

وسهلا

أهلا



الأستاذ الدكتور / يوسف حسين

أستاذ التشريح وعلم الأجنة

كلية الطب – جامعة الزقازيق- مصر

دكتورة من جامعة كولونيا المانيا

جروب الفيس

د. يوسف حسين (استاذ التشريح)



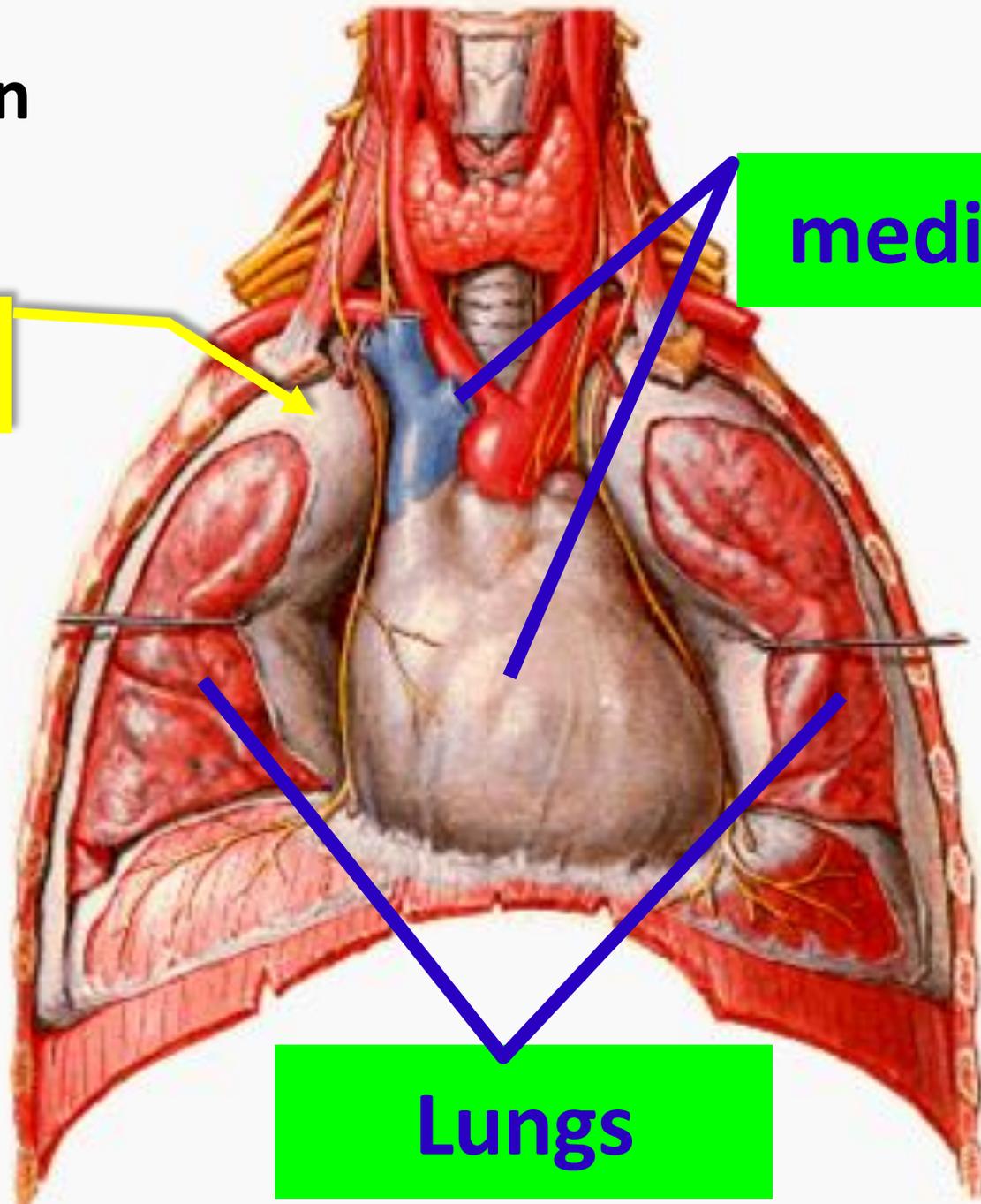
LUNGS

Position

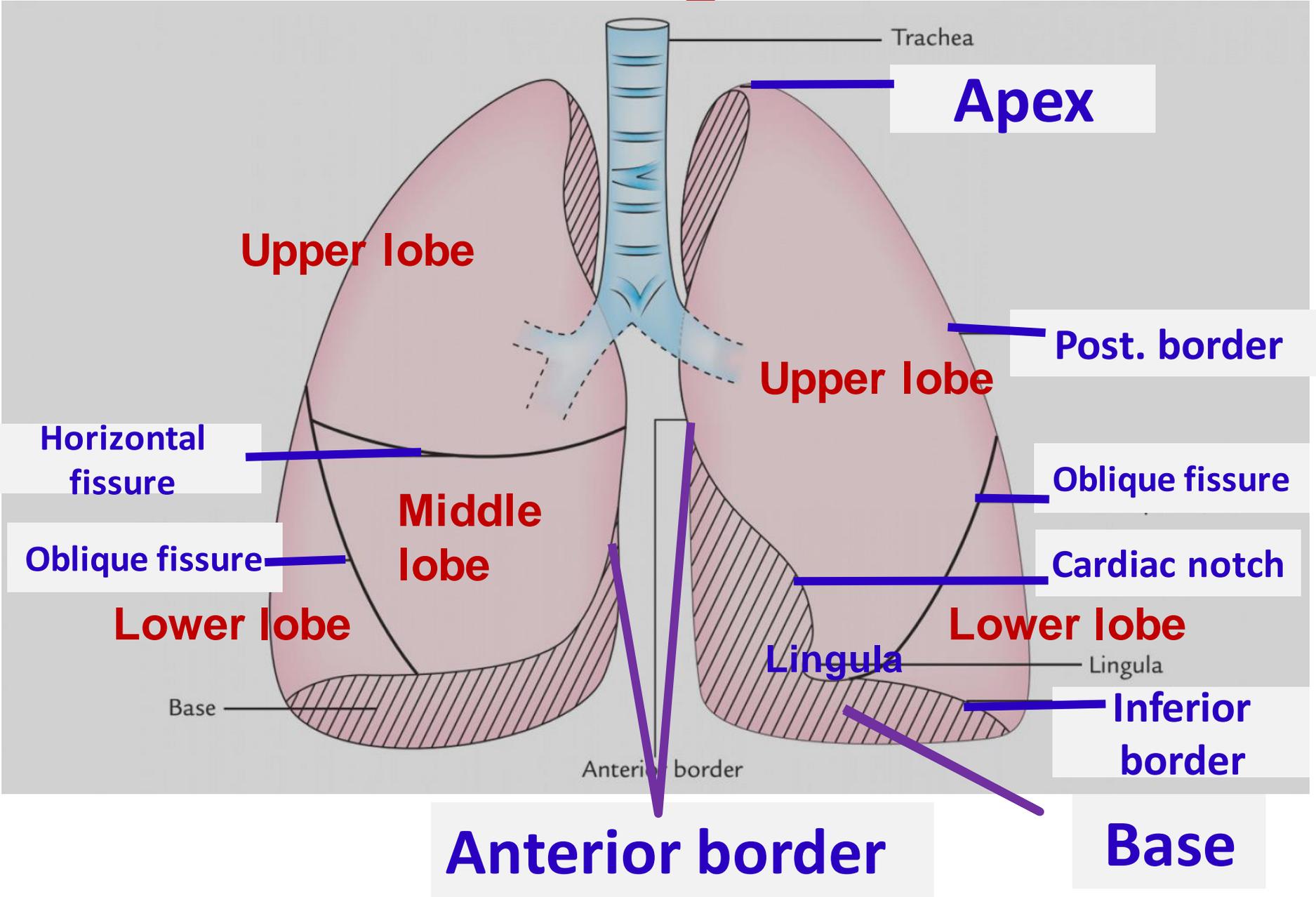
Pleura

mediastinum

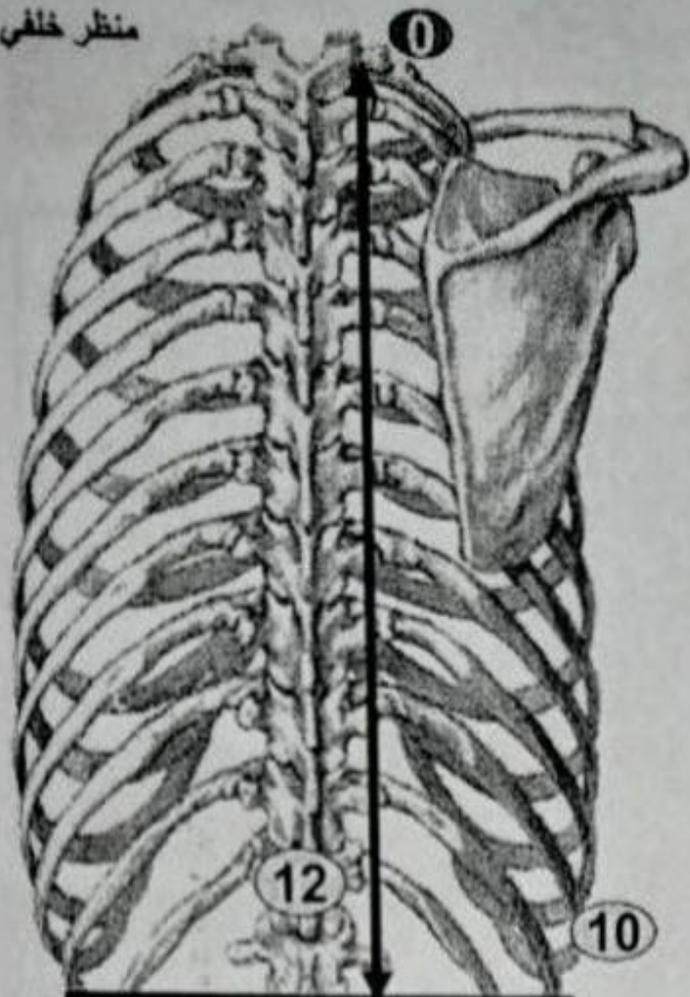
Lungs



Lobes and borders Lungs

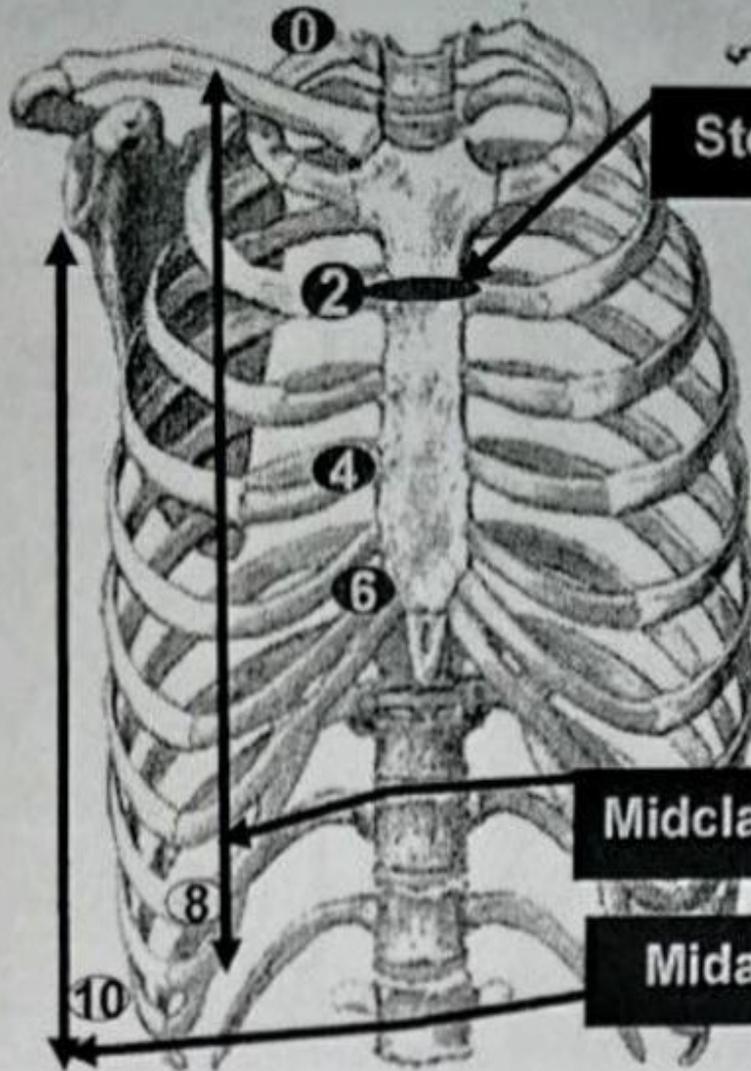


