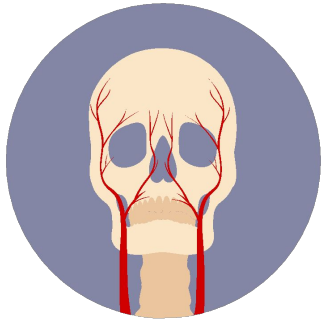


Anatomy practical

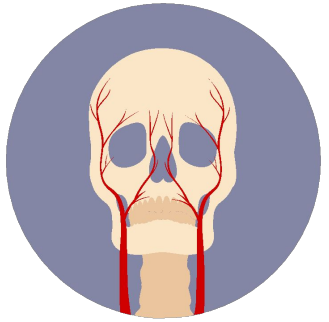
OSPE

Respiratory Block

Editing file

Notes:

- The information in this file are information which are required in our Objectives file
- We recommend you to read the theoretical lectures before studying this file
- Make sure you write the full correct name for each structure with its SIDE to ensure your grade on each question
- Radiology Questions will be on real X-rays films not on pictures
- the X-rays film will be vary from student to another, so make sure you can identify the same structure in different films
- Good luck and have a nice OSPE :)

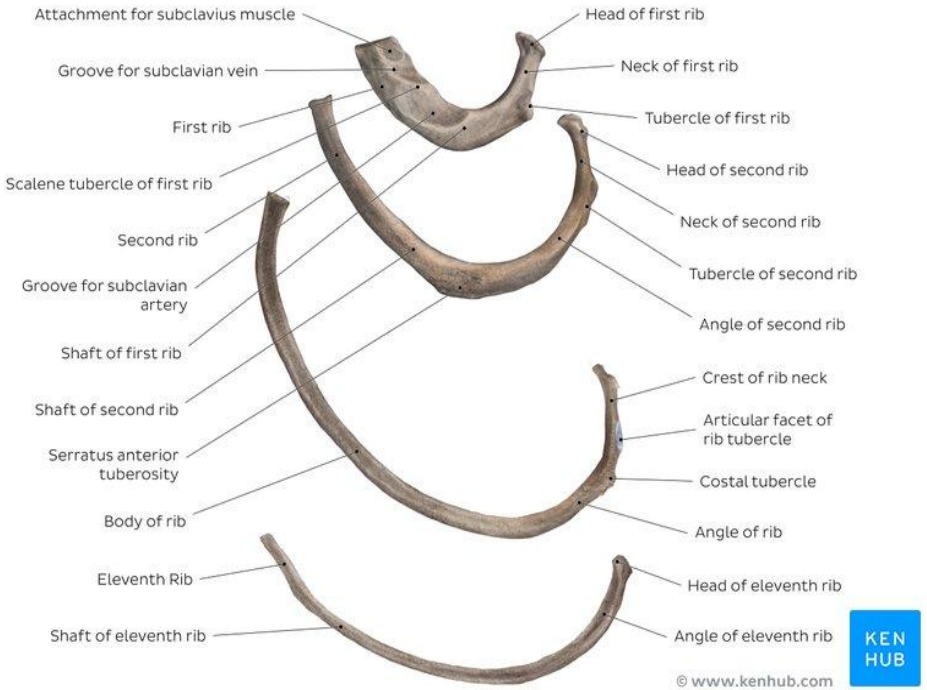


Bones & Radiology

Respiratory Block

Editing file

Overview on ribs (extra slide)



How to know if it's right or left rib ?

1.Surfaces :

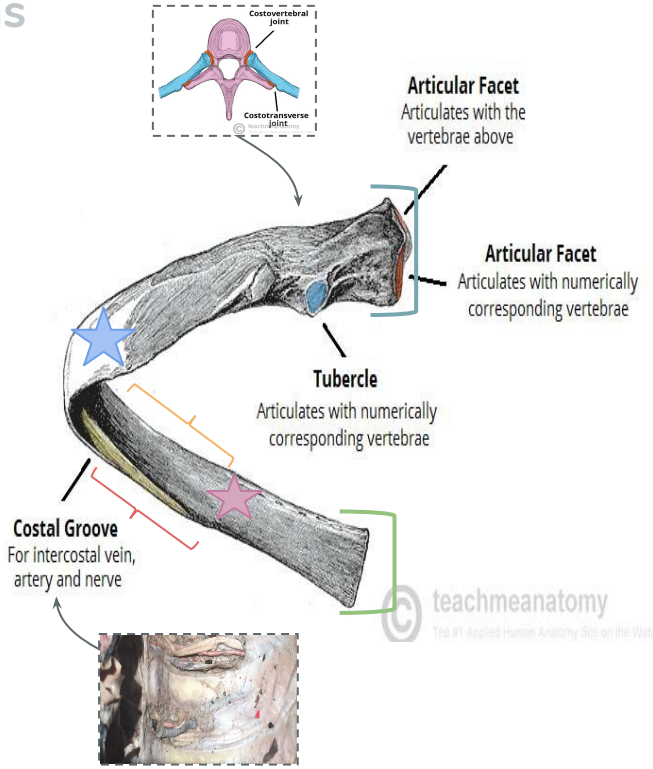
- Outer/upper surface≫ **rough**
- Inner/lower surface≫ **smooth** & has **costal groove** at the lower border "for intercostal bundle VAN"

2.Borders :

- Upper border≫ **blunt (smooth)**
- Lower border≫ **sharp**

3.Endings :

- Posterior end≫ has the **head** which contains **articular facet.**
- Anterior end



The ribs (atypical)

1. First rib

- No costal groove
- Has one facet (head)
- Short & flat
- Surfaces : upper & lower
- Borders : inner & outer

Right 1st rib

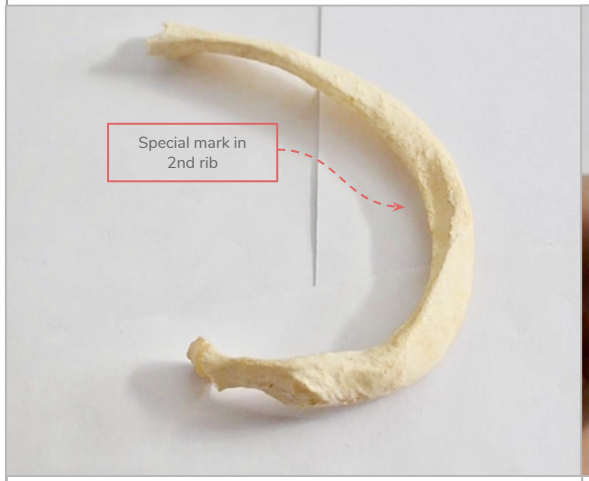
Upper surface

Lower surface

2. Second rib

- Has short costal groove
- Has two facets (head)
- Has costal facet (tubercul)

Right 2nd rib



Outer surface

Inner surface

The ribs (typical & atypical)

3. Typical ribs (3-9)

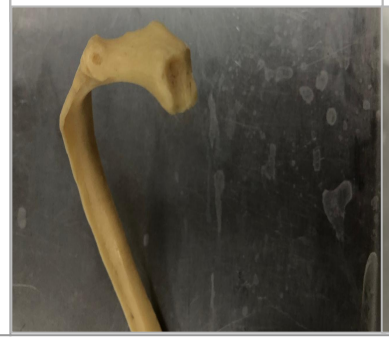
- Have two facets (head)
- Tubercle has one facet
- The shaft has upper **blunt border** & lower sharp border
- The inner surface has costal groove (for neurovascular bundle)
- Angle: it's a rough line lateral to the tubercle

Left typical rib

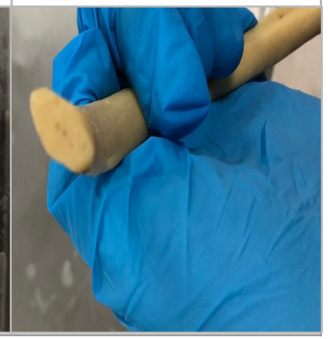
Outer surface

Inner surface

Posterior end



Anterior end

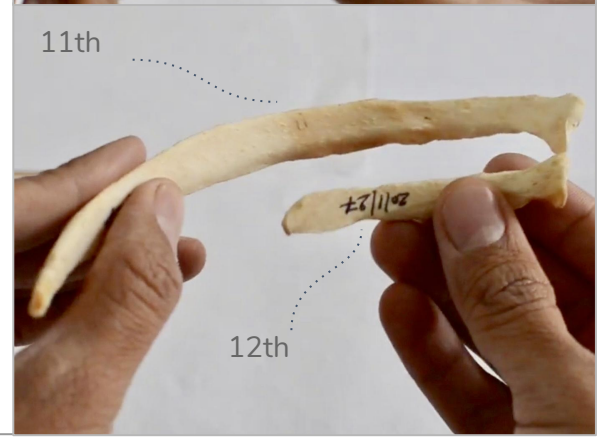


4. Floating ribs (11,12 |Atypical)

- Have one facet (head)
- No neck ,no tubercle
- Shallow costal groove (only in11th)
- Sharp border ≫lower
- Rounded ≫upper

Right 11th & 12th rib

Inner surface



The thoracic vertebrae (atypical & typical)

1. First thoracic vertebrae

Special features:

- ★ Upper Circular **Costal facet "Complete facet"** (articulates with the **1st rib**).
- ★ Lower **Demifacet** (articulates with the **2nd rib**)

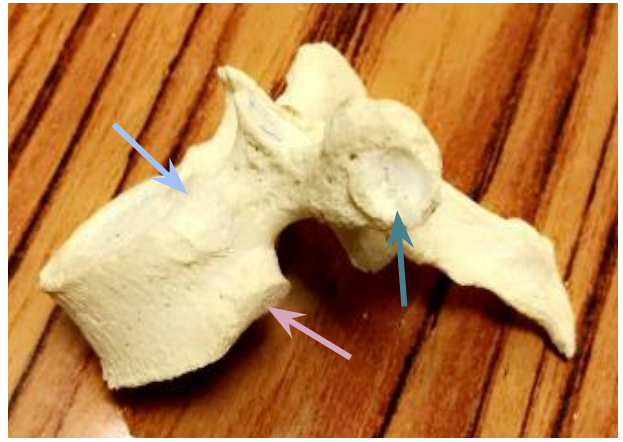
- **Small** body
- Triangular foramen
- **Horizontal** spinous process (long & facing downward)

2. Typical thoracic vertebrae (T2-9)

Special features:

- ★ Upper **Demifacet** (articulates with the **head** of **adjacent** rib"equal in number")
- ★ Lower **Demifacet** (articulates with the **head** of rib **below)**
- ★ **transverse** process **with facet** (for the articulation with the **tubercle** of the rib)

- Heart-shaped body
- Triangular foramen
- **Oblique** spinous process (long & facing downward)



The thoracic vertebrae **(atypical)**

3. 10th thoracic vertebrae

Special feature :

★ **Complete** Costal **facet** (articulates with the **10th rib**)

★ Costal **Demifacet** (articulates with the tubercle of the 10th rib).

4. 11th thoracic vertebrae

Special features:

★ **Complete** Costal **facet on the body** near to the upper border.

★ Bulky body

★ Small Horizontal spinous process

The thoracic vertebrae (atypical)

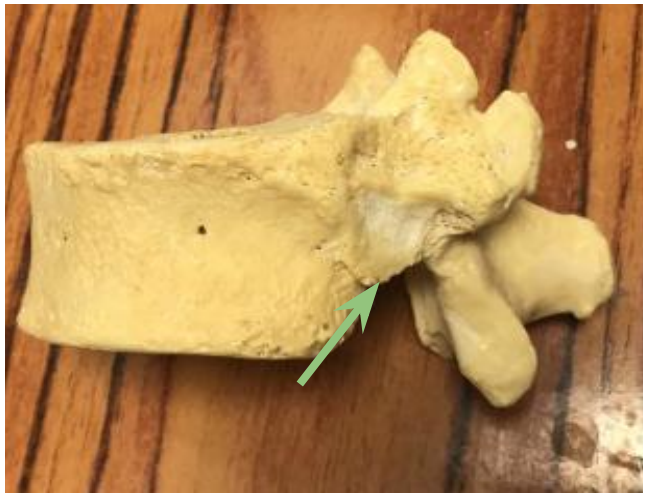
5. 12th thoracic vertebrae

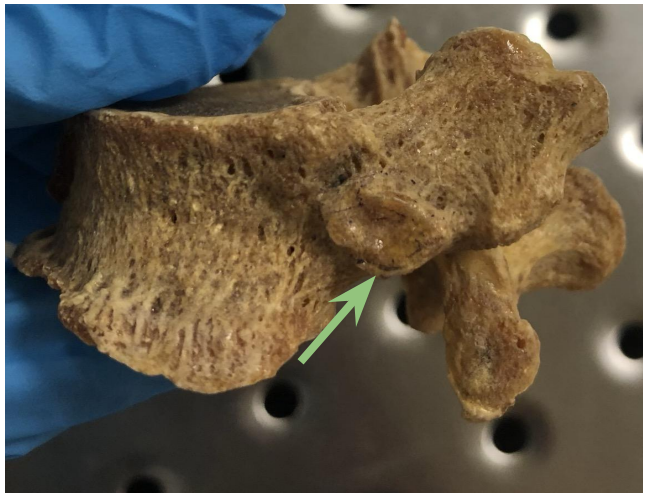
Special features:

★ **Complete** Costal **facet** **on the pedicle** near to the inferior border.

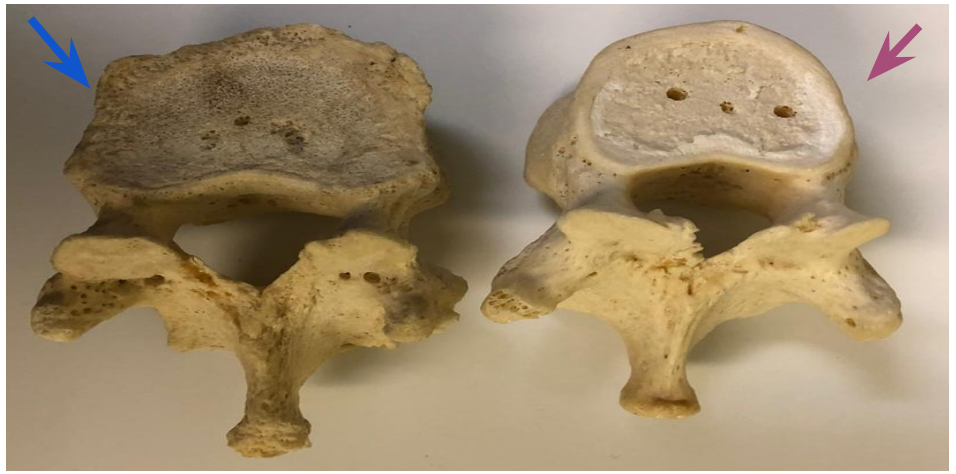
★ Short **inferior articular process** facing Laterally (more like lumbar vertebrae).

