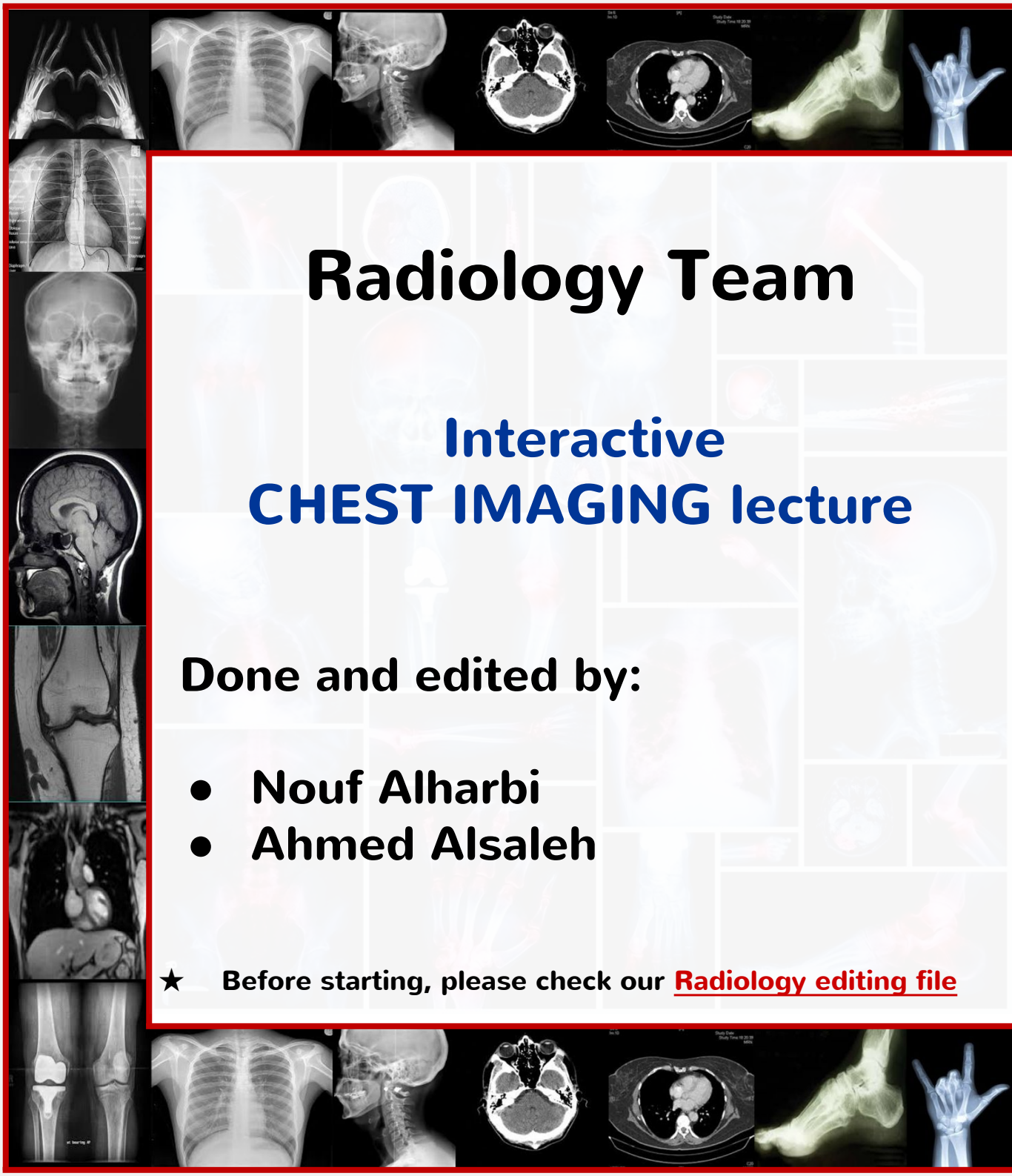


Radiology Team

Interactive
CHEST IMAGING lecture

Done and edited by:

- Nouf Alharbi
- Ahmed Alsaleh

★ Before starting, please check our Radiology editing file

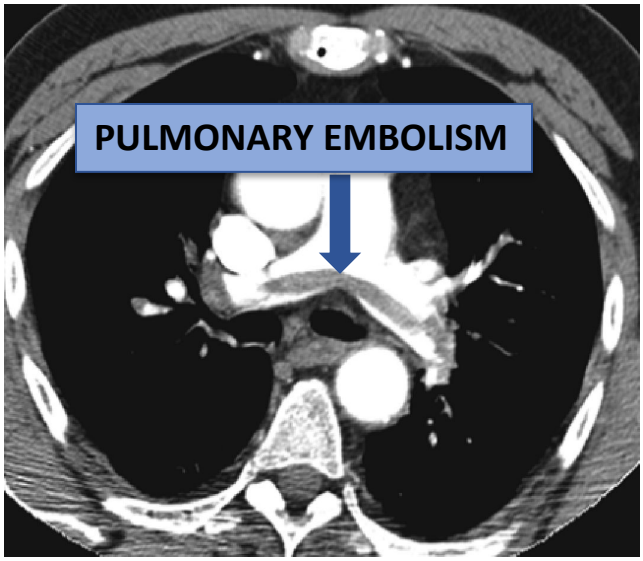
Color Index:

• Important • Explanations

Important notes about the exam!

- Clinical scenario
- 40% of questions without images
  60% with images according to last year
- Choose the best answer not the right answer.
- The scenario could be or couldn't related to the image so always answer according what you see "image"
- Doctor said don't worry about the quality of the images on paper it will be very clear " lung window, mediastinal window and even if there is contrast...etc."
- May be there is question what is the best view ?

1.Answer ?



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

Answer the following question by selecting the SINGLE BEST ANSWER:

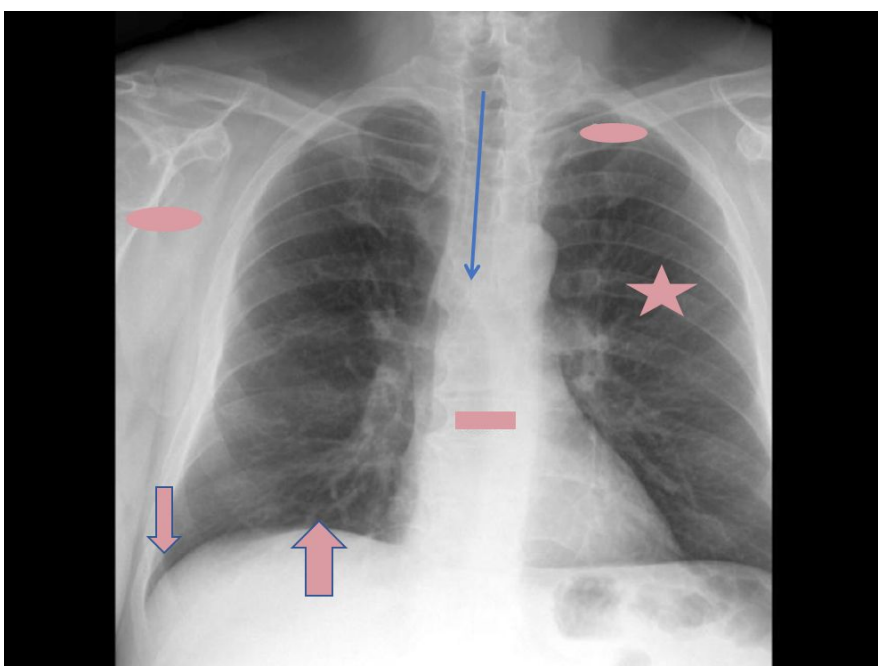
1. High resolution CT showing pulmonary embolism
2. **CTA showing PULMONARY EMBOLISM X**
3. MRI of chest with acute pulmonary embolism
4. ----------

What you see here is filling defect in pulmonary artery.

From the scenario you think directly about PE but don't hustle, **the image and scenario not always related to each other!!**
May be this patient once he did chest CT they found pneumonia not PE ! So always stuck to the image.. Not scenario.

