

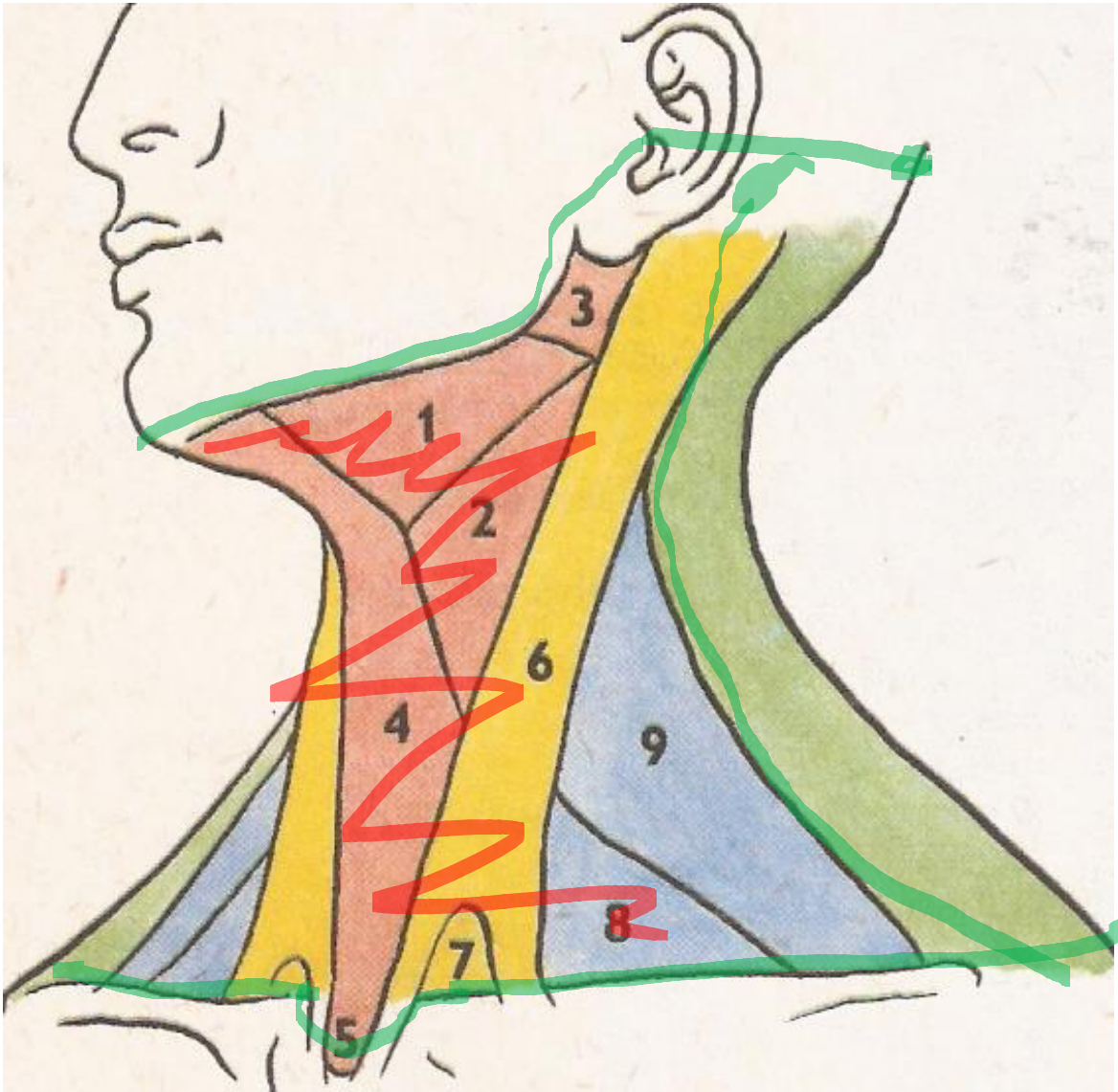
M U N I
M E D

REGIONAL ANATOMY OF THE NECK AND CHEST

MUDr. Marek Joukal, Ph.D.



Regiones coli - limitation



Against head:

protuberantia occipitalis ext.

linea nuchae sup.

porus acusticus ext.

Base of mandible

Against chest:

Incisura jugularis sterni

clavicula

acromion

 vertebra prominens

Against nuchal region:

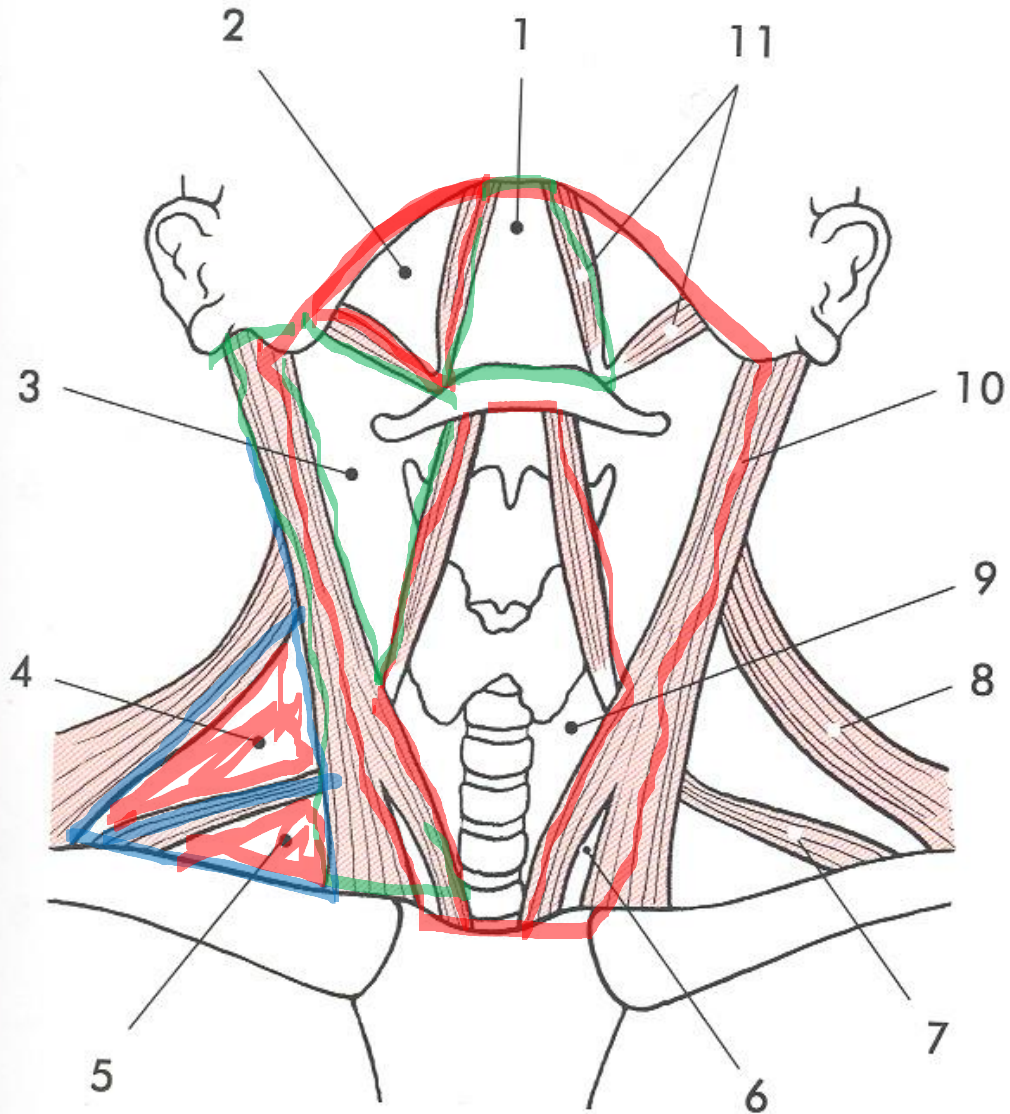
processus mastoideus

Margine of the m. trapezius

acromion



Regiones coli



regio colli ant.

**trigonum omotracheale
(infrahyoideum)**

trigonum submandibulare

trigonum submentale

trigonum caroticum

regio sternocleidomastoidea

regio colli laterale

trigonum omoclaviculare

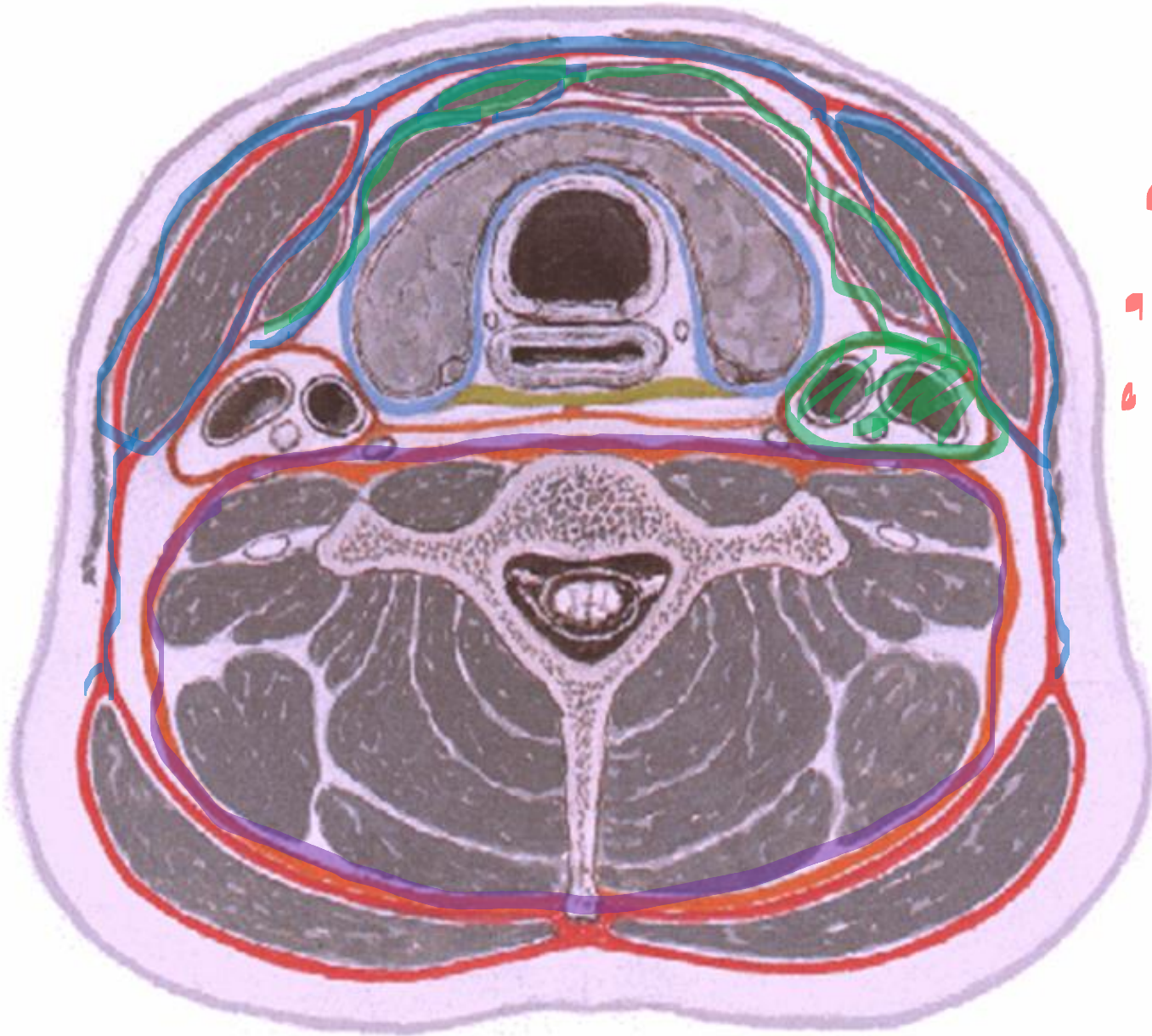
trigonum omotrapezoideum

trigonum scalenovertebrale

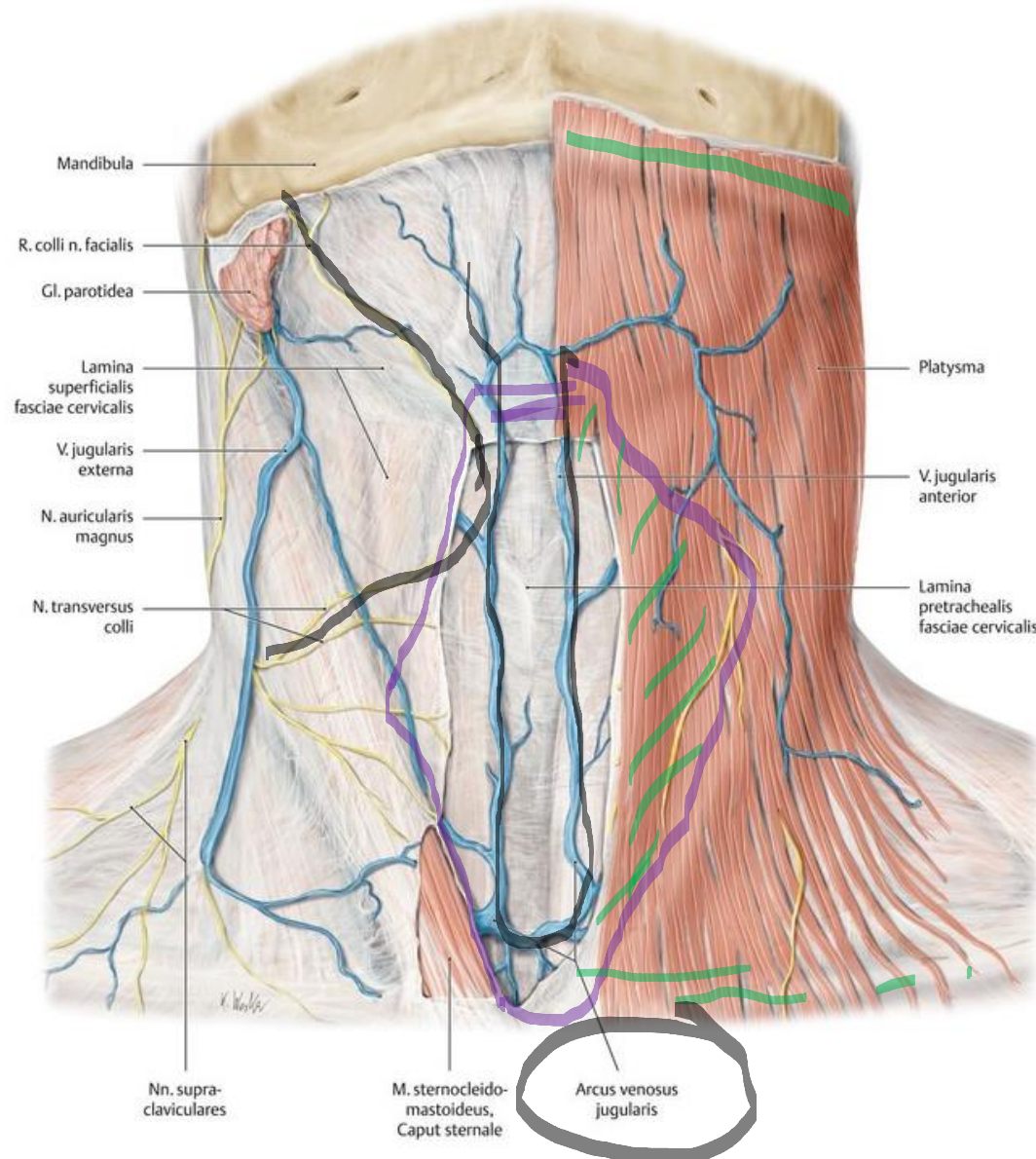


Cervical fascia

- 📌 Lamina superficialis fasciae cervicalis
- 📌 Lamina praetrachealis fasciae cervicalis
- 📌 Lamina praevertebralis fasciae cervicalis



Trigonum omotracheale (regio infrahyoidea)



Superficial layers:

- skin (**prominentia laryngea**)
- m. platysma (**ansa cervicalis spf.**)
- lamina spf. fasciae cervicalis
- vena jugularis ant.
- lamina praetrachealis fasciae cervicalis

Spatium suprasternale

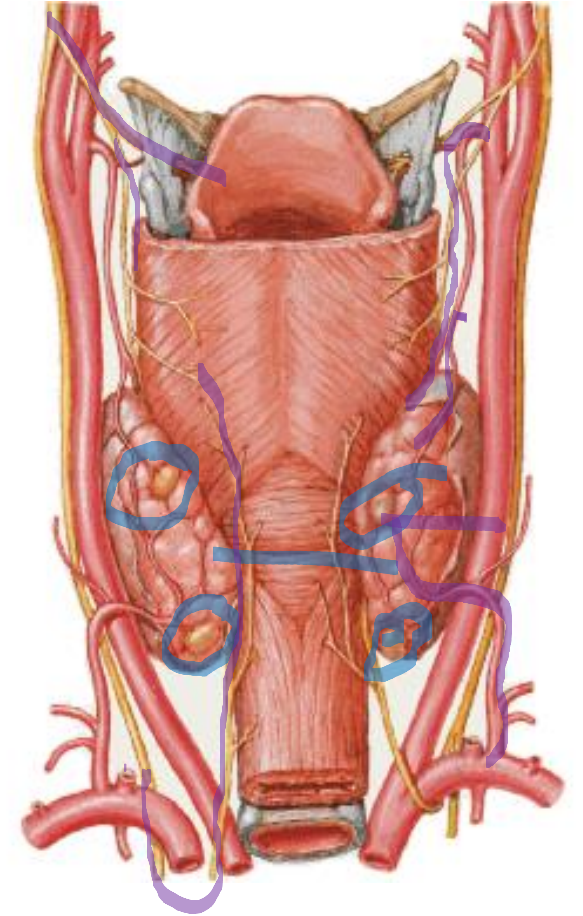
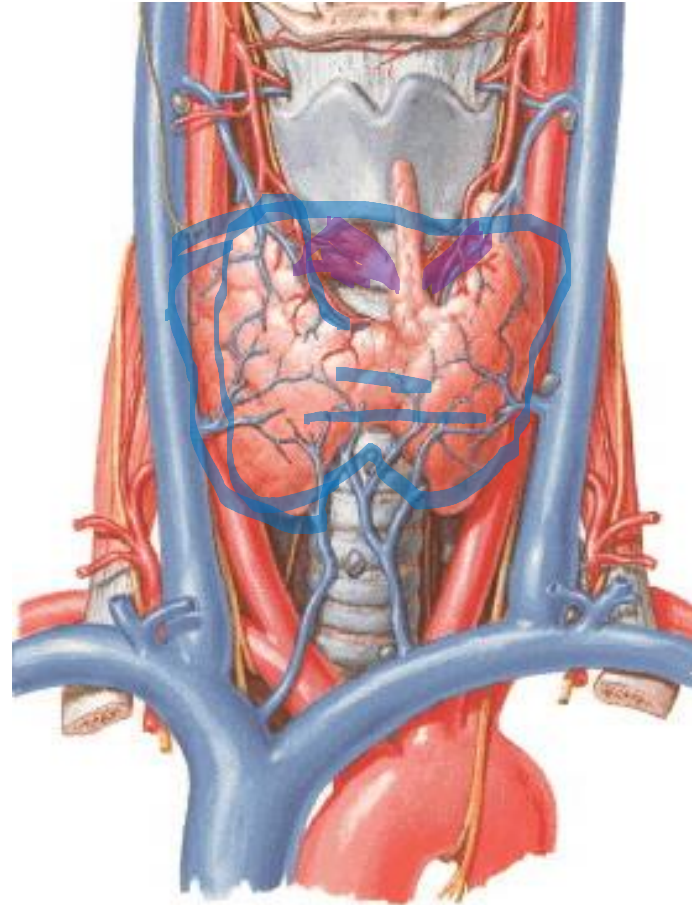
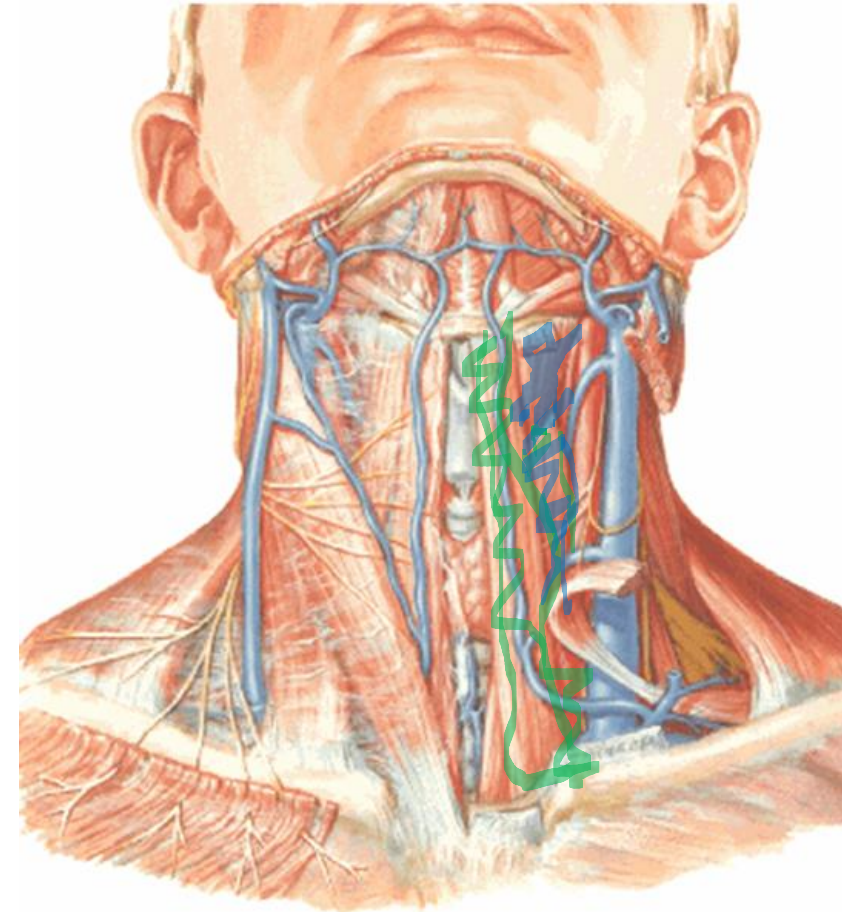
(above the sternum, between lamina spf. and praetrachealis)

Fatty tissue

arcus venosus juguli



Trigonum omotracheale (visceral layer)



Infrahyoid muscles (ansa cervicalis prof.)

larynx, trachea (C6)

pharynx, oesophagus (C6)

gl. thyroidea

ggl. parathyroidae

pharynx, oesophagus (C6)

a., v. thyroidea sup. et inf,

a., v. laryngea sup.

n. laryngeus sup. (ramus int. et ext.)

n. laryngeus inf.