★ Spinous process is horizontal and its small comparing to the body



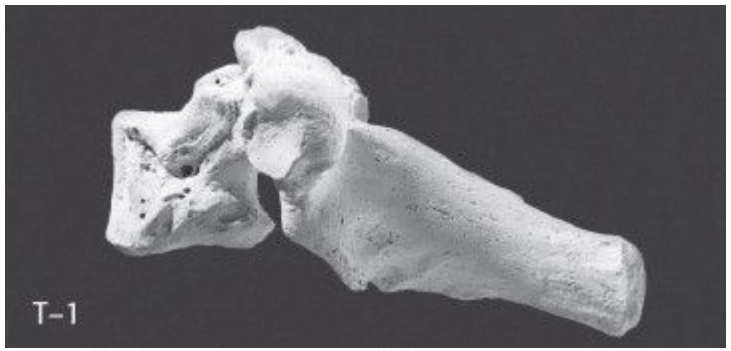


11&12th thoracic vertebrae



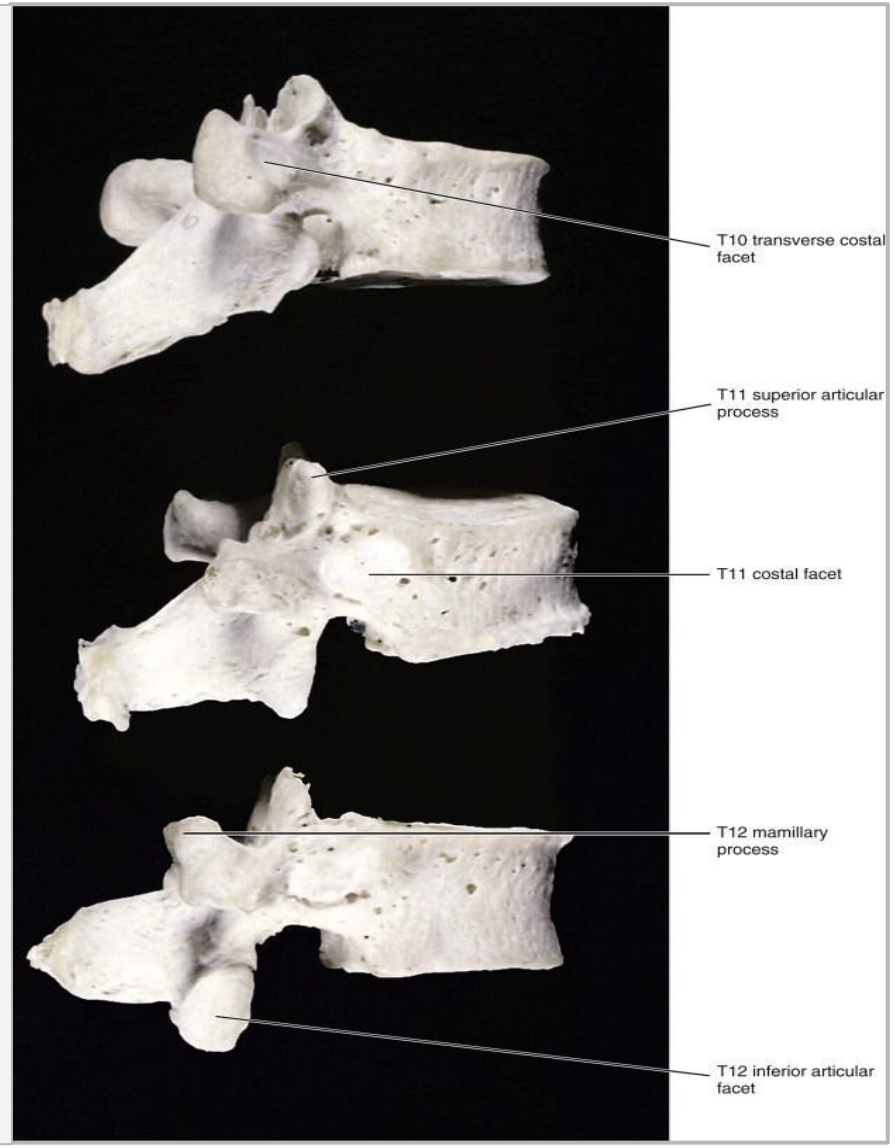
The thoracic vertebrae (Extra pictures)

First thoracic vertebrae



Comparison between (T10-11-12)

Lateral view



Superior view

Helpful videos |

- Thoracic vertebrae from 13:15
- Summary from Girls' Doctor

★ Answer key

Q1:
a. First Rib atypical

Q2:
a. Left

Quiz|

Q1:
a. identify the structure?

Q2:
a. identify its side?

Insertion of diaphragm **(central tendon)** It has 3 openings:

Superior view

1. Aortic aperture (T12)

Allows passage of **descending thoracic Aorta** + thoracic duct & hemiazygos vein

2. Esophageal aperture (T10)

Allows passage of **Esophagus**

+ 2 vagus nerves

3. Caval aperture (T8)

Allows passage of **Inferior vena cava**

Inspiratory muscles

1. Diaphragm

Nerve supply:

Phrenic nerve (C3,4,5)

Notes:

Fibers converge to join and inserted into the central tendon.

2. External intercostal

Nerve supply:

Intercostal nerves

Notes:

Direction of fibers: **down**word , medially

Inspiratory muscles (accessory muscles)

Act only in **forced** inspiration

1. Scalene

Notes:

- **Red:** scalenus anterior
- **Purple:** nerve plexus
- **Blue:** scalenus posterior

2. Pectoralis major

Expiratory muscles **(rib depressors)**

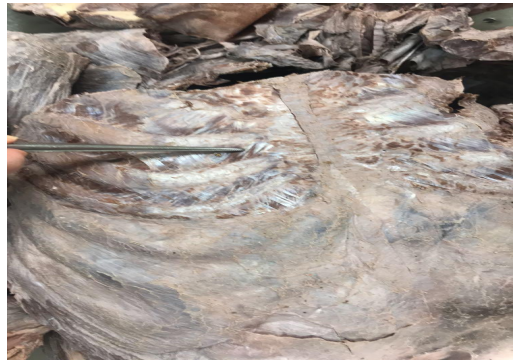
Act only In **forced** expiration

Nerve supply: intercostal nerves (ventral rami of T1-T11)

1. Internal intercostal

Notes:

Direction: **up**ward & medially

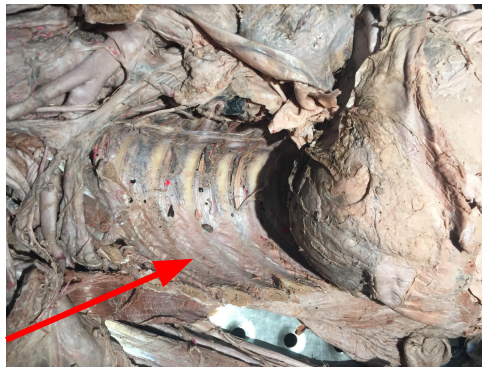


2. Innermost intercostal

Notes:

Direction: **up**ward & medially

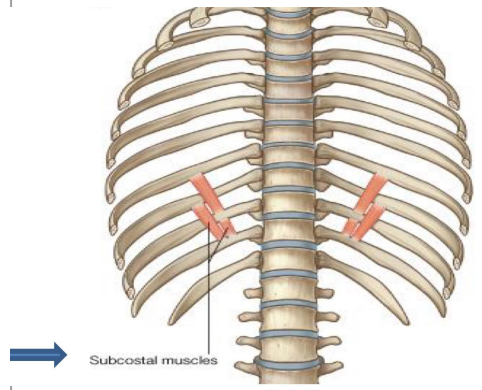
*this picture was taken from the posterior wall of the ribs



3. Subcostal

Notes:

Direction: **up**ward & medially

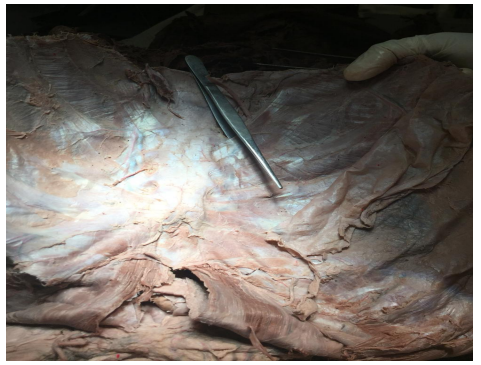


4. Transversus thoracis

Notes:

Direction: **up**ward & medially

* check the video



Expiratory muscles (anterior abdominal wall)

Nerve supply: (T7-T12 & L1)

1. External oblique

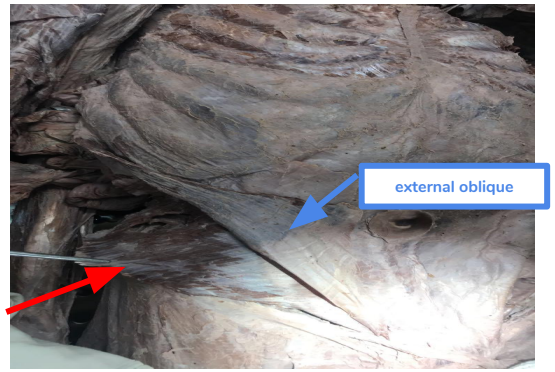
Notes:
(Outer layer)

Direction:
downward &
medially

2. Internal oblique

Notes:
(middle layer)

Direction: **up**ward &
medially



3. Transverse abdominis

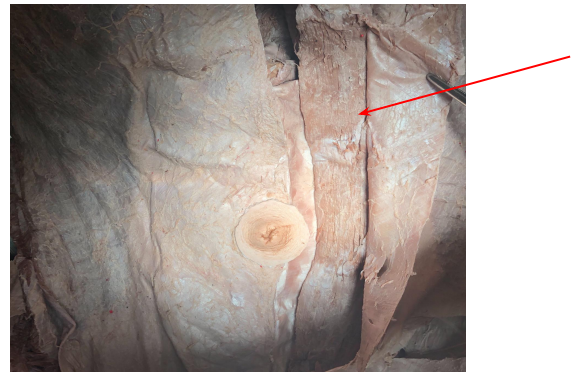
Notes:
(Inner layer)

Direction: transverse

4. Rectus abdominis

Notes:

Direction: vertical



Radiology

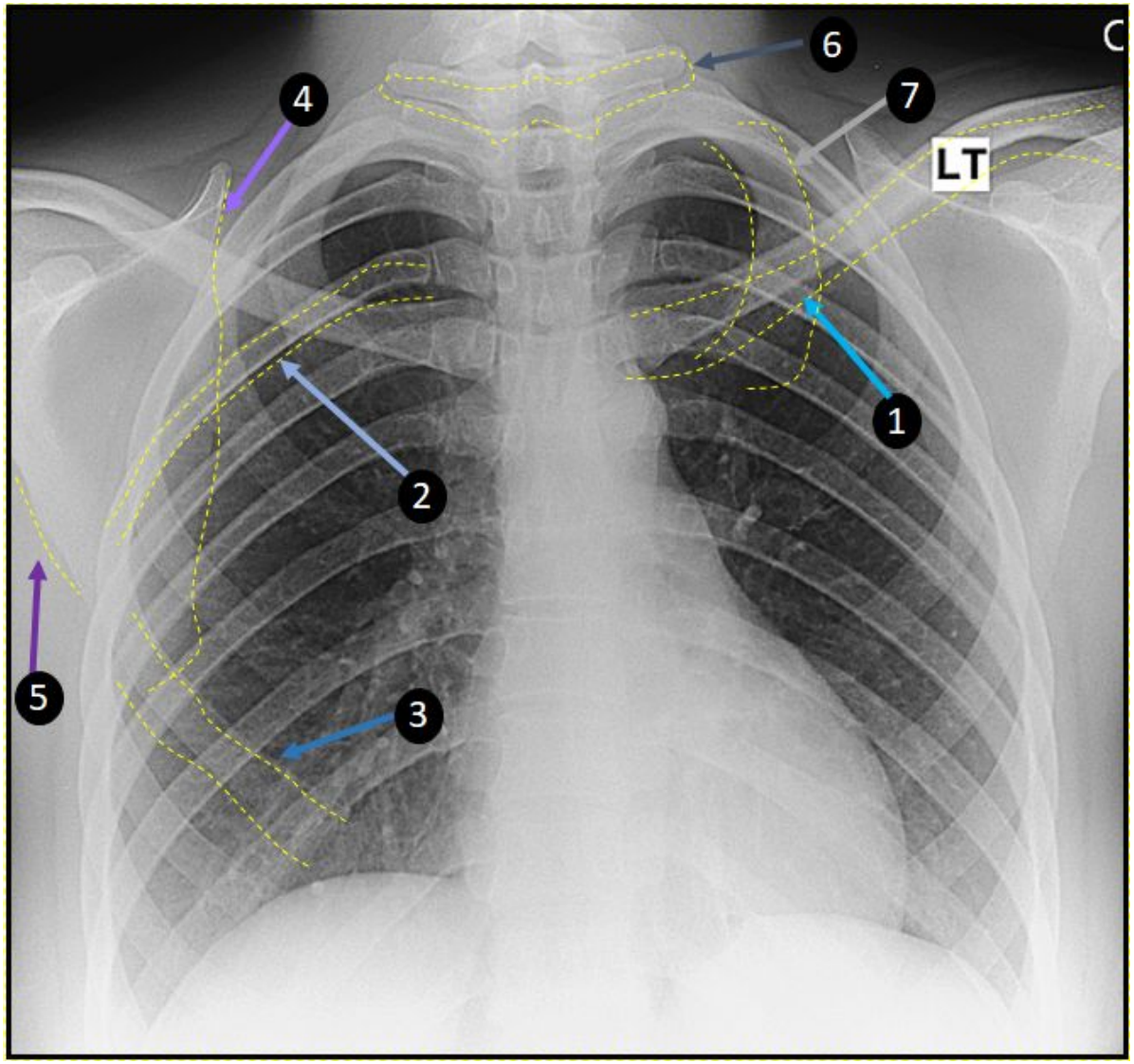
First: Bones

Which X-ray view is this ?
Posteroanterior (PA) view

You have to be able to identify

- Clavicle
- ribs
- scapula and its borders
- Thoracic vertebrae

➔ it's important to write the side



1. Left clavicle
2. Posterior rib
3. Anterior rib
4. Medial border of scapula
5. Lateral border of scapula
6. Thoracic vertebrae (T1)
7. First rib

Radiology

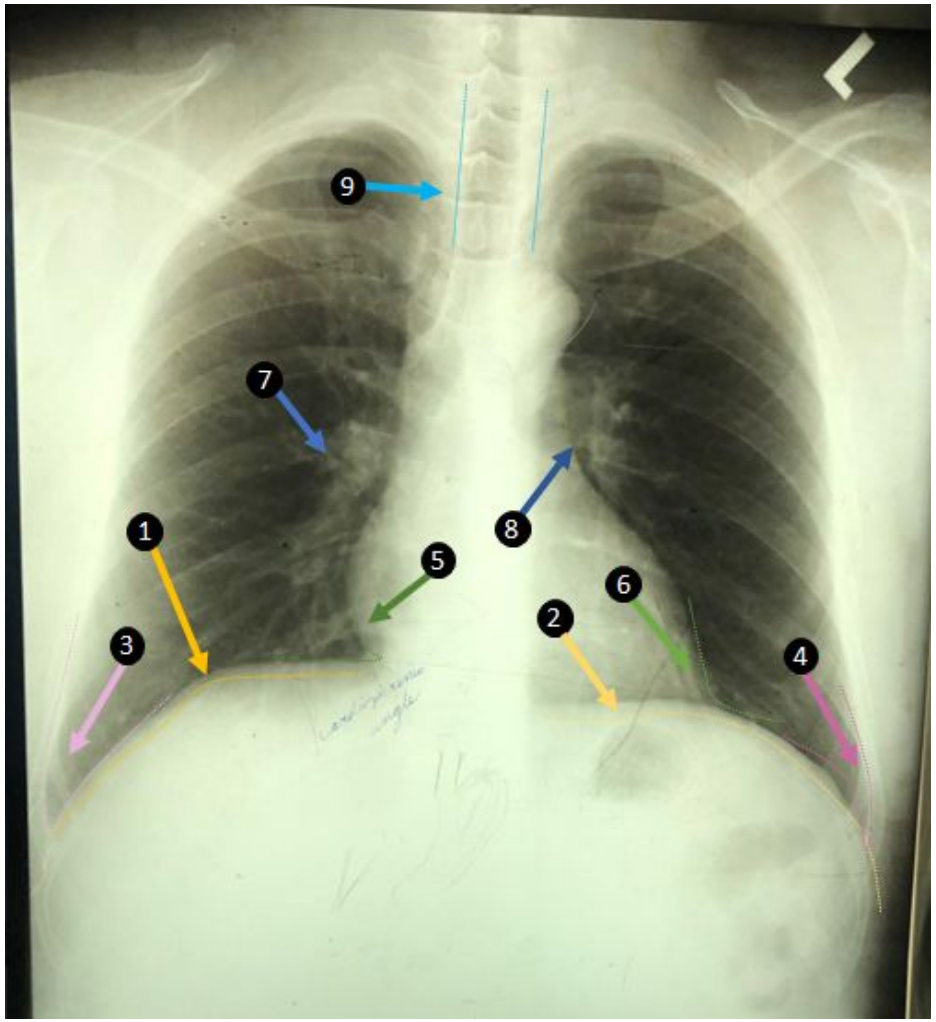
Second: diaphragm, trachea, lungs and bronchi

