



Radiology
Team 438



Radiology of cardio-respiratory disease interactive lecture

Lecture 6

Color Index:

-Main text

-Males slides

-Female slides

-Dr's notes

-Important

-Golden note

-Extra

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For better Understanding (extra)

» Differential diagnosis for the abnormal white (Hyperdense) abnormalities on the radiograph:

1- Pleural effusion.

- Check the **costophrenic angle**, is it sharp or blunted?
- Look for **meniscus sign**. (Crescent).

2- Lung collapse (Atelectasis).

- Is there a **wedge sign** on the lateral view X-ray?
tracheal deviation + reduced lung volume

3- Mass.

- Does the opacity have **well demarcated margins**?

4- Infiltration/consolidation.

- Rare. **ill-defined border**

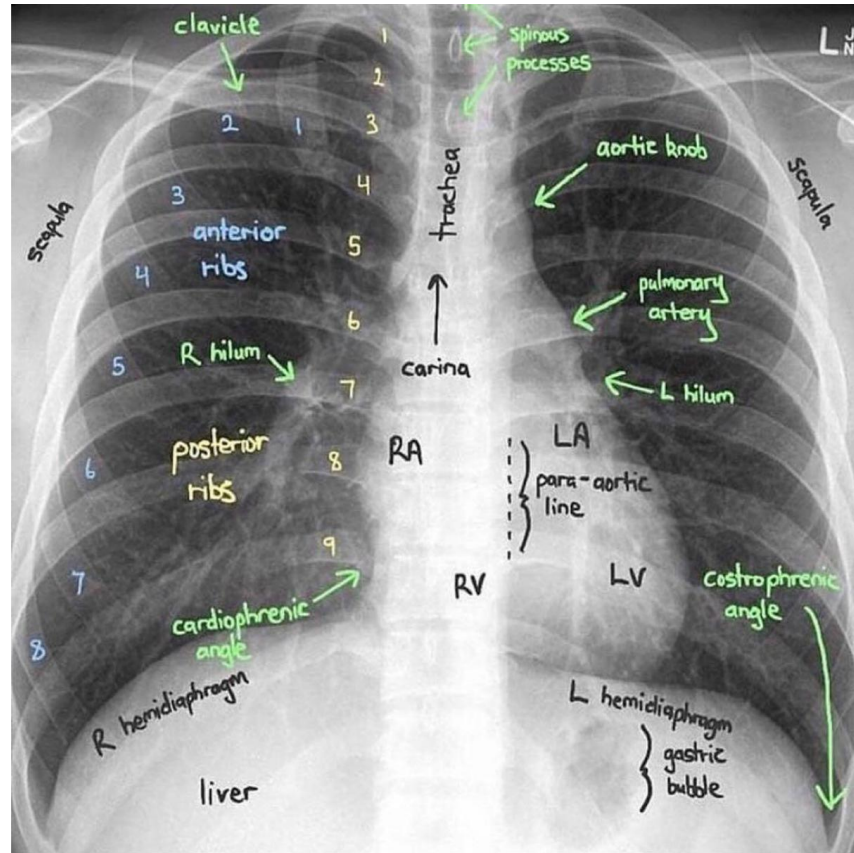
Question in exam

- without image (clinical scenario or direct questions)
- Clinical scenario with image

Images either same images in the lectures or similar ones

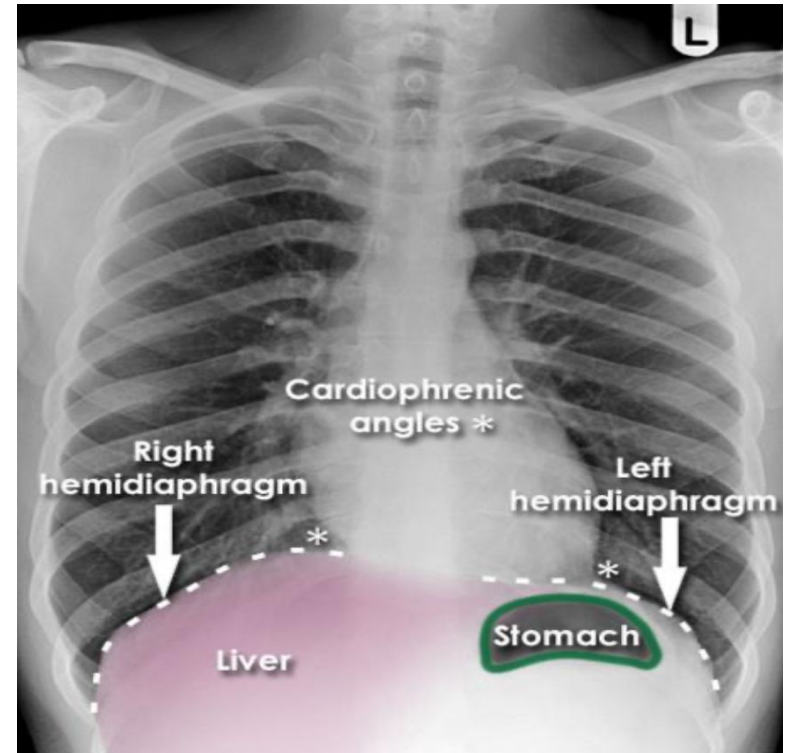
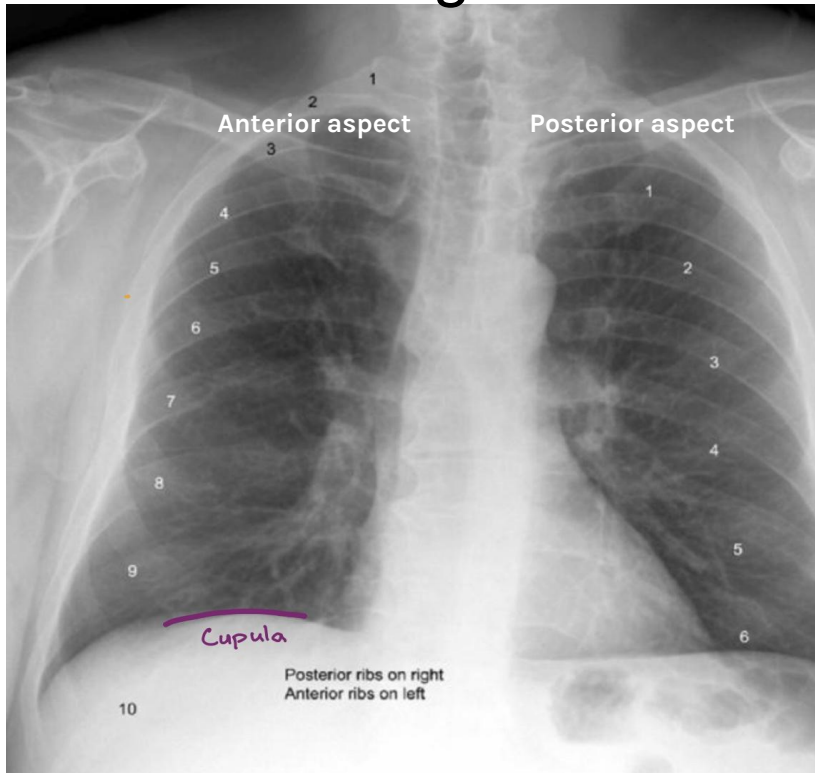
Remember: The history helps a lot, so a history with smoking make us think of a tumor, and history of DVT make us think of PE, and malignancies usually does not present with fever.

Quick Revision



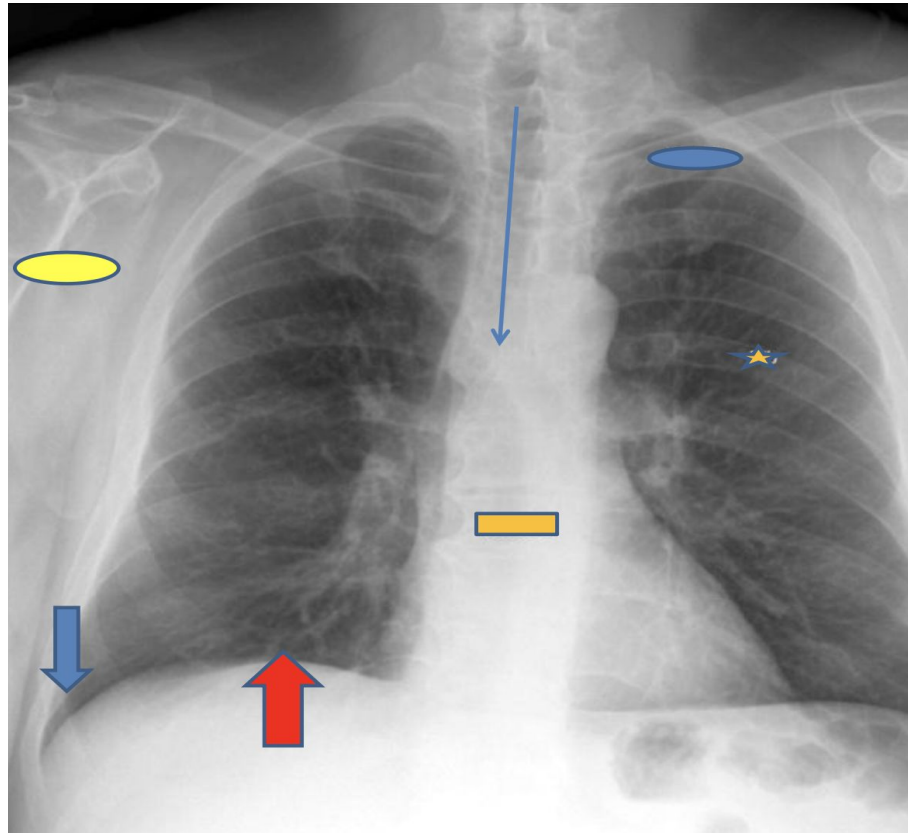
Extra image

Counting Ribs

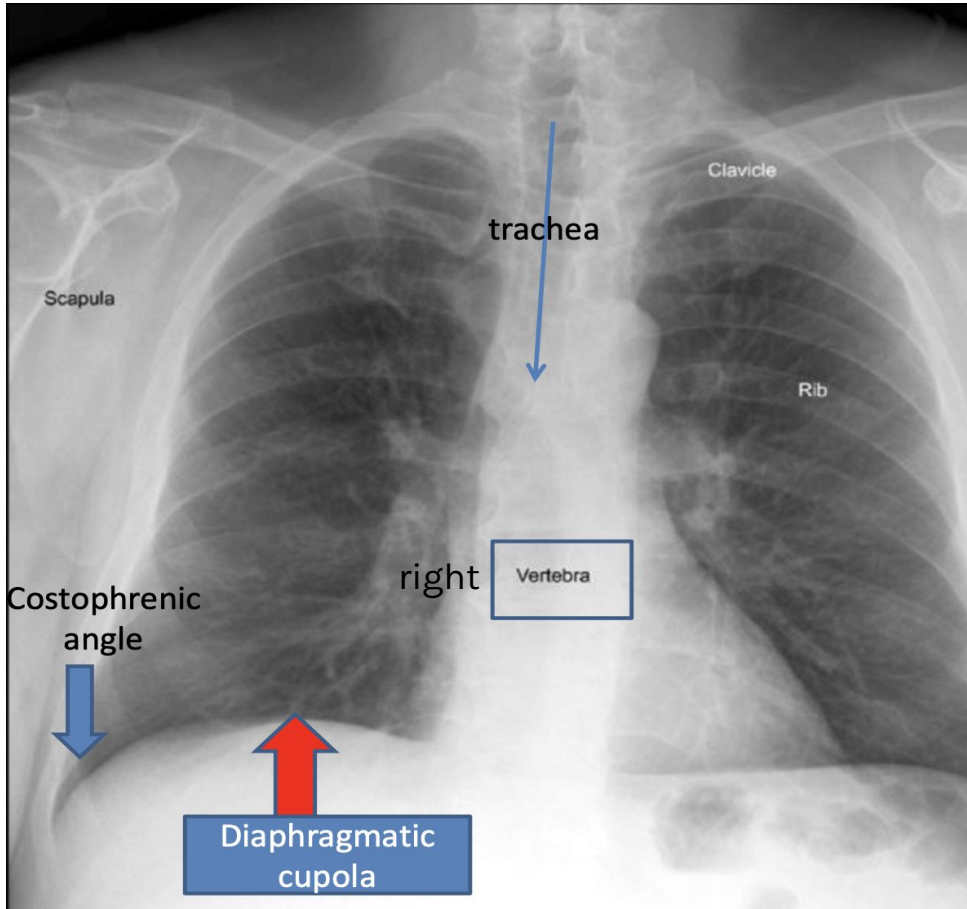


*If the 9th or 10th rib was on the level of diaphragmatic cupola then the patient took full inspiration
If it was on the level of 7th or 8th rib then the patient did not take a full inspiration

» Identify the labels:



Answer →



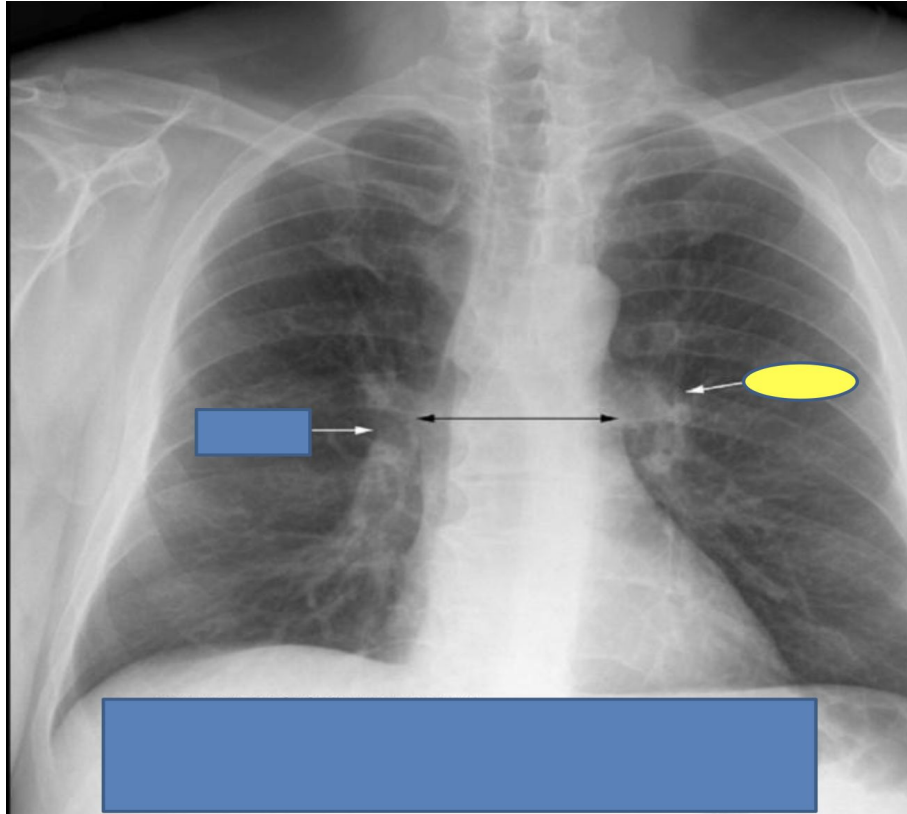
Trachea = Trachea aircord

The structure under the

- right diaphragmatic cupola > is liver
- Left diaphragmatic cupola > is stomach air bubble