منظر خلفي



Paravertebral line

منظر أمامي



Sternal angle

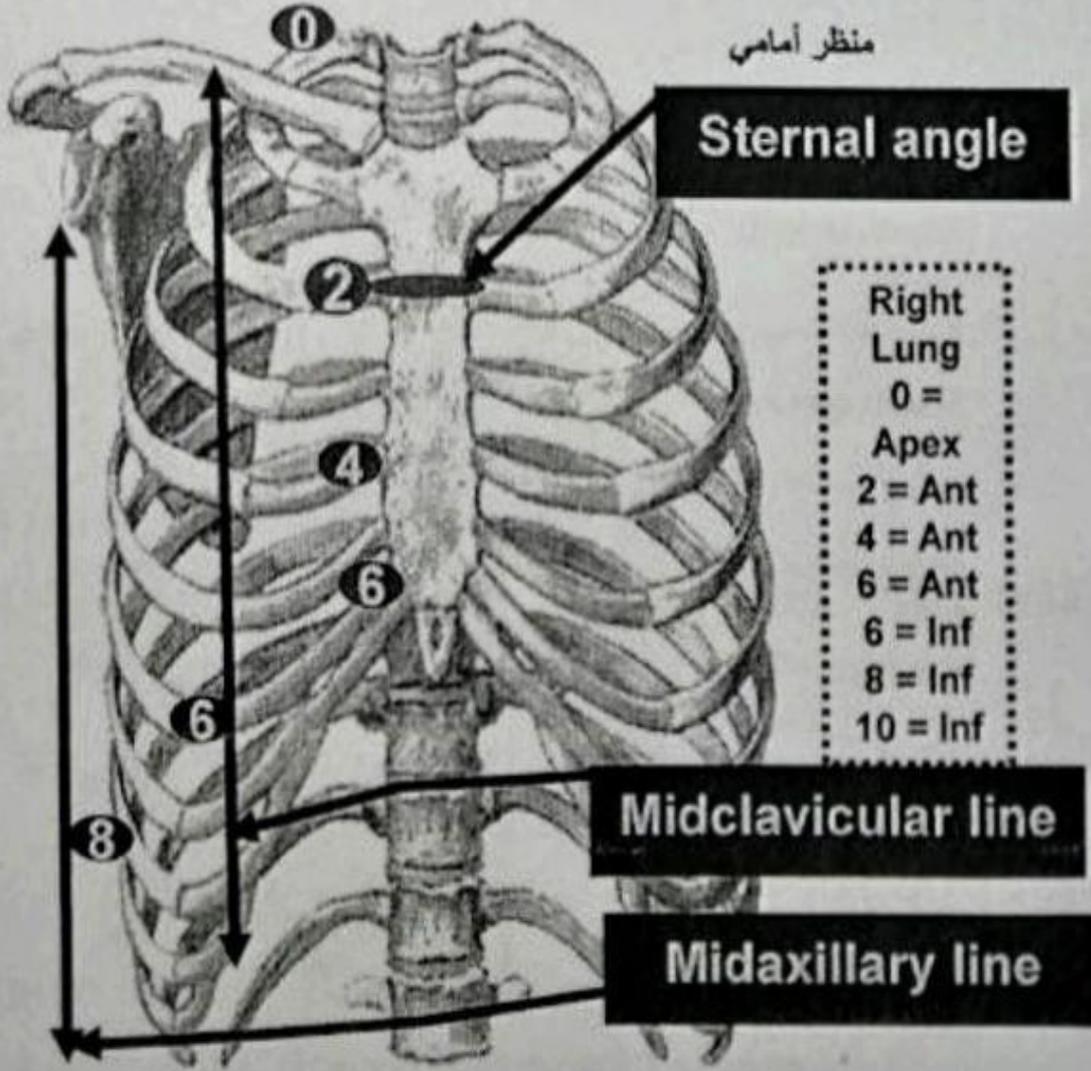
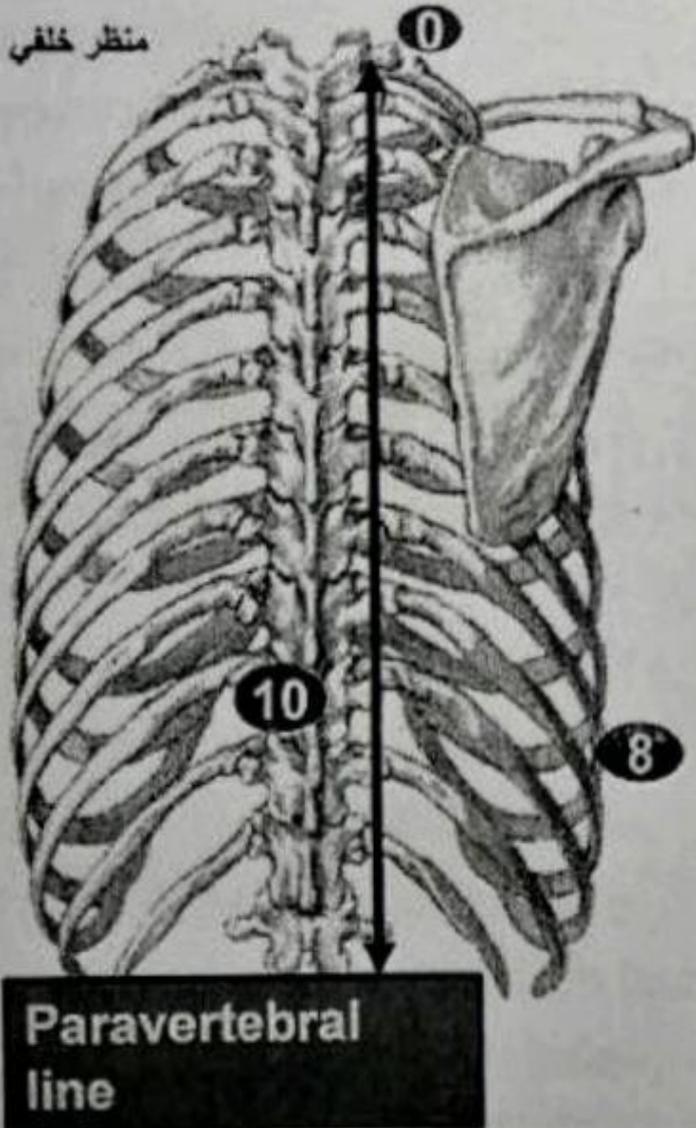
- Right Pleura
- 0 = Apex
- 2 = Ant
- 4 = Ant
- 6 = Ant
- 8 = Inf
- 10 = Inf
- 12 = Inf

Midclavicular line

Midaxillary line

منظر خلفي

منظر أمامي



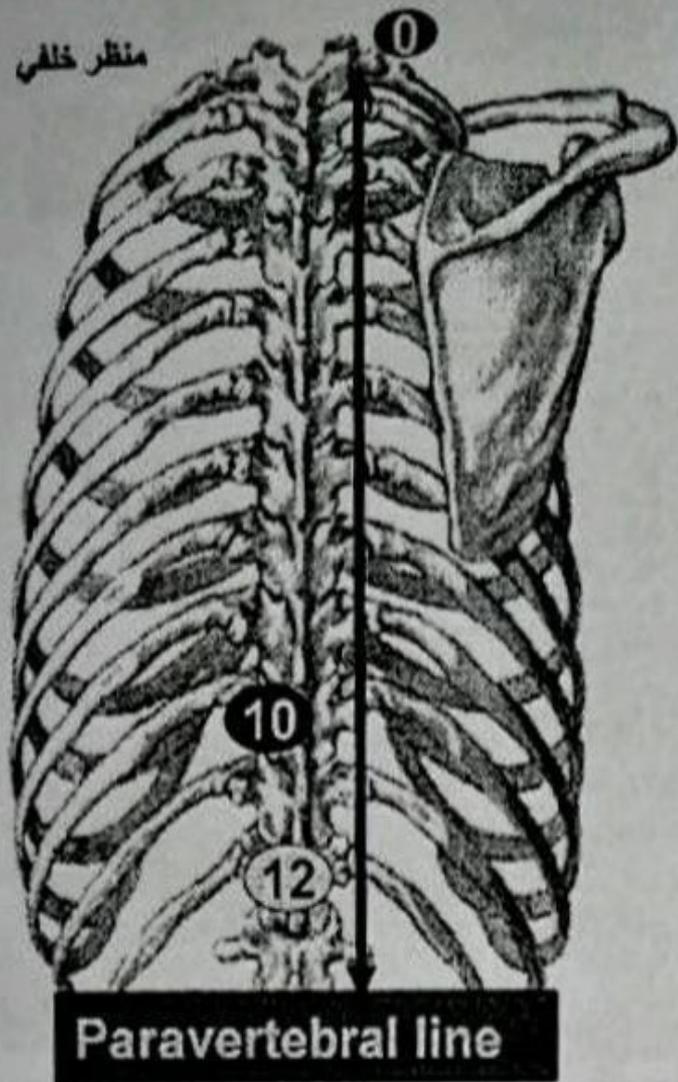
- Right Lung
- 0 = Apex
- 2 = Ant
- 4 = Ant
- 6 = Ant
- 6 = Inf
- 8 = Inf
- 10 = Inf