You have to be able to identify

- Domes of diaphragm
- Cardiophrenic angles
- Costodiaphragmatic angles
- Trachea
- Lungs
- hilum and root of the lung
- Pulmonary vessels

➔ it's important to write the side

1. Right domes of diaphragm
2. left domes of diaphragm
3. Right Costodiaphragmatic angle
4. left Costodiaphragmatic angle
5. Right Cardiophrenic angle
6. left Cardiophrenic angle
7. Right Pulmonary vessels
8. left Pulmonary vessels
9. Trachea



Radiology

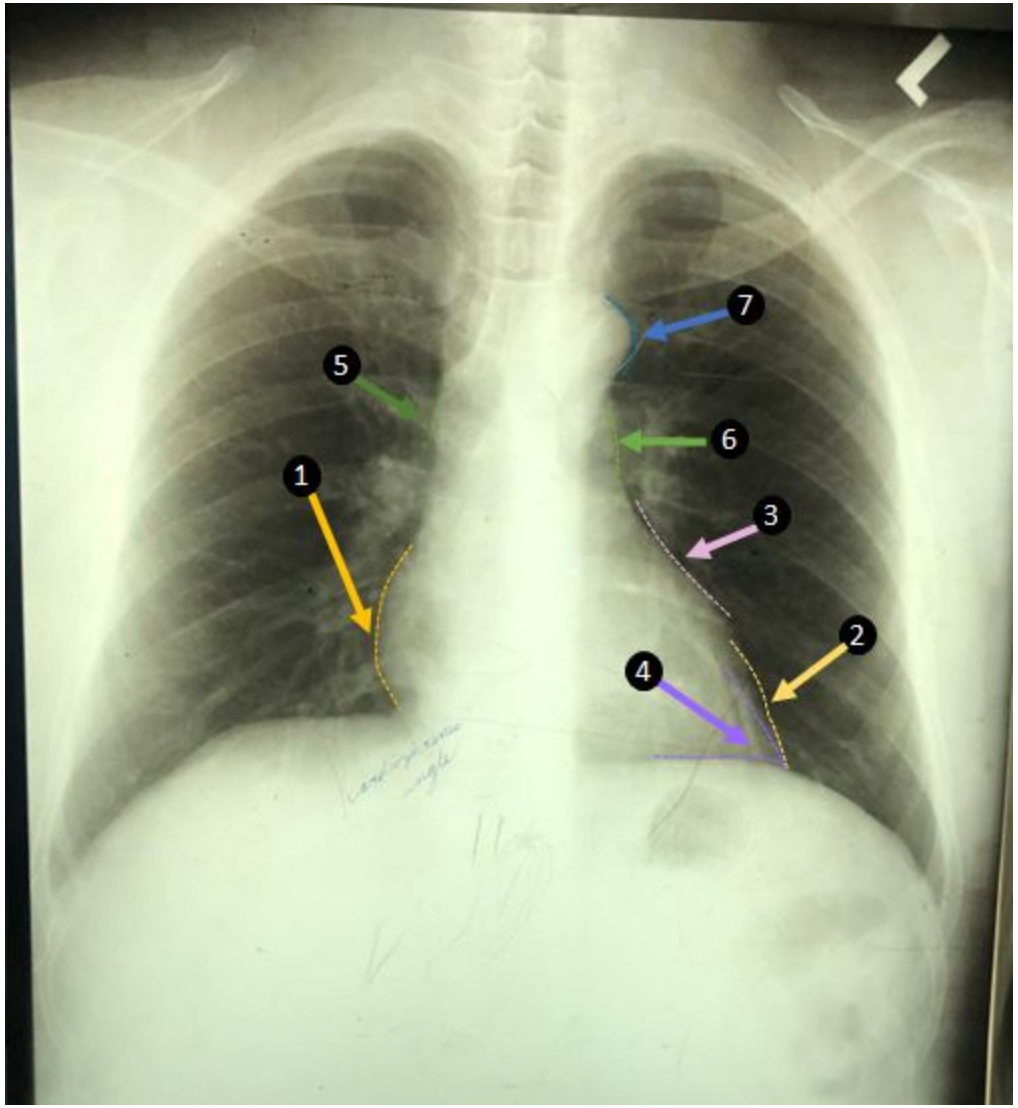
Third: Heart and great vessels

You have to be able to identify

- Heart and its apex
- Chambers of the heart
- Aortic knuckle
- Pulmonary trunk
- Superior vena cava

➔ **it's important to write the side**

1. Right atrium
2. Left ventricle
3. Left auricle
4. Apex of the heart
5. Superior vena cava
6. Pulmonary trunk
7. Aortic knuckle



Radiology

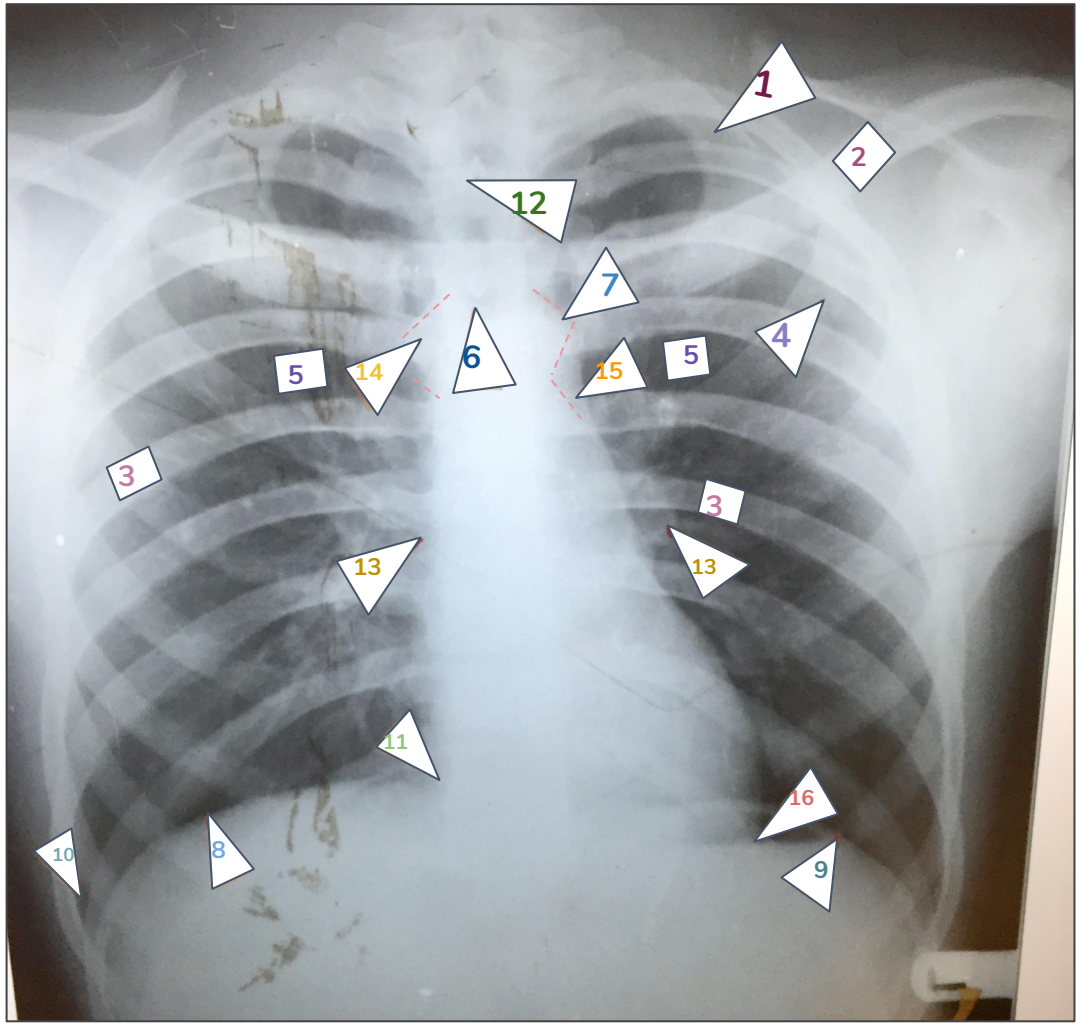
Helpful video:

[Anatomy of the chest x-ray in 3 minutes]

Quiz:

➔ identify:

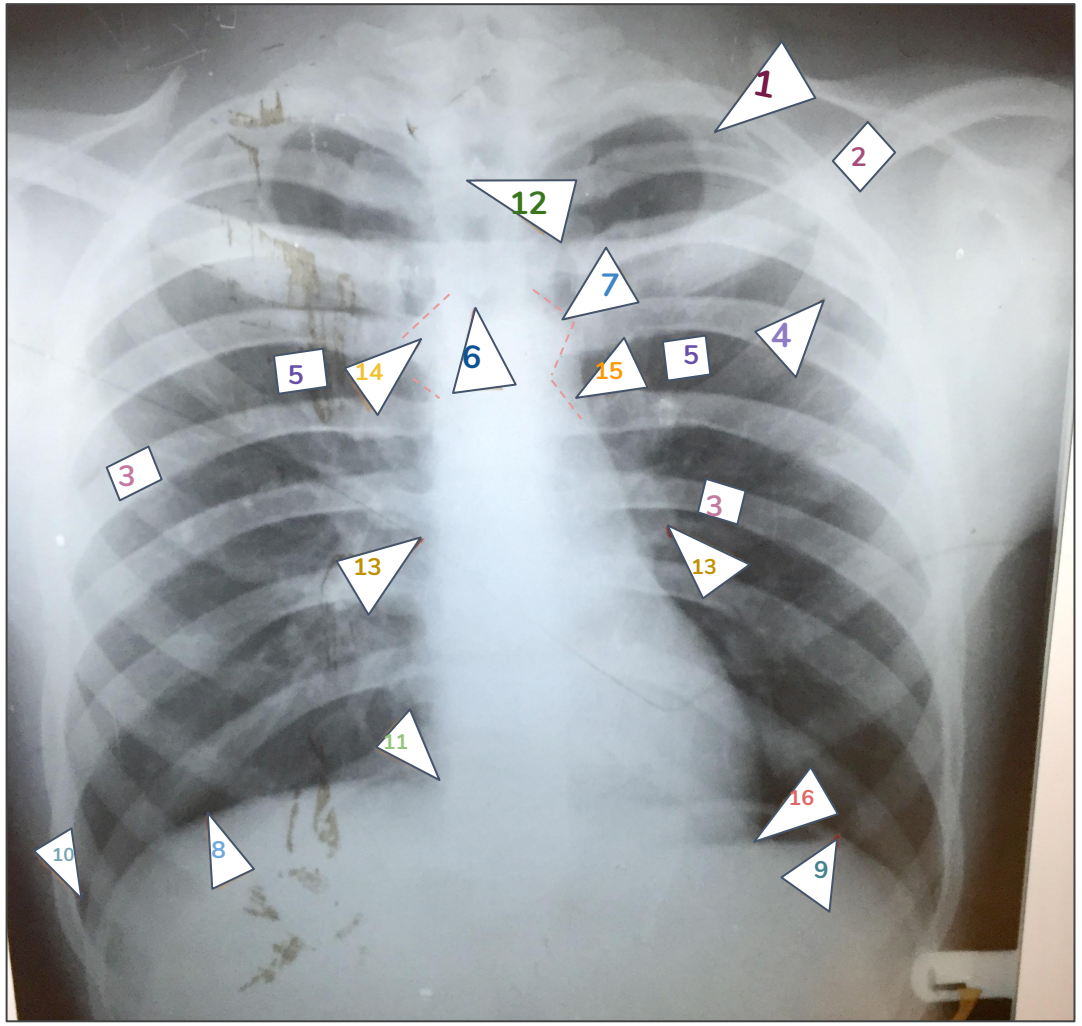
1.	9.
2.	10.
3.	11.
4.	12.
5.	13.
6.	14.
7.	15.
8.	16.

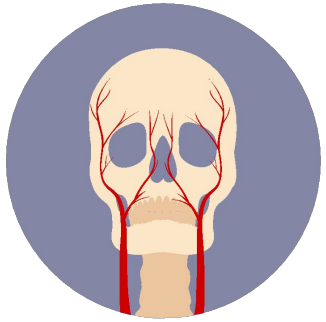


Radiology

Quiz: Answers

1. First rib	9. Left dome of Diaphragm
2. Clavicle	10. Right costodiaphragmatic angle
3. Rib	11. Right cardiophrenic angle
4. Medial border of scapula	12. Vertebrae* "Light middle/lateral area"
5. Lung "the dark area, which contain air"	13. Root of lung "Light area near to the heart"
6. trachea "dark middle area"	14. Superior vena cava " out projection in the right side"
7. Aortic knuckle "rounded, out projection in the left side, convex"	15. Pulmonary trunk "concave"
8. Right dome of Diaphragm	16. Left cardiophrenic angle





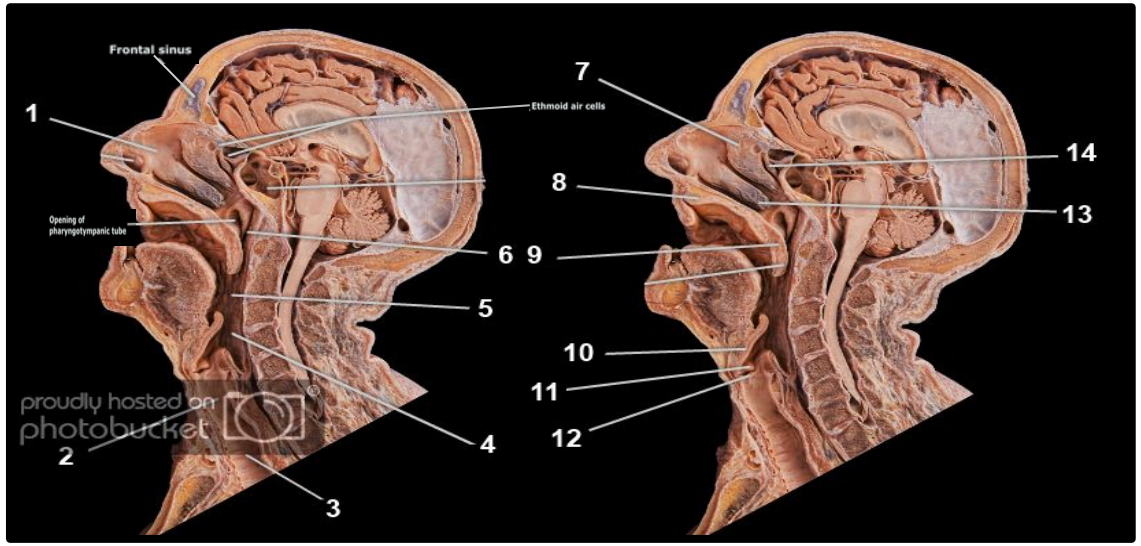
Upper respiratory tract

Respiratory Block

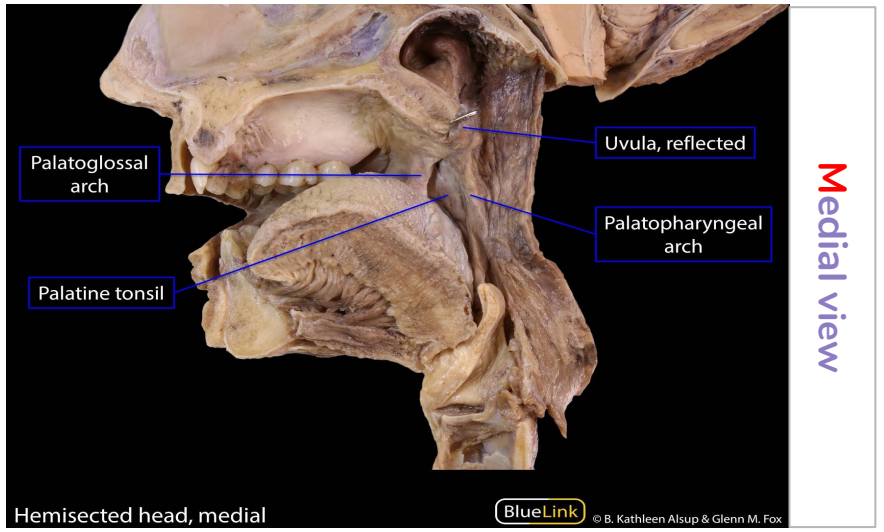
Editing file

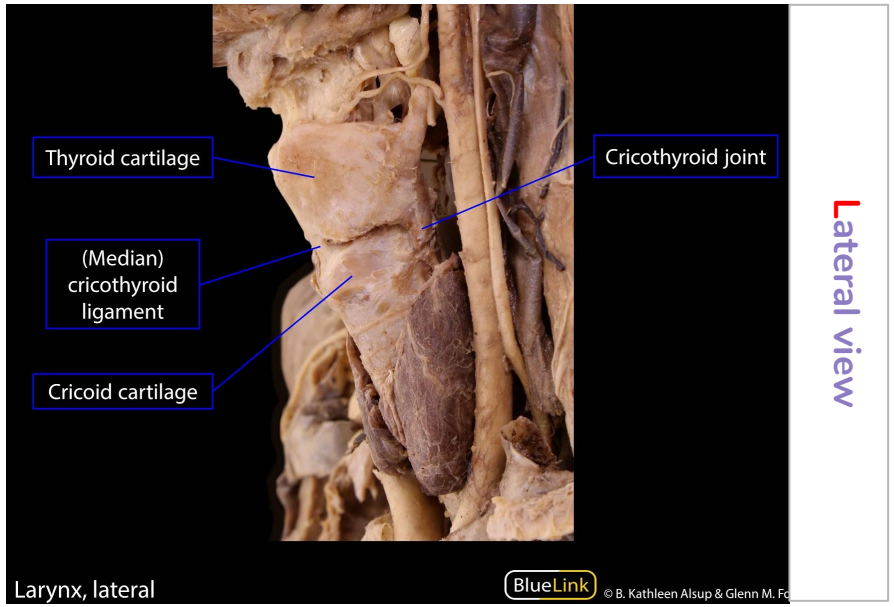
Overview on upper respiratory (extra slide)