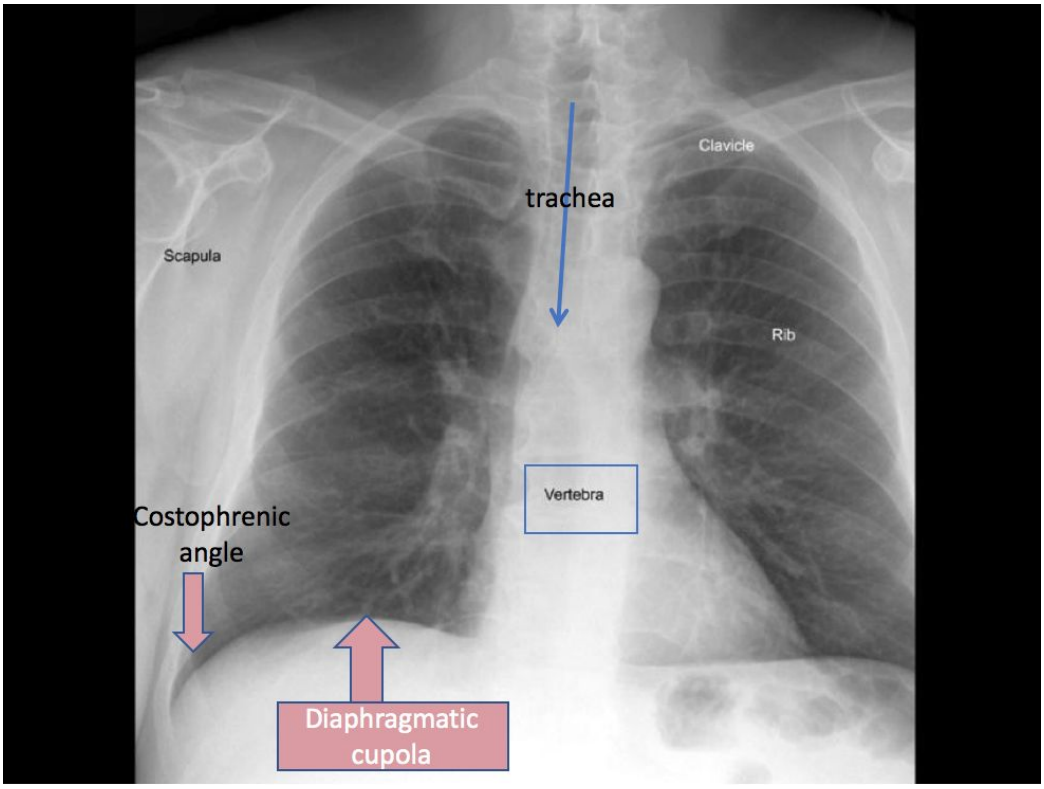
2.Anatomy

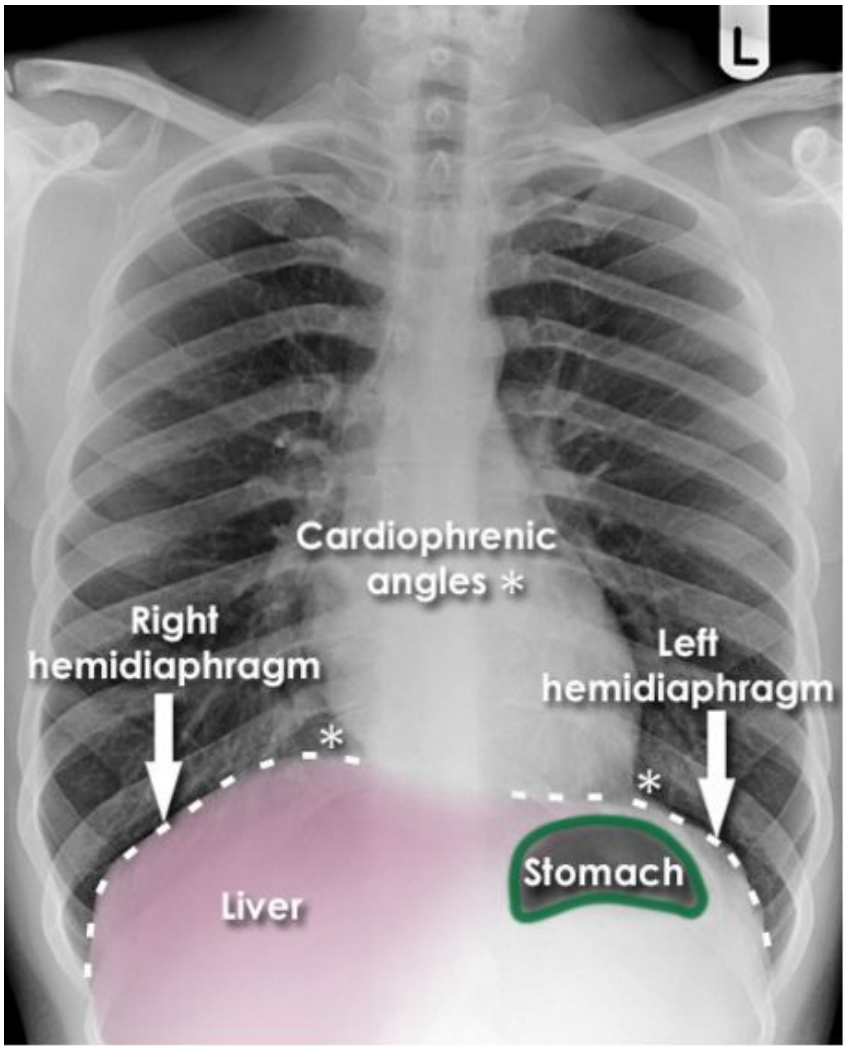
- **Identify the pointed structures:**



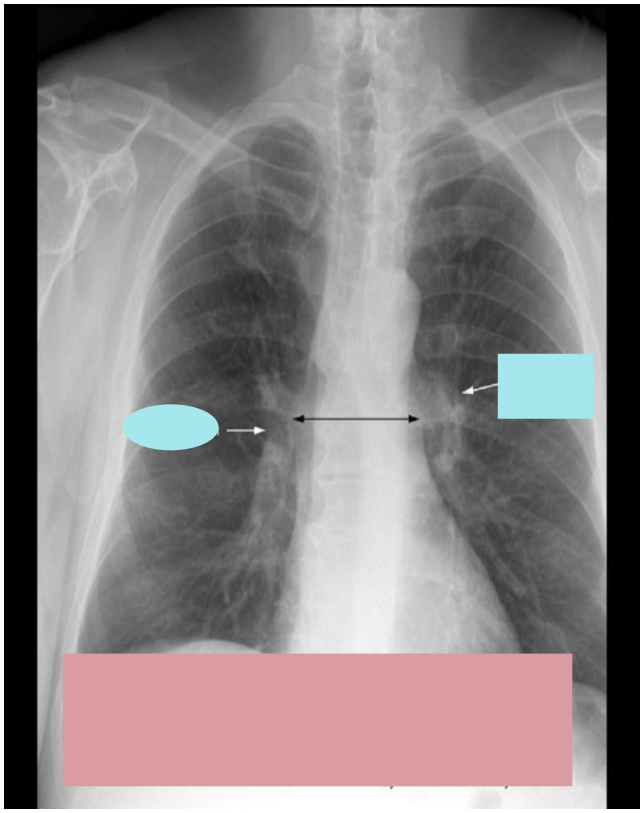
Answers are in the next slide

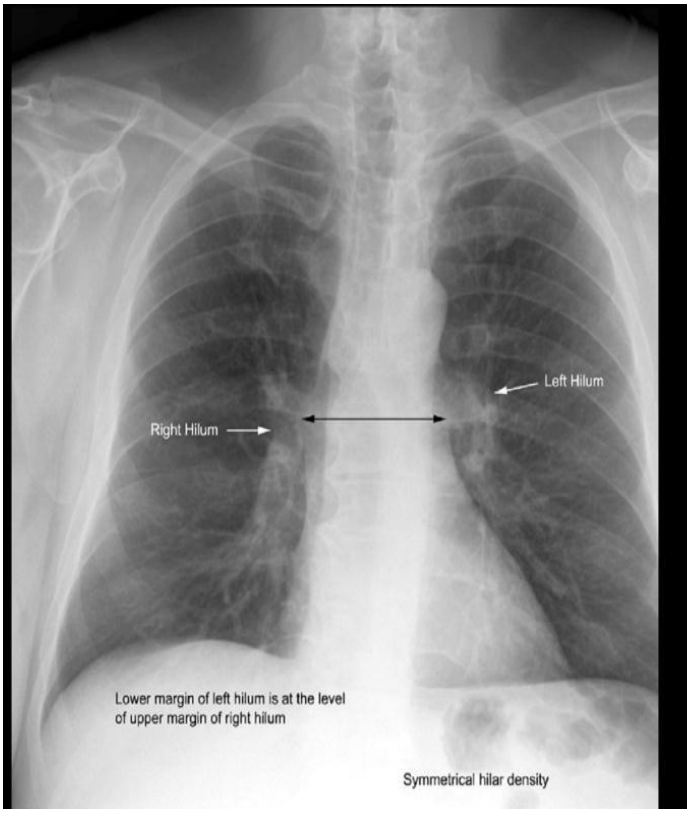
2- Anatomy " Will not ask which rib is this."