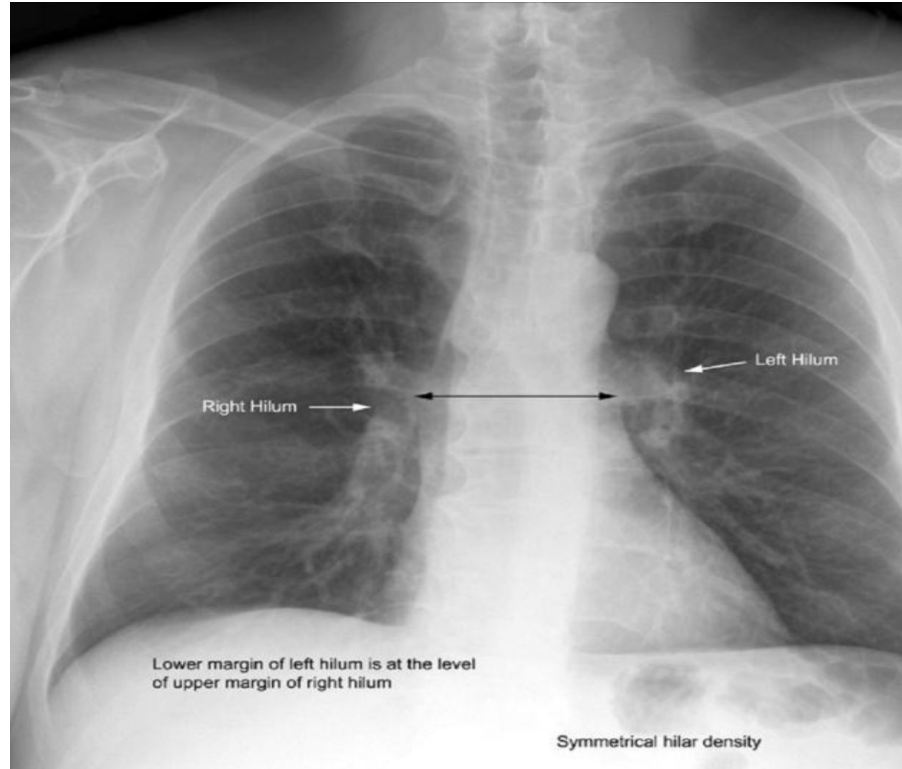
When answers make sure you write the directions (right or left) of selected part
In the exam we won't write but they may bring both right and left in the option

» Identify the labels:



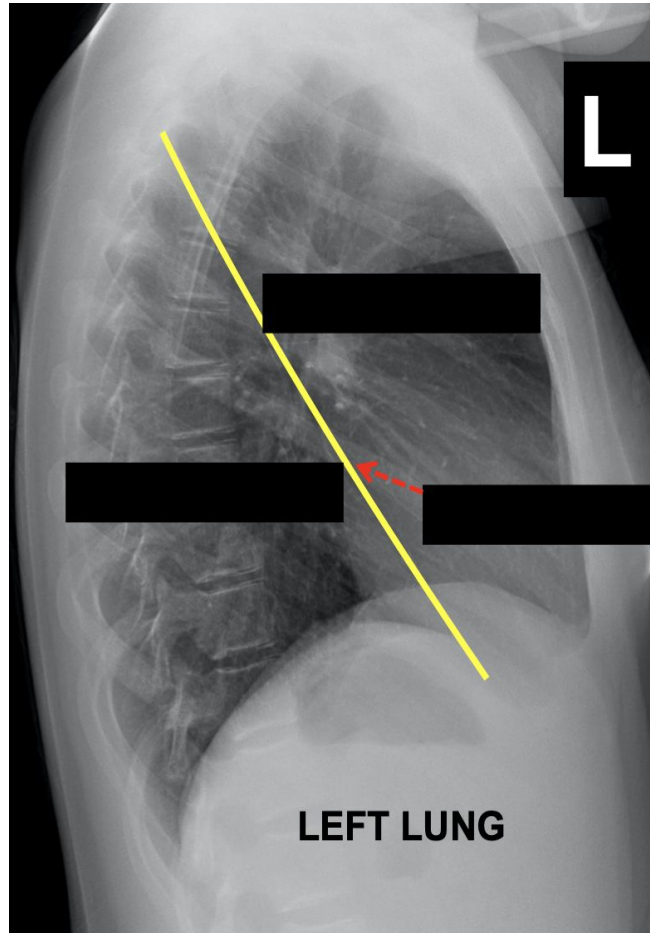
Answer →

Hilum



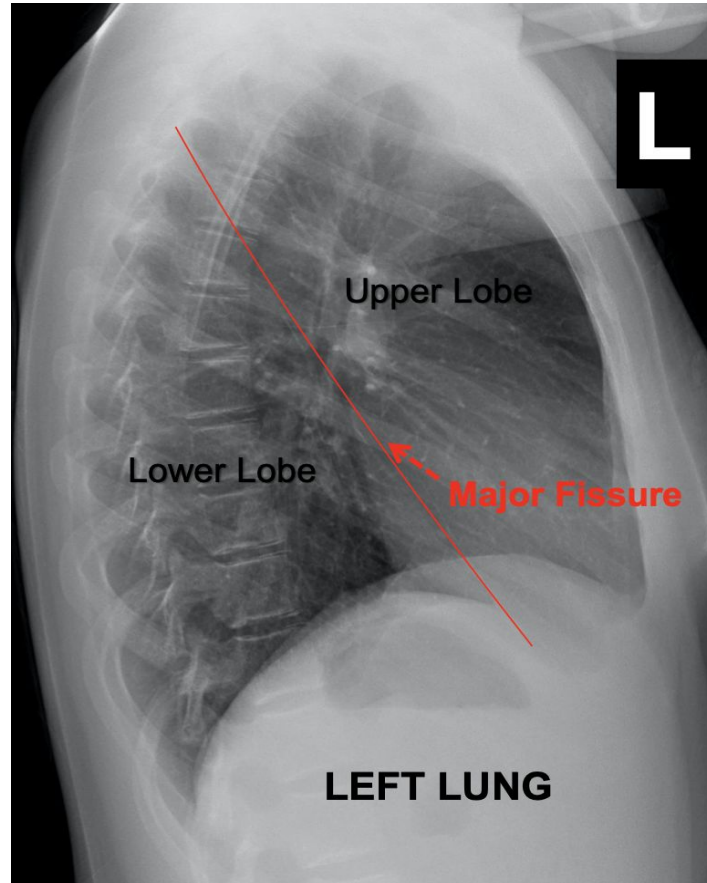
Normally The right and left hilum shadows aren't in the same level , the left one is higher than the right

» Identify the labels:



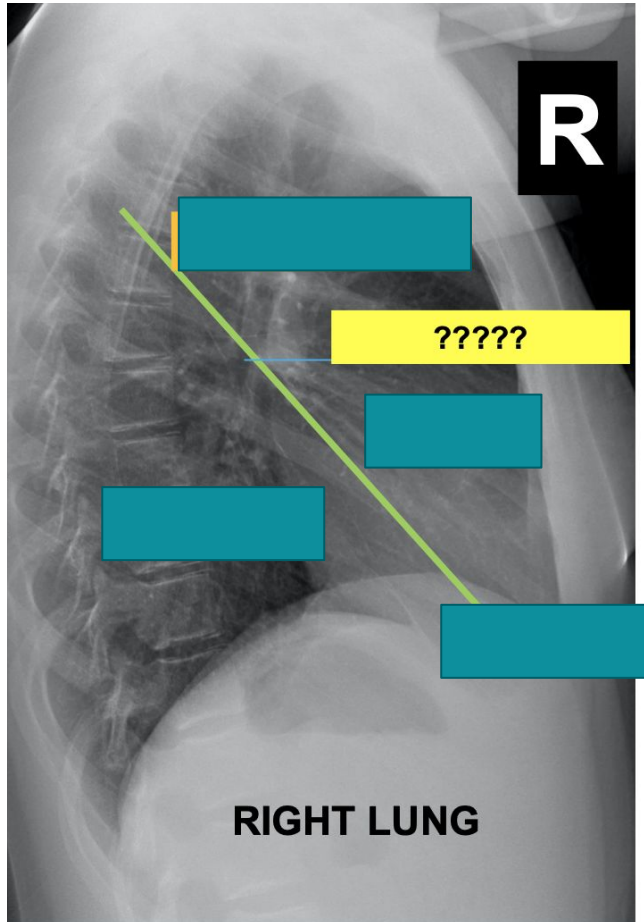
Answer →

Anatomy



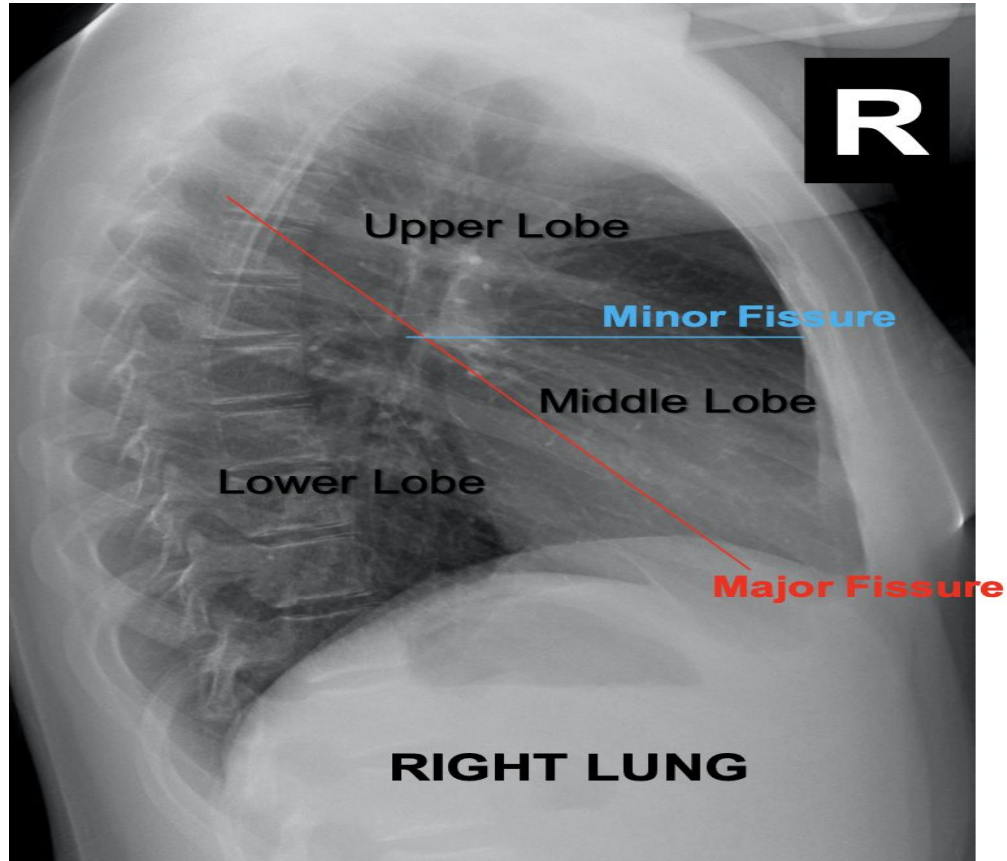
Major fissure=oblique fissure

» Identify the labels:



Answer →

Anatomy

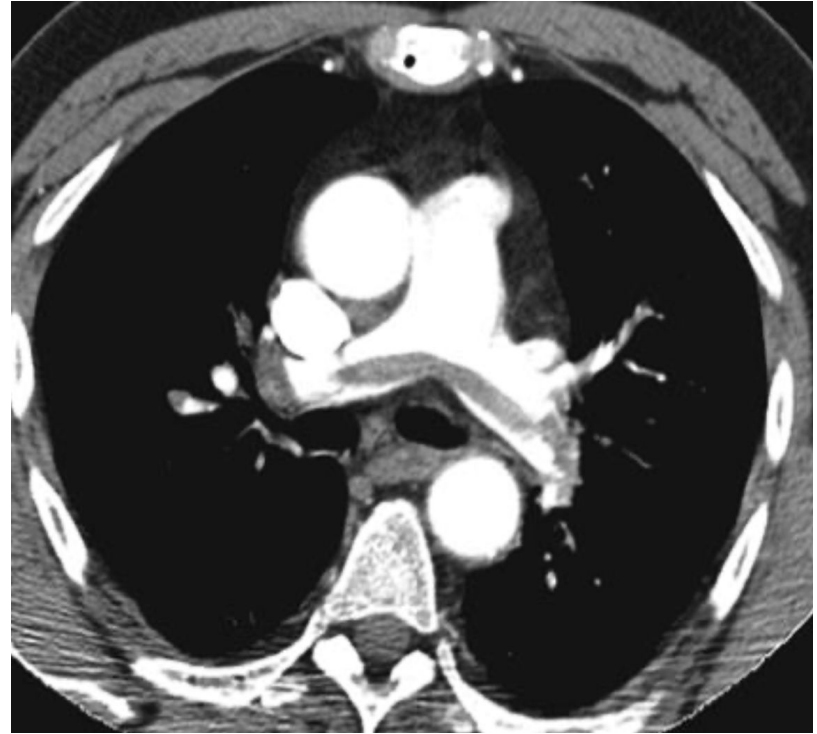


Minor fissure=horizontal fissure

- ❑ Patient presented to ER with acute chest pain and SOB
- ❑ Past history of pelvic fracture with hospital admission for 5 weeks

What is the modality?

