RADIOLOGY

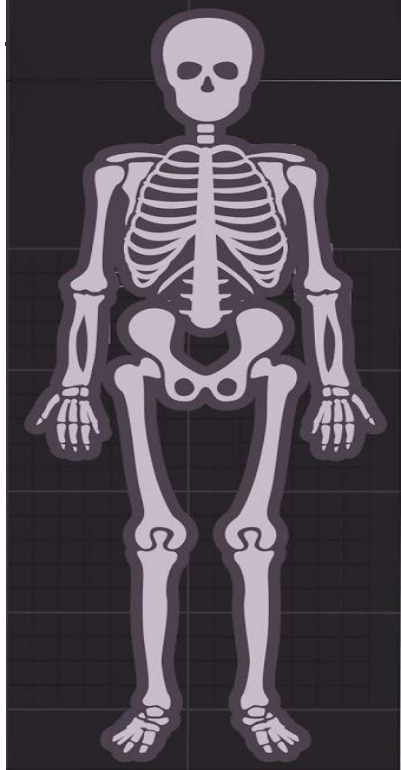
TEAM 435

INTERACTIVE CHEST IMAGING LECTURE

- **Done By:**
- **Ali Alomar**
- **Omar Sumaya**

- **Team Leaders:**
- **Mohammed Alsahil**
- **Amjad Alduhaish**

- **Revised By:**
- **Ahmad Alyahya**



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OBJECTIVES

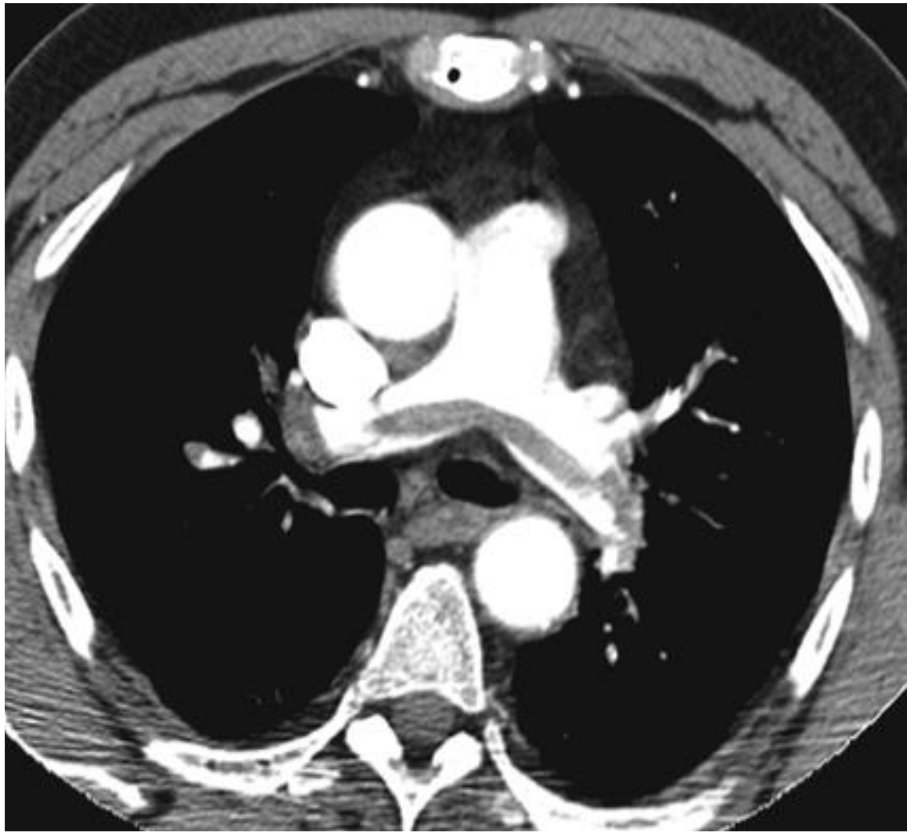
1. **To understand the basic radiologic anatomy of the chest and CVS.**
2. **To recognize the basic radiological examinations applied in chest and CVS diseases.**
3. **To understand the radiological appearances of common chest and CVS diseases.**

1. Case

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

❖ **Which of the following is the BEST answer ?**

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



Ans:

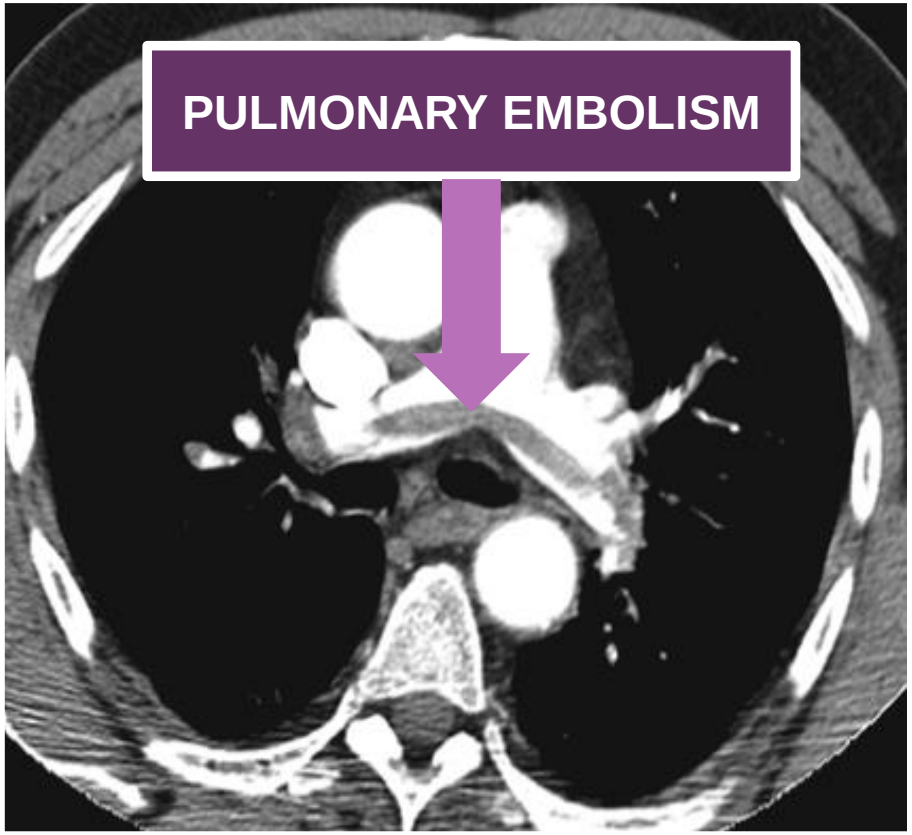
1. Case

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

❖ **Which of the following is the BEST answer ?**

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

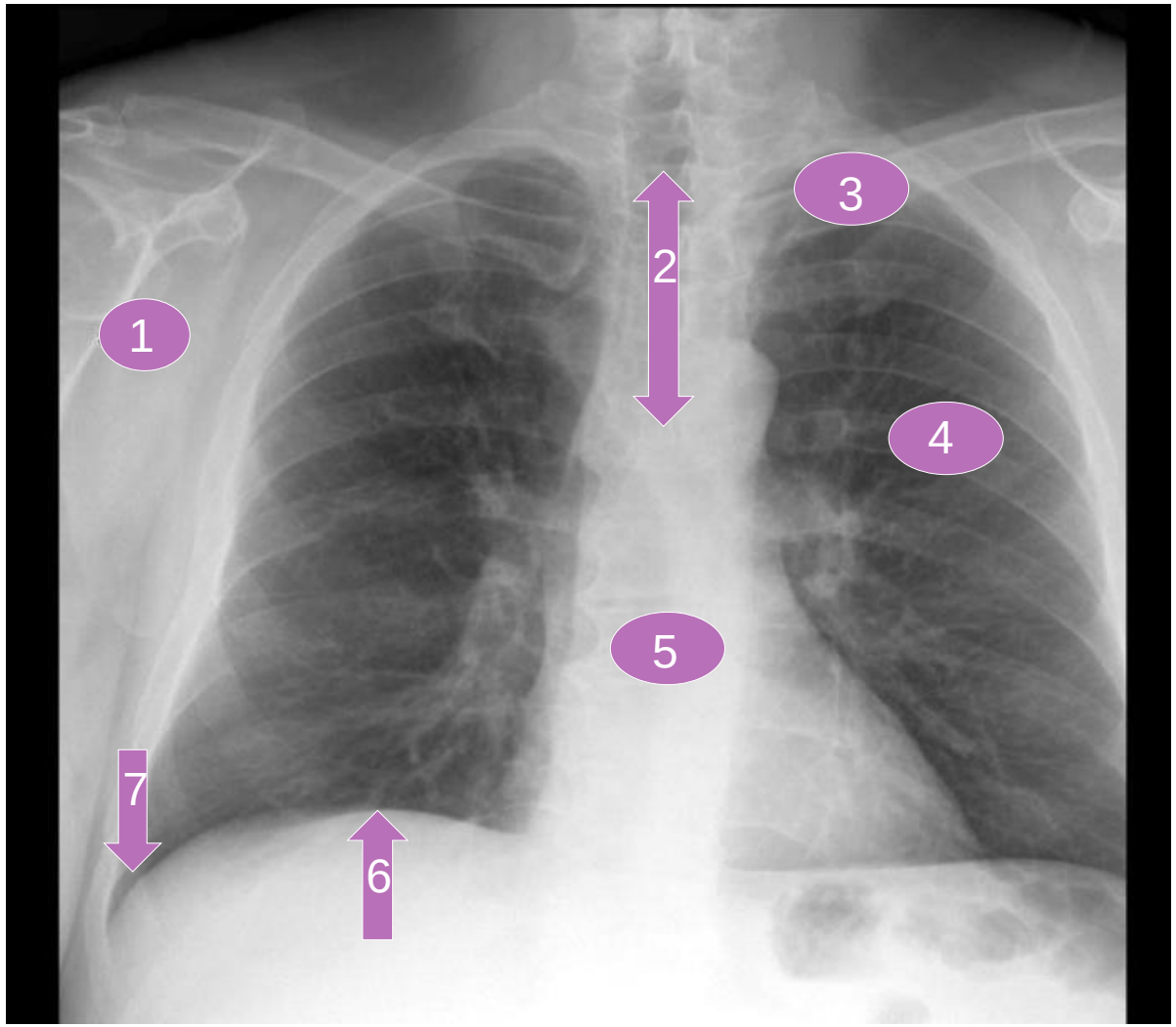
Ans: 2



2. Anatomy (Just for your knowledge)

❖ **Identify the following:**

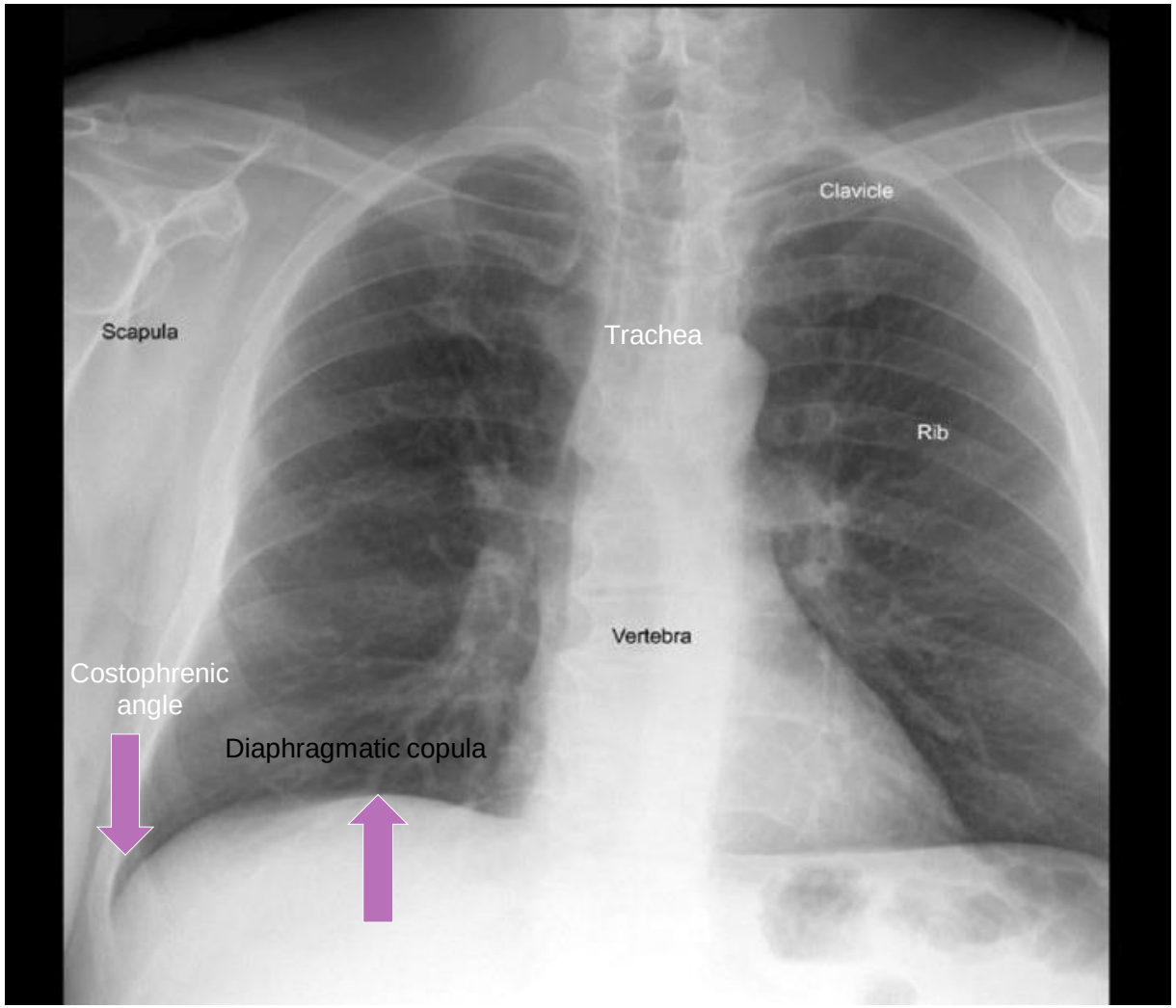
1-
2-
3-
4-
5-
6-
7-



2. Anatomy (Just for your knowledge)

❖ **Identify the following:**

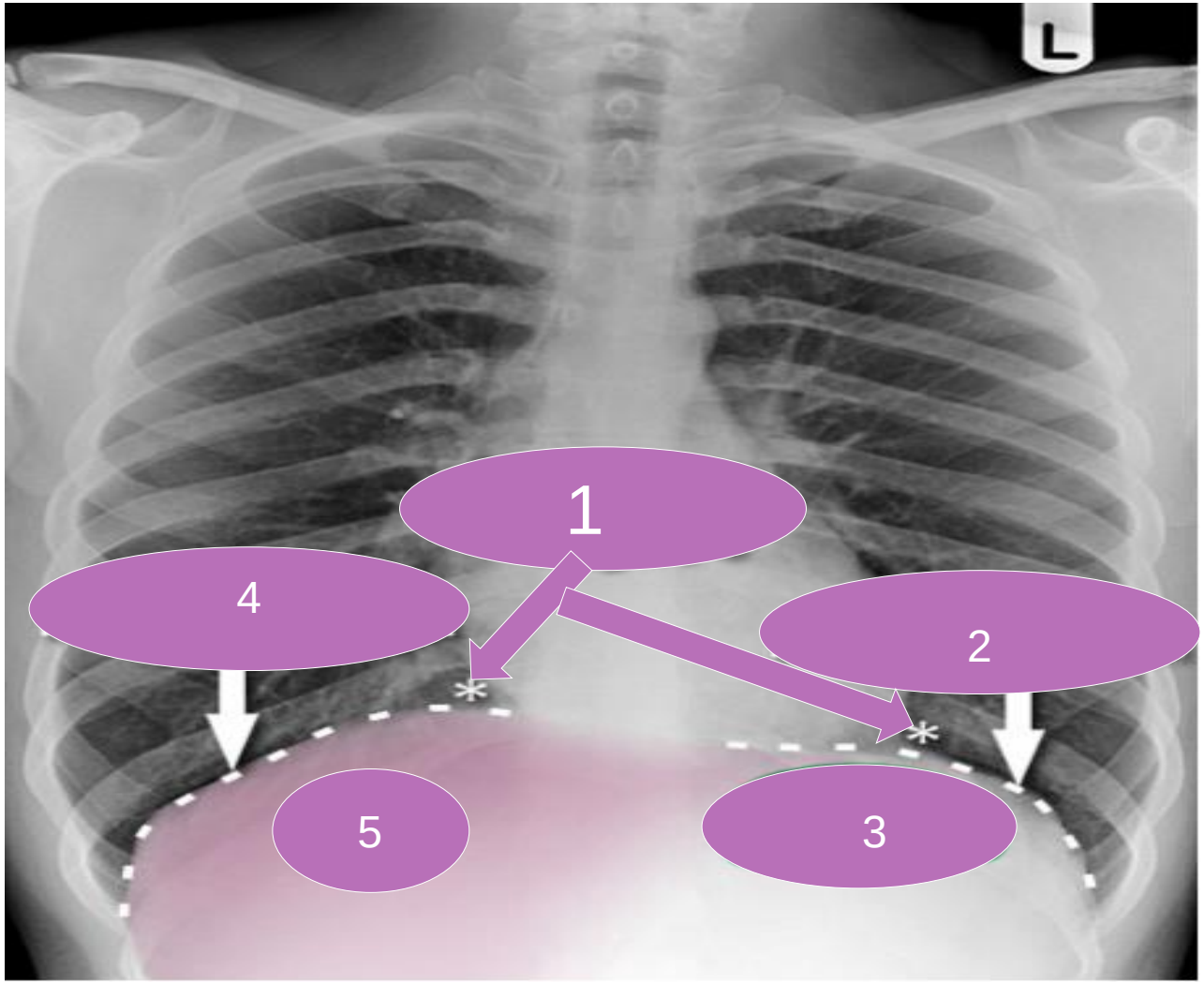
1- Scapula
2- Trachea
3- Clavicle
4- Rib
5- Vertebra
6- Diaphragmatic copula
7- Costophrenic angle