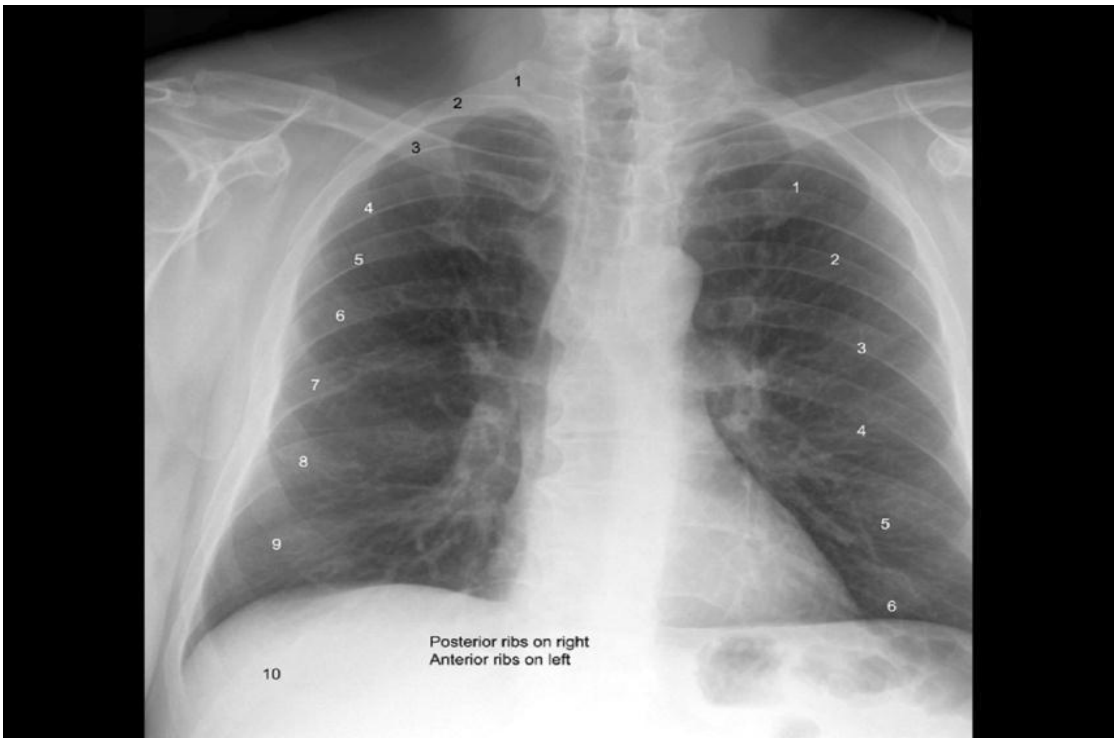


3.Hilum



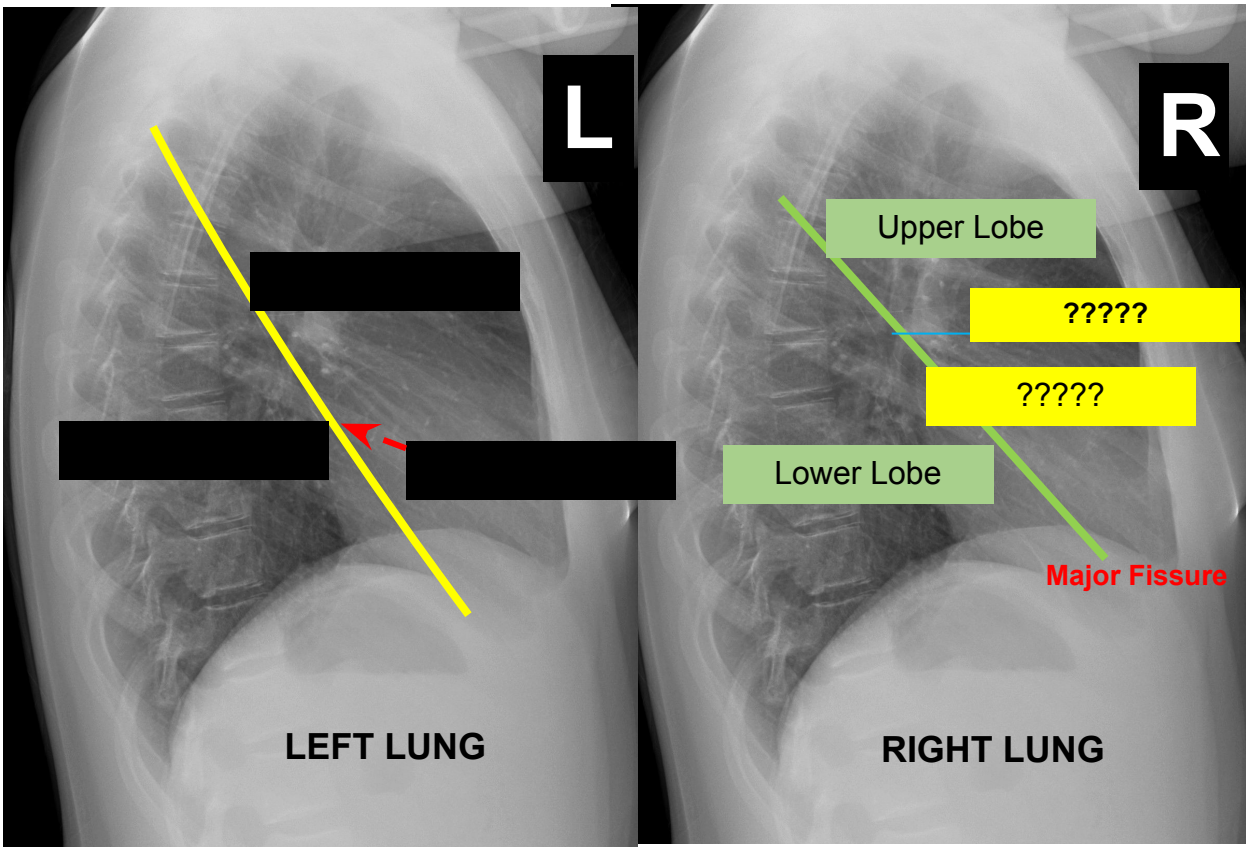


4.COUNTING RIBS

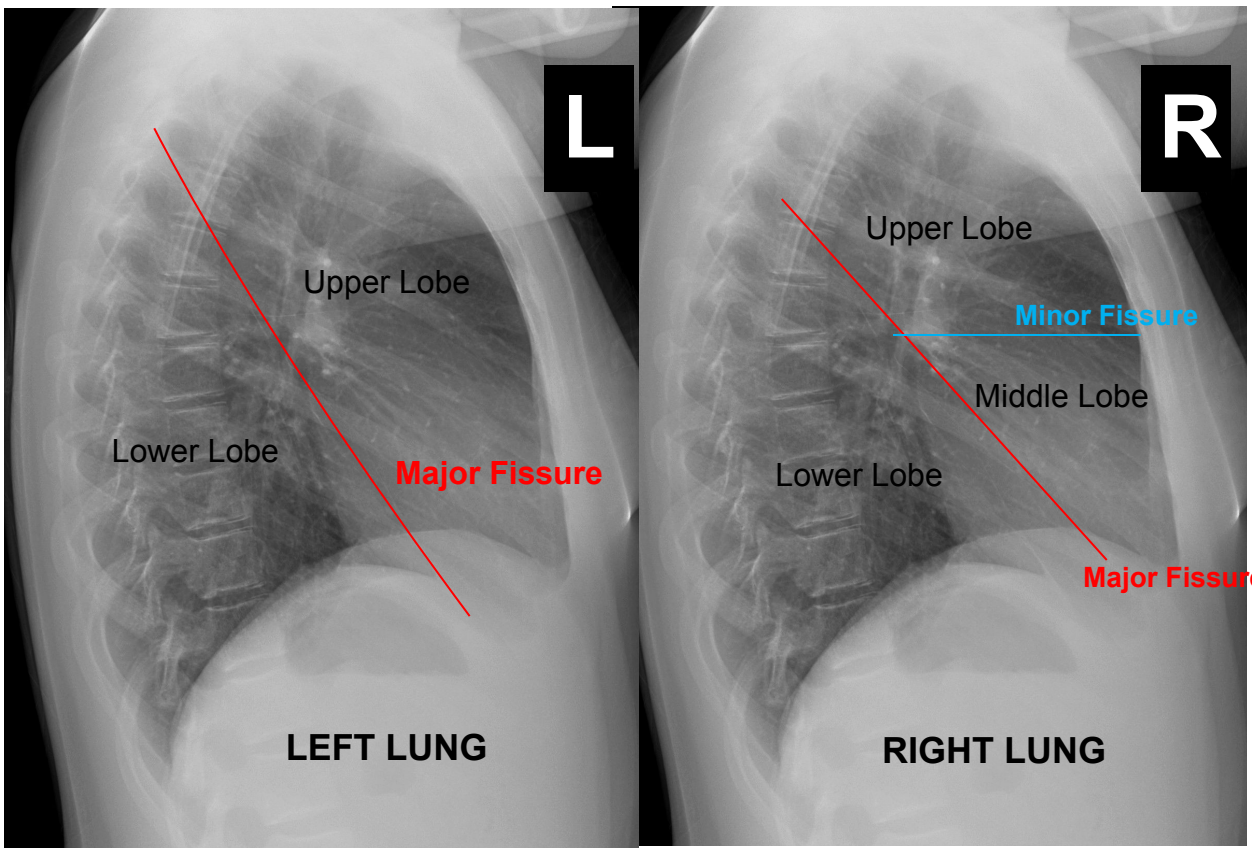


Posterior parts of the ribs and anterior parts of the ribs
The land marks are first 3 ribs.. Started from last cervical spine the rib beneath it is the 1st rib, 2nd ,3rd ,..ect.

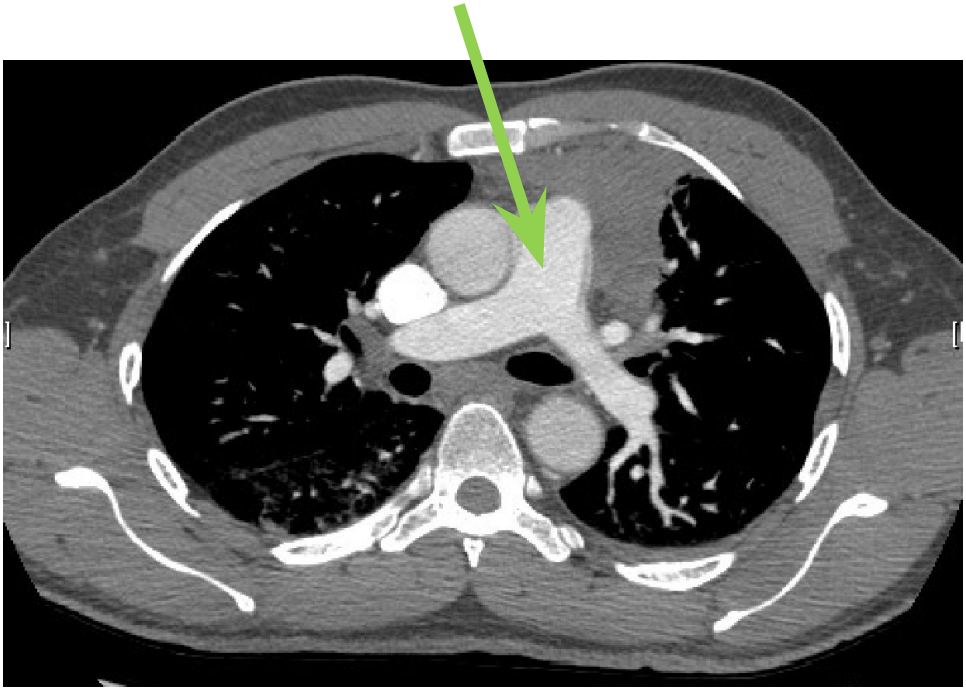
5. Radiological Anatomy of the Chest