5 minutes video for better understanding



1. Nasal cavity	8. Hard palate
2. Larynx	9. Soft plate
3. Trachea	10. Epiglottis
4. Laryngopharynx	11. Vestibular fold
5. Oropharynx	12. Vocal fold
6. Nasopharynx	13. Inferior nasal conchae
7. Middle nasal conchae	14. Superior nasal conchae





Upper respiratory (nasal cavity)

Lateral wall "of nasal septum"

Conchae

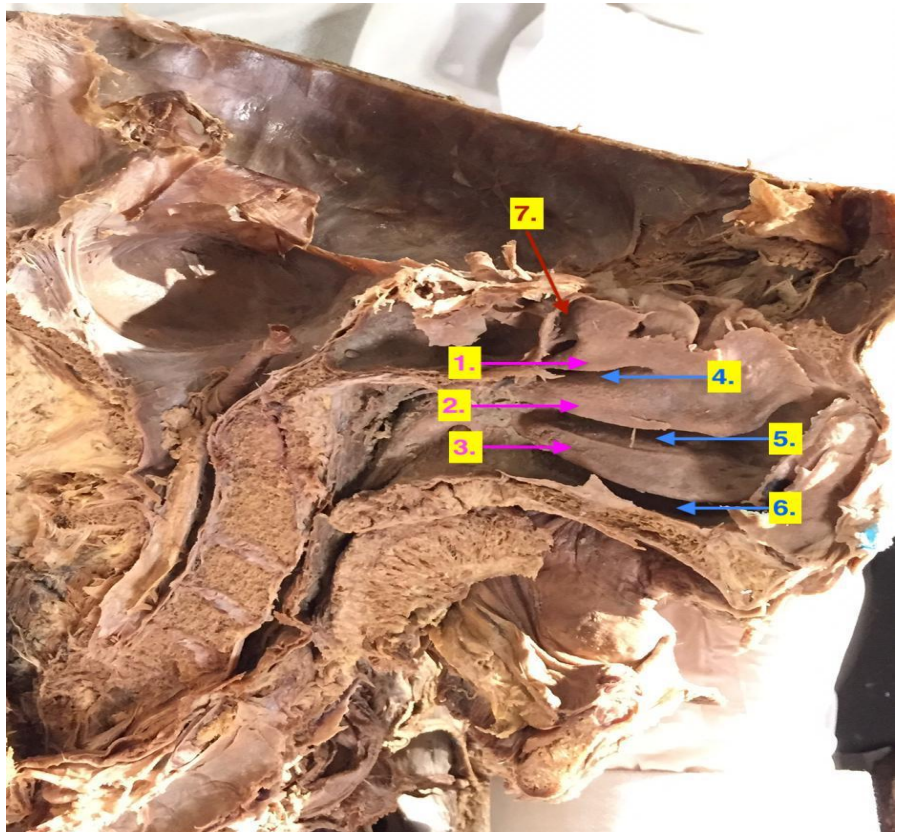
1. superior
2. middle
3. inferior

Don't forget to start counting from down to up So you don't mess up

Meatus

4. superior
5. middle
6. inferior

7. Sphenoethmoidal recess

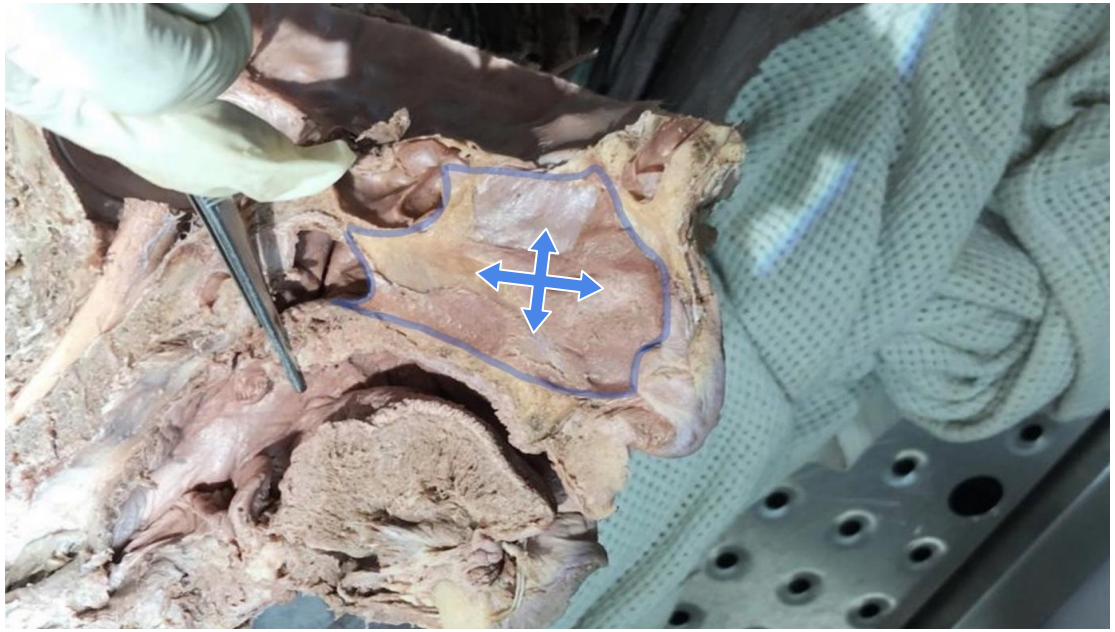


Mid-saggital section

Names of the structures opening in:	
Sphenoethmoidal recess	Sphenoidal sinus
Superior meatus	posterior ethmoidal sinus
Middle meatus	middle ethmoidal, maxillary, frontal & the anterior ethmoidal sinuses
Inferior meatus	nasolacrimal duct

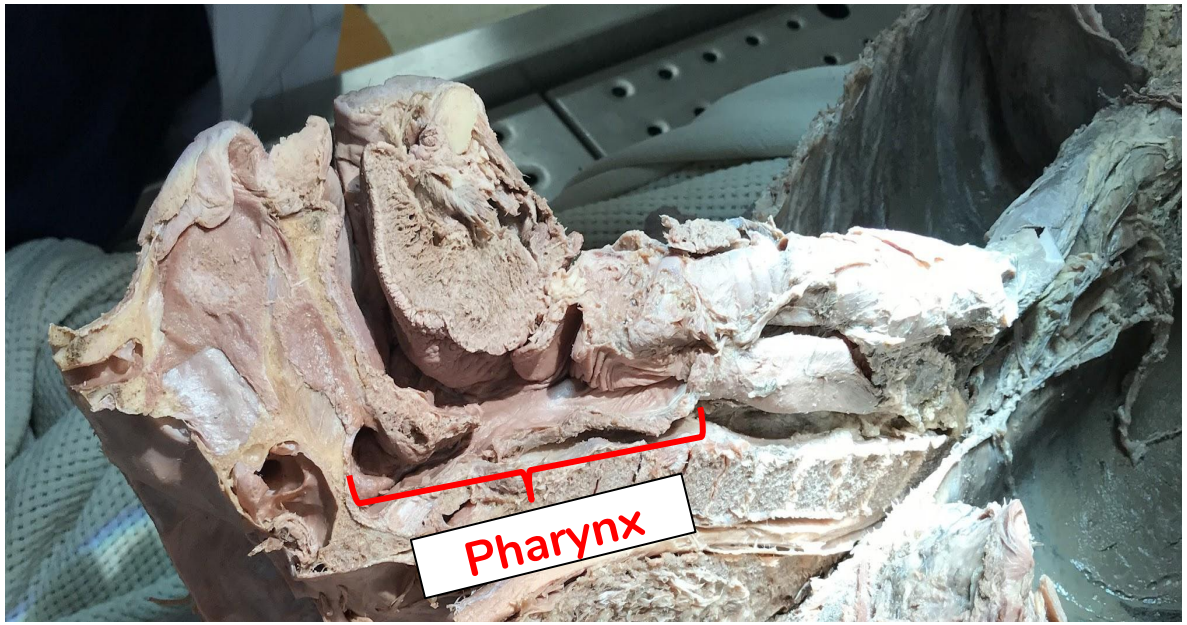
Upper respiratory (nasal cavity & pharynx)

Medial wall “of nasal septum“



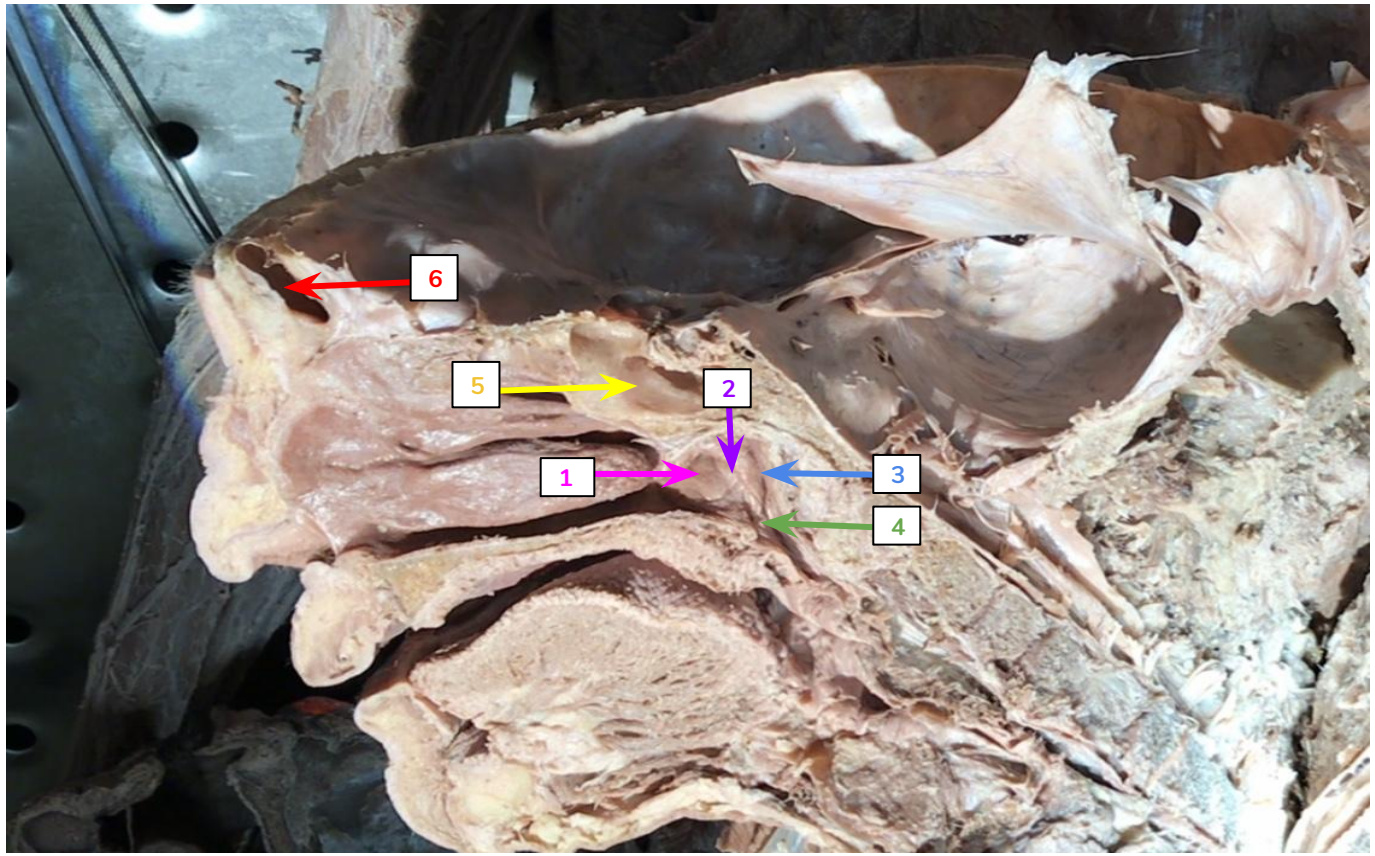
Mid-saggital section

Pharynx



Mid-saggital section

Upper respiratory (nasal cavity & pharynx)

Names of the structures	
1.Opening of auditory tube	
2. Tubal elevation	
3. Pharyngeal recess	
4. Salpingopharyngeal fold (continuous of tubal elevation)	
5. Sphenoid air sinus	
6. frontal air sinus	

Mid-saggital section

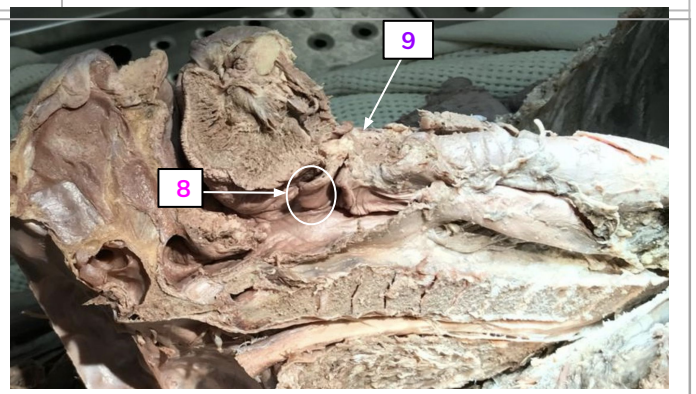
There is another pic in the review

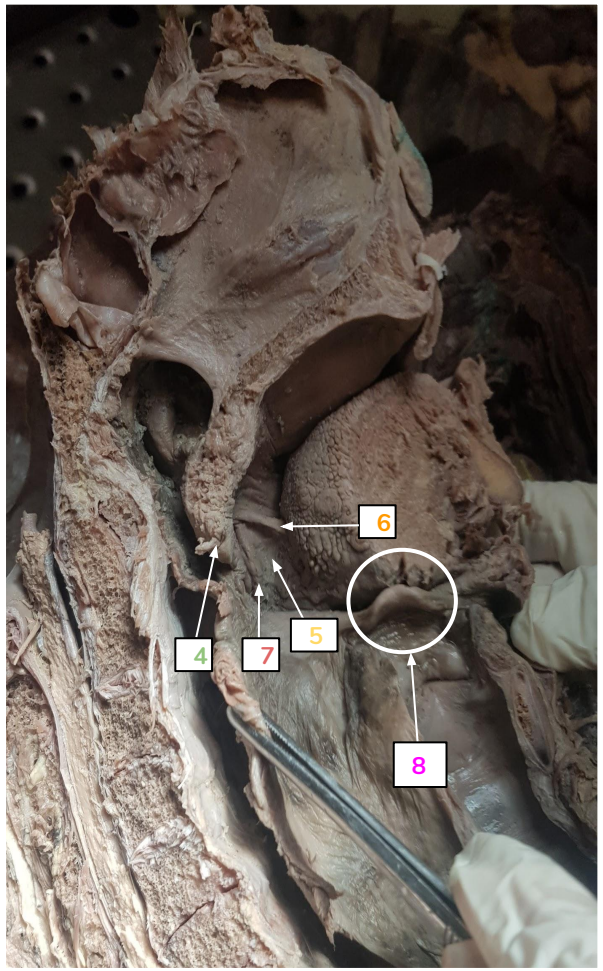
Upper respiratory (pharynx & larynx)