3. Anatomy (Just for your knowledge)

❖ **Identify the following:**

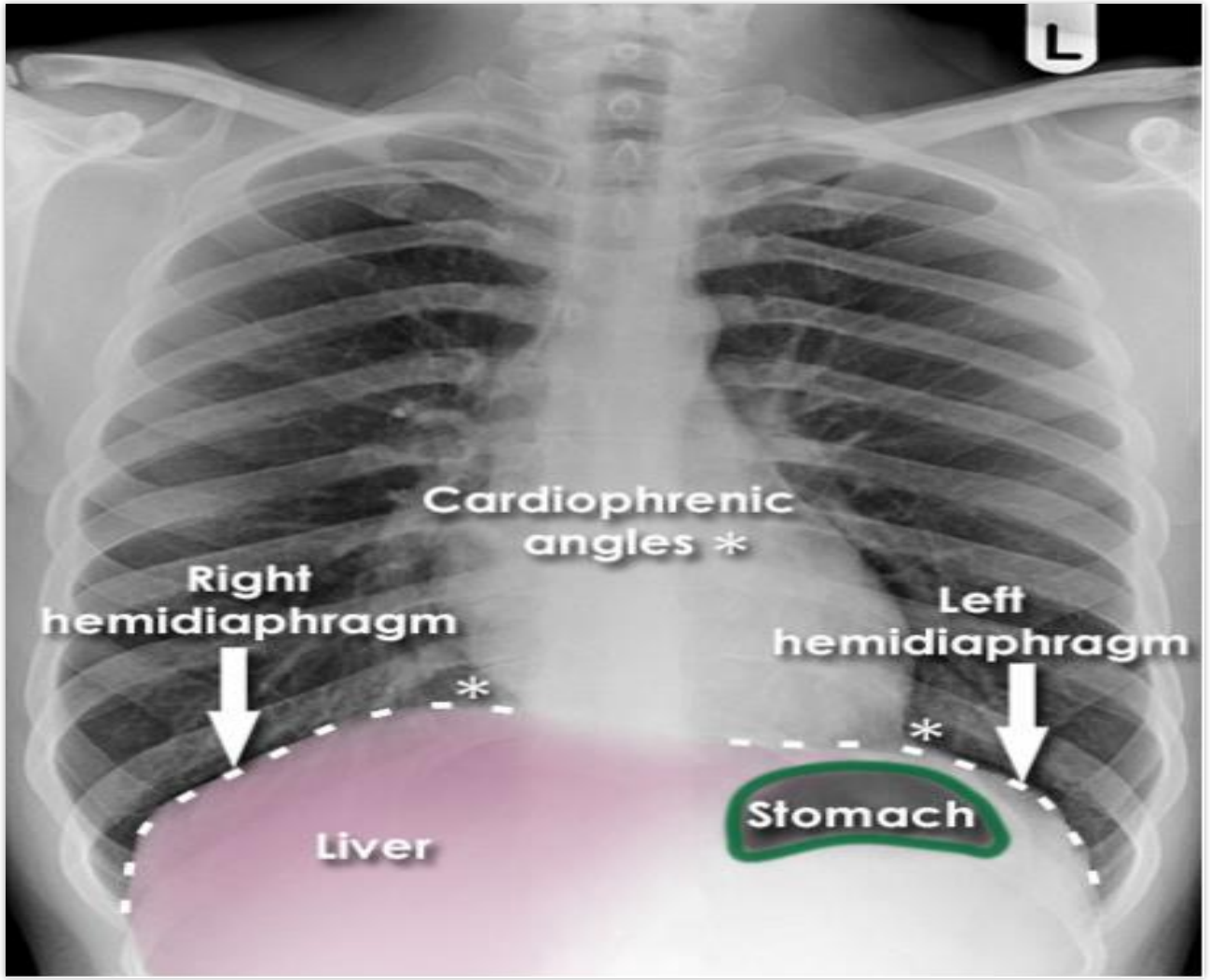
1-
2-
3-
4-
5-



3. Anatomy (Just for your knowledge)

❖ **Identify the following:**

1- Cardiophrenic angles (*)
2- Left hemidiaphragm
3- Stomach
4- Right hemidiaphragm
5- Liver



4. Hilum(Just for your knowledge)

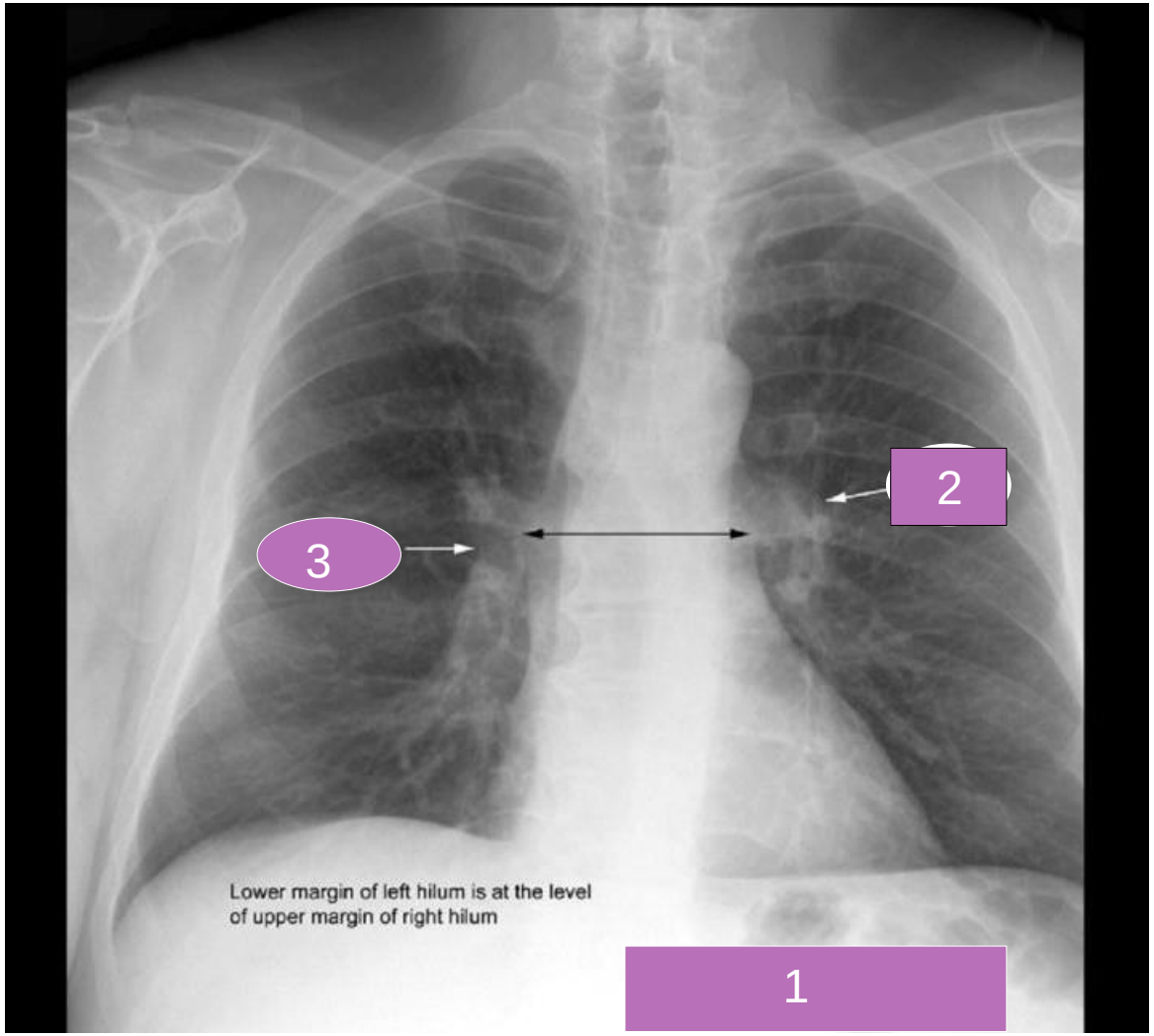
❖ **Identify the following**:

1-

2-

3-

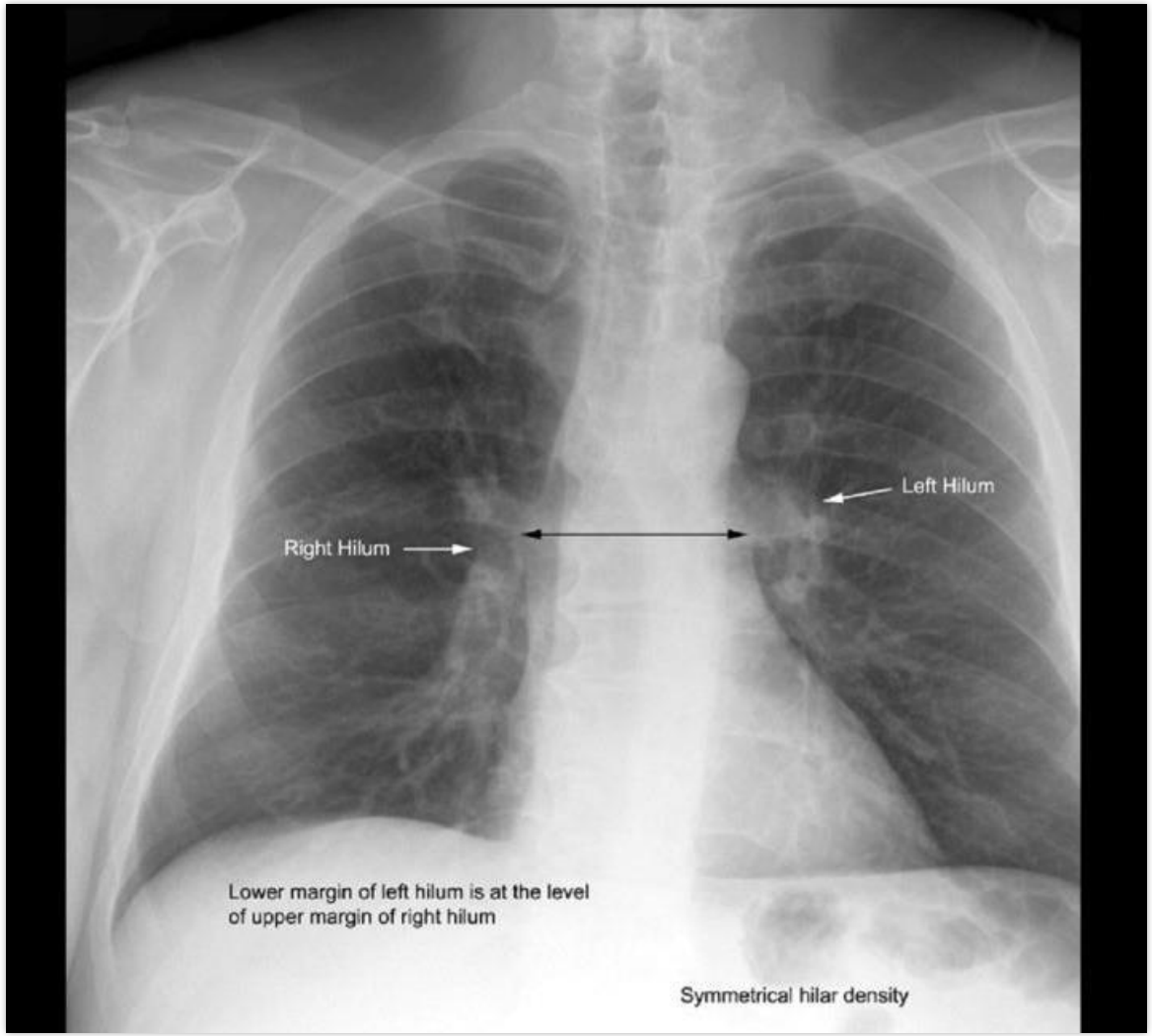
Lower margin of left hilum is at the level of upper margin of right hilum.



4. Hilum(Just for your knowledge)

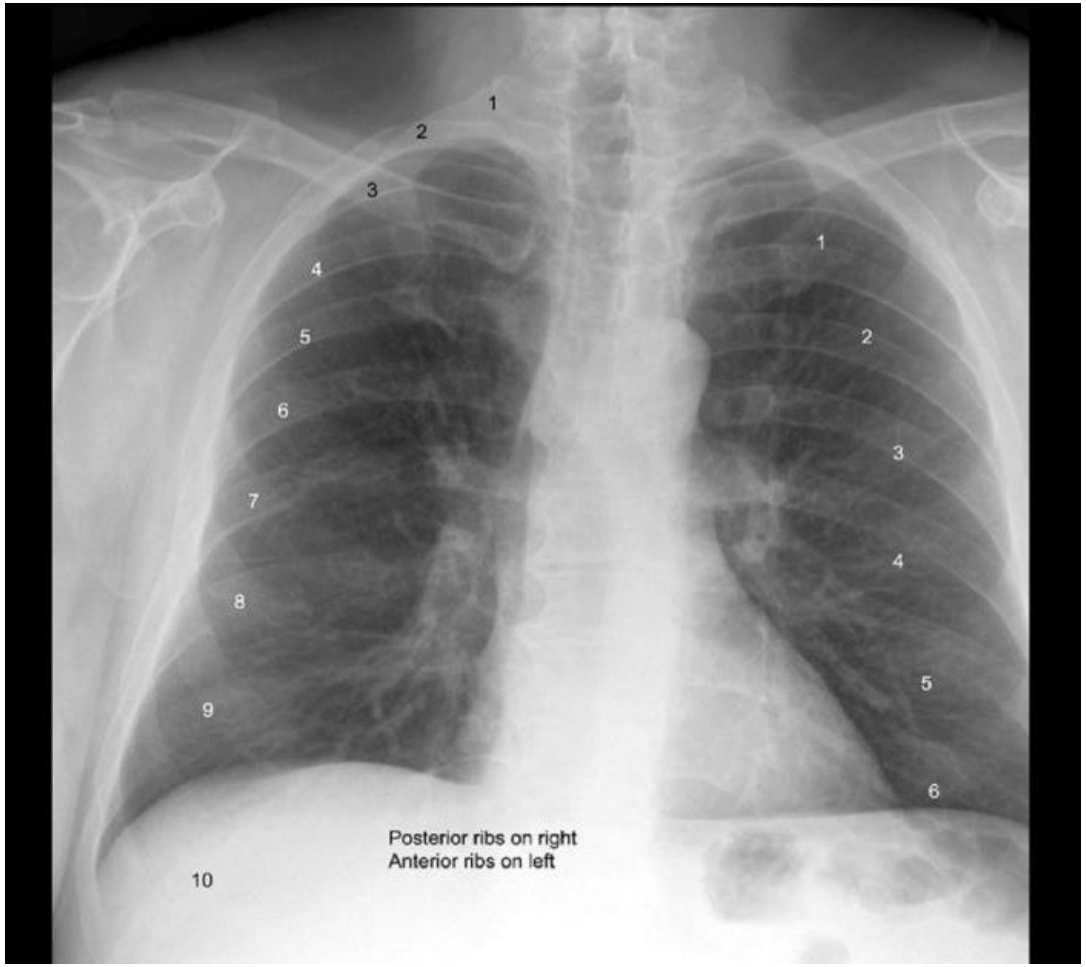
❖ **Identify the following:**

1- Symmetrical hilar density
2- Left Hilum
3- Right Hilum

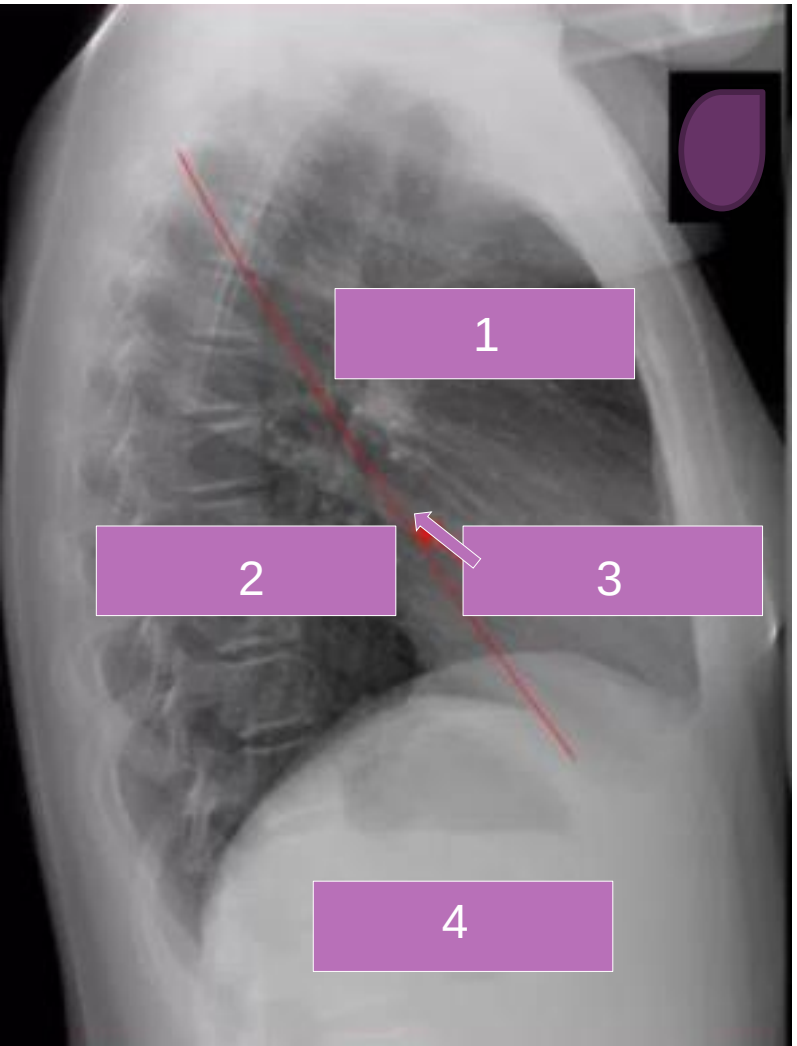


COUNTING RIBS

- This picture shows you 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.
- This video will help you to understand this slide. Click here