- Oblique fissure on left lung dived it into upper lobe and lower lobe
- On the right lung upper, middle, lower lobes
- The difference is transverse fissure present only in the right lung

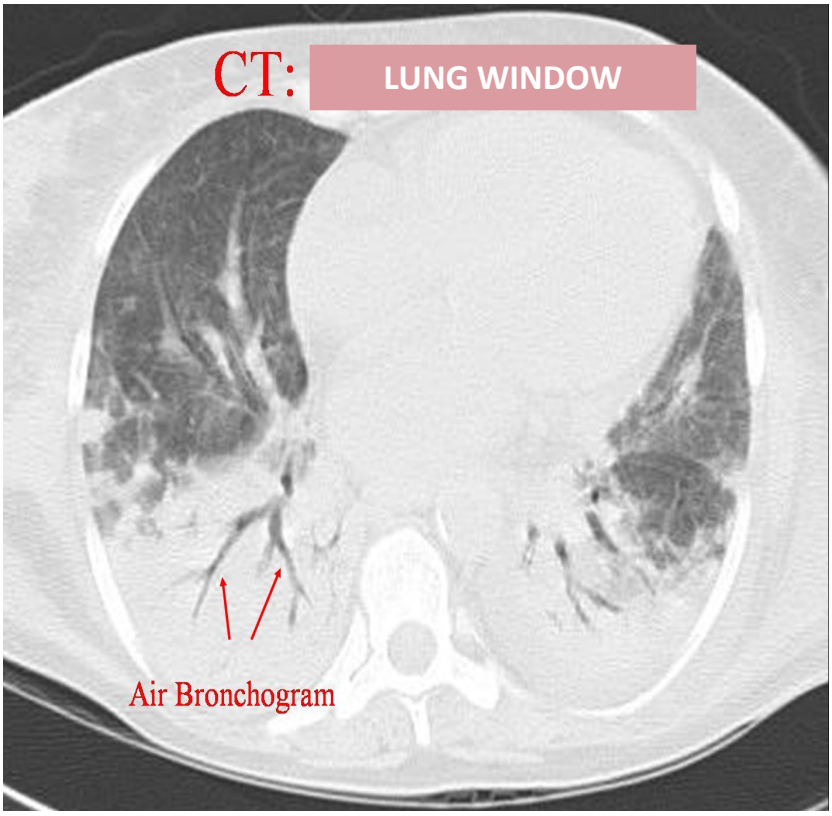


6.EXAM? NORMAL/ABNORMAL?



- CT angiography or CT with I.V contrast of pulmonary vessels
- Is it normal or abnormal ? Normal (there is no pulmonary embolism)

