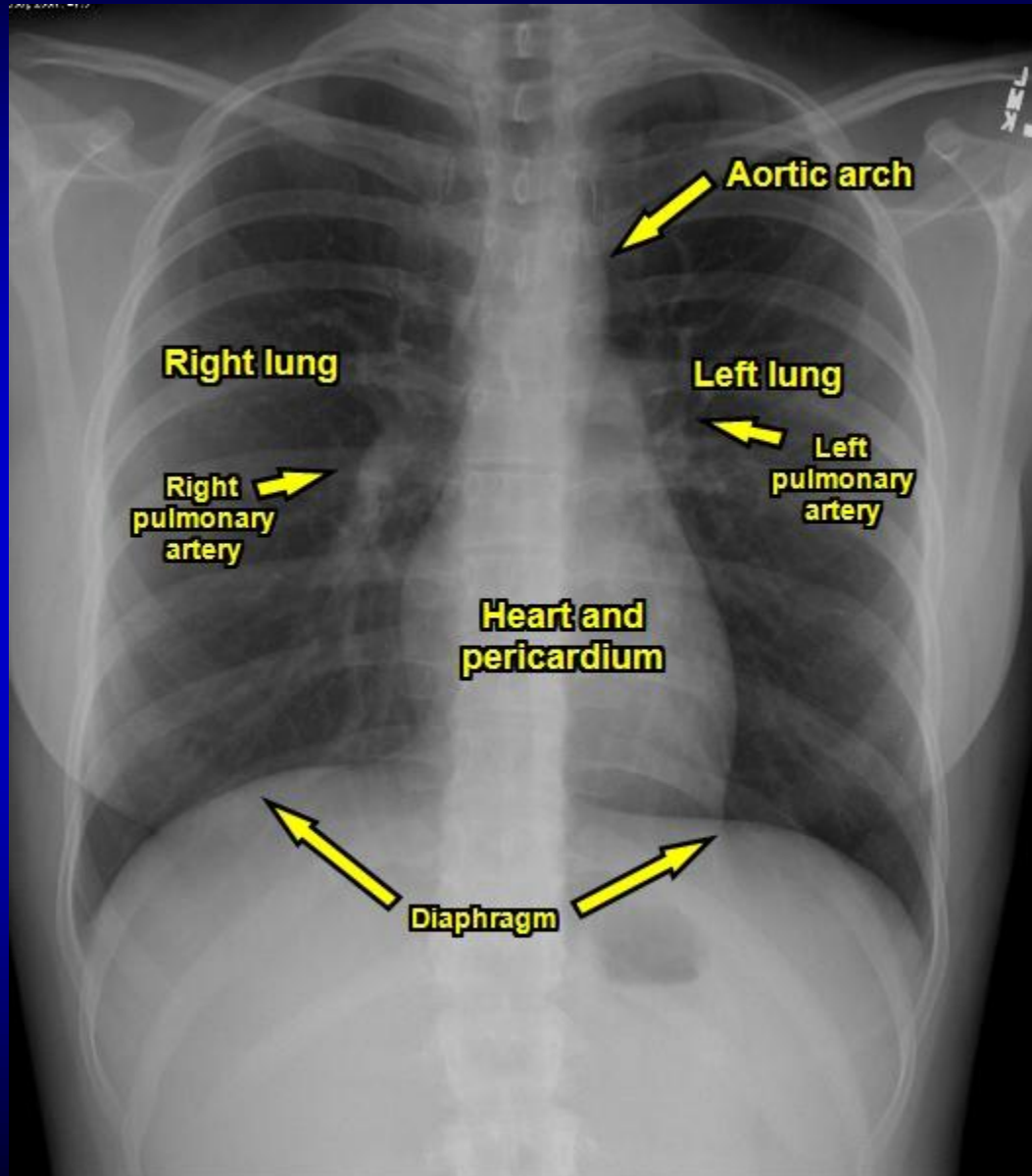


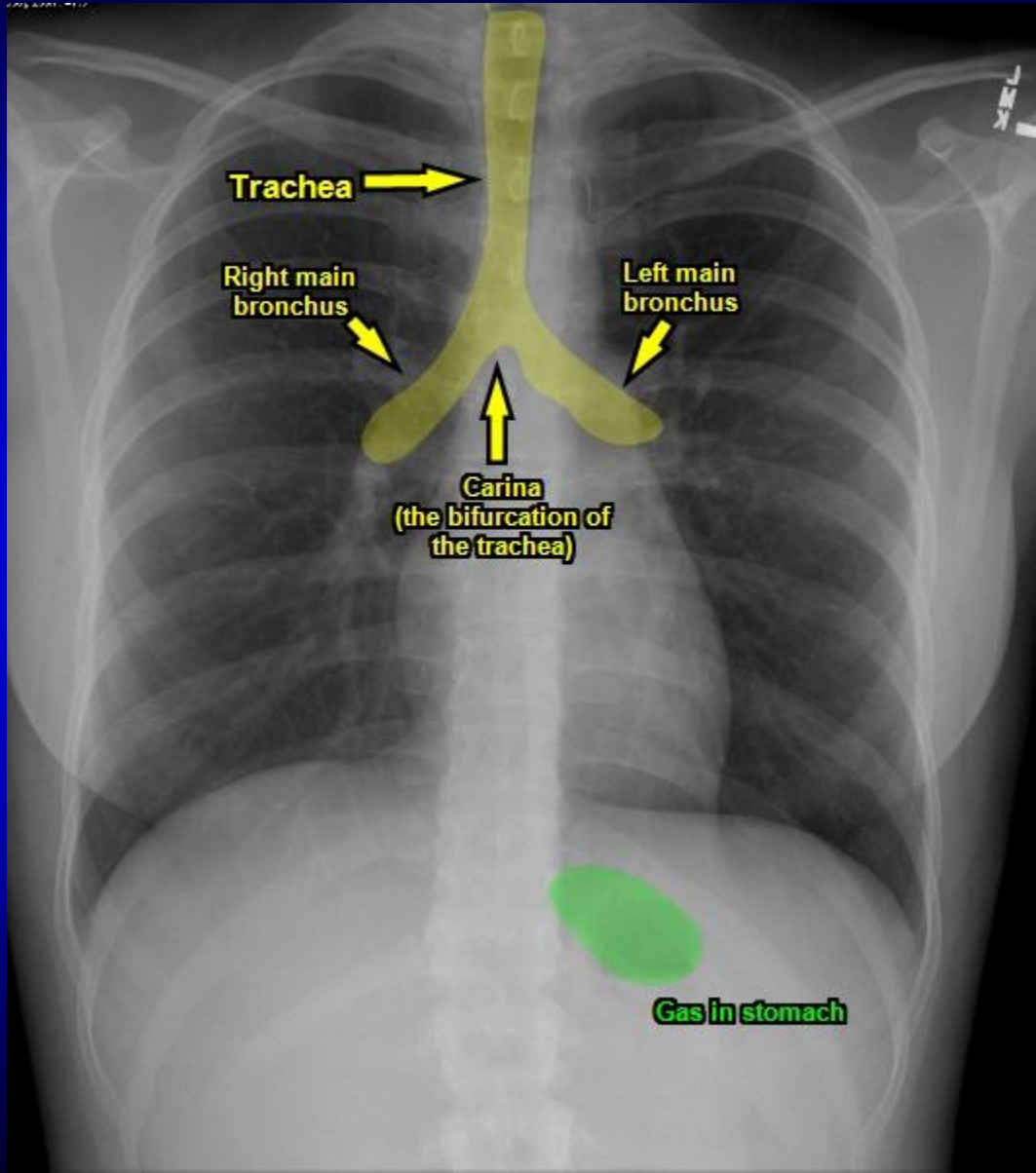
MS1 case #2

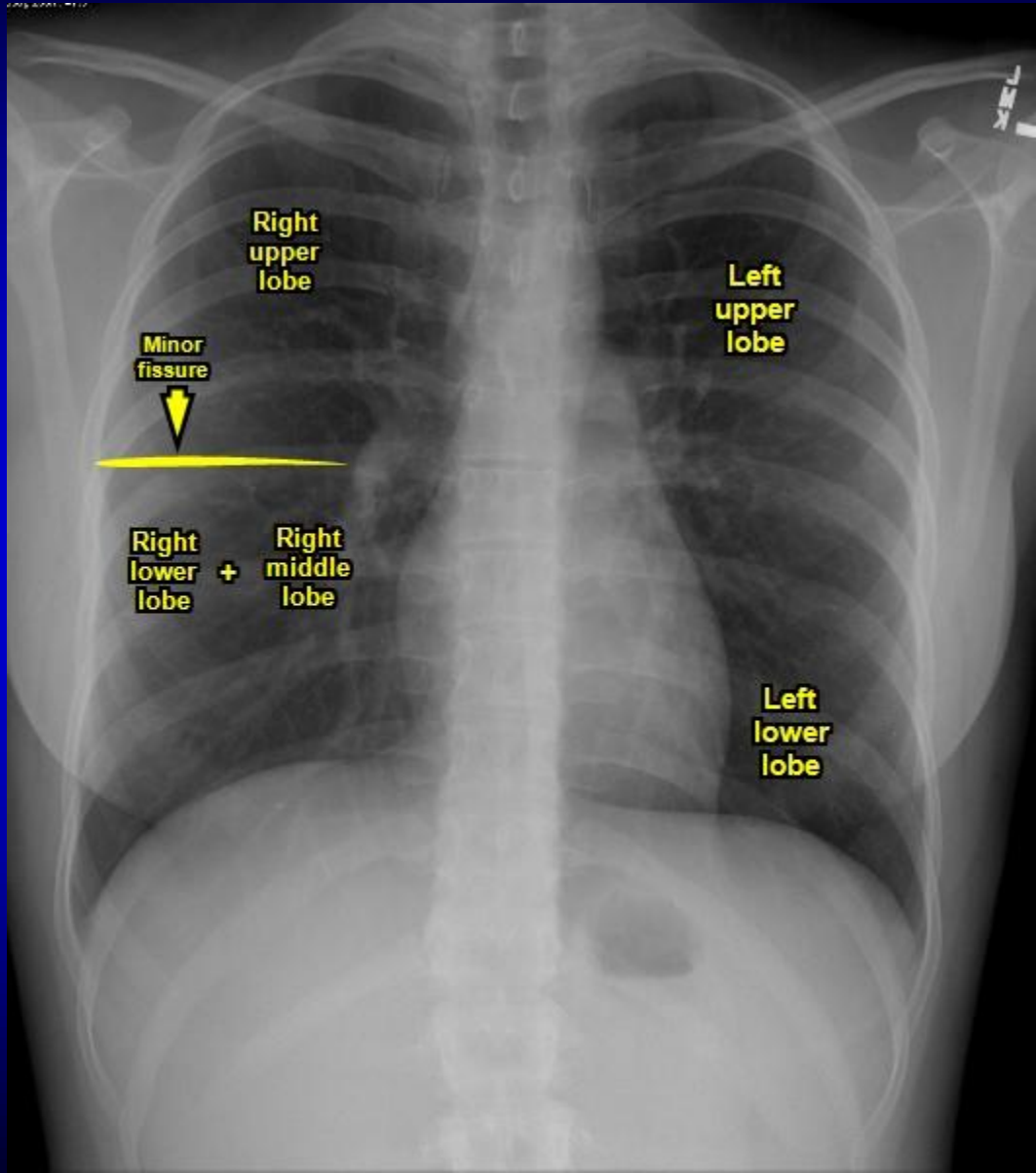
History

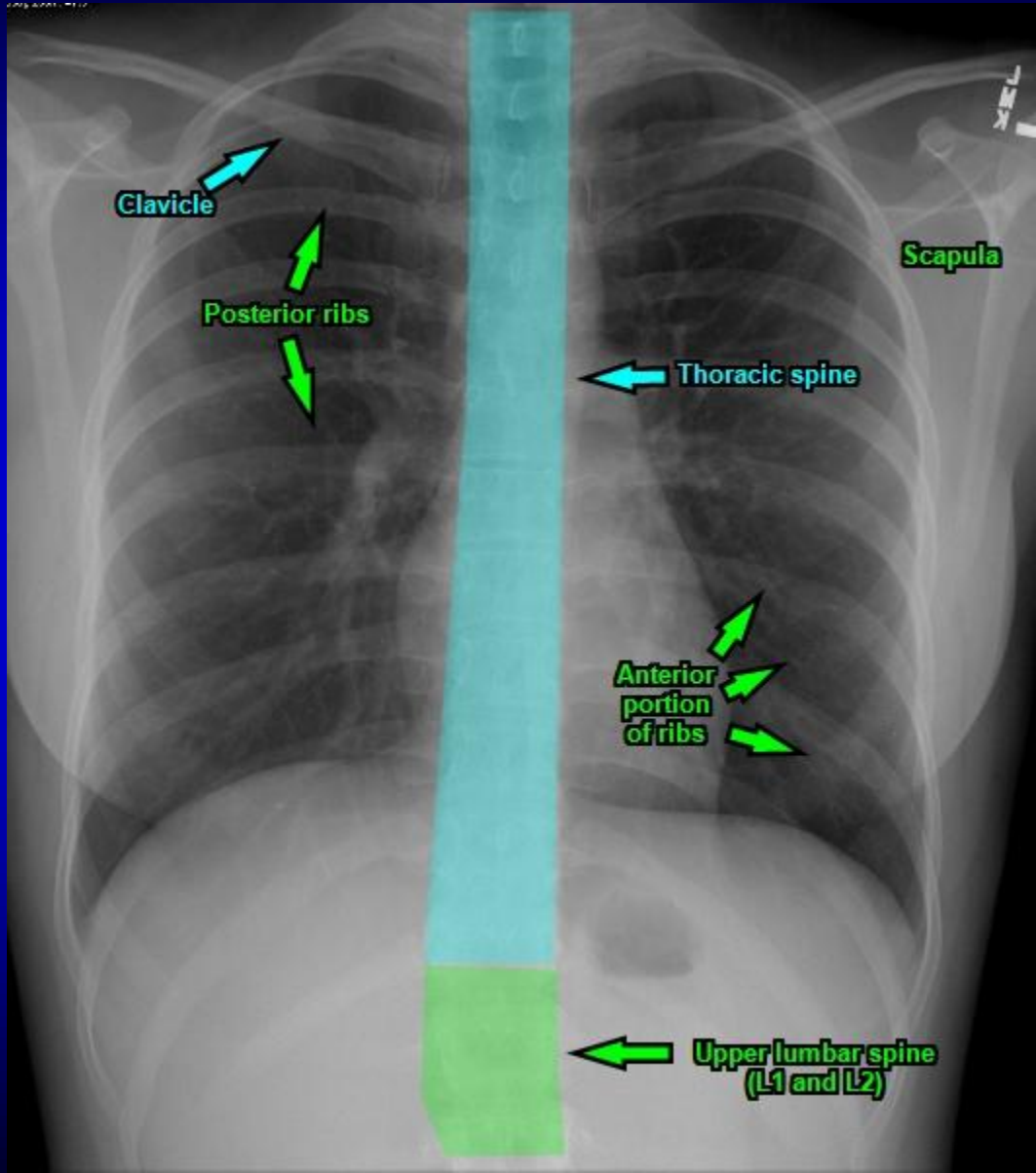
- Let's learn some basic anatomy on a chest radiograph, and then see some interesting cases of how you can use the things you learned in week 1 to make a diagnosis.