5. Radiological Anatomy Of The Chest (important)



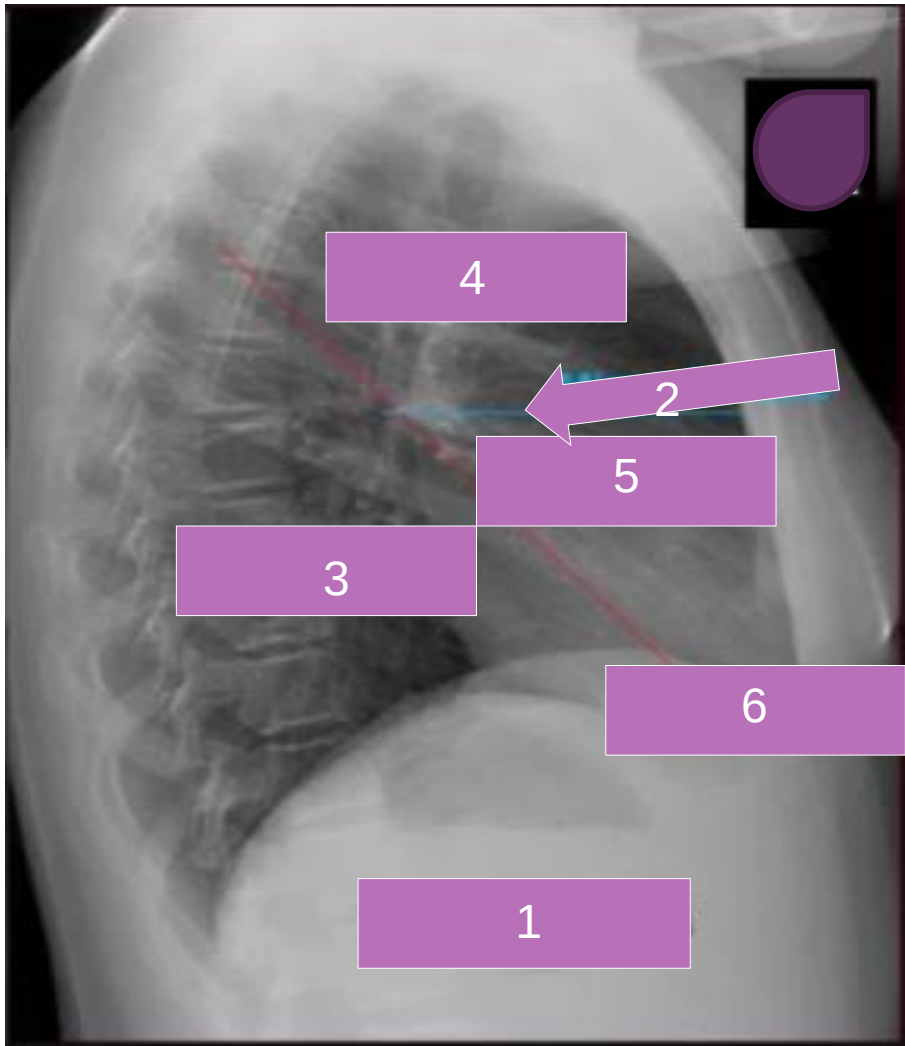
❖ **Identify the following:**

Right Picture:

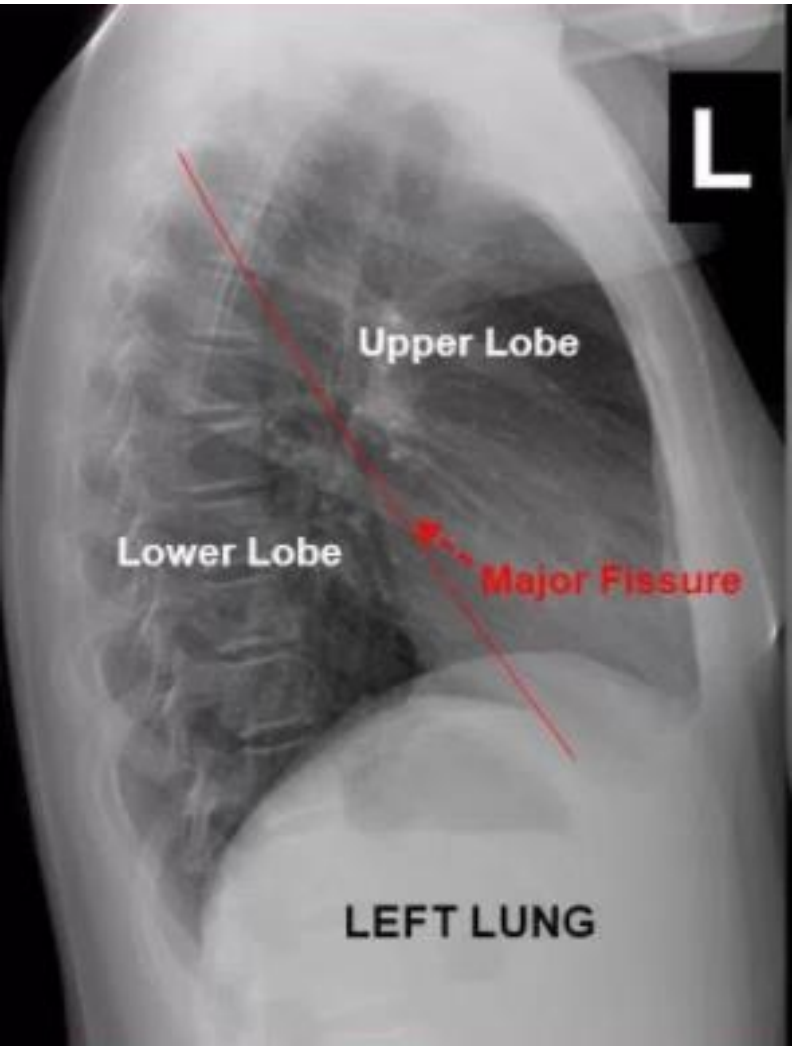
1-
2-
3-
4-
5-
6-

Left Picture:

1-
2-
3-
4-



5. Radiological Anatomy Of The Chest



❖ **Identify the following:**

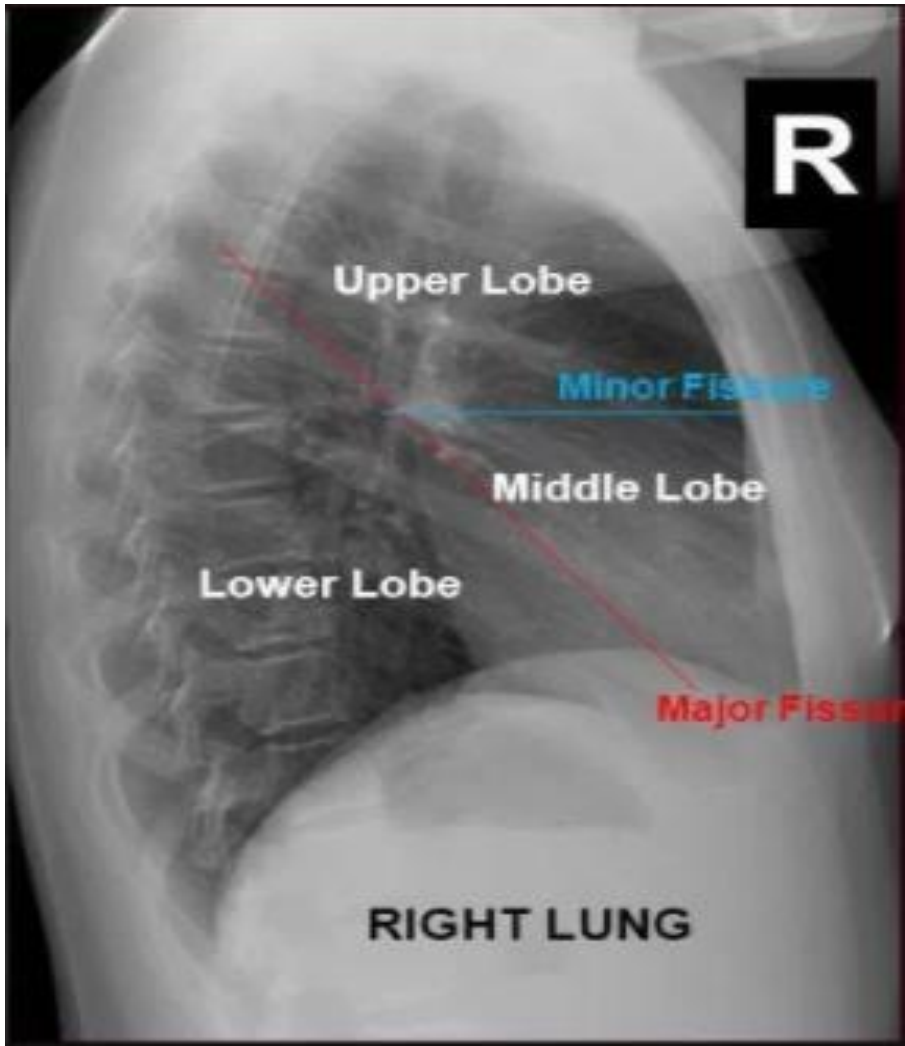
Right Picture:

1-Right lung (if you asked about the side)
2-Minor fissure
3- Lower lobe
4- Upper lobe
5- Middle lobe
6- Major Fissure

Left Picture:

1- Upper lobe
2- Lower lobe
3- Major fissure
4- Left lung (if you asked about the side)

*Doctor: In the exam you will NOT be asked if the CXR is right or left.



#Hints very important

- 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. Consolidation

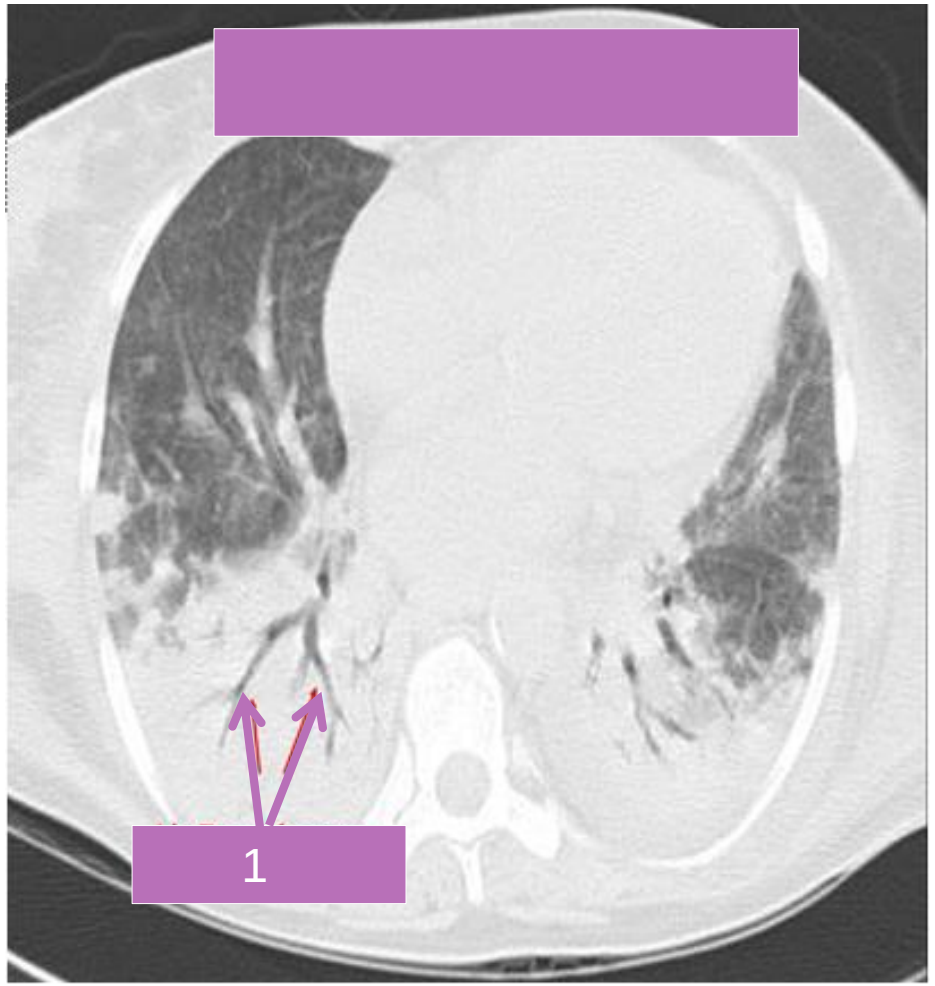
❖ **Clinical scenario**

1-EXAM ?

2-SIGN ?

3-DIAGNOSIS ?