What is the diagnosis?



Answer →

What is the modality?

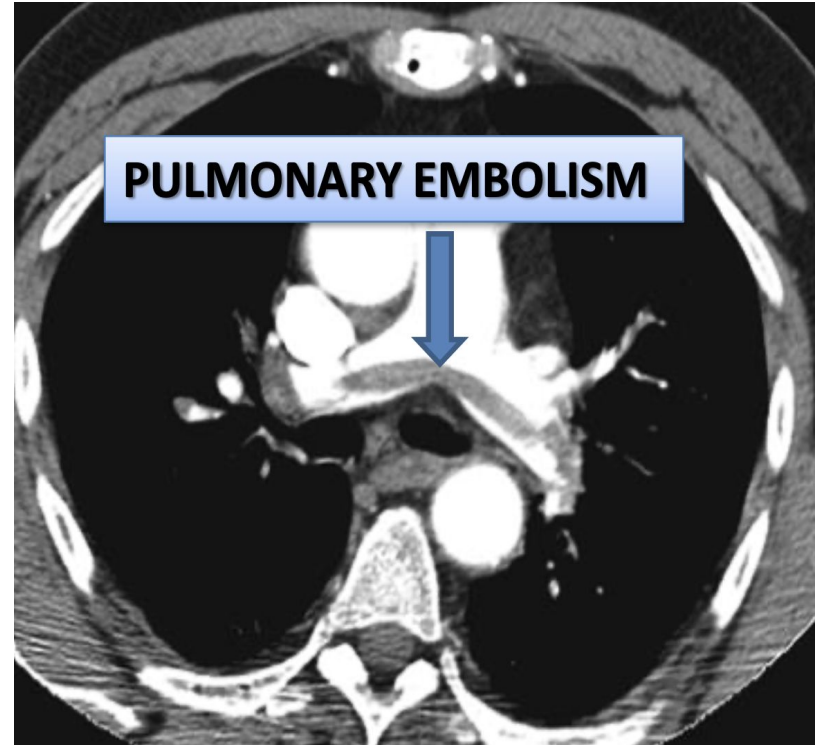
Computed tomography angiography
of the chest

What is the diagnosis?

Saddle like Pulmonary Embolism

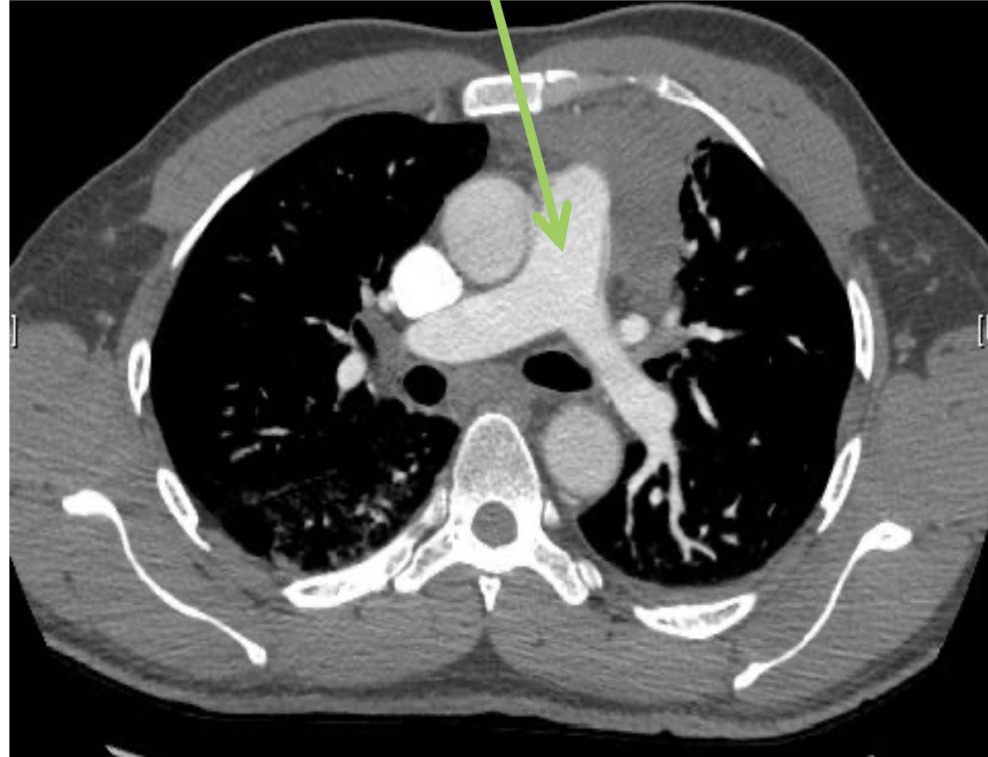
The image showing filling defect , saddle like
embolus of pulmonary artery

Dr. NOTE: For the exam there are two types of questions:
First type: Without image only clinical scenario
Second type: Image with clinical scenario



438 note :If the patient is Bedridden for a
long time there is a high possibility for
DVT

- ❑ What is the modality?
- ❑ normal or abnormal findings?



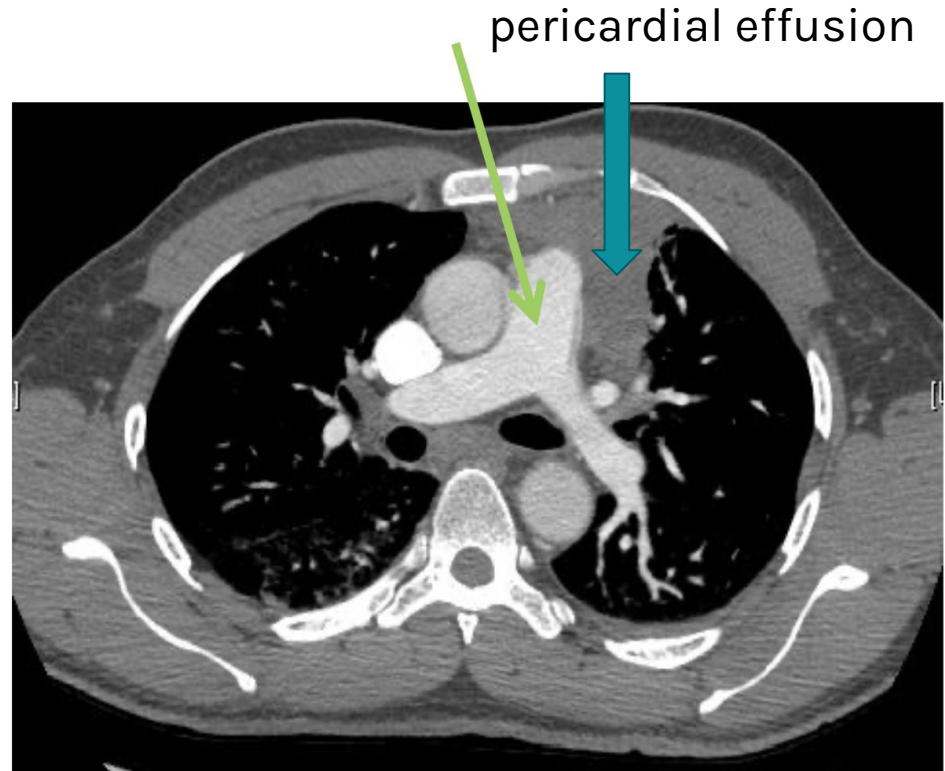
Answer →

❑ What is the modality?

Computed tomography angiography with contrast (mediastinal window) of pulmonary vessels

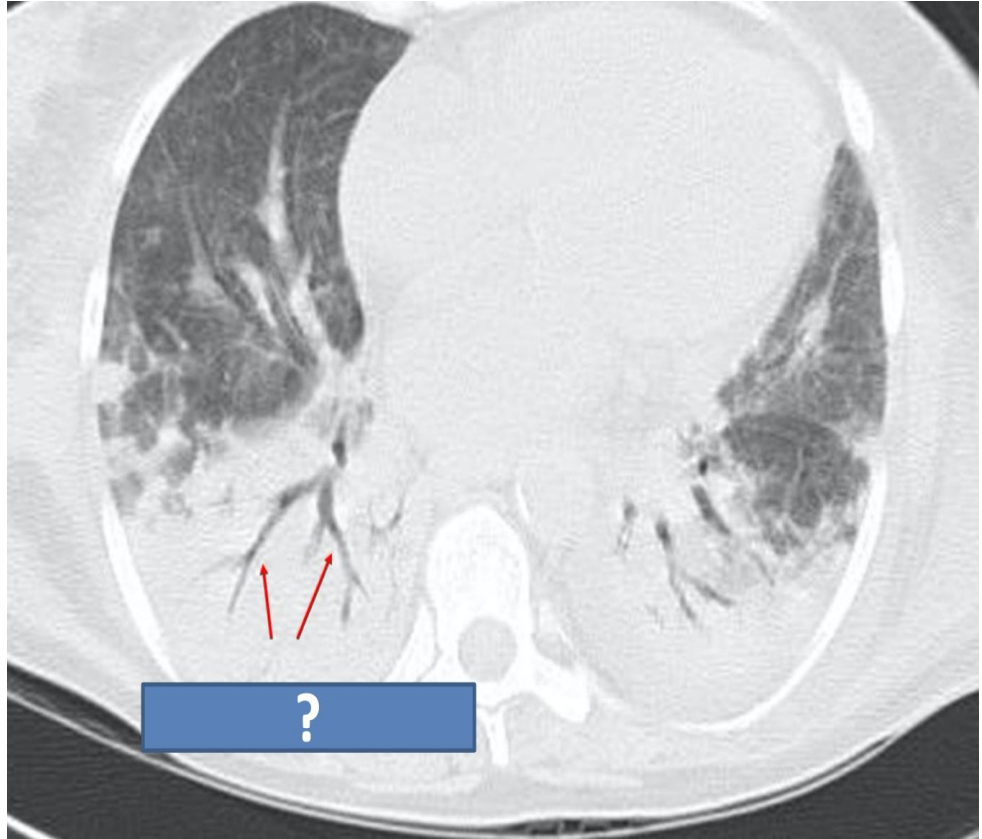
❑ normal or abnormal findings?

Abnormal due to presence of pericardial effusion



-Regarding the pulmonary trunk=normal no PE
-remember the pericardium surrounds both the heart and the roots of major vessels so the effusion can extend up to the pulmonary areas

- ❑ What is the modality?
- ❑ Signs?
- ❑ Diagnosis



Answer →

❑ What is the modality?

Computed tomography
(lung window) of the chest

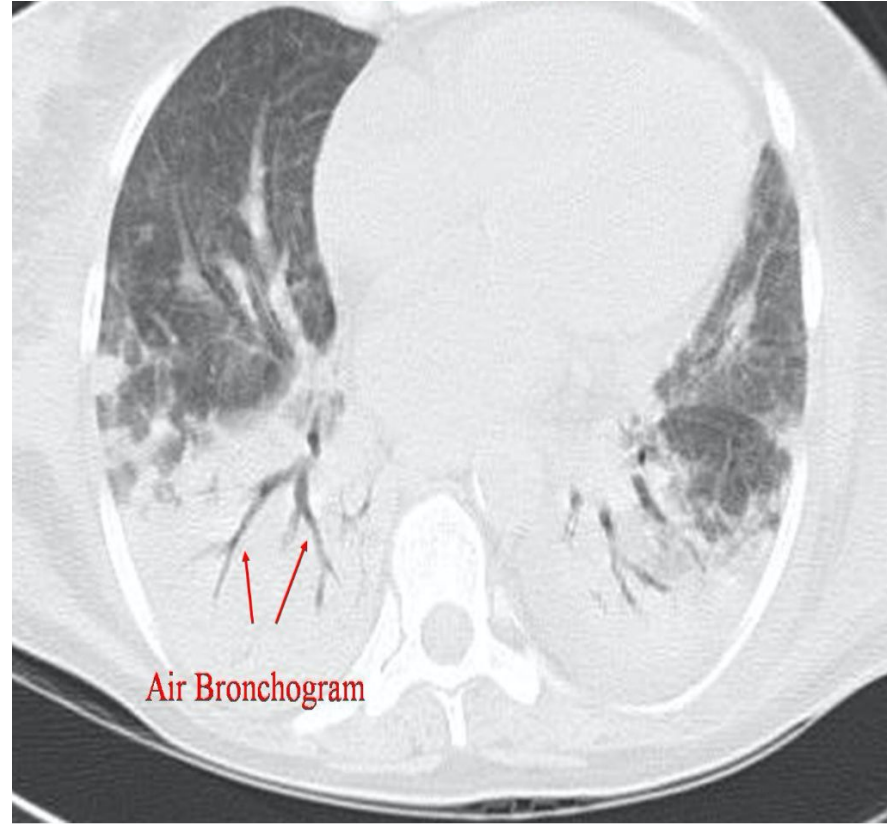
❑ Signs?

Air bronchogram

❑ Diagnosis

Consolidation
(on both lung bases)

Air Bronchogram is when there is air inside the bronchial tree.
Air in lung bronchogram is seen when lung is opacified .
In lung window usually you don't see the bronchial tree we see it
when there is consolidation.



- ❑ What is the modality?
- ❑ Signs?
- ❑ Diagnosis ?



Answer →

❑ What is the modality?