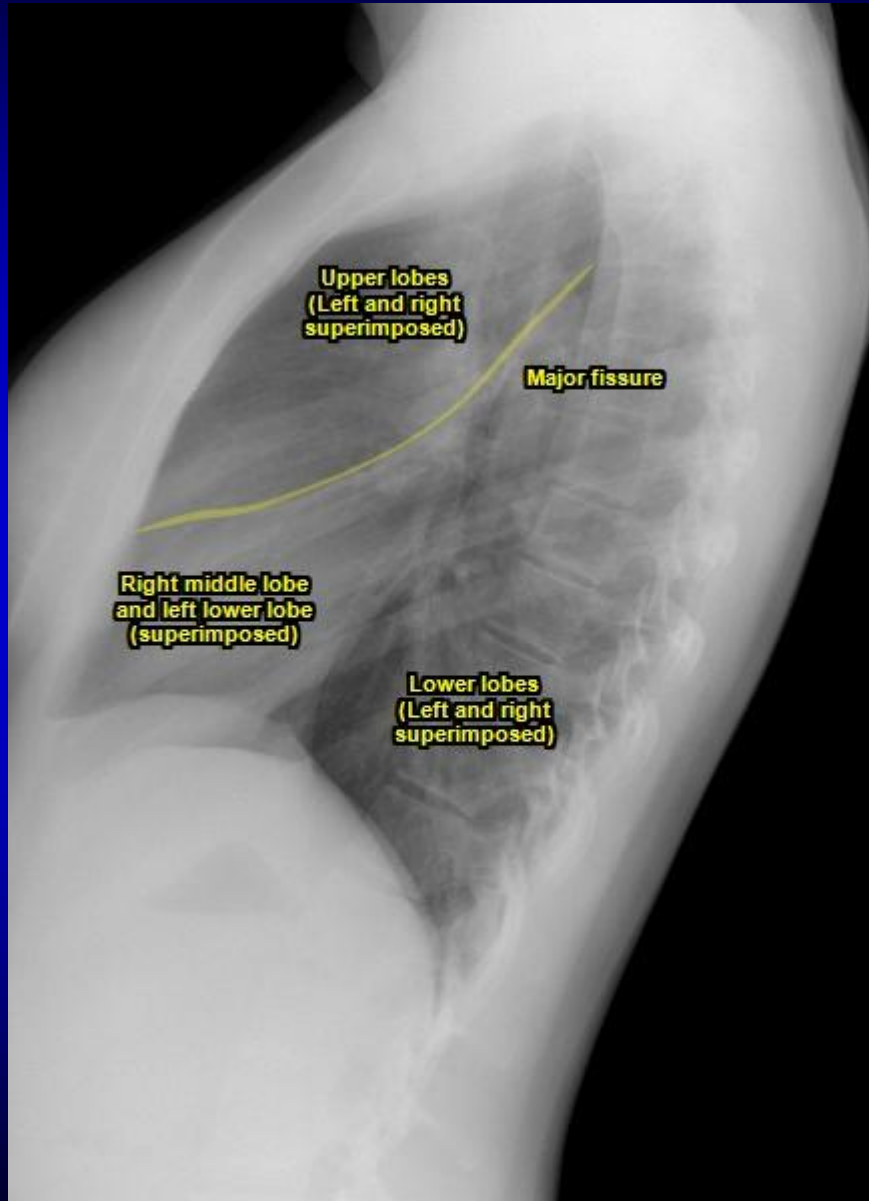
Normal frontal chest radiograph

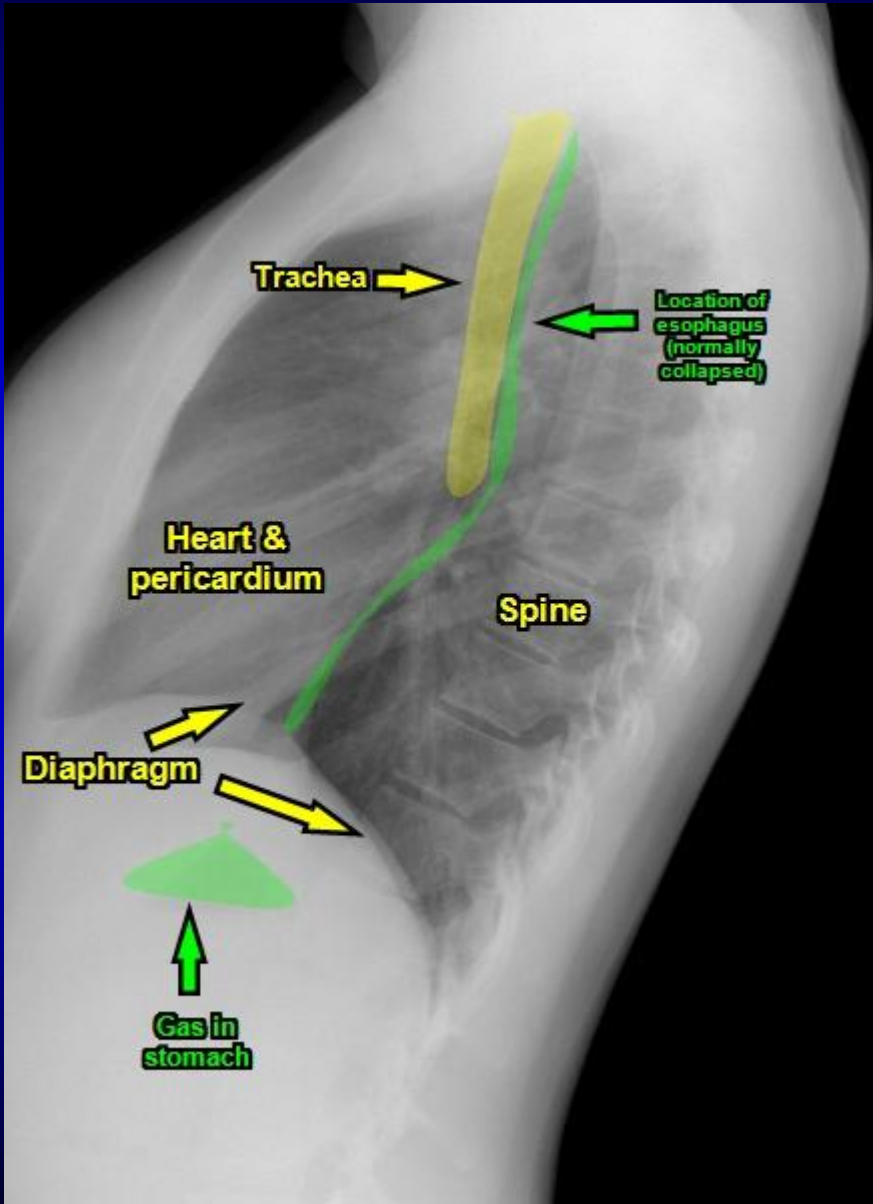












Trachea →

← Location of esophagus (normally collapsed)