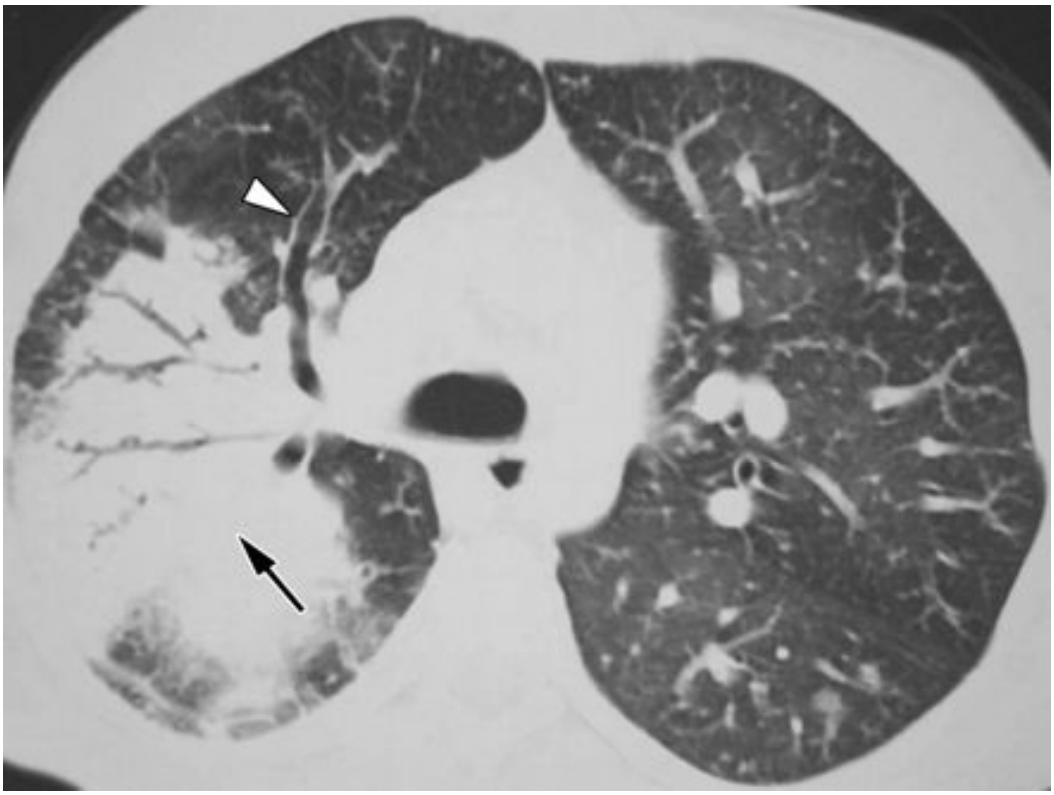
7.Consolidation



- Clinical scenario …

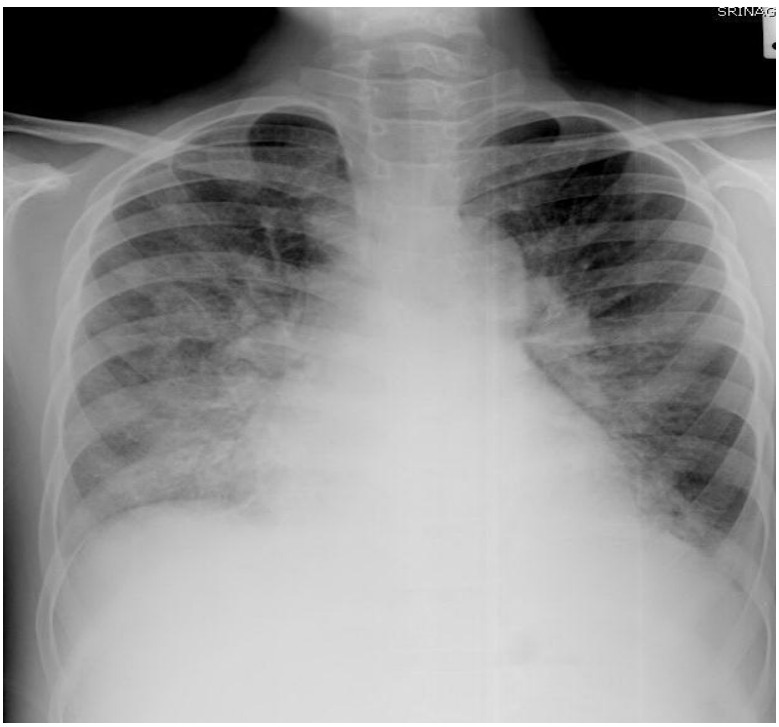
1-EXAM: high resolution CT of the chest or CT of the chest with lung window
2-SIGN? Air bronchogram
3-DIAGNOSIS? airbroncogram or cosiladation diagnosed **as pneumonia**

7.Consolidation cont.



1-EXAM: high resolution CT of the chest or CT of the chest with lung window
2-SIGN? Air bronchogram
3-DIAGNOSIS? airbroncogram or cosiladation diagnosed **as pneumonia**

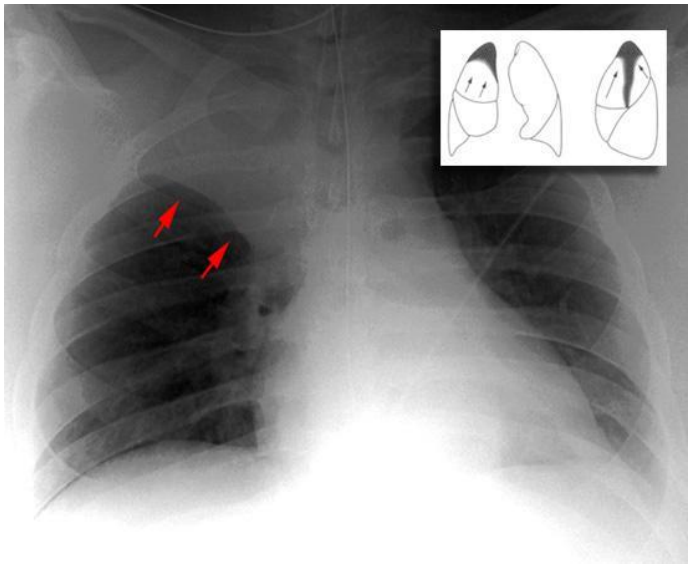
8.MASS OR INFILTRATION?



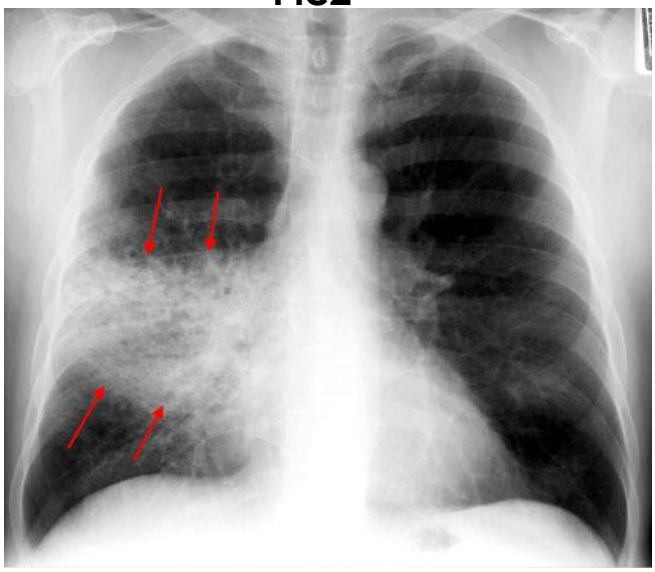
It is **infiltration** which is something diffuse with no clear cutline

9.ATELECTASIS Vs PNEUMONIA

Pic1

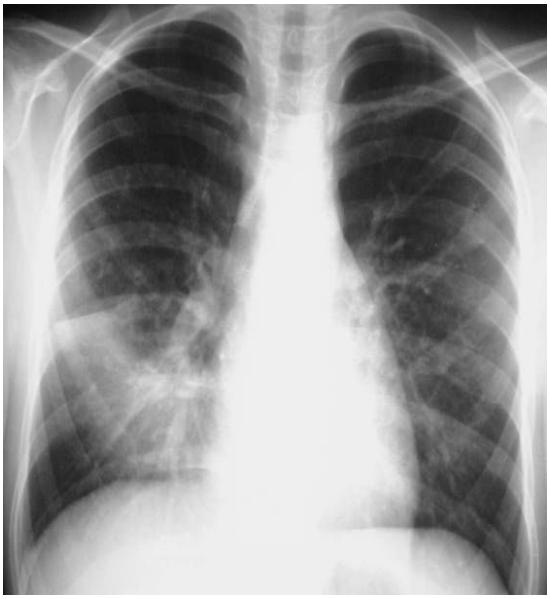


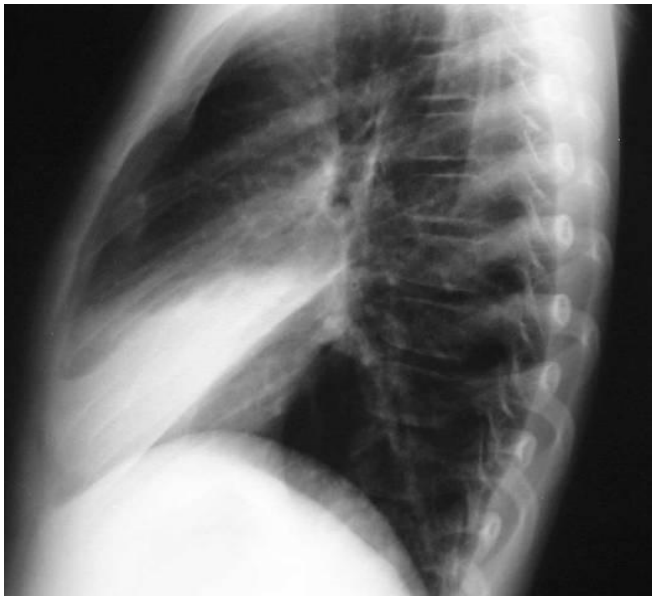
Pic2



- **Pic1: atelectasis** why? Shift of transverse fissure which indicate loss of volume in the right upper lobe (the fissure will move to the affected lobe)
- **Pic2: pneumonia** why? The fissures is in the same position with diffuse infilteration in the middle lobe

