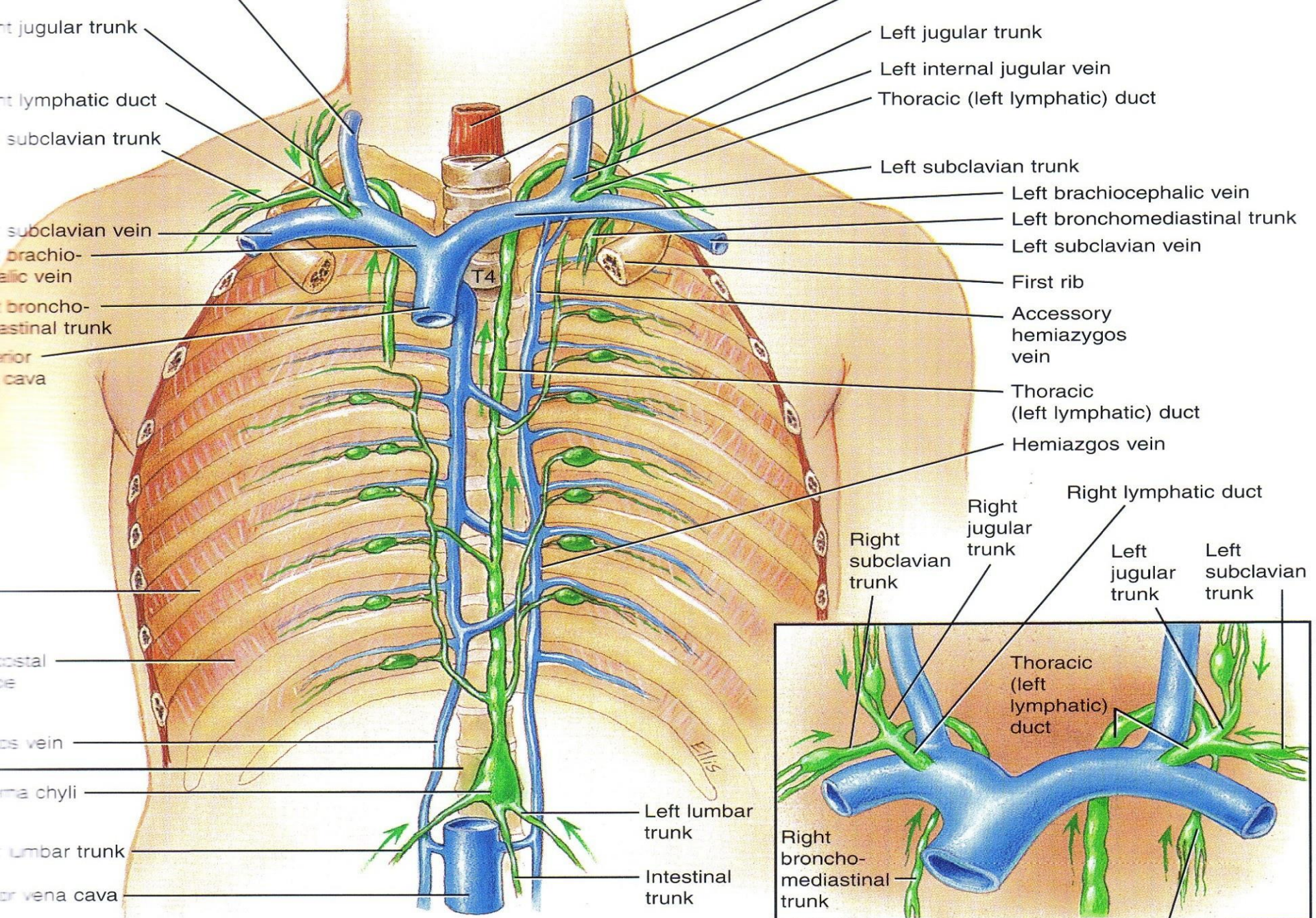


Submental nodes

Submandibular nodes

## Fate of lymph drainage of head & neck

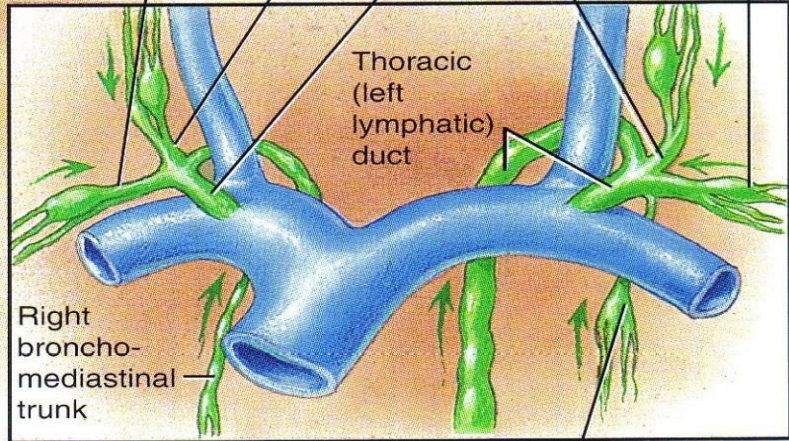




Right jugular trunk  
 Right lymphatic duct  
 Right subclavian trunk  
 Right jugular trunk  
 Right bronchomediastinal trunk  
 Left jugular trunk  
 Left subclavian trunk  
 Left bronchomediastinal trunk  
 Thoracic (left lymphatic) duct  
 Left jugular trunk  
 Left internal jugular vein  
 Thoracic (left lymphatic) duct  
 Left subclavian trunk  
 Left brachiocephalic vein  
 Left bronchomediastinal trunk  
 Left subclavian vein  
 First rib  
 Accessory hemiazygos vein  
 Thoracic (left lymphatic) duct  
 Hemiazygos vein  
 T4  
 Anterior vena cava  
 Intestinal trunk  
 Left lumbar trunk  
 Superior vena cava

Left jugular trunk  
 Left internal jugular vein  
 Thoracic (left lymphatic) duct  
 Left subclavian trunk  
 Left brachiocephalic vein  
 Left bronchomediastinal trunk  
 Left subclavian vein  
 First rib  
 Accessory hemiazygos vein  
 Thoracic (left lymphatic) duct  
 Hemiazygos vein

Right lymphatic duct  
 Right jugular trunk  
 Right subclavian trunk  
 Left jugular trunk  
 Left subclavian trunk

