

وَقُلْ رَبِّ زِدْنِي عِلْمًا



RESPIRATORY SYSTEM

HAYAT BATCH



SUBJECT : Anatomy

LEC NO. : 5

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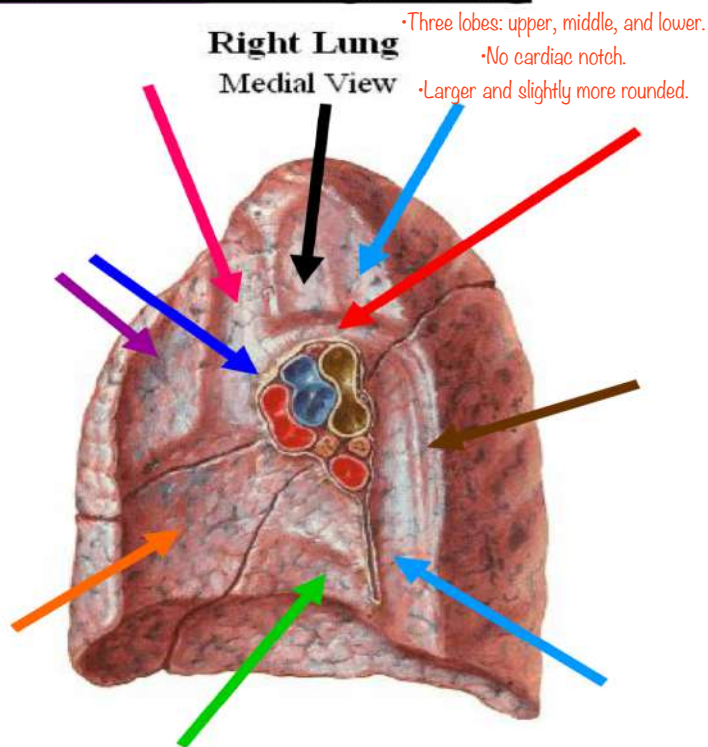


Respiratory System

mediastinal surface = space between two lungs and pleura
It contains vital structures such as the heart, major blood vessels, esophagus, trachea, and other important nerves and lymph nodes.

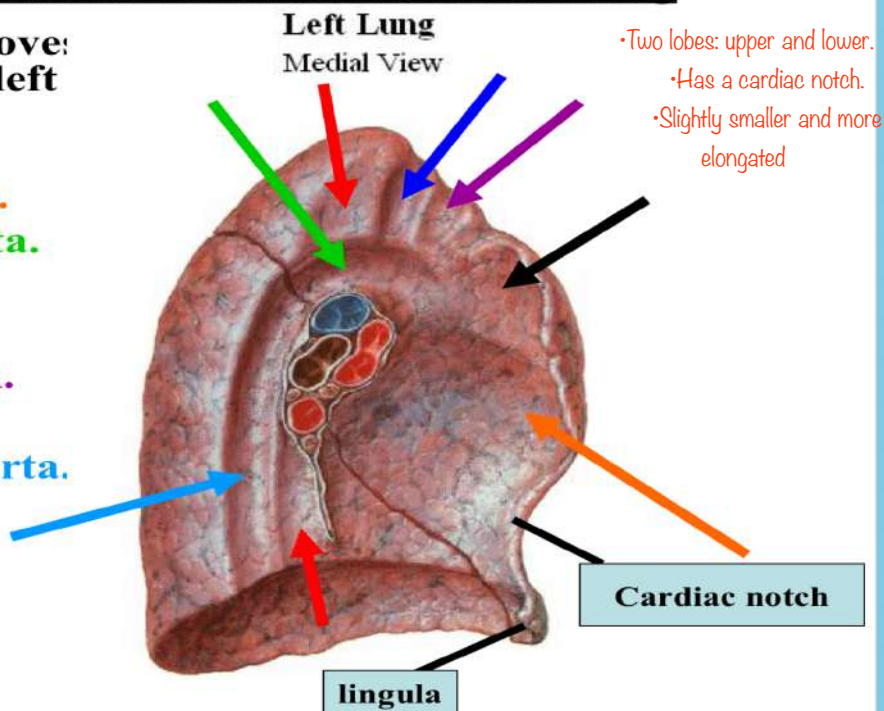
Relations of mediastinal surface of right lung

- @ Has impressions & grooves made by structures on right side of mediastinum.
- @ Pericardial impression formed by right atrium.
- @ Groove for IVC.
- @ Groove for SVC.
- @ Ascending aorta & remains of thymus.
- @ Arch of azygous.
- @ Right brachiocephalic vein & right phrenic nerve.
- @ Trachea & right vagus.
- @ Oesophagus.
- @ Azygous vein.



