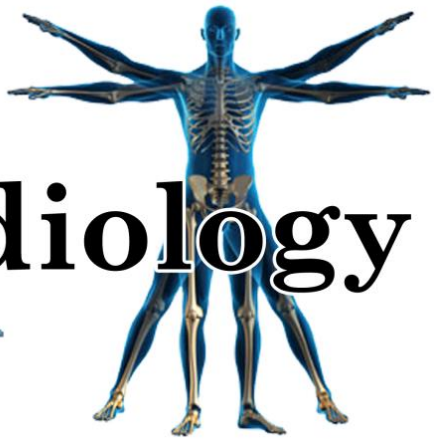

432 Radiology Team

chest patterns Cases

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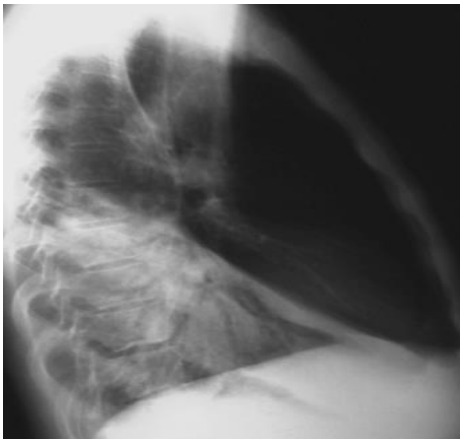
COLOR GUIDE: • Females' Notes • Males' Notes • Important • Additional • 431 team

Chest patterns:

- INCREASED PULMONARY DENSITIES
- INCREASED NODDULAR PULMONARY DENSITIES
- DECREASED PULMONARY DENSITIES
- CAVITARY/CYSTIC PULMONIC LESIONS
- MEDIASTINAL MASSES

Adult patient presents with cough and fever for the last 3 days. His blood workup shows WBC of 18 X 109/L (mainly neutrophils). Chest X-ray was done.



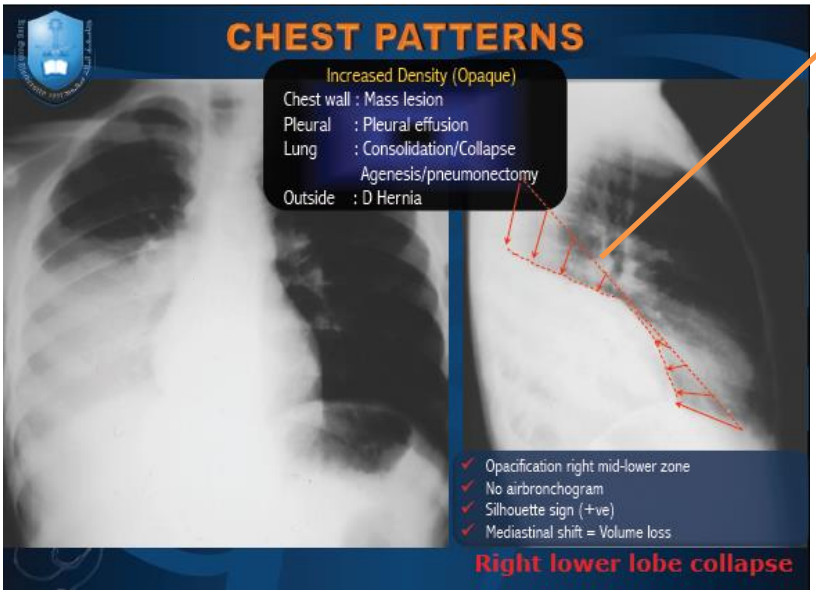
Note(s):

1- Opacification right lower zone
2-No volume loss
3- Airbronchogram (+ve)
*4- Silhouette sign (+ve) (**hemidiaphragm** not clearly seen + **hemicardiac border** is clearly seen) when this sign is (+)it means that the disease is in the **posterior.***

What is the most likely increased density pattern seen on this X-ray?
a- Bony thoracic cage lesion.
b- Lung parenchyma lesion.
c- Mediastinal mass lesion.
d- Pleural lesion.