Trigonum submandibulare

Borders: m. digastricus

mandibule

tractus angularis - divides gl.

parotis and gl. submandubularis

Content: platysma, superficial lamina of cervical f.

glandula submandibularis

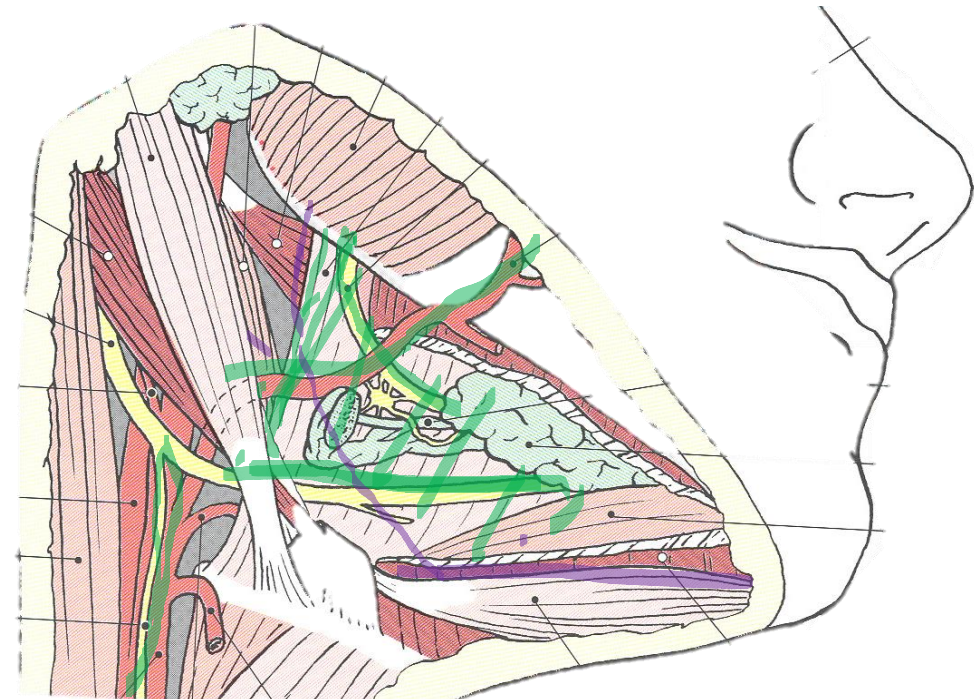
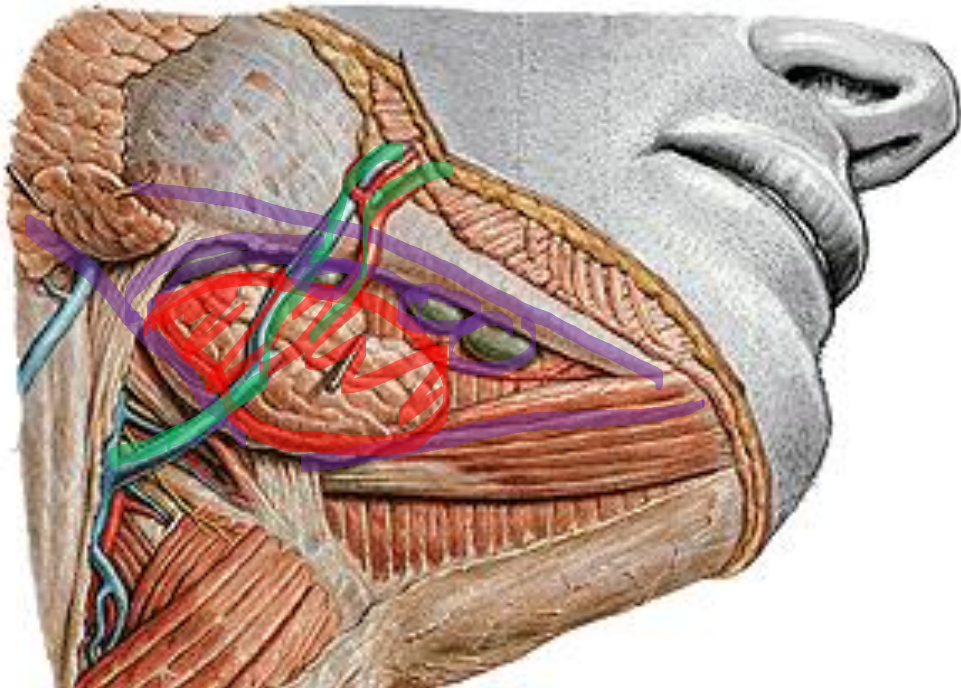
a.,v. facialis (a., v. submentalis)

n. mylohyoideus

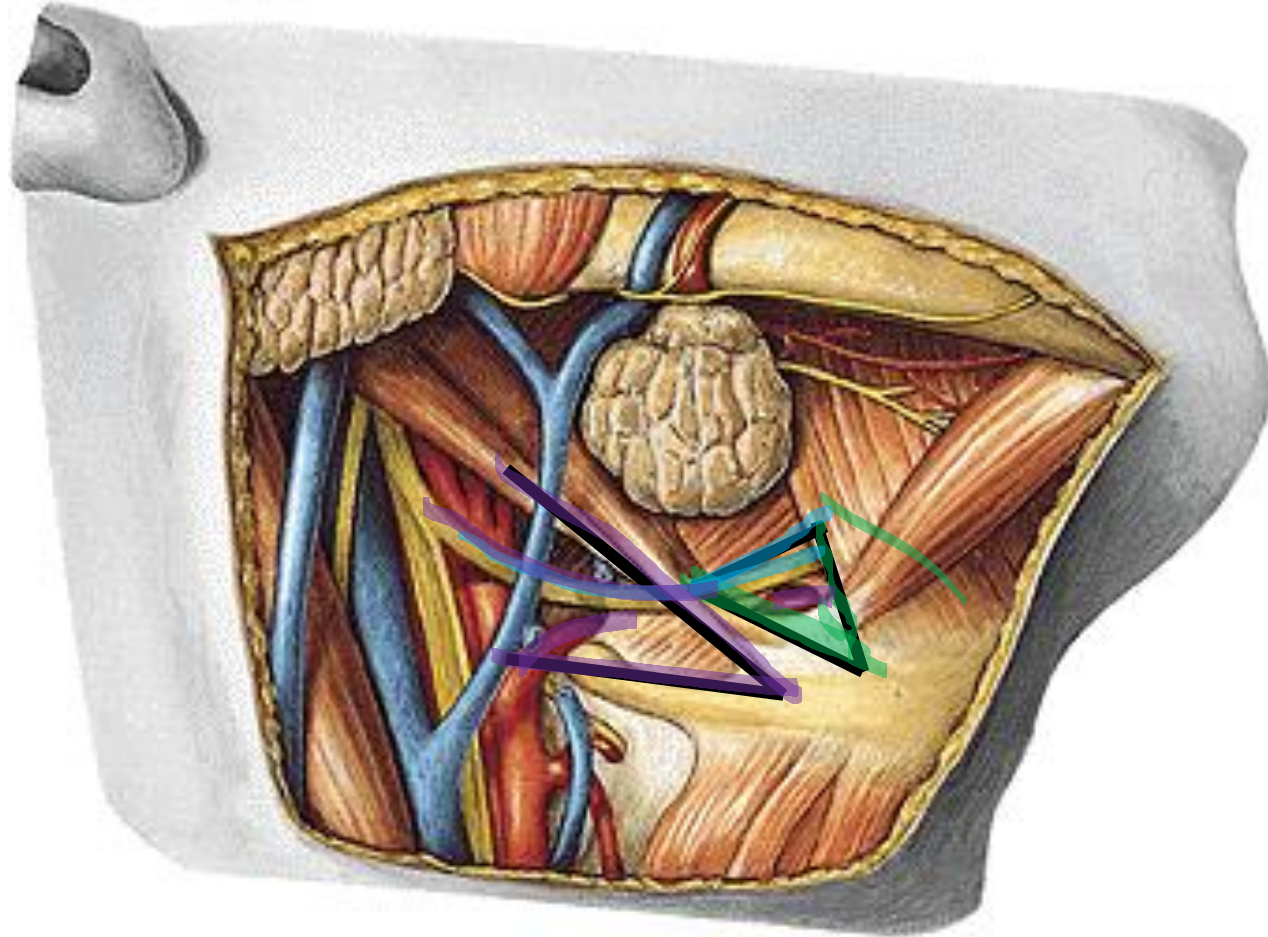
n. lingualis + ggl. Submandibulare

n. hypoglossus (arcus)

n. lymphatici submandibulares



Trigonum submandibulare



• **Trigonum Pirogowi** (ligation of lingual a.):

m. digastricus

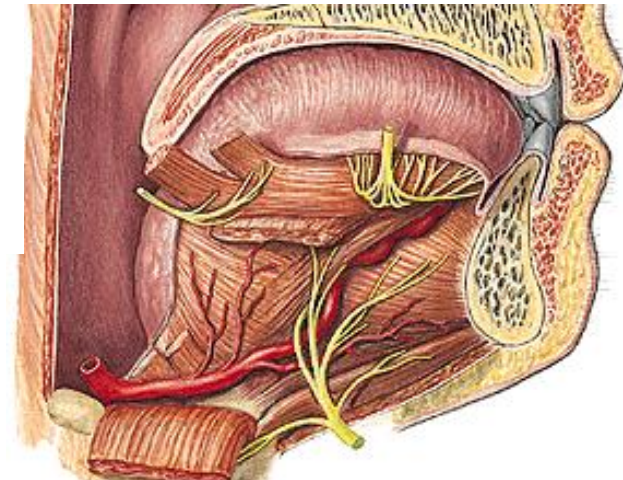
n. hypoglossus

m. mylohyoideus

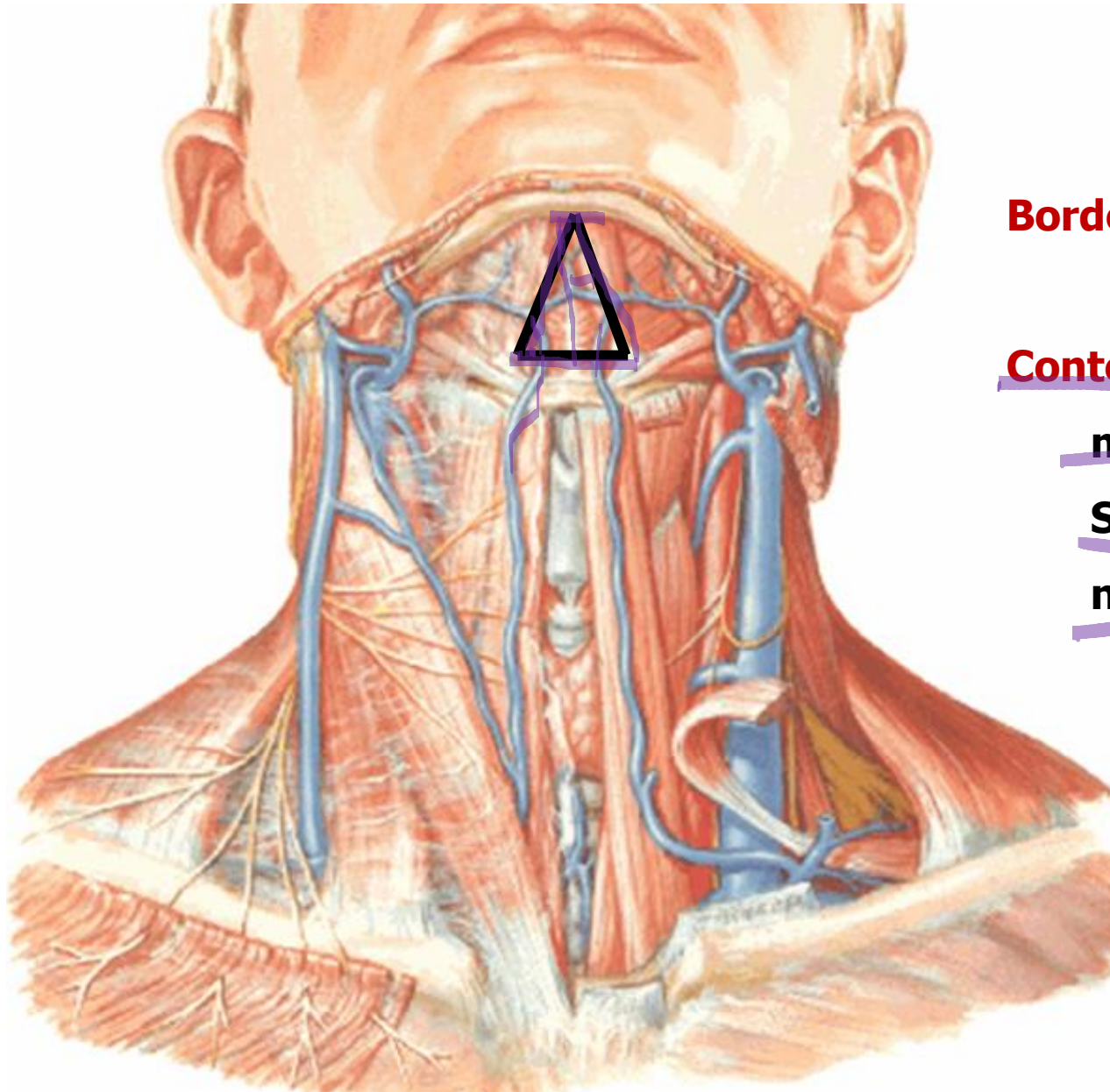
Béclard's angles (beginning of lingual a.):

cornu majus ossis hyoidei

n. hypoglossus



Trigonum submentale



Borders: m. digastricus – anterior belly (bilat.)
hyoid bone

Content:

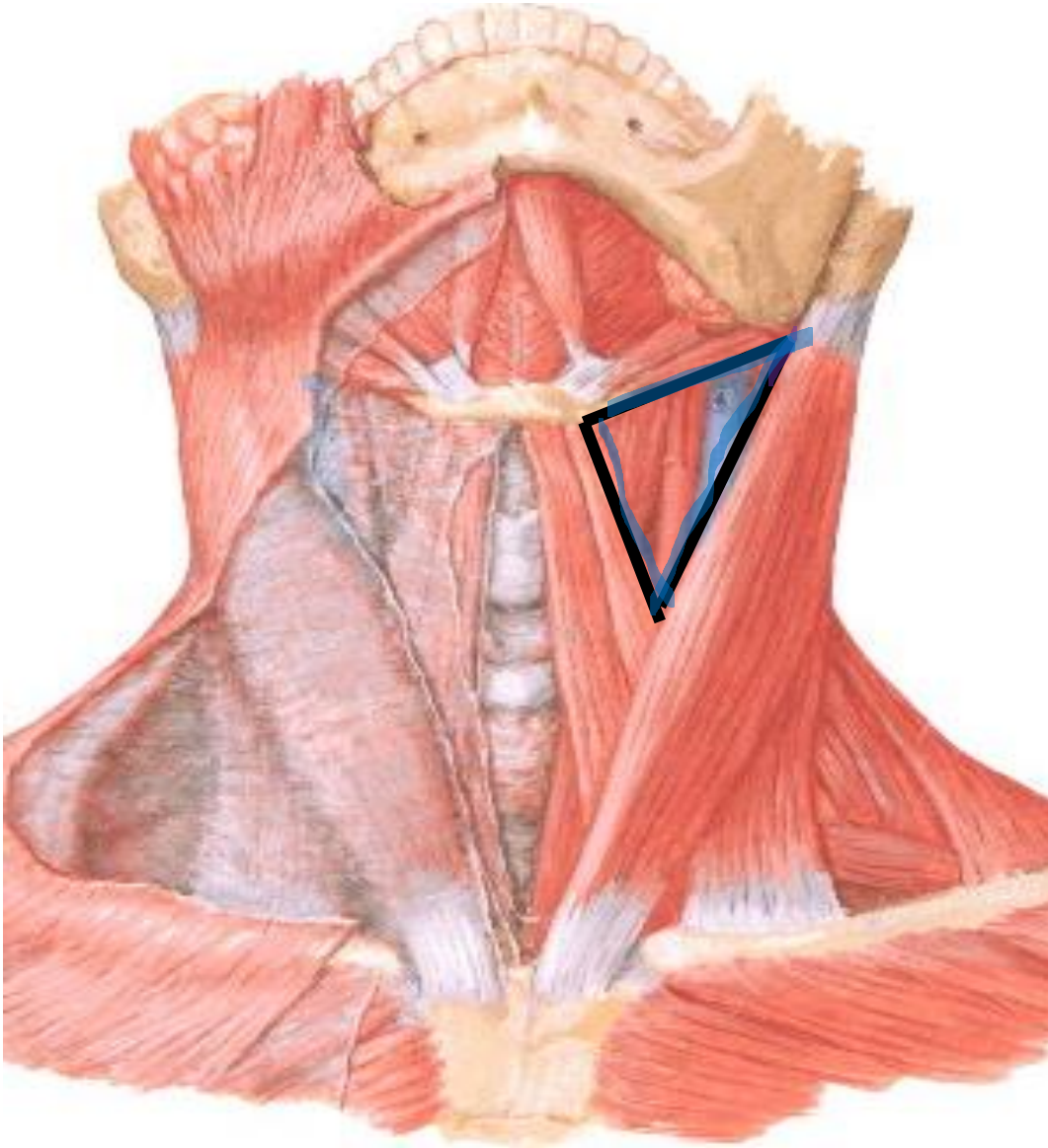
m. platysma

Spf. lamina of cervical fascia

nodi lymphatici submentales



Trigonum caroticum



Borders:

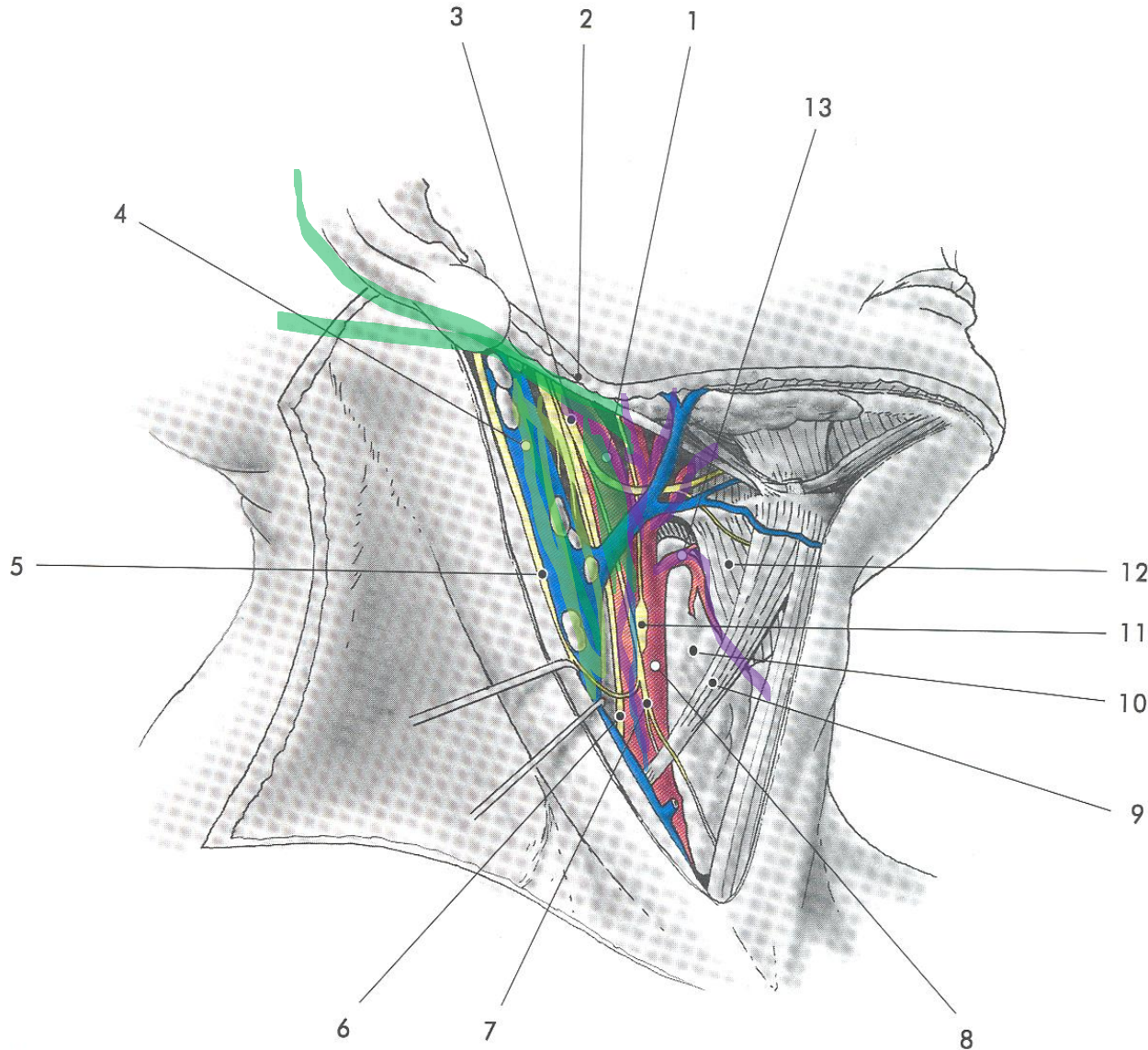
Anterior margine of m. sternocleidomastoideus
venter superior m. omohyoidei
venter posterior m. digastrici

Major content:

- bifurcatio carotidis (C4)**
(a. carotis com. -> a. carotis ext. et int.)
- glomus caroticum**



Trigonum caroticum – vessels



vena jugularis int. and tributaries

(nodi lymphatici cervicales prof.)

a. carotis com.

a. carotis int. – dorsomedially (no branches!!!)

a. carotis ext.

a. thyroidea sup.

a. lingualis

a. facialis

a. pharyngea sup.

a. occipitalis

a. auricularis post



Trigonum caroticum – nerves

n. vagus

n. laryngeus sup.

n. hypoglossus (arcus)

radix sup. ansae cervic. prof.

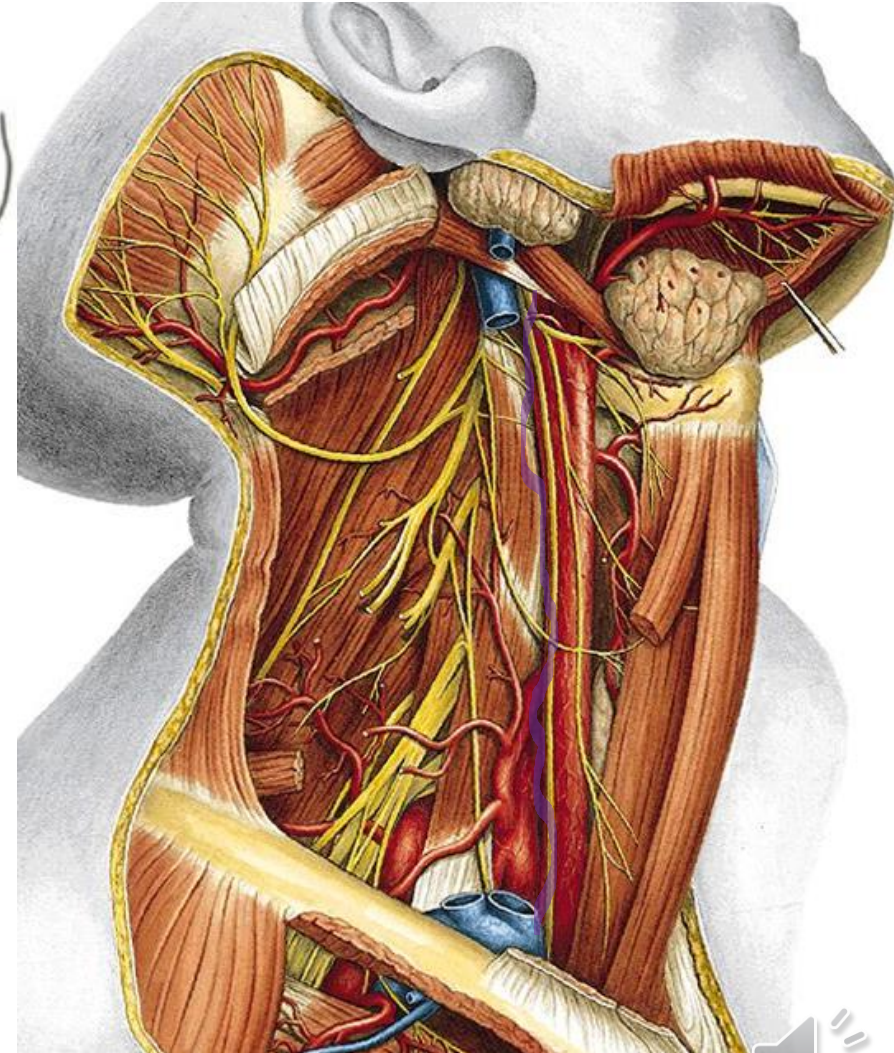
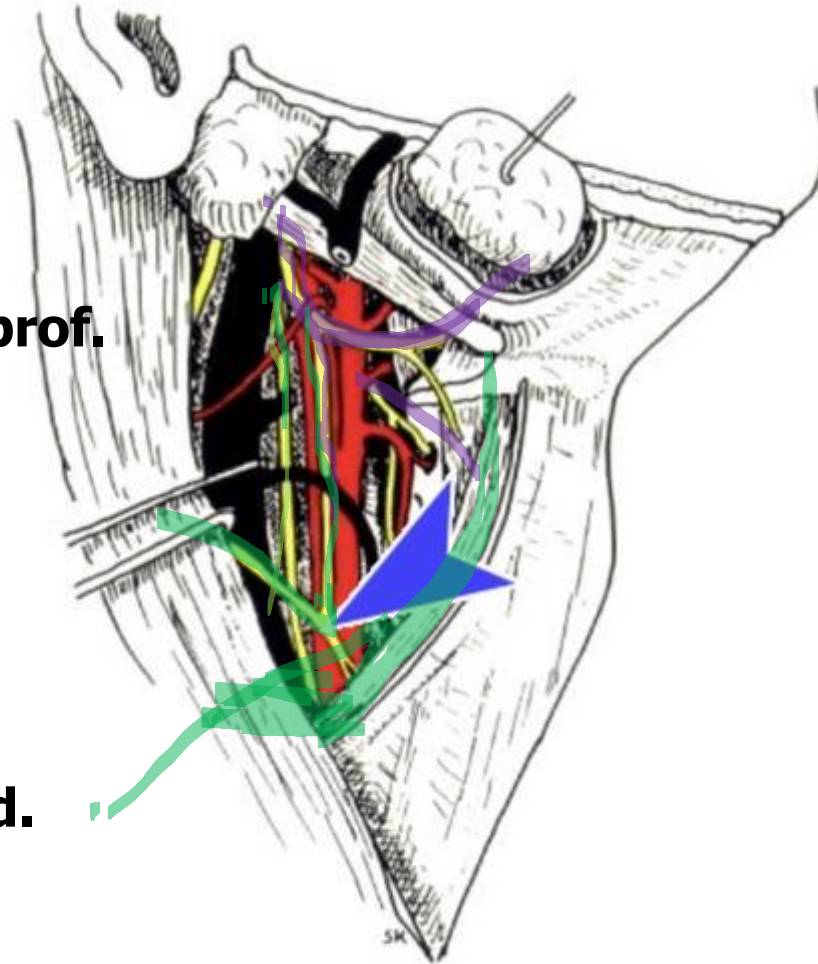
ansa cervicalis prof.

(infrahyoid mm.)

truncus sympaticus

(praevertebral fascia)

ggl. cervicale sup. et med.



Regio sternocleidomastoidea

Borders: m. sternocleidomastoideus
(fossa supraclavicularis minor)

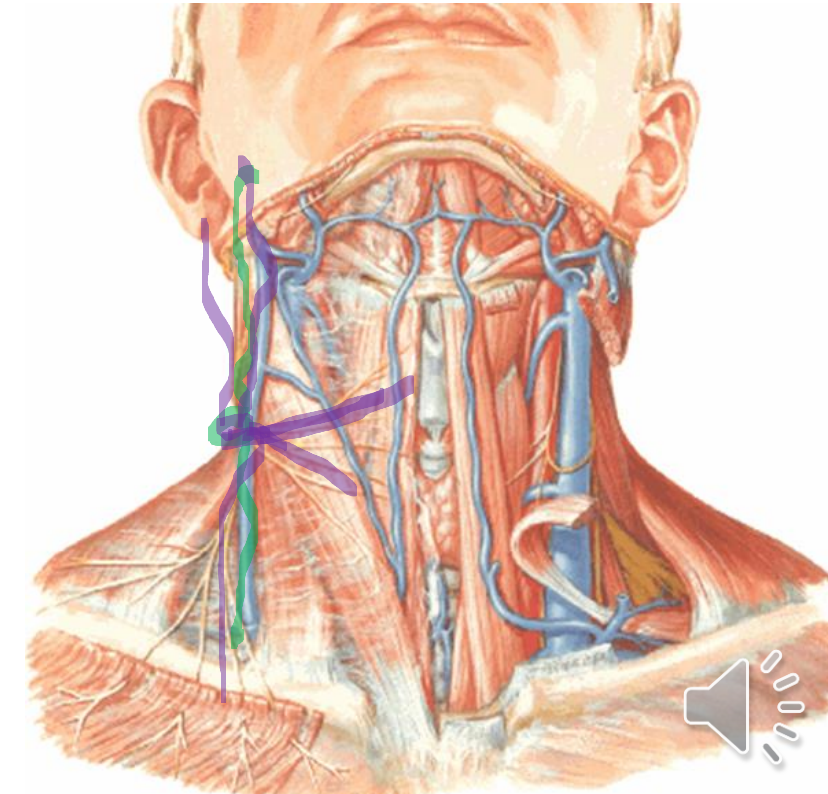
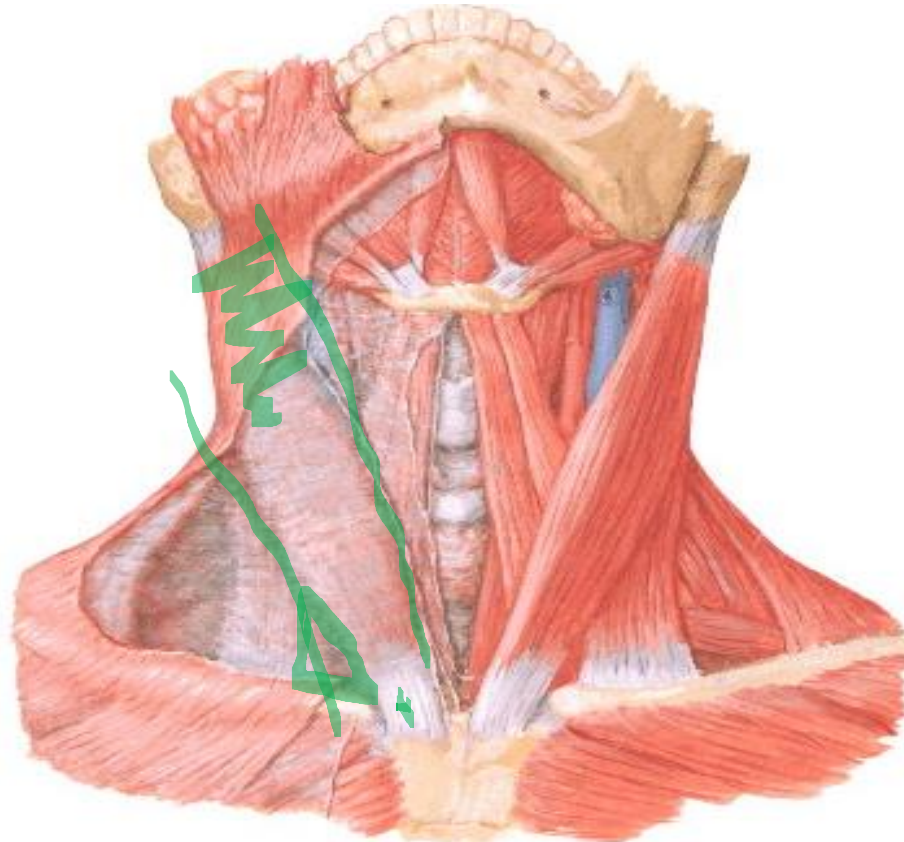
Layers: skin and m. platysma

v. jugularis ext. + n. lymph. cervicales spf.

punctum nervosum

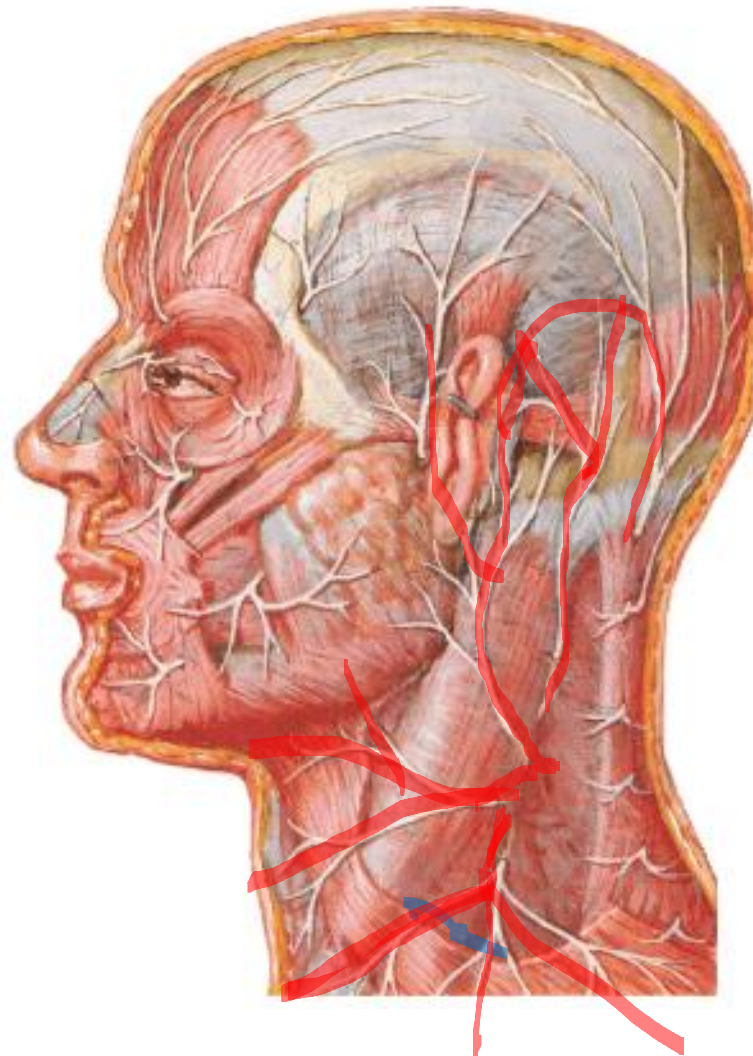
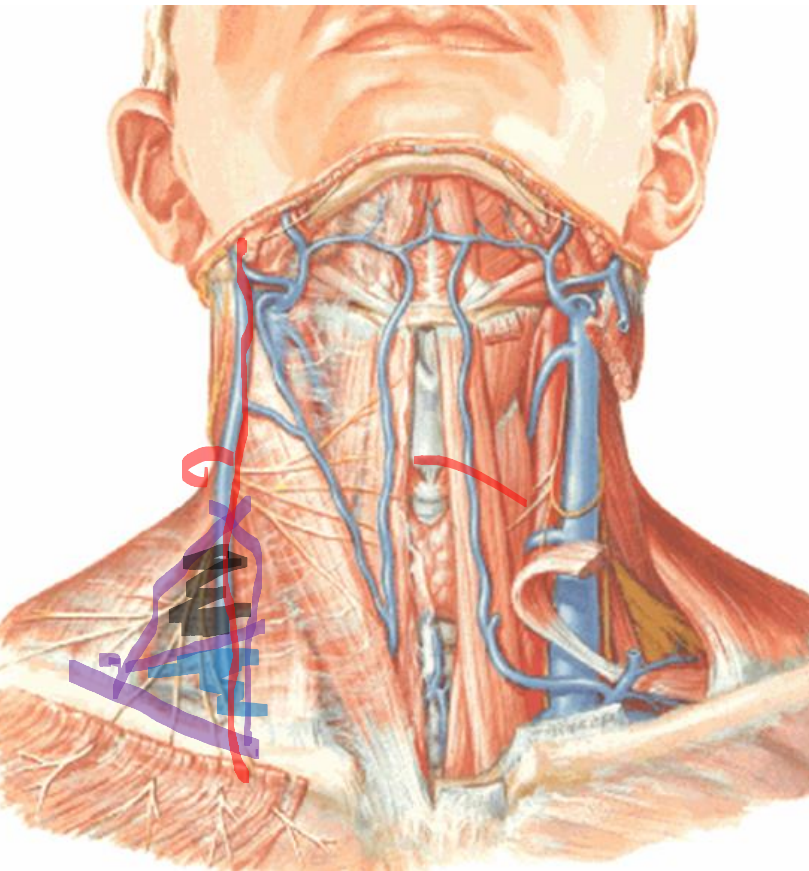
lamina spf. fasciae cervicalis + m. sternocleidomastoideus

n. accesorius + a. sternocleidomastoidea (a. carotis ext.)