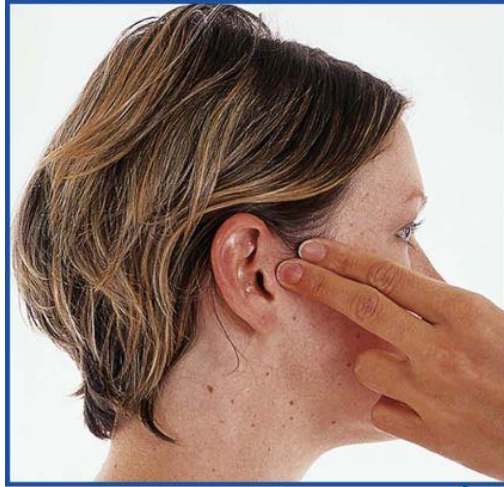


Detailed anterior view

Left bronchomediastinal trunk

Overall anterior view

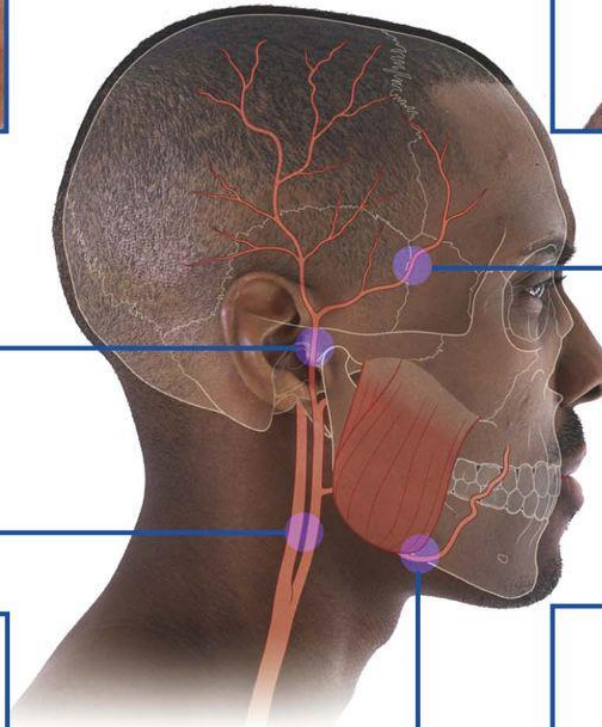




Temporal pulse  
(superficial temporal artery)

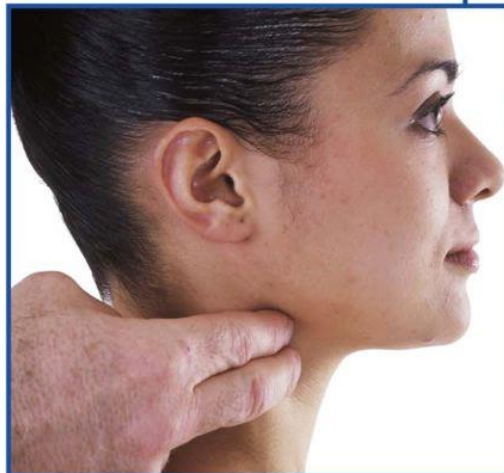


Temporal pulse  
(anterior branch of  
superficial temporal artery)