Relations of mediastinal surface of left lung

- @ Has impressions & groove: made by structures on left side of mediastinum
- @ Pericardial impression formed by Lt. ventricle.
- @ Groove for arch of aorta.
- @ Oesophagus.
- @ Left subclavian artery.
- @ Left common carotid A.
- @ Remains of thymus.
- @ Descending thoracic aorta.



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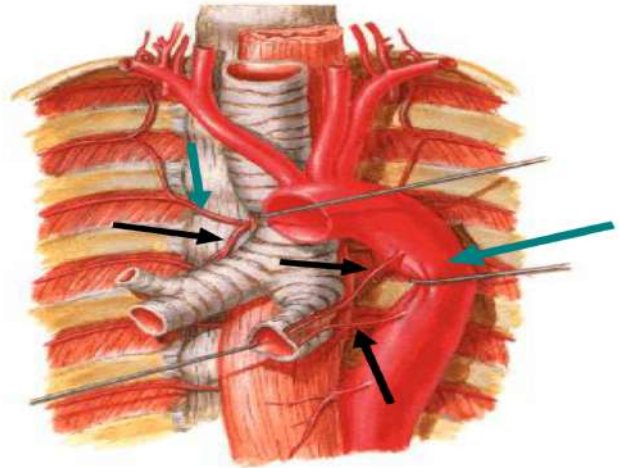
Respiratory System

Arterial supply of lungs

Bronchial Arteries

@Right lung → one bronchial artery from right 3rd posterior intercostal artery.

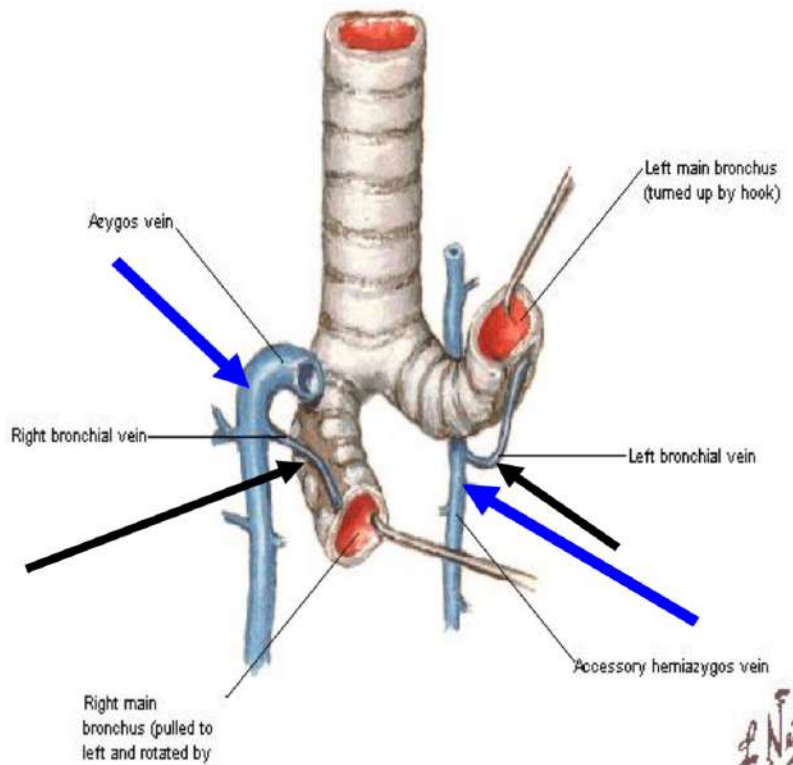
@Left lung → 2 bronchial arteries; superior & inferior from descending thoracic aorta.



Venous drainage of lungs

@Right bronchial vein → ends in azygos vein.

@Left bronchial veins → end in accessory (sup) hemiazygos vein.