Dx: Lung parenchyma lesion.

- Increase density (opacity).
- The most important DDx: opacity >> infection (pneumonia) = consolidation of the lung **or** pleural effusion.
- Fever does not exclude pleural effusion because it may get infected and form empyema.
- airbrnochogram >> the presence of this sign helpful to confirm lung disease but its absence will not exclude lung disease.
- **Pleural effusion** >> **homogenous opacity** while in **pneumonia** >> not homogenous (airbronchogram)

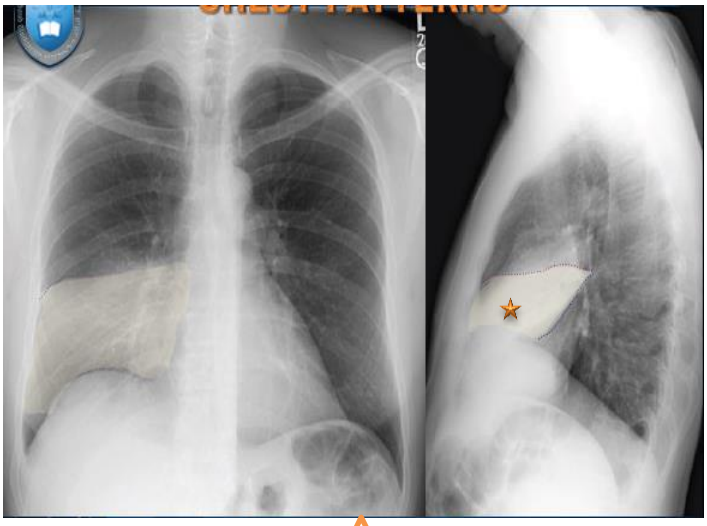


The oblique fissure is shifted backward & downward instead of being straight due to (right lower lobe collapse)

Note(s):

- *The heart is shifted toward the affected lung because of the collapse.*
- *The most important DDx for lung opacity :*

Pleural effusion & pneumonic consolidation



★ Triangular opacity

Consolidation of the Right Middle lobe

- Clear **diaphragm** + right **cardiac** border is not clear = **anterior** lesion.
- The consolidation is b/w oblique & horizontal fissures.
- Opacity is obliterated the anterior cardiac border >> so pathology related to right middle lobe , and if we have the same opacity in the left side it will be in the lingual of the left lung which is equal to the RML .
- DDx : pneumonia – contusion of the lung due to truma .

Atelectasis of the Right Middle lobe

Atelectasis = collapse (loss of volume).

★ **Appears as band (narrow triangular band)**

Note(s):

- ✓ *Opacification of the whole right lung.*
- ✓ *Complete opacification of right hemithorax*
- ✓ *Homogenous*
- ✓ *No volume loss*
- ✓ *No airbronchogram*
- ✓ *Silhouette sign (+ve)*

DDx:

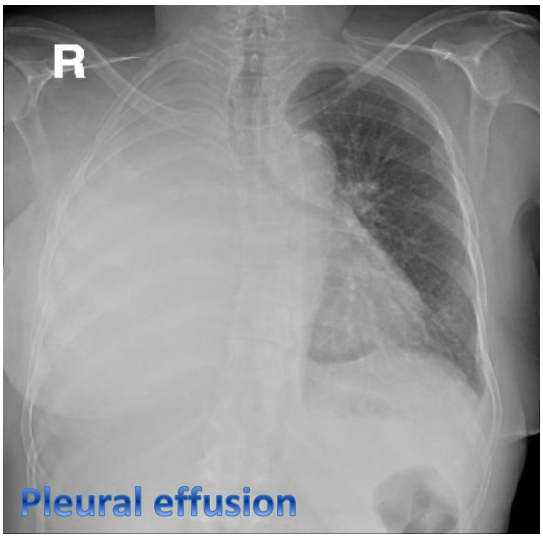
Plura: blood – empyema – fluid

Chest wall : mass in relation to the breast – bony thoracic cage (check the ribs)

- ✓ *We don't see right cardiac border >> anterior*
- ✓ *We don't see the hemidiaphragm >> posterior*