❖ **Identify (1):**



6. Consolidation

❖ **Clinical scenario:**

1- EXAM:

high resolution CT of the chest or CT of the chest with lung window

2- SIGN:

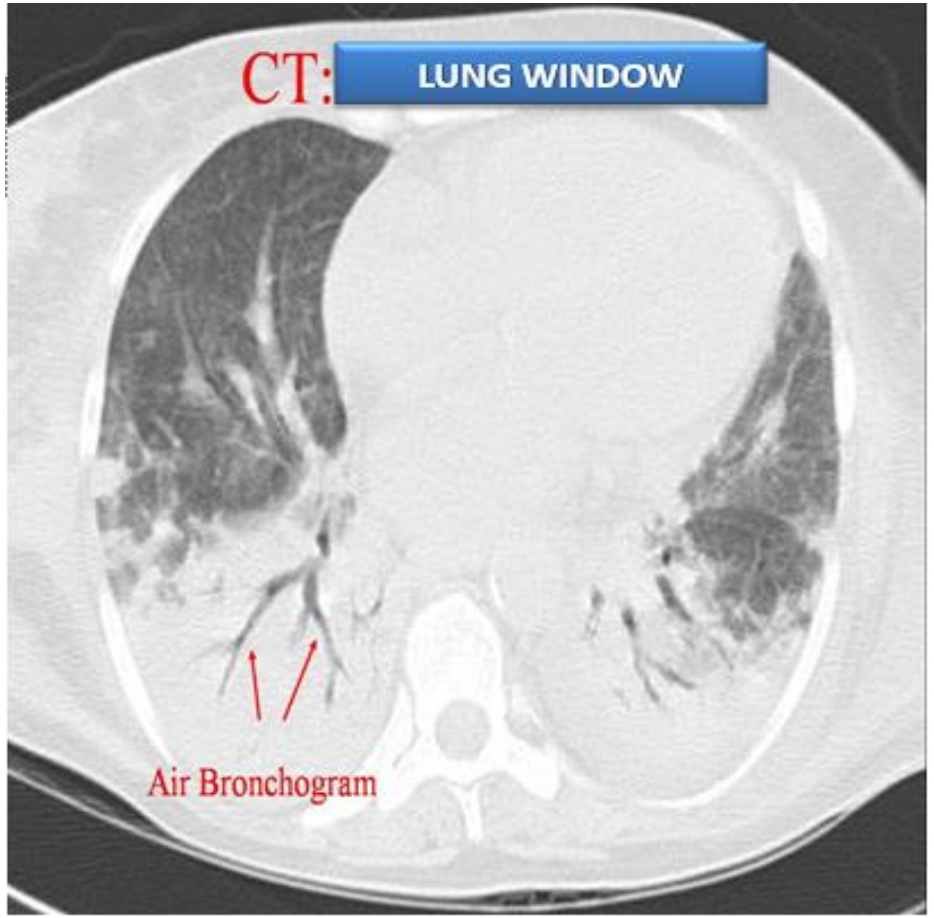
Air bronchogram

3- DIAGNOSIS:

airbroncogram or cosiladation diagnosed as pneumonia

❖ **Identify (1) :**

Air Bronchogram



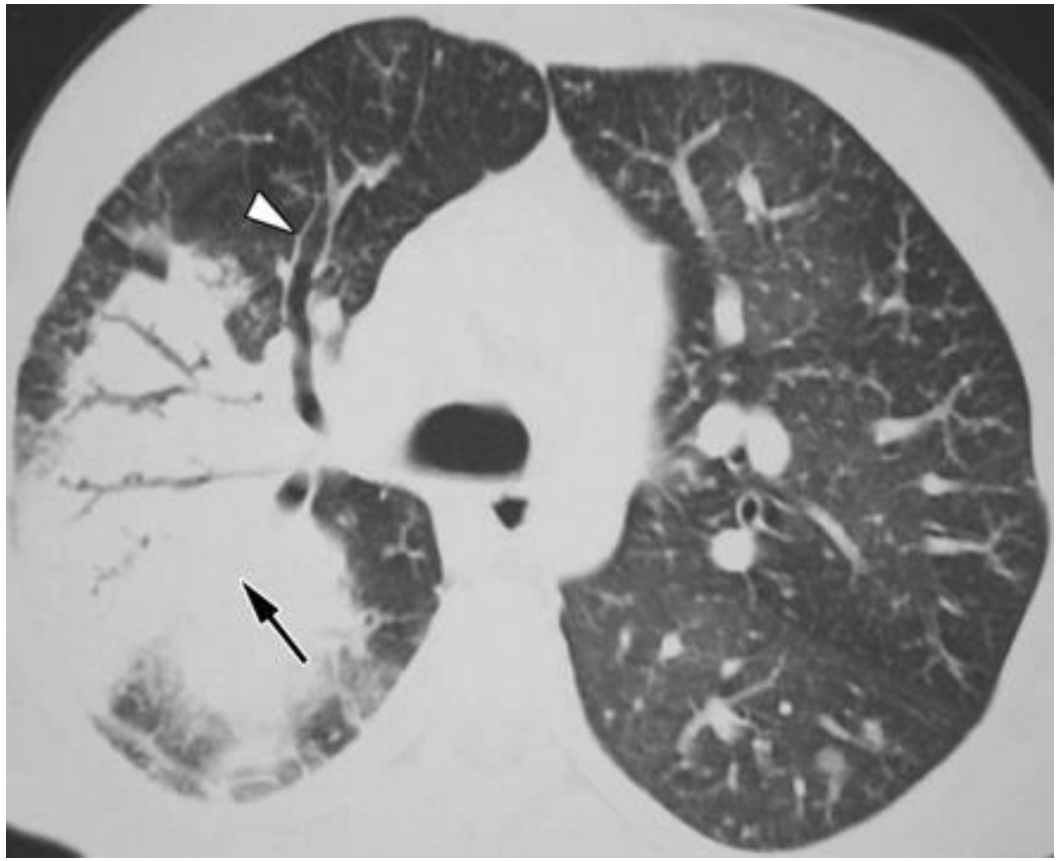
6. Consolidation cont

- **Clinical scenario**

  1-EXAM ?

  2-SIGN ?

  3-DIAGNOSIS ?



6. Consolidation cont

❖ **Clinical scenario**

1-EXAM:
high resolution CT of the chest or CT of the chest with lung window

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Air bronchogram

3-DIAGNOSIS:
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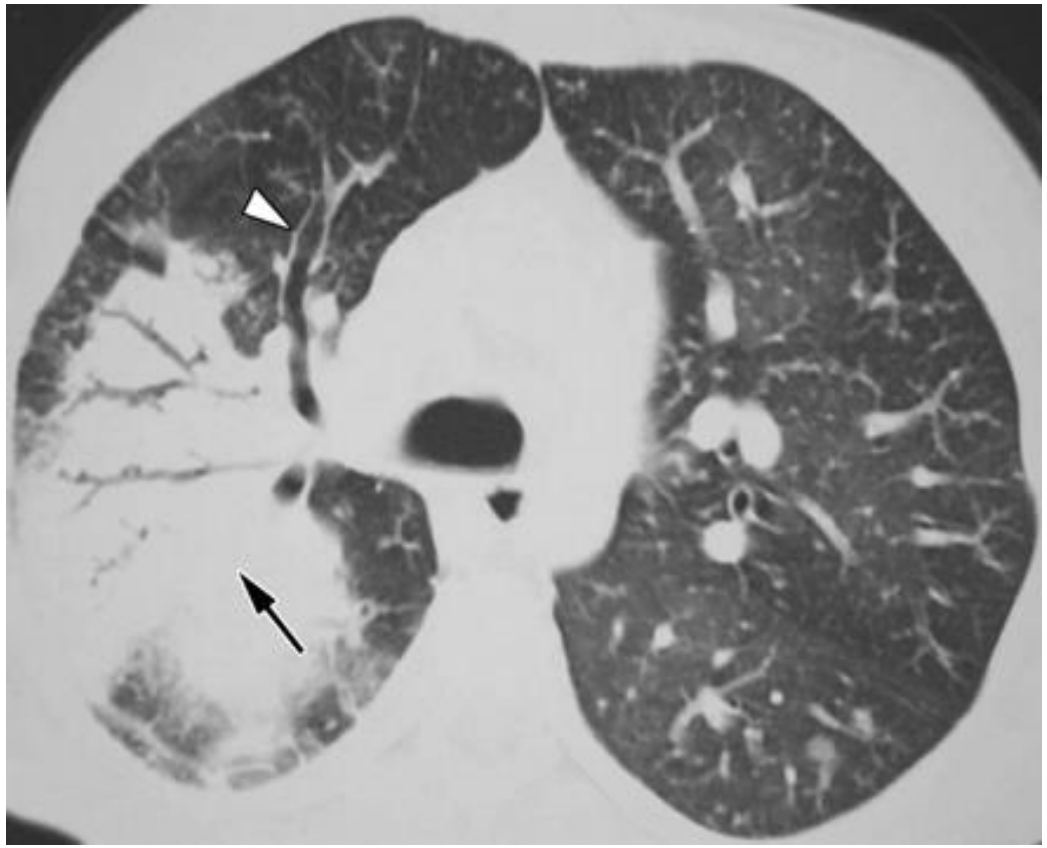
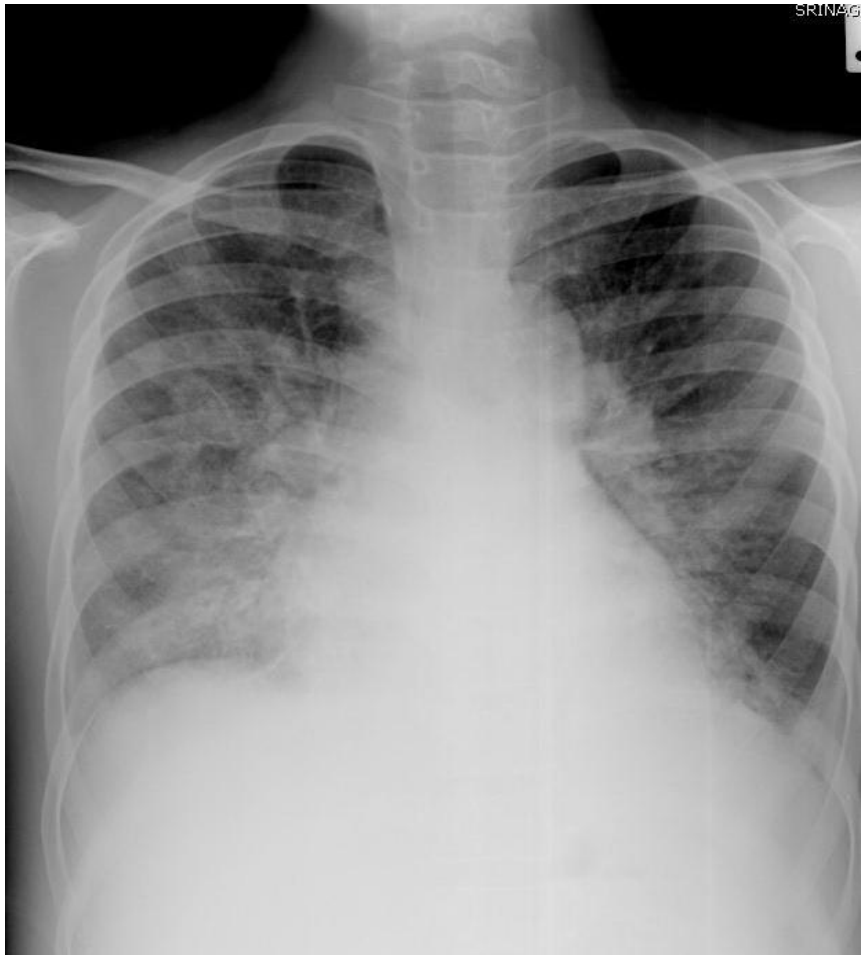


7. Case

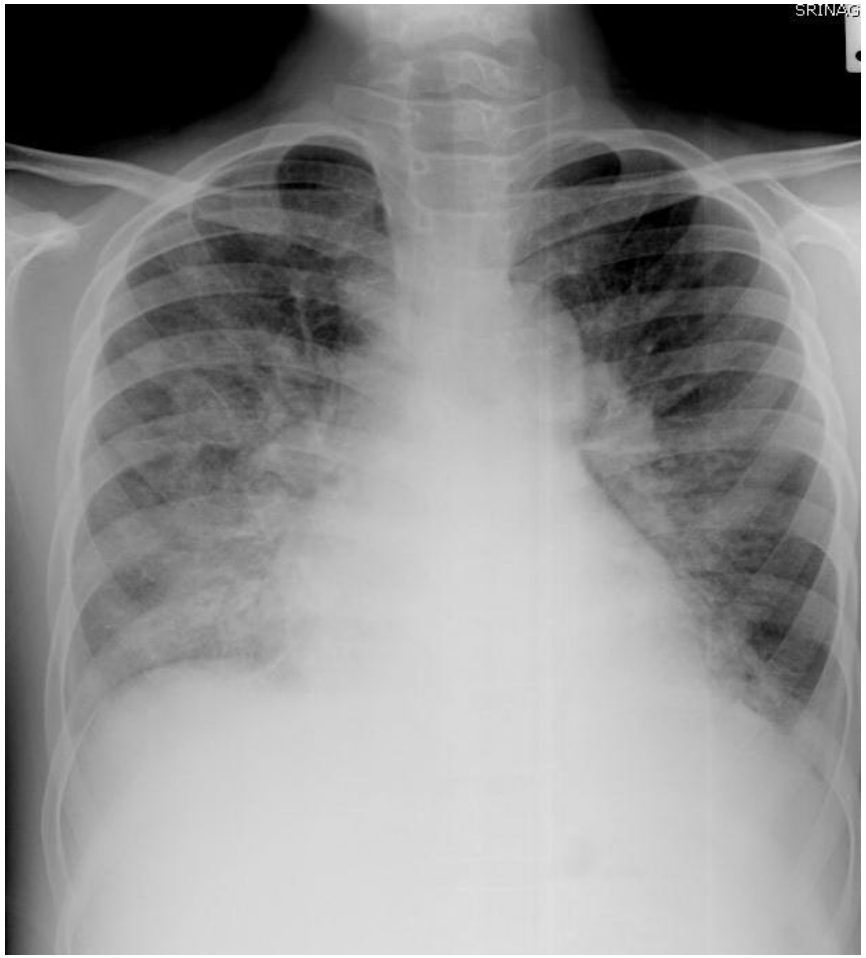
Q.1: **Is it mass or infiltration?**



7. Case

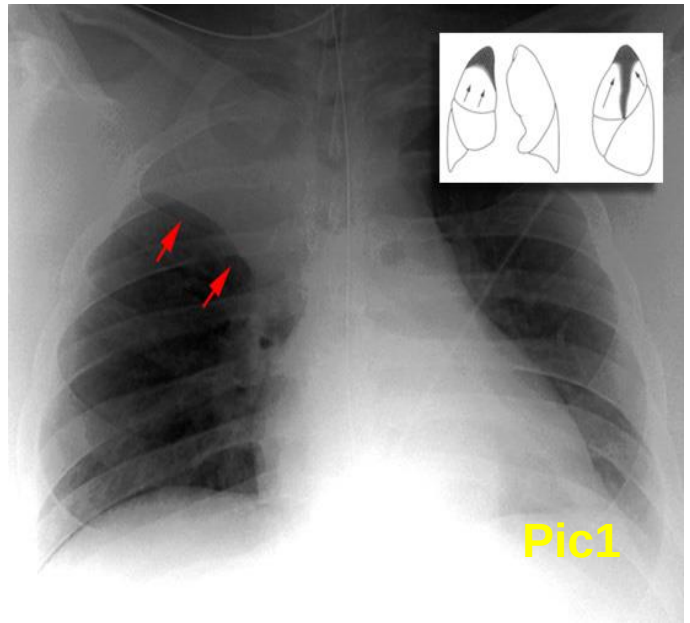
Q.1: Is it mass or infiltration?

It is infiltration which is something diffuse with no clear cutline

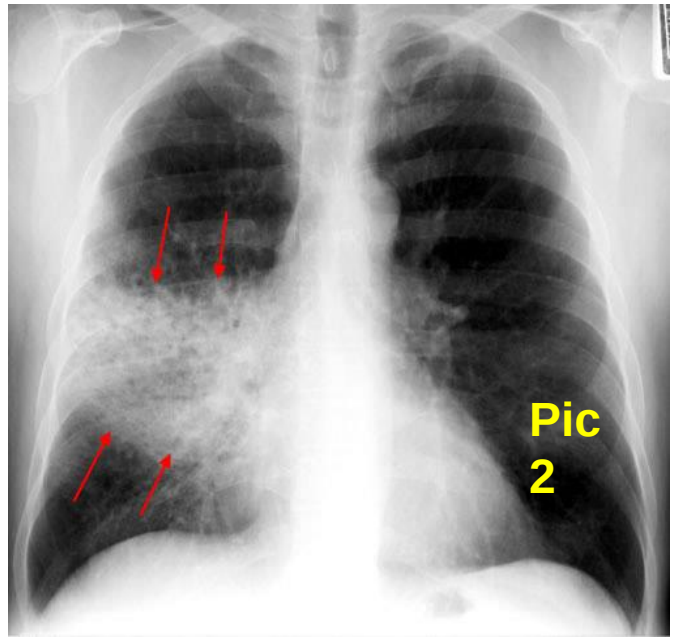


8. Atelectasis Vs *Pneumonia*

Q.1: what is the diagnosis seen in Pic(1) ? And why ?



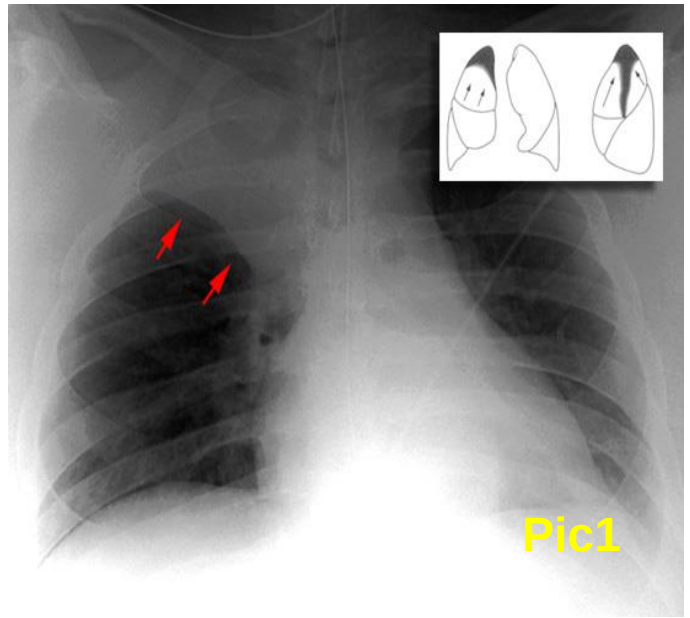
Q.2: what is the diagnosis seen in Pic(2) ? And why ?