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Respiratory System

Lymphatic drainage of lung

مهم اكد تعرفوهم بالترتيب

@**Intrapulmonary** located within the lung

LN. →

bronchopulmonary

LN. →

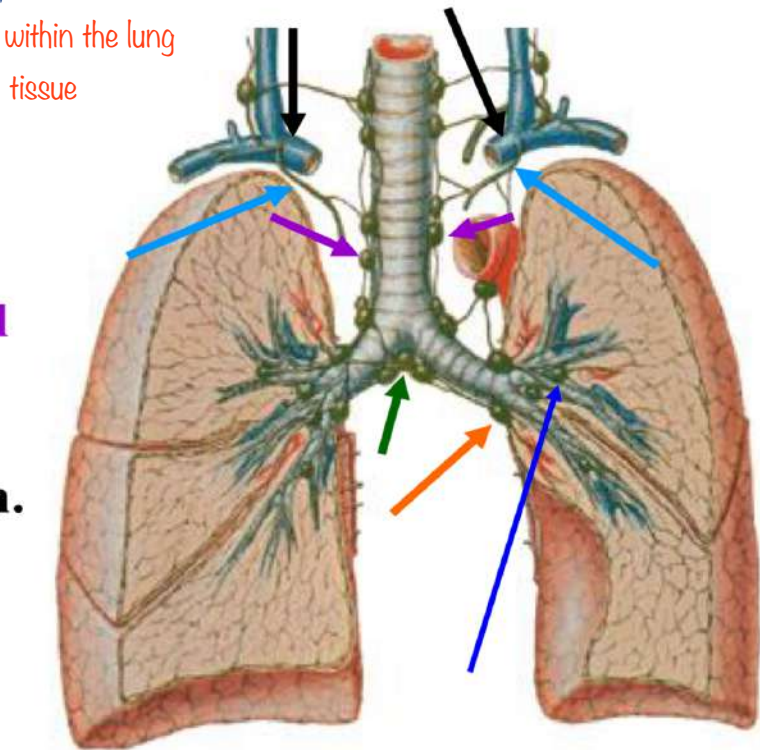
tracheobronchial

LN. → **paratracheal**

LN. → **mediastinal**

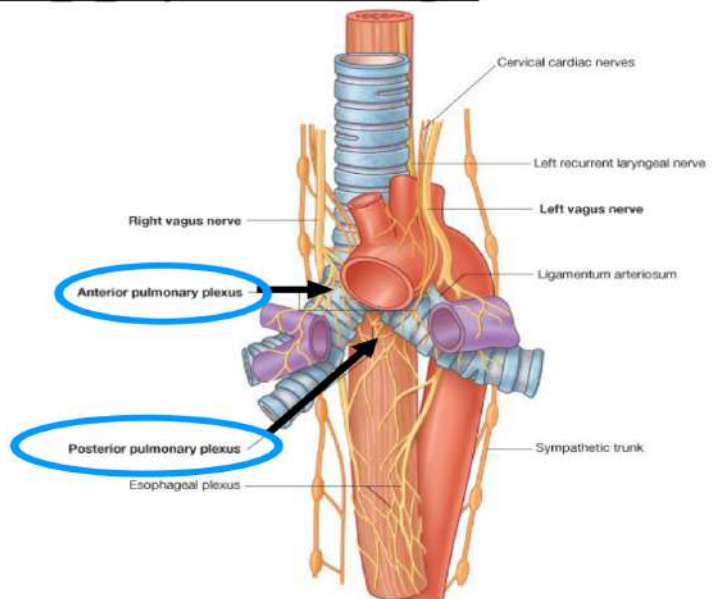
lymph trunk →

brachiocephalic vein.



Nerve supply of lungs

@**Sympathetic & parasympathetic innervation by the anterior and posterior pulmonary plexuses.**



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Respiratory System

pleural cavity :space between the visceral and parietal

Pleura

Functions : Protection / Lubrication

@It is a completely closed sac invaginated by the lung from its medial aspect.

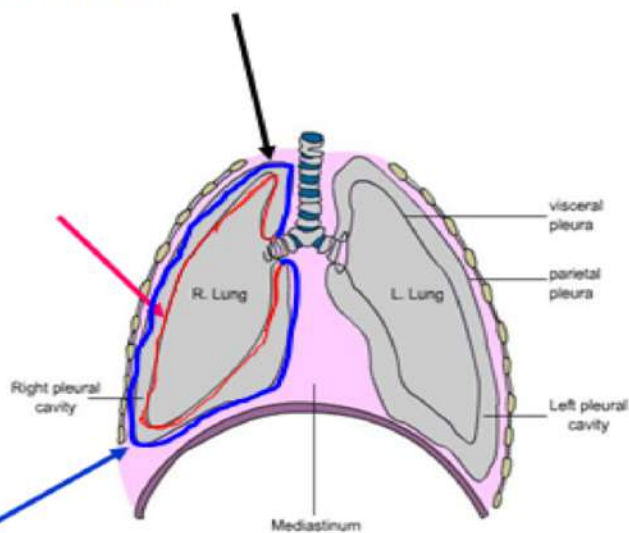
Has two layers :

