



P

lueral

E

ffusion

Presented By :

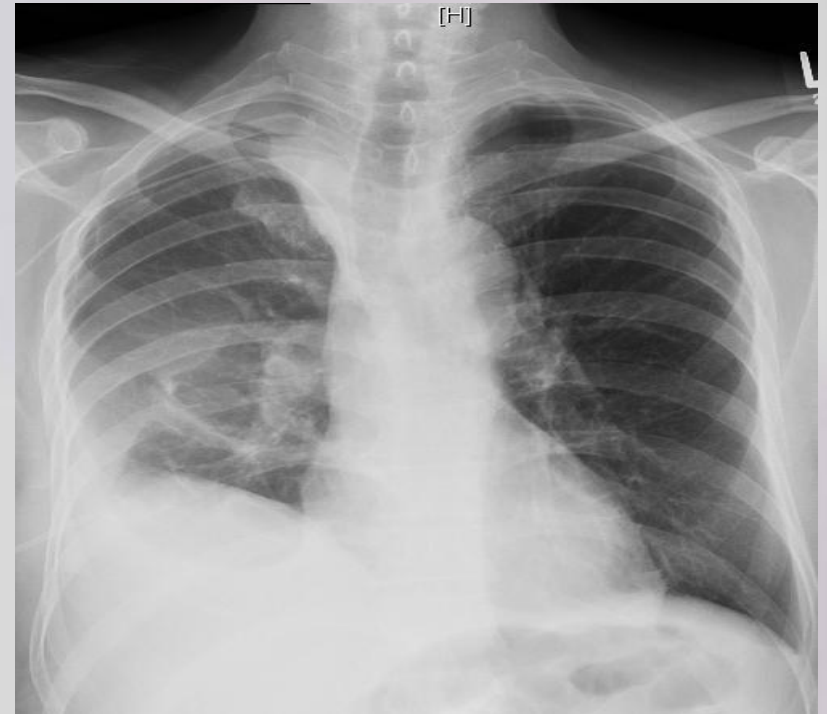
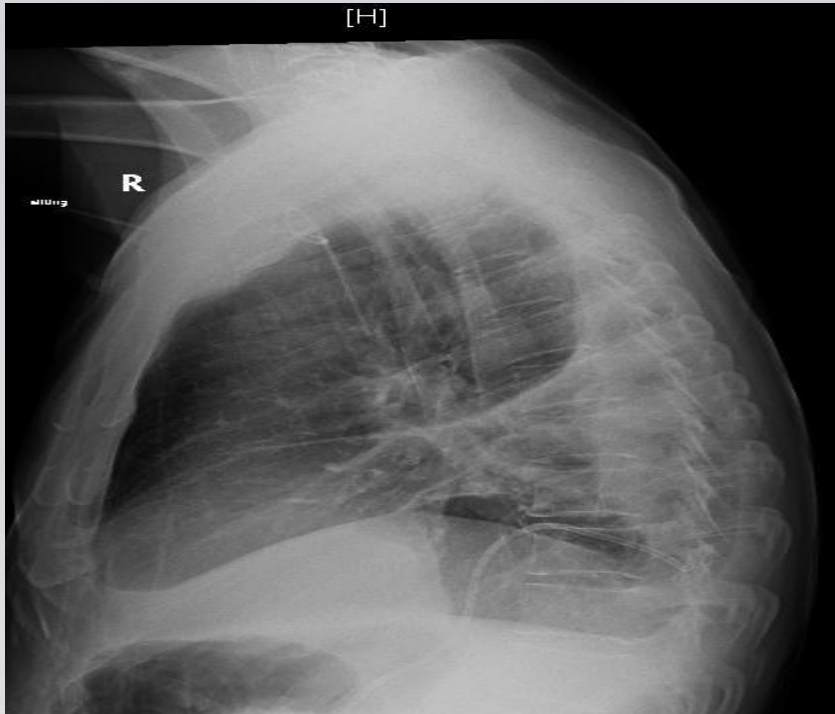
Khaled Alenazi

Case study

MR	2299580
Patient name	Ghazzay Almotairi
Age	56 YEARS
Date of birth	01-MAY-1965
Procedure	Chest X-ray PA & LAT
	Catheter draining
Medical question	R/O pleural effusion

Reports :

There is a moderate right sided pleural effusion with adjacent to atelectasis / consolidation . Pleural based opacity overlying the left hemi thorax could Represented loculated to pleural effusion .