☆ Don't forget to see the videos

Mid-saggital section

Structures in larynx	Structures in pharynx
1. Vestibular Fold (false vocal fold) Note: The upper part of the opening is the vestibular fold	4. Uvula
2. Vocal Fold (true vocal fold) Note: The lower part of the opening is the vocal fold	5. Palatine Tonsil Note: Below the palatoglossal Fold
3. Aryepiglottic Fold	6. Palatoglossal Fold
	7. Palatopharyngeal fold
Single cartilages (circular): 8. Epiglottis	
Single cartilages (circular): 9. Thyroid	





Mid-saggital section

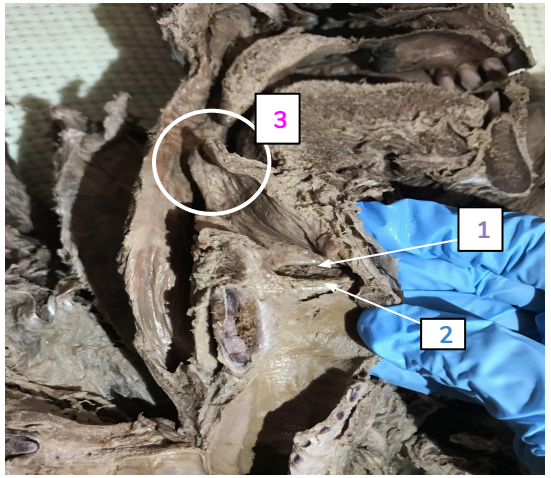
Structures in larynx

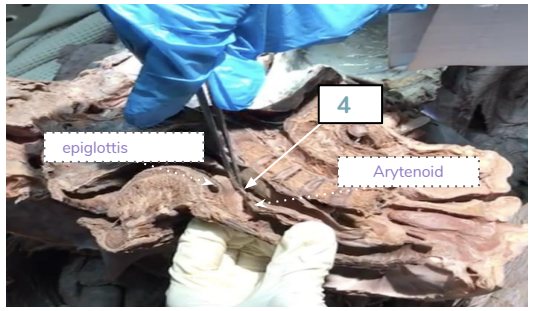
1. Vestibular Fold
Note: The upper part of the opening is the vestibular fold

2. Vocal Fold
Note: The lower part of the opening is the vocal fold

3. Epiglottis

4. Aryepiglottic Fold ~
Note: On each side of the epiglottis
Between epiglottis and arytenoid
-Not very important-





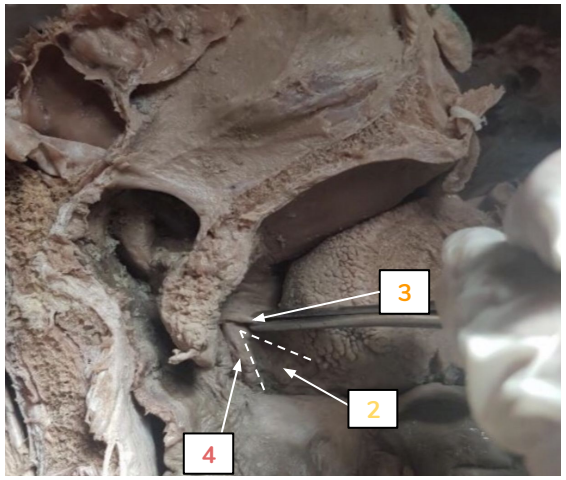
Structures in pharynx

1. Uvula

2. Palatine Tonsil
Note: Below the palatoglossal Fold

3. Palatoglossal Fold

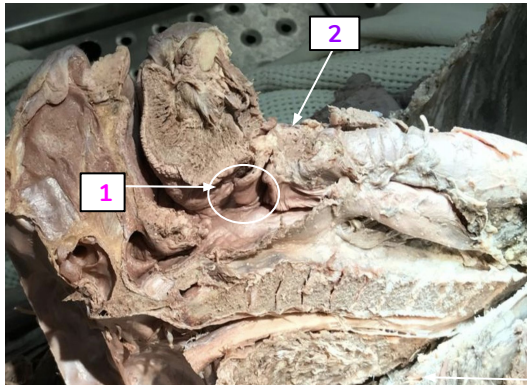
4. Palatopharyngeal fold



Single cartilages (circular)

1. Epiglottis

2. Thyroid



Revision

Nasal cavity

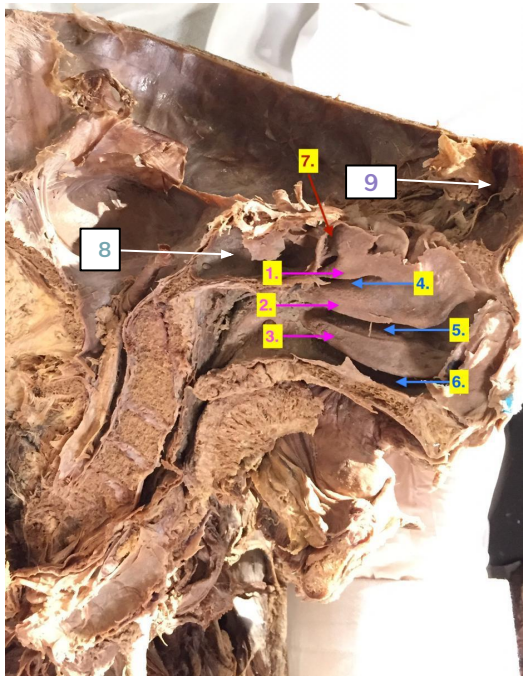
Conchae:

1. superior
2. middle
3. inferior

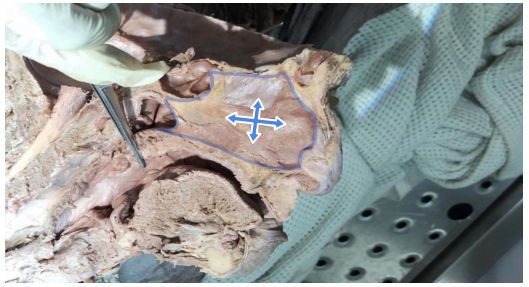
Meatus:

4. **superior** "posterior ethmoidal sinus"
5. **middle** "middle ethmoidal, maxillary, frontal & the anterior ethmoidal sinuses"
6. **inferior** "nasolacrimal duct"

7. **Sphenoethmoidal recess** "sphenoid sinus"
8. Sphenoid air sinus
9. Frontal air sinus

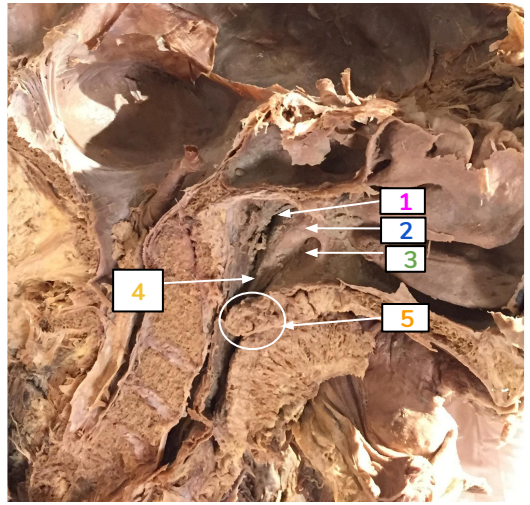


10. Medial wall of nasal septum

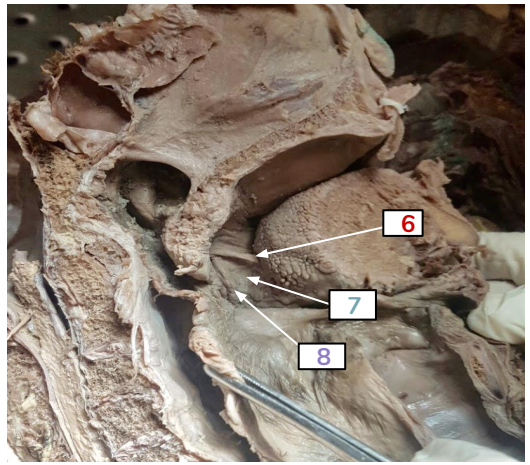


Pharynx

1. Pharyngeal recess
2. Tubal elevation
3. Opening of auditory tube
4. Salpingopharyngeal fold
5. Uvula

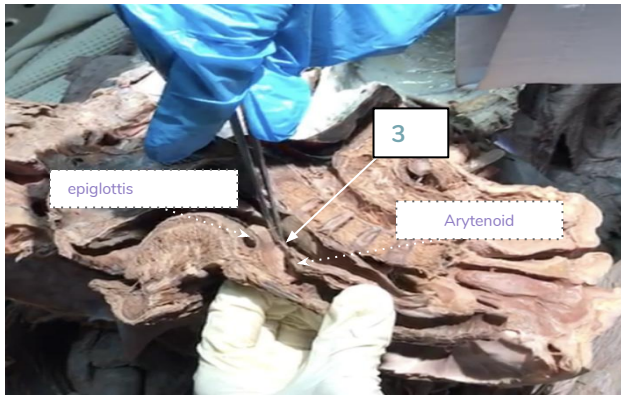


6. Palatoglossal fold
7. Palatine tonsil
8. Palatopharyngeal fold



Revision

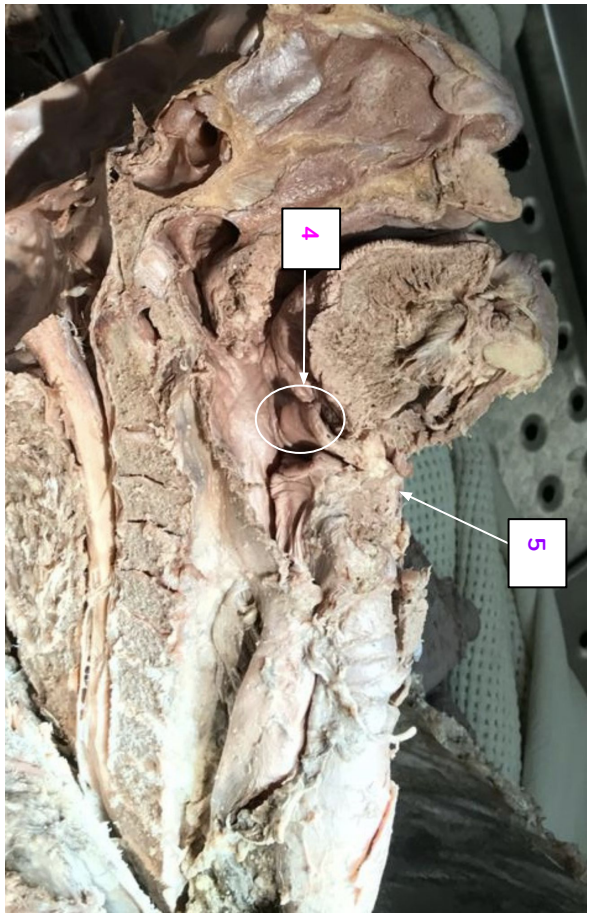
Larynx "ends at C6"



1. Vestibular Fold
2. Vocal Fold
3. Aryepiglottic Fold

Single cartilages:

4. Epiglottis
5. Thyroid



Quiz|

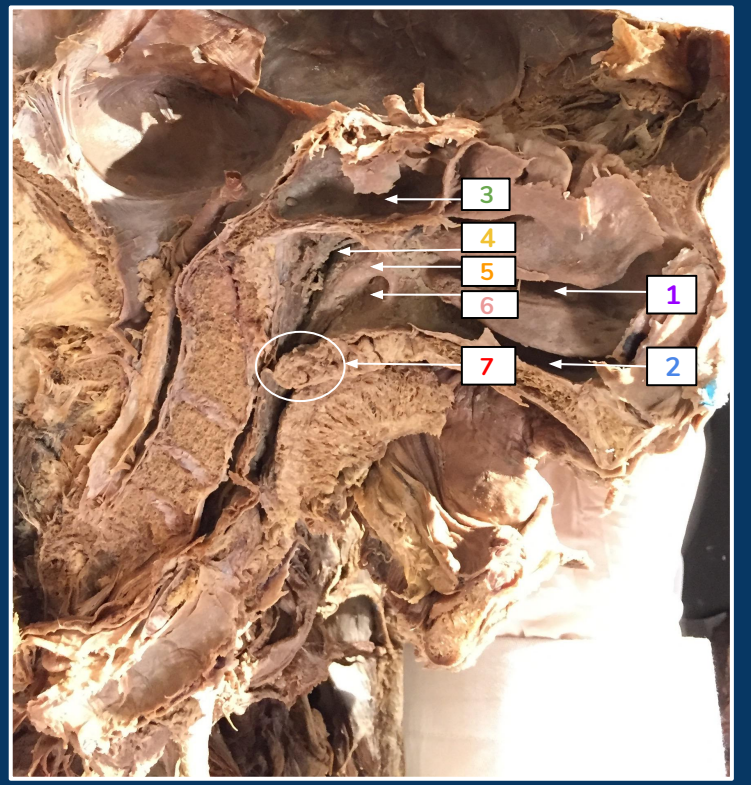
Q1: Identify these structures :

1....
2....
3....
4....
5....
6....
7....
8....
9....

Q2: Names of structures opening in :

- 1| .....
- 2| .....
- sphenoethmoidal recess| .....

Q3 : The end of larynx is in .....



Hmm, sorry if it's hard. We want you to be familiar with them ...
Don't worry ~ ☆ YOU CAN DO IT ;)

★ Answer key

Q1

1 Middle meatus
2 Inferior meatus
3 Sphenoid air sinus
4 Pharyngeal recess
5 Tubal elevation
6 Opening of auditory tube
7 Uvula
8 Vestibular Fold
9 Vocal Fold

Q2

1| middle ethmoidal, maxillary, frontal & the anterior ethmoidal sinuses.
2| nasolacrimal duct.
sphenoethmoidal recess| Sphenoidal sinus.