@Part of pleura covering the lung →

1 **visceral pleura.**

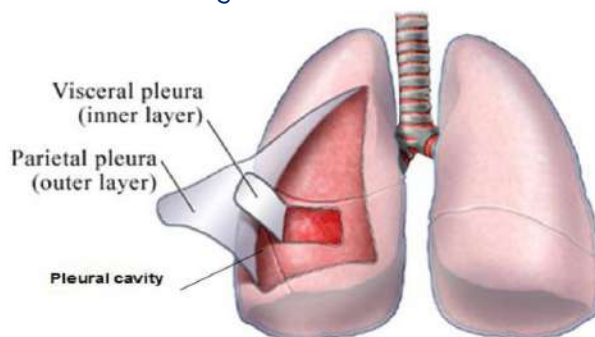
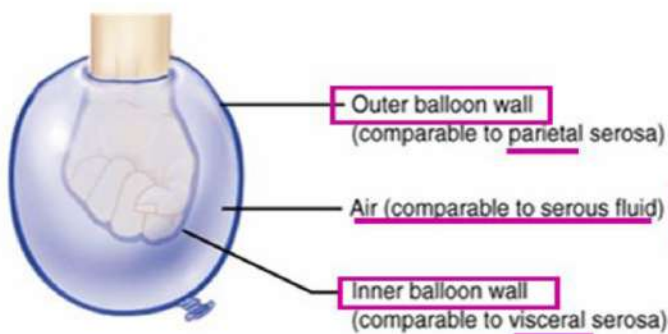
@Part of pleura lining thoracic wall →

2 **parietal pleura.**



when you push your hand (representing the lung) into the balloon (pleural cavity), the inner surface of the balloon (representing the visceral pleura) adheres closely to your hand (representing the lung) due to the presence of the serous fluid (representing the pleural fluid). Similarly, the visceral pleura adheres closely to the surface of the lung due to the presence of the pleural fluid, ensuring smooth movement of the lungs within the thoracic cavity during breathing. This adherence prevents friction and allows the lung to expand and contract effectively with each breath.

Lung is like the hand pushing into the balloon



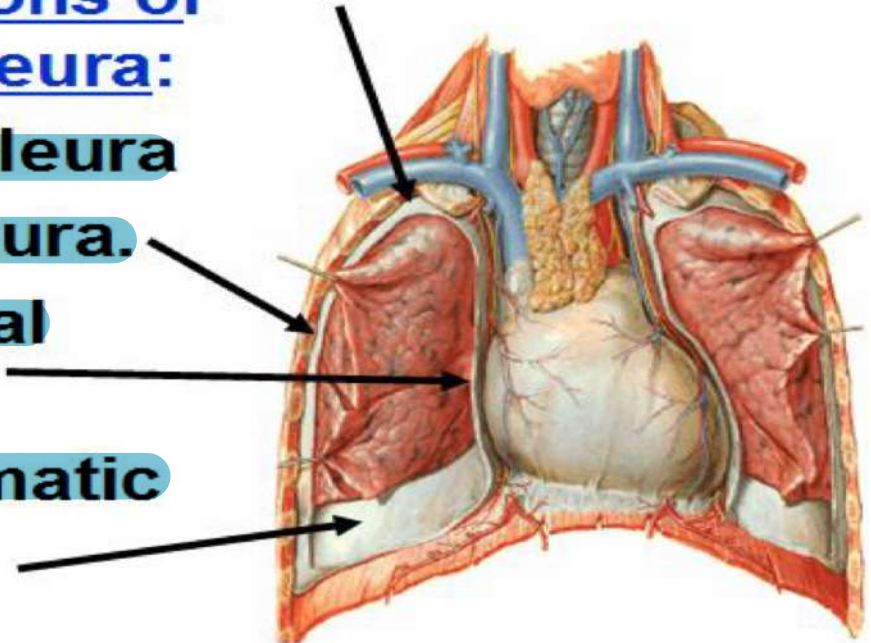
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Respiratory System