Regio colli laterale – superficial layer

Borders: post. margin of m. sternocleidomastoideus, ant. margin of m. trapezius, clavicula venter inferior m. omohyoidei -> **trigonum omoclaviculare** and **trigonum omotrapezium**



Skin and m. platysma

v. jugularis ext. + n. lymph.
cervicales spf.

punctum nervosum

n. transversus coli

**(r. coli n. facialis – ansa
cervicalia spf.)**

n. auricularis magnus

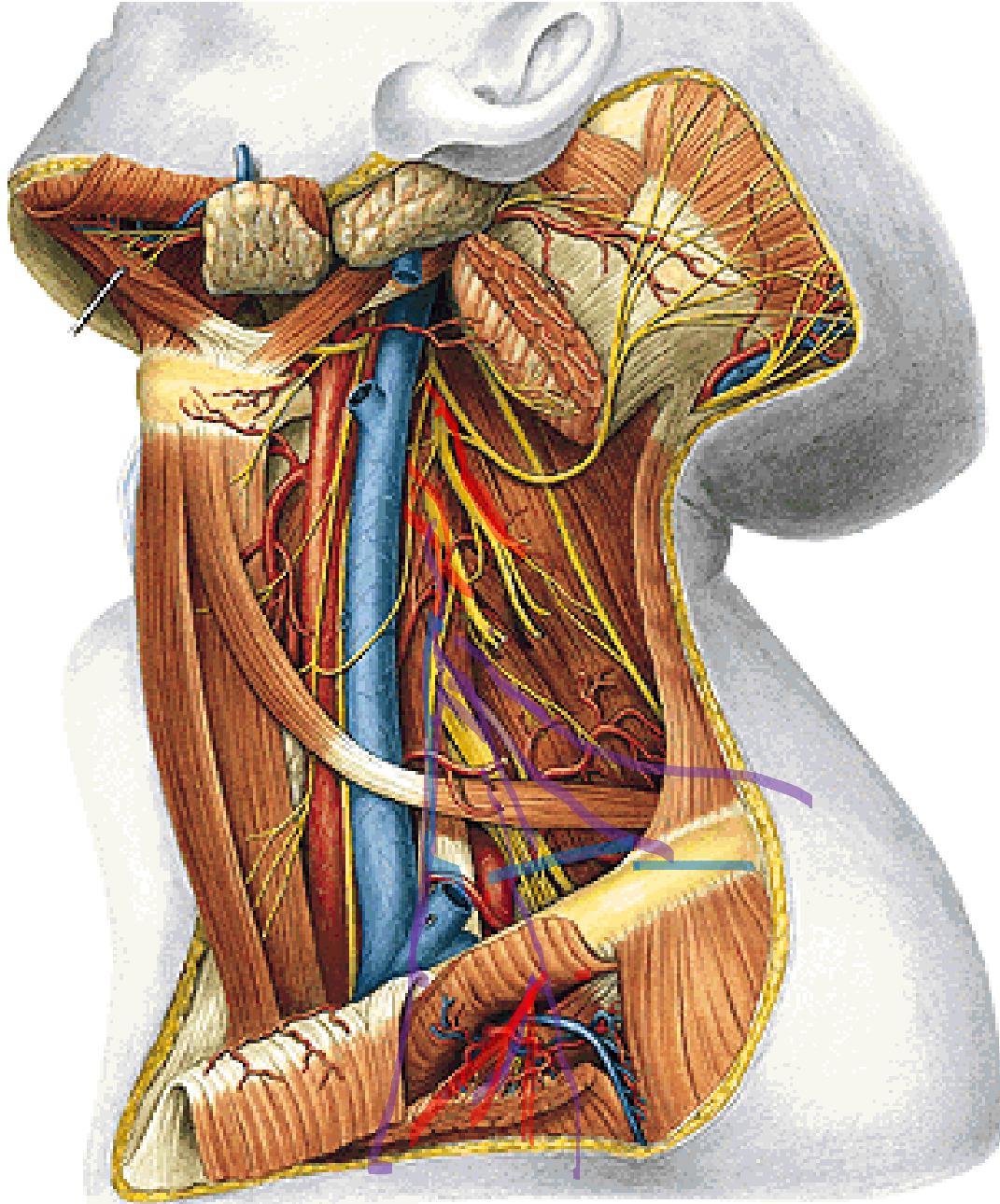
n. occipitalis minor

nn. supraclaviculares

lamina spf. fasciae cervicalis



Regio colli laterale – deep layer



n. accesorius (m. trapezius)

▶ **plexus cervicalis** (n. phrenicus)

☞ supraclavicular part of **plexus brachialis**

n. dorsalis scapulae

n. suprascapularis

n. thoracicus longus

nn. pectorales

nn. subscapulares

n. thoracodorsalis

☞ **Arteries** (braches of a. subclavia):

a. cervicalis ascendens

a. cervicalis spf.

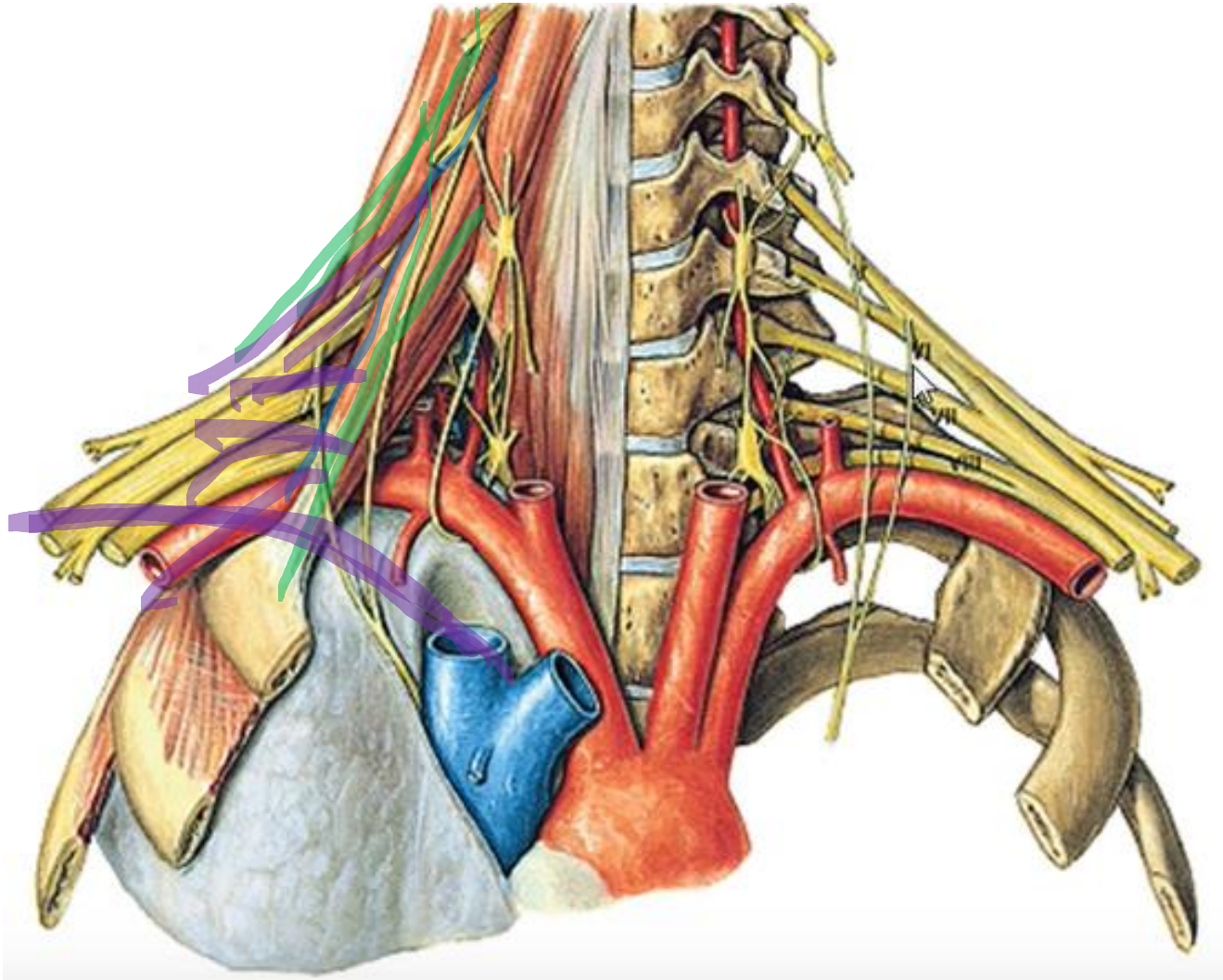
a. transversa coli

a. suprascapularis

nodi lymph. cervicales prof.



Regio coli laterale – deep layer



v. subclavia

fissura

scalenorum:

a. subclavia

plexus

brachialis



Trigonum scalenovertebrale (trigonum a. subclaviae)

Borders:

caudal: cupula pleurae (2 cm above the clavicle)

lateral: m. scalenus ant.

medial: organs (trachea, thyroid gland, esophagus)

dorsal: m. longus coli

ventral: m. sternocleidomastoideus

Content:

angulus venosus – v. subclavia + v. jugularis int.

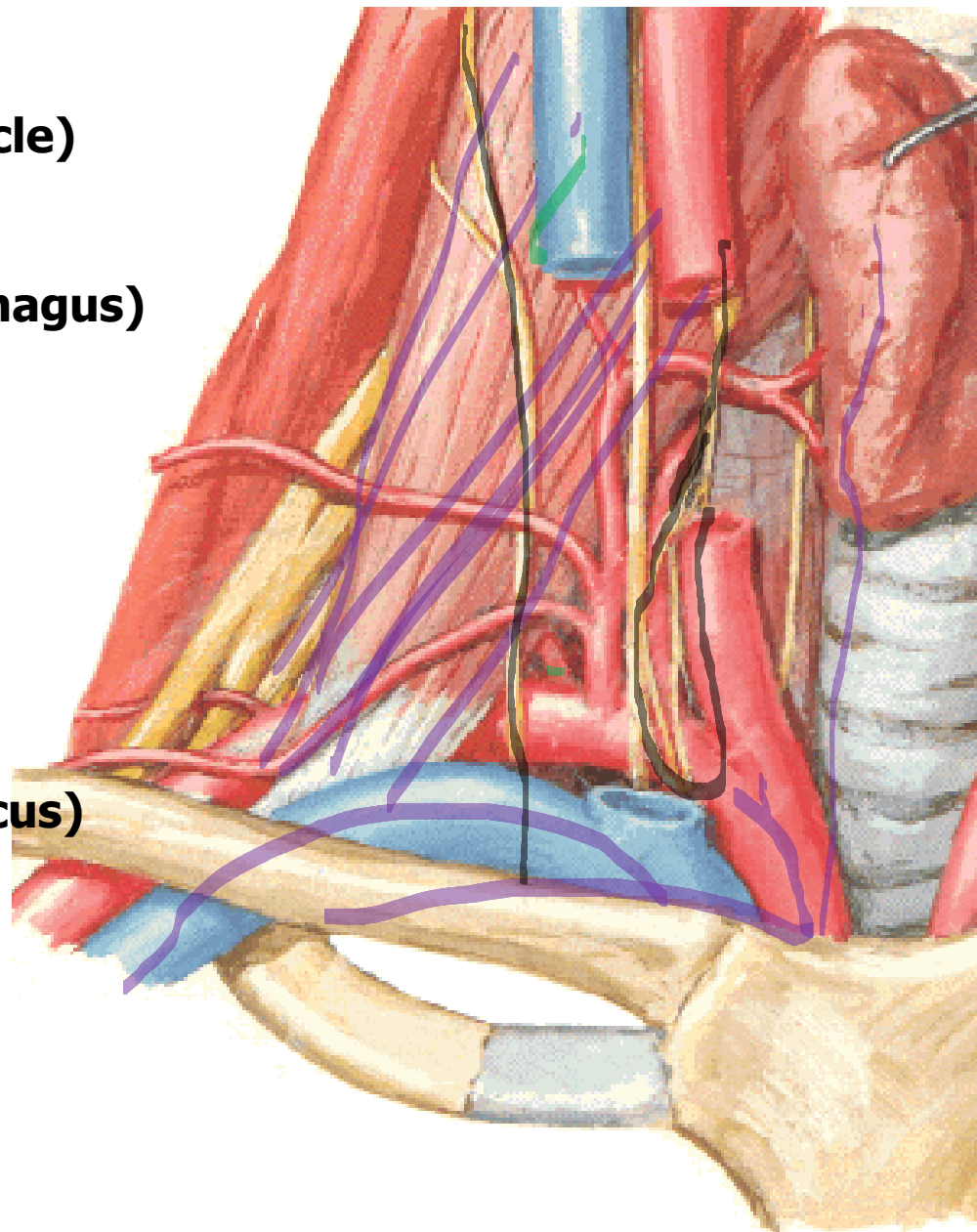
(dx. tr. lymphaticus dx.; sin. ductus thoracicus)

a. subclavia and branches (dx. tr. brachiocephalicus)

n. vagus – n. laryngeus recurrens

tr. sympathicus and branches – ansa subclavia
ggl cervicale inf.

n. phrenicus

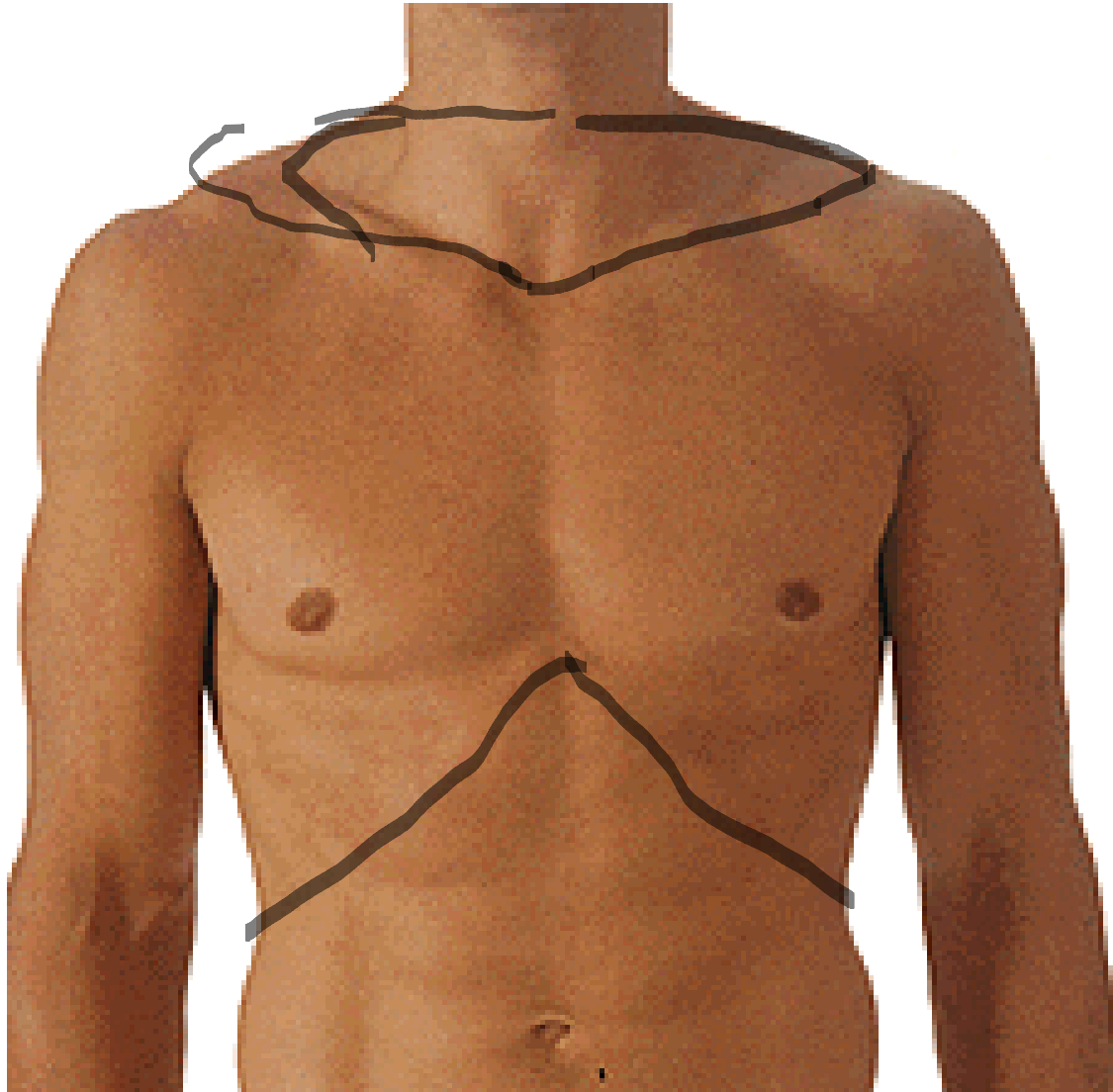


M U N I
M E D

REGIONAL ANATOMY OF THE CHEST



CHEST



Superficial border against neck:

Incisura jugularis sterni

clavicula

acromion

vertebra prominens (C₇)

Superficial border against abdomen:

arcus costarum

Deep border against neck:

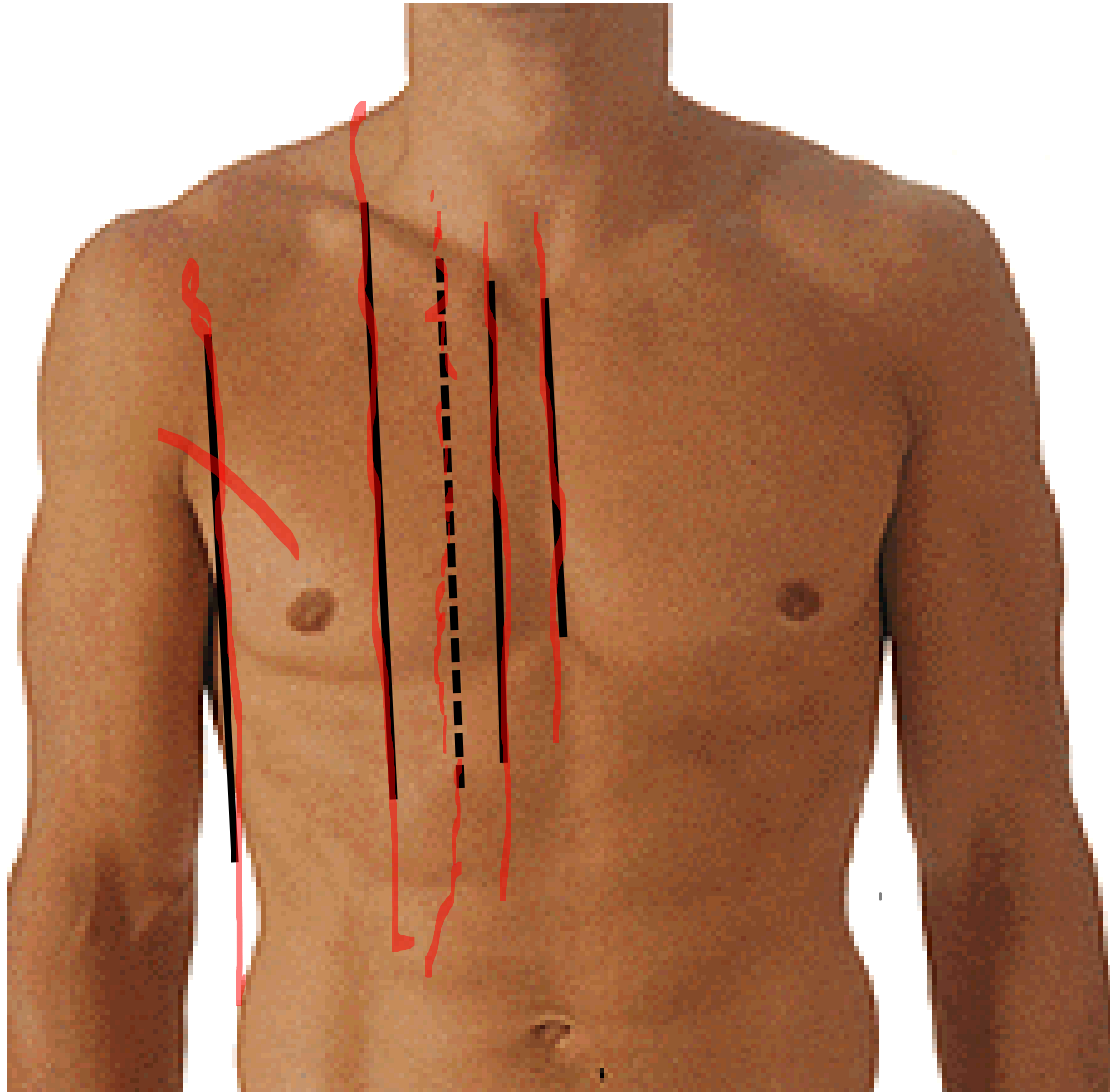
↳ **apertura thoracis superior**

Deep border against abdomen:

diaphragm



Orientation lines on the chest



Linea mediana anterior

Linea sternalis

Linea parasternalis

Linea medioclavicularis

Linea axillaris ant.