Paravertebral line

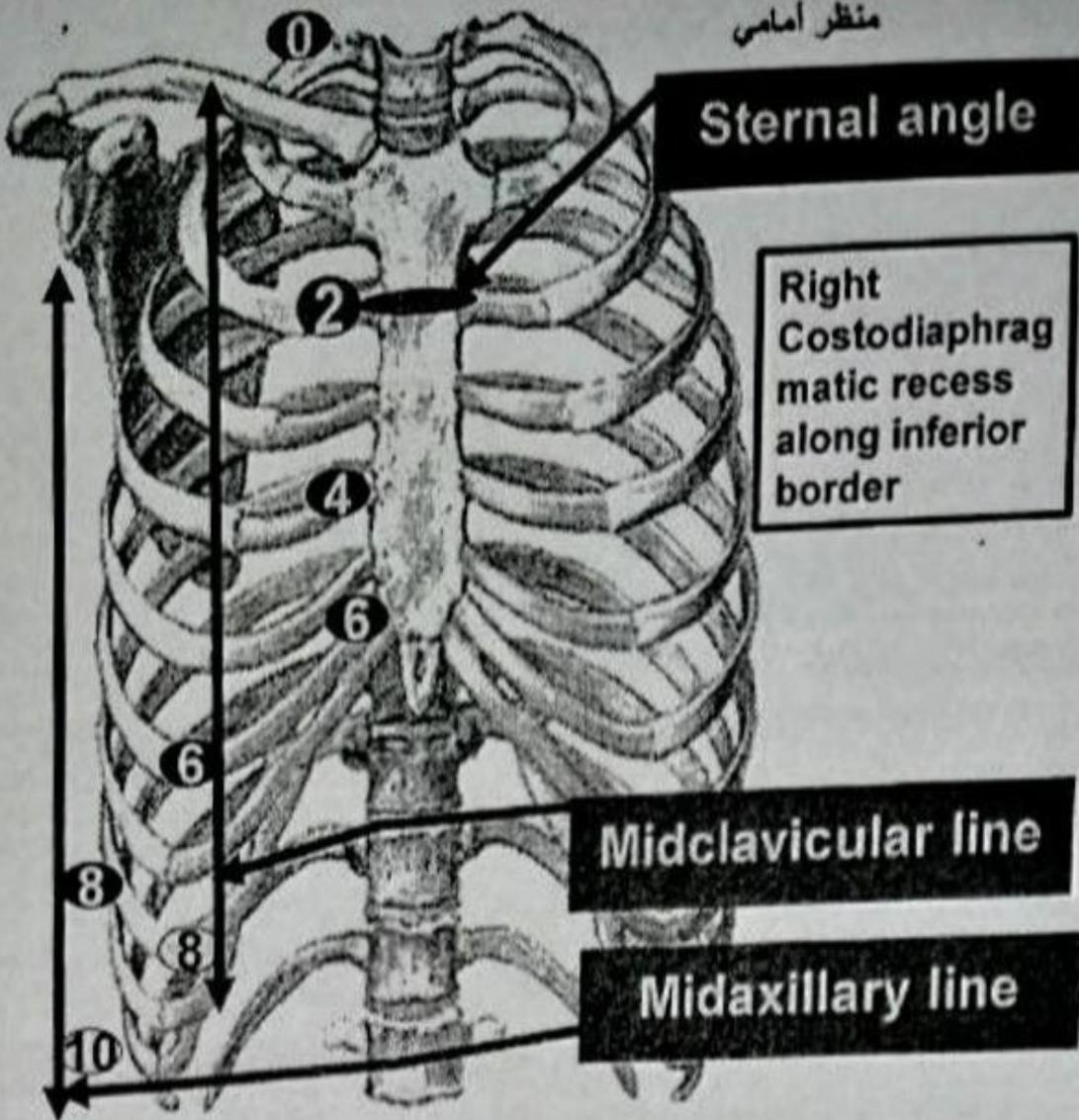
Midclavicular line

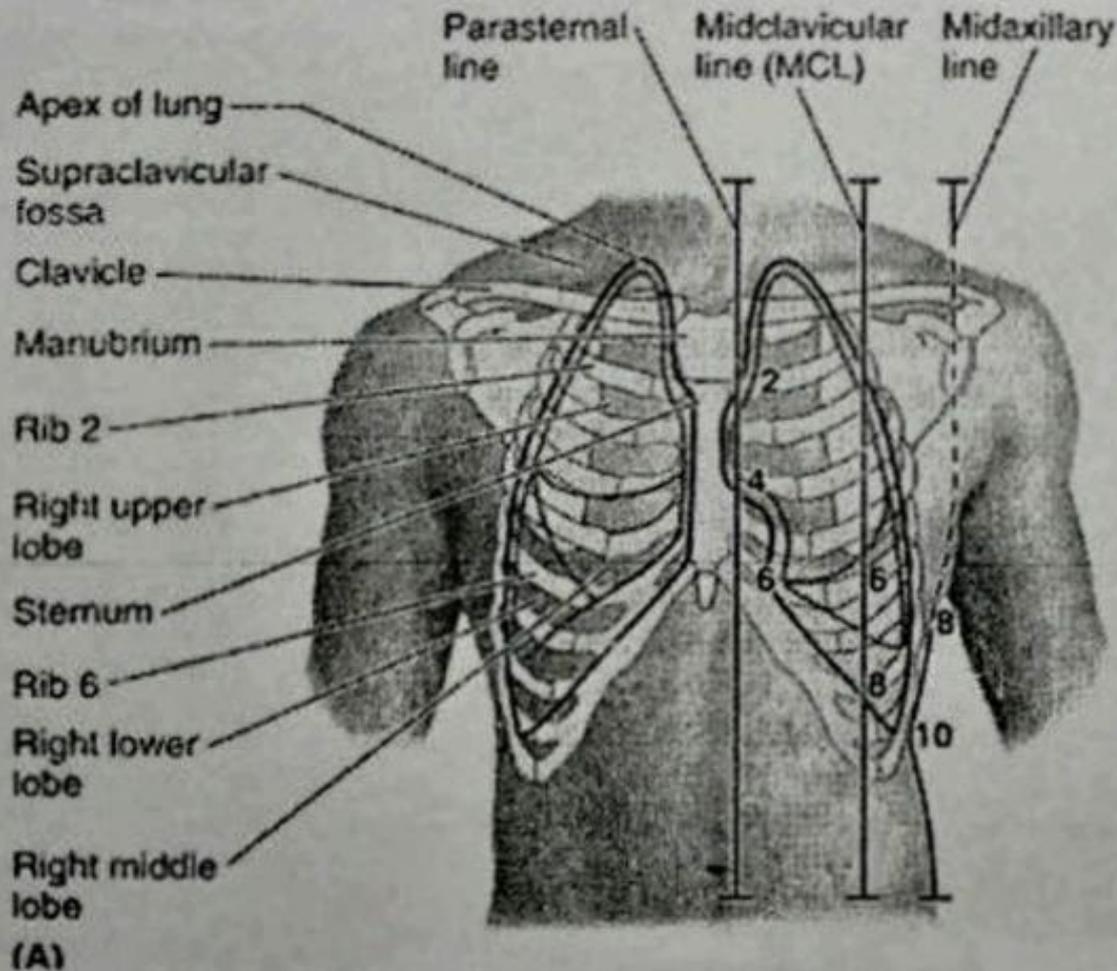
Midaxillary line

منظر خلفي



منظر أمامي

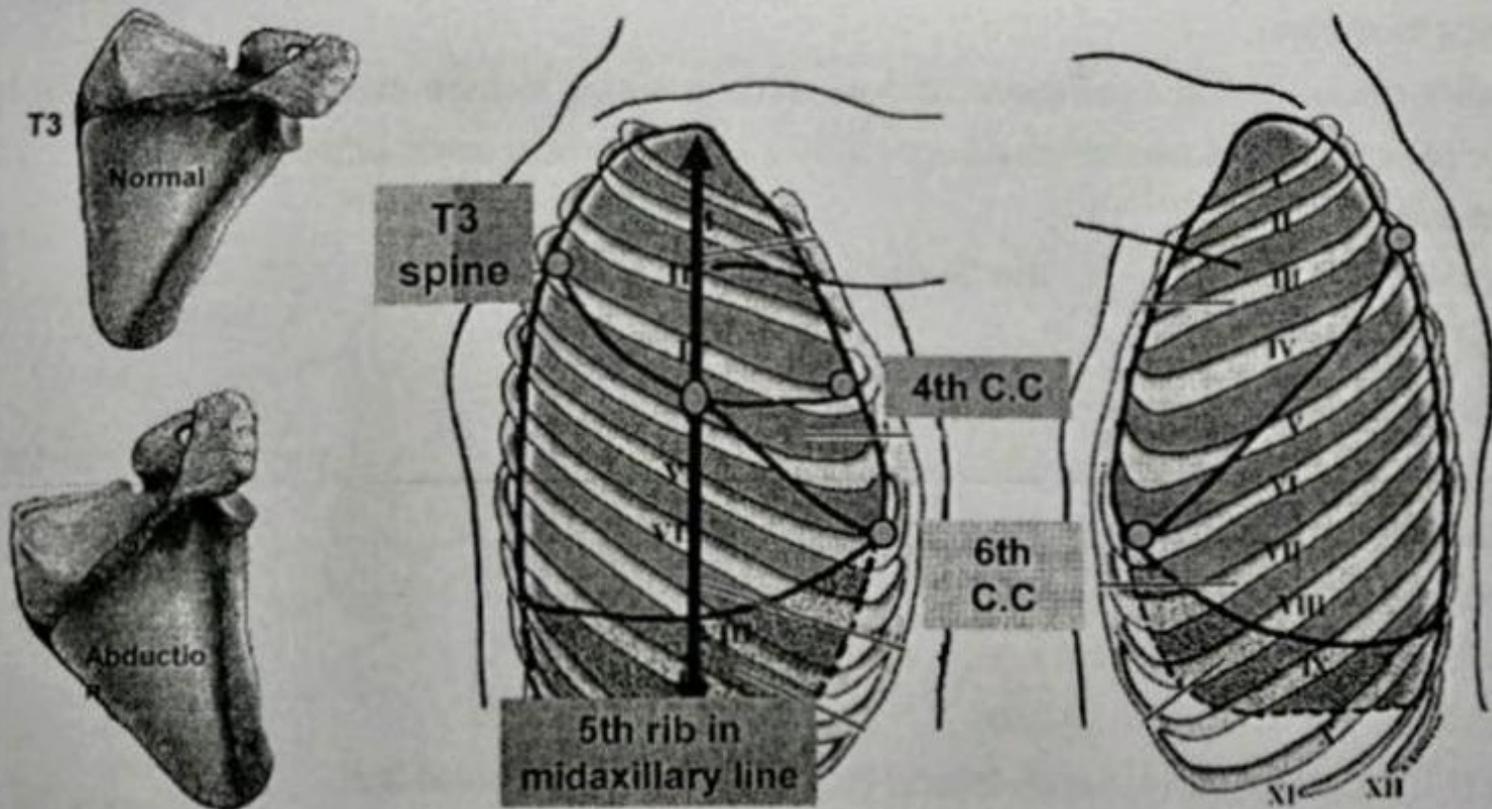




**Surface anatomy
 left & pleura
 lung**

Left Pleura= 0, 2, 4, 6, 8, 10, 12
 Left Lung= 0, 2, 4, 6, 6, 8, 10

Surface anatomy of the fissures of lung



<https://www.youtube.com/c/ProfDrYoussefHusseinaAnatomy/featured>

**** B- Surface anatomy of the fissures of the lungs**

1- The oblique fissure: (in both right and left lungs)

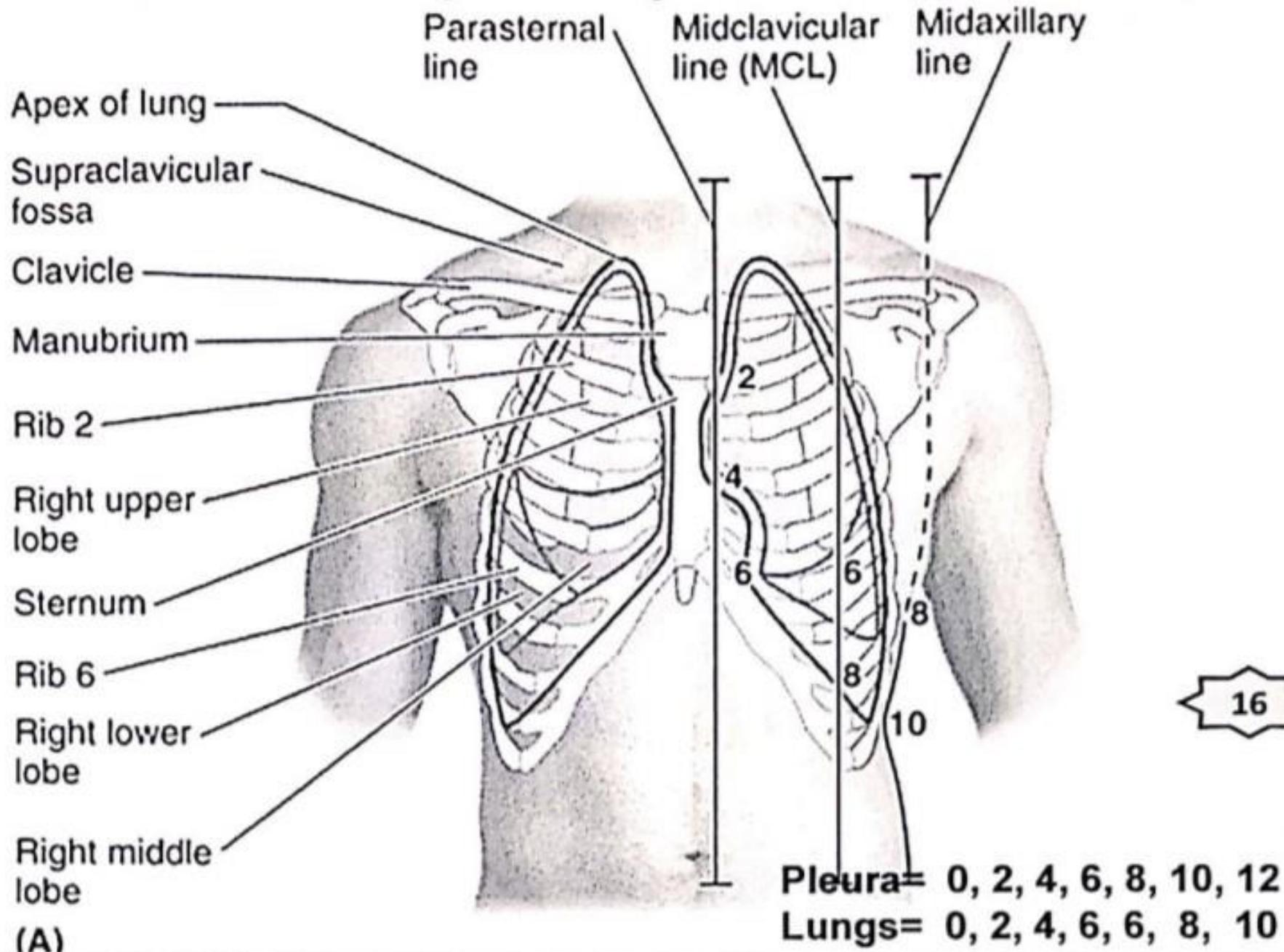
- Draw a line extends from the posterior border at;
 - A point at the level of the **3rd thoracic spine** (Opposite the root of the spine of the scapula).
 - The line directed downward and forward to the inferior border at the **6th costo-chondral junction**.
 - **Roughly**, the oblique fissure corresponds to the medial border of the scapula by placing the hand on the back of the head.

2- The horizontal fissure (only in the right lung)

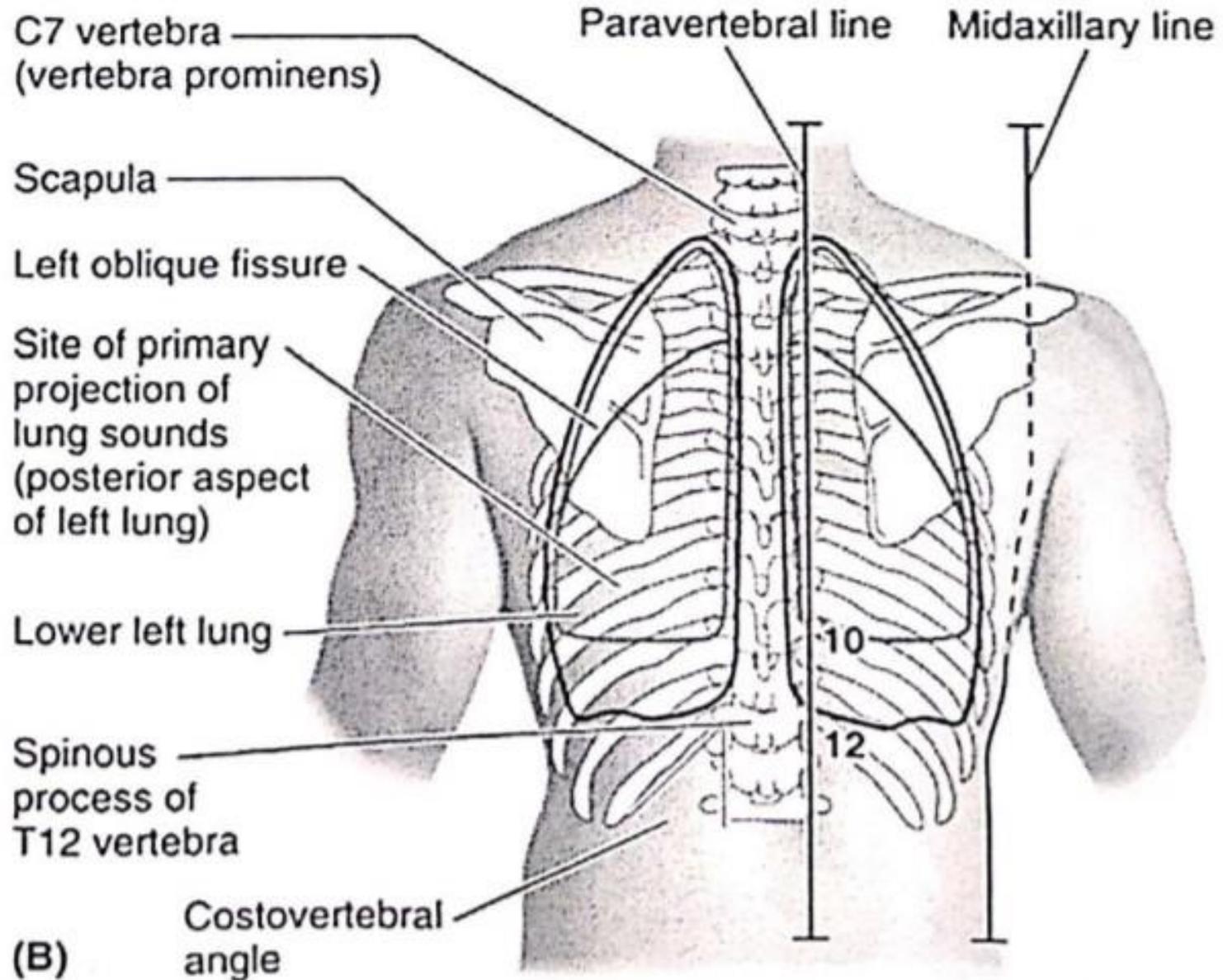
- From a point at median plane opposite the **4th costal cartilage** draws a line horizontally backward to meet the oblique fissure at the **right 5th rib** in the **mid-axillary line**.