8. Atelectasis Vs Pneumonia

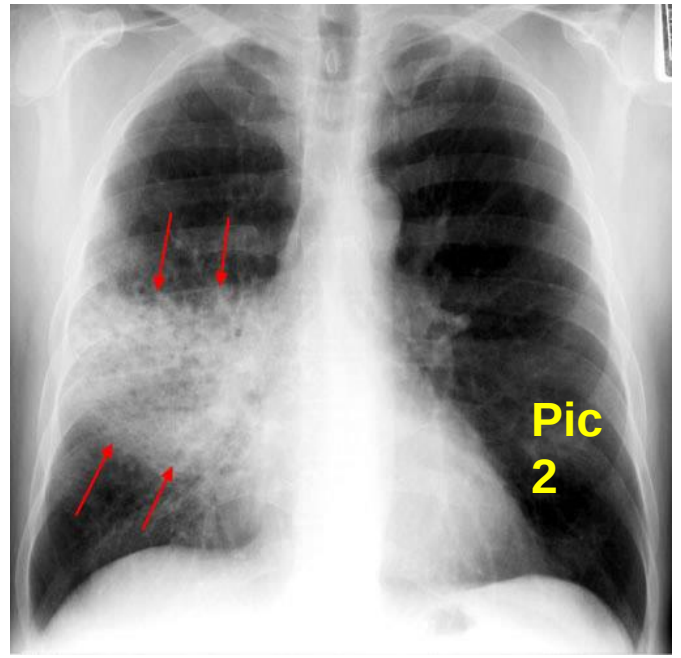
Q.1: what is the diagnosis seen in Pic(1) ? And why ?

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)



Q.2: what is the diagnosis seen in Pic(2) ? And why ?

Pic2: pneumonia **why:** The fissures is in the same position with diffuse infilteration in the middle lobe



9. Case

Q.1: **Is it Mass or infiltration?**

Q.2: **Is it Pneumonia or atelectasis? And why?**

9. Case

Q.1: Is it Mass or infiltration?

Infiltration

Q.2: Is it Pneumonia or atelectasis? And why?

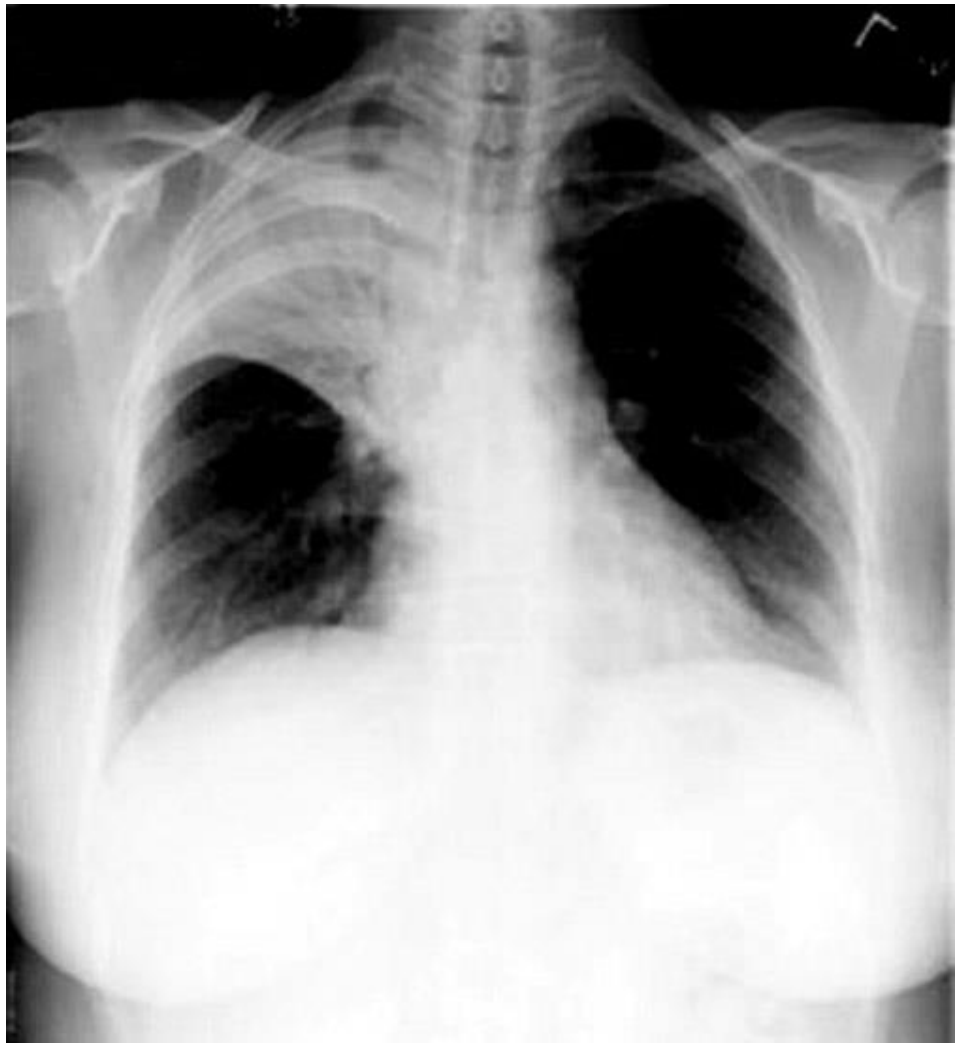
We need lateral view, > in the lateral view we can see atelectasis because transverse fissure moved down

- 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 displaced from its normal position so it is atelectasis of the middle lobe

10. Case

37 YEARS OLD PATIENT WITH SOB AND FEVER

- **Pneumonia or atelectasis ?**



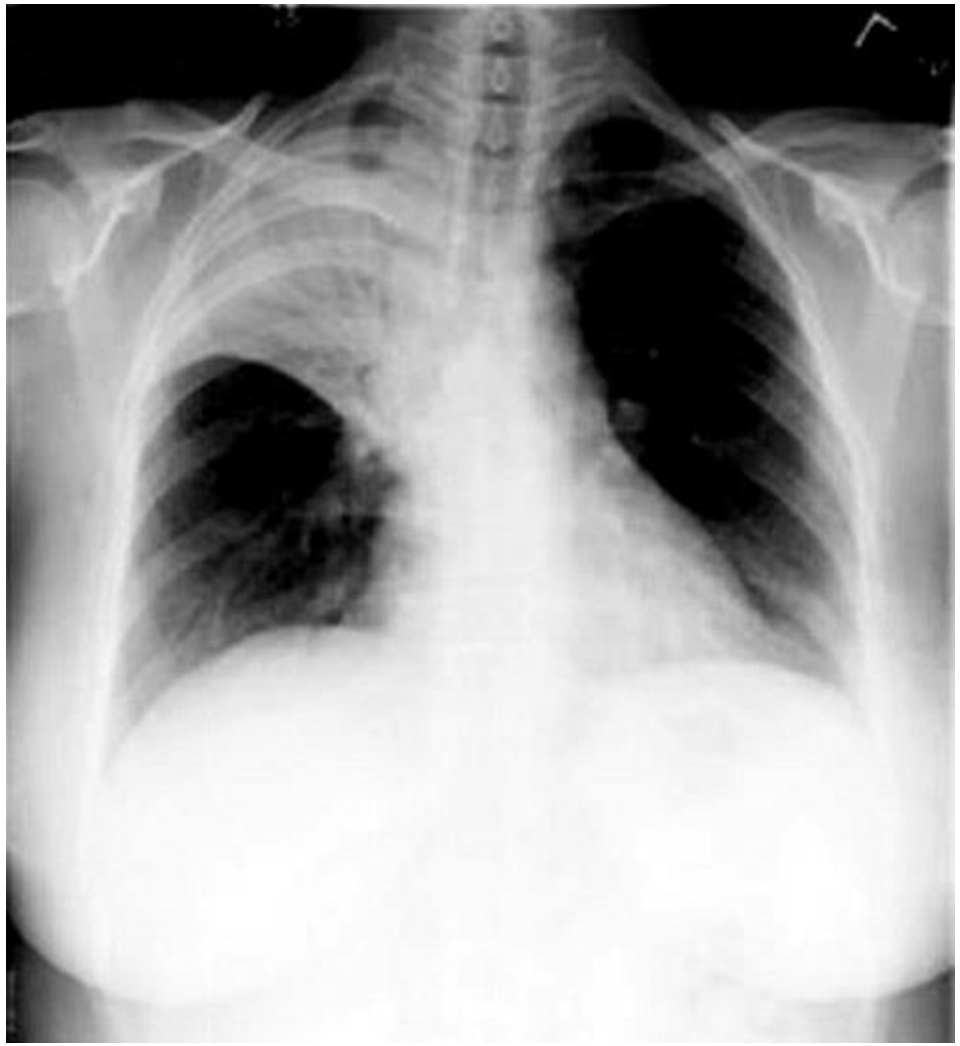
10. Case

37 YEARS OLD PATIENT WITH SOB AND FEVER

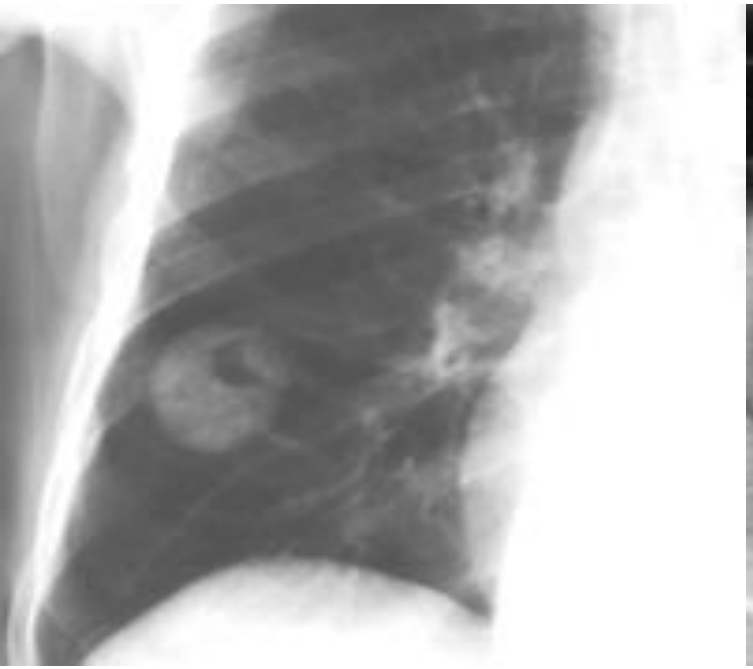
- **Pneumonia or atelectasis ?**

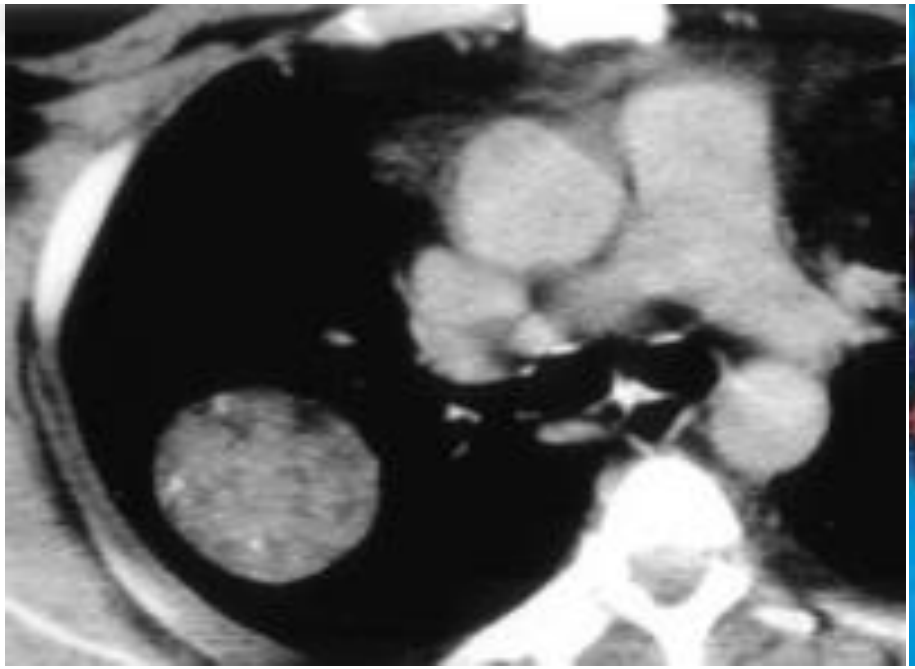
Atelectasis, because transverse fissure moved up”

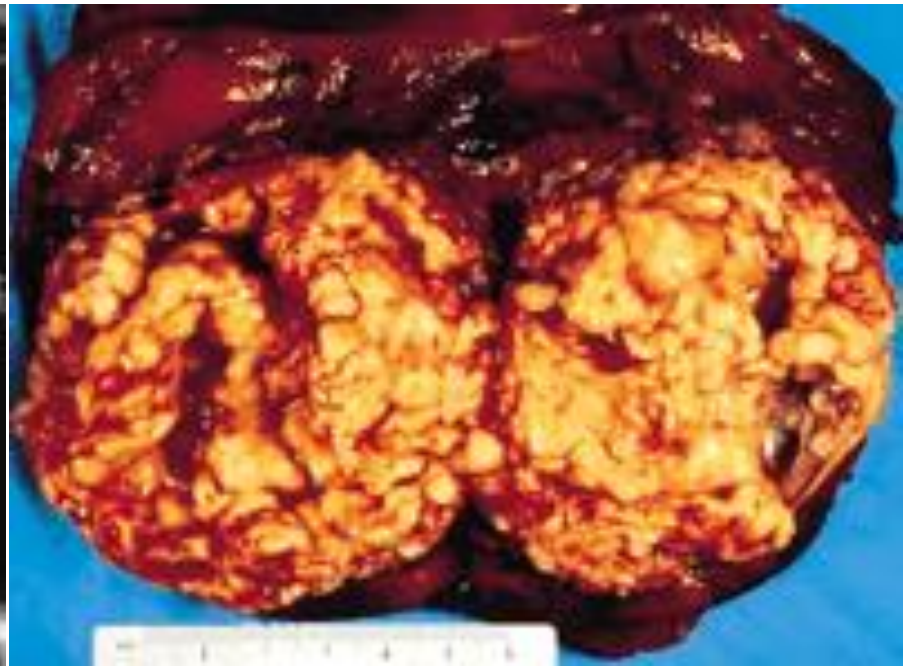
- There is partial atelectasis and complete “ mild, moderate, sever”