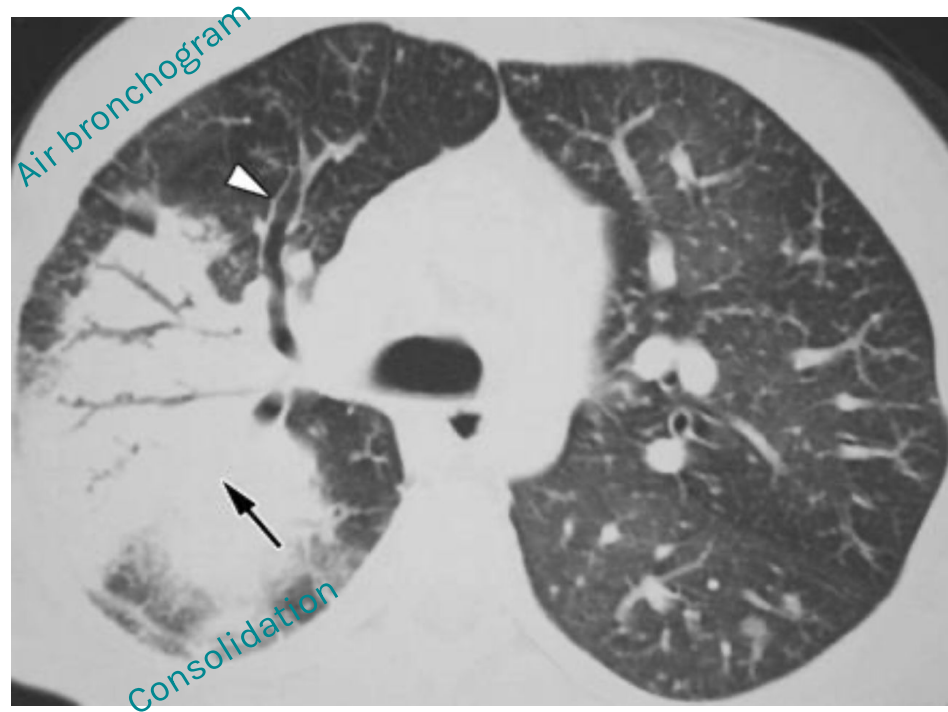
Computed tomography (lung window)

❑ Signs?

Air bronchogram

❑ Diagnosis ?

Consolidation



- ❑ What is the modality?
- ❑ Mass or infiltration?
- ❑ Why?



Answer →

❑ What is the modality?

CXR

❑ Mass or infiltration?

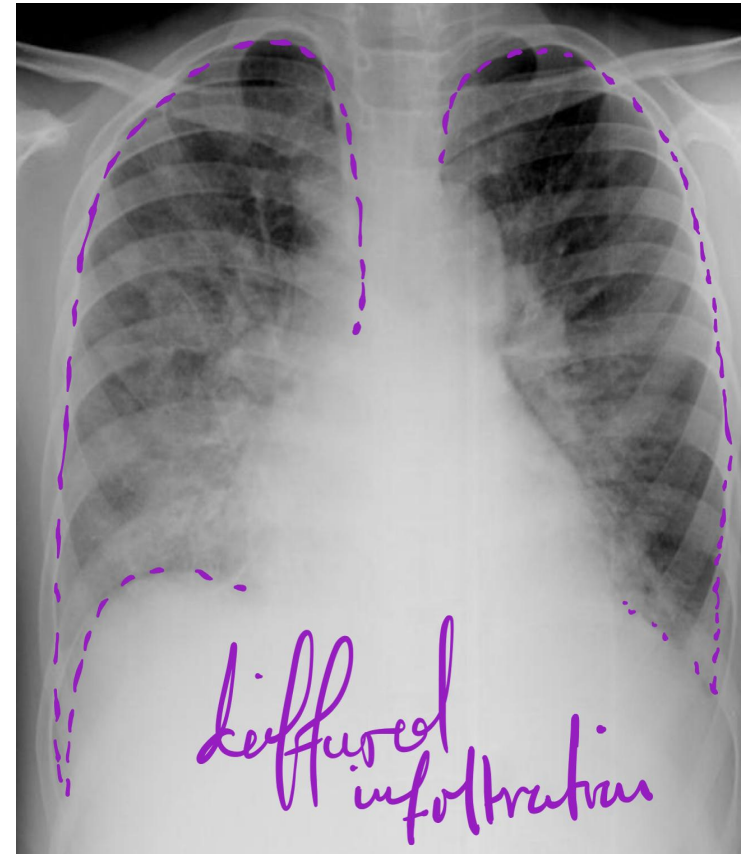
Consolidation (diffuse infiltration)

❑ Why?

Because no defined borders

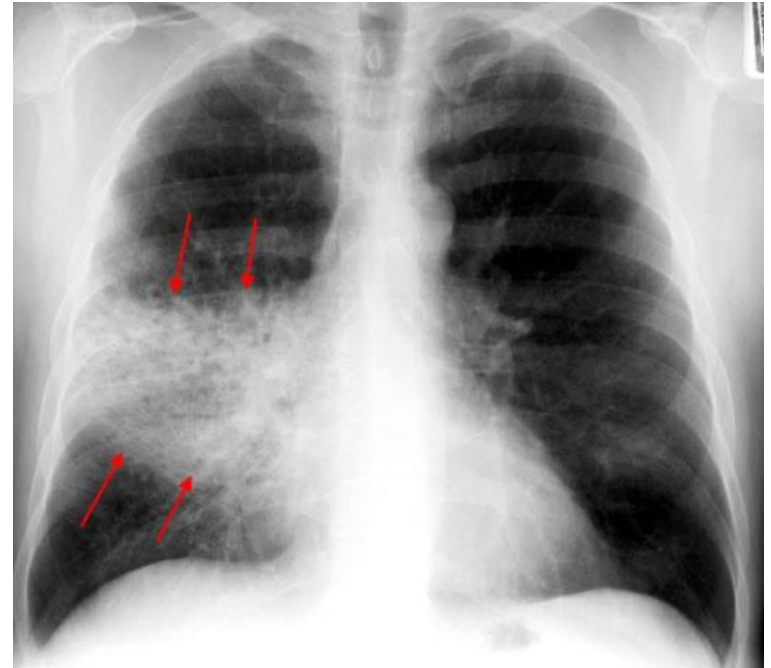
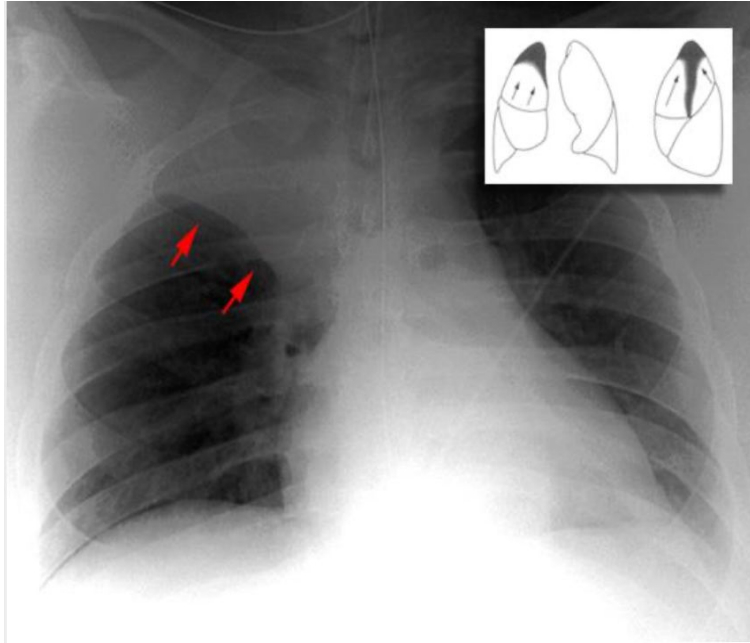
How to differentiate between infiltration and mass?

- in infiltration the borders when present is diffused and no borders
- in mass there is well- defined border



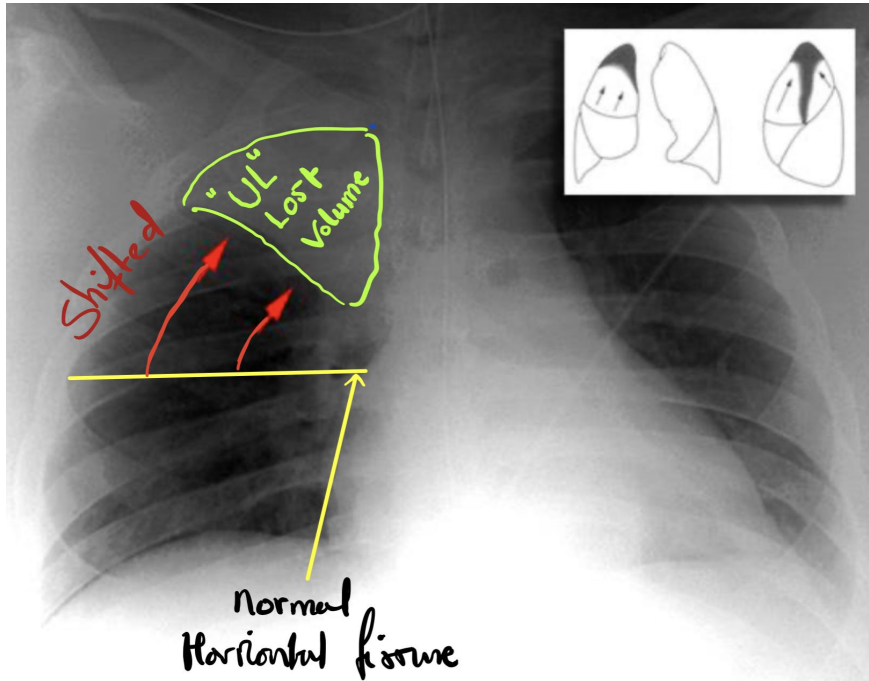
defined border=mass

How to differentiate between Atelectasis and Pneumonia?



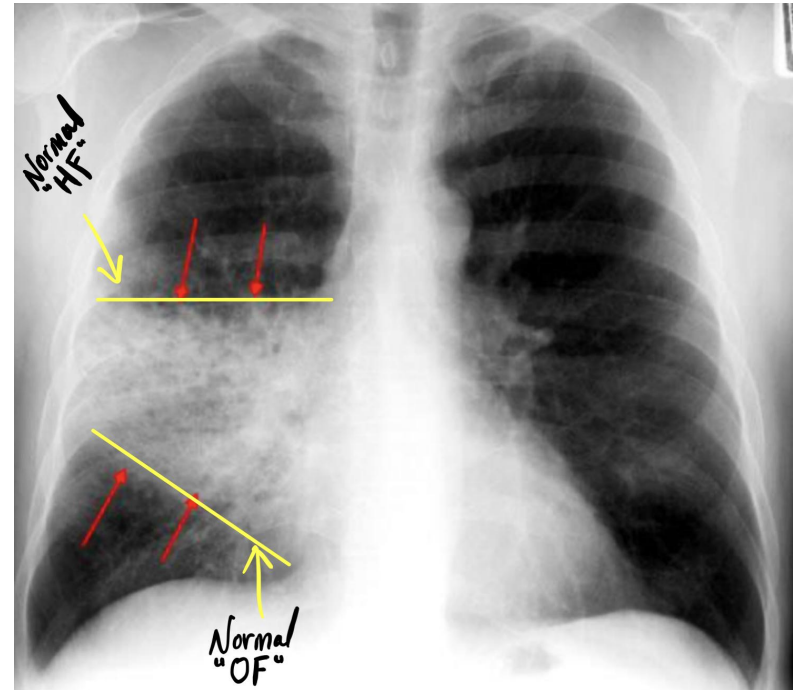
Atelectasis Vs pneumonia

Atelectasis



Collapsed lobe lost **volume**

Pneumonia



Lobe with pneumonia has not lost **volume**

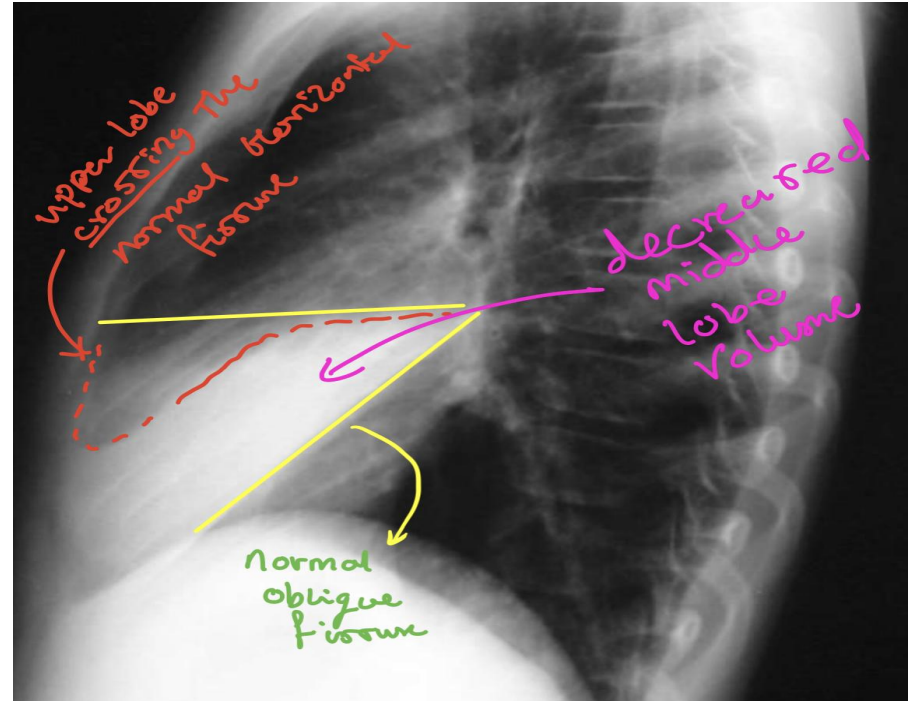
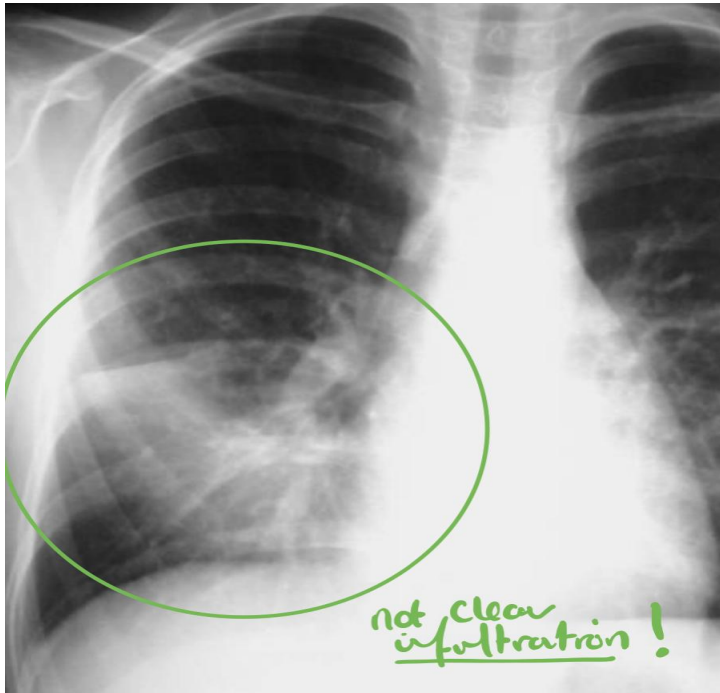
❑ What is the diagnosis?