Linea axillaris media



Orientation lines on the chest



Linea mediana post.

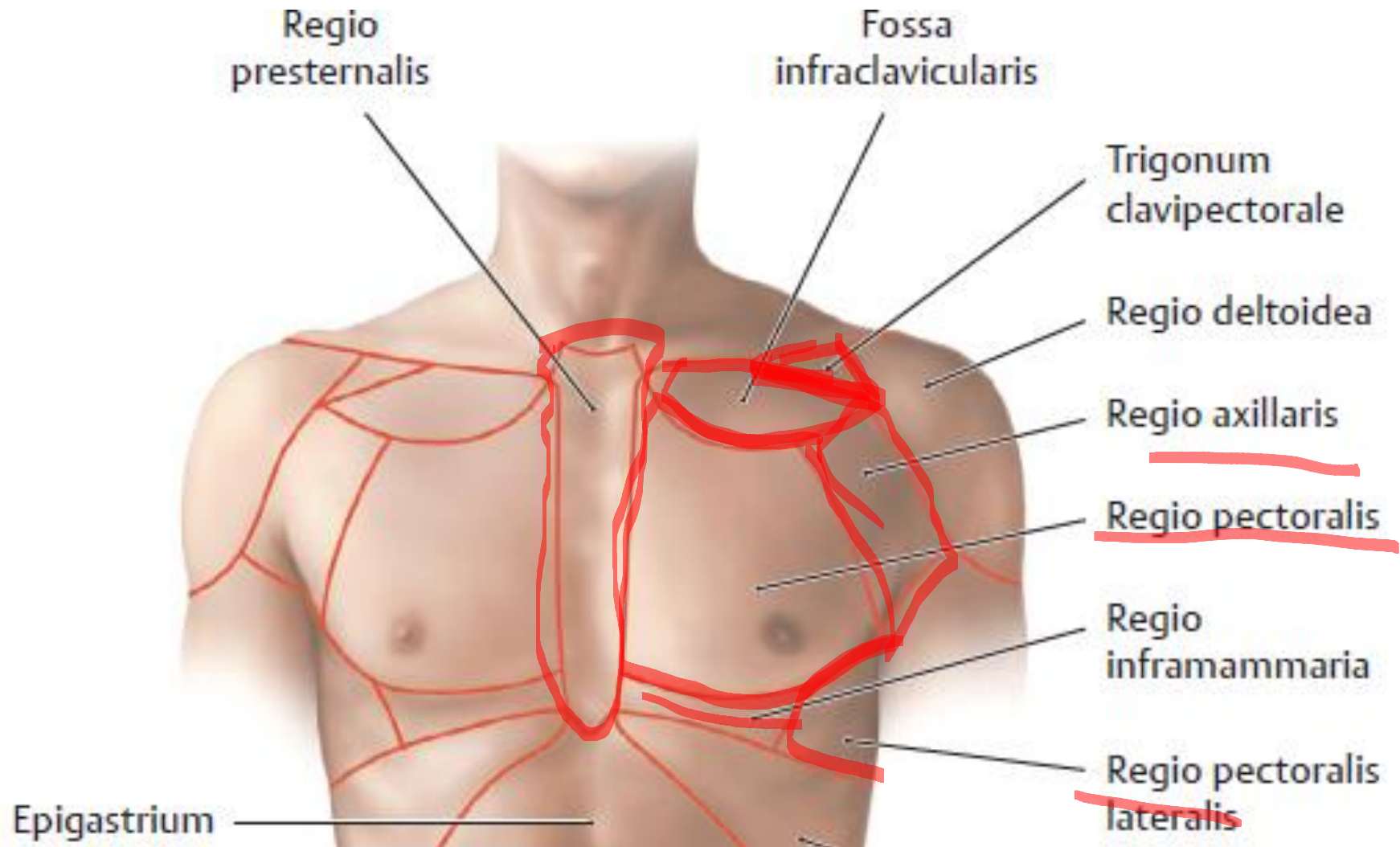
Linea paravertebralis

Linea scapularis

Linea axilaris post.



Regiones thoracis



Thoracic wall

Skin and subcutaneous tissue

v. thoracoepigastrica

rr. cutanei ant. et lat. (nn. intercostales)

fascia pectoralis

Heterochtonous muscles of the chest

mm. intercostales:

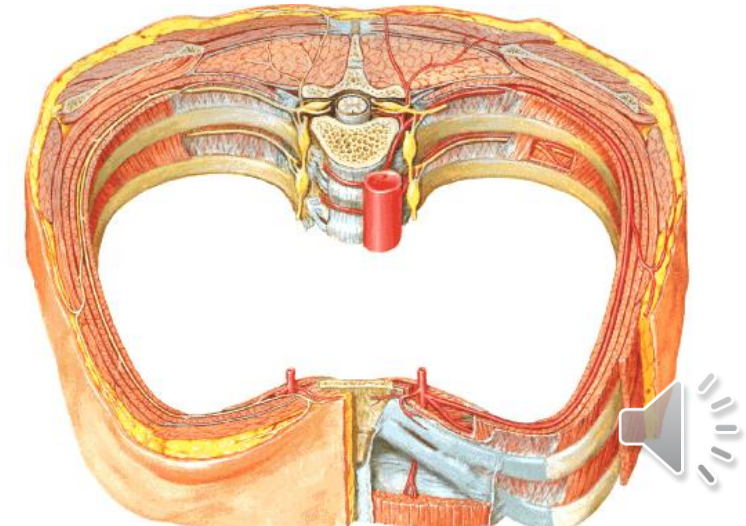
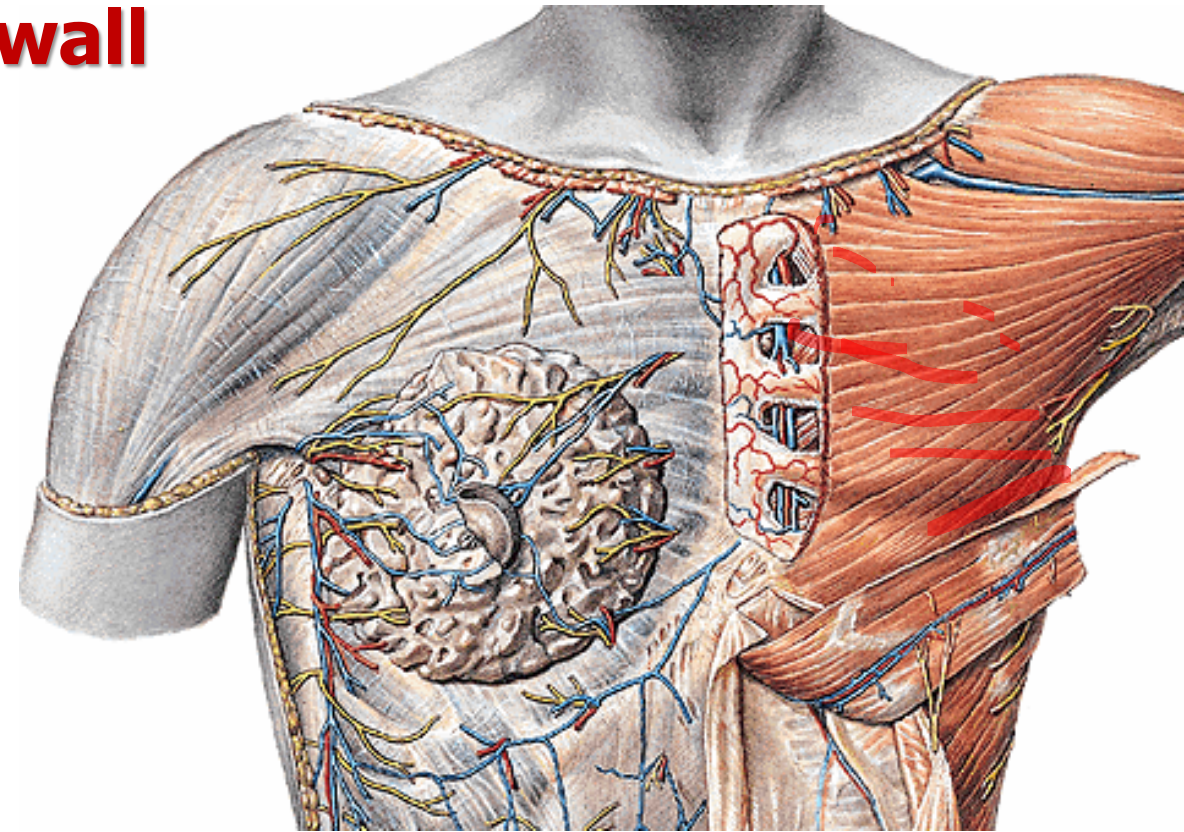
ext. + membrana intercostalis ext.

int. + membrana intercostalis int.

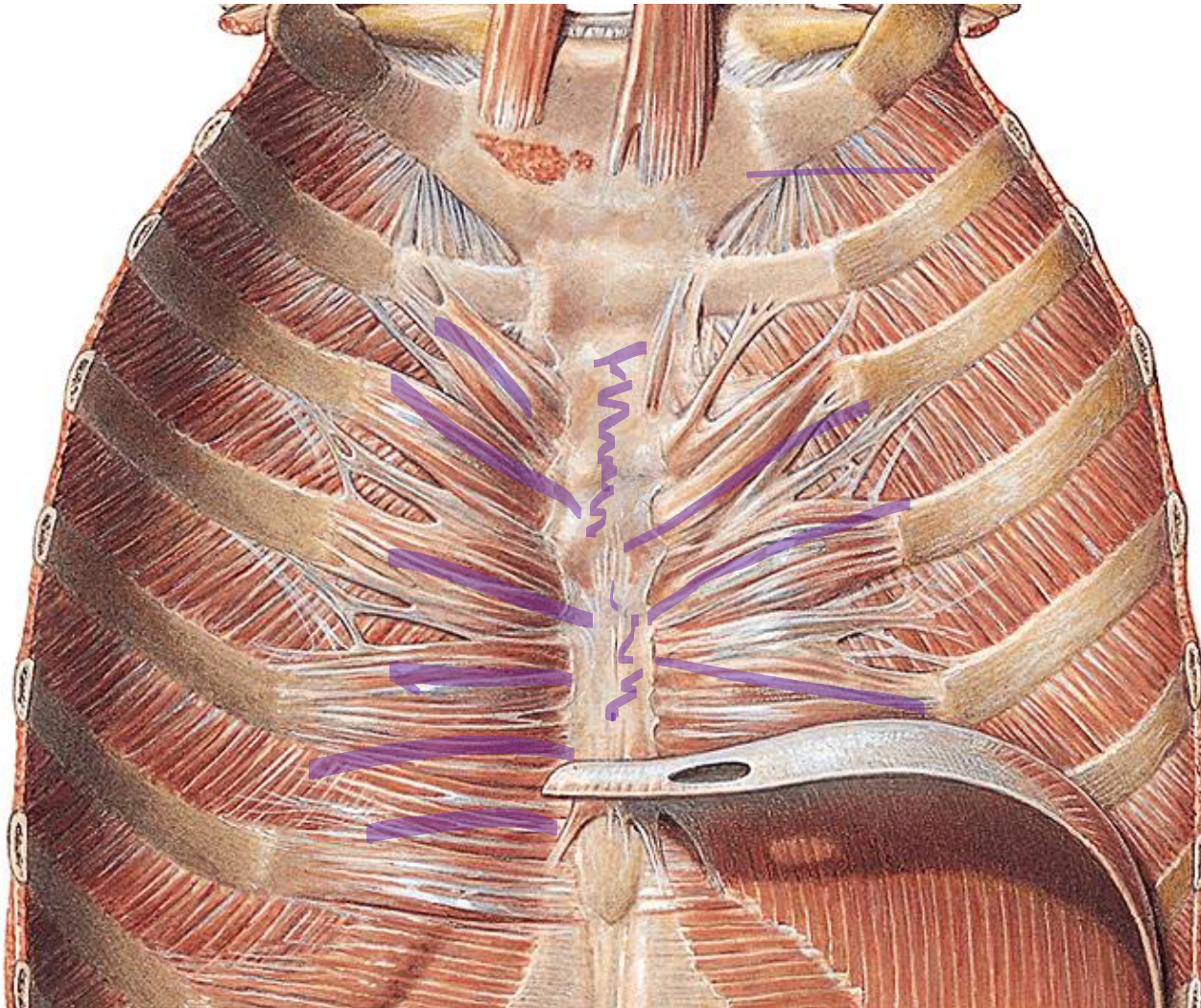
intimi

v., a., n. intercostalis (VAN) v sulcus costae

fascia endothoracica



Presternal region



Borders:

sternum

Content:

skin – hairs, glands

Subcutaneous tissue

innervation nn. supraclaviculares

periost (membrana sterni ext.)

sternum

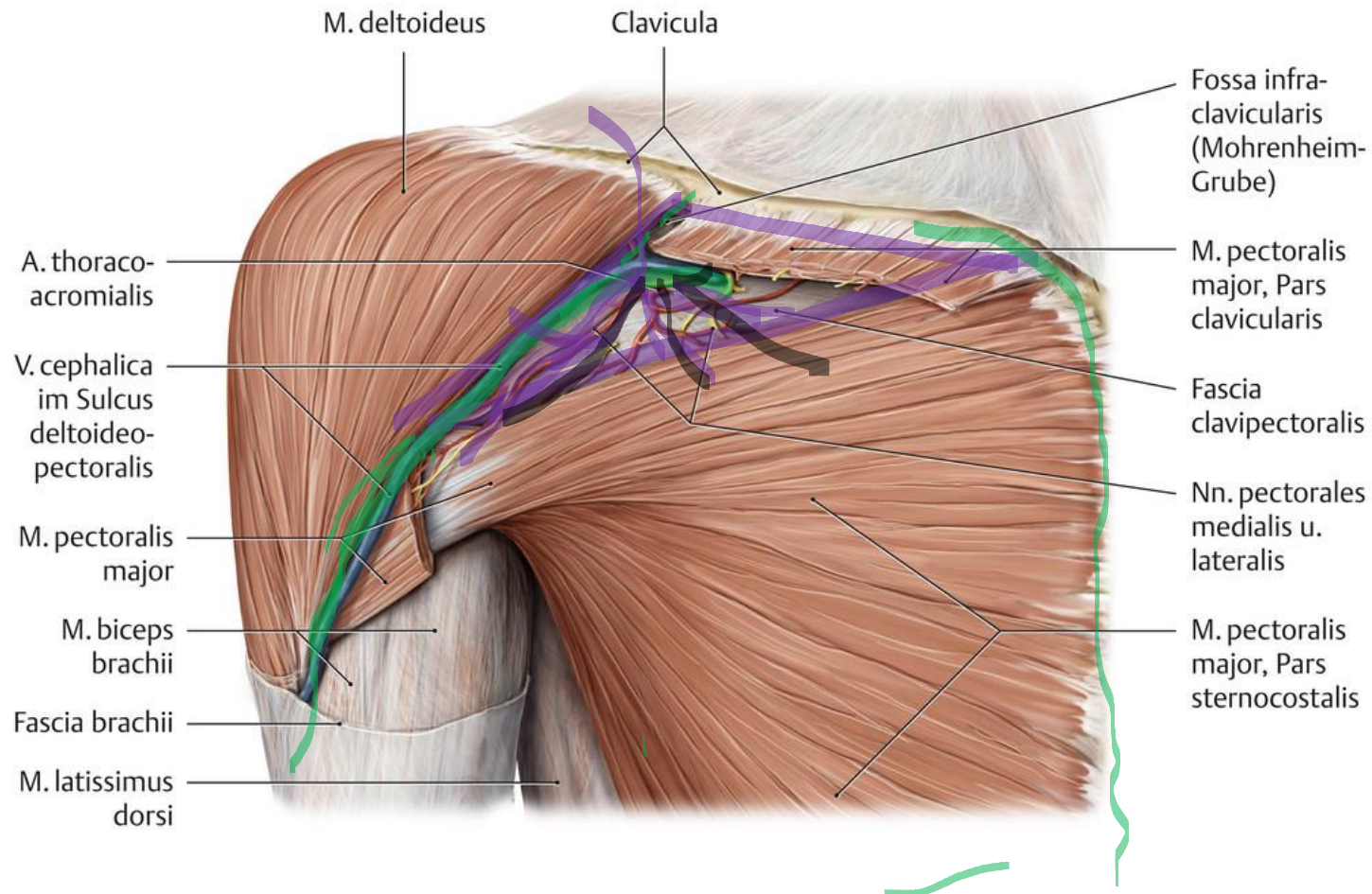
membrana sterni int.

m. transversus thoracis

fascia endothoracica



Trigonum deltoideopectorale (clavipectorale)



Borders:

clavicula

m. deltoideus

m. pectoralis major

Content:

Skin and subcutaneous tissue

v. cephalica (sulcus deltoideopectoralis)

innervation nn. supraclaviculares

fascia clavipectoralis

a. thoracoacromialis (a.axillaris)

nn. pectorales

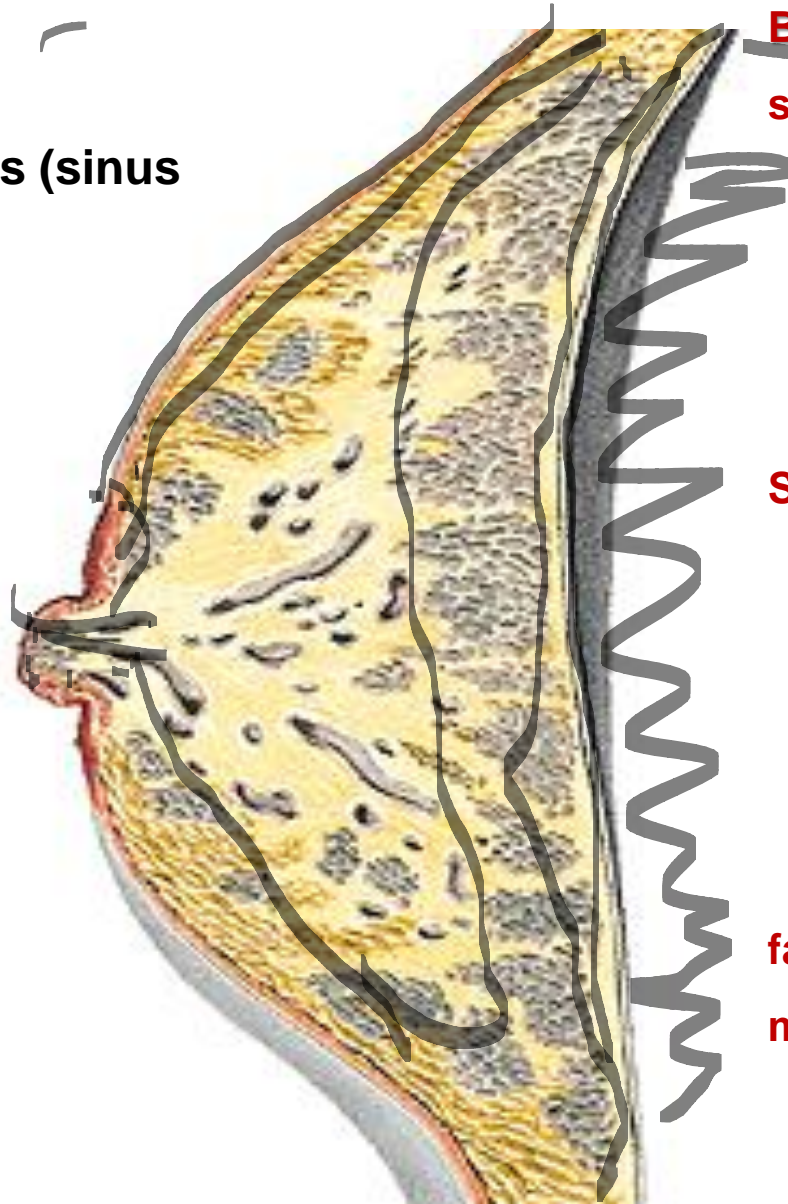


Regio mammaria

Borders:

from 3rd to 6th intercostal space

linea axillaris ant. – linea parasternalis (sinus mammarum)



Breast morphology:

skin

areola mammae

(gll. areolares mammae)

papilla mammae

(area cribriformis, ductus lactiferi)

Subcutaneous tissue:

m. subareolaris

praemammary fat

corpus mammae with proc.

axillaris

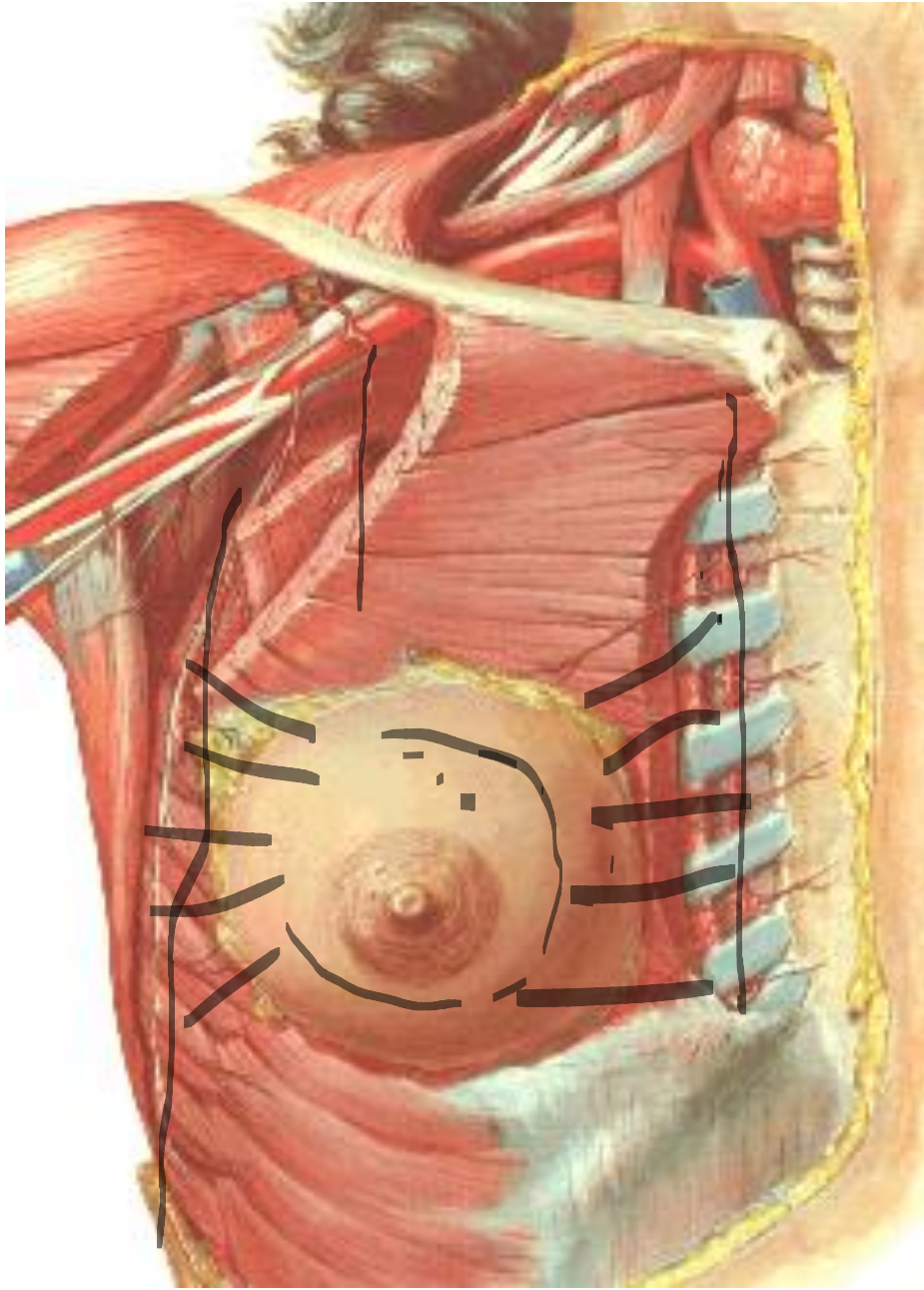
retromammary fat

fascia pectoralis

mm. pectorales



Regio mammaria



Arteries:

a. thoracica interna (rr. mammarii med.)

a. thoracica lateralis (rr. mammarii lat.)

a. thoracica supremá

aa. intercostales post. (from 4. – Piet's papillary artery)

Veins

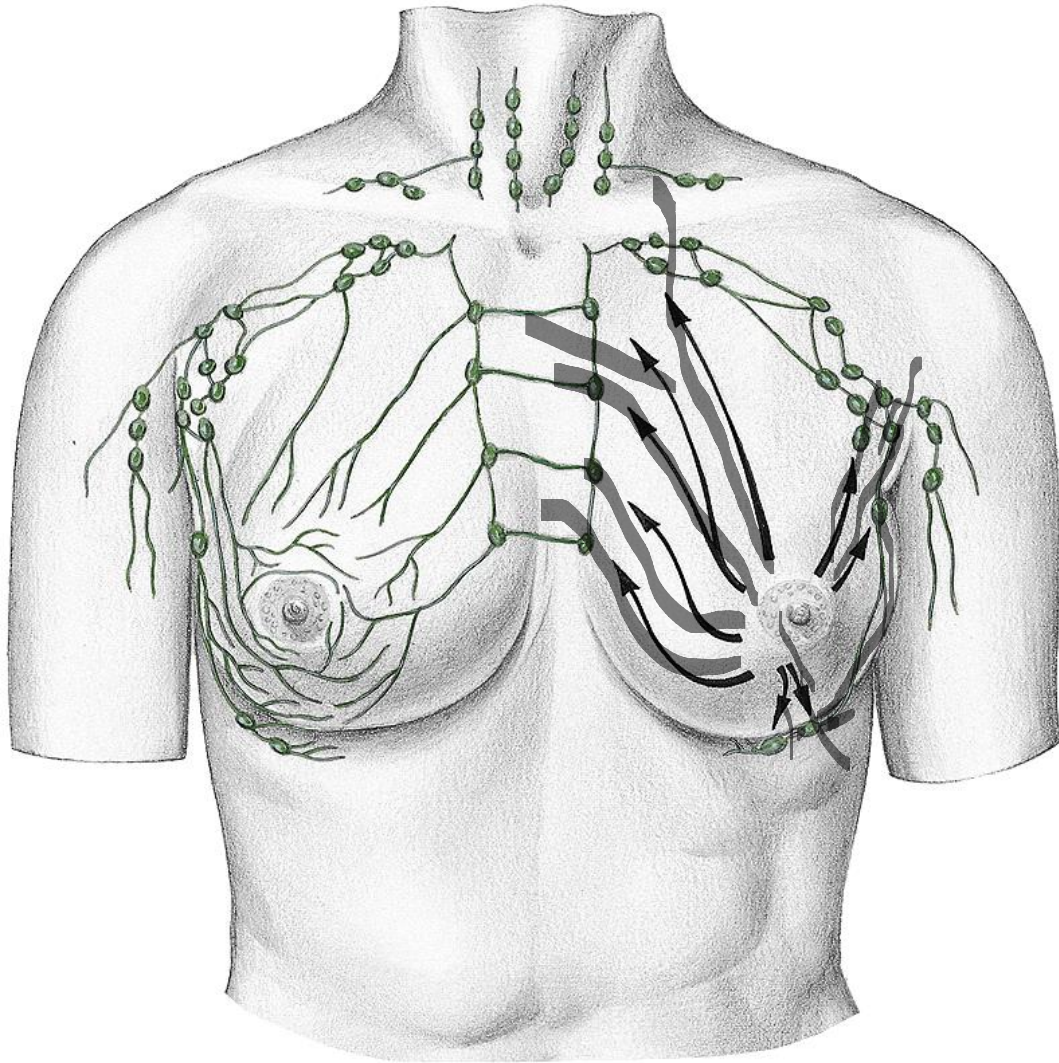
circulus venosus Halleri

Innervation:

nn. intercostales



Regio mammaria – lymphatic drainage



nl. axillares

• Sorgius l.n. (m. serratus ant.)

nl. parasternales

nl. supraclaviculares

nl. intercostales

nl. mediastinales ant.



Cavitates pleurales

pleura **parietalis** et **visceralis**

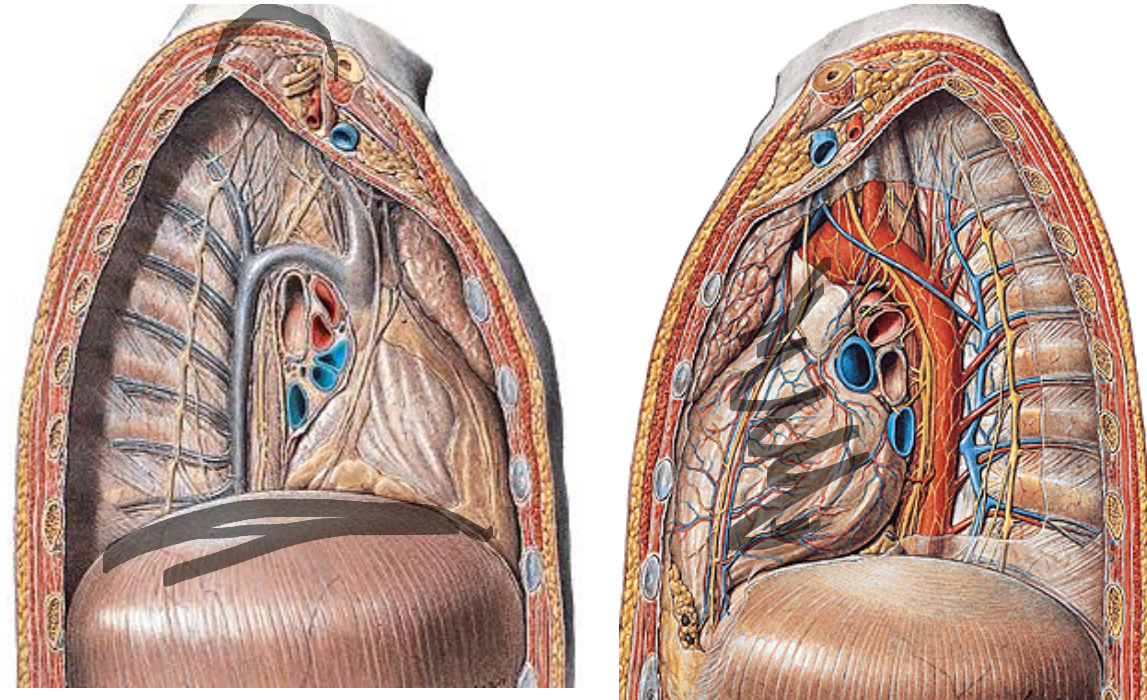
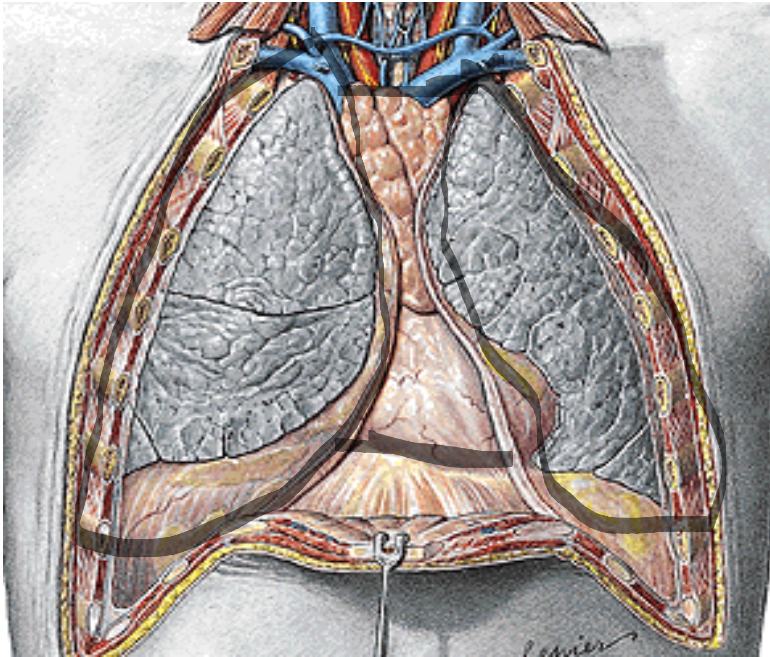
cavitas pleuralis dextra et sinistra

lig. pulmonale, mediastinum

cupula pleurae (2 cm above clavicle)

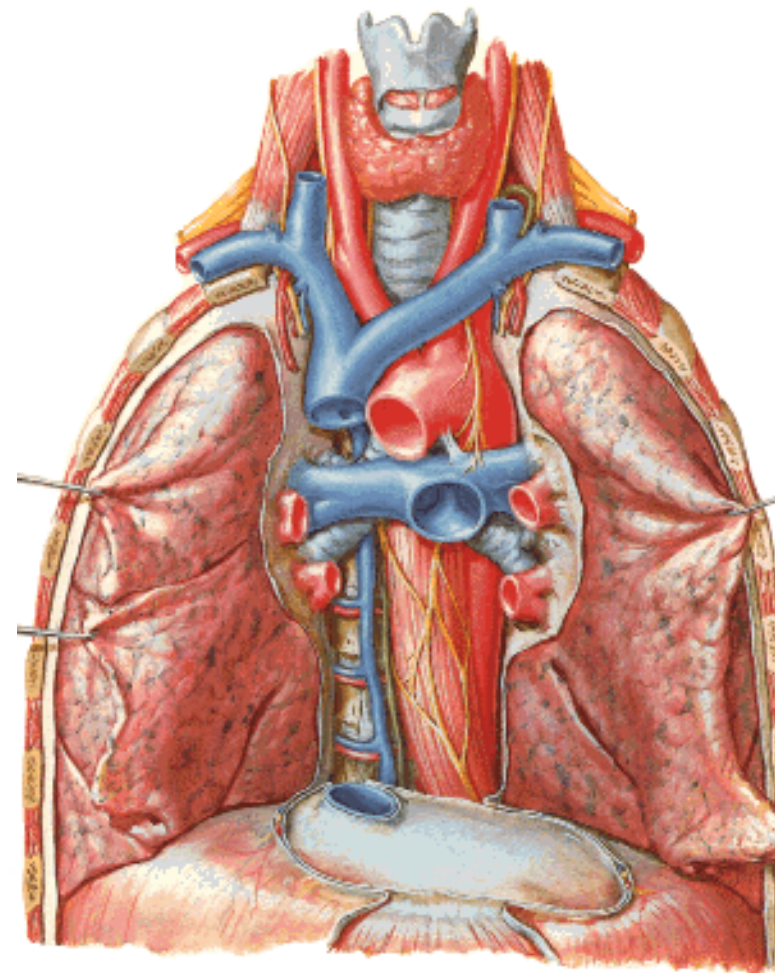
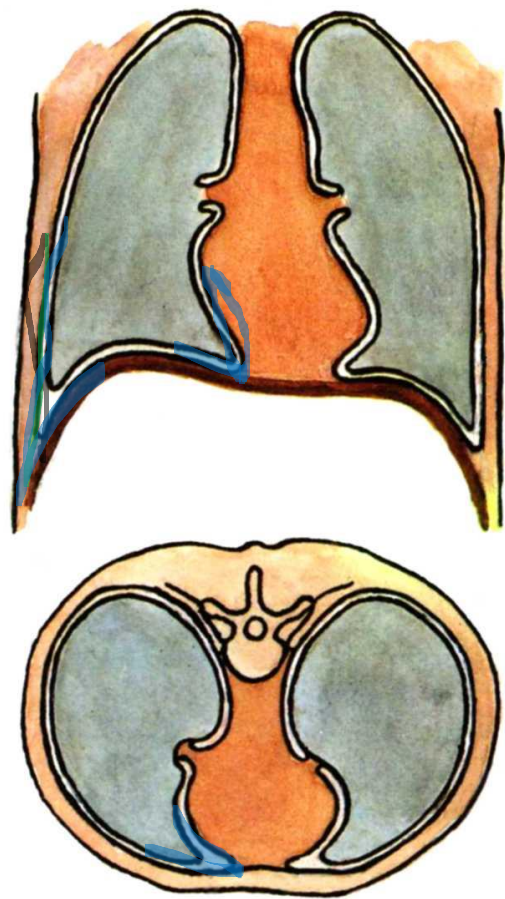
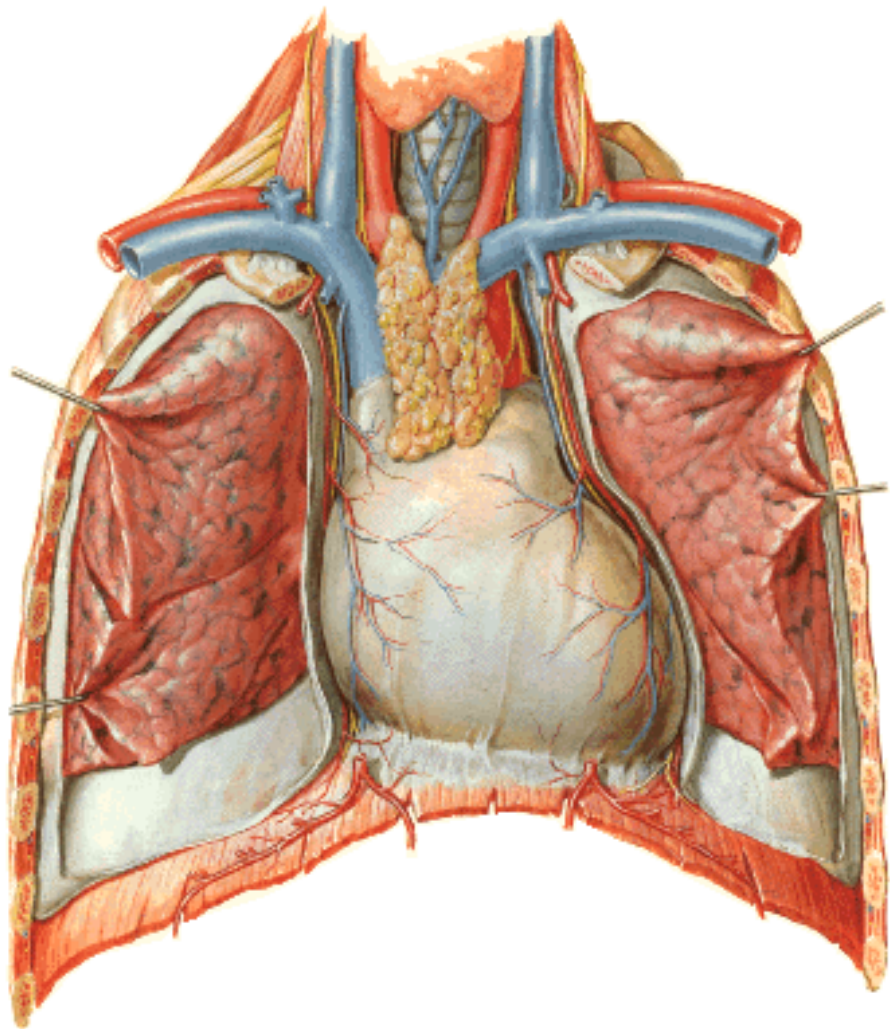
pleura parietalis:

costalis, diaphragmatica, mediastinalis



Recessus pleurales

recessus costodiaphragmaticus, costomediastinalis, phrenicomediastinalis



Projection of the pleura and lungs

cupula pleurae – 2 cm above clavicle

art. sternoclavicularis – 2nd sternocostal connection

area interpleuralis sup. (thymica)