	Right lung	Left lung
1-Size	Larger	Smaller
2- Length and Breadth	Shorter and wider	Longer and narrower
3- Anterior border	Straight	cardiac notch and lingula below notch
4- Fissures	2 (oblique & horizontal)	1 (oblique)
5- Lobes	3 (upper, middle & lower)	2 (upper & lower)

Surface anatomy of the pleura & lungs (Ant.)



Surface anatomy of the pleura & lungs (Post.)



• **Surface anatomy of the Pleura and lung**

1- Apex:- one inch above the middle of the medial 1/3 of the clavicle

2- The anterior border:-

- From the apex draws a line downward and medially passing behind sterno-clavicular joint to the level of the 2nd C.C. The 2 borders meet each other.

- On the right side,

It descends vertically downward to the level of **6th** costal cartilage.

-On the left side,

- It descends vertically to the level of the **4th** costal cartilage. - Then, the anterior border deviates laterally to the left side of the sternum to reach the left **6th sterno-costal junction**.

3- The inferior border (on both sides):-

From the last point, draw a line reaching;

* The **8th rib** in the mid-clavicular line (**Lung at 6th rib**).

* The **10th rib** in the mid- axillary line (**Lung at 8th rib**).

* The **12th thoracic spine** one inch lateral to midline (**Lung at 10th thoracic spine**).

4- The posterior border (on both sides):- a line upward from last point to apex.

Surface anatomy of the fissures of lung

3rd T. spine

4th C.C

6th C.C

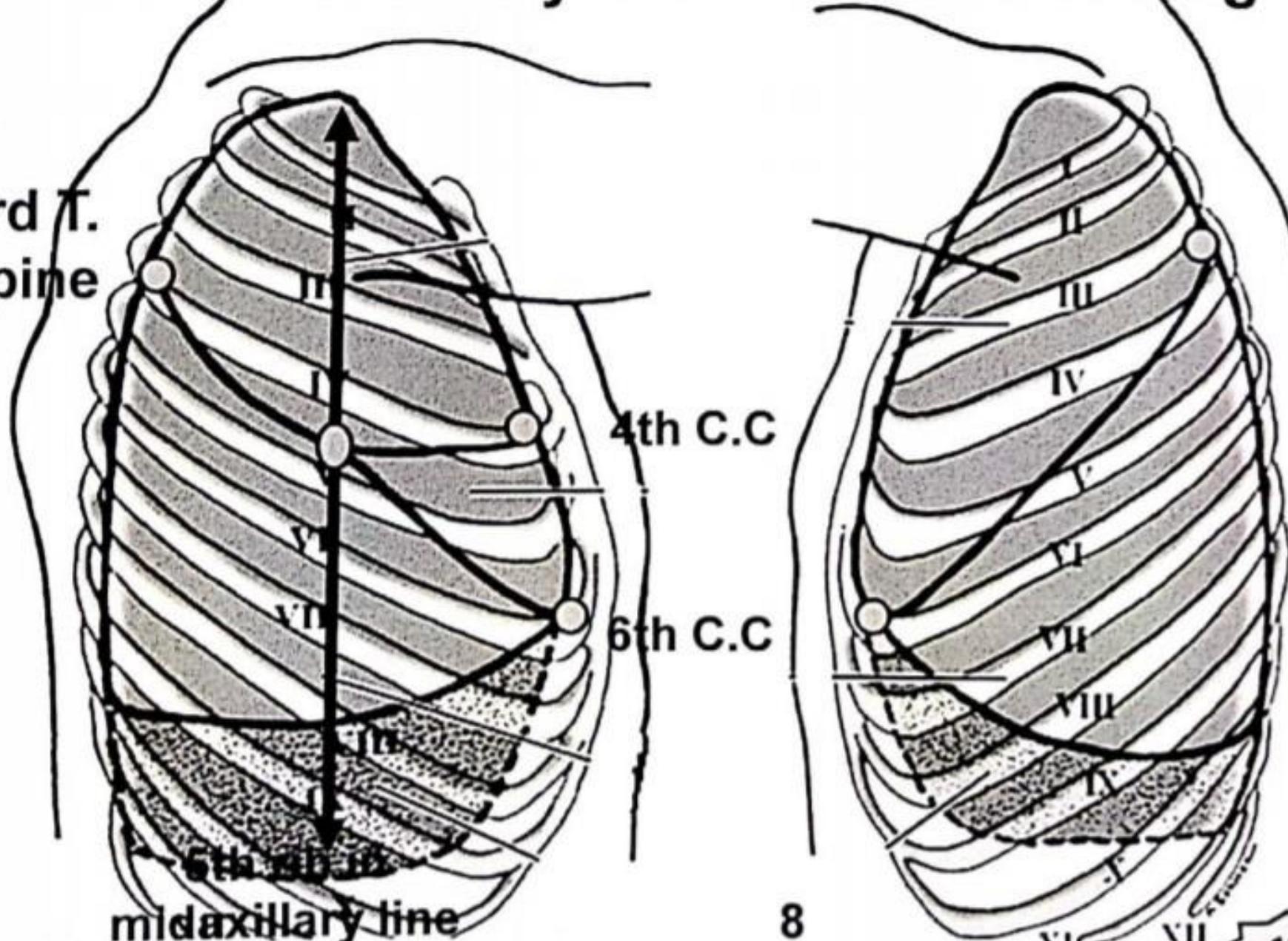
5th rib
midaxillary line

8

XI

XII

19



**** B- Surface anatomy of the fissures of the lungs**

1- The oblique fissure: (in both right and left lungs)

- Draw a line extends from the posterior border at;
 - A point at the level of the **3rd thoracic spine** (Opposite the root of the spine of the scapula).
 - The line directed downward and forward to the inferior border at the **6th costo-chondral junction**.
- **Roughly**, the oblique fissure corresponds to the medial border of the scapula by placing the hand on the back of the head.

2- The horizontal fissure (only in the right lung)

- From a point at median plane opposite the **4th costal cartilage** draws a line horizontally backward to meet the oblique fissure at the **right 5th rib** in the **mid-axillary line**.

Medial surface

Apex

mediastinal surface

Anterior border

2
Vertebral surface

Posterior border

Hilum of lung

Base of lung

Right lung

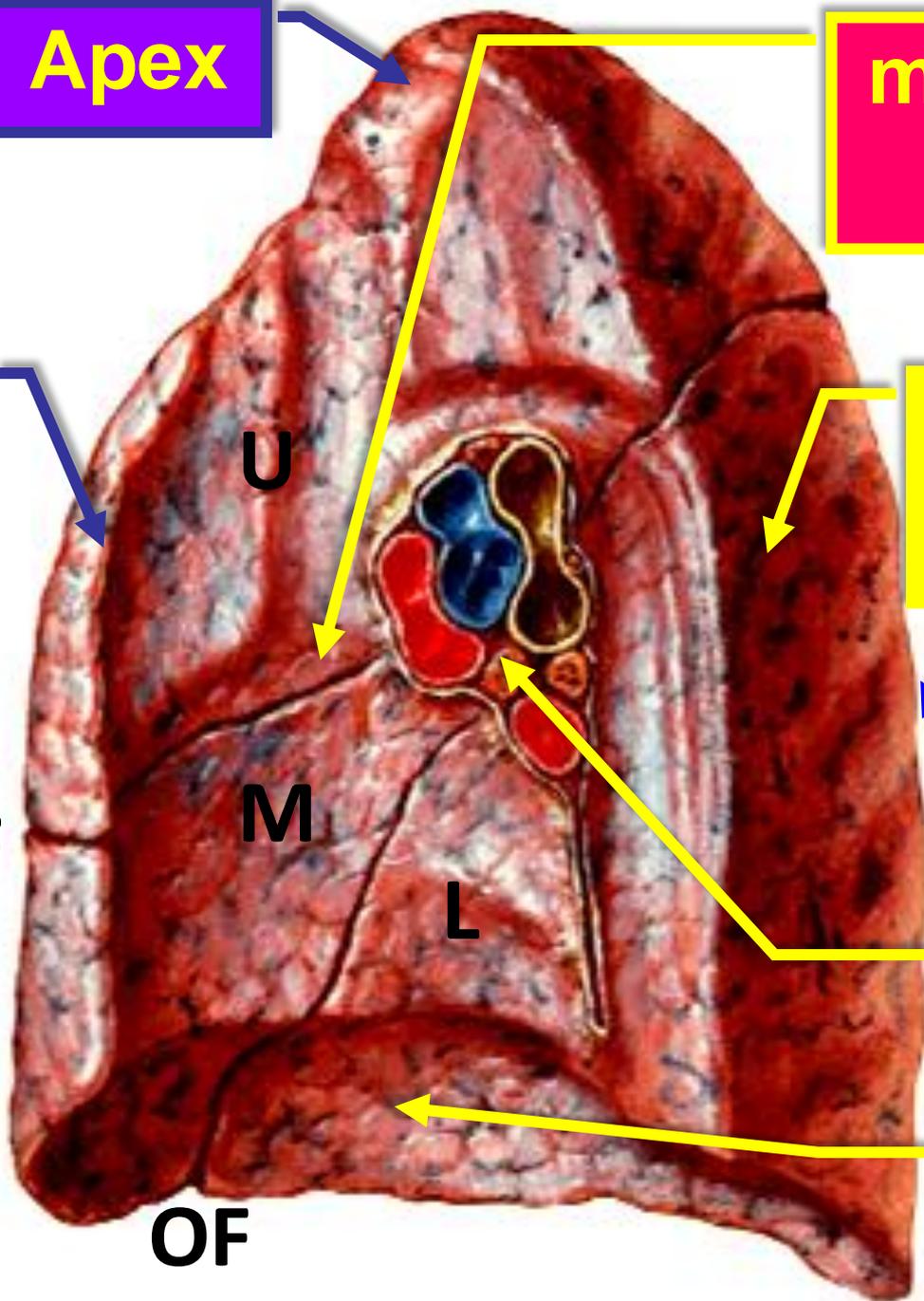
TF

U

M

L

OF



- **Relations of the lungs**

1- Apex: It is covered by suprapleural membrane

2- Base: is related to:

***Right lung :right cupola of diaphragm and right lobe of liver.**

*** Left lung: left cupola of diaphragm, left lobe of the liver, spleen and fundus of the stomach.**

3- Costal surface: smooth and convex.

- It is related to a- the ribs and their costal cartilages.

b- The intercostal muscles, nerve and vessels.

4- Medial surface: It contains the hilum and is divided into two parts:

1- Posterior part (vertebral surface) is related to,

a) Vertebral column and intervertebral discs.

b) Sympathetic chains and spinal nerves.

c) Posterior intercostal nerve and vessels.