11. Case

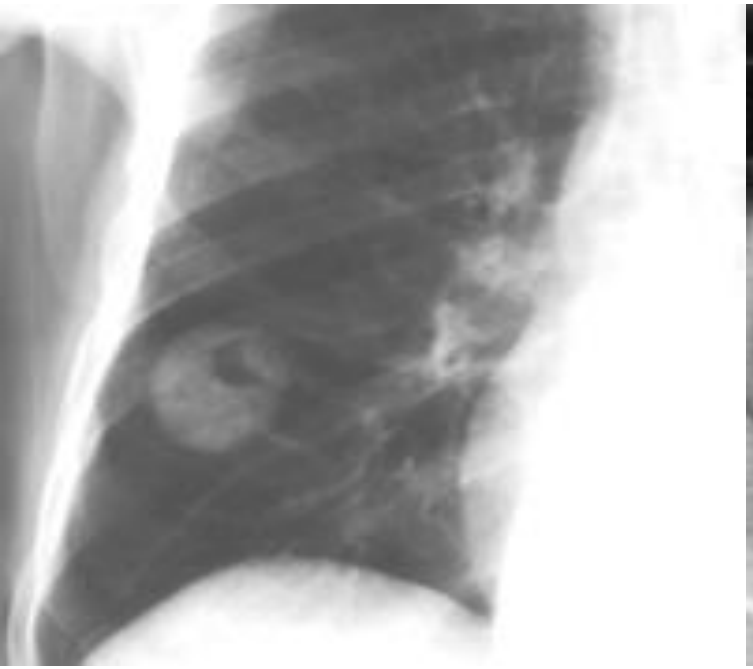


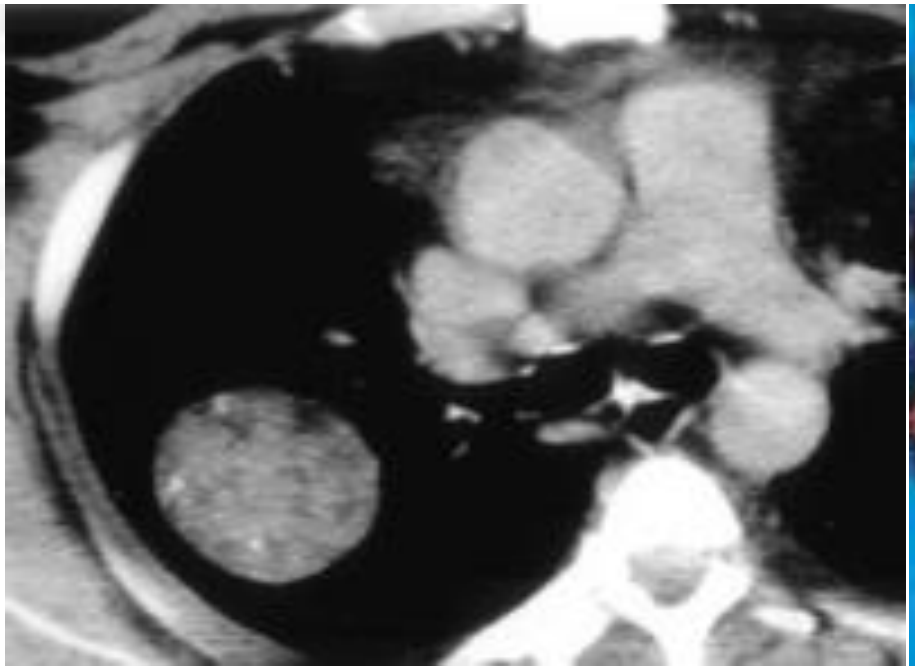


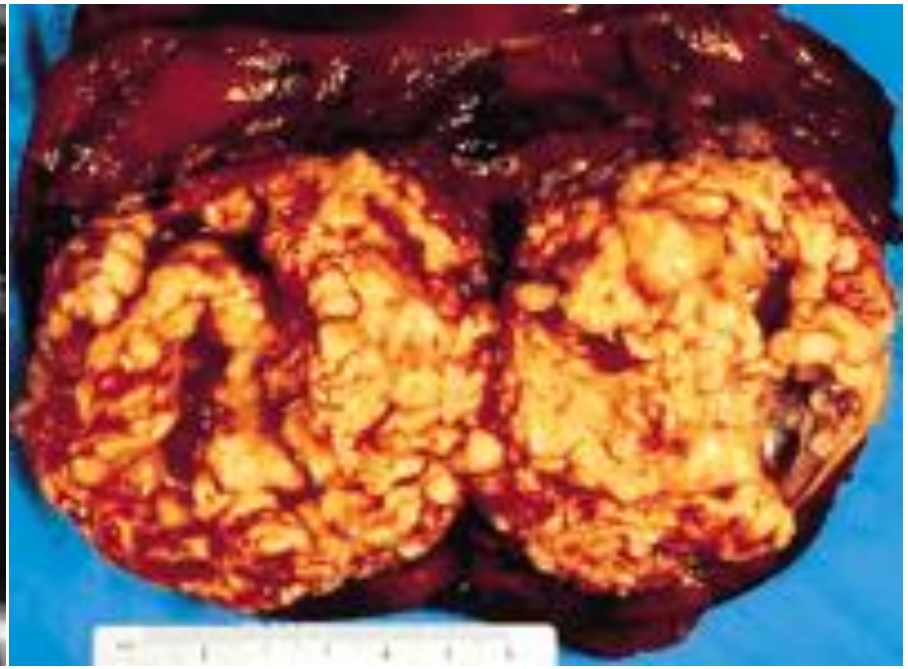


Q.1: Is it mass or infiltration?

11. Case







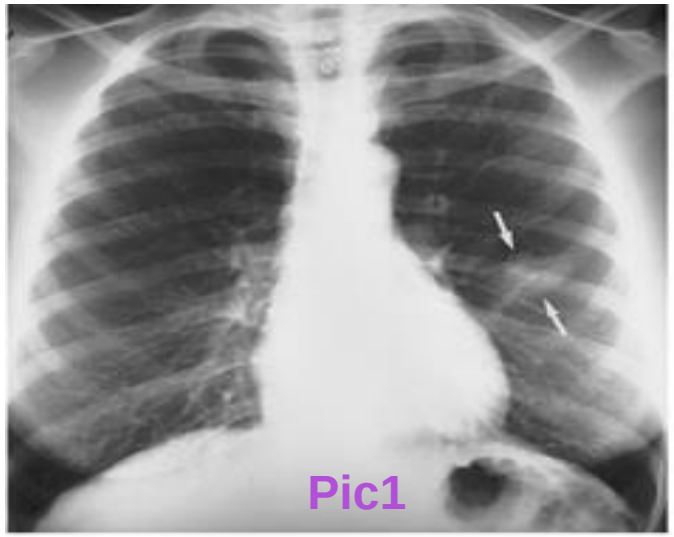
Q.1: **Is it mass or infiltration?**

Neoplastic: Mass

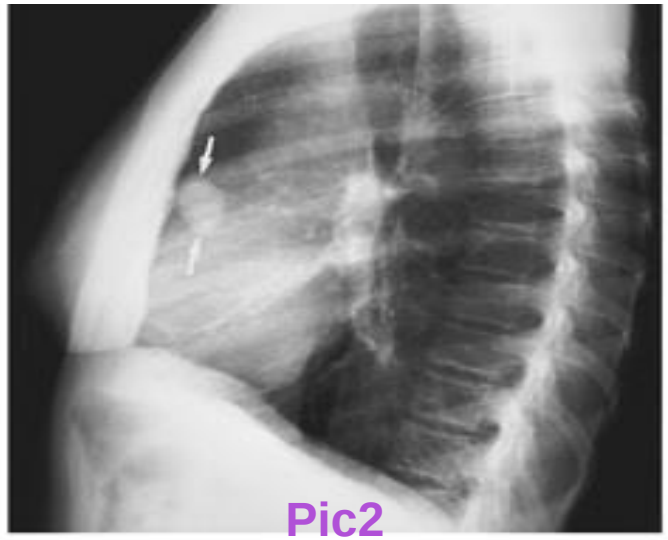
12. Case

Q.1: **Is it mass or infiltration? In pic 1&2**

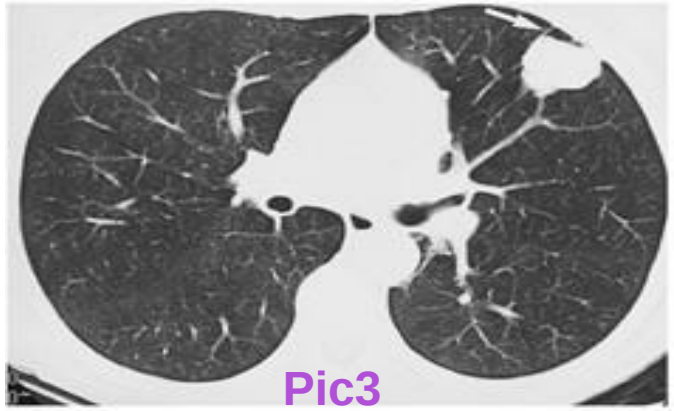
Q.2: **What is the type of windows used in Pic3?**



Pic1



Pic2



Pic3

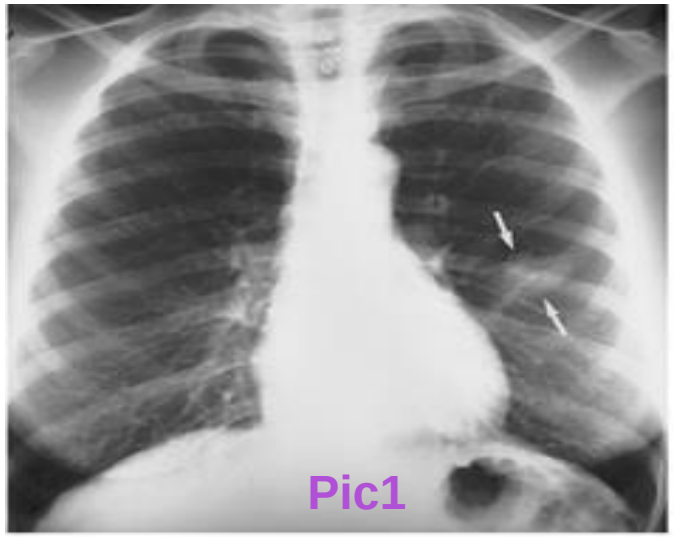
12. Case

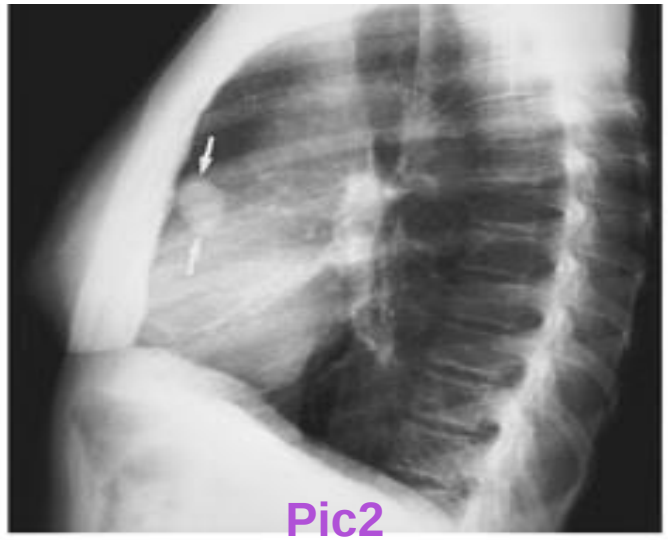
Q.1: Is it mass or infiltration?

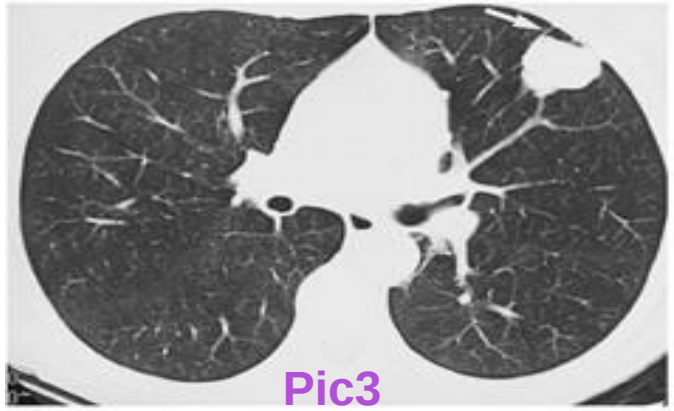
(Pic1)not clear in PA view but on lateral view
(Pic2) we can see the clear outlines of the mass

Q.2: What is the type of windows used in Pic3?

Lung Window

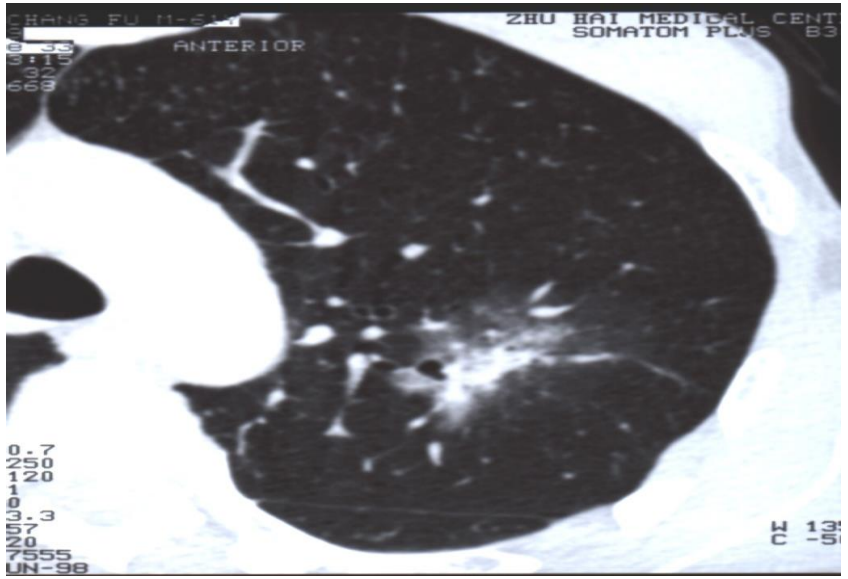

Pic1

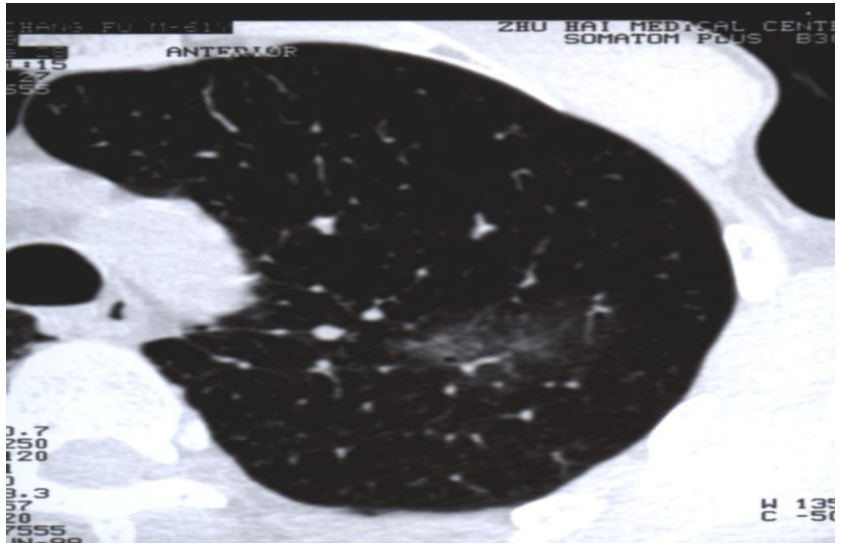

Pic2


Pic3

13. Case

Q.1: **Is it mass or infiltration?**

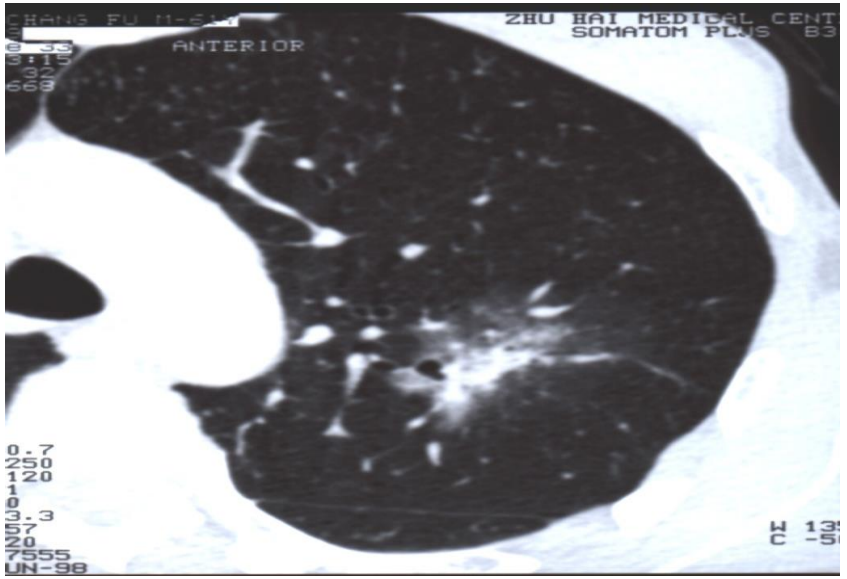


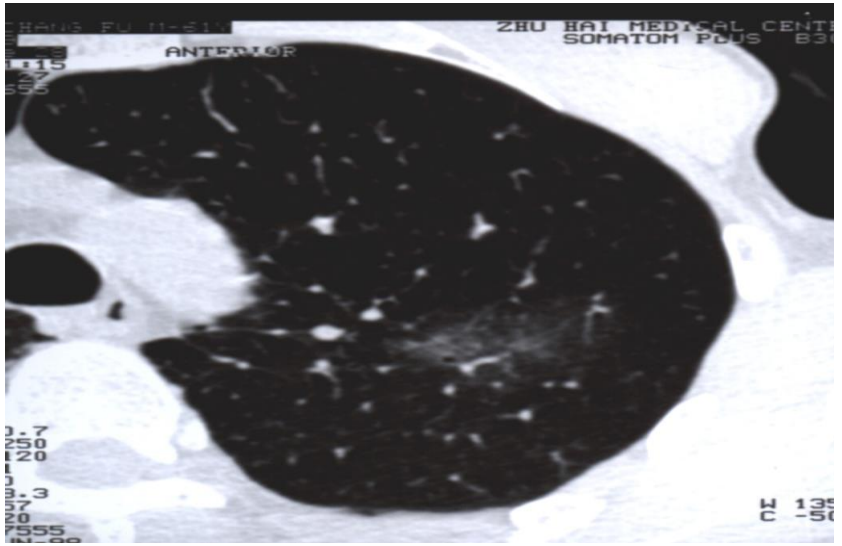


13. Case

Q.1: Is it mass or infiltration?