4th sternocostal connection – incisura cardiaca (left) to 6th rib

area interpleuralis inf. (pericardiaca)

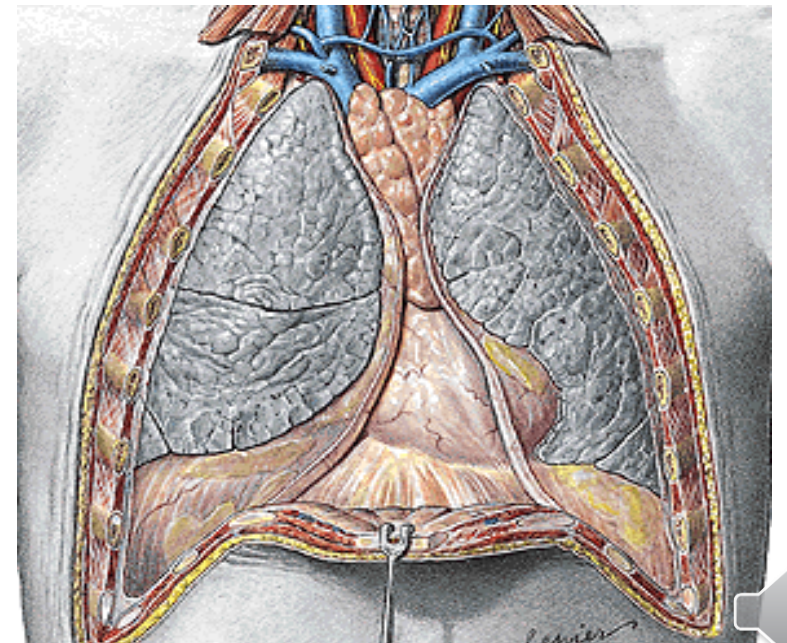
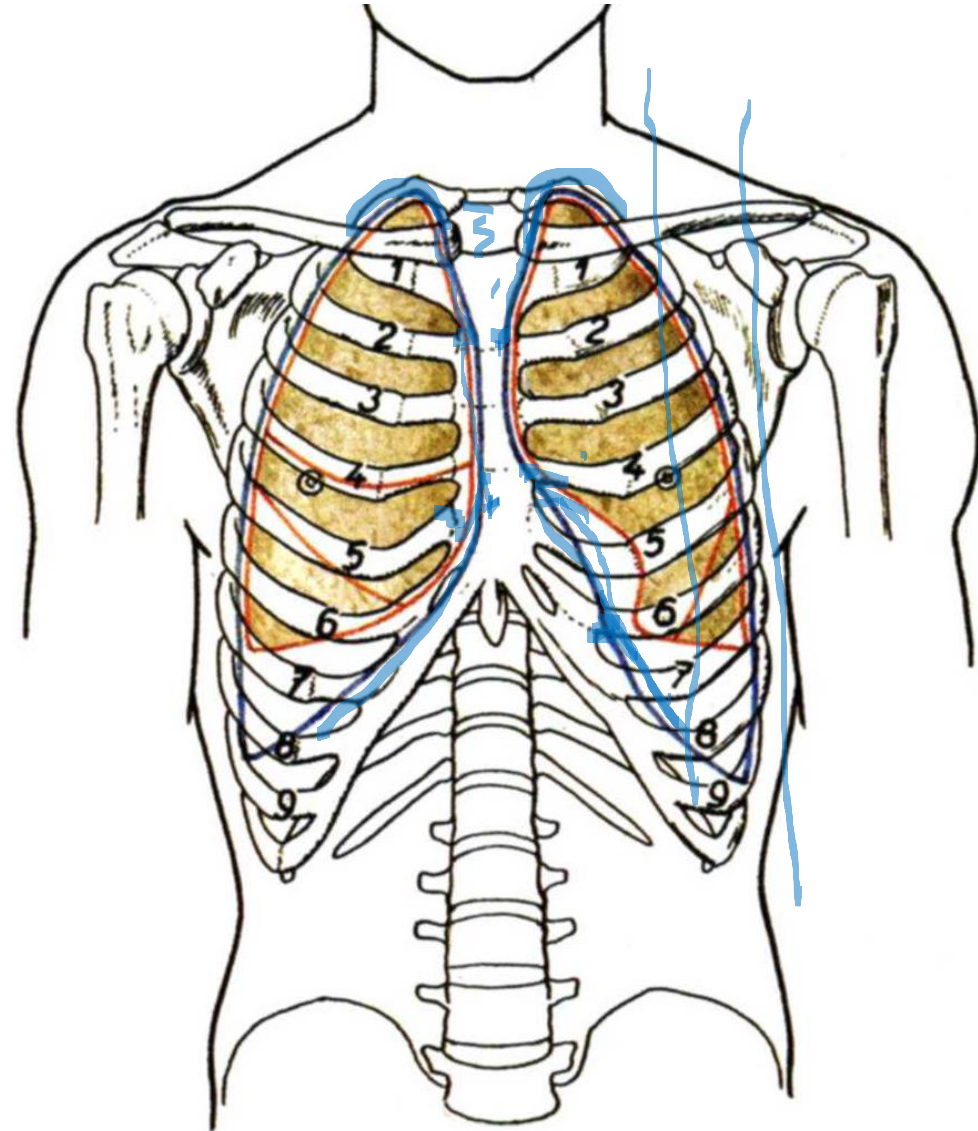
linea medioclavicularis – 7th rib

linea axillaris ant. – 8th rib

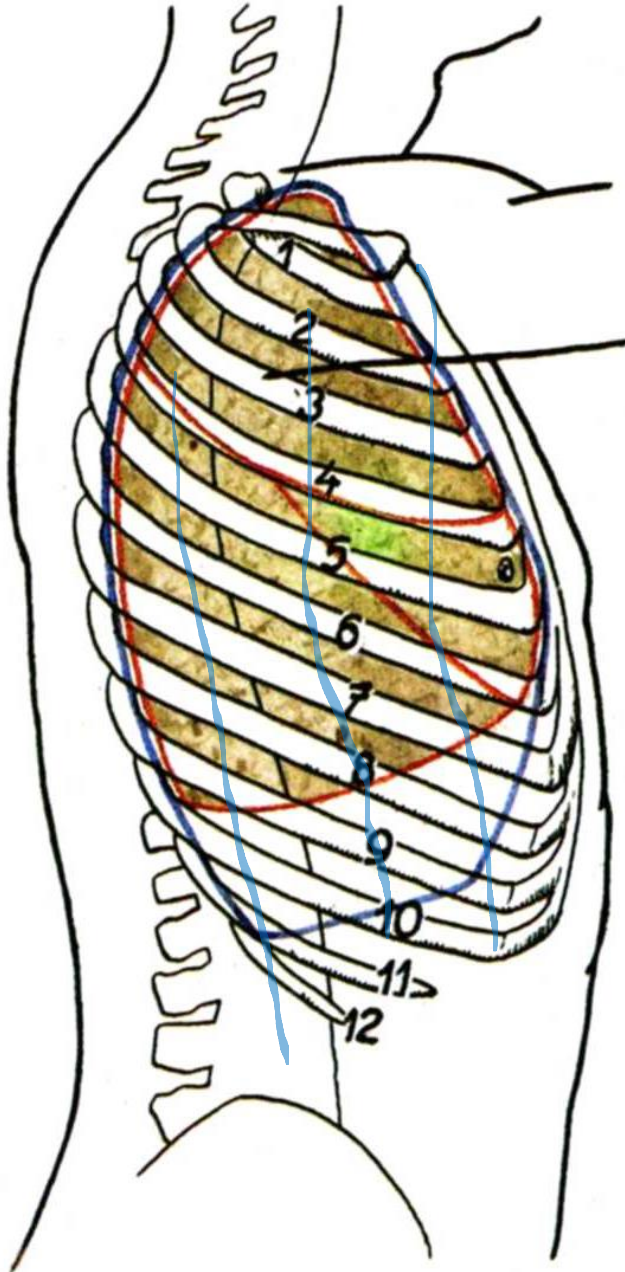
Lungs

ventrally – similar to pleura

caudally – 1 to 2 intercostal spaces
canially



Projection of the pleura and lungs



Pleura:

linea medioclavicularis – 7th rib

linea axillaris ant. – 8th rib

linea axillaris med. – 9th rib

linea axillaris post. – 10th rib

Lungs:

1 or 2 intercostal spaces cranially



Projection of the pleura and lungs

Caudal border - pleura:

linea axillaris post. – 10th rib

linea scapularis – 11th rib

linea paravertebralis – 12th rib

Posterior border - pleura:

From 12th rib in paravertebral line to cupula pleurae

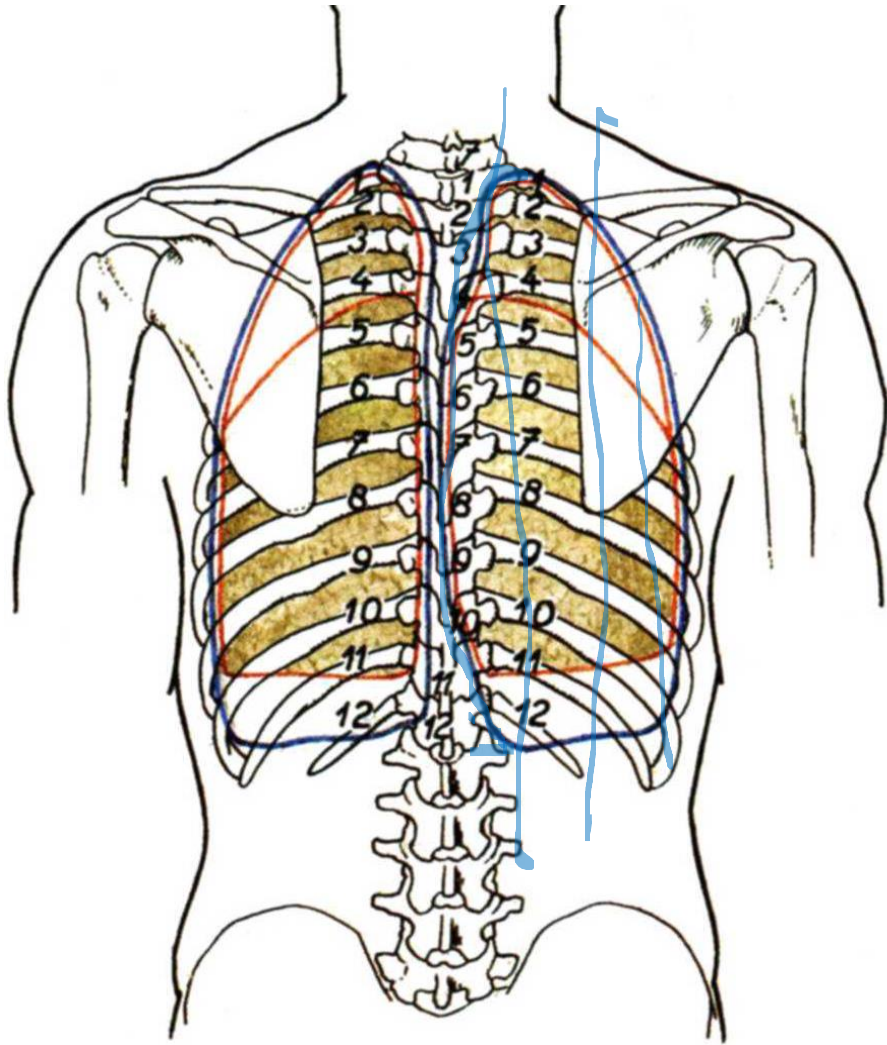
Th₁₂ - Th₄ on the right – recessus retrooesophageus

Caudal border - lungs:

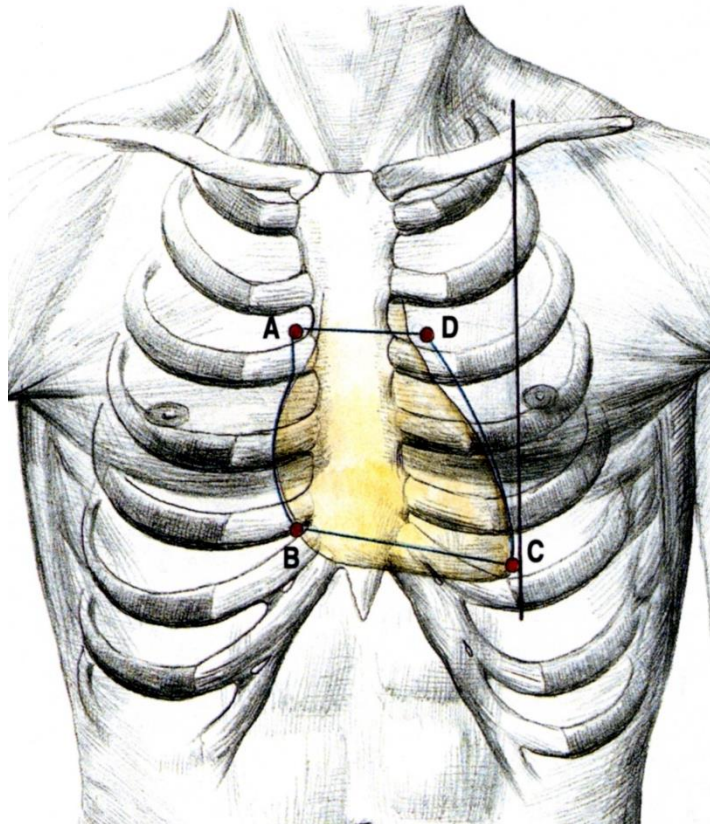
1 or 2 intercostal spaces cranially

Posterior border:

Paravertebral line (bilat.)



Projection of the heart



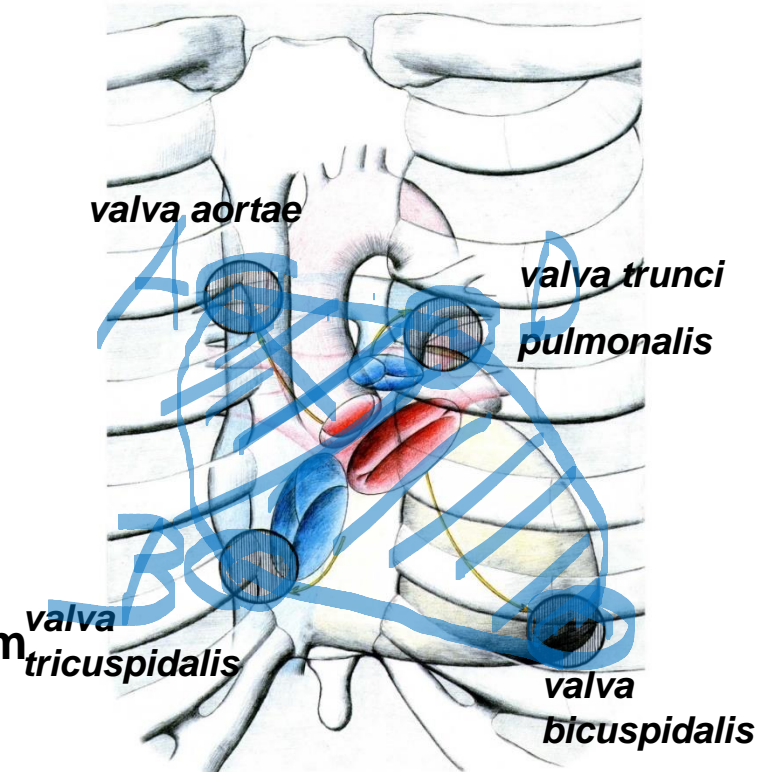
Auscultation points:

A 2nd right intercostal space – 1 cm from sternum

B 5th right intercostal space – next to the sternum

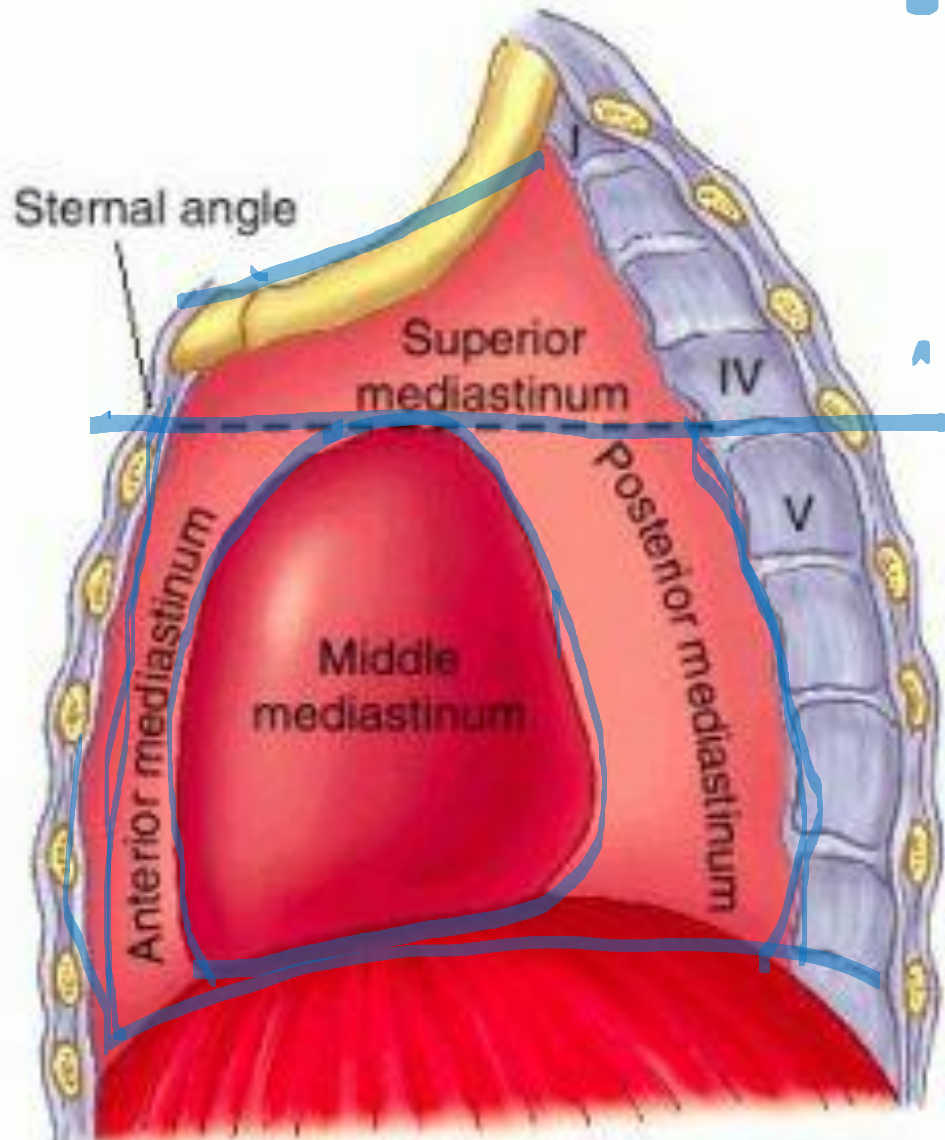
C 5th left intercostal space– 1cm medially from linea medioclav.