Carotid pulse

Facial pulse

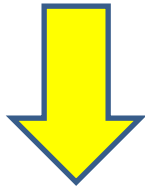


**Pulse points**  
Where to take  
arterial pulses in the  
head and neck

# Carotid pulse

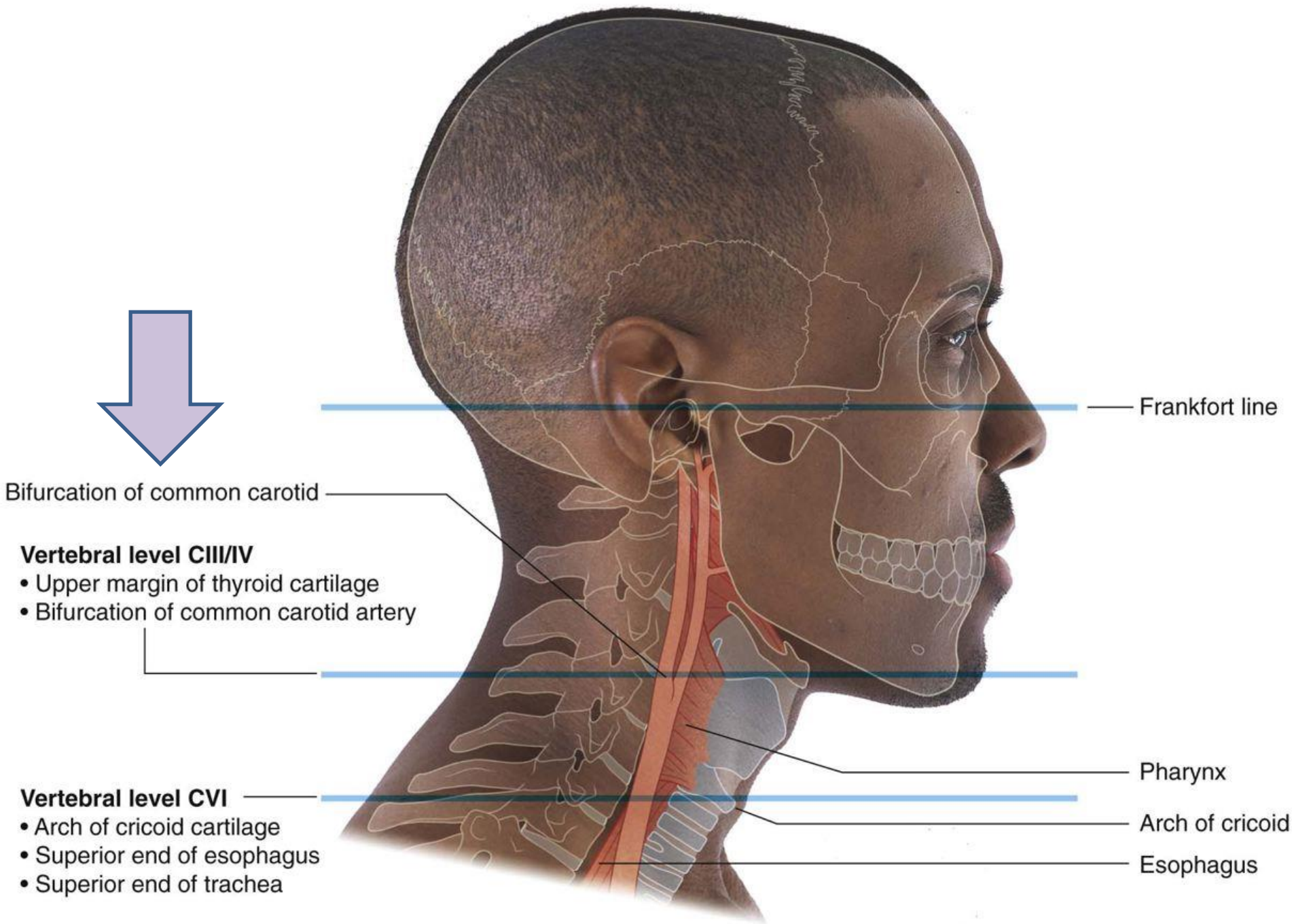