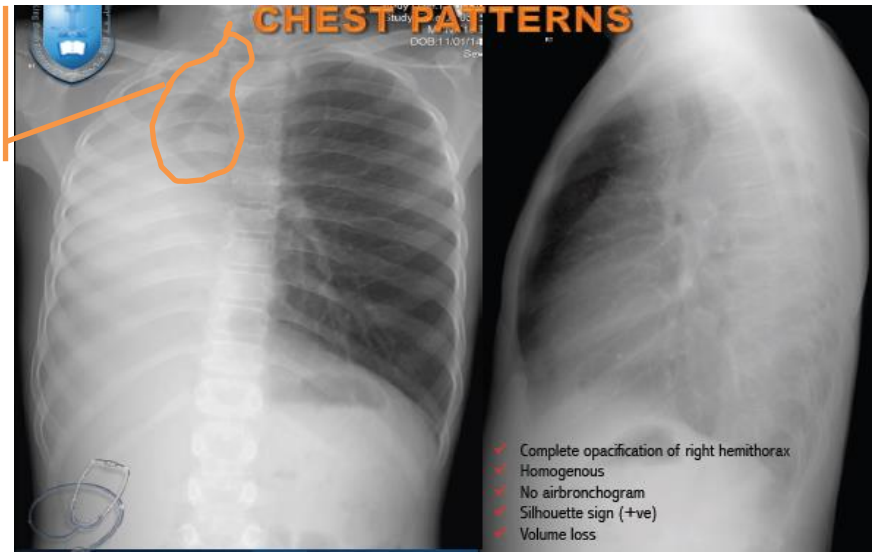
Extensive

- ✓ *Heart is shifted to the left >> increase volume in the right side due to pleural effusion.*
- ✓ *We can do US to confirm diagnosis .*



16 Years-Old with History of Respiratory Distress

Deviation of the trachea due to R lung collapse



Q: What is the most likely cause for the increased density pattern seen on this X-ray?

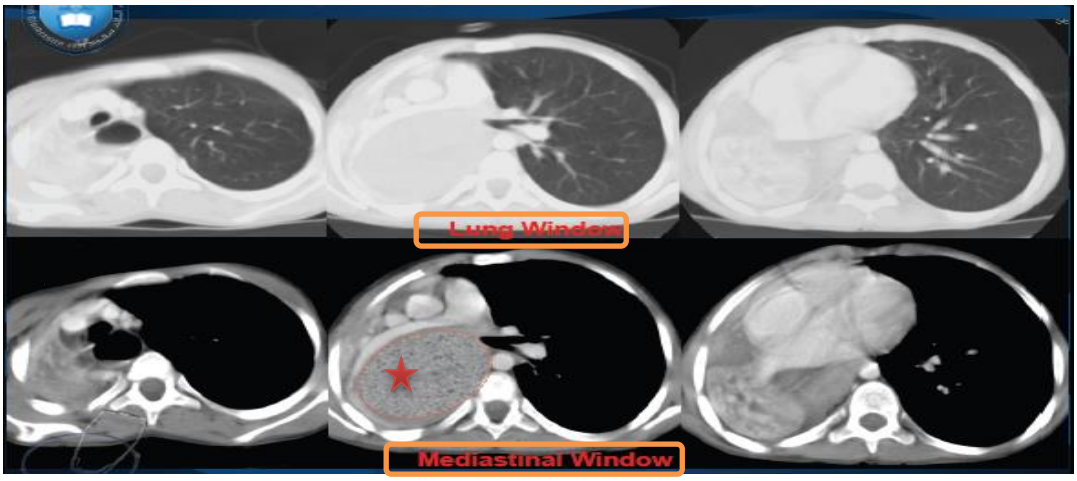
a- Right lung collapse.
b- Right lung consolidation (pneumonia).
c- Chest wall mass lesion.
d- Pleural effusion.

Q: What would be the best modality to do next for the evaluation of this X-ray findings?
a- Expiratory chest X-ray.
b- Ultrasound of the chest.
c- CT scan of chest. Before we do bronchoscopy.