Lung Anatomy

GET STARTED ▶

Lung Anatomy

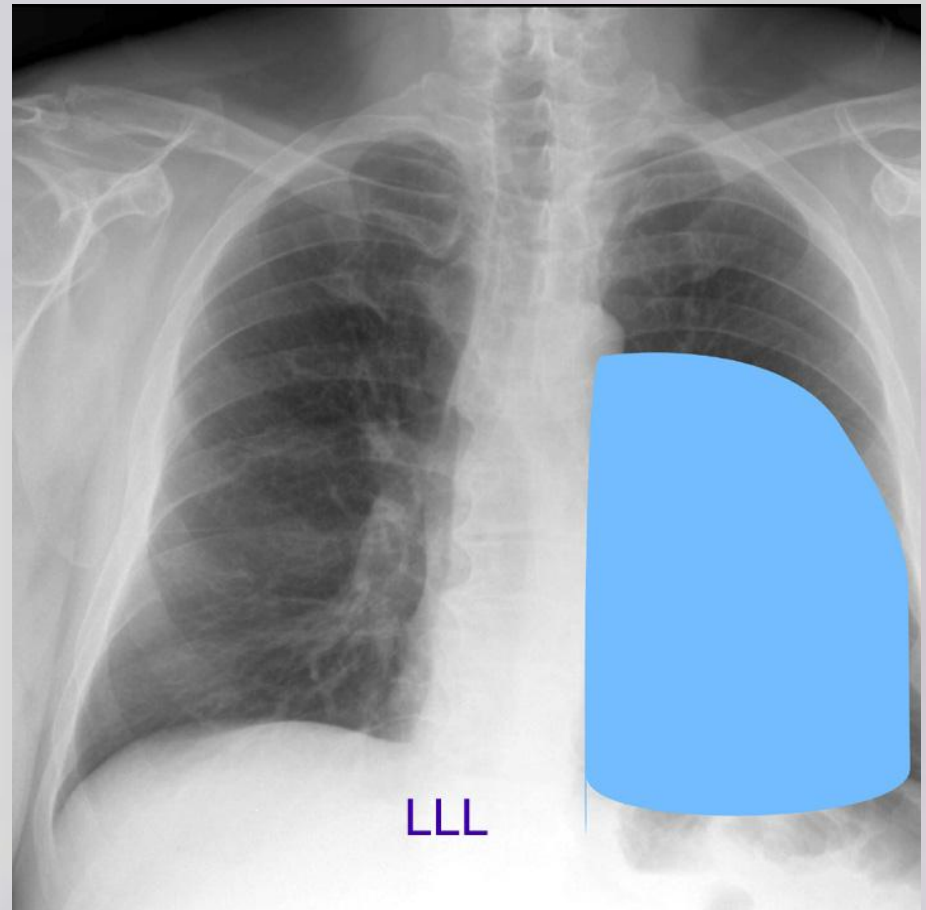
- There are 2 lungs :

R LUNG

- No. of lobes :
- No. of Fissures :

L LUNG

- No. of lobes :
- No. of Fissures :