Answer →

» Atelectasis Important image

Always read together



Collapsed right middle lobe. lost volume

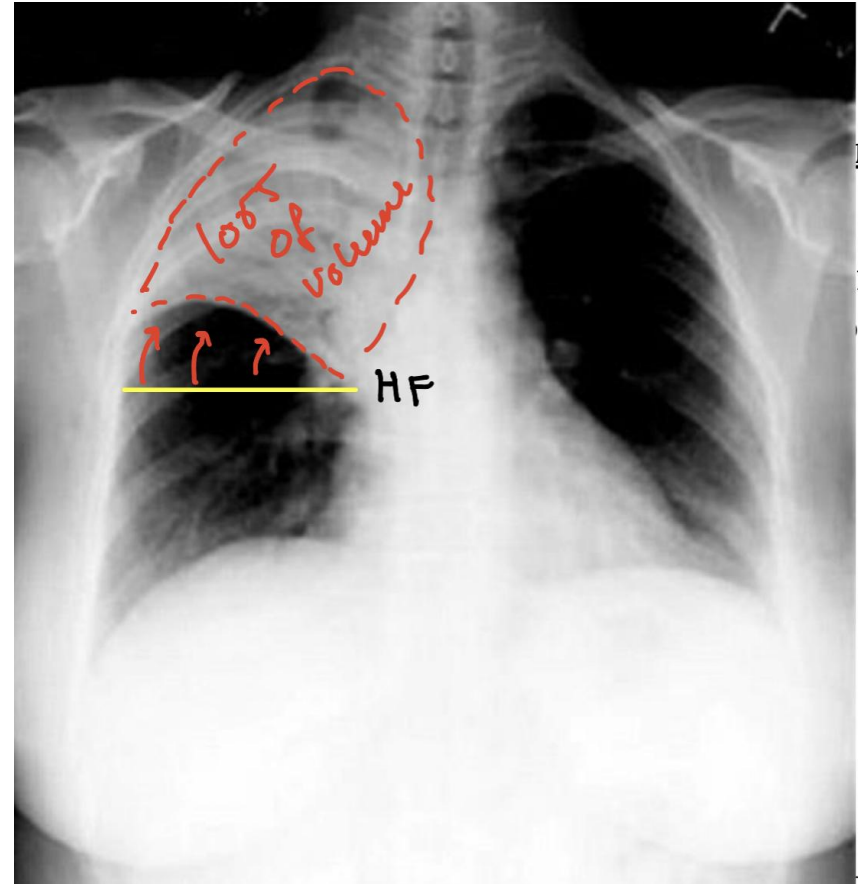
Also called consolidation collapse but not consolidation alone

- ❑ 37 Years old patient with SOB & Fever
- ❑ Diagnosis?

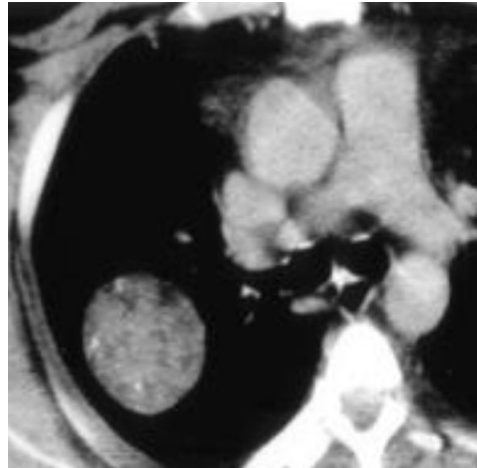


Answer →

- **Diagnosis? Right upper lobe Lung collapse** (There is loss of volume therefore it is collapse and the fissure is elevated from its normal place)

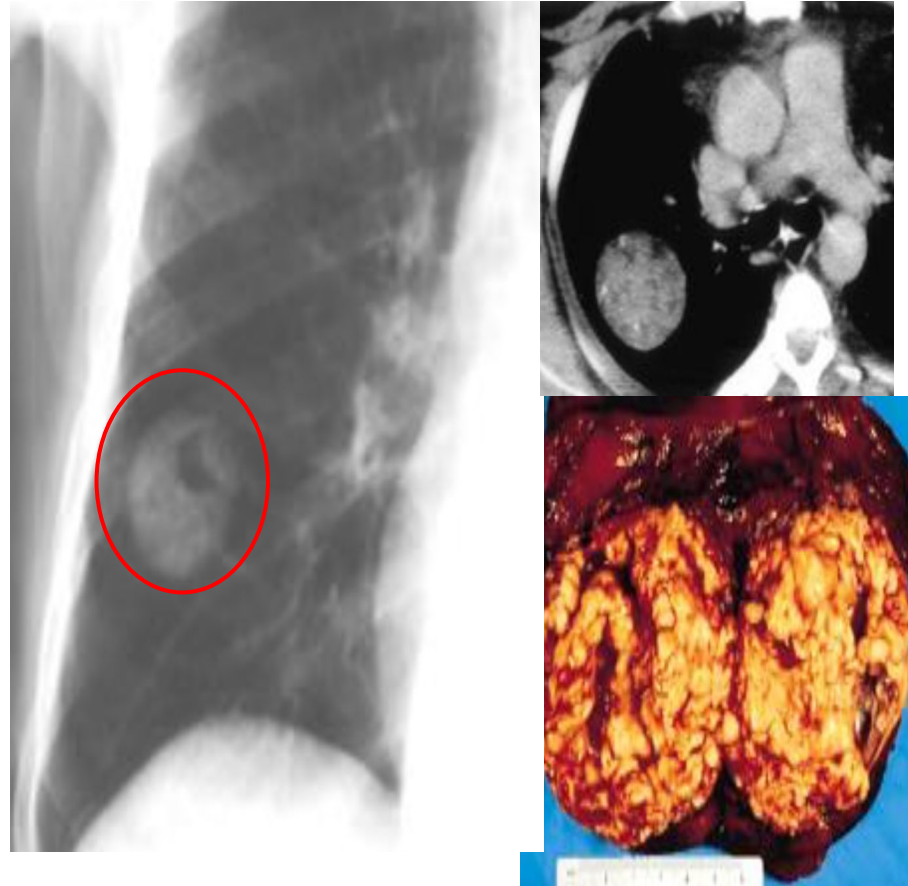


- ❑ Mass or infiltration?
- ❑ Why?



Answer →

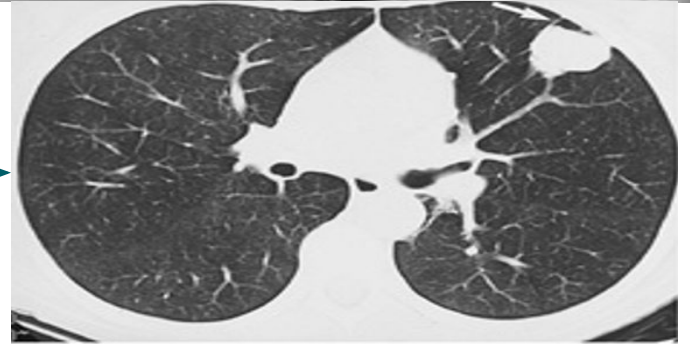
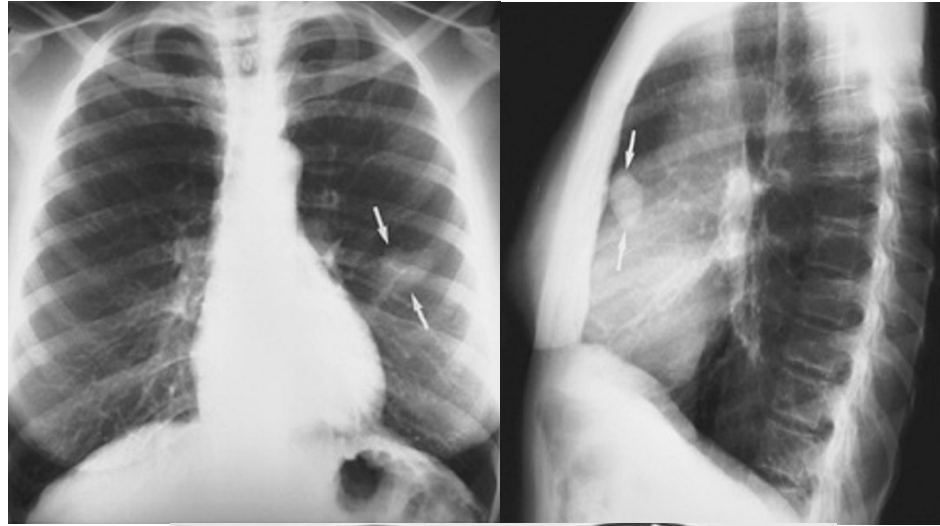
- ❑ **Mass or infiltration?**
Neoplastic Mass
- ❑ **Why?** Well defined borders



❑ Mass or infiltration?

❑ Why?

❑ What window? →

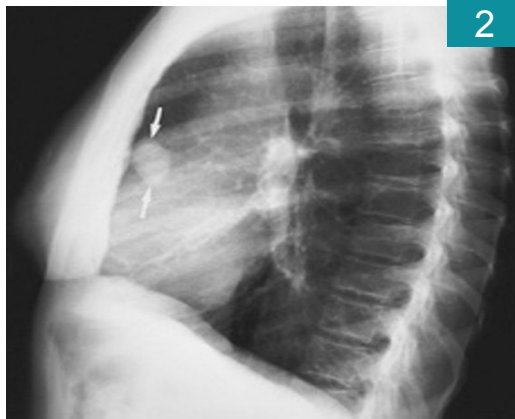


Answer →

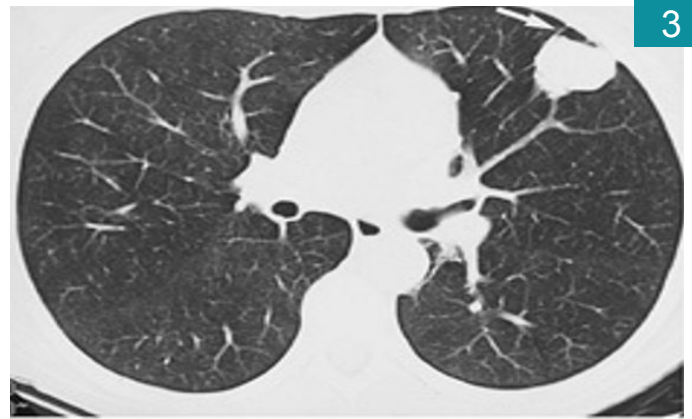
- ❑ **Mass or infiltration?** Neoplastic Mass (focal lung lesion)
- ❑ **Why?** Well defined borders
- ❑ **Steps:**



Not clear borders
on PA view



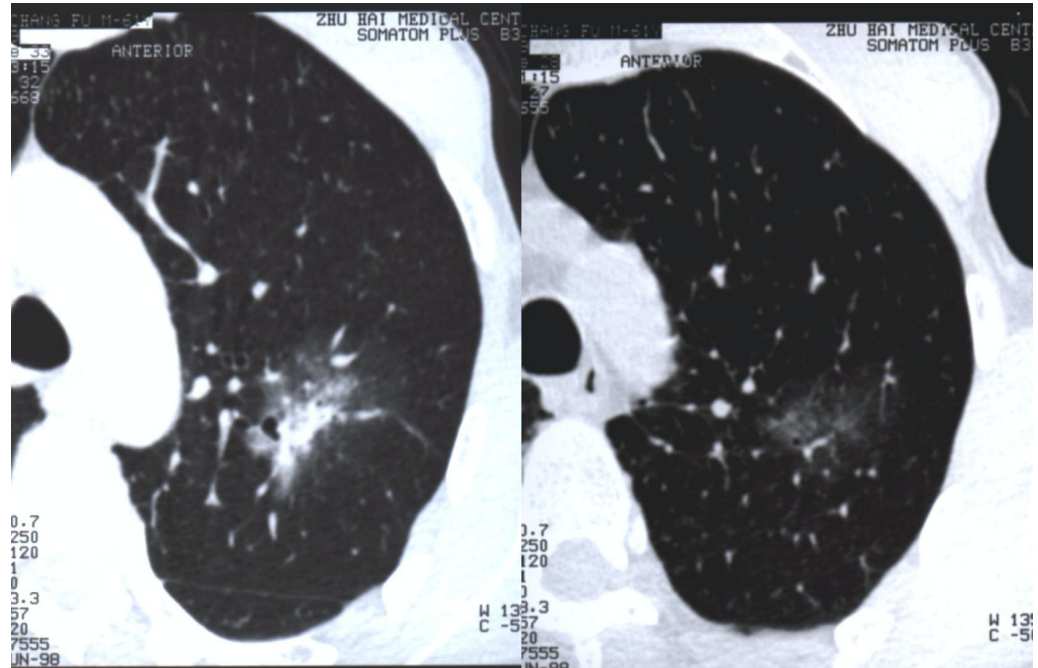
Borders are clear
on lateral view



Borders are very clear
on CT
(lung window)