@ Subdivisions of parietal pleura:

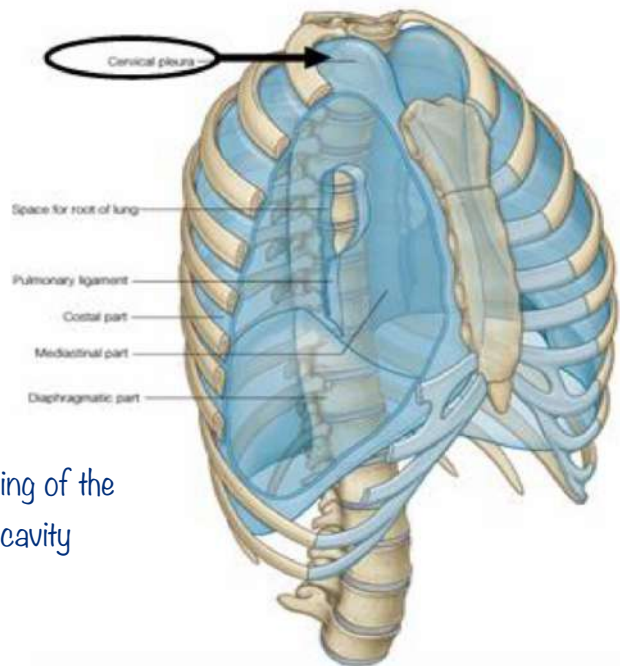
1. **Cervical pleura**
2. **Costal pleura.**
3. **Mediastinal pleura.**
4. **Diaphragmatic pleura.**



Subdivisions of Parietal Pleura

1. **Cervical Pleura** → part of parietal pleura **bulging up through the thoracic inlet into root of neck.**

=upper opening of the thoracic cavity



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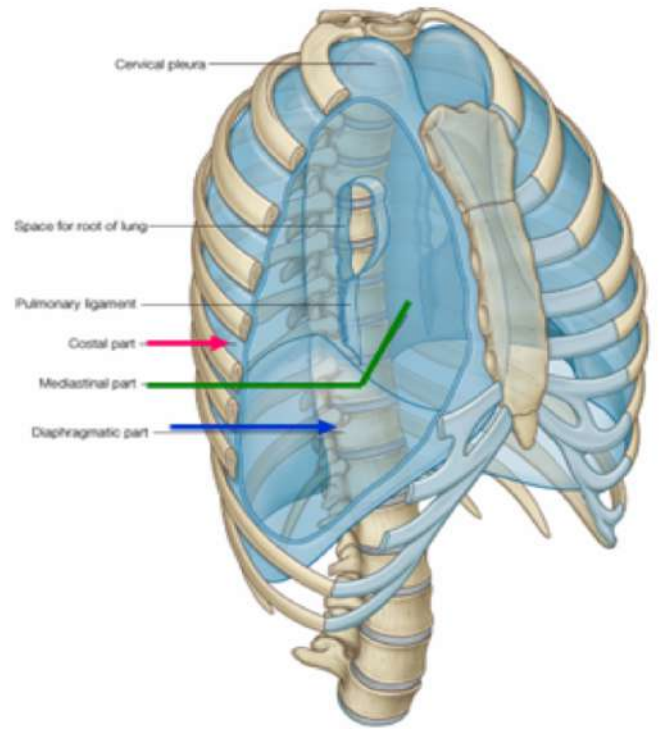


Respiratory System

2. **Costal pleura** → part of parietal pleura which lines ribs & intercostal spaces.

3. **Mediastinal pleura** → part of parietal pleura covering the side of the mediastinum.

4. **Diaphragmatic pleura** → part of the parietal pleura which covers upper surface of diaphragm.