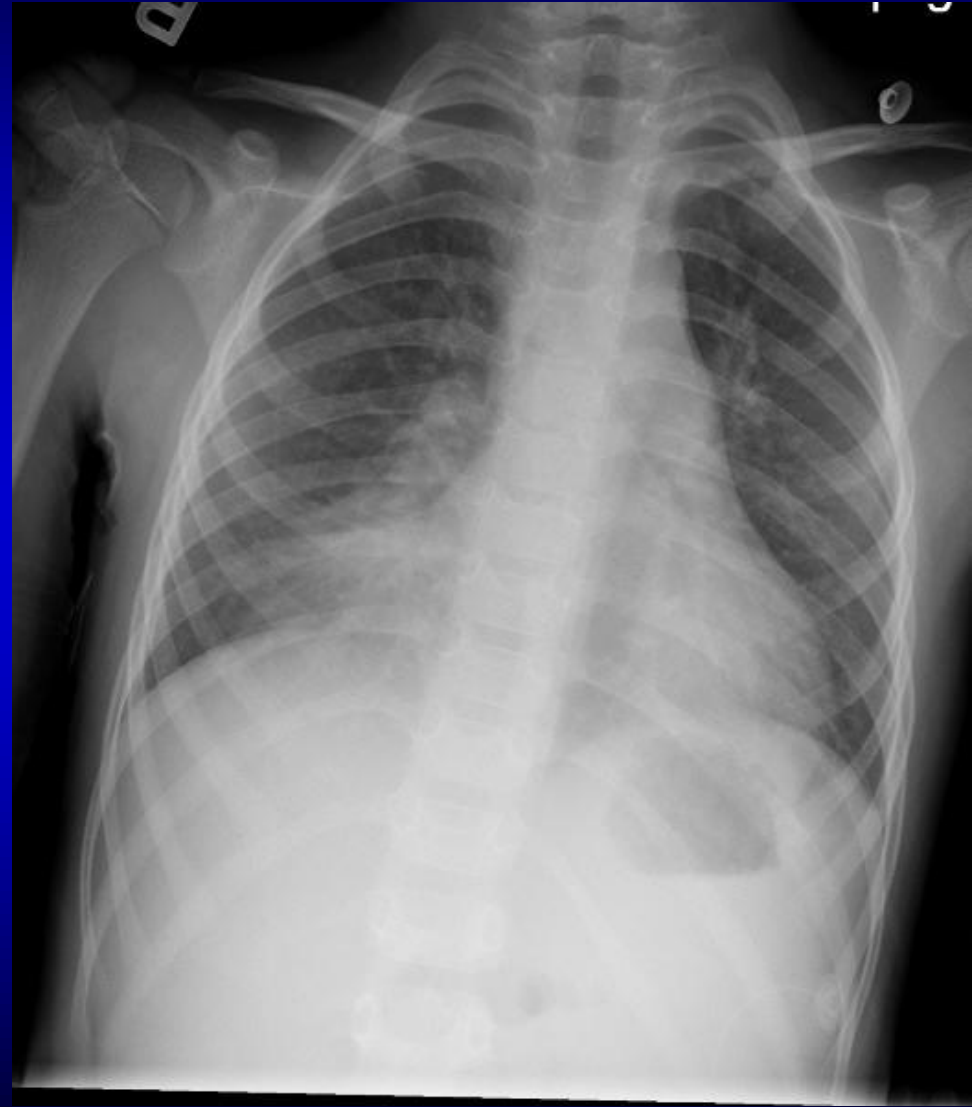
Heart & pericardium

Spine

Diaphragm →

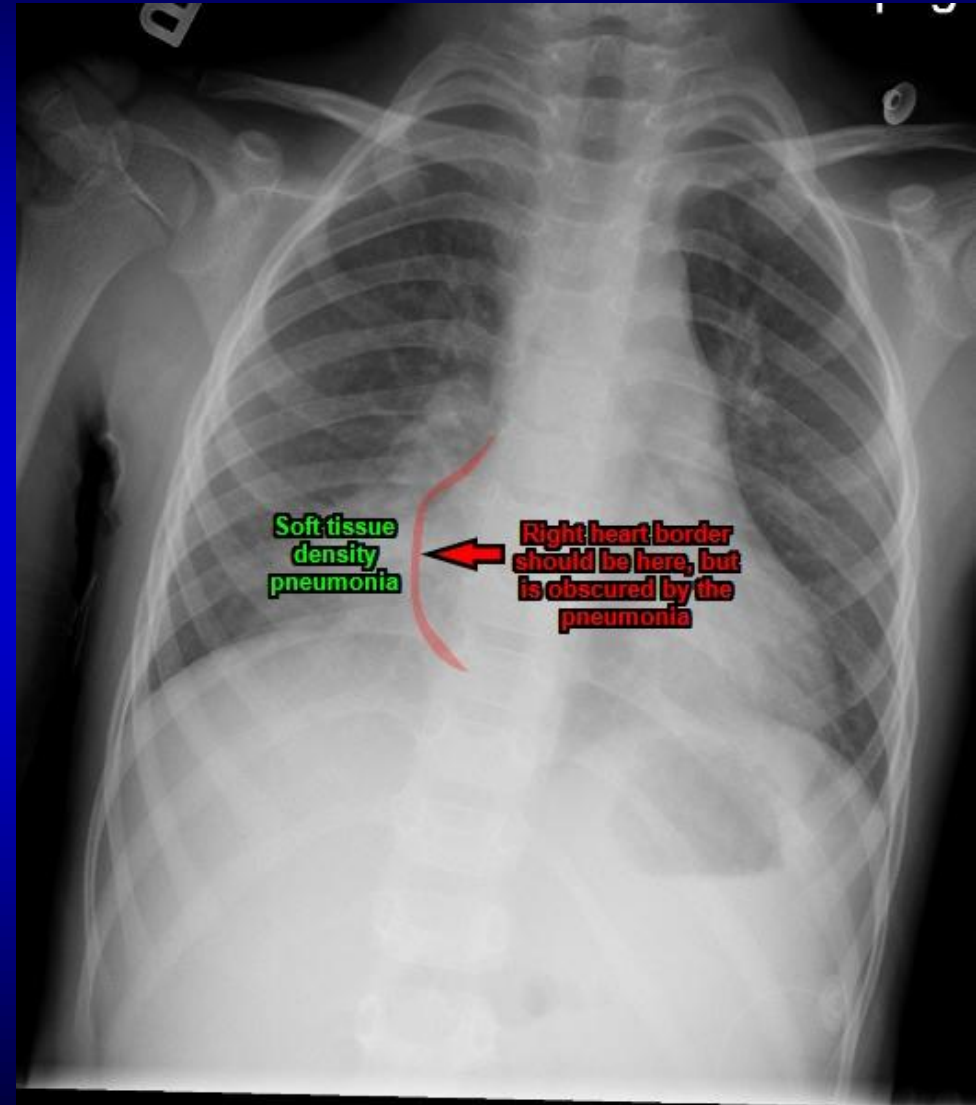