Focal lung lesion = mass
Diffuse lung lesion = infiltration

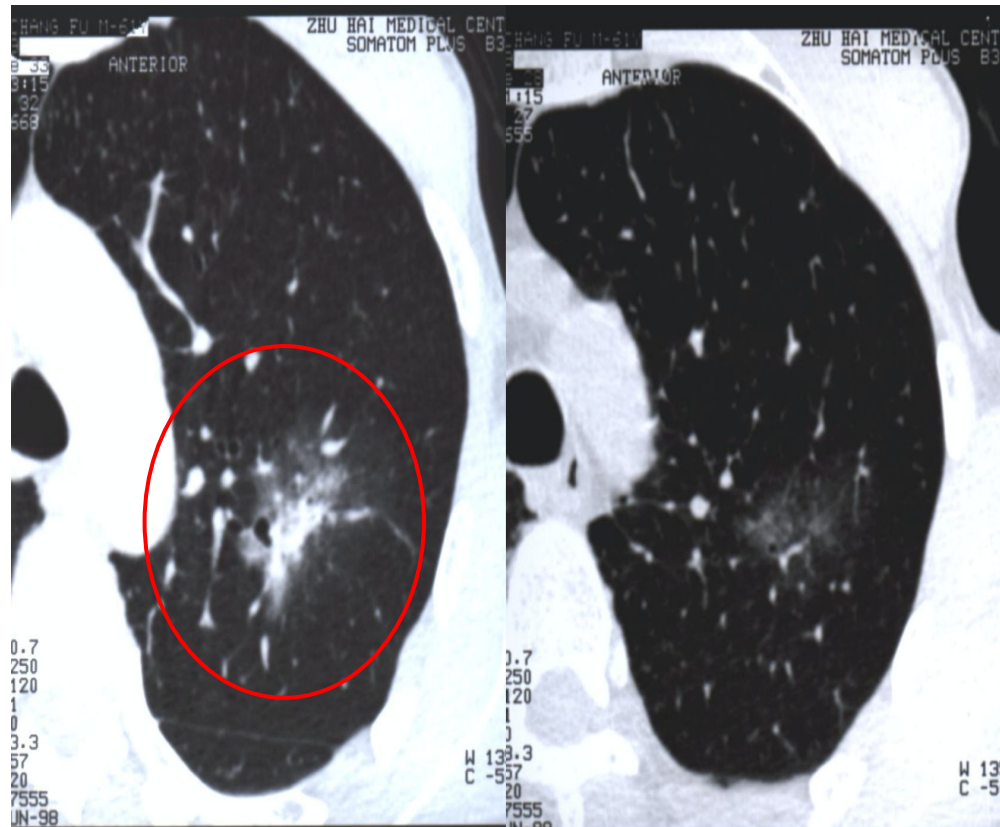
- ❑ Mass of infiltration?
- ❑ Why?



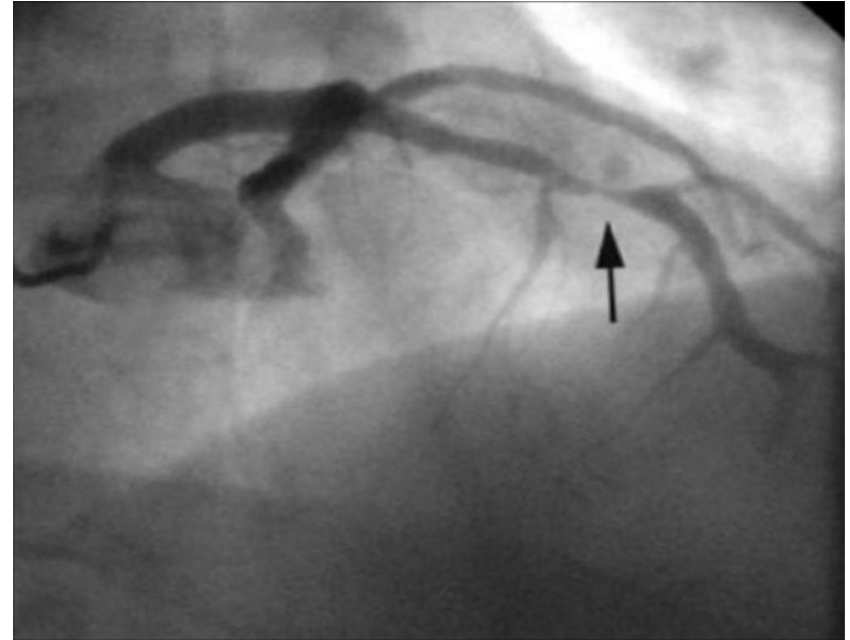
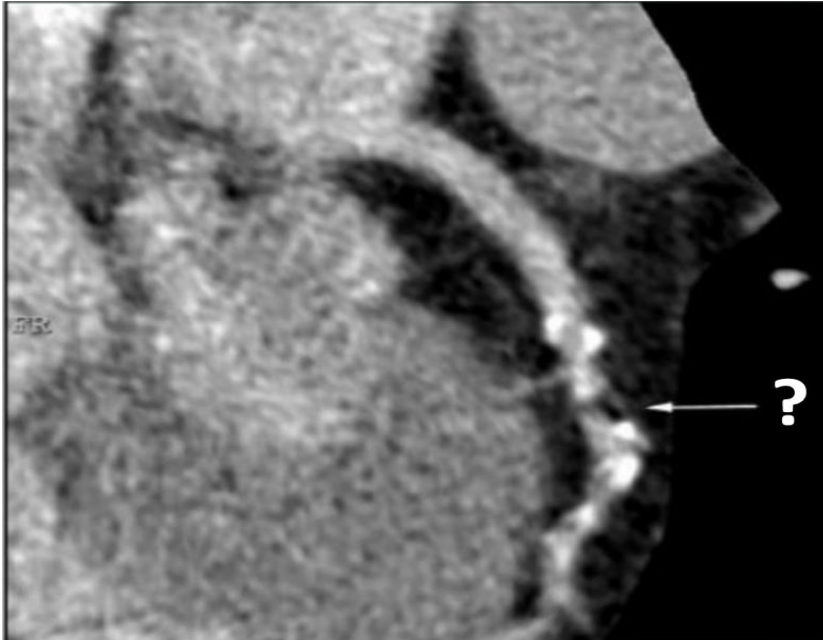
Answer →

Case 10 (Answer)

- ❑ **Mass of infiltration?**
(diffused) Infiltration
- ❑ **Why?**
no defined borders

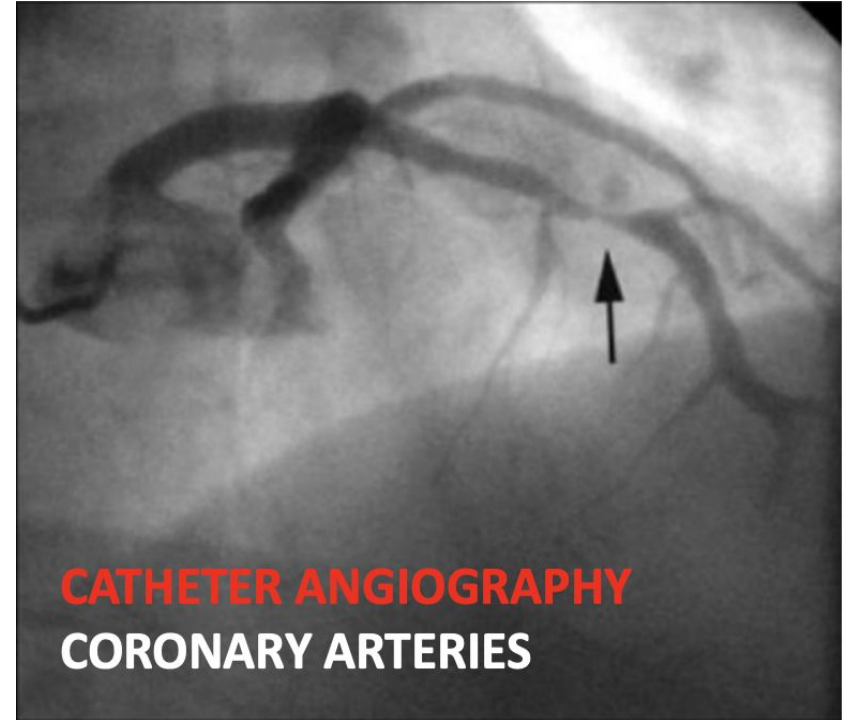
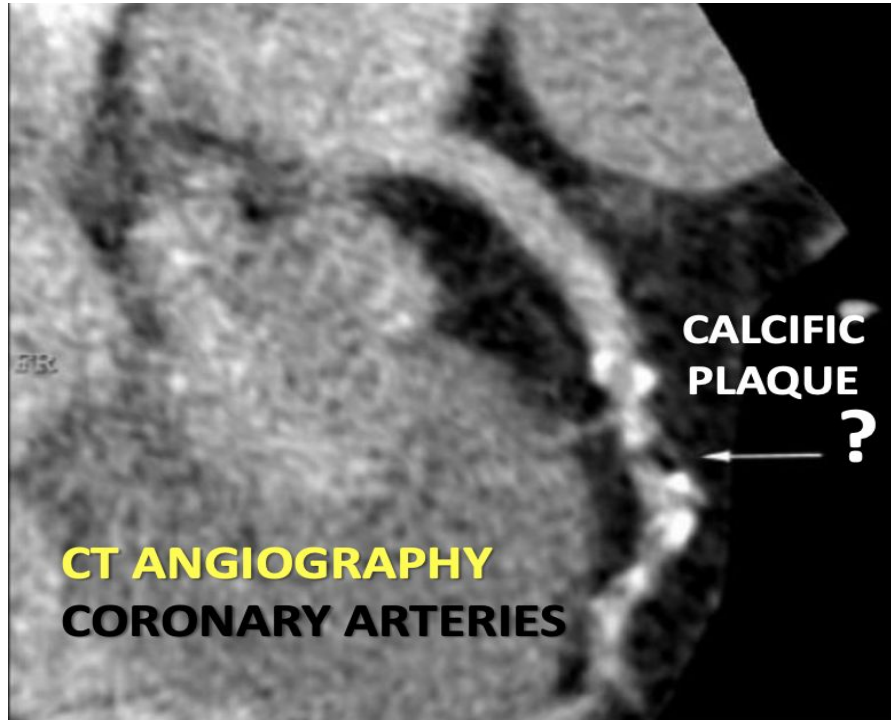


□ modality of each?



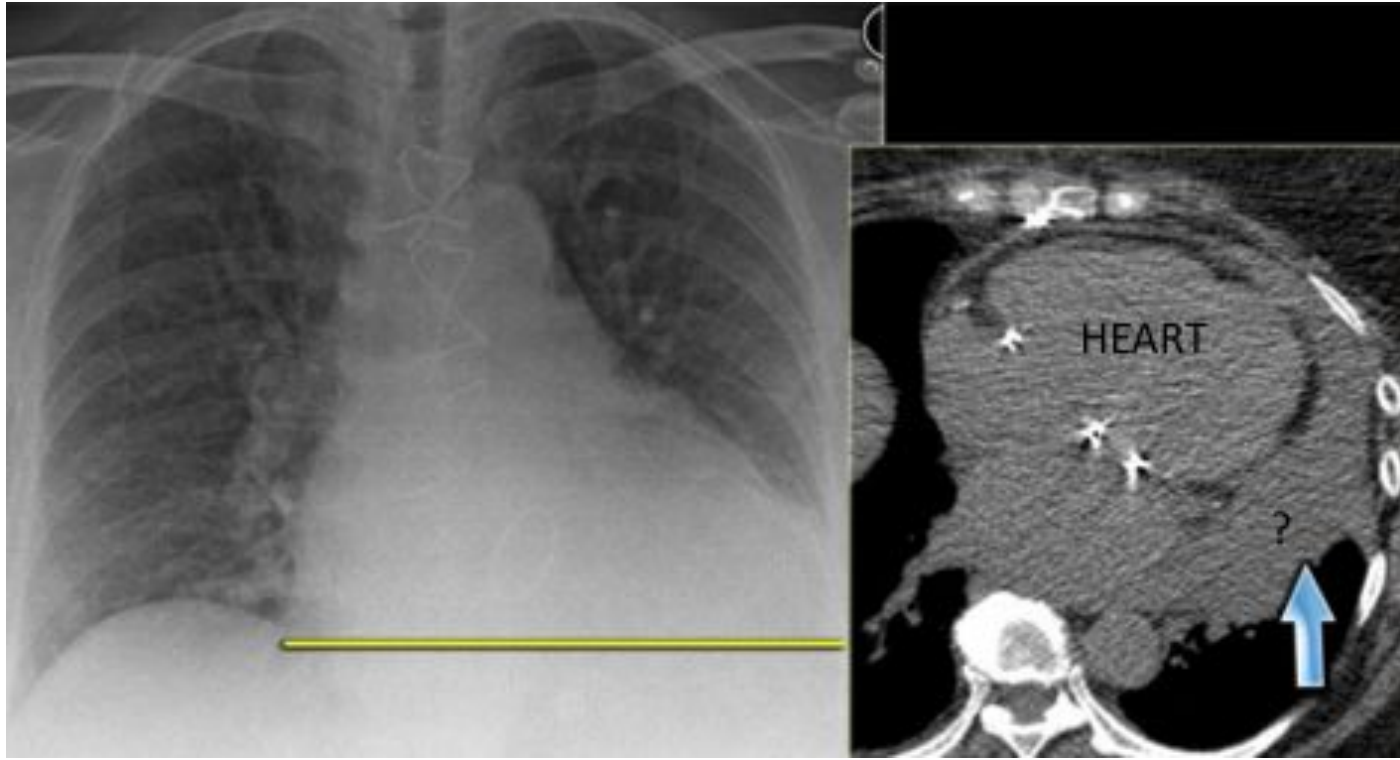
Answer →

Case 11 (Answer)



- Too further differentiate the picture on the left shows details of the heart but the one in the left shows only details of the vessels
- In catheter angiography we can do intervention but for CT angiography we can't

□ Diagnosis?