Dx: Right lung collapse.
CT scan of chest.

Note(s):

- ✓ *Complete opacification of right hemithorax*
- ✓ *Homogenous*
- ✓ *No airbronchogram*
- ✓ *Silhouette sign (+ve)*
- ✓ *Volume loss*
- ✓ *Collapse :could be due to foreign body causing obstruction , blood clot or mass .*

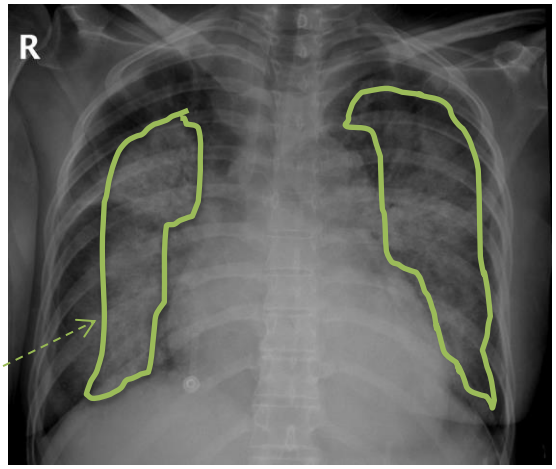


★The collapse is caused by a mediastinal mass obstructing the bronchus.

❖

Elderly patient presenting with dyspnea, cough and edema of both lower limbs

Q: What is the most likely cause of the findings seen on this X-ray?
a- Pneumonia.
b- Interstitial pneumonitis.
c- Pulmonary edema. Related to HF
d- Pleural lesion.



Dx:Pulmonary edema

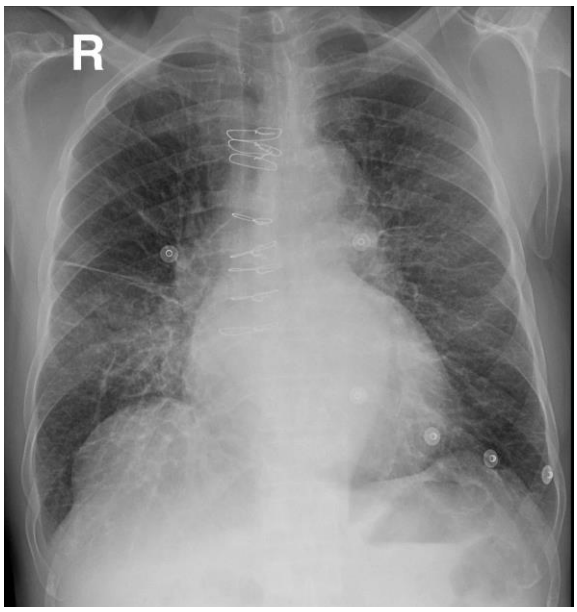
Note(s):

Bilateral
*None-homogeneous air-space opacification "**bat-wing**"*
Central more than peripheral
No volume loss
Cardiomegaly (increase heart transverse diameter)>>indicating HF
airbronchogram

Note(s):

In general increased pulmonary Density (Opaque):
Chest wall : Mass lesion
Pleural : Pleural effusion
Lung : Consolidation/Collapse
Agenesis/pneumonectomy
Outside : D Hernia