Q3

- C6

Anatomy team
practical Med438

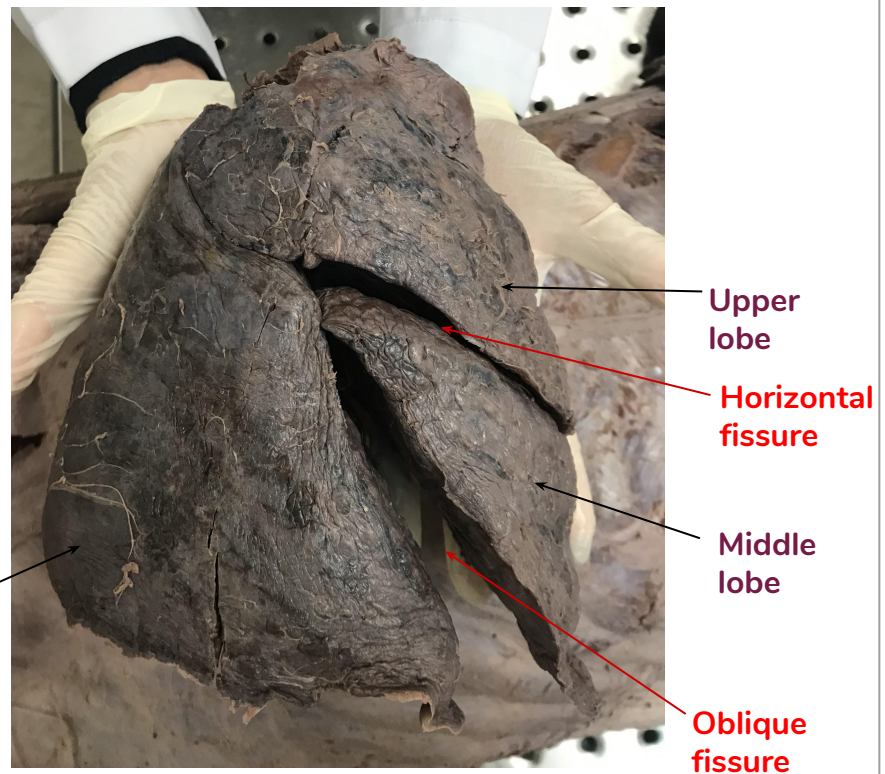
Lung and pleura

Respiratory Block

Editing file

Right VS Left Lung

Right Lung



- ★ Consist of three lobes
- ★ Heavier
- ★ Shorter and wider
- ★ Provide space for the liver

Left Lung

- ★ Consist of two lobes
- ★ Lighter
- ★ Longer and narrower
- ★ Provide space for the heart

Borders

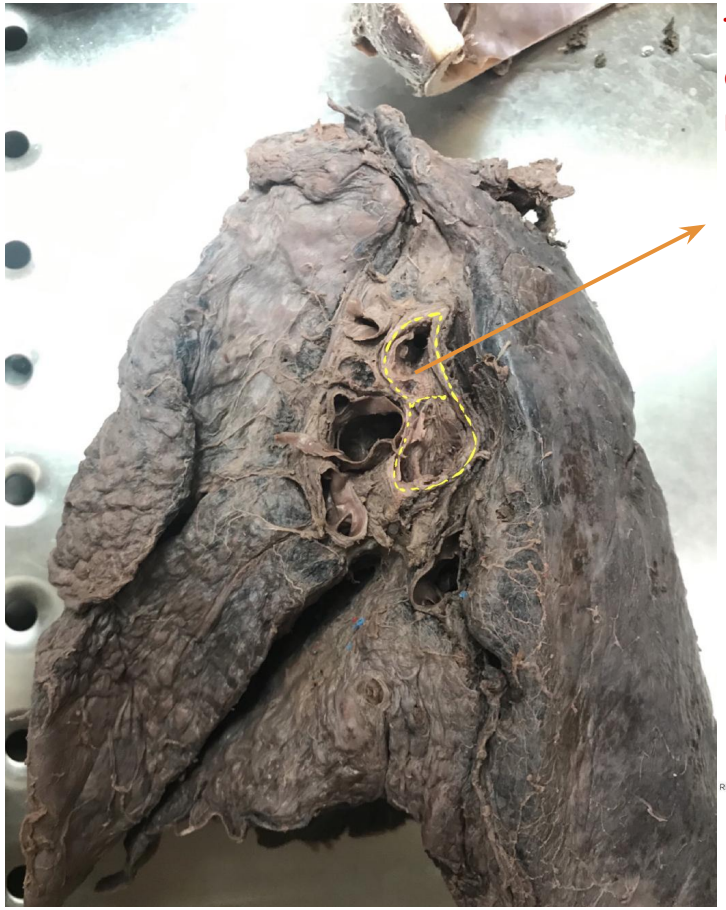
Anterior border	Posterior border	Inferior border
		
★ Sharp ★ Thin ⋆ Anterior border of left lung presents a cardiac notch at its lower end, has a thin projection called the lingula below the cardiac notch.	★ Rounded ★ Thick	★ Sharp ★ Thin ⋆ separates the base of the lung from the costal surface.

Surfaces

Costal surface		Medial surface	
★ Convex		- Anterior (mediastinal) part - Posterior (vertebral) part	
Left lung	Right lung	Left lung	Right lung
			

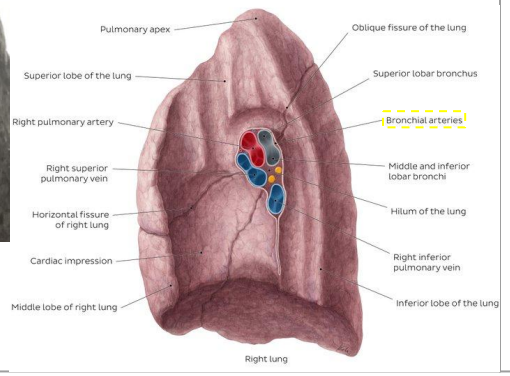
Bronchus

Impression (Right Lung)



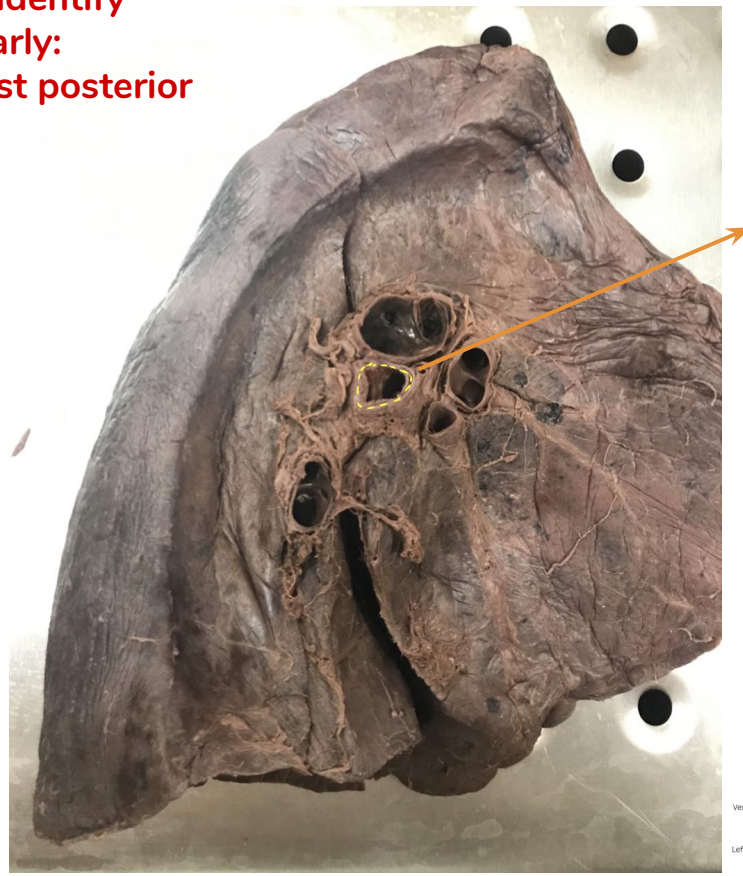
To identify clearly: most posterior

Bronchus

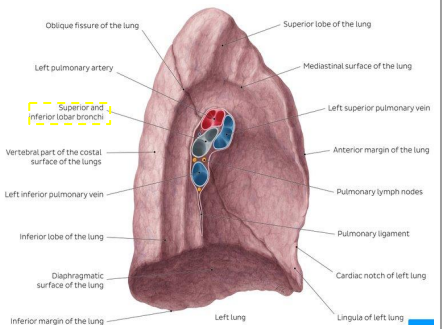


Impression (Left Lung)

To identify clearly: most posterior



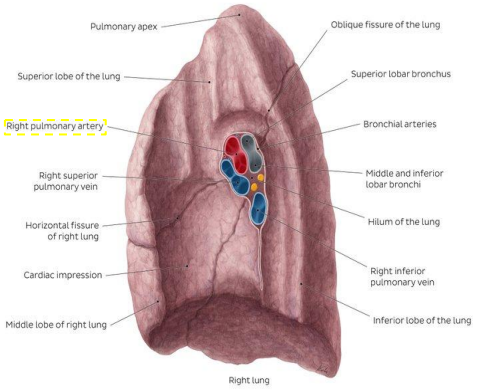
Bronchus



Pulmonary Artery

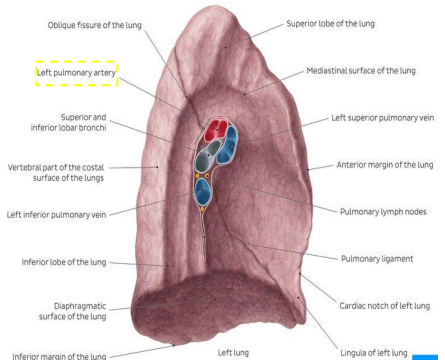
Impression (Right Lung)

Pulmonary Artery



Impression (Left Lung)

Pulmonary Artery



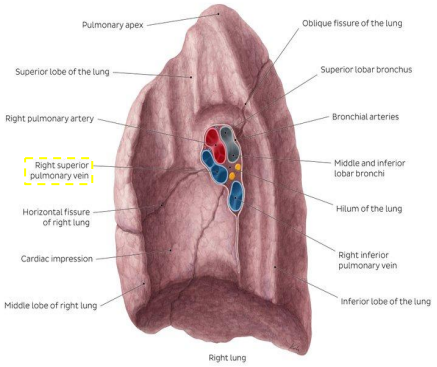
hint: superior pulmonary vein most anterior opening, inferior pulmonary vein most inferior opening , bronchus most posterior opening, remaining opening is the Pulmonary artery for both lungs

Superior Pulmonary Vein

Impression (Right Lung)

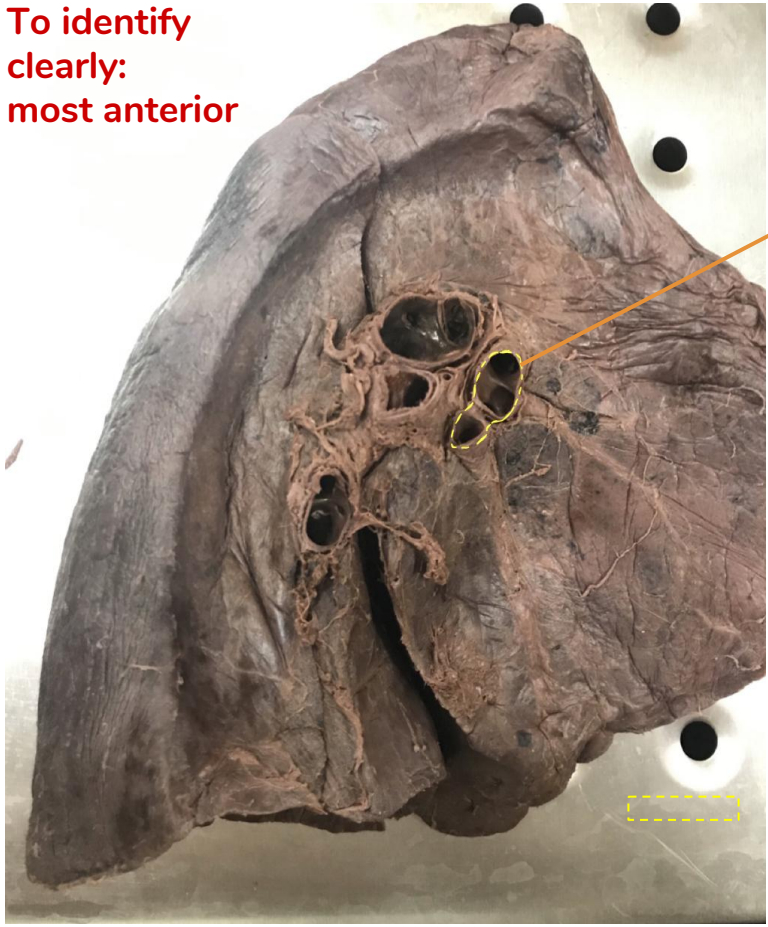
To identify clearly: most anterior

Superior Pulmonary vein

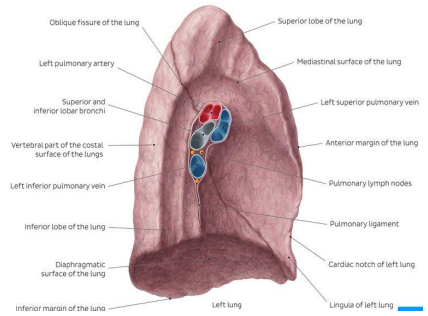


Impression (Left Lung)

To identify clearly: most anterior



Superior Pulmonary vein

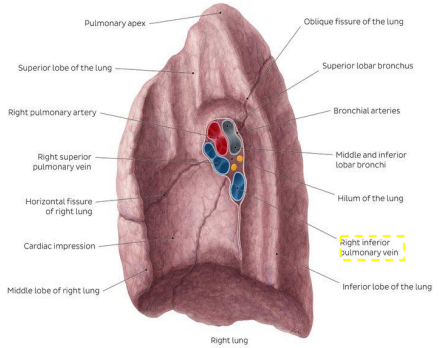


Inferior Pulmonary Vein

Impression (Right Lung)

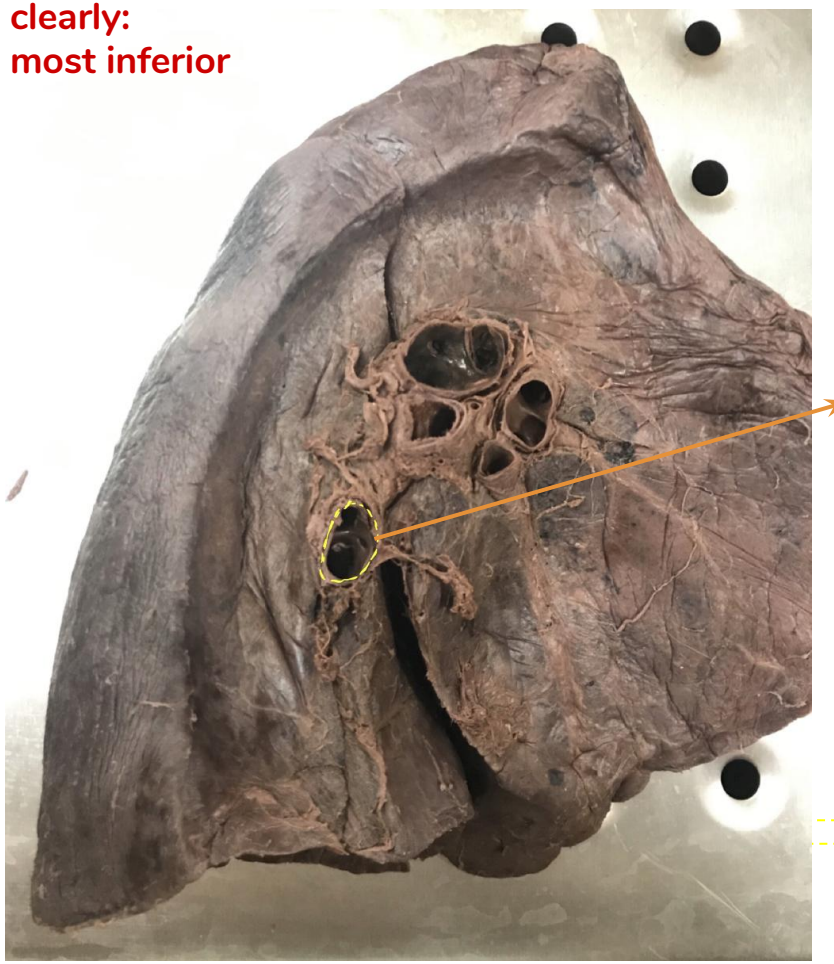
To identify clearly: most inferior

Inferior Pulmonary vein

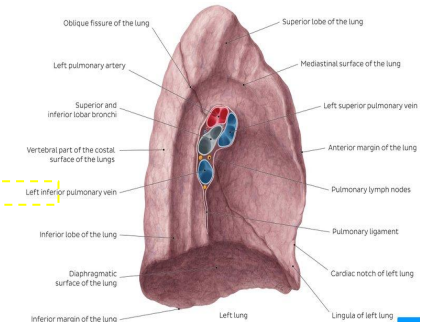


Impression (Left Lung)