↑ Gas in stomach

What don't you see here?

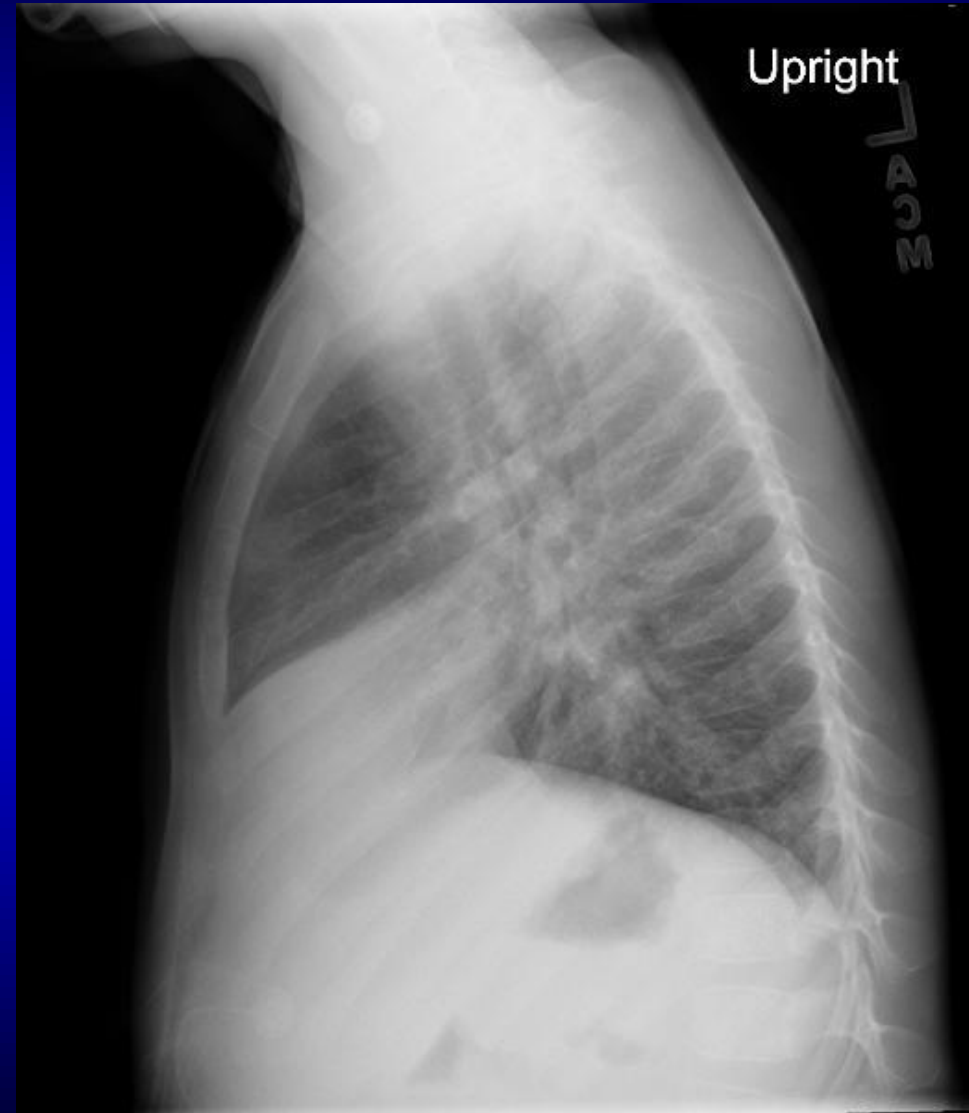


What don't you see here?