Lung Anatomy

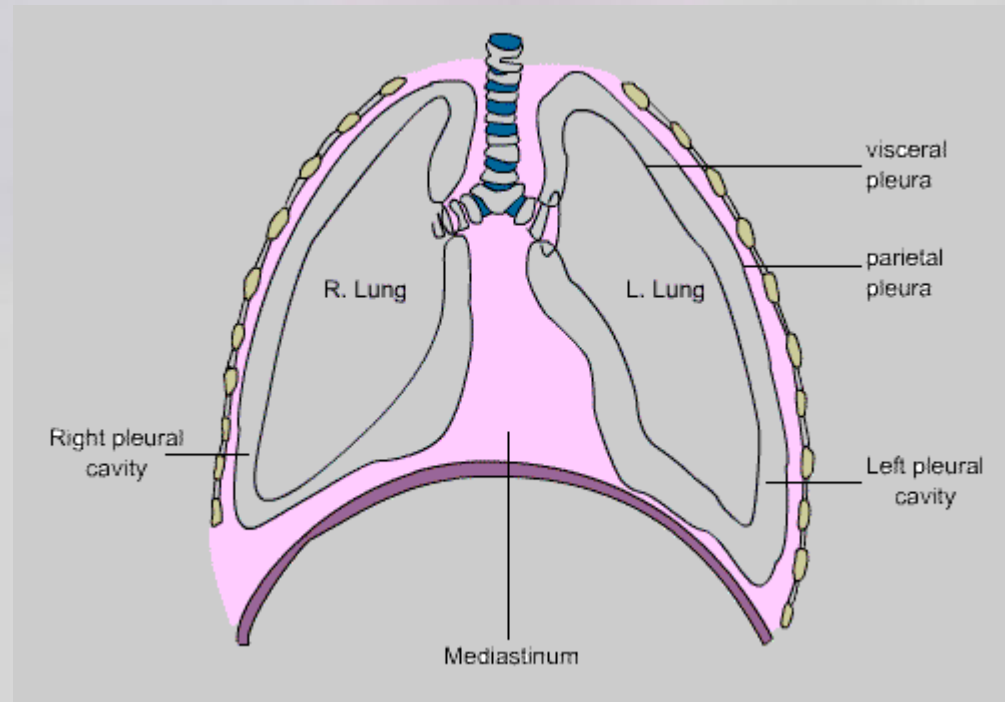
- Layers of lungs

A) Partial pleura .