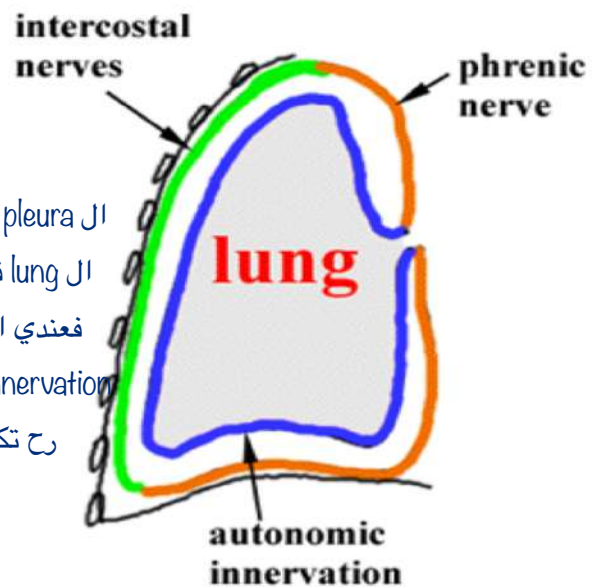
Nerve supply of pleura

@Parietal pleura is highly sensitive to pain.

@Visceral pleura is not sensitive to pain.

@Visceral pleura is supplied by autonomic nerve plexuses.

ال visceral pleura تتبع
 ال lung في كل اشي
 فعندي ال lung هي
 autonomic innervation
 رح تكون مثلها



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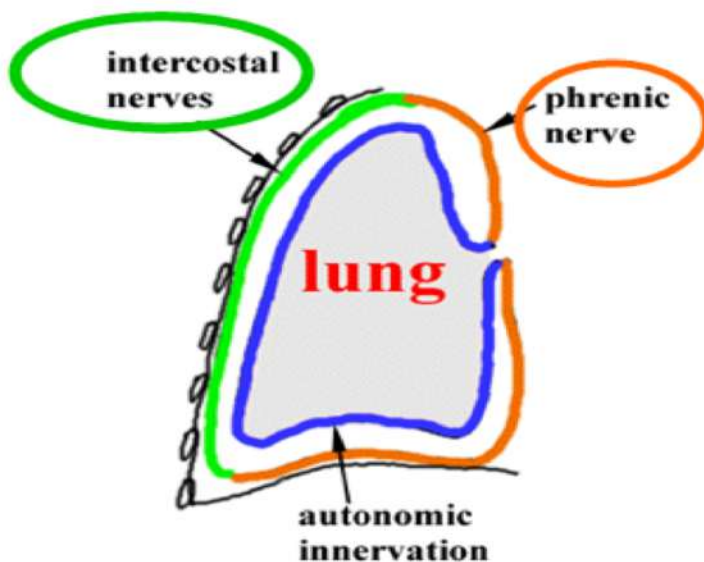


Respiratory System

Nerve supply of pleura

@Costal pleura & peripheral part of diaphragmatic pleura → are supplied by **intercostal nerves**.

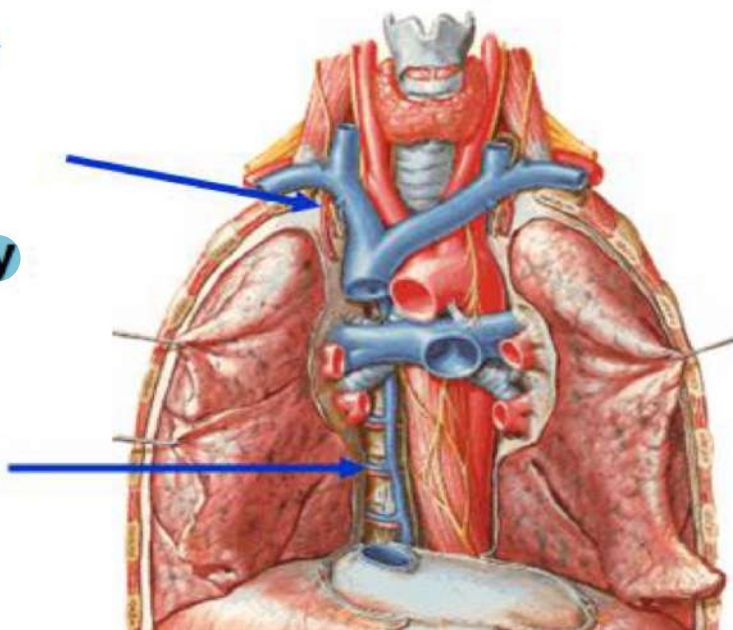
@Mediastinal pleura & central part of diaphragmatic pleura → are supplied by **phrenic nerve**.



Blood Supply of Pleura

@Parietal pleura → supplied by **intercostal & internal mammary (thoracic) vessels**.