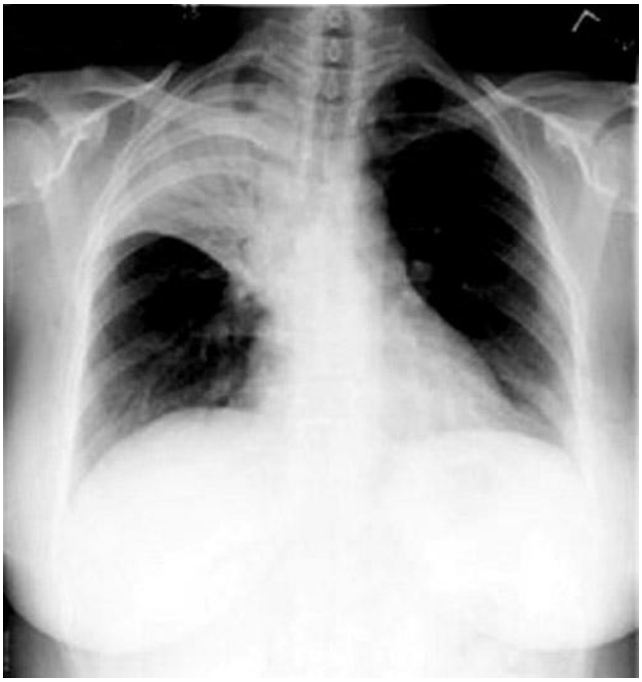
10.Right lobe atelectasis or infiltration?





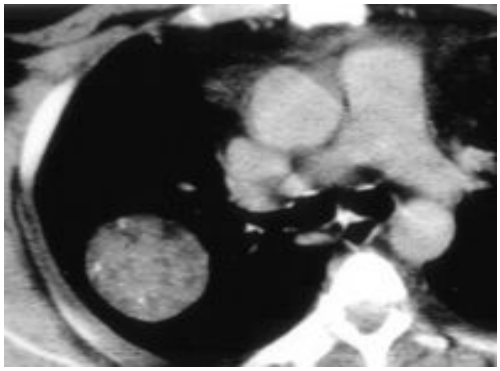
- Mass or infiltration? Infiltration
- Pneumonia or atelectasis? We need lateral view
- atelectasis because transverse fissure moved down
- Consolidation in the middle lobe with no change in the transverse fissure position. we do lateral view ,we can see that the oblique fissure is displased from its normal position so it is atelectasis of the middle lobe

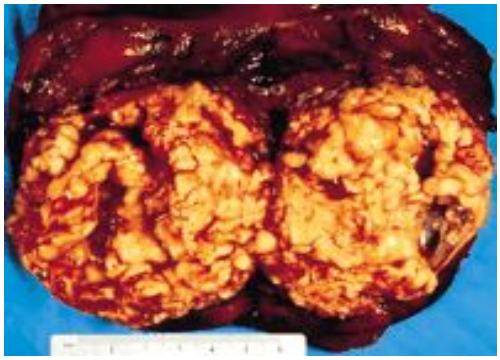
11. DIAGNOSIS



- **37 YEARS OLD PATIENT WITH SOB AND FEVER.**
- Pneumonia or atelectasis ? Atelectasis " transverse fissure moved up"
- There is partial atelectasis and complete " mild, moderate, sever"

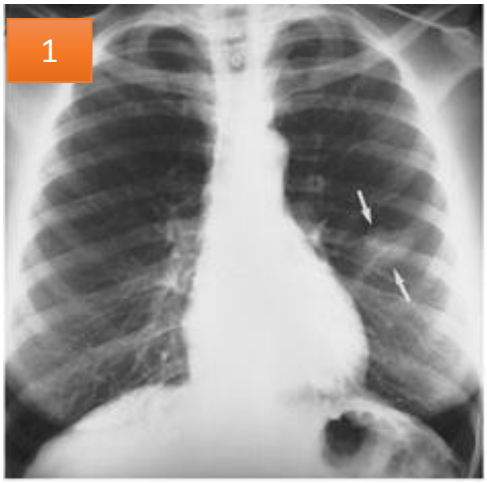
12. MASS OR INFILTRATION ?

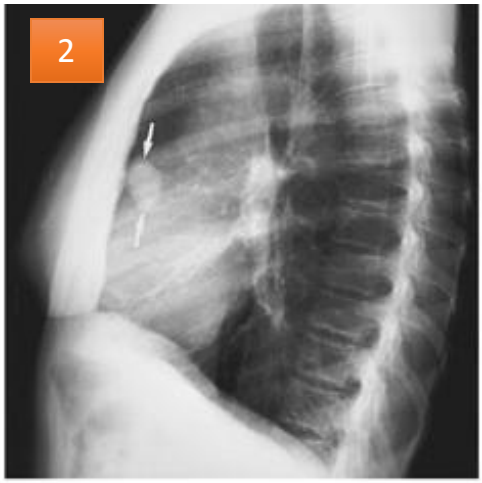


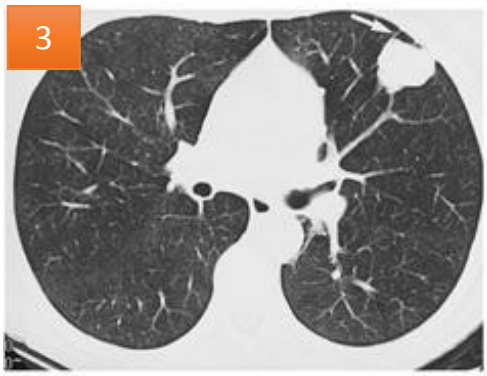


Neoplastic: MASS

13. MASS OR INFILTRATION ? STEPS



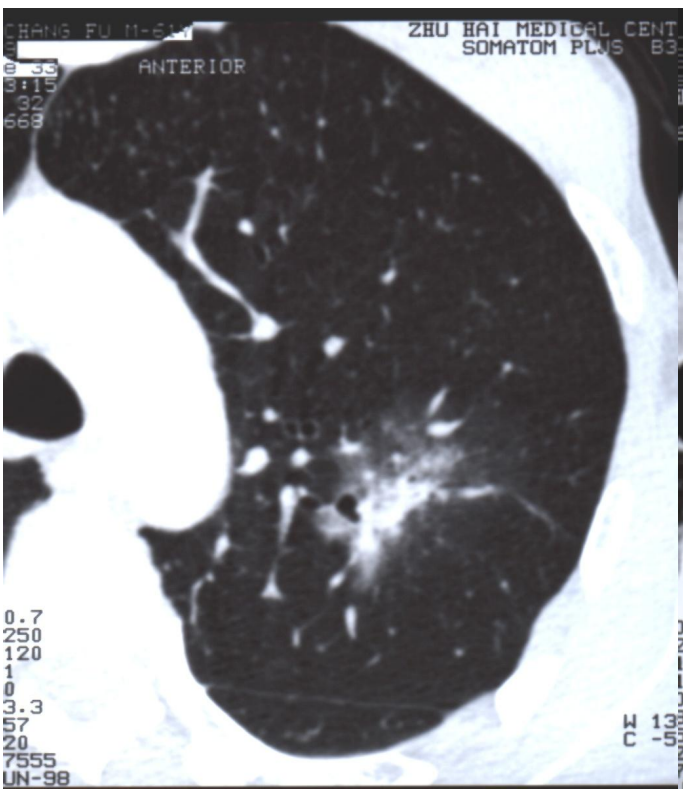


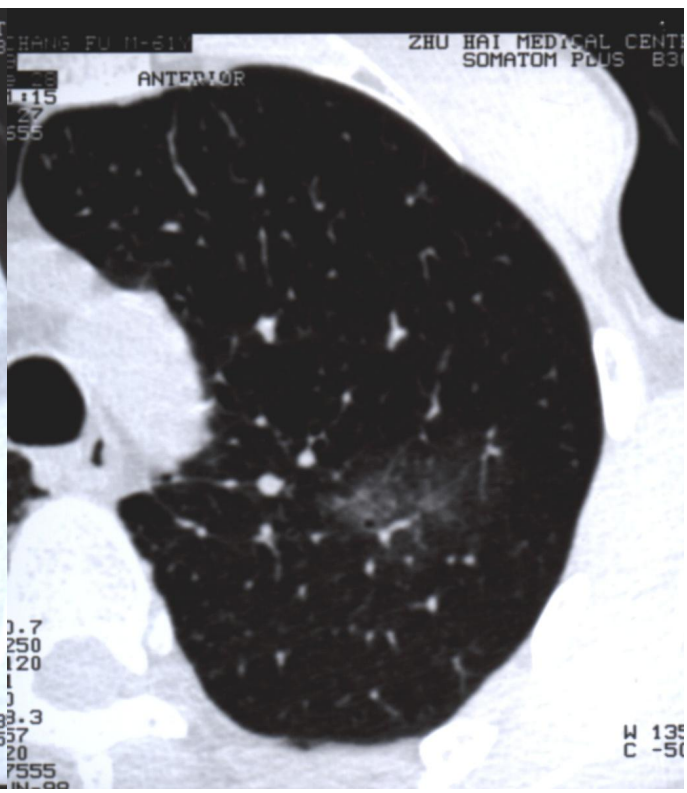


---?--- WINDOW

- **Pic1**:not clear in PA view but on lateral view **"Pic2":** we can see the clear outlines of the mass
- Lung window