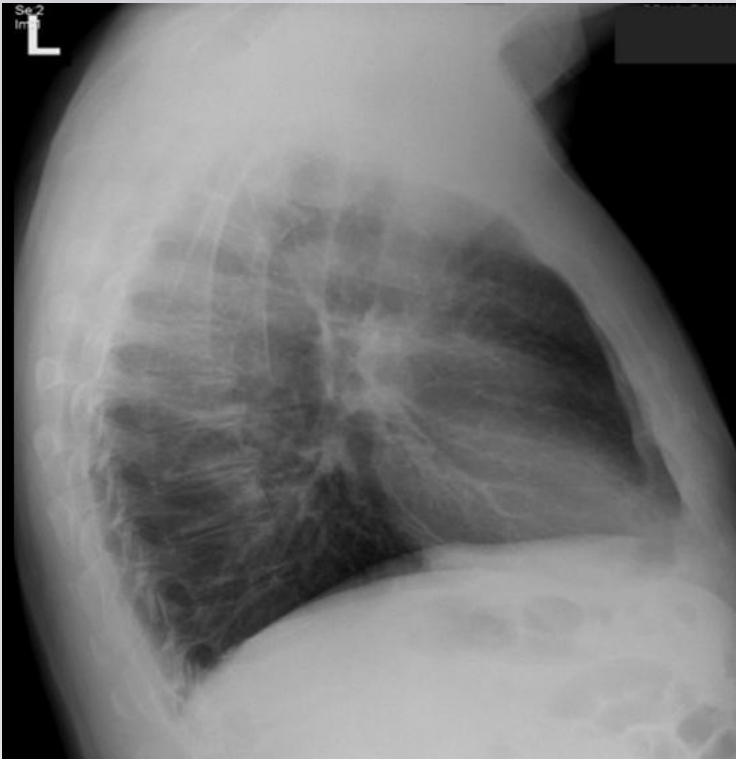
B) Visceral pleura

- Blood supply

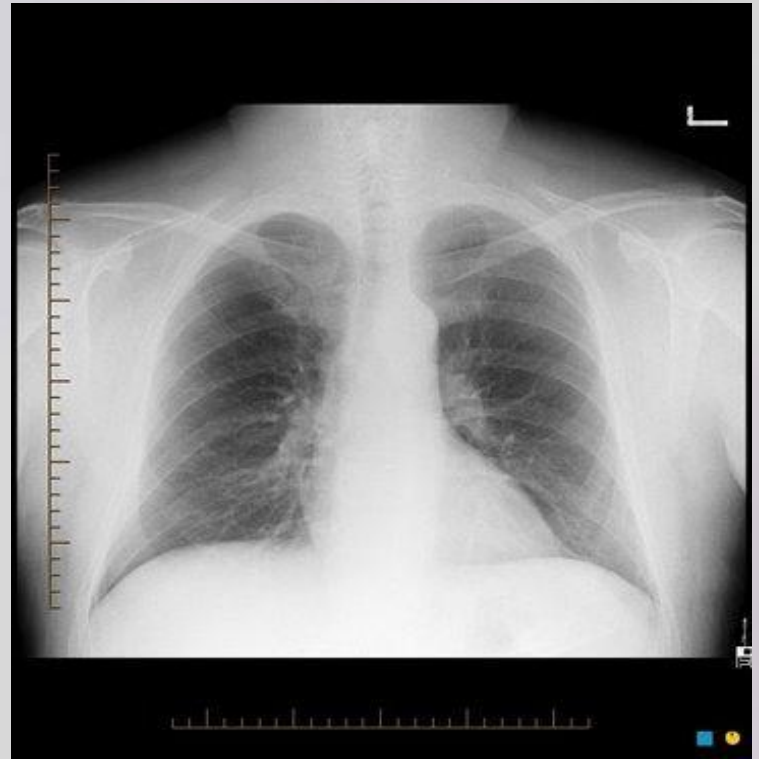
- Anatomic relation of Lungs .