- We no longer see the right heart border (it is 'silhouetted') because of an adjacent pneumonia. Pneumonia - essentially pus/fluid filled lung - is soft tissue density, and so is the heart, so the two densities will be the same on x-rays.
- This is a right middle lobe pneumonia, which we can confirm on the lateral view (see next image)

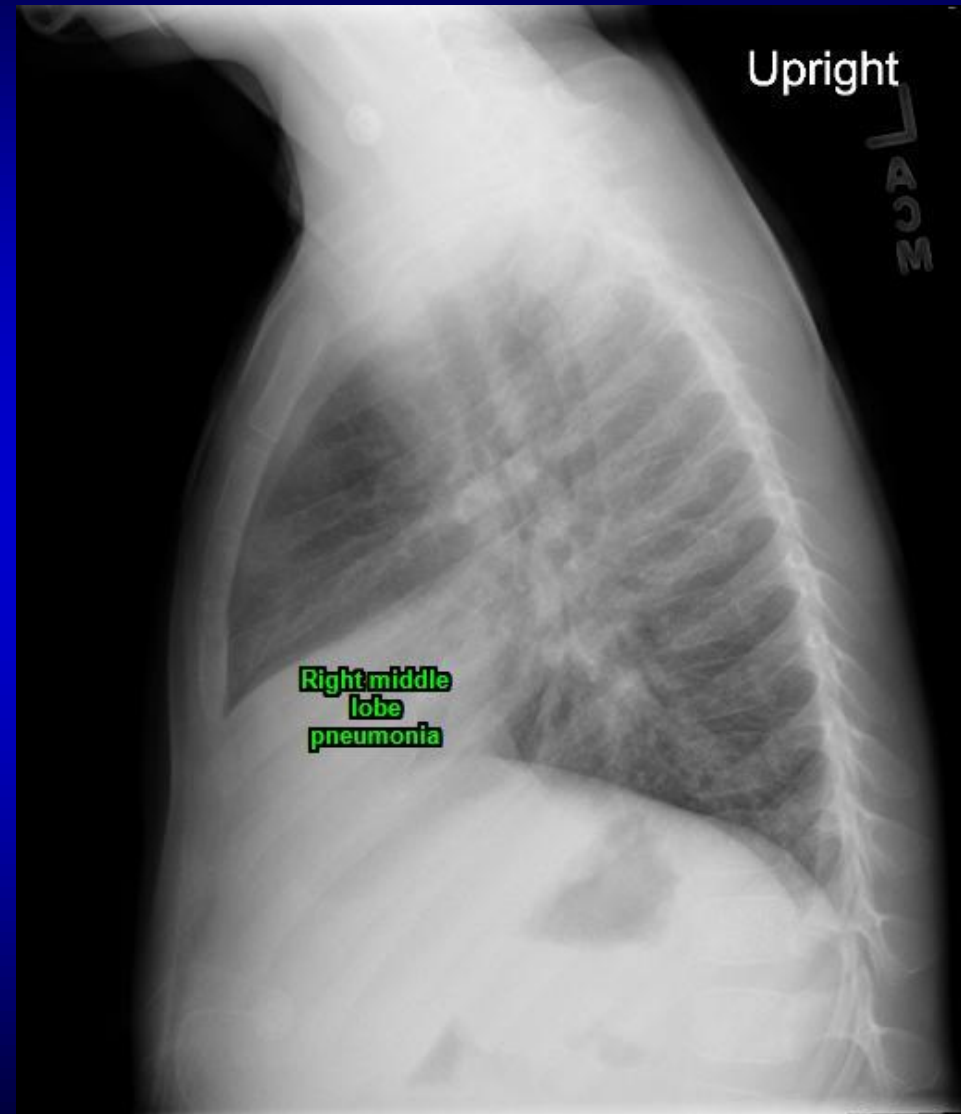


Lateral view on the same patient



Lateral view on the same patient

- Soft tissue density where the right middle lobe should be confirms the presence of a right middle lobe pneumonia suspected on the frontal view