2. Anterior part (mediastinal surface)

Relations of mediastinal surface of the lungs

Right lung

Groove for ascending aorta & thymus gland

Groove for SVC

Cardiac impression

Groove for IVC

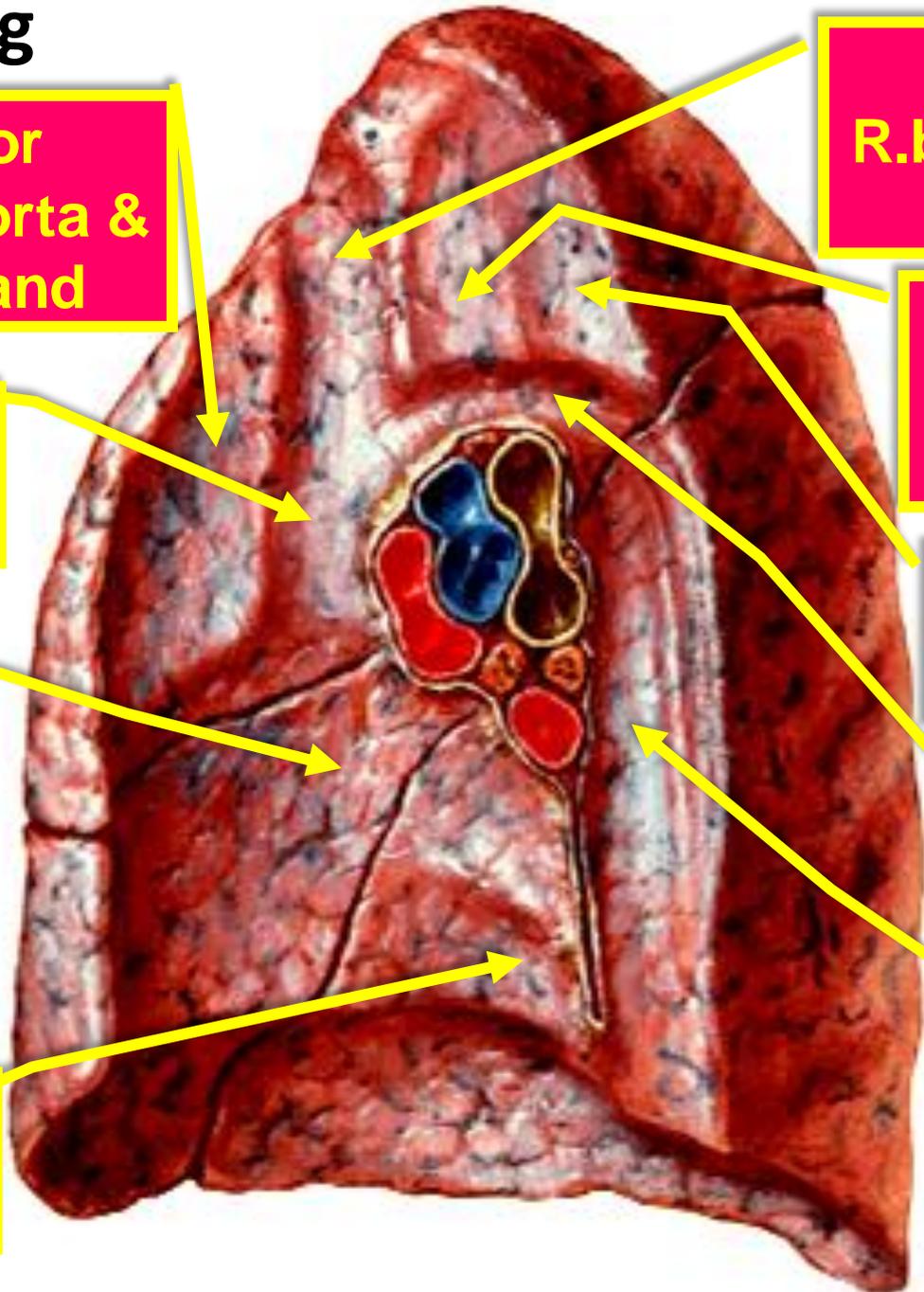
Groove for R.brachiocephalic vein

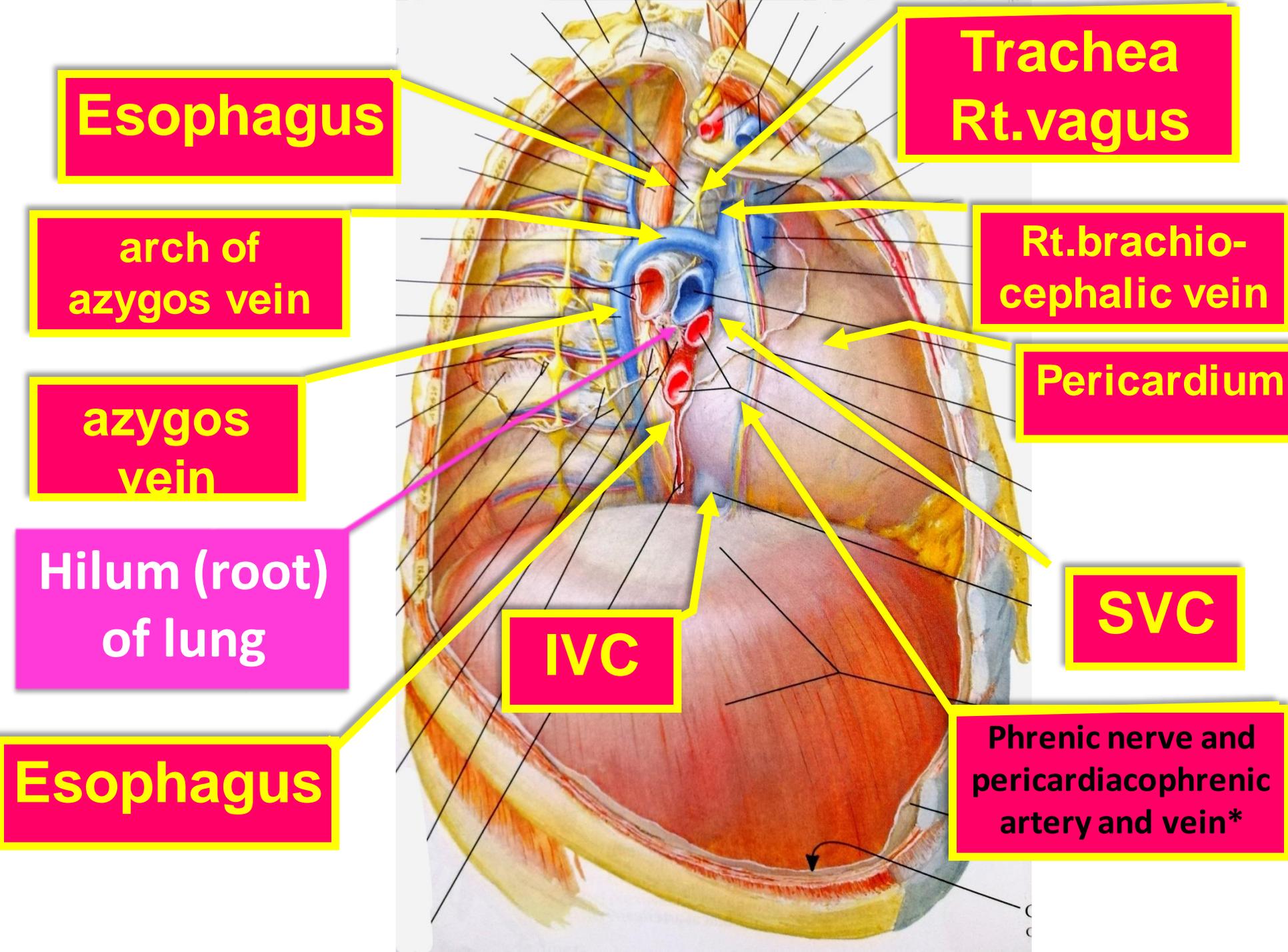
Groove for trachea & R.vagus

Groove for esophagus

Groove for azygos vein

Groove for esophagus





Esophagus

**Trachea
Rt.vagus**

**arch of
azygos vein**

**Rt.brachio-
cephalic vein**

**azygos
vein**

Pericardium

**Hilum (root)
of lung**

IVC

SVC

Esophagus

**Phrenic nerve and
pericardiophrenic
artery and vein***

- **Mediastinal surface of the right lung**

- **In front the hilum;**

- a) **Pericardial impression:** related to pericardium and right atrium.

- b) **Groove for (SVC):** vertical groove in front of upper part of the hilum.

- It is continuous above with right brachiocephalic vein.

- c) **Ascending aorta and thymus gland,** related to the anterior border in front of the groove of S.V.C.

- **Above the hilum;**

- a) **Groove for arch of azygos vein:** direct above the hilum.

- b) **Above arch;** 3 vertical impressions arranged from anterior to posterior;

- 1- **Groove for right brachiocephalic vein and right phrenic nerve.**

- 2- **Groove for the trachea and right vagus nerve.**

- 3- **Groove for the oesophagus.**

- **Behind the hilum;**

- a) **Groove for azygos vein:** behind the upper part

- b) **Oesophagus** behind the lower part.

- **Below the hilum; Groove for inferior vena cava and right phrenic nerve.**

Left lung

Groove for
esophagus,
thoracic duct

Groove for
arch of aorta

Groove for
descending
thoracic aorta

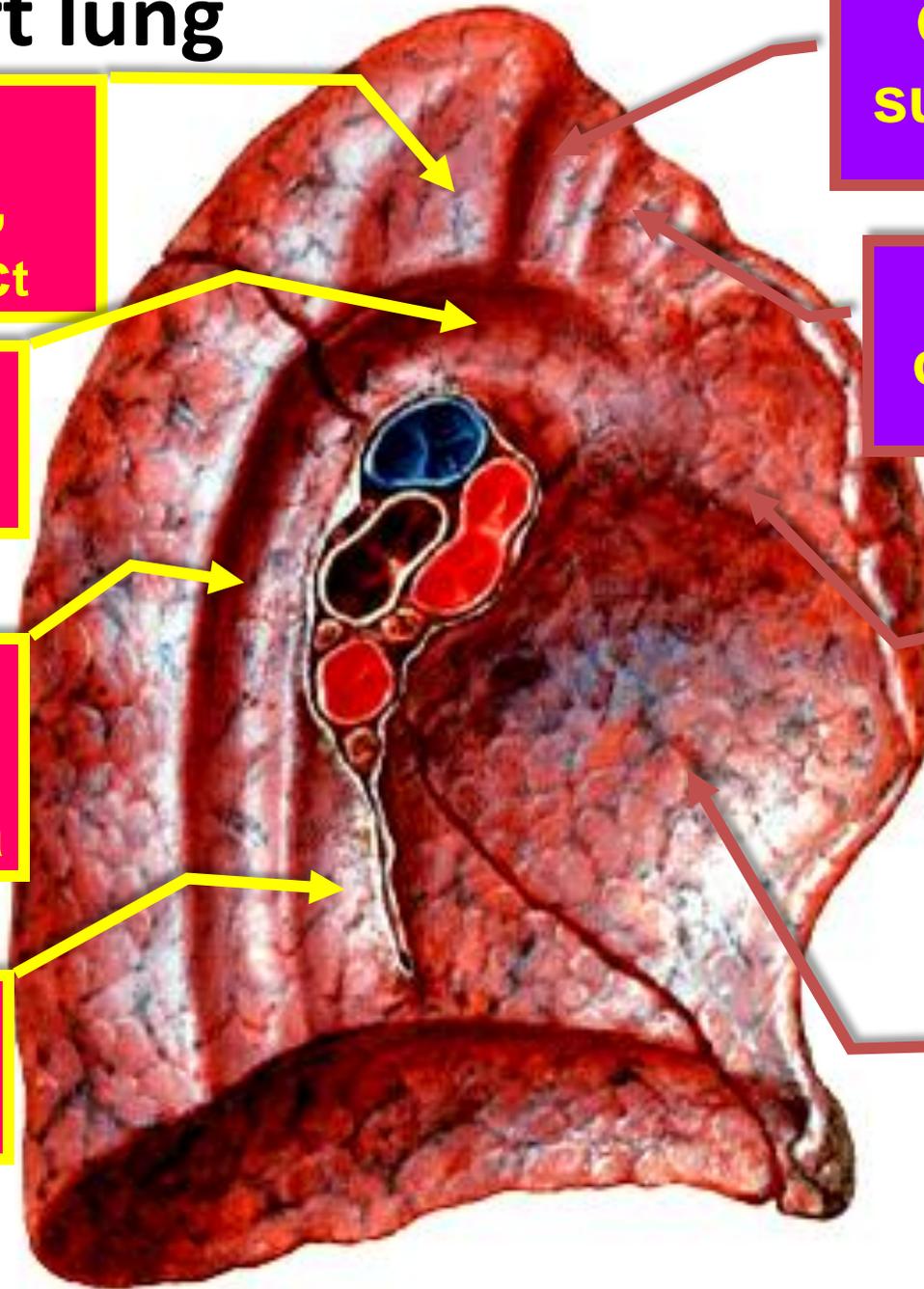
Groove for
esophagus

Groove for left
subclavian artery

Groove for left
common carotid
a

Groove for
pulmonary
trunk &
thymus gland

Cardiac
impression



Left common carotid a

left subclavian artery

Arch of aorta

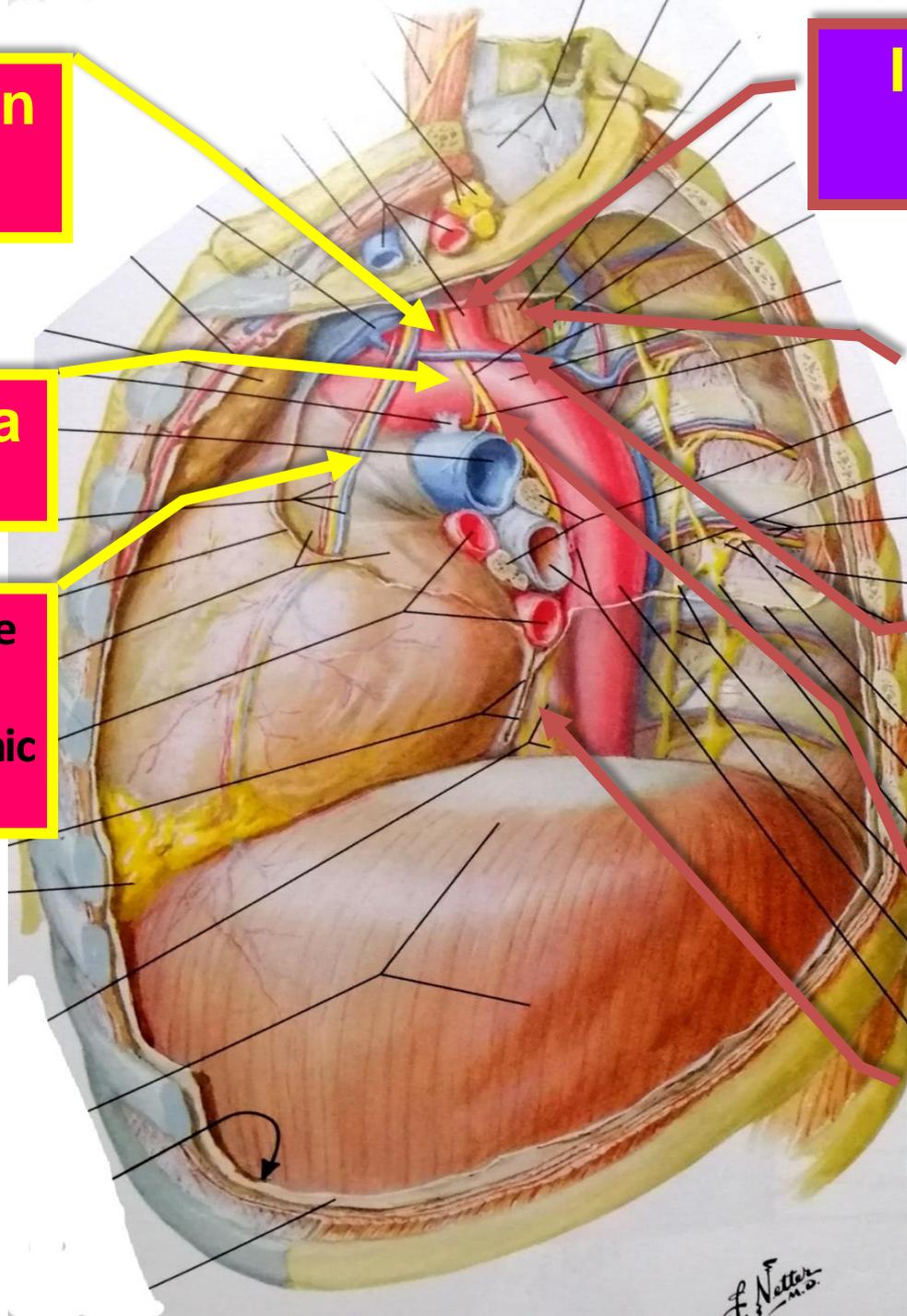
**Esophagus
Thoracic duct**

**Left phrenic nerve
&
pericardiophrenic
A & V**

**left superior
intercostal v.**

**left vagus
nerve**

Esophagus



- **Mediastinal surface of the left lung**

- **In front the hilum;**

- a) **Pericardial impression:** related to pericardium and left ventricle.