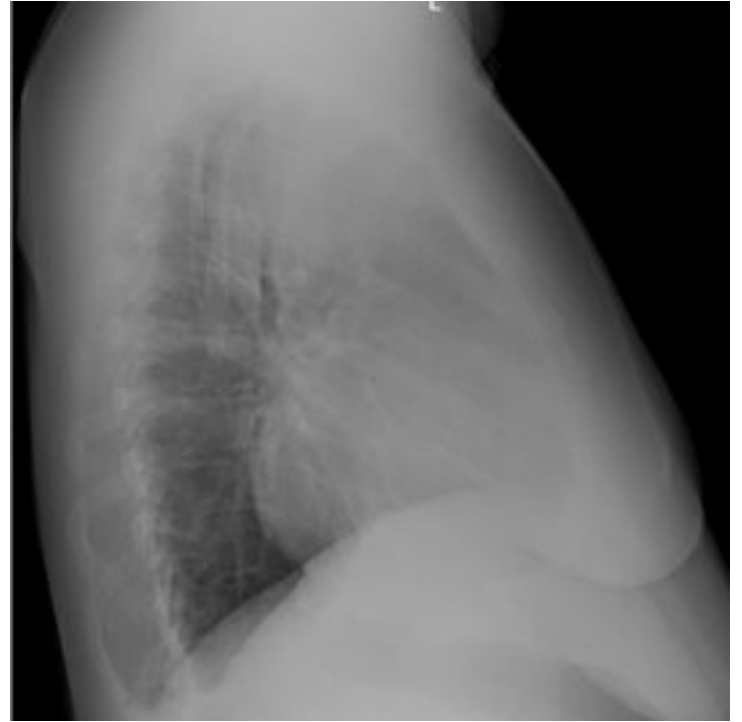
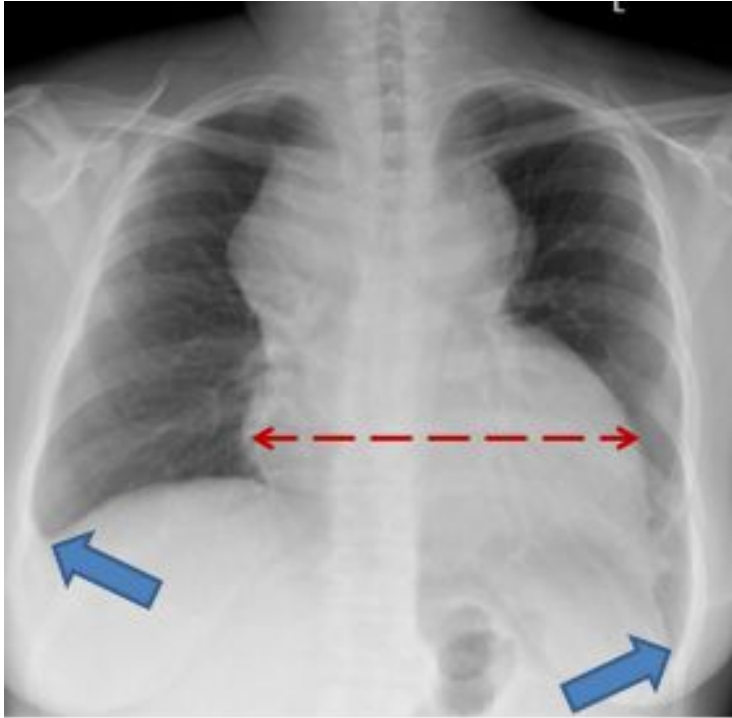
Answer →

❑ Diagnosis? Pericardial effusion

- Although it seems like we have an enlargement of the heart on the left picture, but if you take a look at the lung parenchyma (pulmonary vessels) seem to be okay so we suspect the problem is not from the heart, and to confirm we use others modalities like CT (Here it is CT without contrast)
- there is sternal suture usually they do it open heart surgery

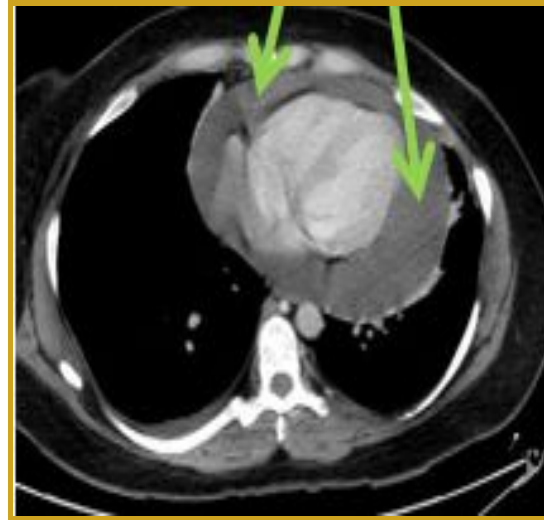
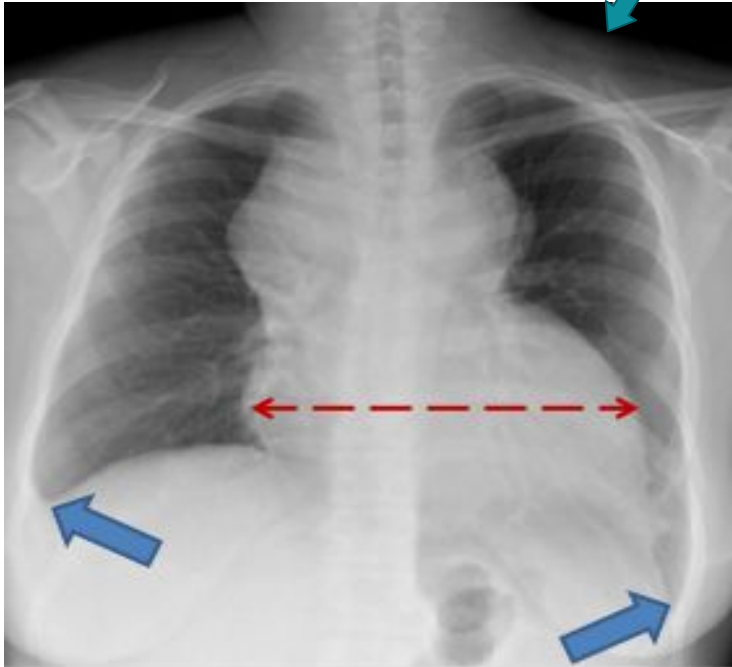


❏ Diagnosis?



Answer →

❑ Diagnosis? Pleural effusion and pericardial effusion



-Blunt of cost diaphragmatic angle, and Increased cardiothoracic ratio
-widening of mediastinum

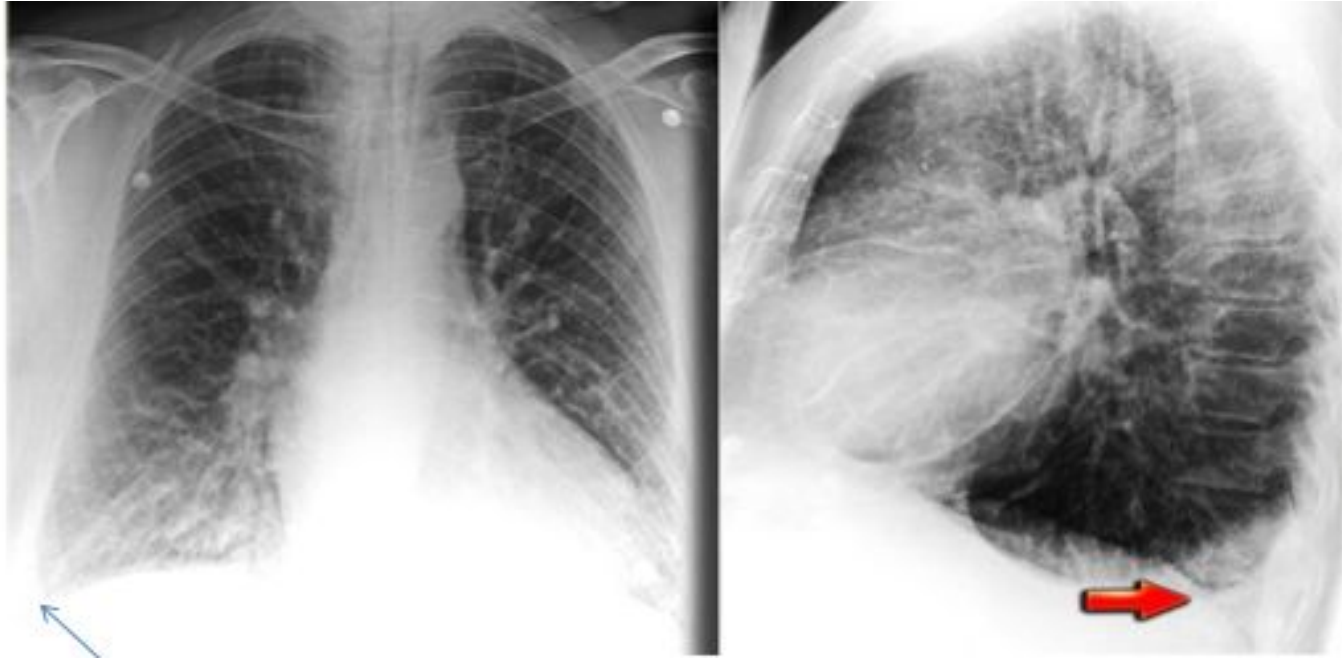
- ❑ Diagnosis?
- ❑ Abnormal?



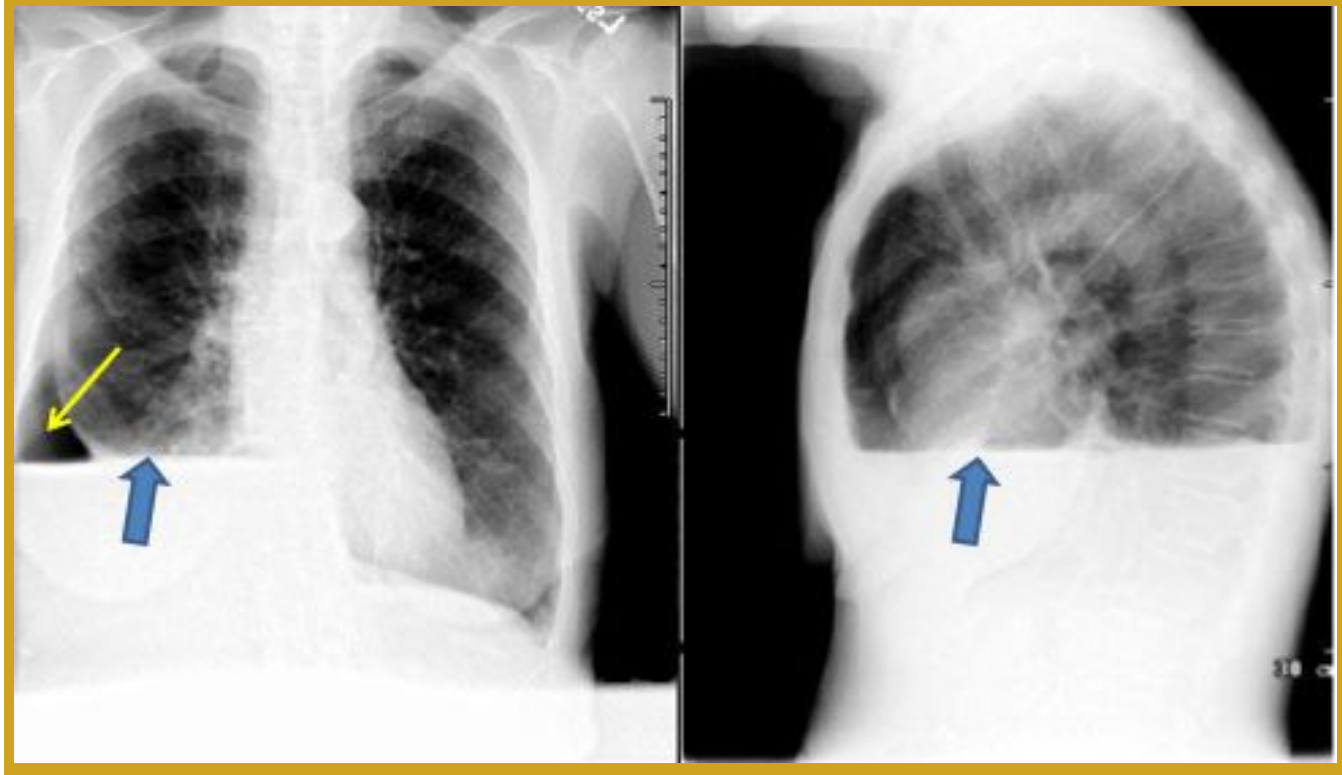
Answer →

Case 14 (Answer)

- ❑ **Diagnosis?** Pleural effusion
- ❑ **Abnormal?** blunted Costophrenic angle



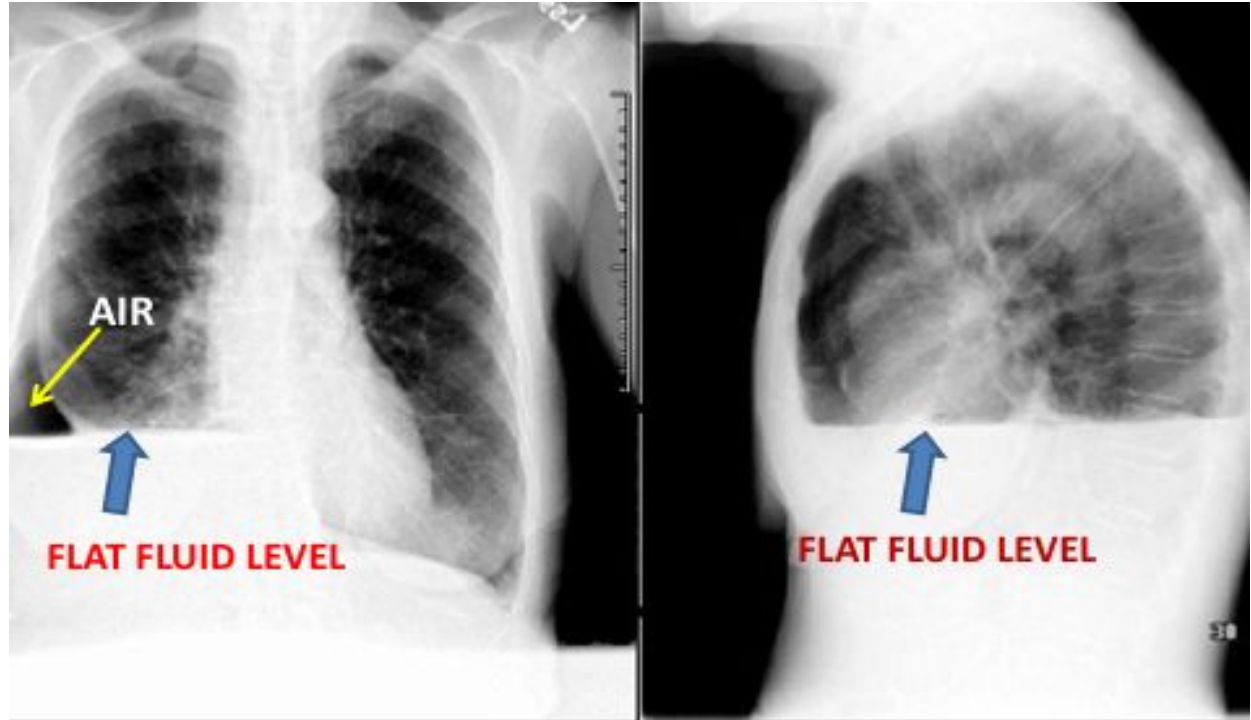
□ Diagnosis?