The visceral pleura receives its blood supply from branches of the bronchial vessels
مثل ال lung



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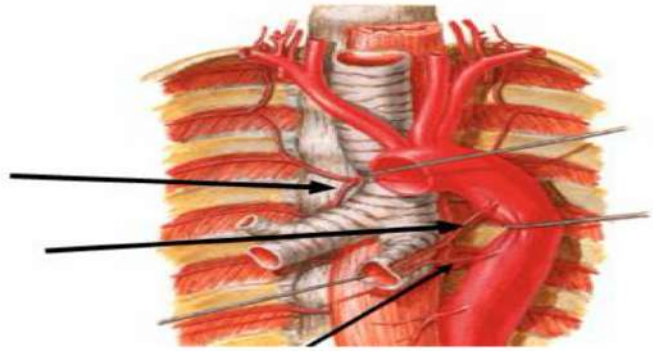


Respiratory System

Blood Supply of Pleura

Bronchial Arteries

@Visceral
Pleura →
supplied by
bronchial
vessels.



مريض مش عارف يتنفس

X ray نعمل

و نتيجة obliteration of the

costodiaohragmatic

بكون معه pleural effusion.

Clinical importance

- -Accumulation of fluid in the pleural cavity is called **pleural effusion**. When the patient stand up the fluid accumulate in the **costodiaphragmatic recess (angle)** so the obliteration of the costodiaphragmatic angle is a demarcated sign in plain chest X-ray.
- Accumulation of Air in the pleural cavity is called **pneumothorax**.
- For survival of **pneumothorax** the intercostal tube (chest tube) should be inserted in the upper border of 4th or 5th rib in the anterior or the midaxillary line to avoid injury of neurovascular bundle(intercostal VAN).