The carotid pulse is the strongest

To check *carotid pulse*

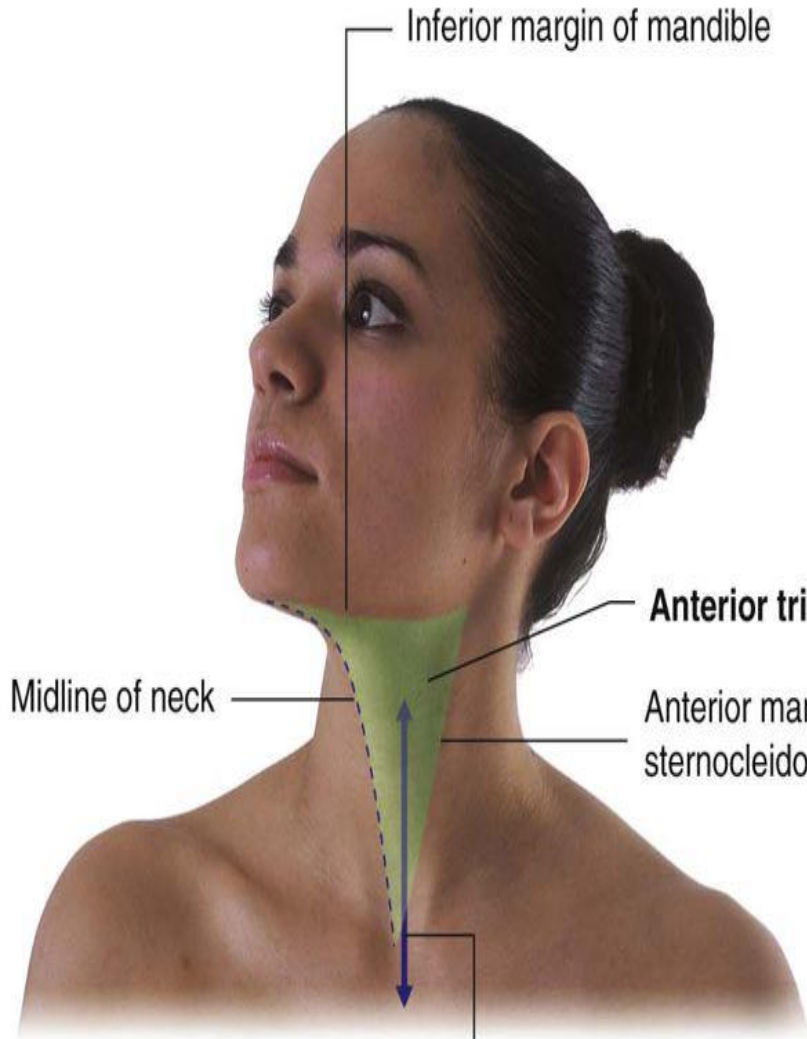


Place your index and middle fingers on the neck to the side of larynx (in carotid triangle), under the angle of the mandible