- b) **Pulmonary trunk and thymus gland,** related to the anterior border of the lung above the pericardial impression.

- **Above the hilum;**

- a) **Groove for arch of aorta** directly above the hilum.

- b) **Above arch;** 3 vertical impressions arranged from anterior to posterior;

- 1- **Left common carotid artery.**

- 2- **Left subclavian artery.**

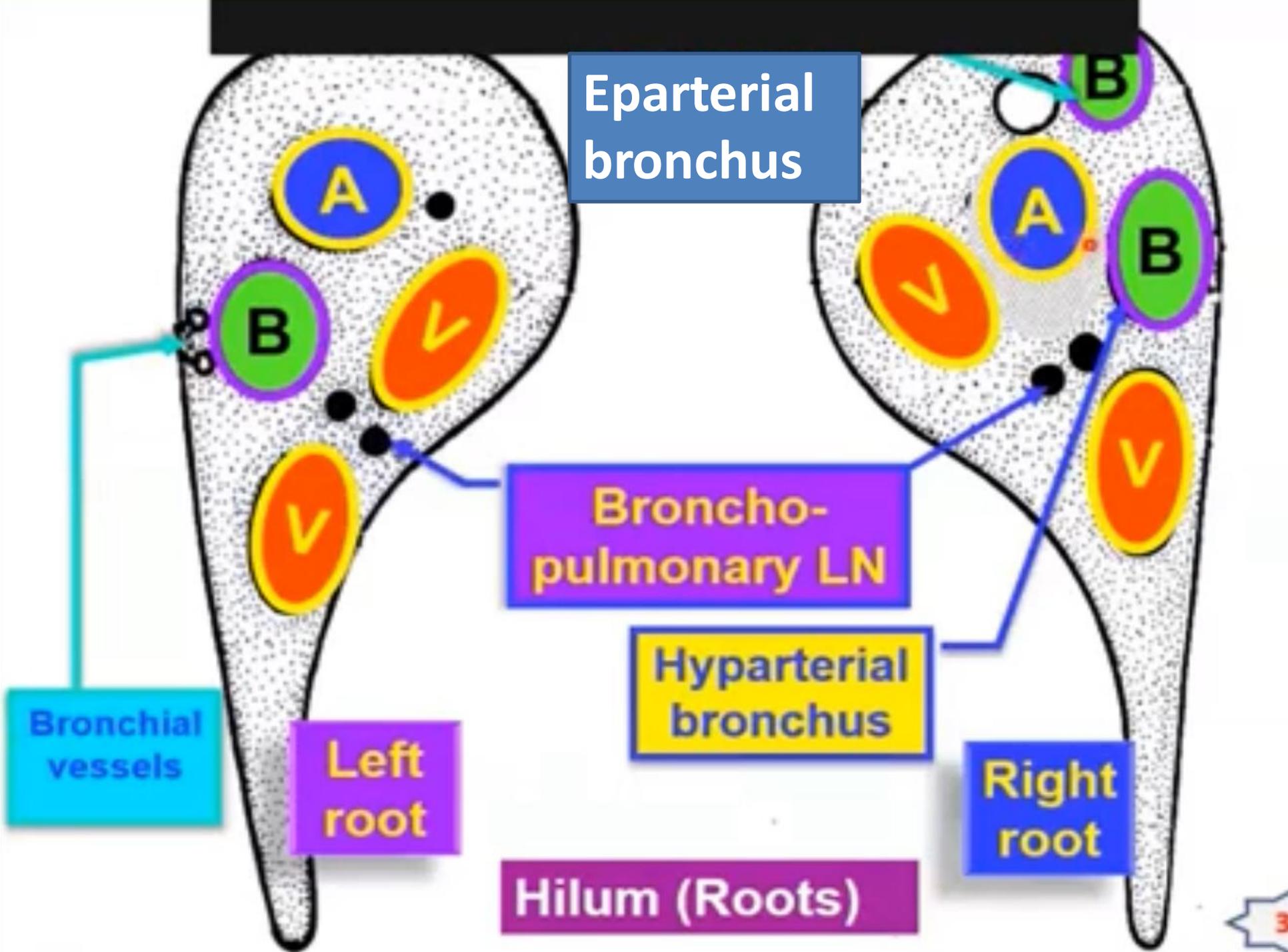
- The left phrenic and left vagus nerves descend between them

- . 3- **Groove for oesophagus and thoracic duct.**

- **Behind the hilum;**

- a- **Oesophagus** behind the lower part.

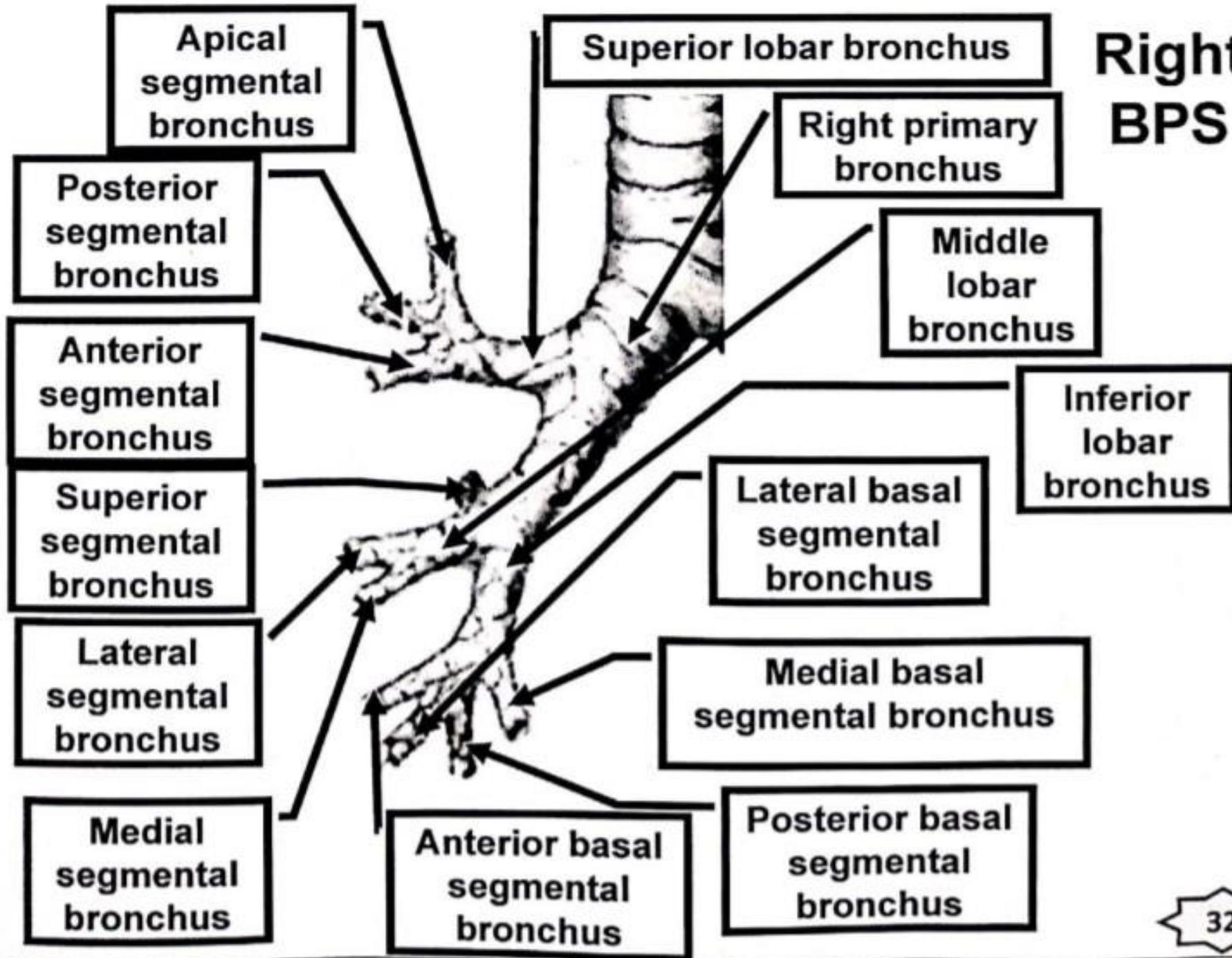
- b- **Groove for descending aorta:** behind the hilum and oesophagus



	Hilum of Right lung	Hilum of Left lung
Bronchus	2 bronchi; a) Eparterial (above and behind pulmonary artery) b) Hyparterial (below & behind pulmonary artery)	Only one bronchus (below & behind pulmonary artery).
pulmonary artery	In front & between 2 bronchi	
2 pulmonary veins	-Superior in front of pulmonary artery -Inferior (lower)	-Superior in front of pulmonary artery -Inferior (lower)
Bronchial vessels	Posterior to bronchi	Posterior to bronchi
Lymph nodes	Broncho-pulmonary lymph nodes	Broncho-pulmonary lymph nodes

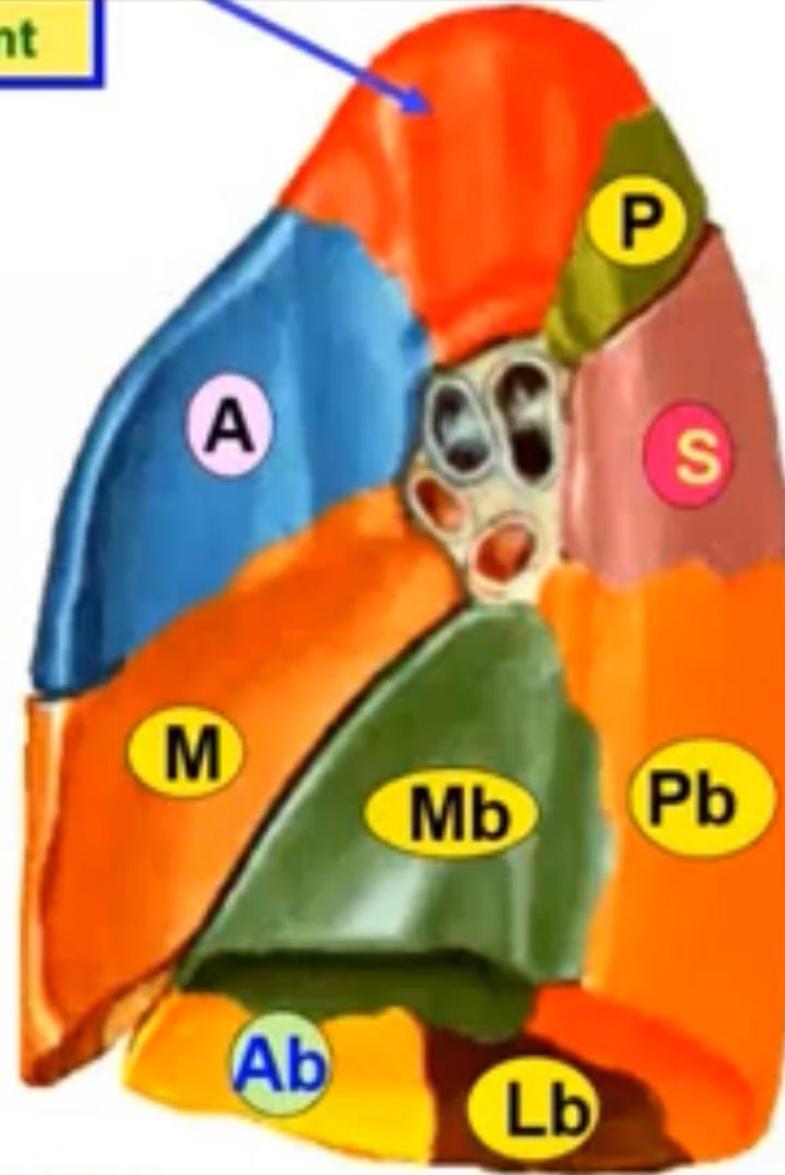
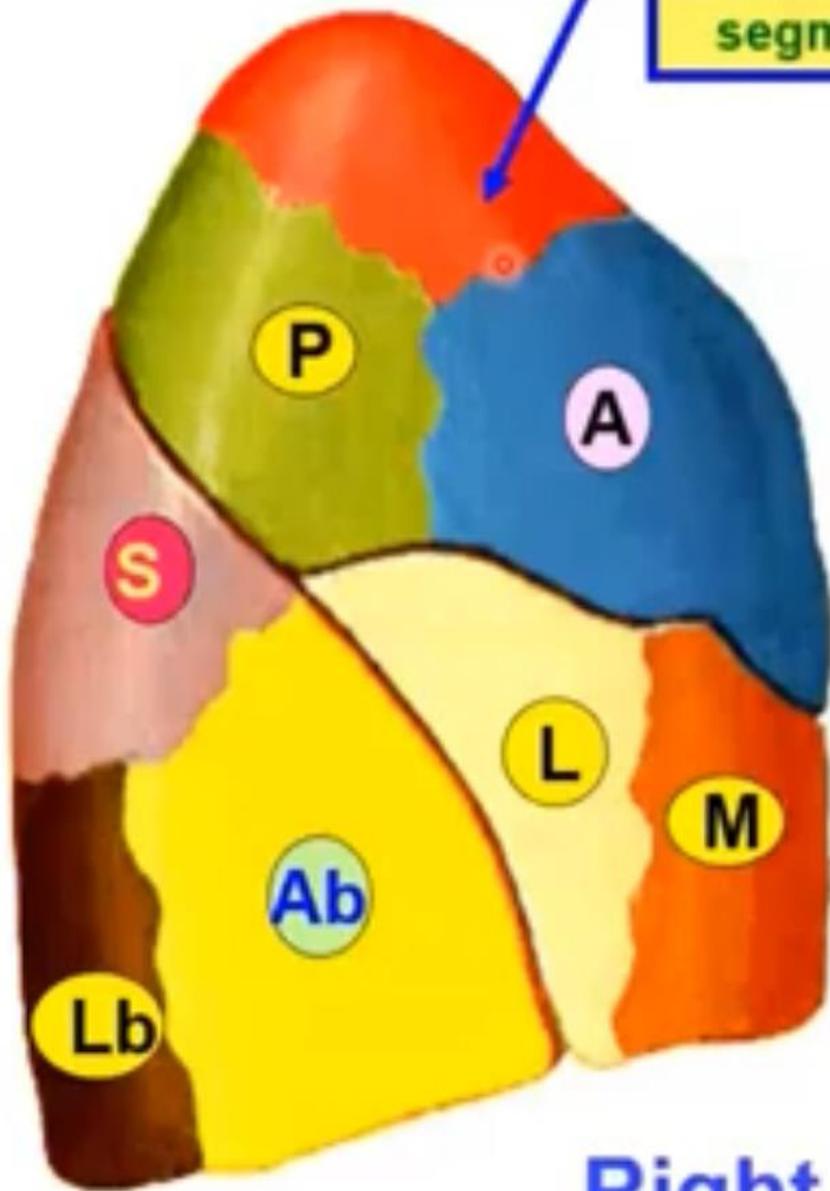
**Segmental
branches of right
bronchus**