Lung Anatomy

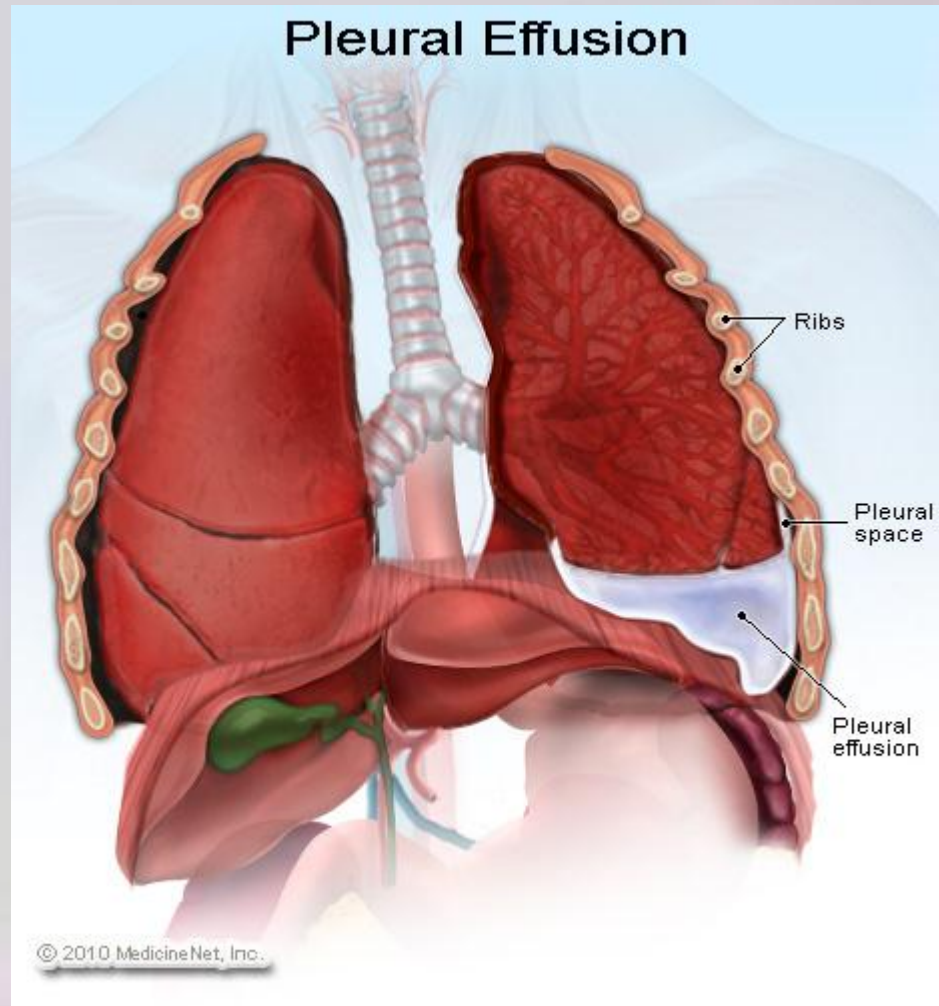


Normal Lt Lateral CXR



Normal PA CXR

Pleural effusion



Definition

- Pleural effusion :-

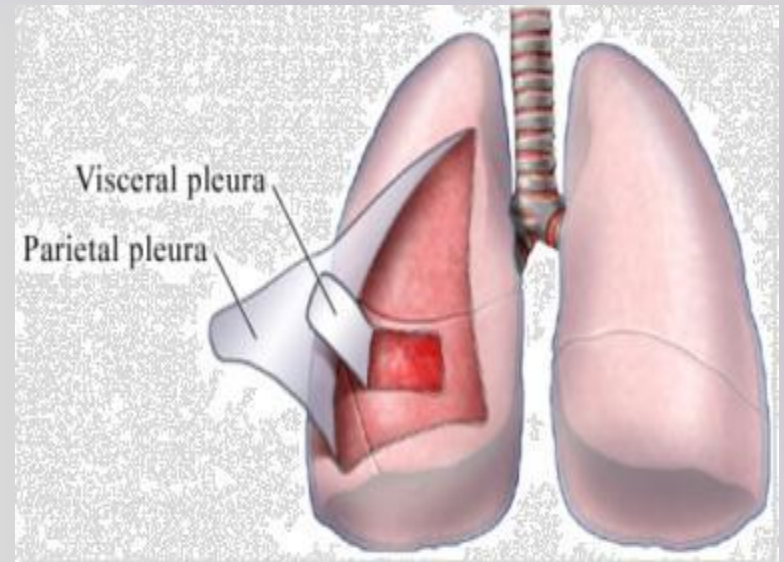
Abnormal Collection of fluid in pleural cavity.

- The most important calcification of PE :

1 - Transudate

2 - Exudate

-How can we differentiate
between them ?



Lab value

We can differentiate between transudate and exudate pleural effusion by

Laboratory Studies

- o Ratio of pleural fluid to serum protein greater than 0.5
- o Ratio of pleural fluid to serum lactate dehydrogenase (LDH) greater than 0.6
- o Pleural fluid LDH greater than two thirds of the upper limits of normal serum value

	Transudate	Exudate
Protein content	≤ 2 g/dL	≥ 2.9 g/dL
$\frac{\text{fluid protein}}{\text{serum protein}}$	< 0.5	> 0.5

Types

- Types of pleural effusion :-

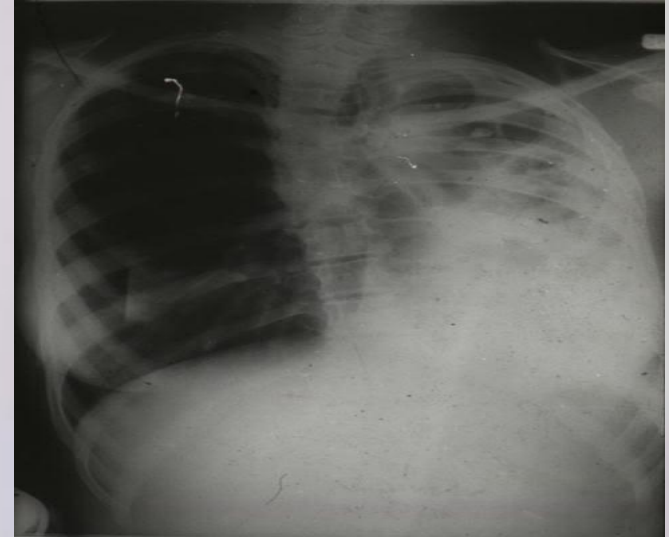
According to Location and distribution of fluid , It divide to :

1 - Free P.E.

2 - Encysted P.E.

3 - Lamellar P.E.

4 - Subpulmonary P.E.



Note !!

Pleural effusions are a very common phenomena, since they can be caused by any of a number of lung and heart disorders.

Types

SO ,

There are other calcification of P.E. :

1 – Cardiogenic PE

2 – Non-Cardiogenic P.E.