To identify clearly: most inferior



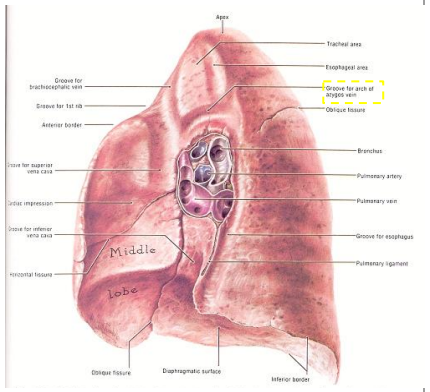
Inferior Pulmonary vein



Impressions

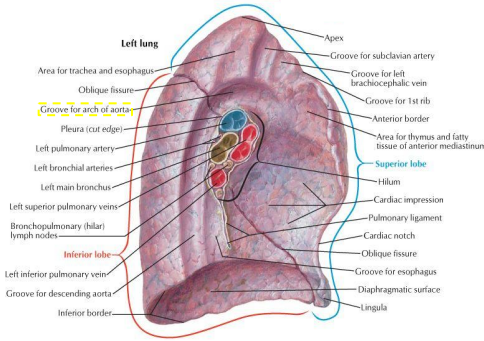
Impression (Right Lung)

Arch of azygos



Impression (Left Lung)

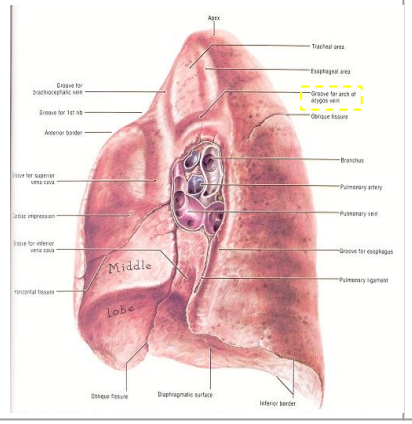
Arch of aorta



Impressions

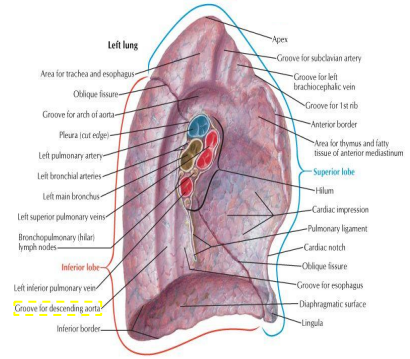
Impression (Right Lung)

azygos vein



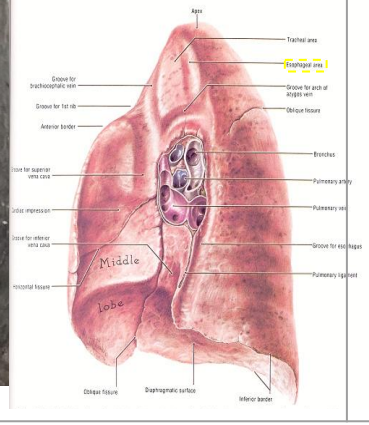
Impression (Left Lung)

Descending thoracic aorta



Impressions

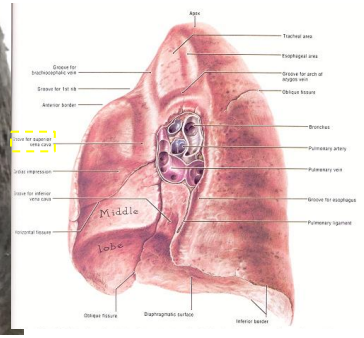
Impression (Right Lung)



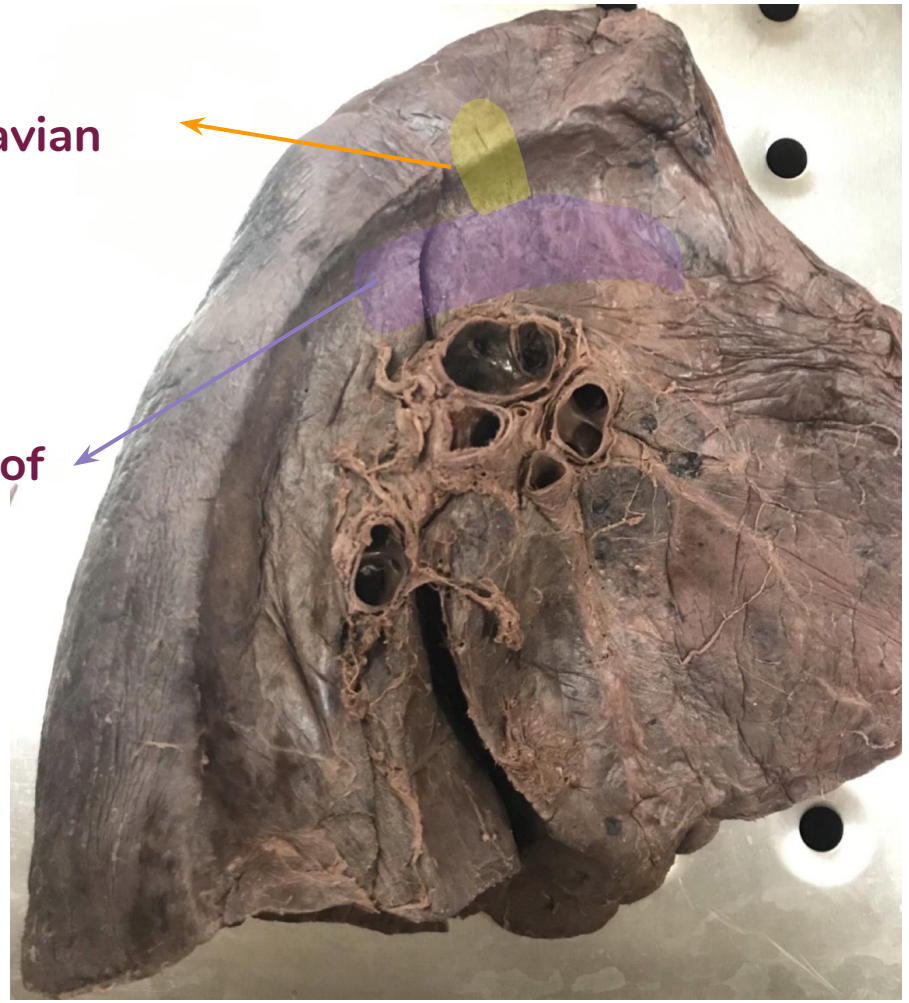
Impression (both Lungs)

Impressions

Impression (Right Lung)



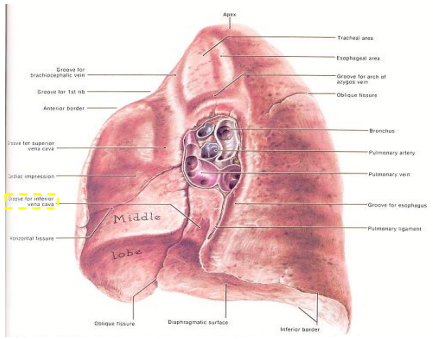
Impression (Left Lung)



Impressions

Impression (Right Lung)

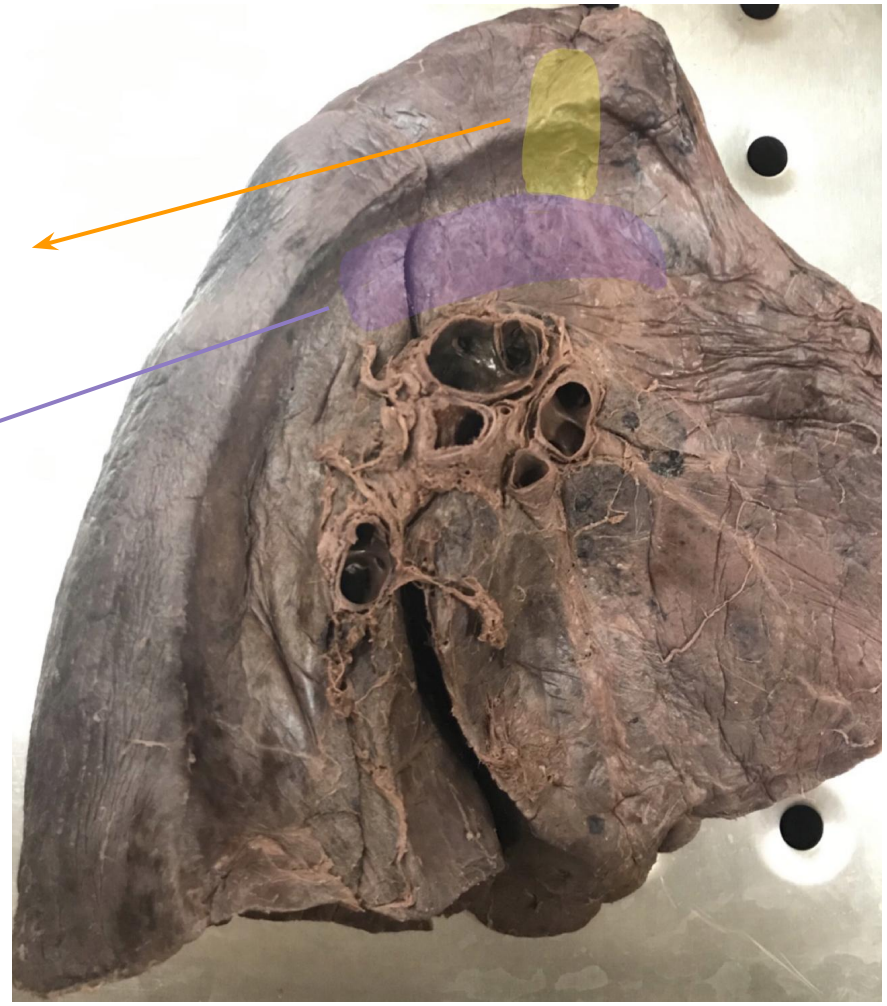
Inferior vena cava



Impression (Left Lung)

Left common carotid

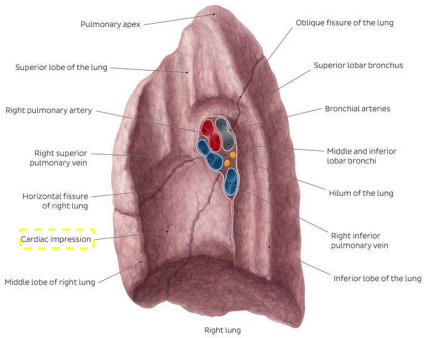
Arch of aorta



Impressions

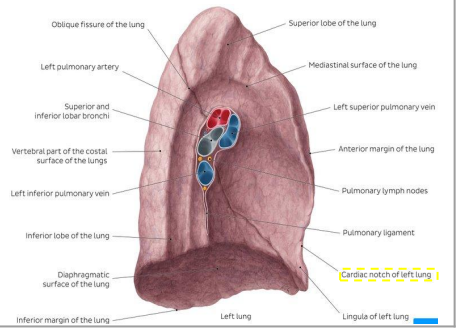
Impression (Right Lung)

Cardiac impression of the right lung (Right atrium)



Impression (Left Lung)

Cardiac impression of the left lung (Left ventricle)



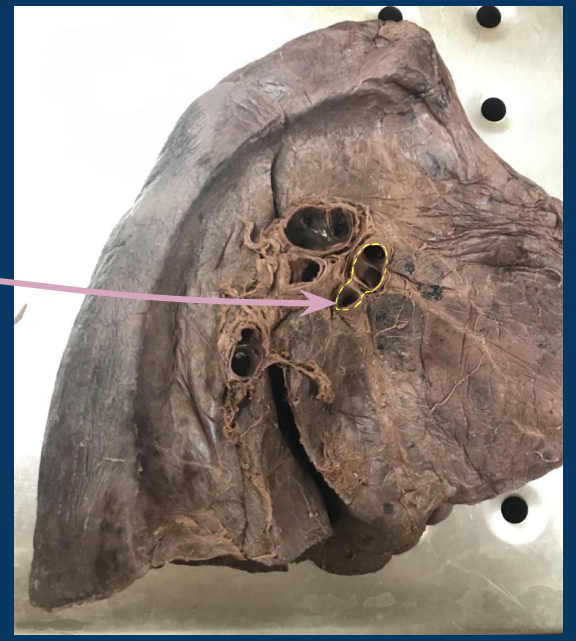
★ Answer key

Q1: Superior pulmonary Vein.

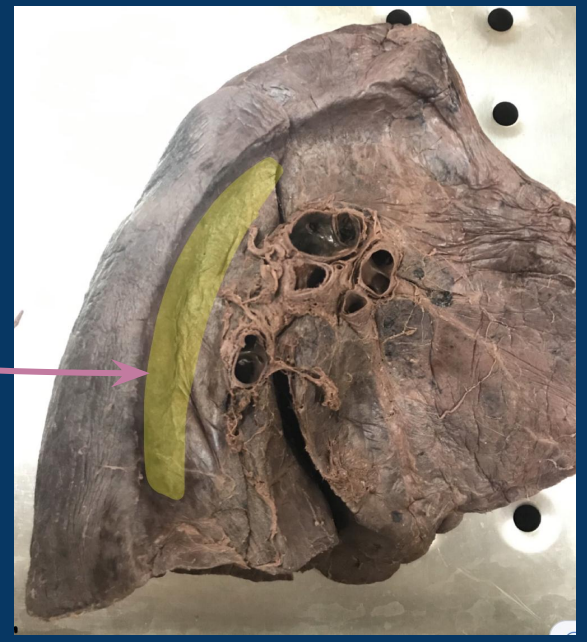
Q2: descending thoracic aorta

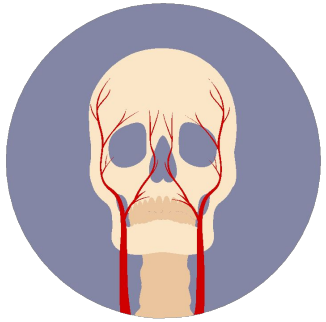
Quiz|

Q1: identify the labelled area?



Q2: what structure that passes through?





Mediastinum

Respiratory Block

Editing file

Mediastinum

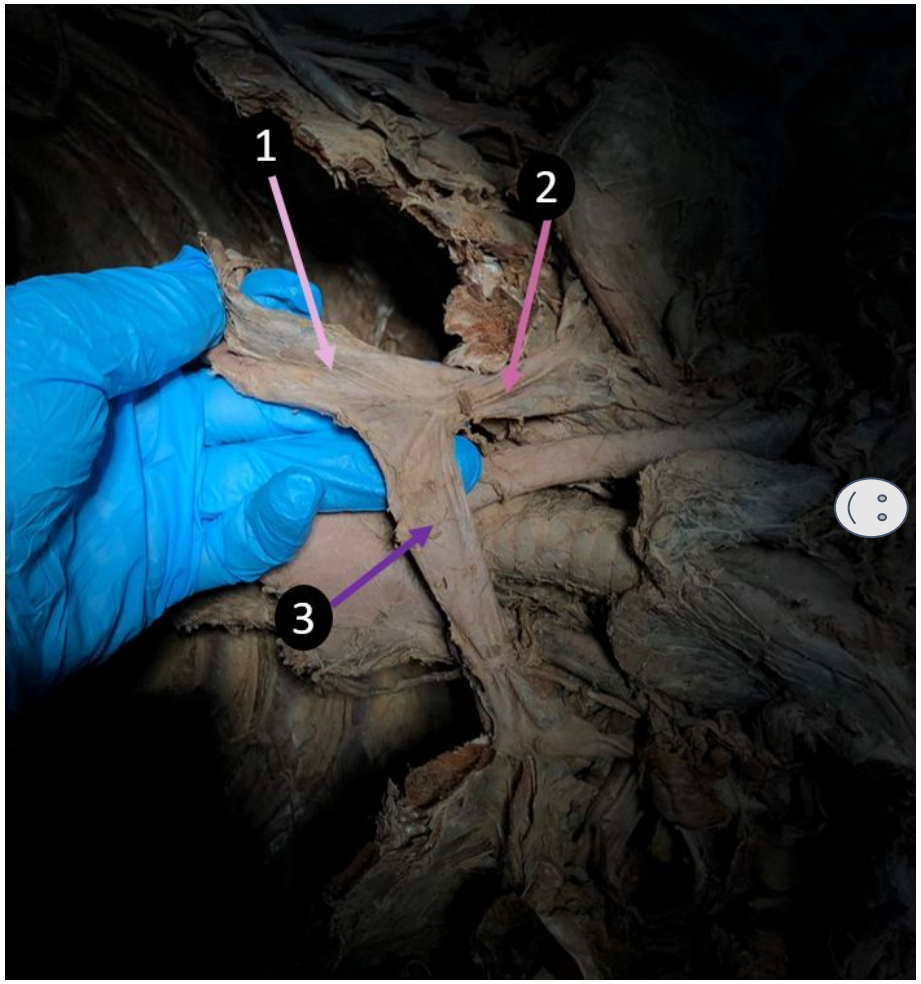
First: Veins

Azygos vein:

Found in posterior Mediastinum

For easy identifying : it directly adherent to the anterior right side of the thoracic vertebra

1. **Superior vena cava**
   Found in Superior & Middle Mediastinum
2. **Right brachiocephalic vein**
   Found in Superior Mediastinum
3. **Left brachiocephalic vein**
   Found in Superior Mediastinum



= direction of the head

Mediastinum

Second: Nerves

Vagus nerve:

Found in Superior & Posterior Mediastinum

it's important to write the side

For easy identifying:

- origin from the root of the neck(brainstem)
- short
- more medial
- makes plexuses on the esophagus

Left Vagus nerve

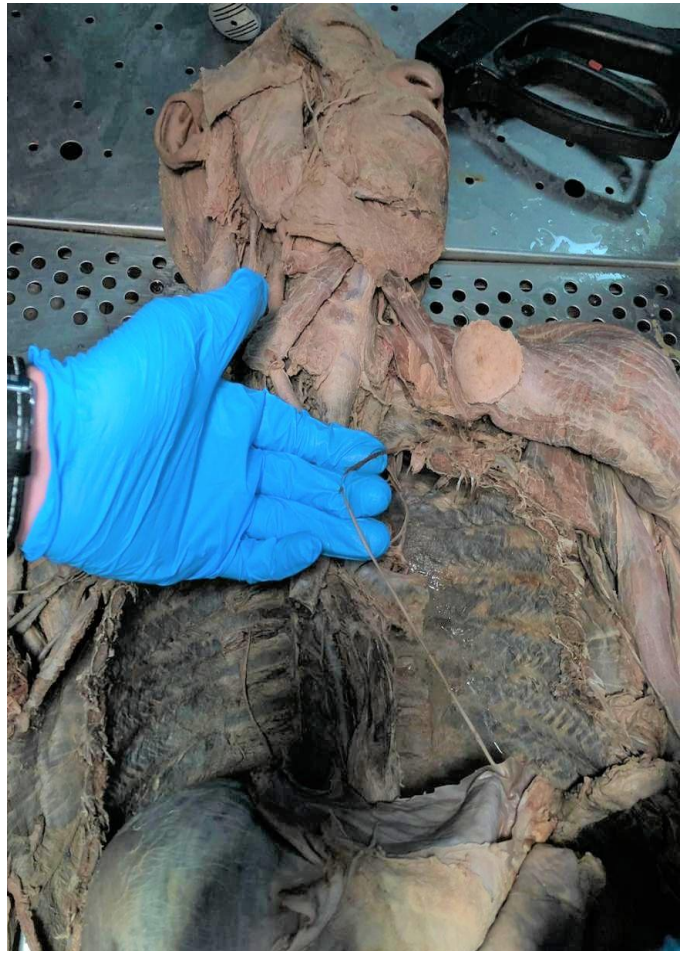
Phrenic nerve:

Found in Superior & Middle Mediastinum

it's important to write the side

For easy identifying:

- origin from the neck (cervical vertebrae)
- long
- more lateral



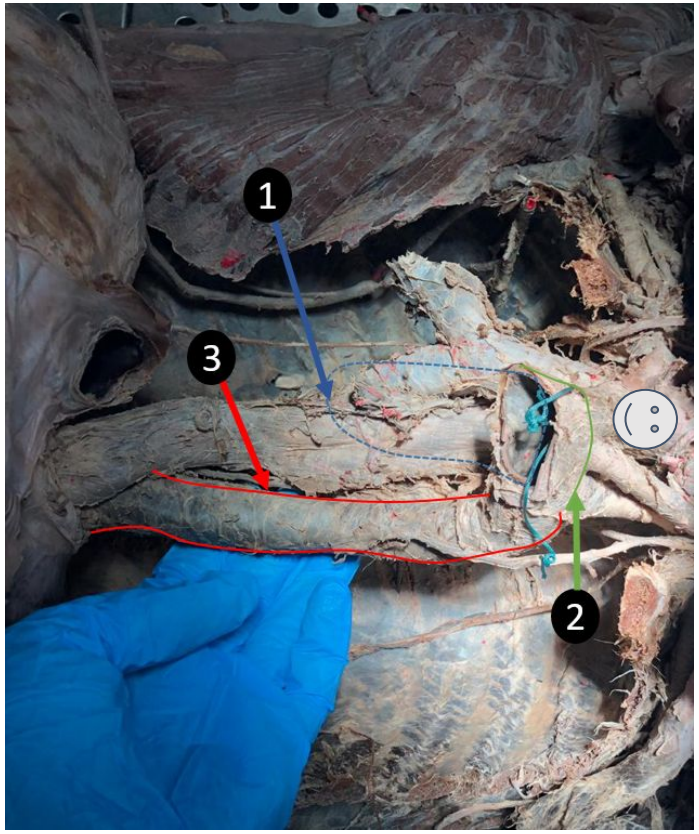
Left Phrenic nerve

Mediastinum

For memorizing
"Arch of aorta " :
1- B: Brachiocephalic artery
2- C: Common carotid "left "
3- S: Subclavian artery " left "
Starting first from B then C then S

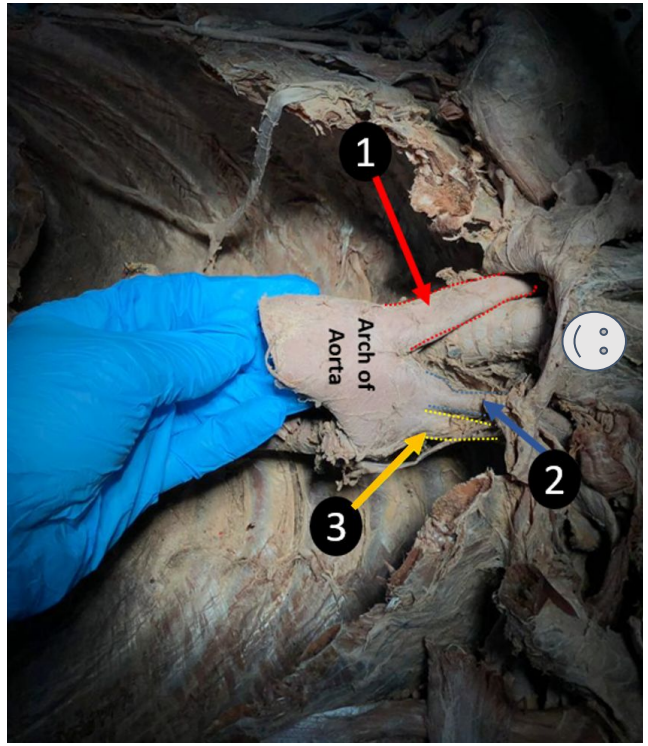
Third: Arteries

1. **Ascending aorta**
   Found in Middle mediastinum
   most probably you won't see it, because it usually removed with the heart
2. **Arch of aorta**
   Found in Superior mediastinum
3. **Descending aorta**
   Found in Posterior Mediastinum



1. **Brachiocephalic artery:**
   Found in Superior mediastinum
2. **Left common carotid artery:**
   Found in Superior Mediastinum
3. **Left subclavian artery:**
   Found in Superior Mediastinum

➔ **it's important to write <u>left</u>**



Mediastinum

Forth: Tubes

Esophagus:

Found in Superior & Posterior mediastinum

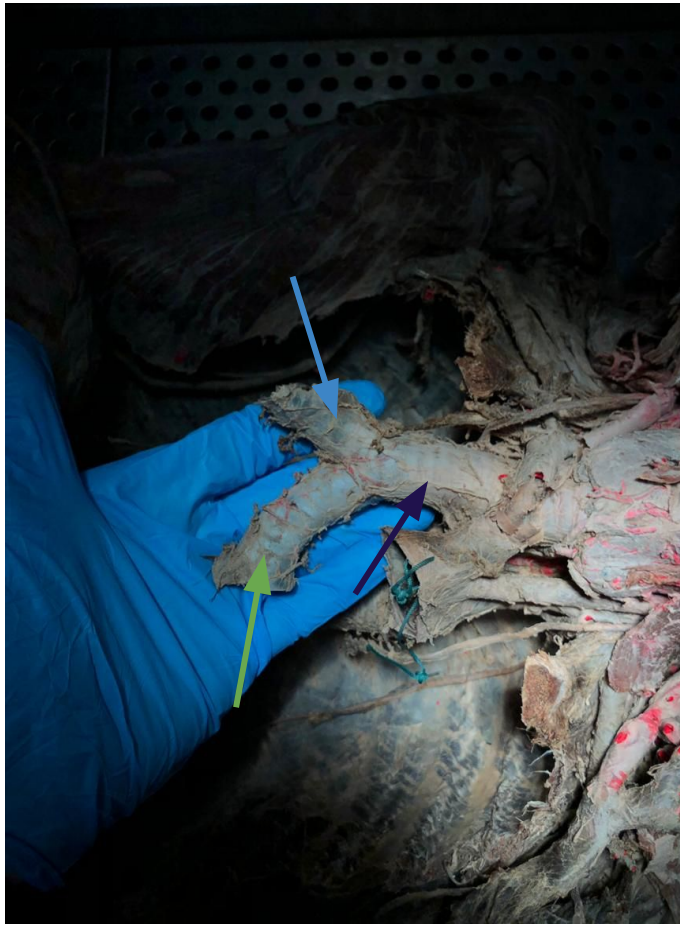
Note: The question about Esophagus could come in upper respiratory tract also

1. **Trachea:**
   Found in Superior Mediastinum

   Note: The question about Trachea could come in upper respiratory tract also

2. **Right main bronchi**

3. **left main bronchi**

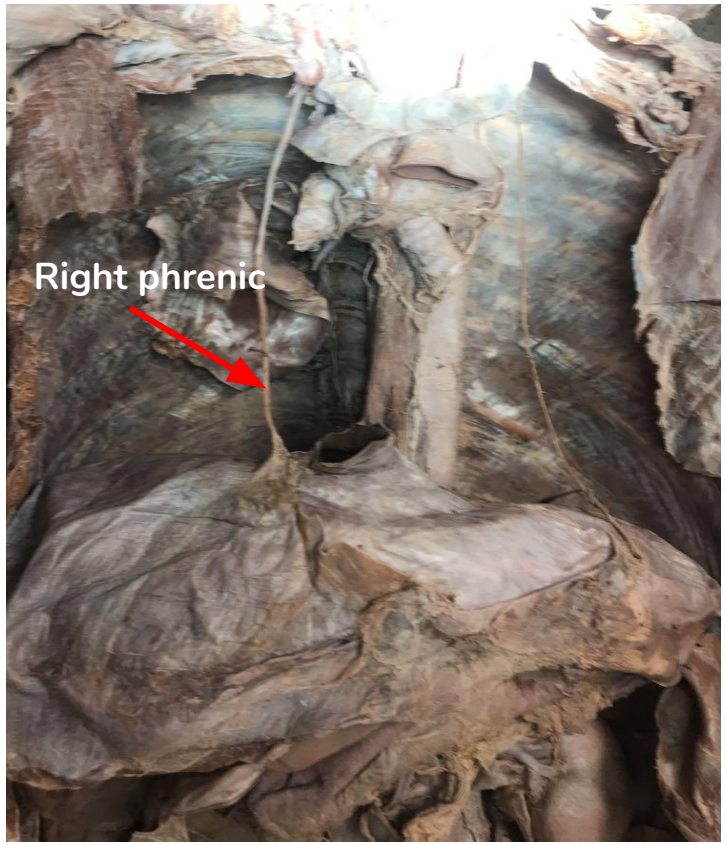


Mediastinum

Fifth: Others

Diaphragm:

nerve supply phrenic C3,4,5



Sympathetic trunks:

Found in Posterior Mediastinum

it's important to write the side

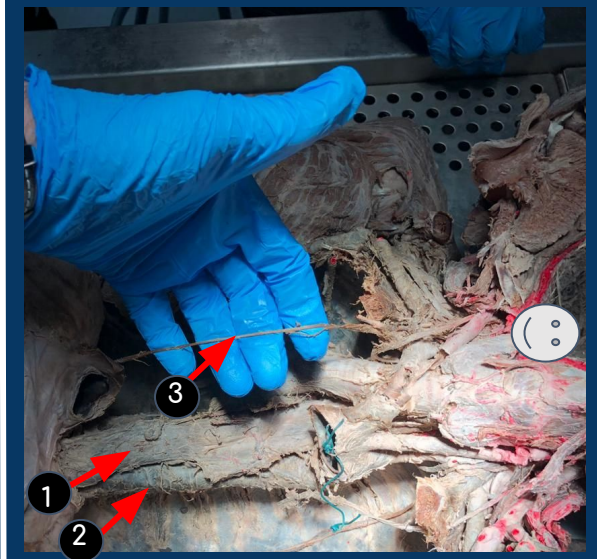
For easy identifying: it directly adherent to the posterior right & left side of the thoracic vertebra

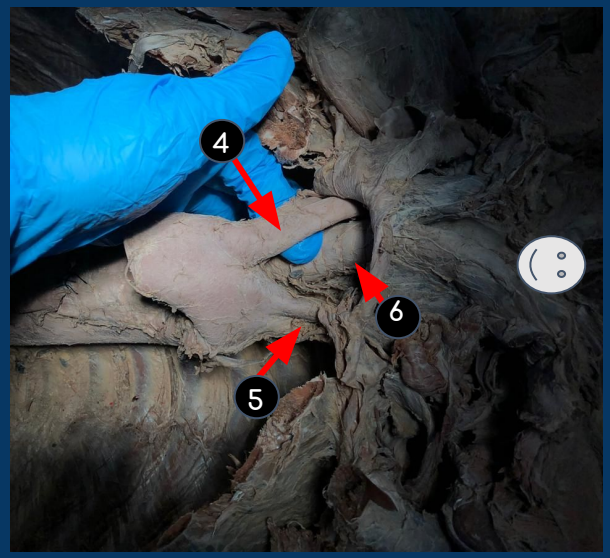
Right Sympathetic trunk

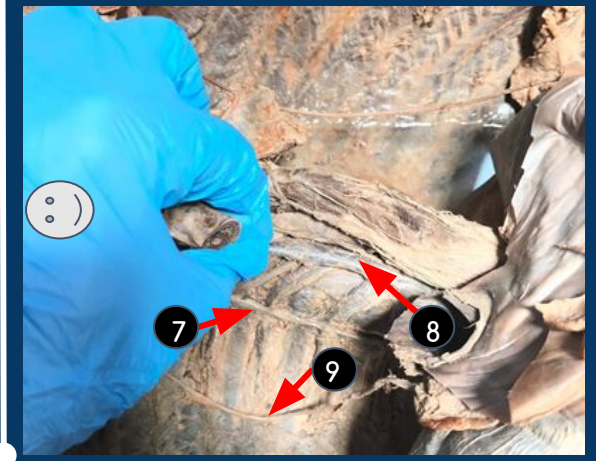
- **Youtube video**

- Surgical Dissection of Mediastinum

Quiz | Identify :







Answers :

1. Esophagus
2. Descending aorta
3. Right phrenic nerve
4. Brachiocephalic artery
5. Left subclavian artery
6. Trachea
7. Right sympathetic trunk
8. Azygos vein
9. Right phrenic nerve

Congrats, you finally did it !

Hope you all have a nice OSPE

Team members:

Salman Alagla
Mohammed Al-huqbani
Sameh naser

Elaf Almusahel
Sara Alkhalife
Sarah Alhelal
Joud Abudahesh
Shahd Alsalamh
Ghalia Alnufaei
Amira Aldakhilallah
Deema Almaziad
Nouf Alhumaidhi
Nouf Alhussaini

Team leaders

Noura Alturki
Abdulrahman Shadid