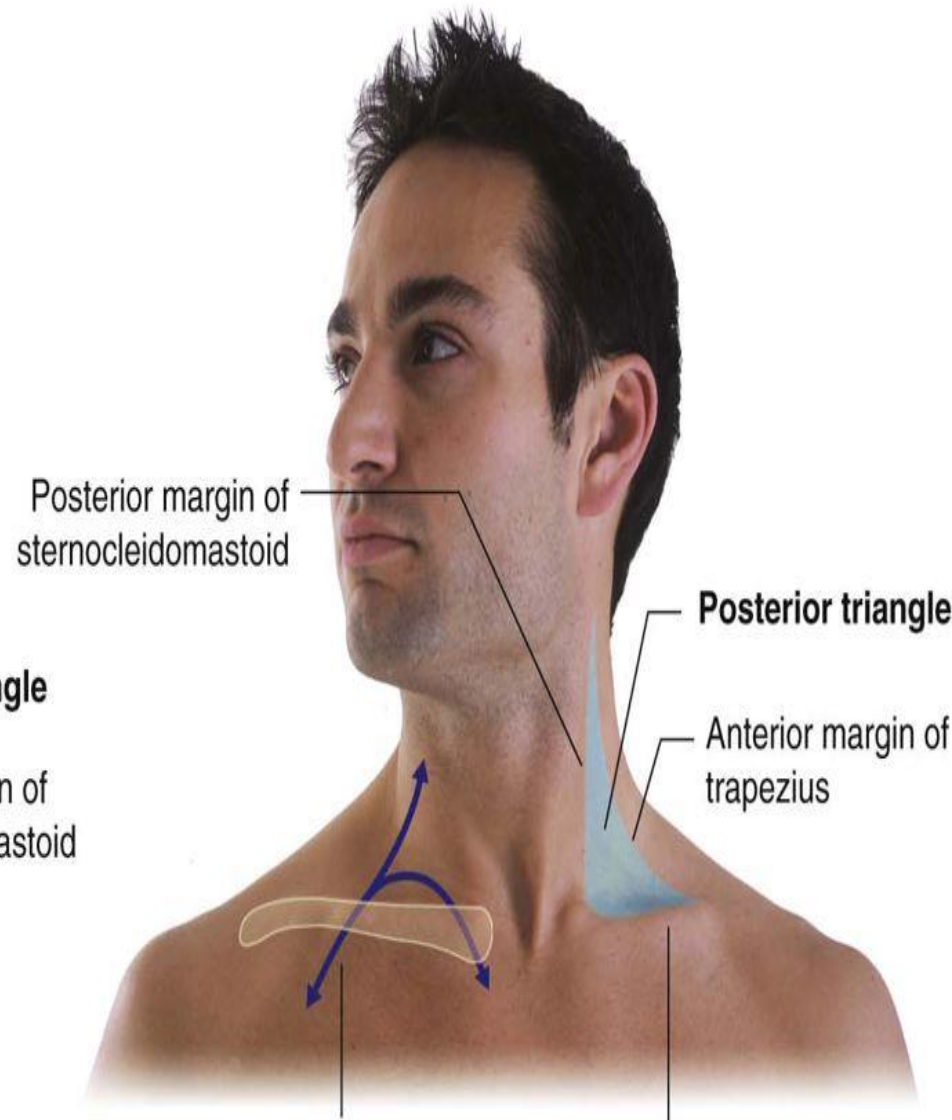


# How to outline the anterior and posterior triangles of the neck