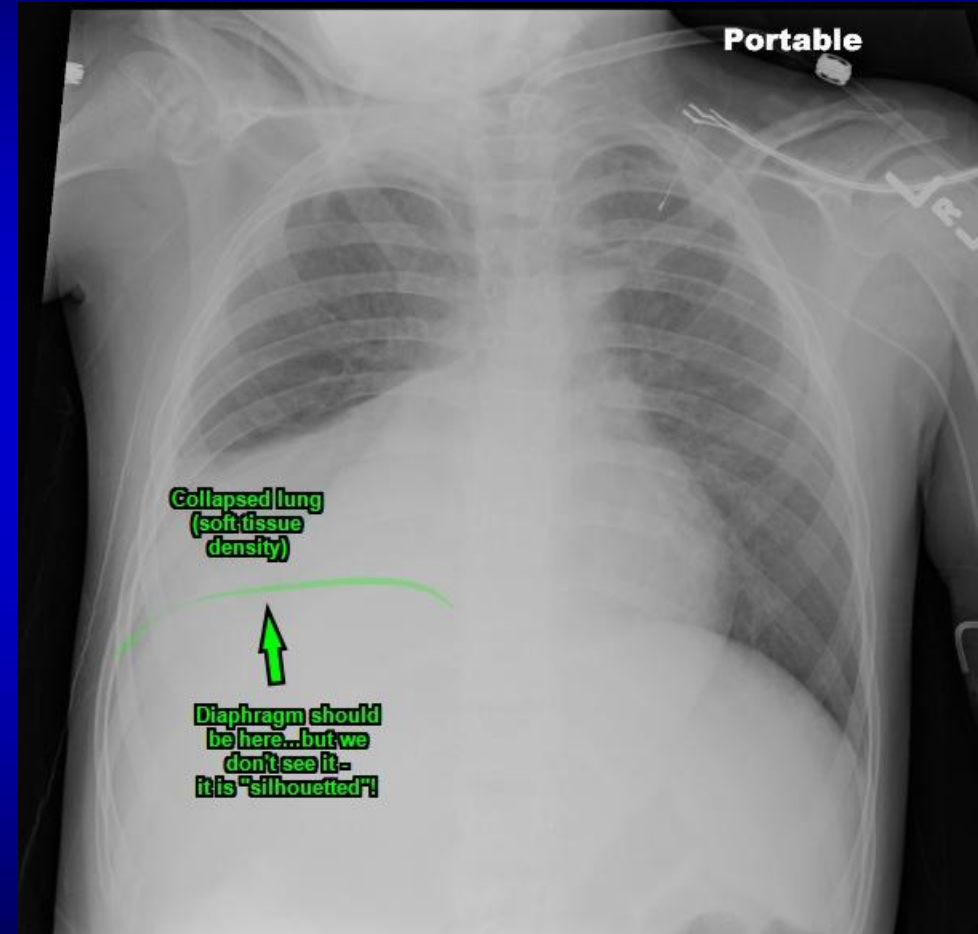


Right lower lobe collapse

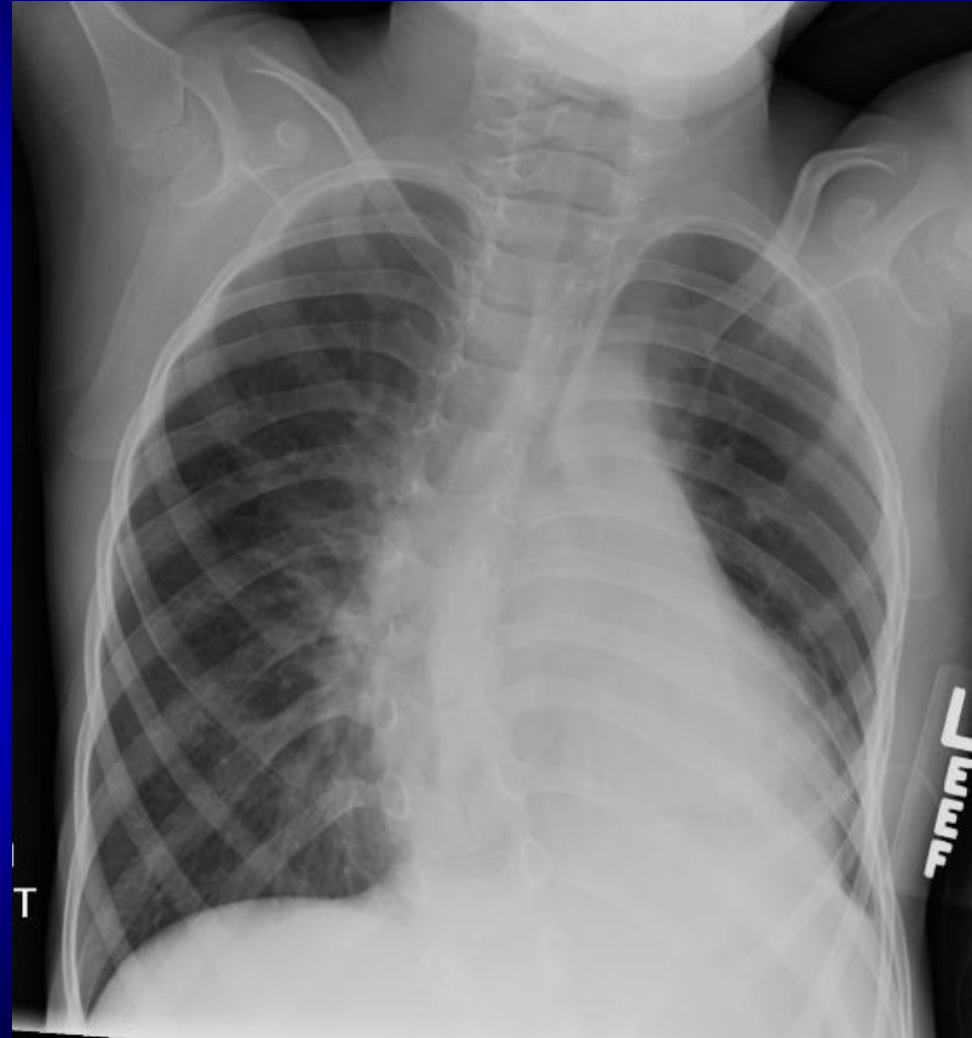


Right lower lobe collapse

- When two structure of similar density are next to each other, they obscure each other (called 'the silhouette sign'). In this example there is collapsed lung (soft tissue density) next to the diaphragm (soft tissue density), so the diaphragm is 'silhouetted' and you don't see it.

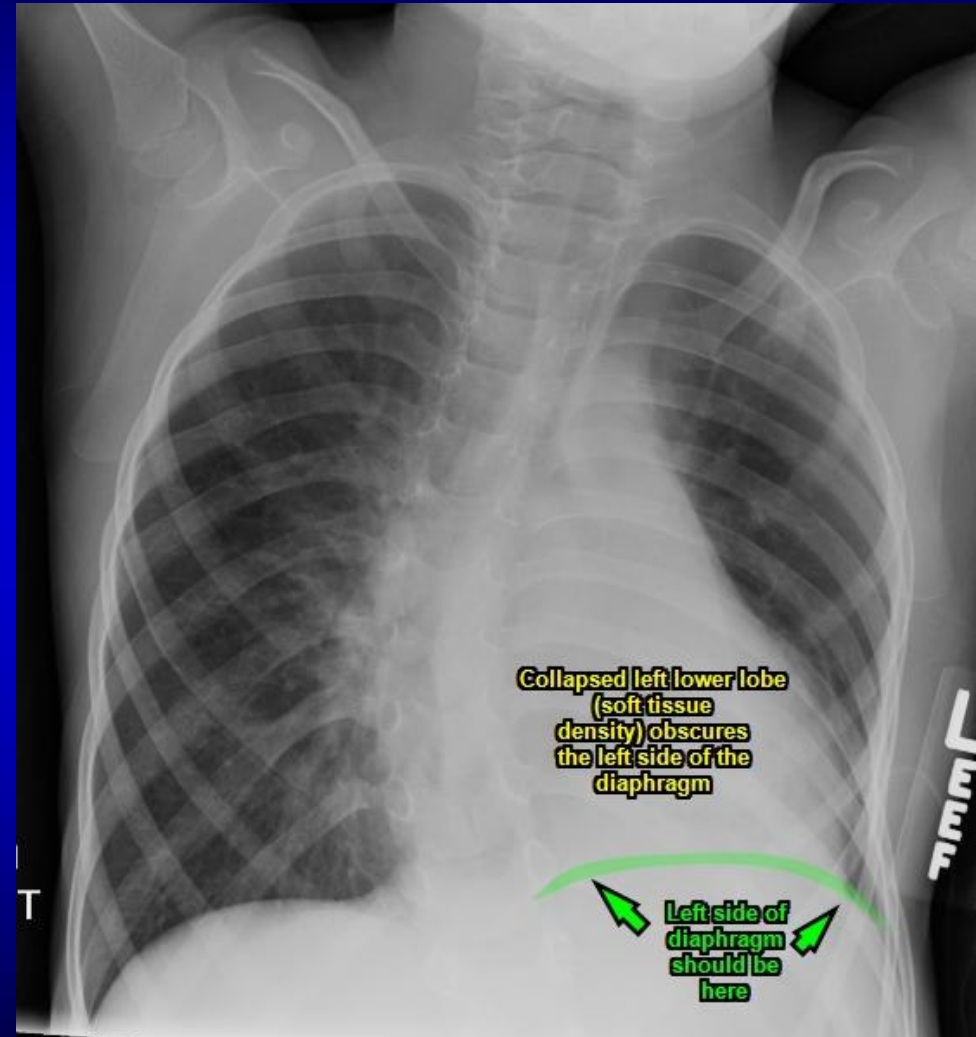


What structure don't we see here?