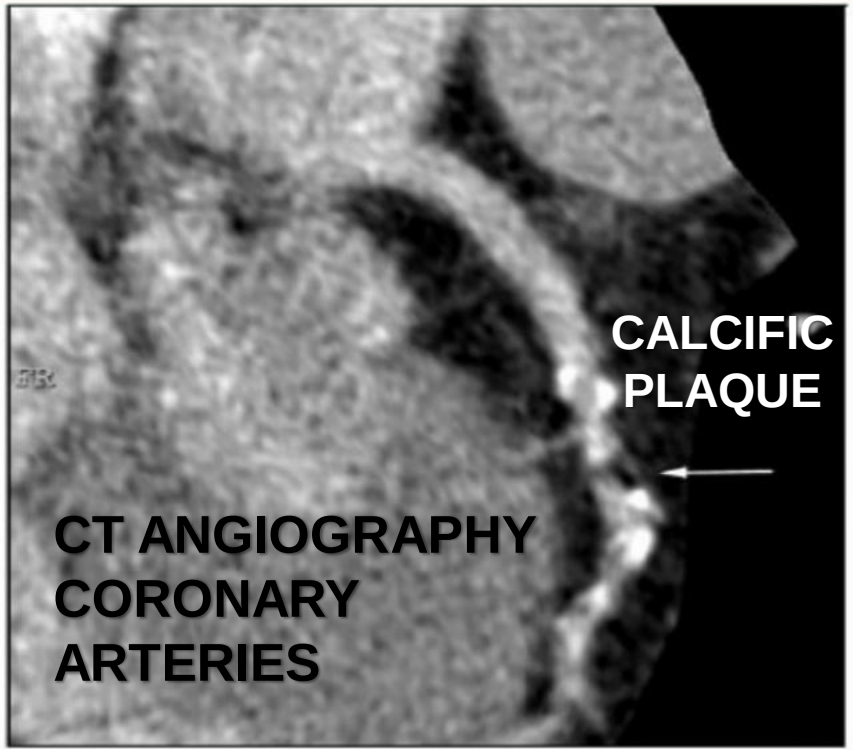
Infiltration because the outline not clear



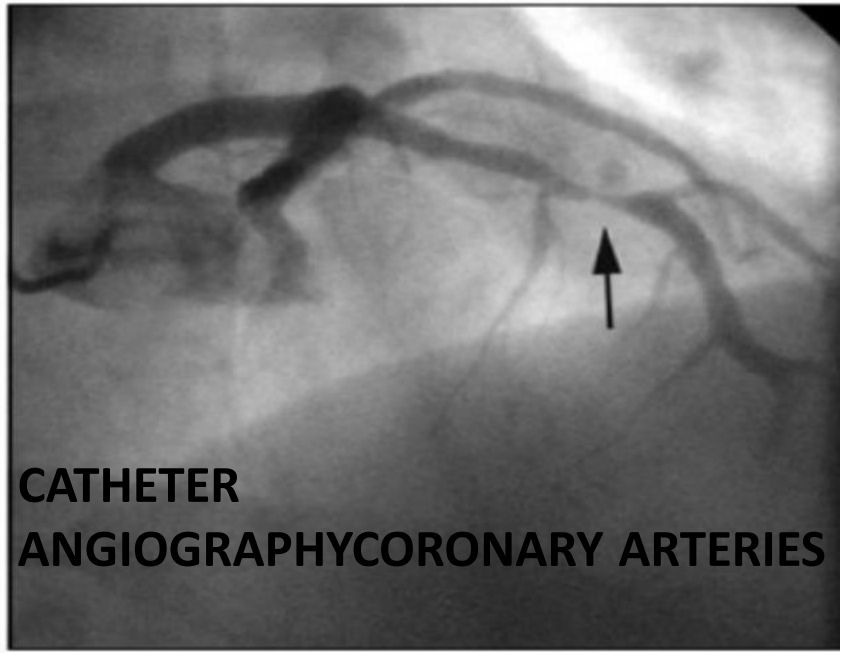


Q: What's the EXAM for both pics?

Pic1

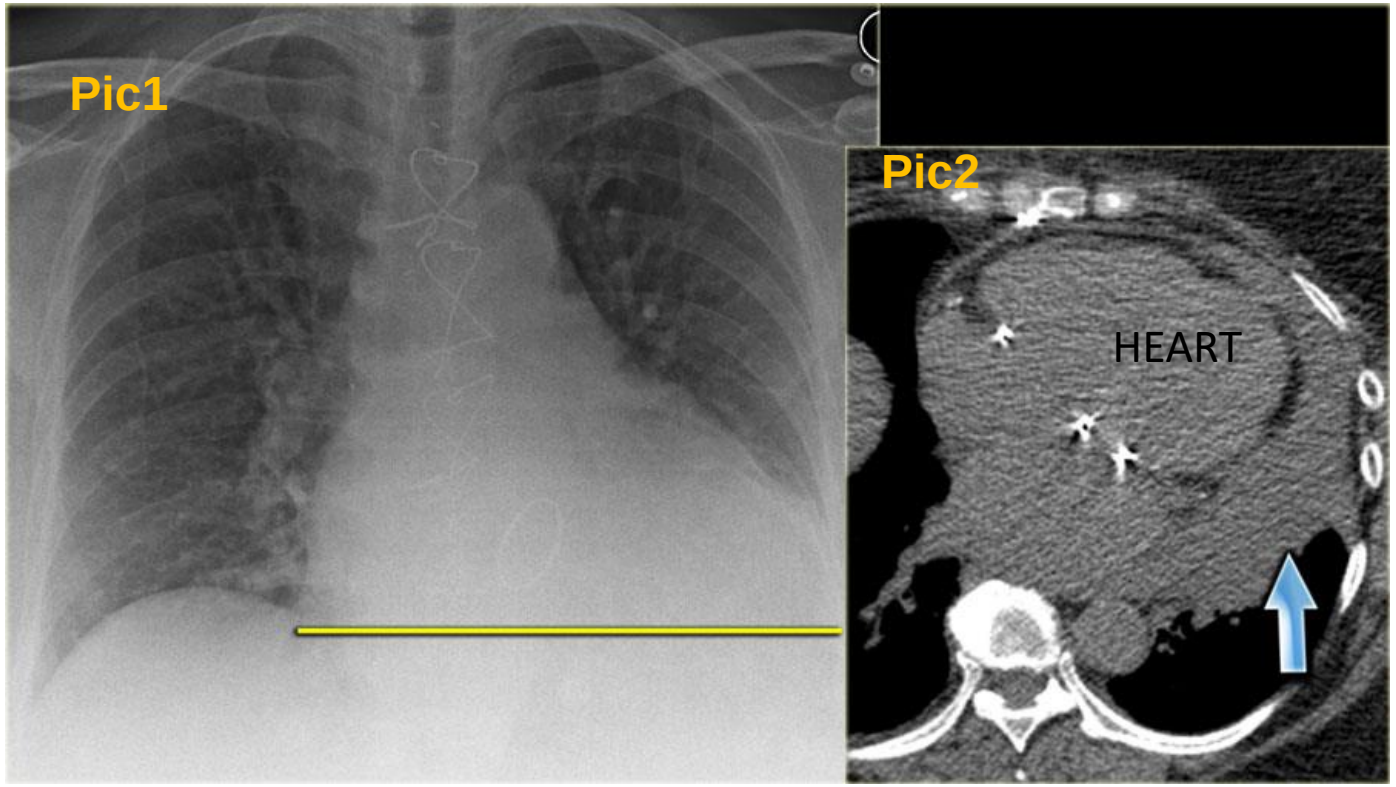


Pic 2



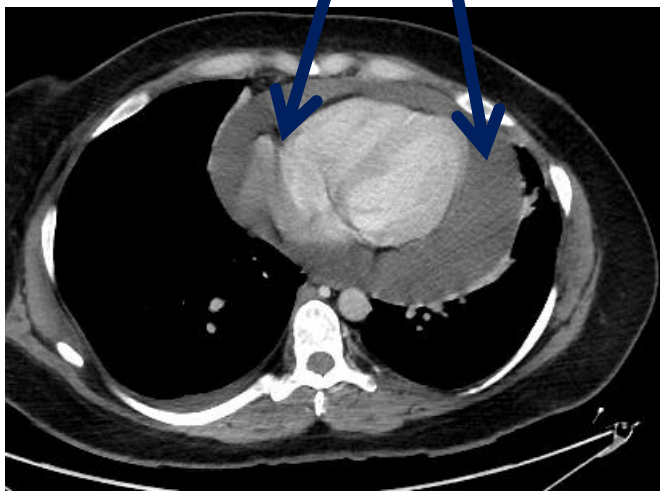
- **Pic 1:** **CT angiography of coronary artery or Cardiac CT of coronary artery because the artery** clear as an artery not as a contrast and you can see details of the heart
- **Pic 2:** **Catheter angiography:** only vessels are clear no details.
- Calcification: black arrow " **calcific plaque**"

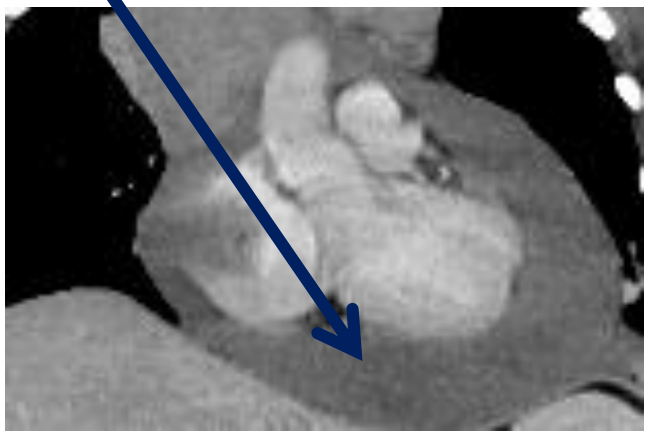
Pericardial effusion

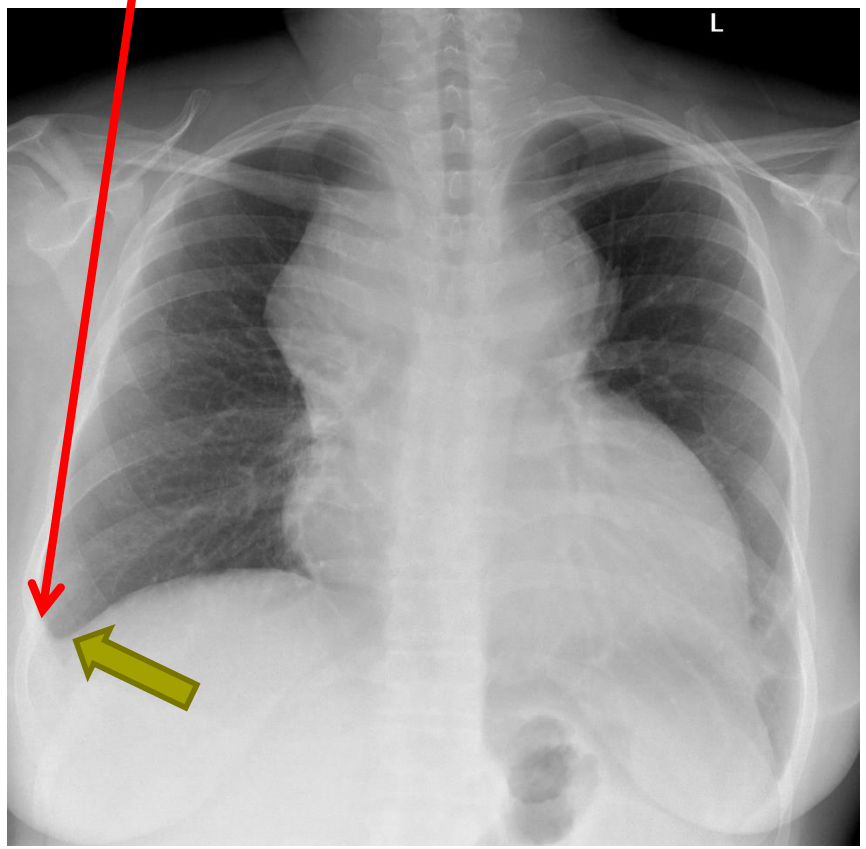


- in chest x-ray we can see that the heart is enlarged in size but it doesn't give us the cause **(Pic1).**
- When we did **chest CT** we can see that the heart has a **normal size**(see the outline of the heart) and the enlargement is caused by accumulation of fluid in the pericardial cavity.. It is pericardial effusion **(Pic2)**

pericardial effusion **and** Pleural effusion

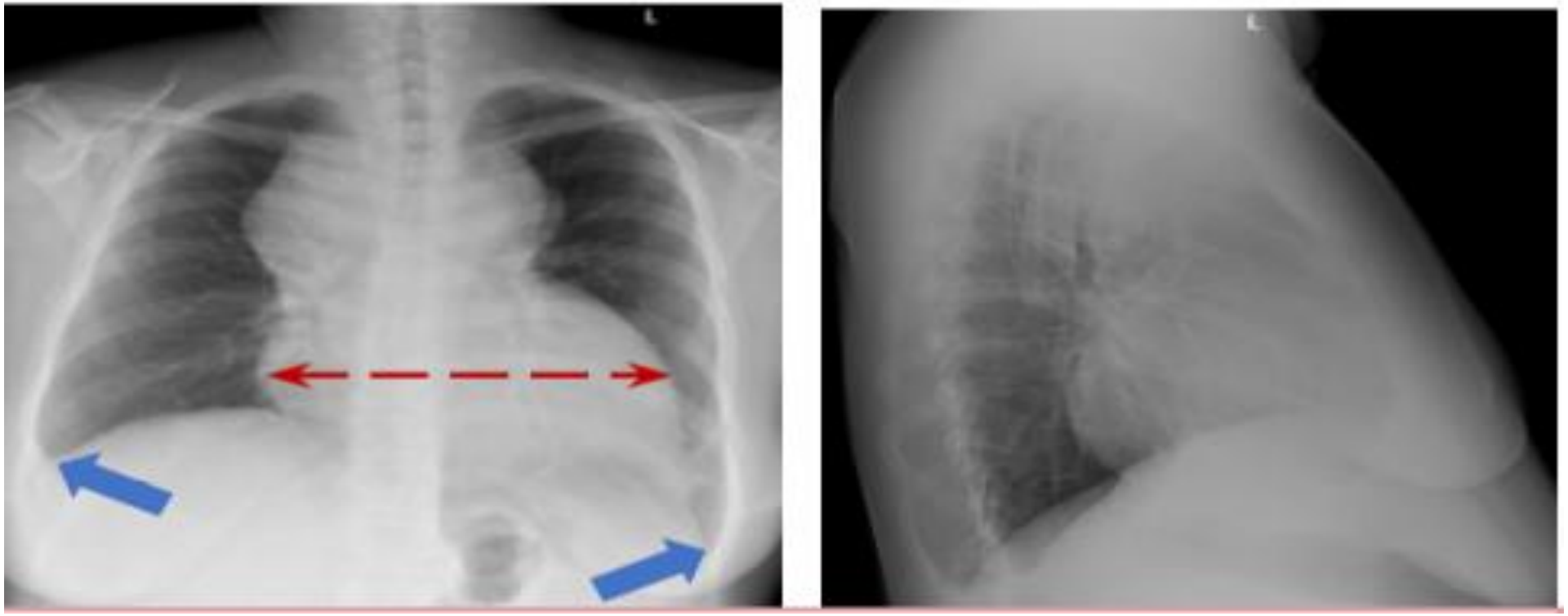






On CXR Is it Enlarged heart ?:
“ notice costophrenic angle blunted “ So we need to do CT, heart appears normal !
What is around the heart ? Fluid “ pericardial effusion”