14. MASS OR INFILTERATION?

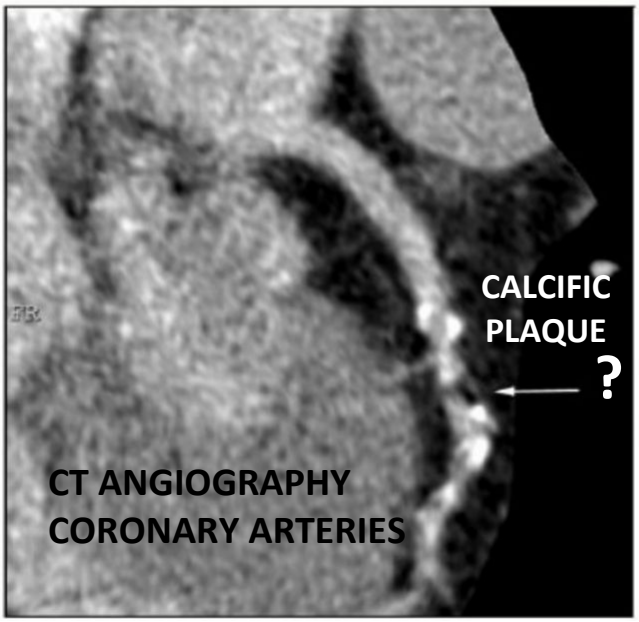




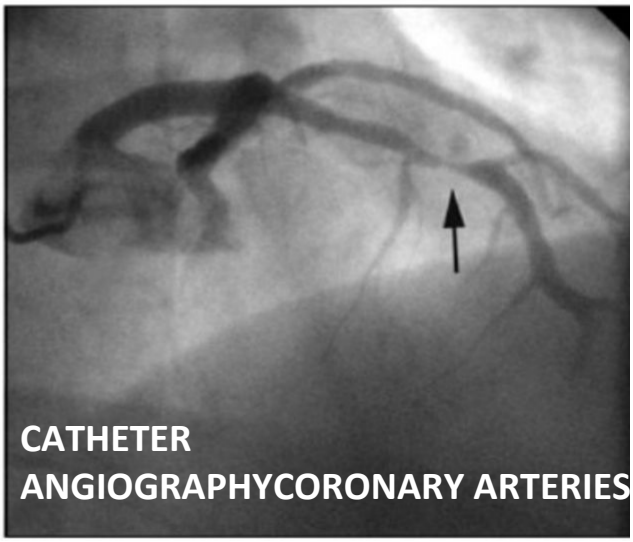
Infiltration because the outline not clear

15. EXAM?

Pic 1

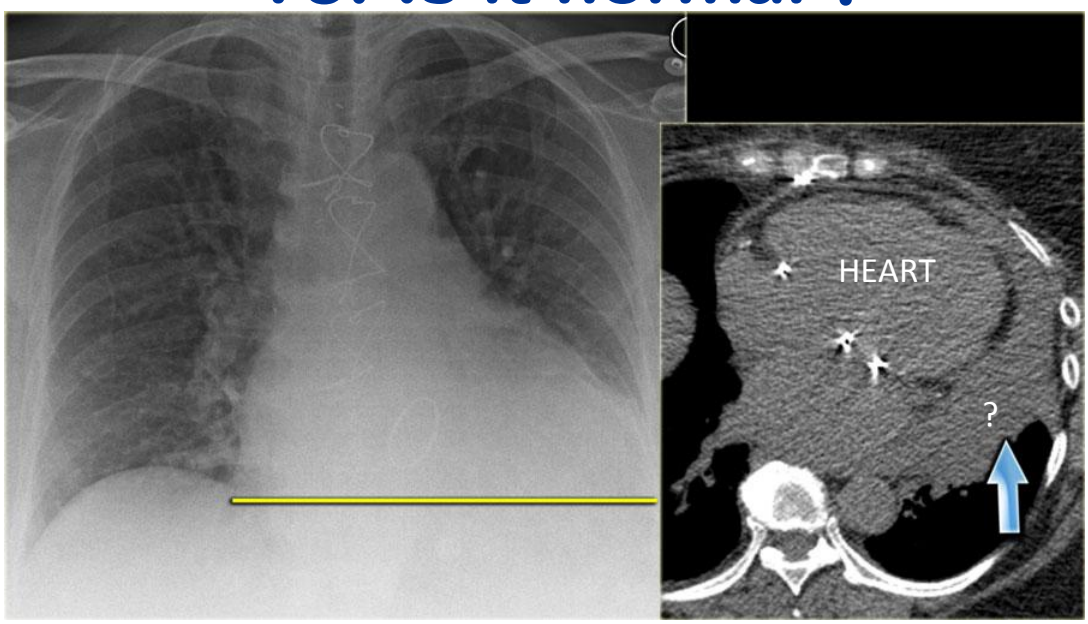


Pic 2



- **Pic 1: CT angiography of coronary artery** or **Cardiac CT of coronary artery** because the artery clear as an artery not as a contrast and you can see details of the heart
- **Pic 2: Catheter angiography:** only vessels are clear no details.
- Calcification: black arrow " **calcific plaque**"

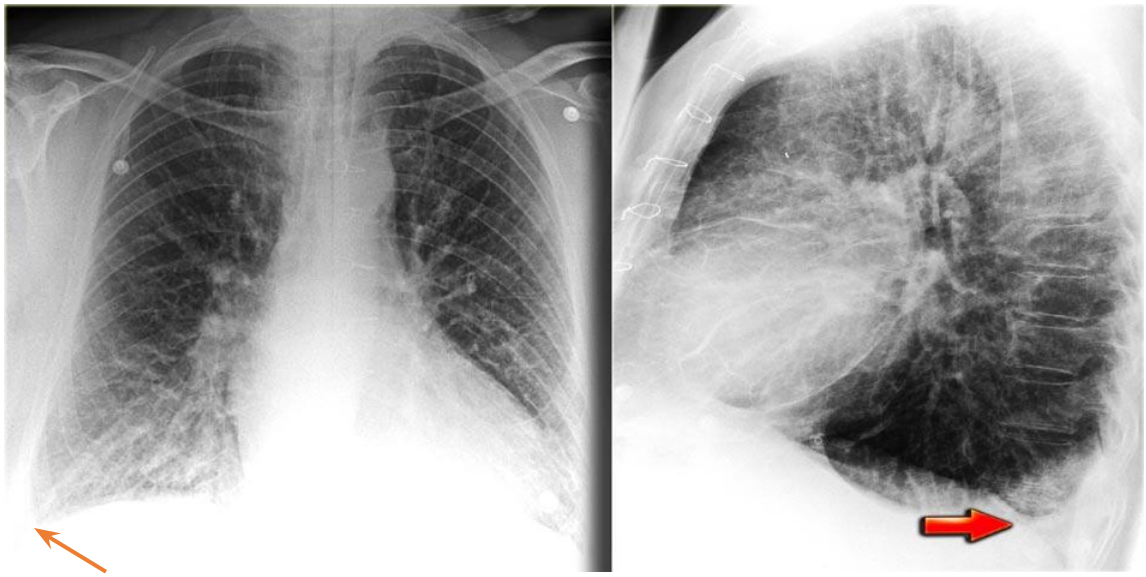
16. Is it normal ?