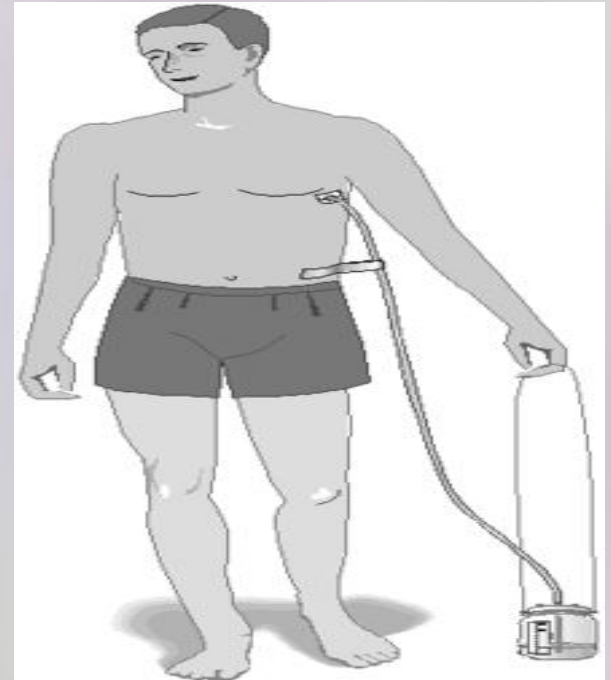
- Types of fluids :

- Haemothorax

- Chylothorax

- Empyema

- Hydropnemothorax



Risk factors



- Heart , Renal , and Hepatic failure
- Bacterial pneumonia
- Lung cancer and other tumours with lung metastases
- Pulmonary embolism
- Radiation therapy to the chest

Sign and Symptoms

- SOB .
- Chest pain .
- Cough .
- Fever .
- Sputum .
- Haemoptysis .



Causes



- In some cases, the nature of the pleural effusion may affect the course of the underlying disease.

But in general , The causes are :

- Inflammation
- Trauma .
- Tumours .
- T.B .
- Viral .

Diagnosís



• X-ray



PA ERECT CHEST X-RAY

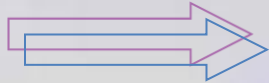
LAT ERECT CHEST X-RAY

DECUBETUS CHEST X-RAY



Diagnosis

- In X-ray , We use high KV technique for chest x-ray



• U.S.

- Fluid appear anechoic
- Best modalities to detect it
- Safe
- Cheap



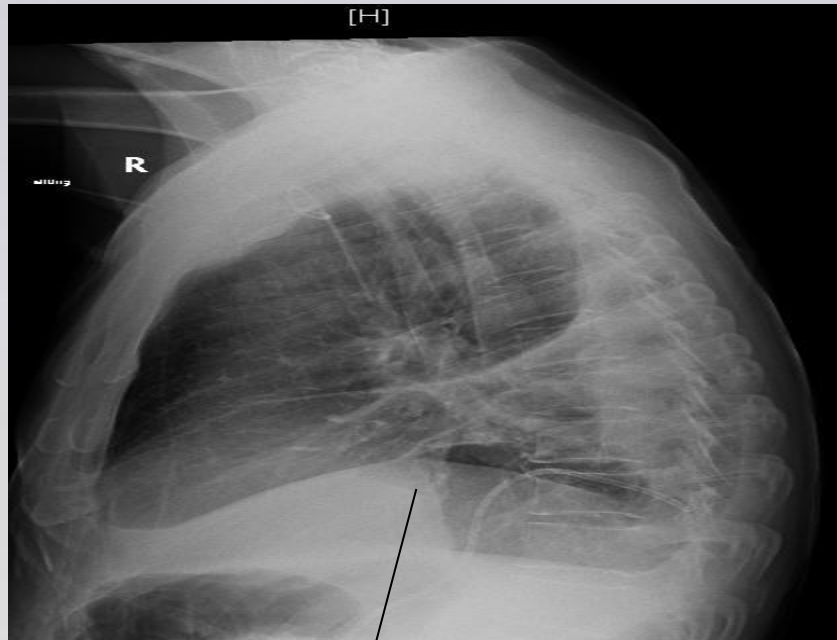
• C.T.