Right BPS



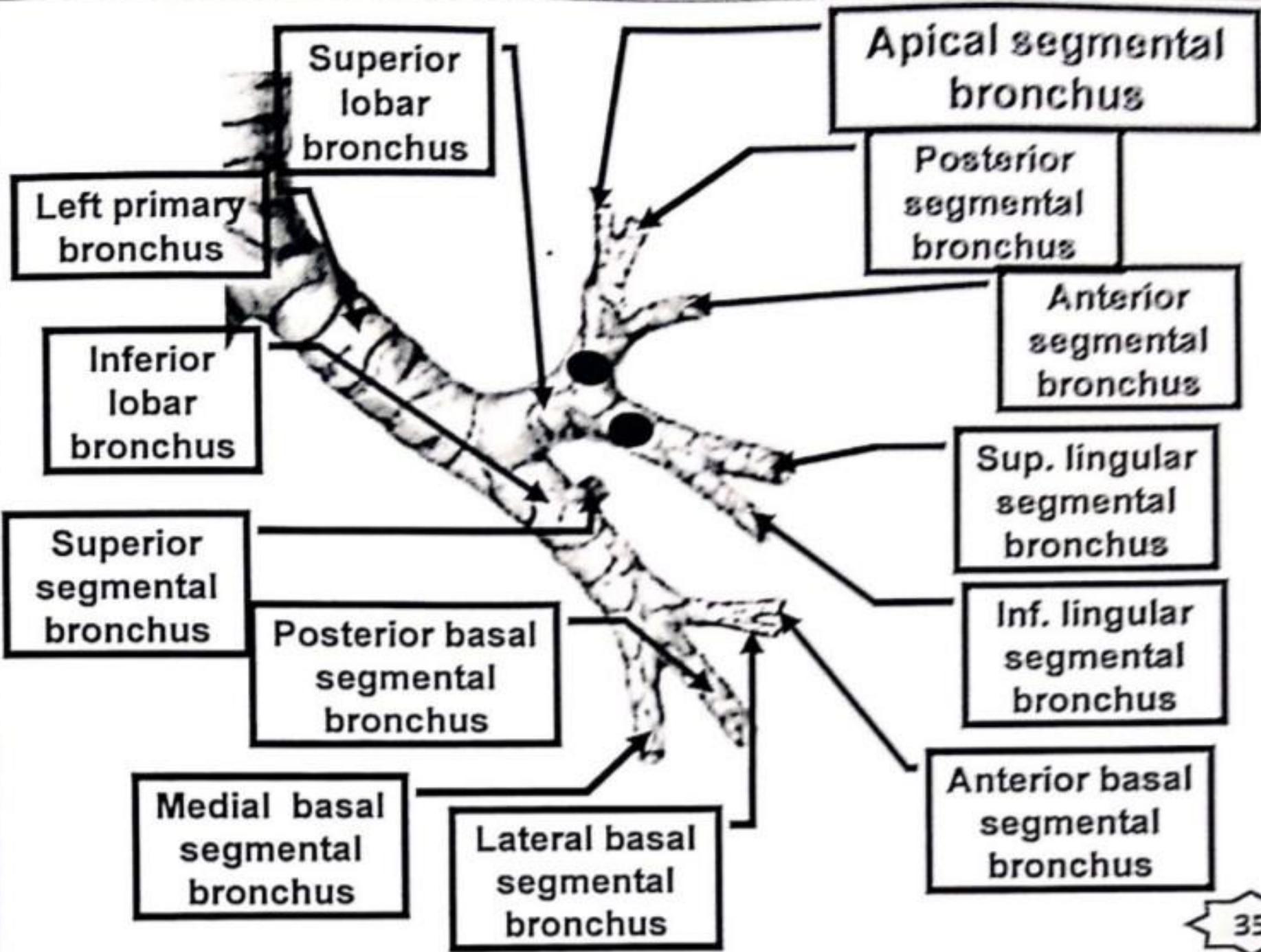
Apical

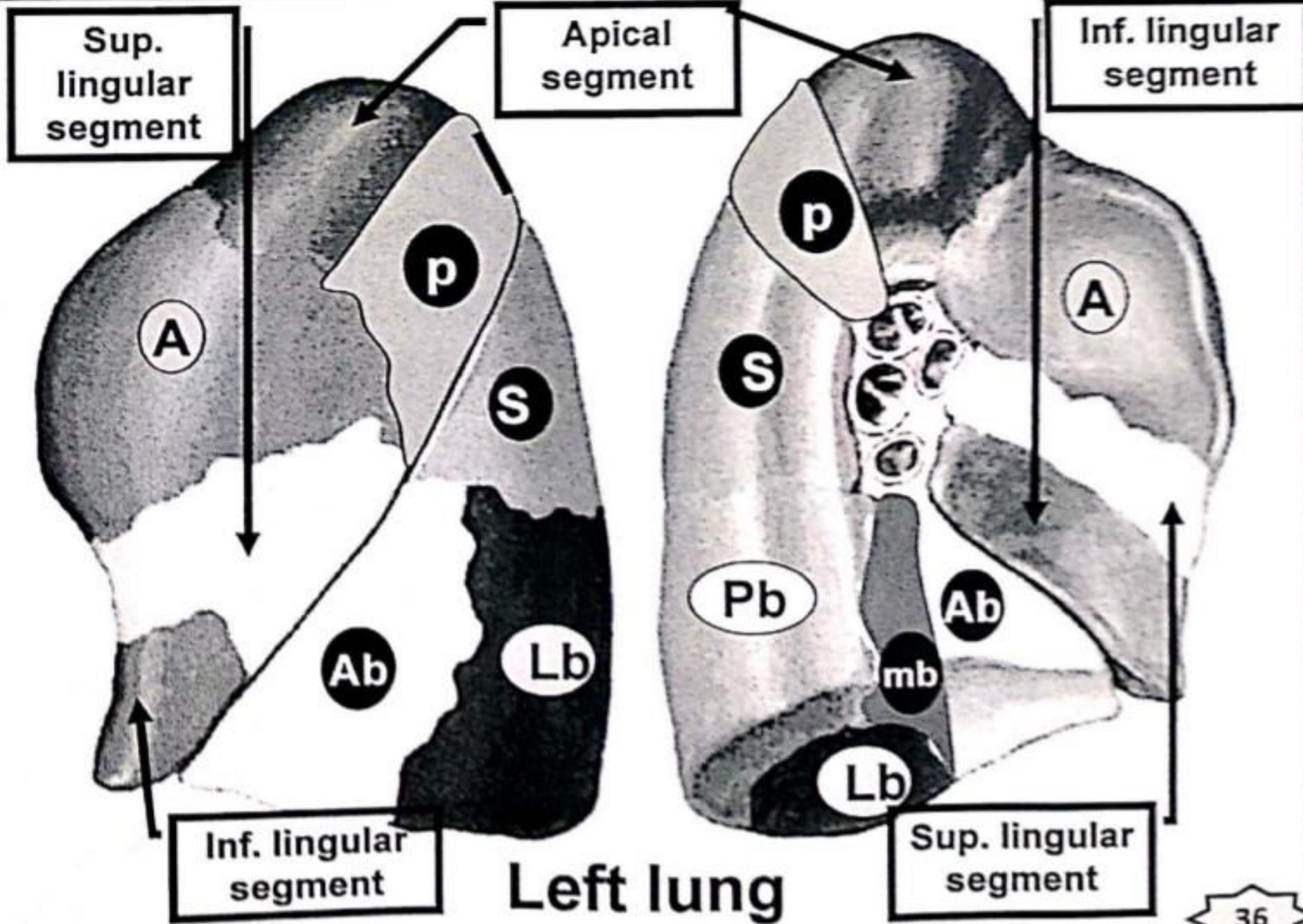
segment



Right lung

**Segmental
branches of left
bronchus**





- **Broncho-pulmonary segments**

- **Definition:** the anatomical, functional and Surgical units of the lungs,
 - The **right** lung is divided 10 segments while **the left** divided into 9 segments.
 - **Each segment** is **pyramidal** shaped with its **apex at the hilum** and base at the lung outer surface.
 - **Each segment** is separated from each other by fibrous septa and supplied by **VAB**.
 - **The clinical Importance**, each segment can be removed without Interruption of the other.

****Blood supply of the lung**

****Arterial supply:**

a- Left lung: upper and lower left bronchial arteries from the descending thoracic aorta.

b- Right lung: Right bronchial artery **arises either** from: - The right 3rd posterior intercostal artery.
- **Or** from the **upper** left bronchial artery.