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

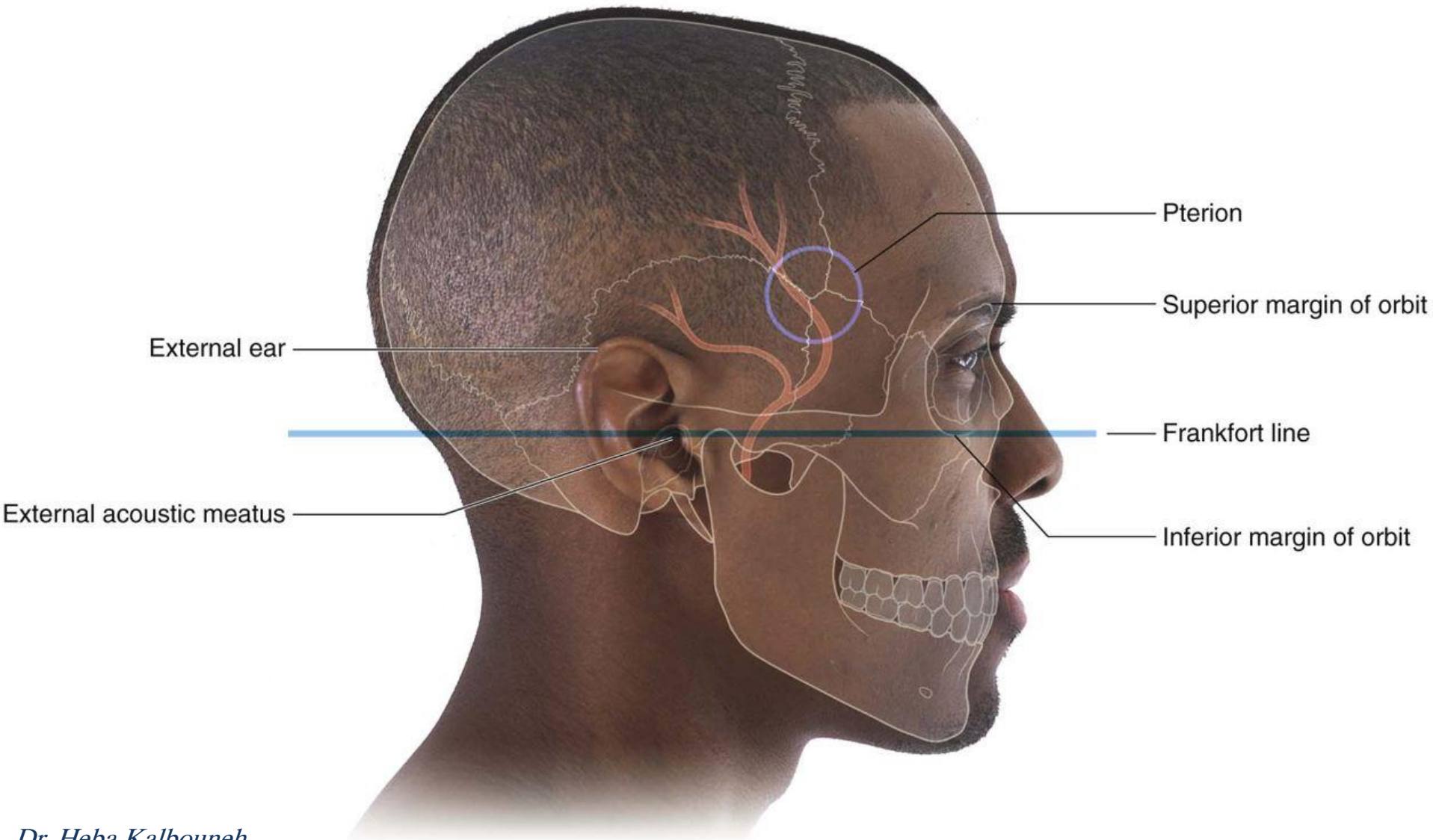
A



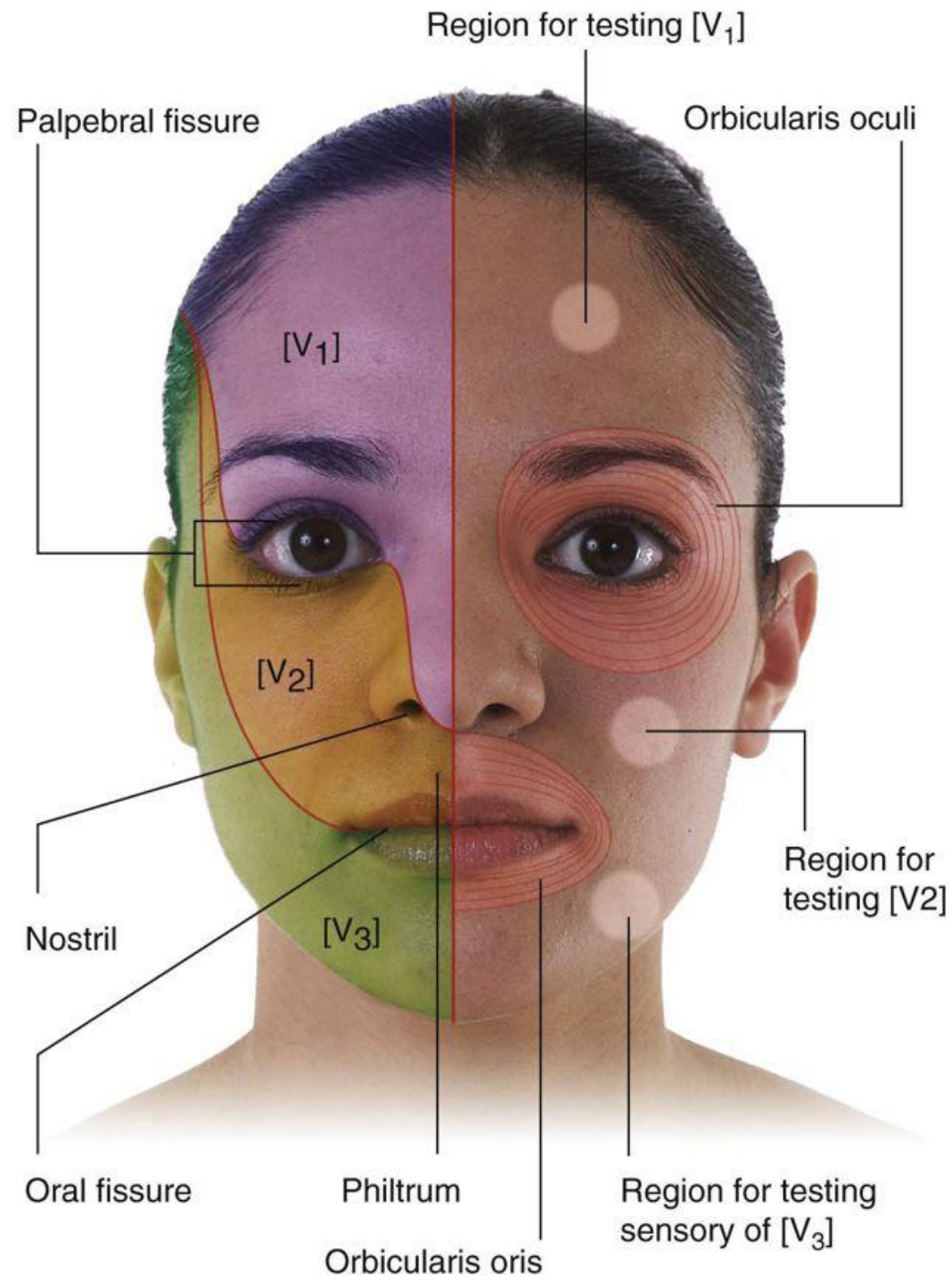
Structures coursing between thorax/neck and upper limb are associated with the posterior triangles