Is not considered as best modality to detect this disease

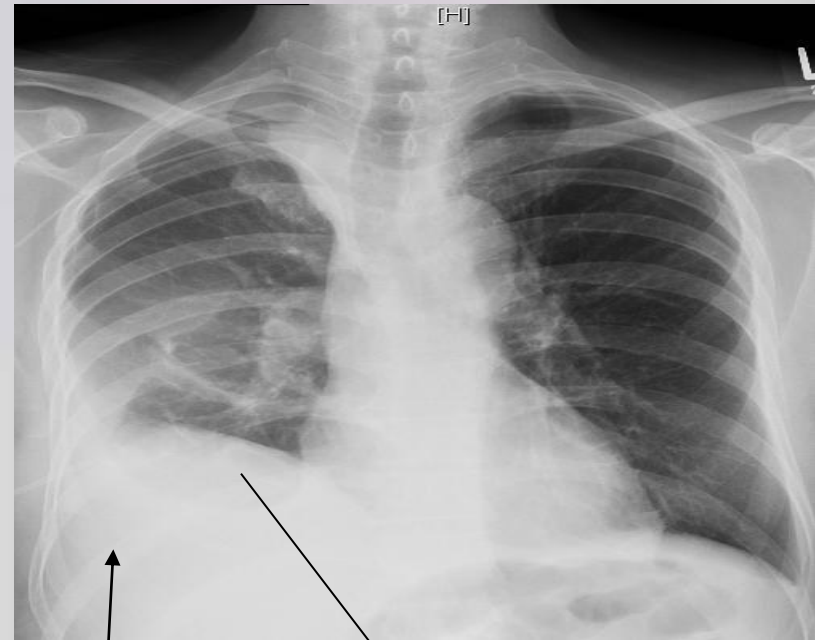
Radiological appearance of pleural effusion

- fluid appear radiopaque
- The fluid accumulate in the pleural space
- It collect at costophernic angle at first
- It will be obliterate if the fluid keep collecting
- after that , It will collect also in Ant. Costophernic angle and it will disappear as well .
- If the effusion keep increasing , it goes up and make a crescent shape .

Radiological appearance of pleural effusion



Bronchial marking disappear

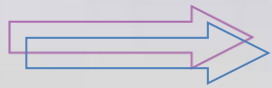


Homogeneous opacification

Loss of diaphragm outline

Treatment :-

- Large pleural effusions, causing severe breathlessness, are drained, by needle in an acute emergency, or otherwise by chest drain inserted under local anaesthetic



• This is done under **X-ray or US guidance**

- Malignant pleural effusions may be recurrent. They are treated by drainage, followed by the instillation of certain chemicals into the pleural space which help stick the two layers of pleura together,
- Other effusions are treated by treating the underlying cause.

The role of Interventional Radiology in treating pleural effusion

- This disease can be treated in **interventional radiology** under US guidance by inserting catheter to the lung cavity at lower level of lung . (draining)

- Types of catheter which used :
(Pigtail draining catheter)

Technologist !!