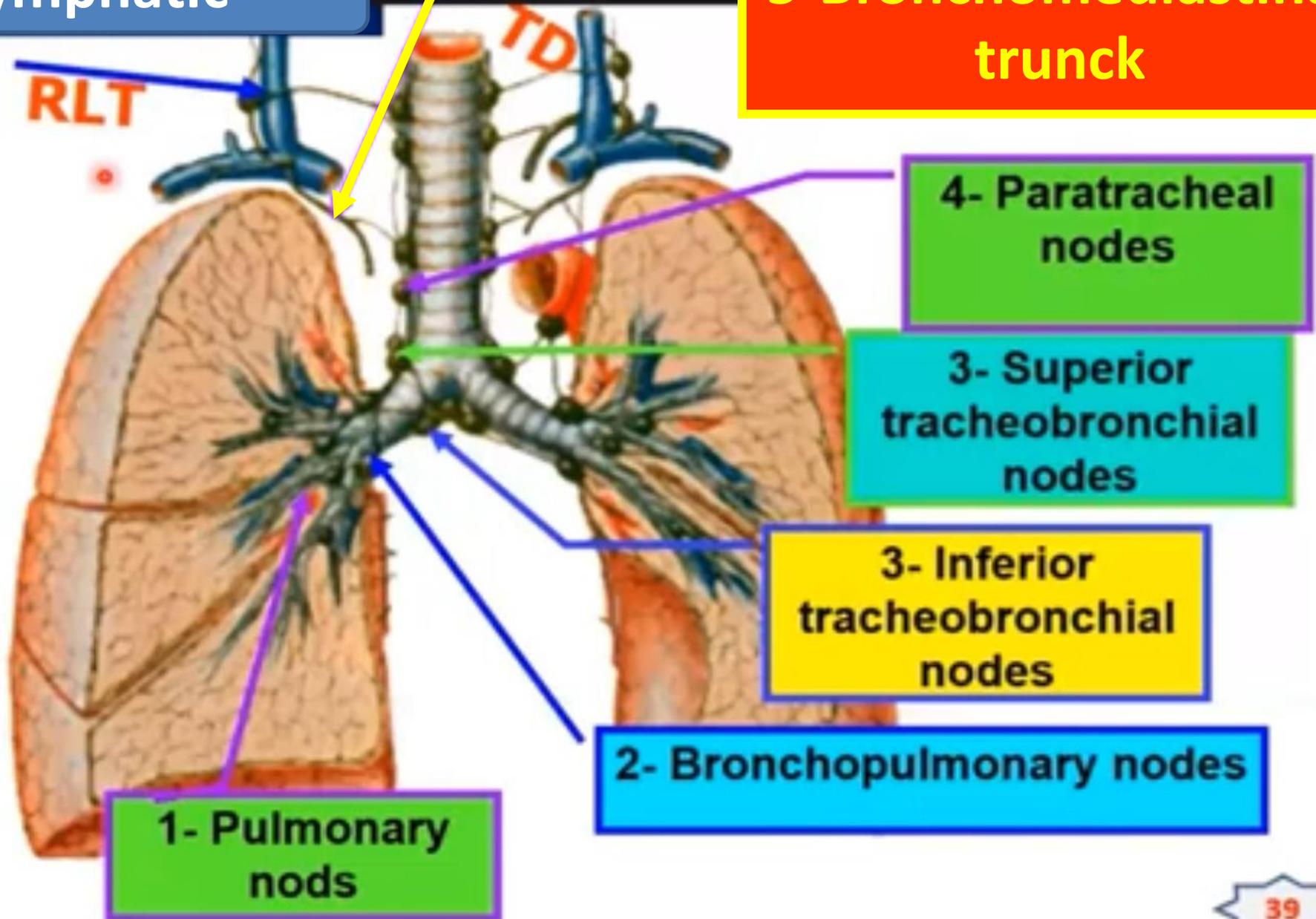
**** Venous drainage:**

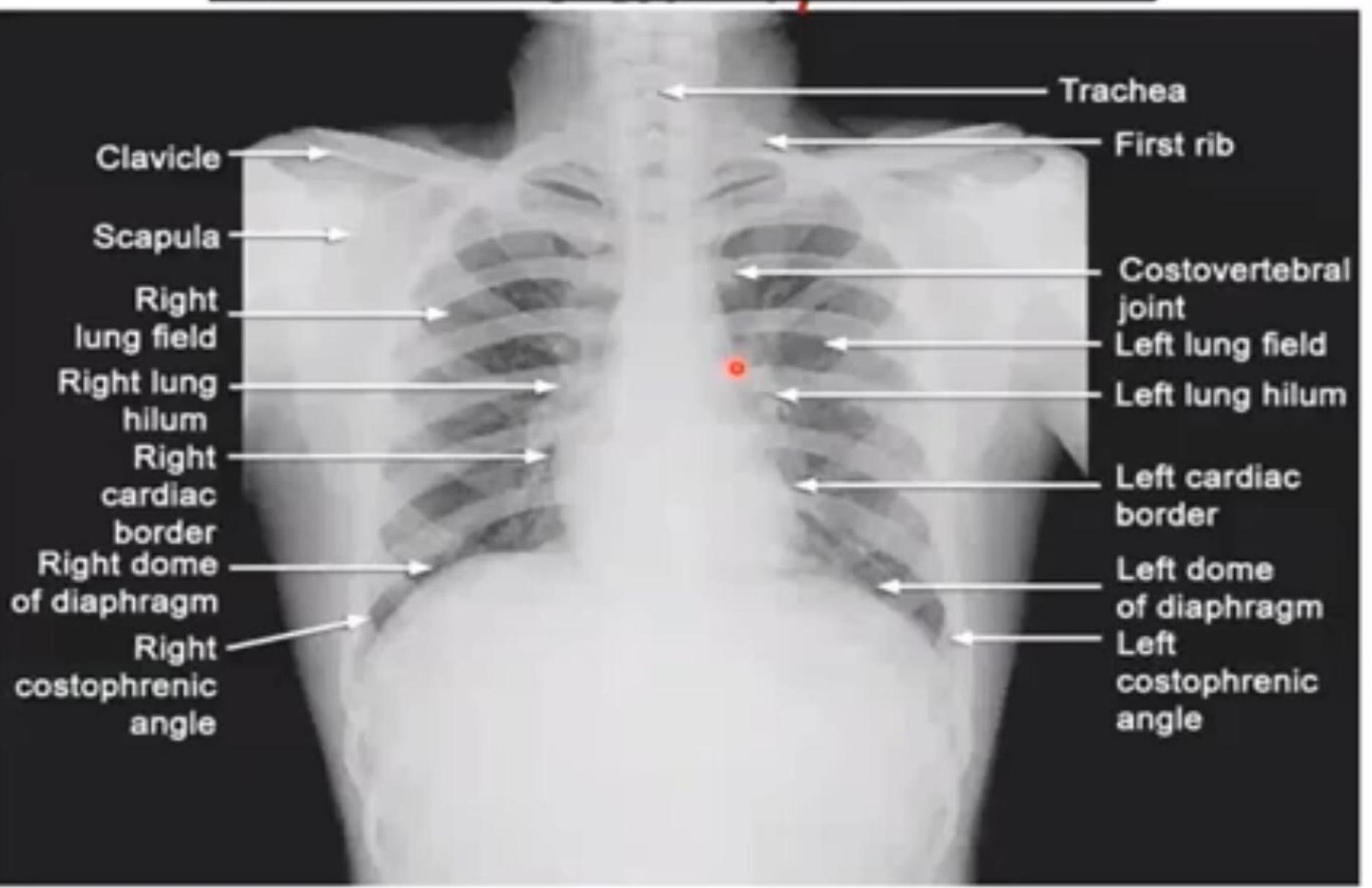
- **Right bronchial veins end** into the arch of azygos vein.

- **Left bronchial veins end** into accessory hemiazygos vein.

Lymphatic

5- Bronchomediastinal trunk





Trachea

First rib

Clavicle

Scapula

Costovertebral joint

Right lung field

Left lung field

Right lung hilum

Left lung hilum

Right cardiac border

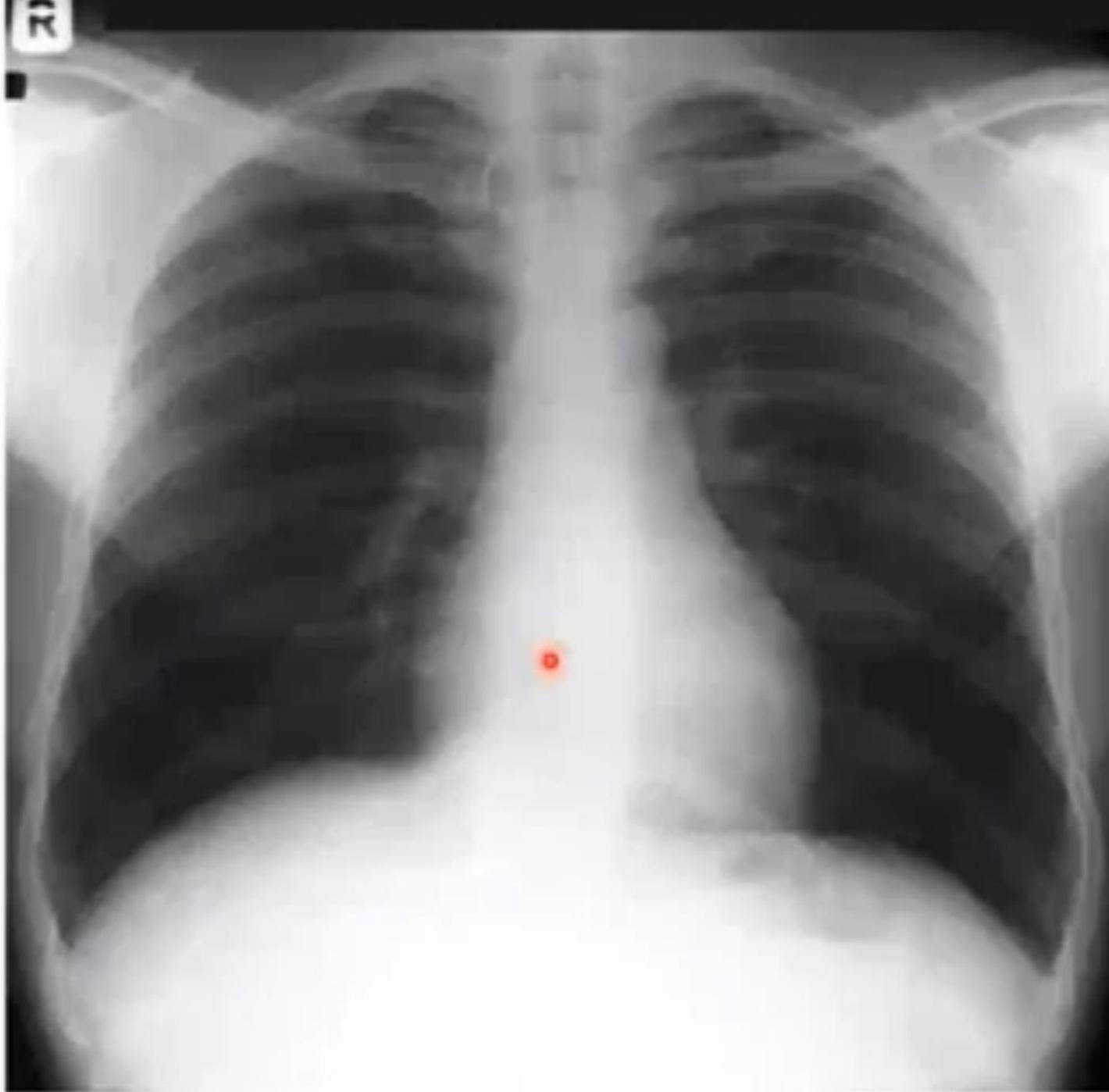
Left cardiac border

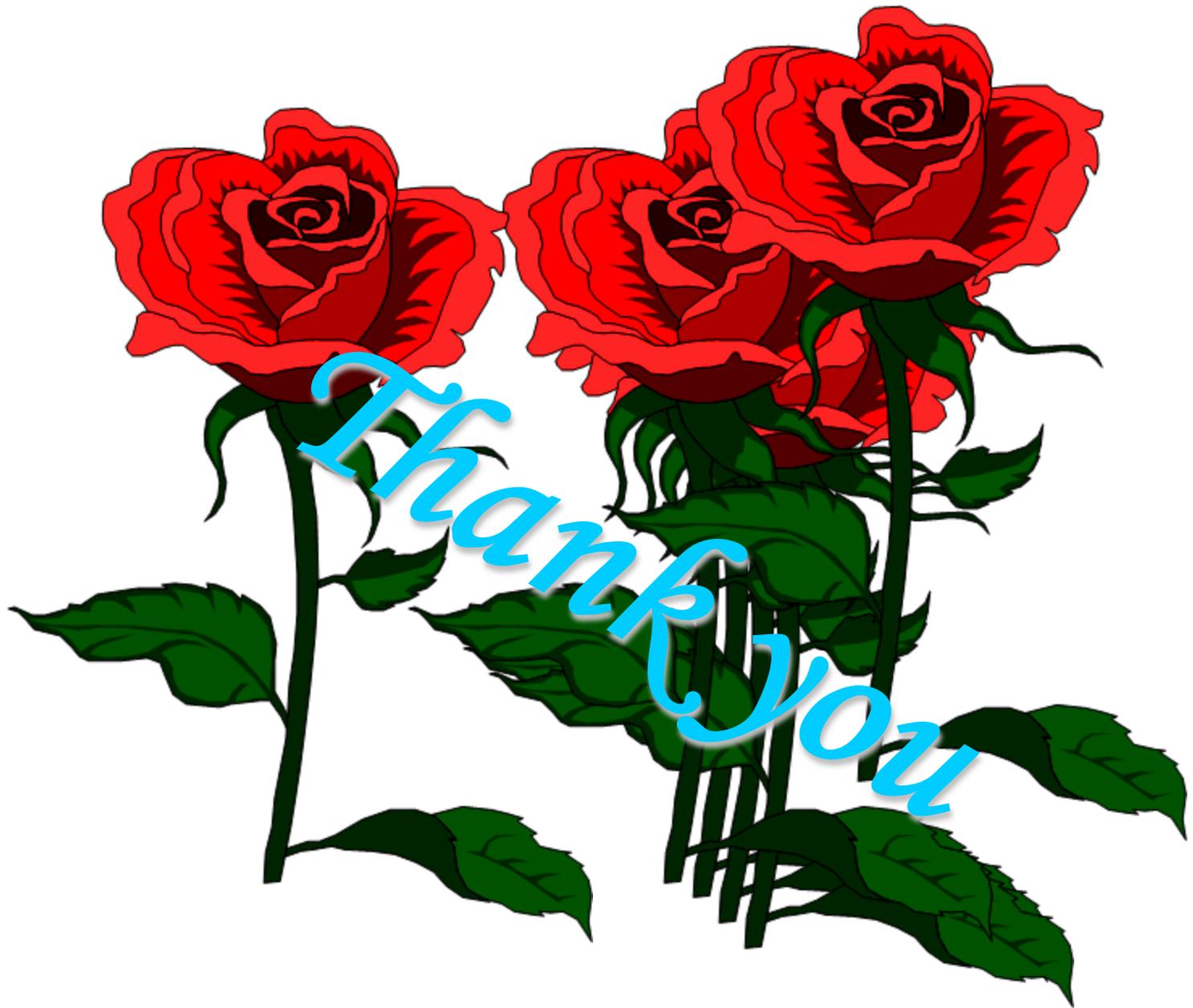
Right dome of diaphragm

Left dome of diaphragm

Right costophrenic angle

Left costophrenic angle





Thank You