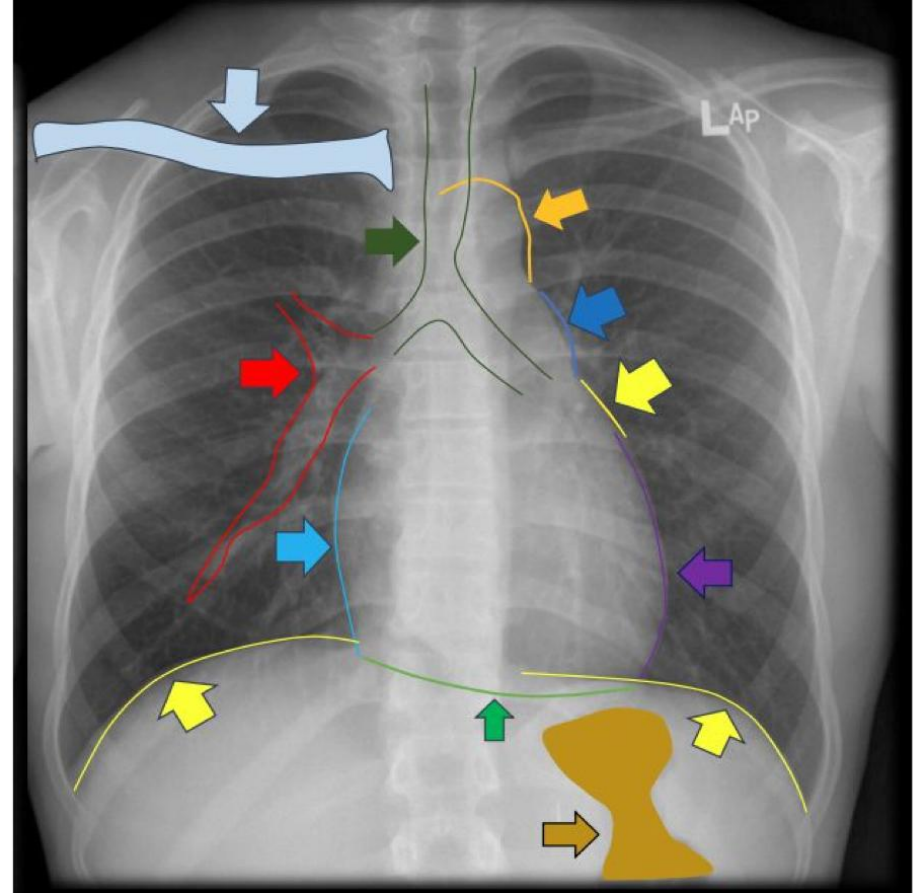
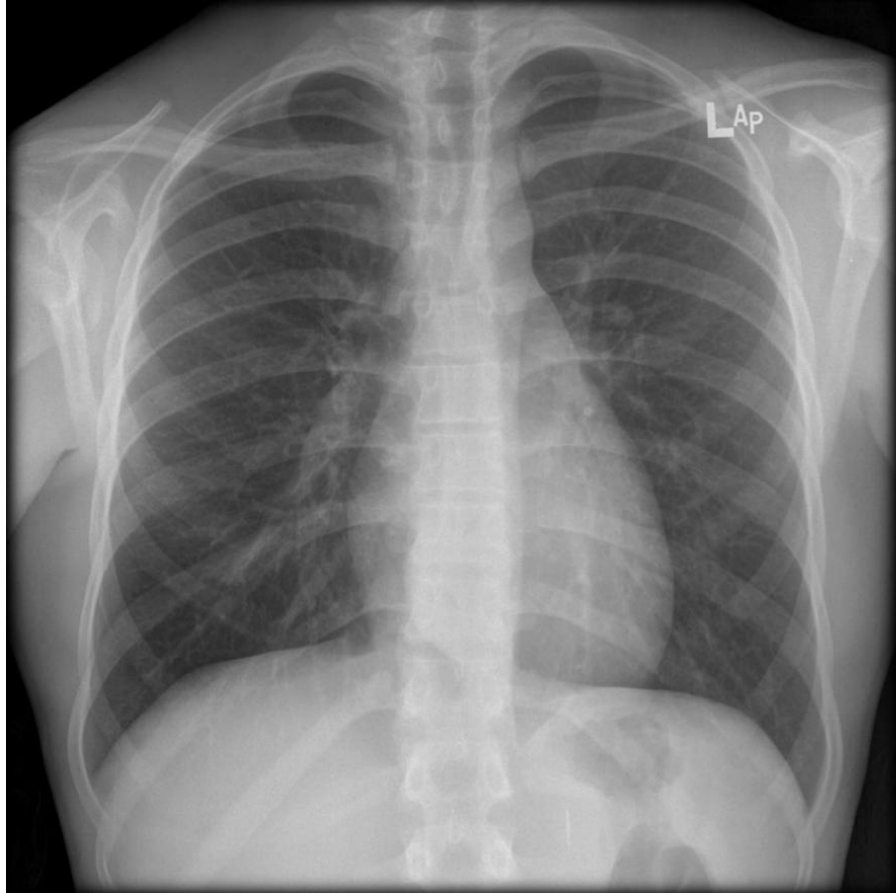
Answer →

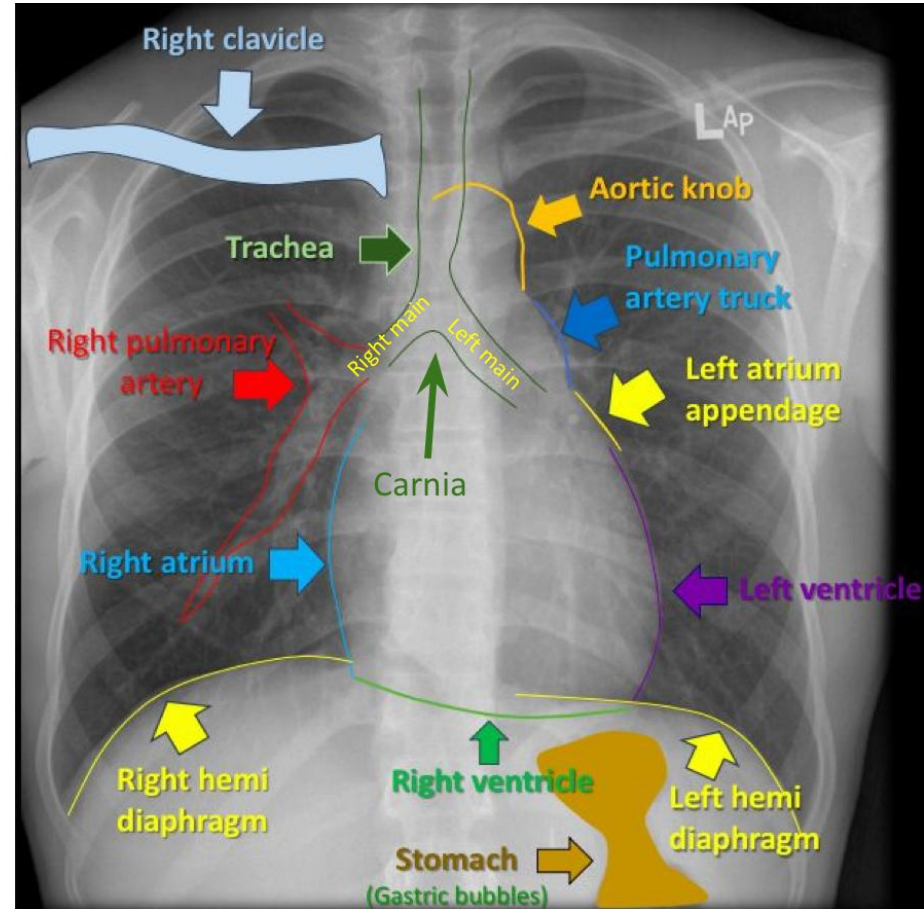
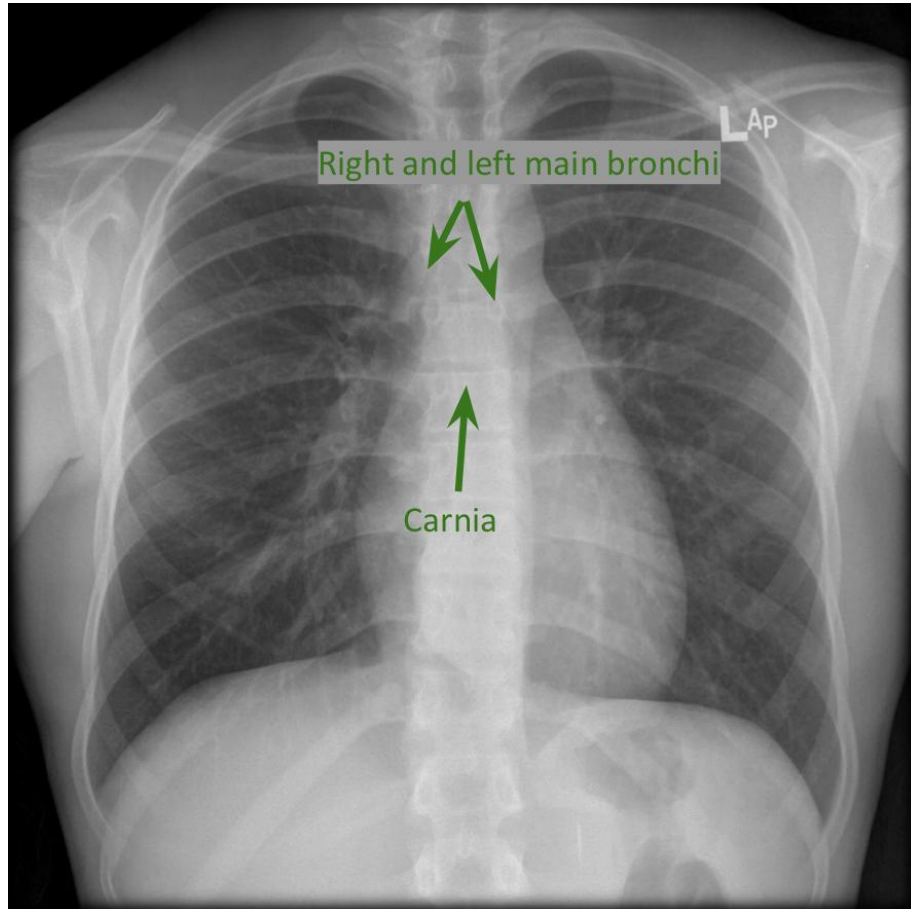
❏ Diagnosis? Hydro-pneumothorax

- In PA view the fluid can be either inside the lung or out, so to differentiate we use lateral view. If it showed a straight light (like the image above) it is outside the lung, if it was round following the lung border that means the fluid is inside the lung
- الطريقة الوحيدة عشان يكون المريض عنده fluid level in the chest :
 - The chest has air and fluid in the same time



Name the labels (Extra for practice)





Quiz

1)

- Diagnosis?
- lobe Affected?



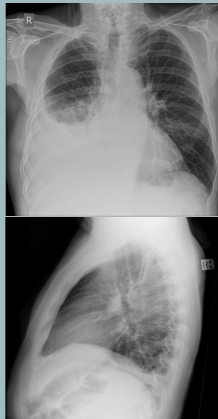
2)

- What is the most likely diagnosis ?
- What other modality can be used to confirm?



3)

- What is the most likely diagnosis ?



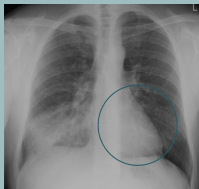
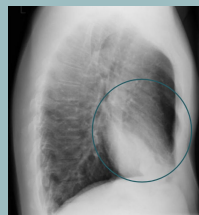
4)

- What is the most likely diagnosis ?



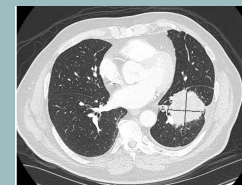
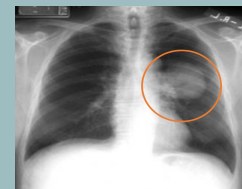
1)

- **Diagnosis?**
Infiltration/pneumonia
(Air space density).
- **lobe Affected?**
- Right middle lobe



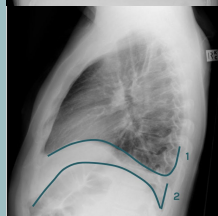
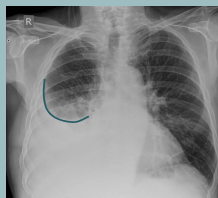
2)

- **What is the most likely diagnosis ?**
Left lung mass
- **What other modality can be used to confirm?**
CT scan



3)

- **What is the most likely diagnosis ?**
Right Pleural effusion



4)

- **What is the most likely diagnosis ?**
Pleural effusion
(fluid tracking right horizontal fissure)