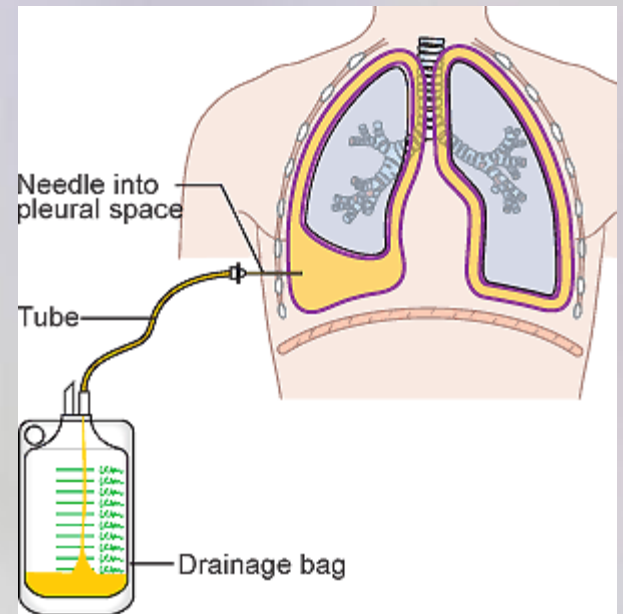
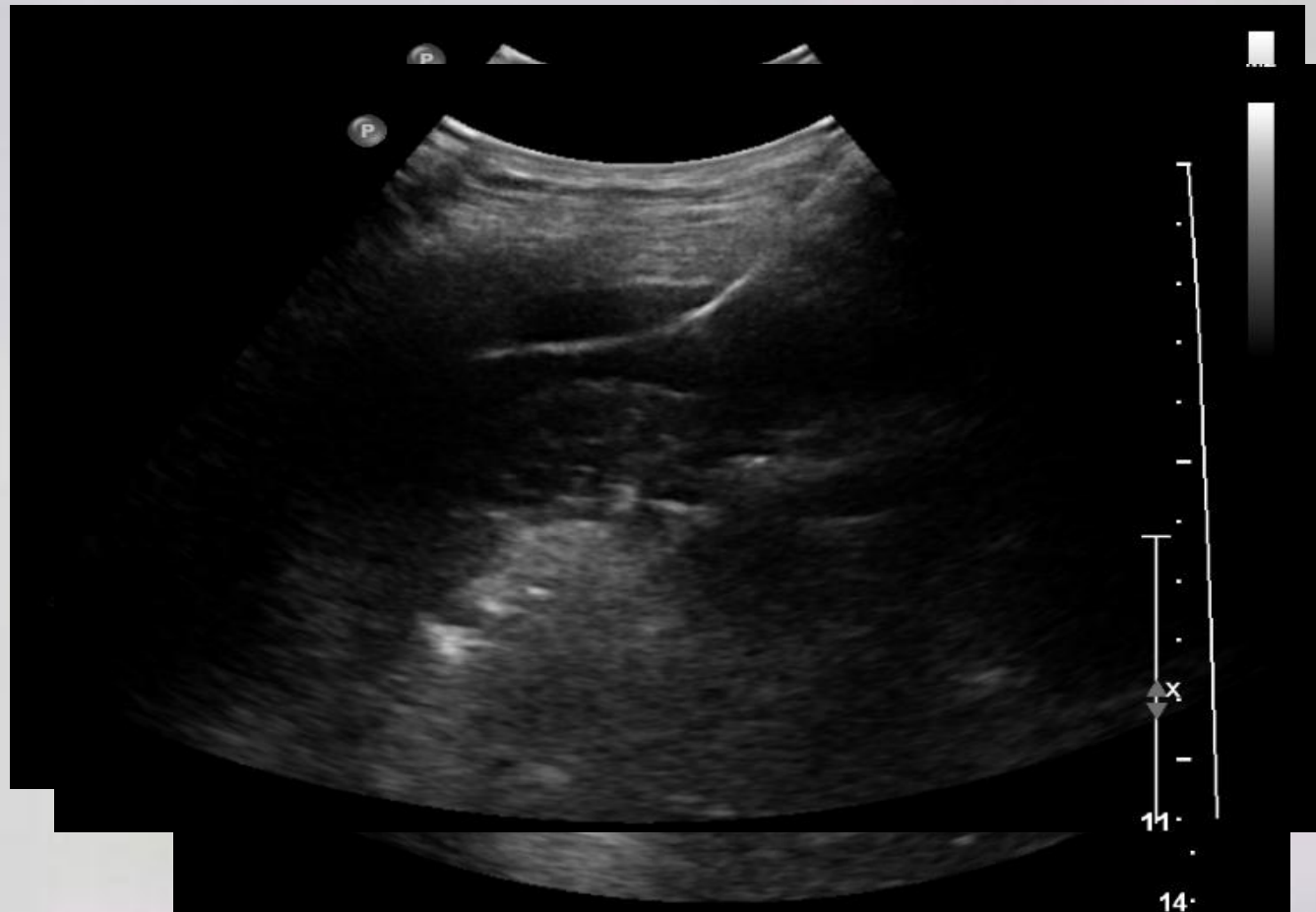


Diagram showing how a pleural effusion is drained
© CancerHelp UK

The role of Interventional Radiology in treating pleural effusion



References

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Chest X-Ray Atlas

http://www.medicinenet.com/pleural_effusion/article.htm



Effusion, Pleural eMedicine Radiology.url



Lung Disease Health Check - Take the WebMD Breathing Assessment.url

(I am glade for every one helping me to make this presentation
as well , thank you For **Dr Fares** for explain nature of types ,
thank you **Fayez** very very very much
Thank you khaled
Thank you **Mohammad** , thank you **Reem** for help me ,)



Thank you