More extensive pulmonary edema

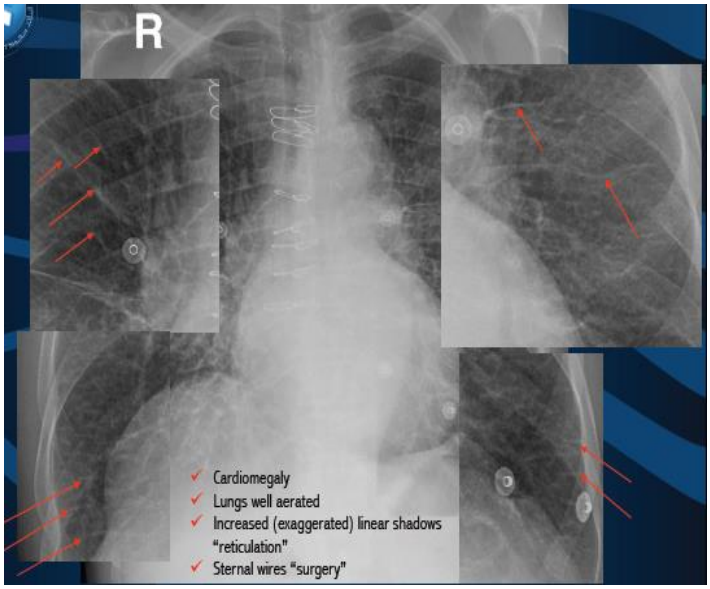


- Adult patient had cardiac surgery "coronary graft" presenting with dyspnea.

What is the most likely basic abnormality seen on this X-ray?
a- Air space abnormality.
b- Interstitial abnormality. (interstitial pulmonary edema)
c- Mediastinal mass lesion.
d- Pleural lesion.

Note(s):

- ✓ *Cardiomegaly*
- ✓ *Lungs well aerated*
- ✓ *Increased (exaggerated) linear shadows "reticulation" red arrows*
- ✓ *Sternal wires "surgery"*

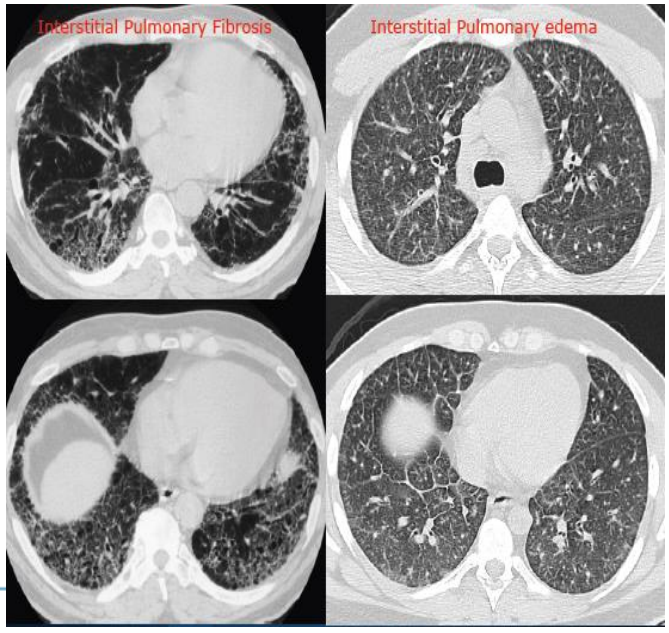


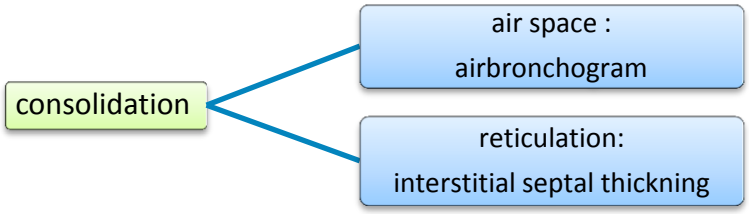
Dx:Interstitial abnormality.

Pulmonary edema starts at the interstitial tissue because it contains the lymphatics and then can spread to involve the air space.

How to differentiate b/w interstitial edema and fibrosis? We use CT for differentiation

Fibrosis	Edema
chronic disease	acute disease
Localized and peripheral linear streaks	Diffused linear streaks
Mainly involve the base of the lung	Mainly at the upper zone





❖ Adult patient presenting with Cough, fever night sweating and weight loss

DDx: TB – Sacridosis

Final diagnosis: ***pulmonary miliary TB***

TB in the lung can present with different patterns:

1- Pneumonic consolidation
2- Cavitary lesion (pneumonia with cavitation)
3- With Broncho-vascular spread (as tiny nodules) >> miliary TB