المريض رح يكون عنده cyanosis و هي الحالة

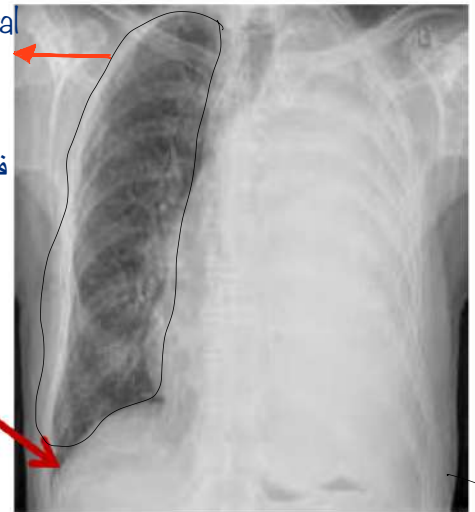
emergency و محتاج اركب chest tube و رح

نركب فيها line ينزل في وعاء ماء إذا صار

عندي فقعات اذا ركبنا صح

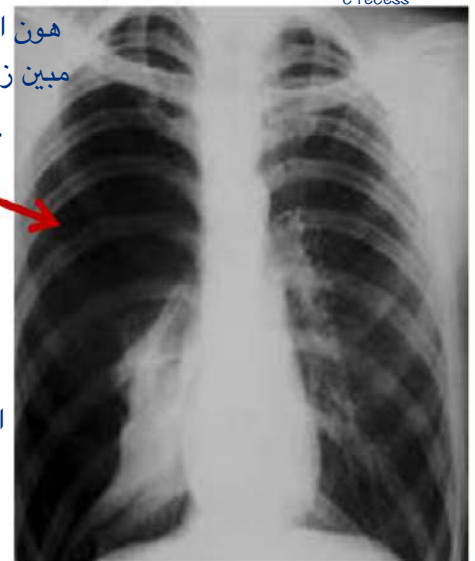
Normal view of pleural and lung

في حالات ال
Edema



costodiaphragmatic recess

هون الهواء كثير
مبين زي كأنه في
حبر

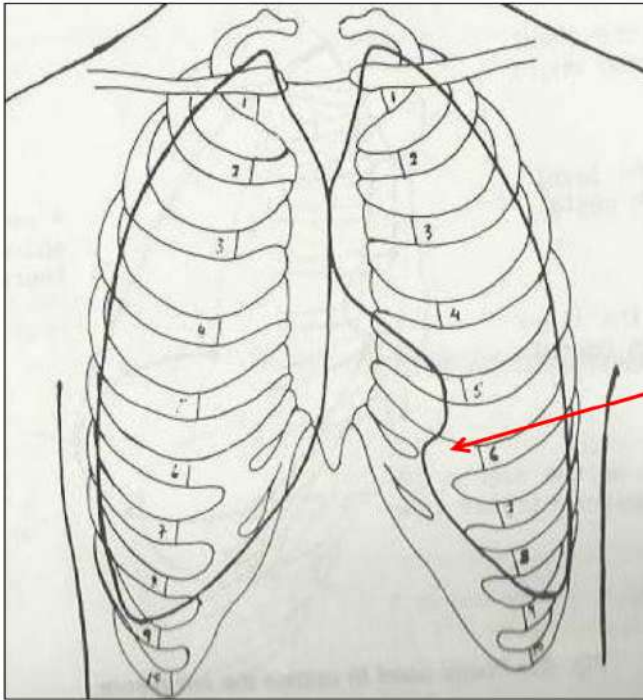




Respiratory System

كيف رسم ال pleura & lung

SURFACE ANATOMY OF PLEURA



Apex:

- lies one inch above the medial 1/3 of the clavicle.

Left pleura:

- The anterior margin extends from sternoclavicular joint to the level of **4th costal cartilage**, then deviates for about 1 inch to left at **6th costal cartilage** to form **cardiac notch**.

Right pleura:

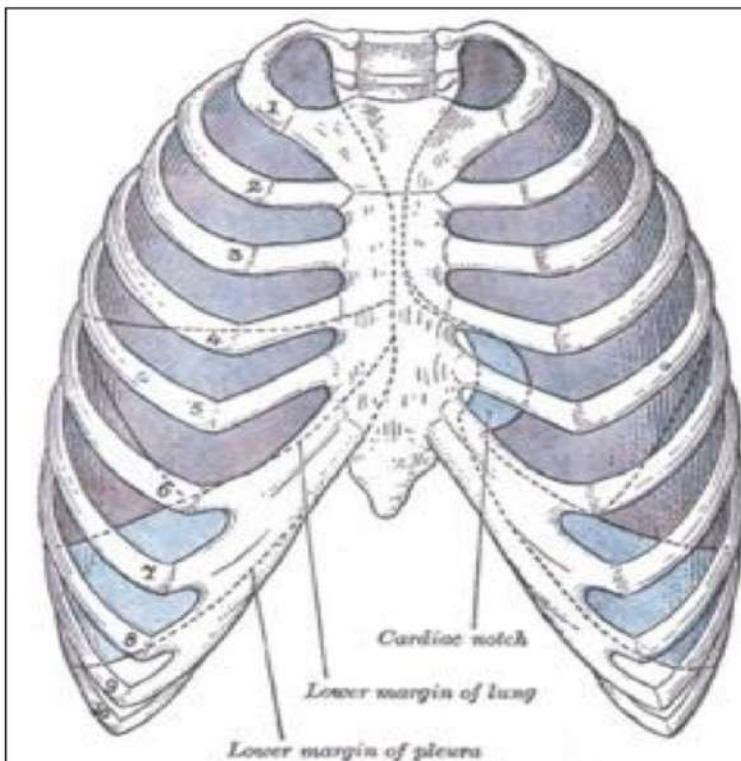
- The anterior margin extends vertically from sternoclavicular joint to **6th costal cartilage**.

- **Inferior margin** :from behind **6th costal cartilage** directed **infralaterally**, to cross the **8th rib** in midclavicular line, **10th rib** in mid-axillary line and finally reaching to the **last thoracic spine(T12)**.

- **Posterior margin** : along the vertebral column from the apex to the inferior margin.

اختلاف ال lung عن ال pleura في ال inferior border ال lung ال level تاها اعلى فاذا رح تكون اعلى بخطوتين

SURFACE ANATOMY OF LUNG



- **Apex, anterior border and** correspond nearly to the lines of pleura but are slightly **away from the median plane**.

Inferior border

- The inferior border of the lung is **2 ribs higher than that of the pleura**. It crosses the **6th rib** in the midclavicular line, the **8th rib** in the midaxillary line and crosses the **10th rib** to end 2 cm lateral to the **10th thoracic spine**.

The posterior border

- It extends from the medial end of the **inferior border (T10 spine)** upwards along the vertebral column to apex.

Oblique fissure:

- represented by a line extending from **3rd thoracic spine**, obliquely ending at **6th costal cartilage**.

- **Transverse fissure only in right lung**: represented by a line extending from **4th right costal cartilage** to meet the **oblique fissure**.