- In chest x-ray we can see that the heart is enlarged in size but it doesn't give us the cause
- When we did **chest CT** we can see that the heart has a **normal size**(see the outline of the heart) and the enlargement is caused by accumulation of fluid in the pericardial cavity.. It is pericardial effusion

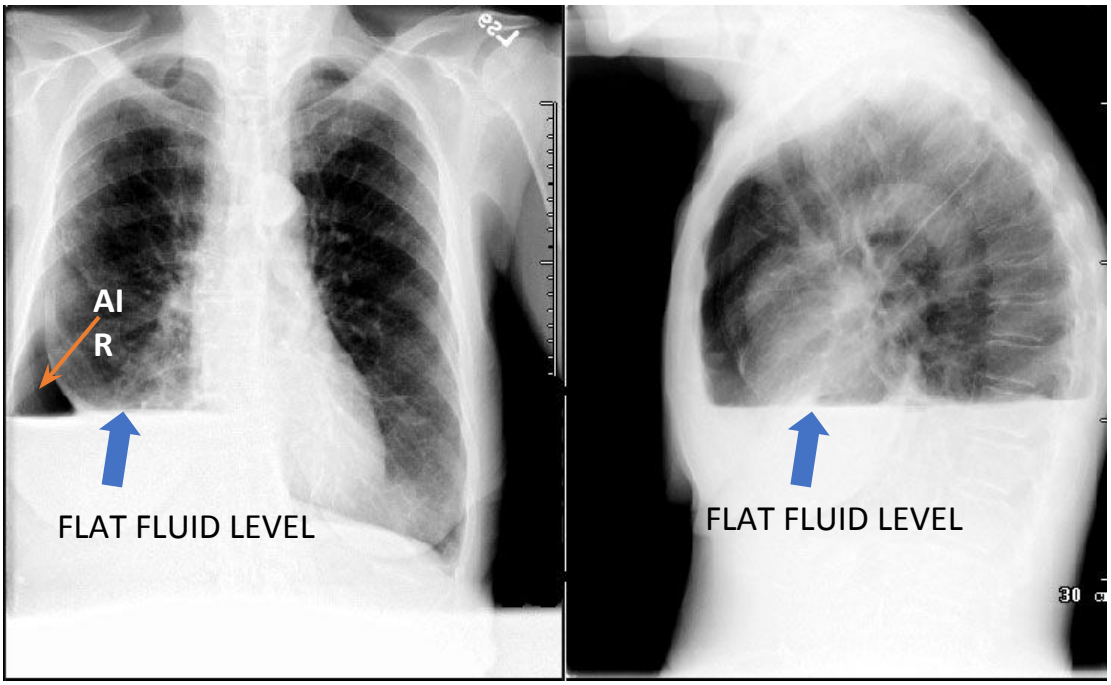
17. ABNORMAL? DIAGNOSIS?

BLUNTED RIGHTCOSTOPHRENIC ANGLE DIAGNOSIS: **PLEURAL EFFUSION**.



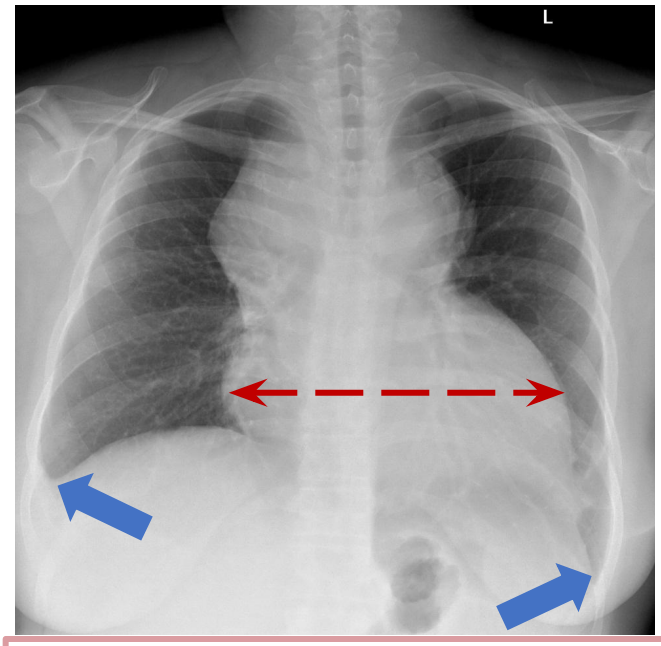
- PA there is blunting in **costophernic angle** usually it means pleural effusion
- Also once we do lateral view blunting of posterior **postophernic recuses** is a defiant evidence this patient has pleural effusion
- We need to do lateral view because sometimes it's not effusion it's mass lesion BUT here in lateral view we see it's blunting as in the PA

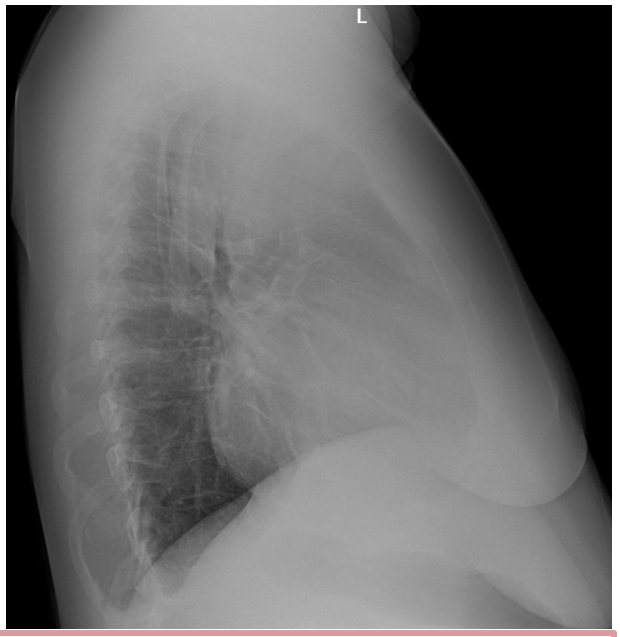
18.What is this abnormality? HYDRO-PNEUMOTHORAX



- The only case you see flat air fluid
- Pleural effusion never appear flat unless there is air

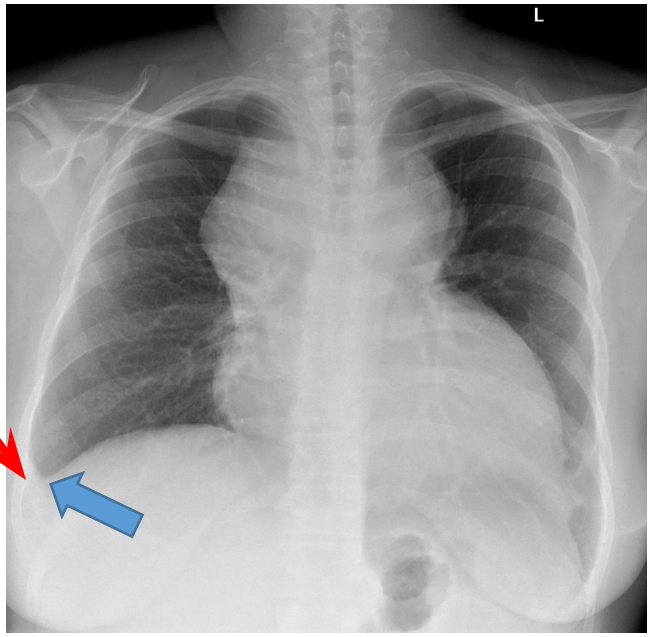
18. Heart ?

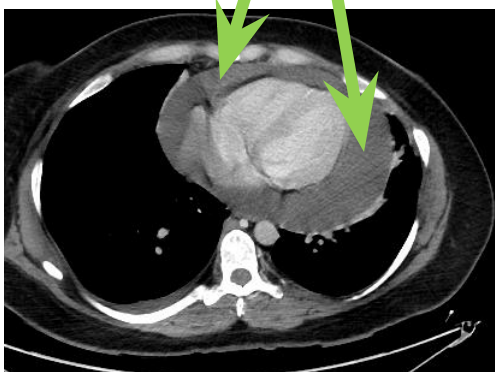


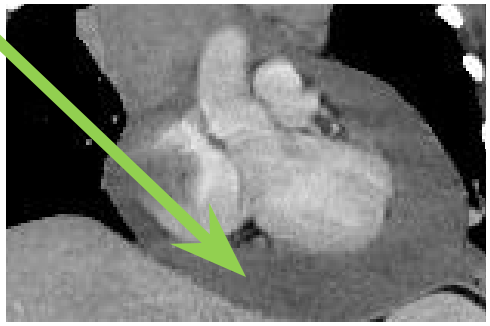


On CXR Is it Enlarged heart ? " notice cotsophernic angle blunted "
So we need to do CT 'will be in the next slide'. Why don't we say it's deviated into the left side ? Because we don't say it's deviated unless all the heart shifted into left side but here you can see there is a part of it on the right side.

Pleural effusion and pericardial effusion







On CXR Is it Enlarged heart ? " notice cotsophernic angle blunted "
So we need to do CT, heart appears normal ! What is around the heart ? Fluid " pericardial effusion"