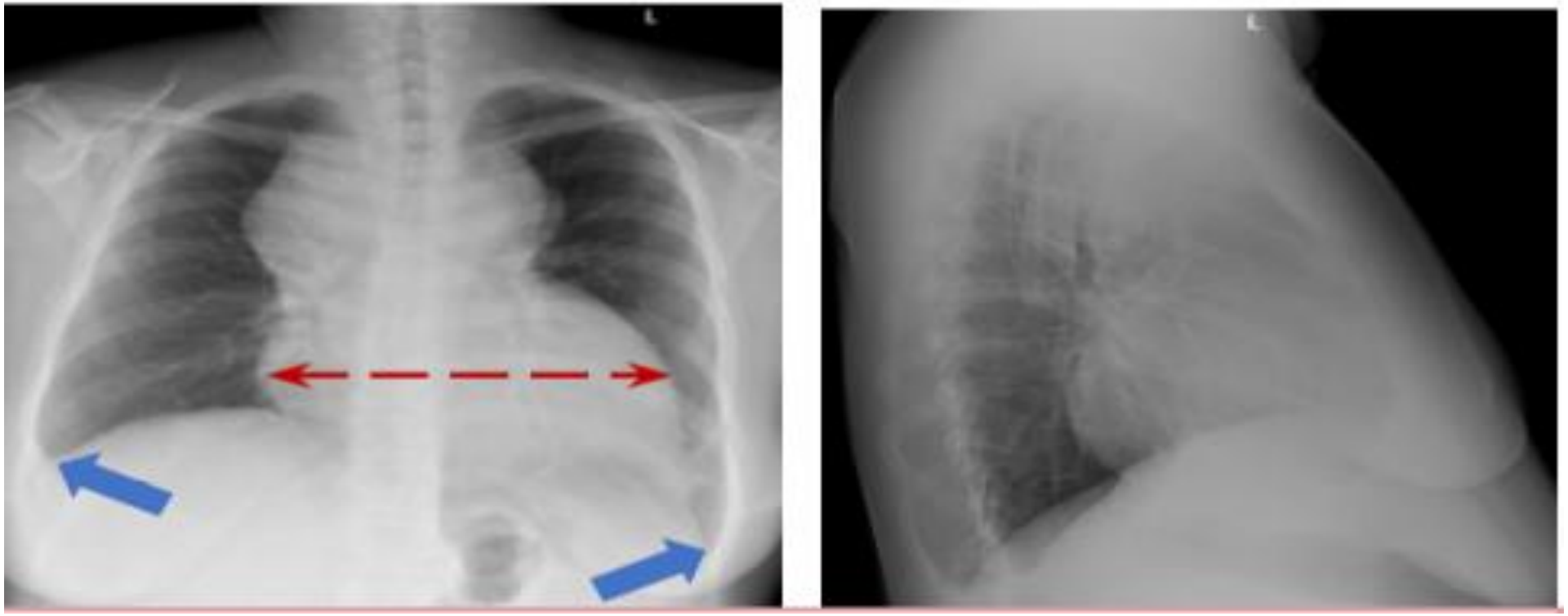
14. Case



Q.1: **On CXR Is it Enlarged heart ?**

Q.2: **Why don’t we say it’s deviated into the left side ?**

14. Case



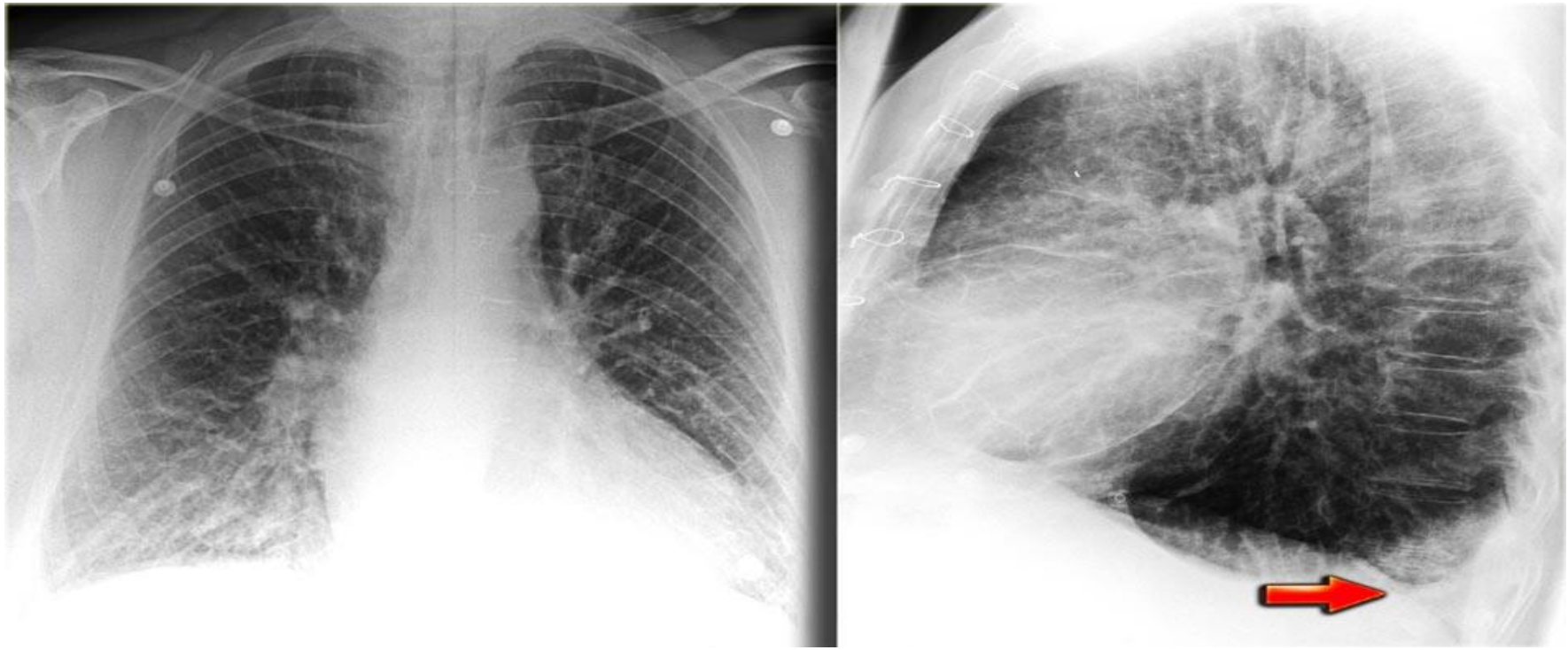
Q.1: **On CXR Is it Enlarged heart ?**

" notice cotsophernic angle blunted " So we need to do CT.

Q.2: **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.

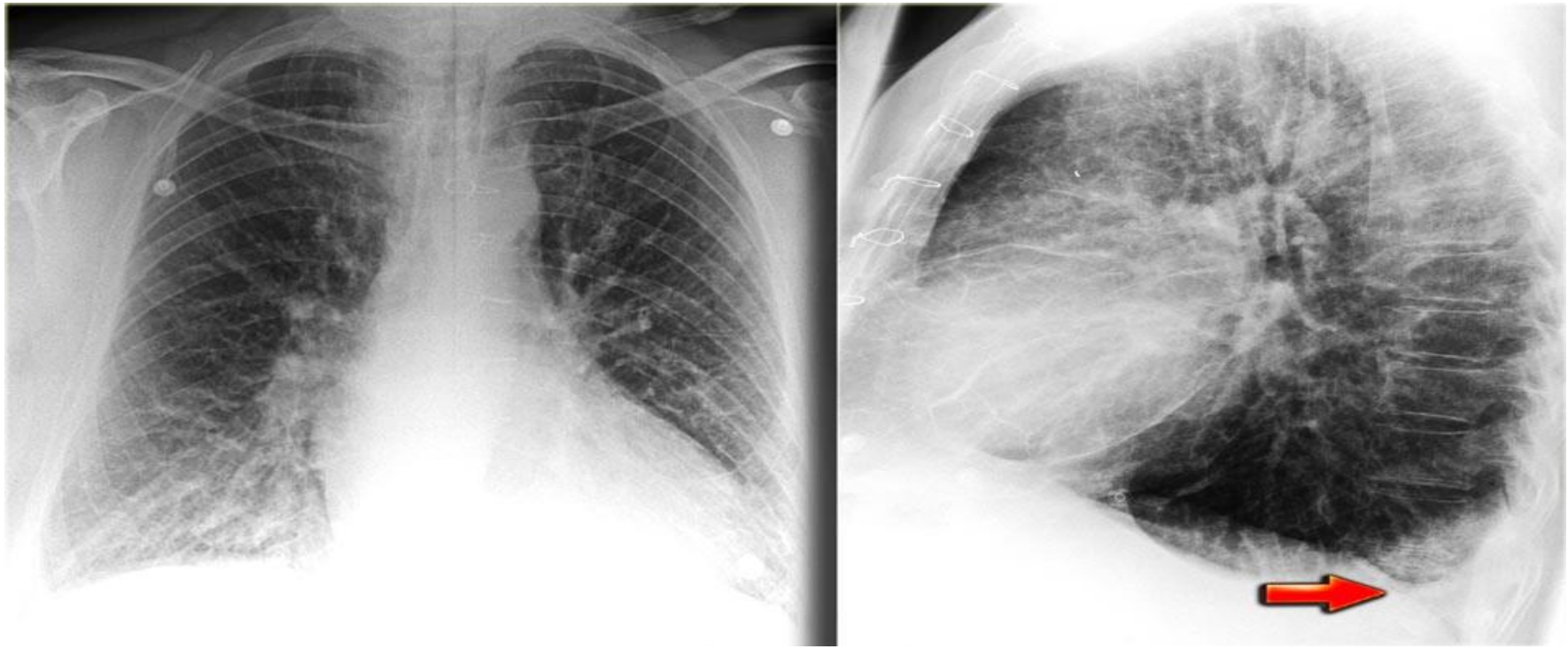
15. Case



Q.1: **Which views are given by these two Pictures (right & left)?**

Q.2: **Is there any abnormality in these pictures? If yes , Mention your findings. And what is the diagnosis?**

15. Case



Q.1: Which views are given by these two Pictures (right & left)?

Right: lateral , Left: PA

Q.2: Is there any abnormality in these pictures? If yes , Mention your findings. And what is the diagnosis?

Yes, PA there is blunting in **costophrenic angle** usually it means pleural effusion. Also once we do lateral view blunting of posterior **postophrenic** 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.

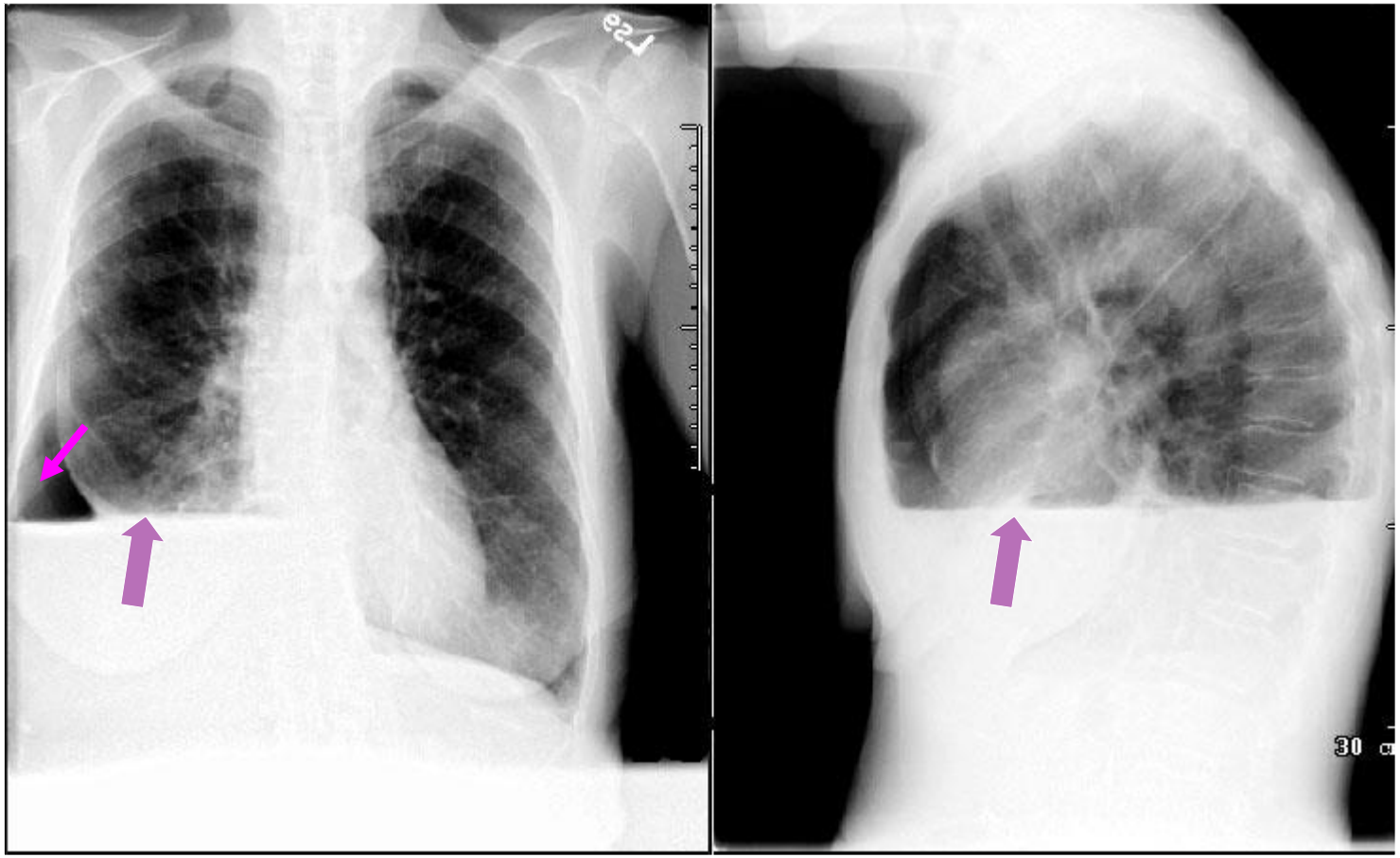
The diagnosis is: PLEURAL EFFUSION.

16. Case

Q.1: what is the finding in these pictures ?

Q.2: The big arrows indicate what ?

Q.3: the small arrow indicate what ?



16. Case

Q.1: what is the finding in these pictures ?

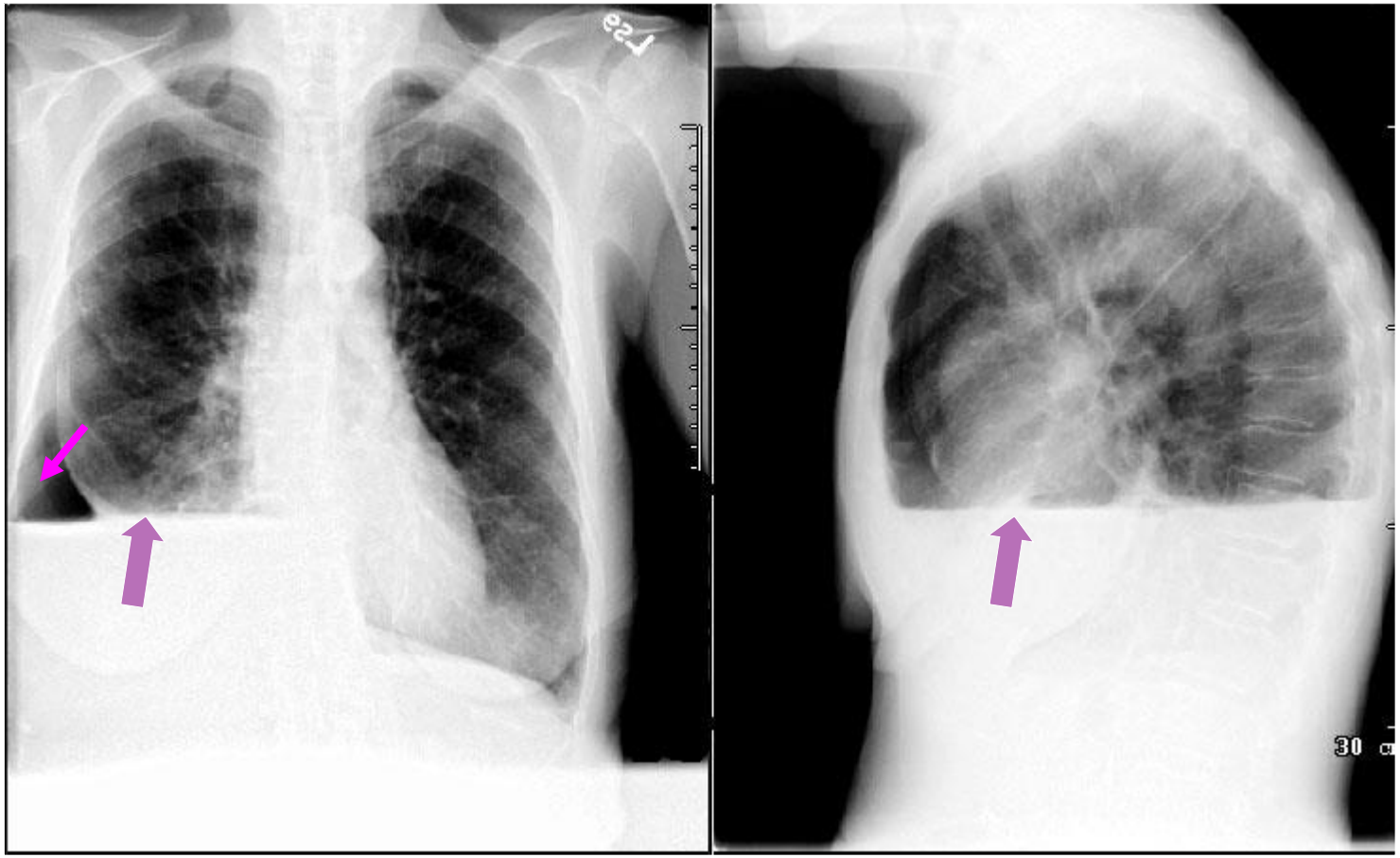
Hydro-pneumothorax

Q.2: The big arrows indicate what ?

Flat fluid level

Q.3: the small arrow indicate what ?

Air



❖ **Hydro-pneumothorax:**

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

DONE !