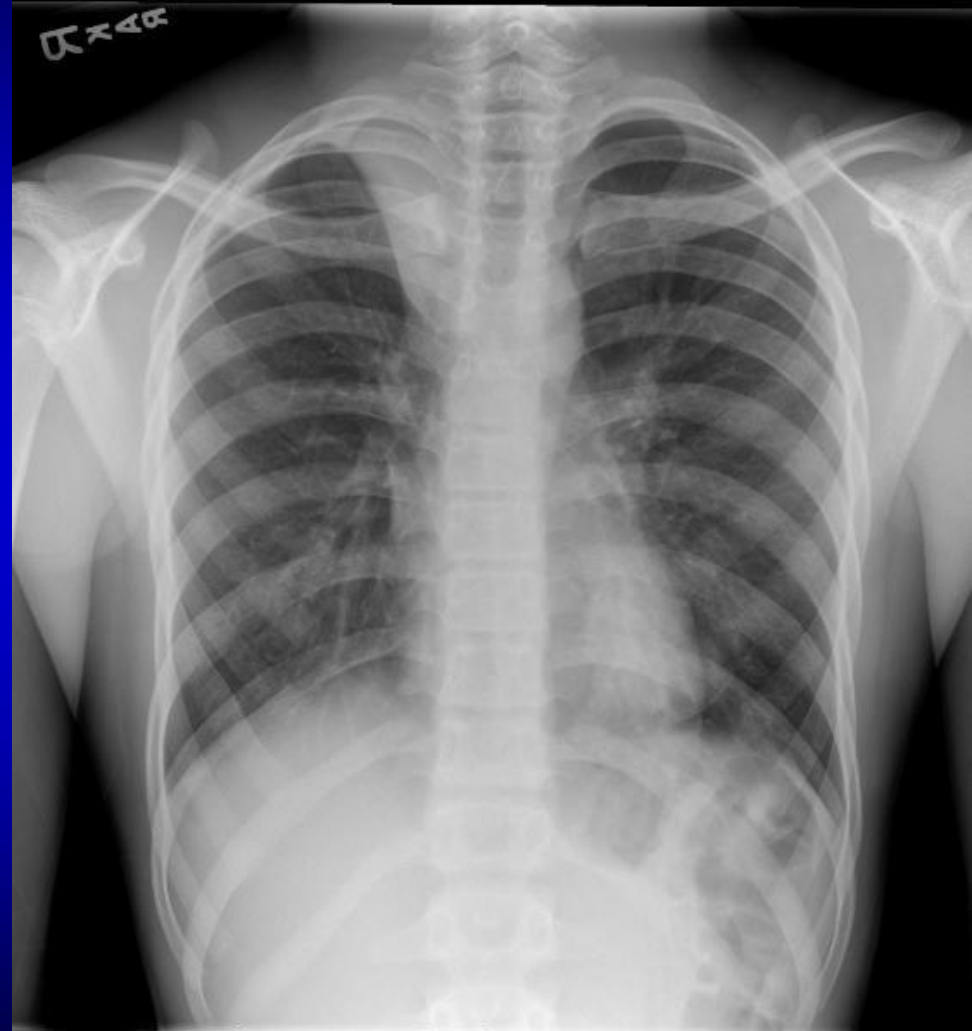


What structure don't we see here?

- The left hemidiaphragm is completely obscured (silhouette sign).
- This is left lower lobe collapse (atelectasis), probably because of mucus blocking up the airway

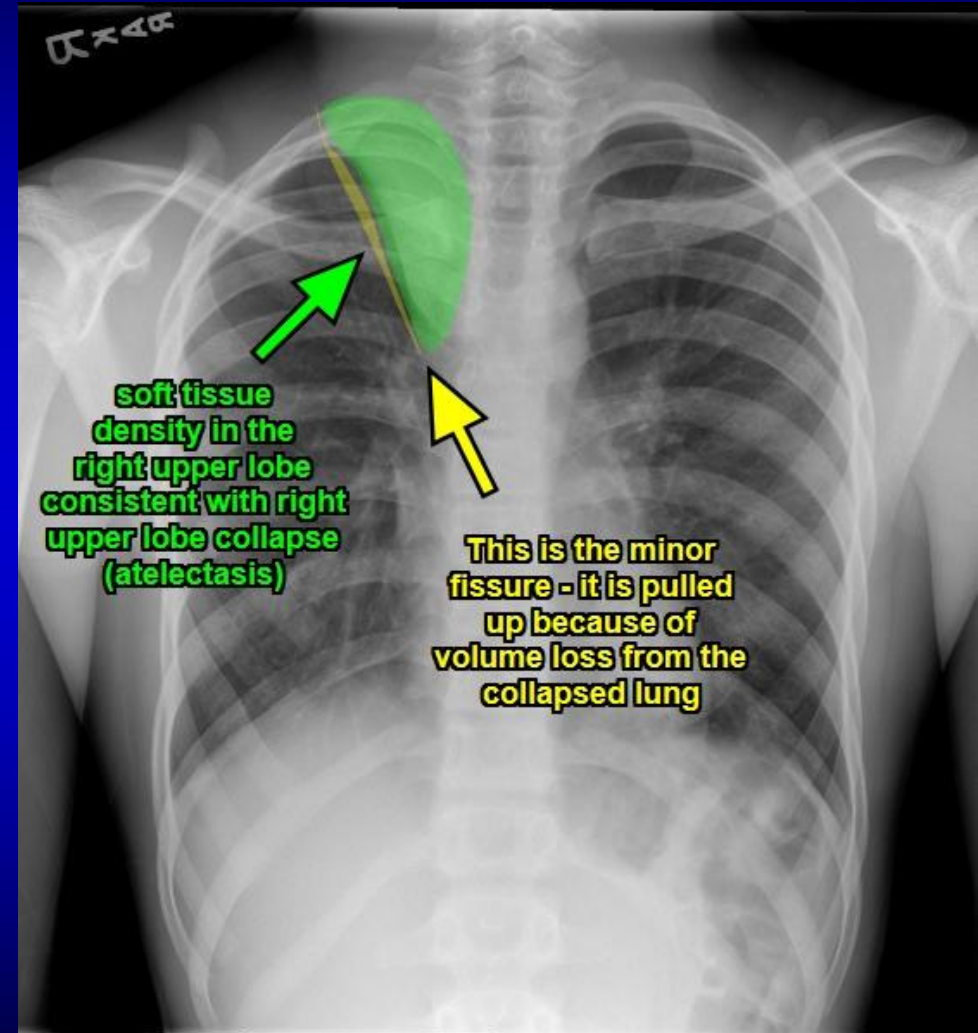


Do you see anything here?



Do you see anything here?

- Up near the top of the right lung, there is abnormal soft tissue density representing the collapsed right upper lobe - the lung is not aerated and is collapsed on itself (atelectasis).
- The minor fissure is elevated (pulled upwards) because of volume loss from the collapsed lung.



Discussion

- You can see lots of anatomy - even on radiographs. By using the "silhouette sign" and some other tricks, you can localize abnormalities on a chest radiograph.
- As a review, there are 5 basic densities on a radiograph - air, fat, fluid/soft tissue, bone, metal. If two structures of similar density are next to each other, they become indistinguishable (or silhouette each other).
- We can use this knowledge to localize lung findings (usually):

Discussion

- Airspace opacities in the right lower lobe obscure the right hemidiaphragm.
- Airspace opacities in the right middle lobe obscure the right heart border.
- Airspace opacities in the left lower lobe obscure the left hemidiaphragm.
- Airspace opacities in the left upper lobe (especially in the lingula - the anterior most part of the left upper lobe) obscure the left heart border.