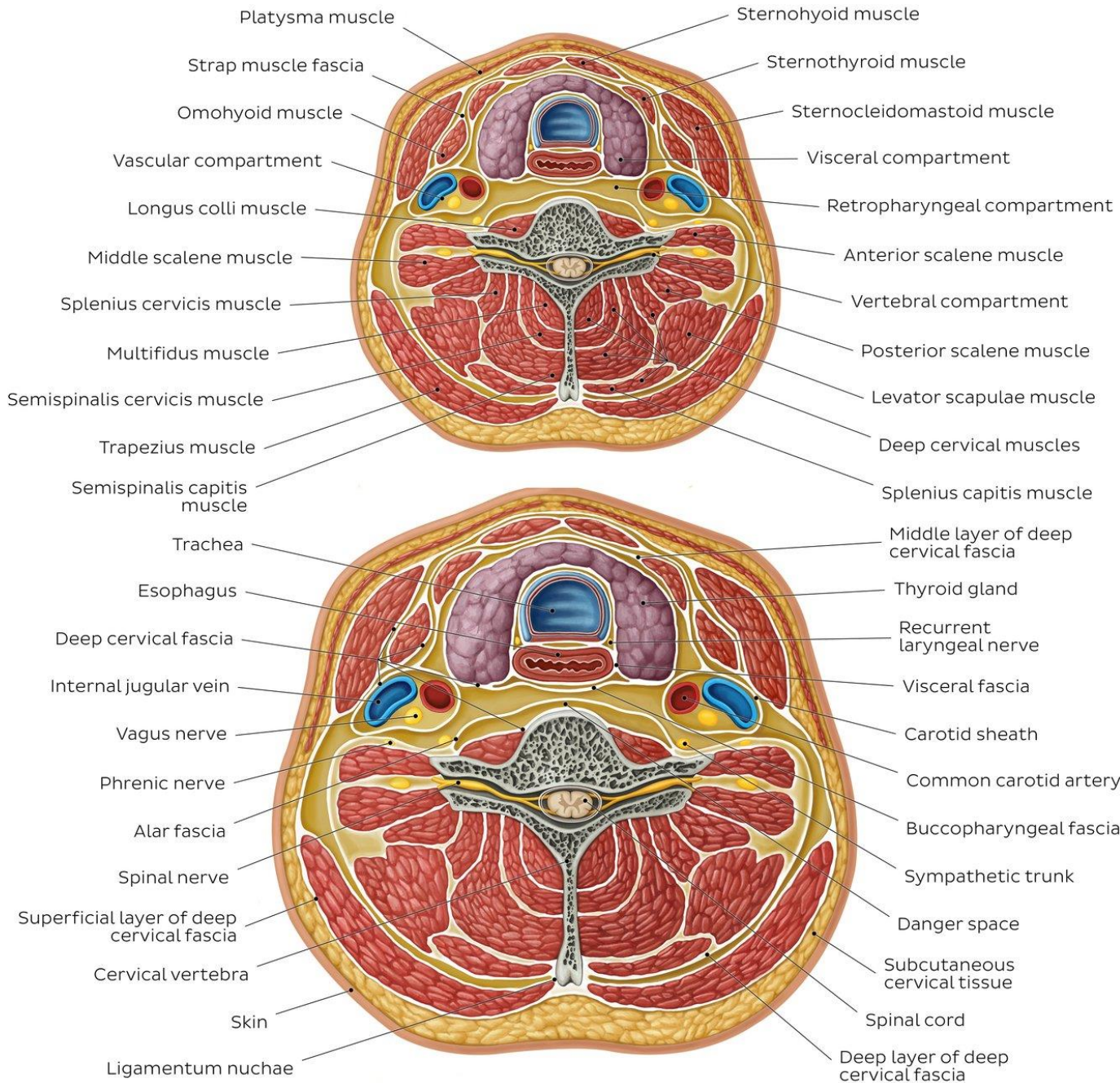
B

# 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