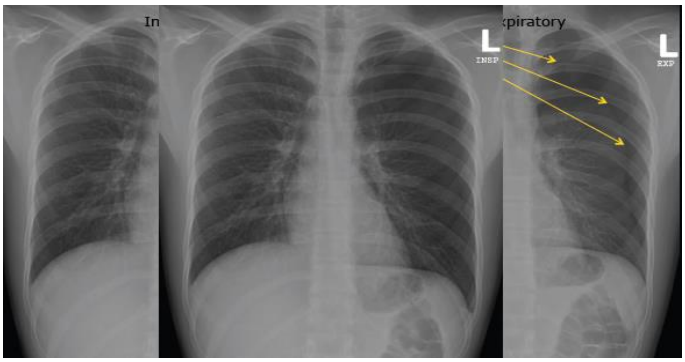
Note(s):

Large variable size nodules DDx:
Vascular malformation.
Abscesses
Hydatid cyst
Metastasis
TB does NOT cause large variable size nodules , it's always small nodules.
History is imp then do CT

Young adult presenting with acute chest pain Known to have bronchial asthma

DDx for acute chest pain :

Cardiac>> MI , cardiac tamponade
Pulmonary >> PE , Pneumonia , emphysema
Pleura >> tension pneumothorax
GI >> Peptic ulcer , GERD , Esophagus rupture



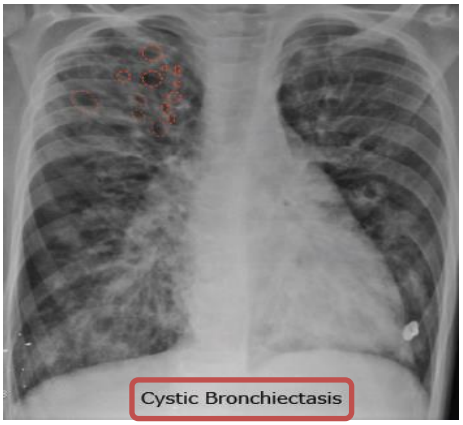
Diagnosis : pneumothorax as a complication of asthma.

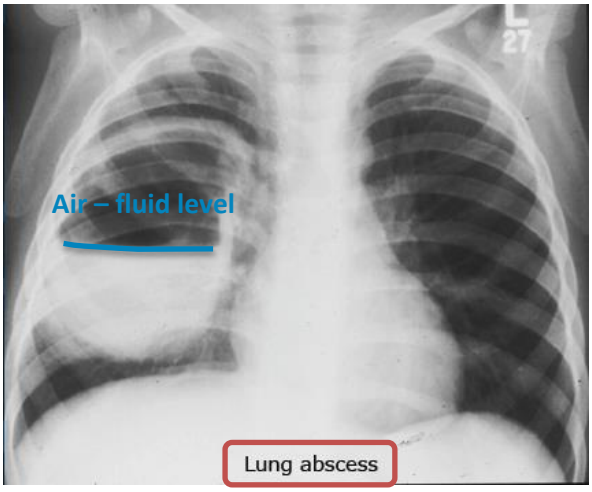
Yellow arrows: refraction of the pleura with the retracted lung.

It's better to take the image during "expiration" >> more clear pneumothorax and clear retraction of the lung.

012 year-old child presentingwith

recurrent chest infection year-old

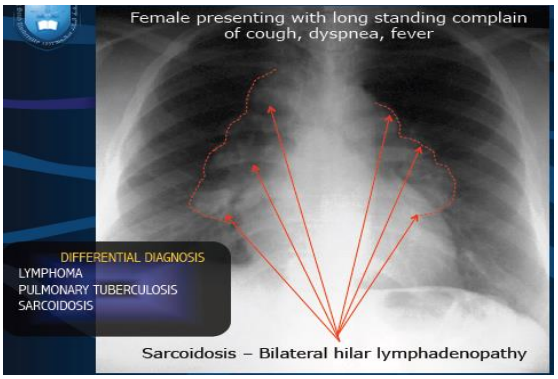




Female presenting with long standing complain

of cough, dyspnea, fever (***Sarcoidosis***)

Widening of the mediastinum due to lymphadenopathy(lymphnode enlargement could be due to TB,sacridosis or lymphoma)



(Aortic aneurysm) :

Acute chest pain , Known hypertensive