D 2nd left intercostal space – 2cm from sternum



Mediastinum

Space between pleural cavities



Mediastinum superius

apertura thoracis sup. → plane of sternal angle and 4th intervertebral disc

Mediastinum inferius:

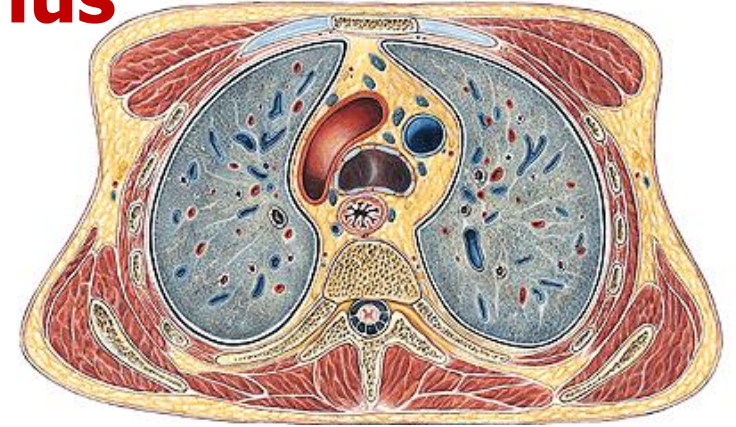
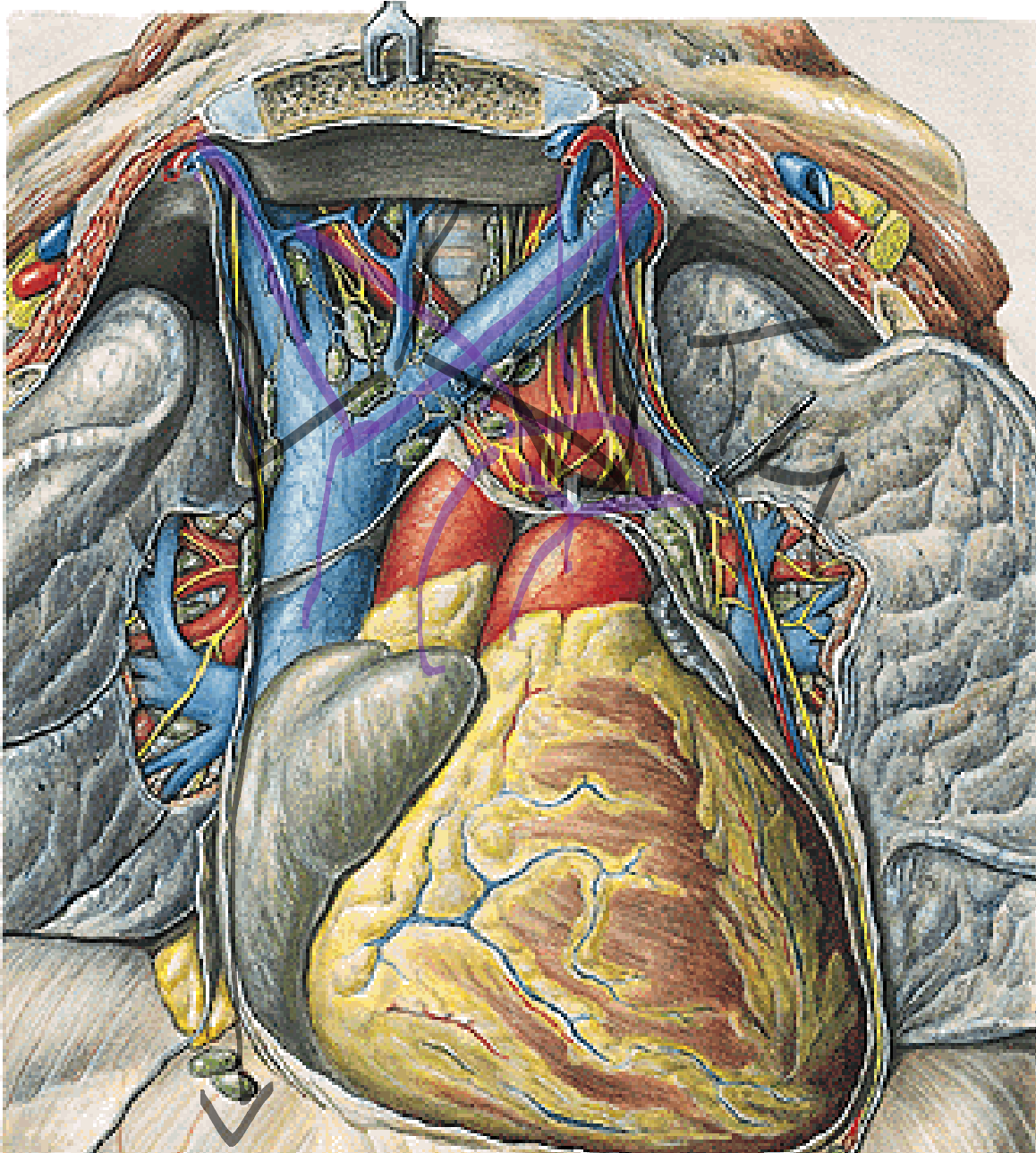
anterior – between sternum and pericardium

medium – pericardiac sac with heart

posterior – between pericardium and vertebrae



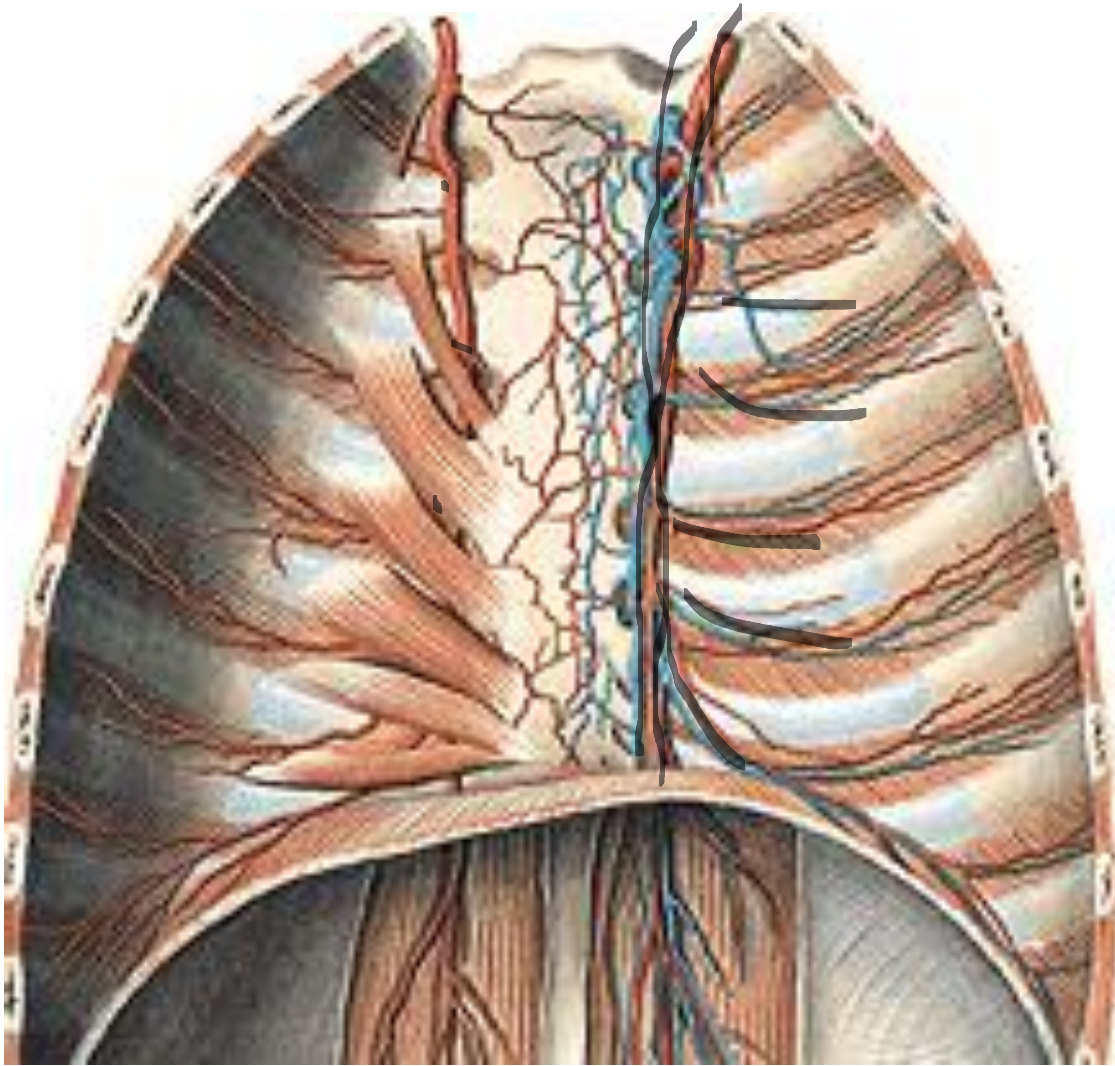
Mediastinum superius



- thymus
- **Venous layer**
 - vv. brachiocephalicae + v. cava sup.
- **Arterial layer**
 - tr. pulmonalis, aorta asc., arcus aortae + branches
 - tr. sympathicus + branches
 - n.vagus – n. laryngeus recurrens !
 - n. phrenicus
 - **trachea** – bifurcatio + bronchi
 - **esophagus**
 - nnl. mediastinales anteriores



Mediastinum anterius



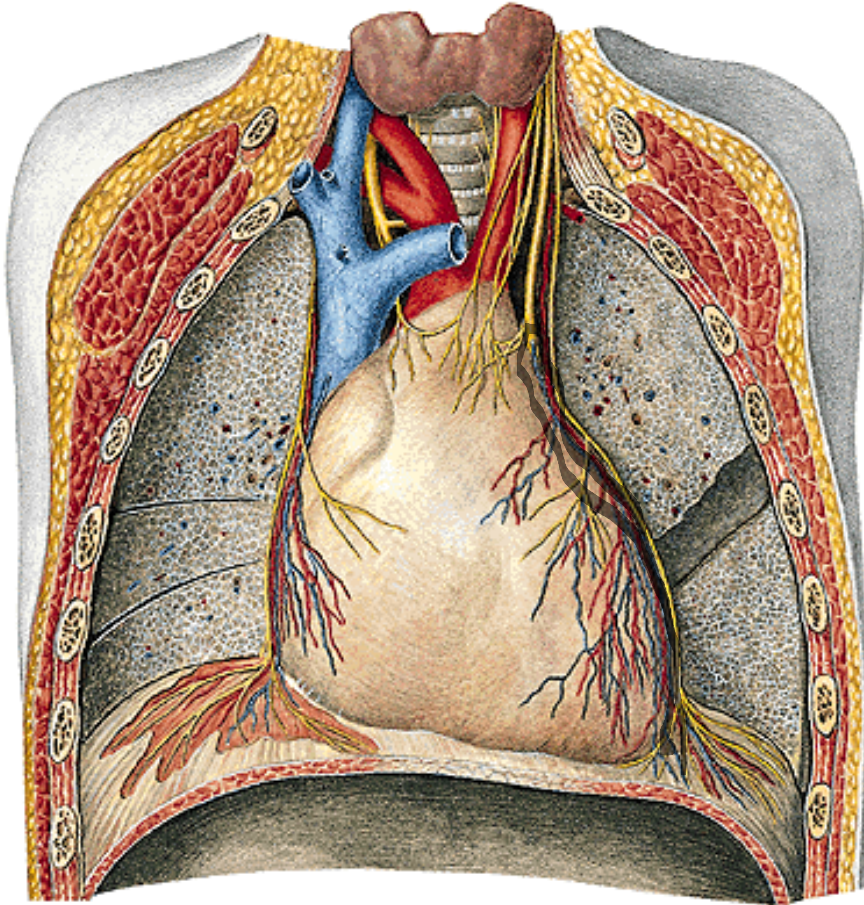
ligg. pericardiacophrenica

vasa thoracica int. – branches and tributaries

nnl. parasternales



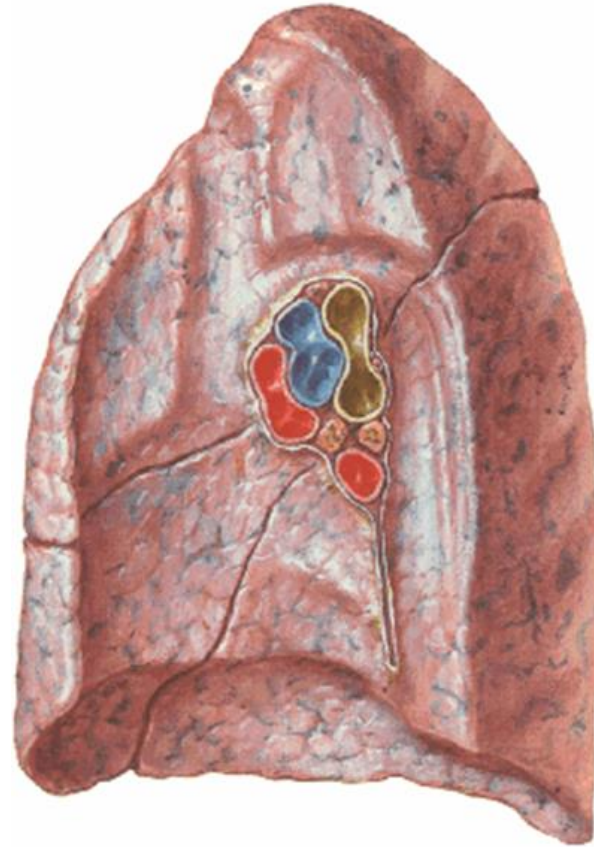
Mediastinum medium



vasa pericardiacophrenica

n. phrenicus

nl. mediastinales ant.



hilus pulmonis dx. (BAV)

bronchus principalis dx.

a. pulmonalis dx.

vv. pulmonales dx.



hilus pulmonis sin. (ABV)

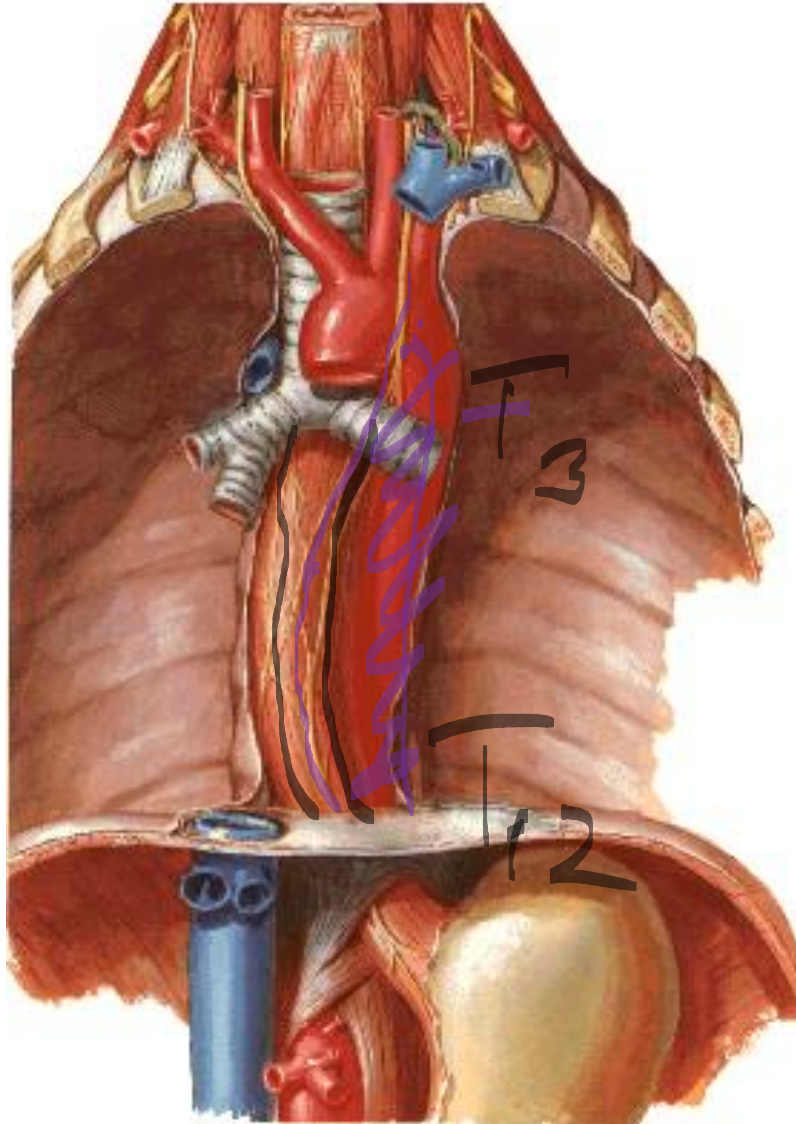
a. pulmonalis sin.

bronchus principalis sin.

vv. pulmonales sin.



Mediastinum posterius



oesophagus

n. vagus

plexus oesophageus

aorta thoracica

v. azygos

Th₇-Th₉ v. hemiazygos, v. hemiazygos acc.

ductus thoracicus

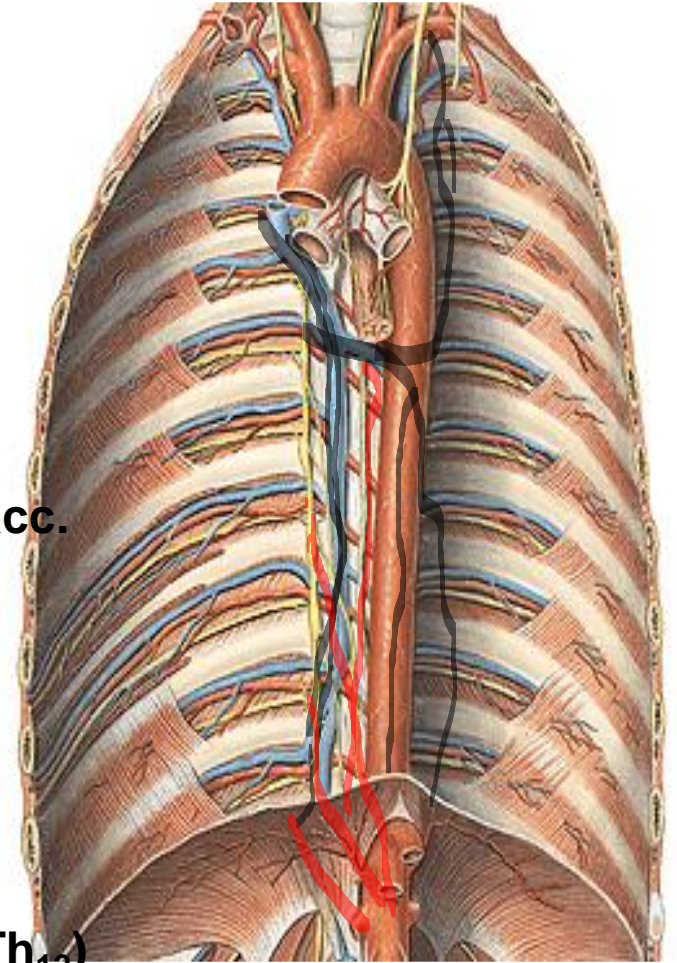
between v. azygos, aorta

truncus sympaticus

nn. splanchnici

major (Th₆₋₉), minor (Th₁₀₋₁₁), imus (Th₁₂)

nll. mediastinales post.



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