

Basic Chest X-ray interpretation

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Objectives

I. Technique

Learn the difference between PA vs. AP CXR

Learn the utility of a lateral decubitus CXR

Understand the terms inspiration, penetration, and rotation as they apply to determining a technically adequate film

II. Anatomy

Learn the basic anatomy of the fissures of the lungs, heart borders, bronchi, and vasculature that can be seen on a chest x-ray

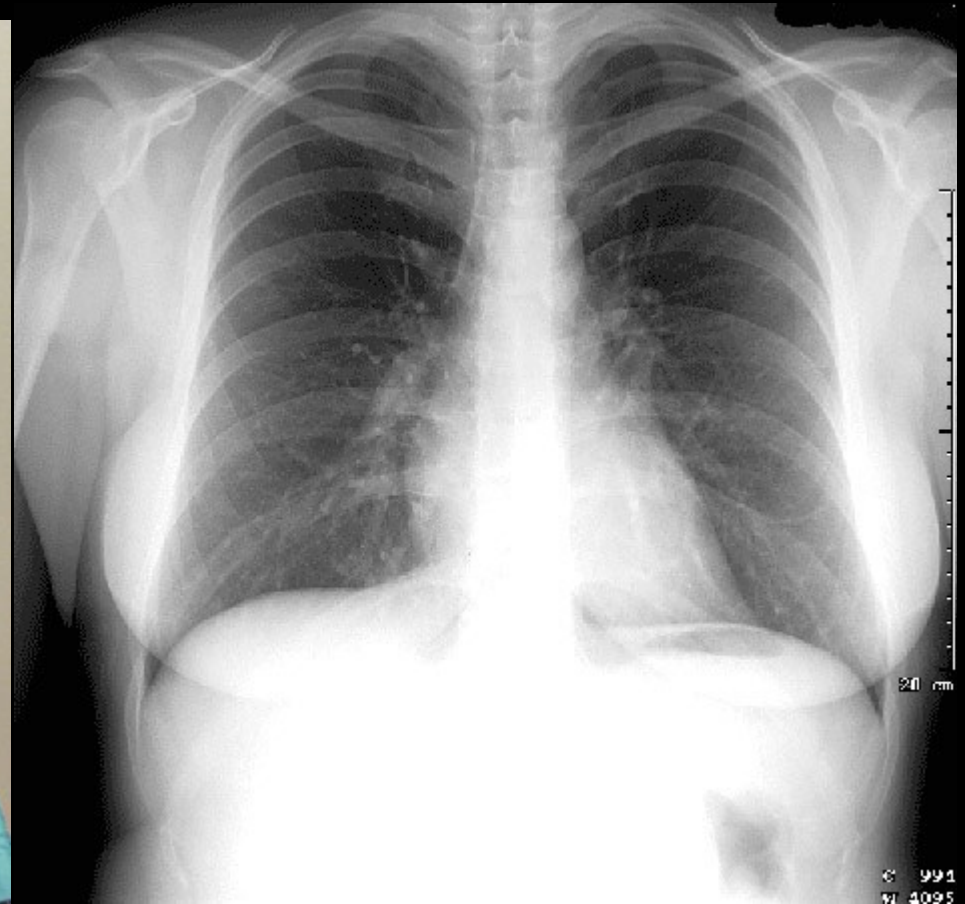
III. Interpretation

Develop a consistent and thorough technique for reading images

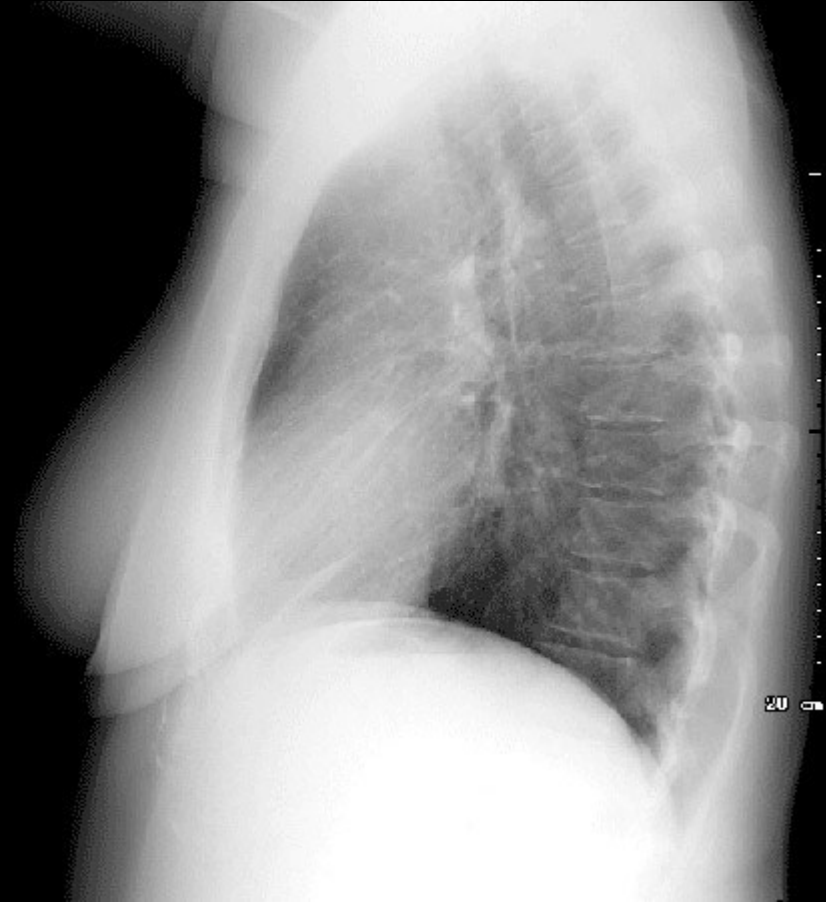
Learn how the silhouette sign can help localize pathology

IV. Pathology

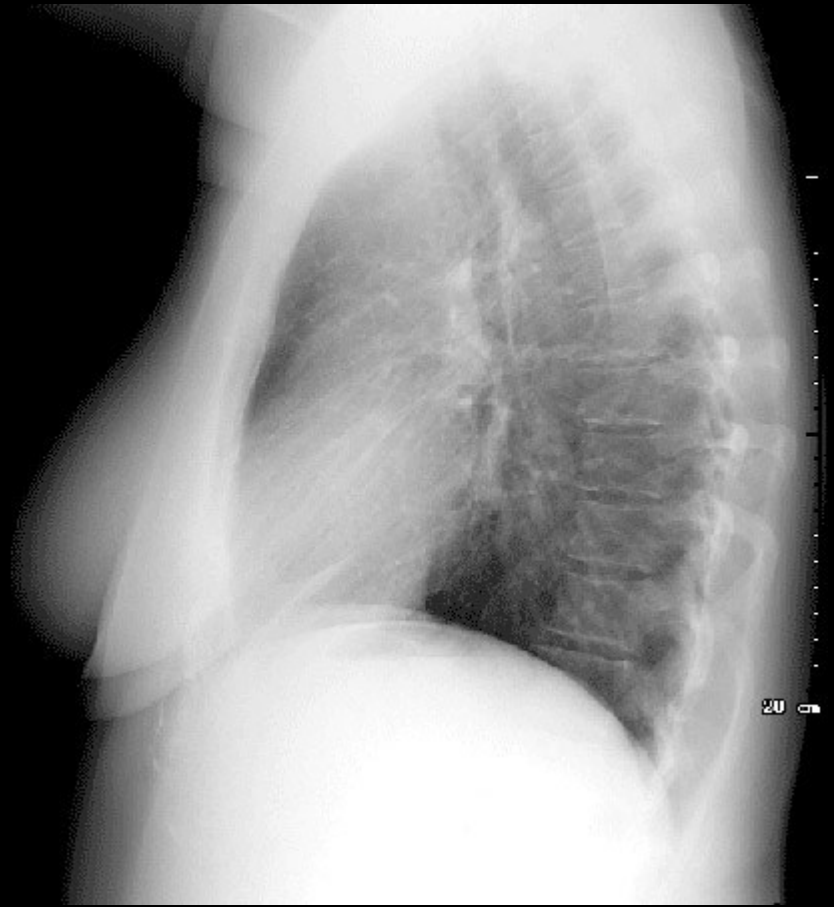
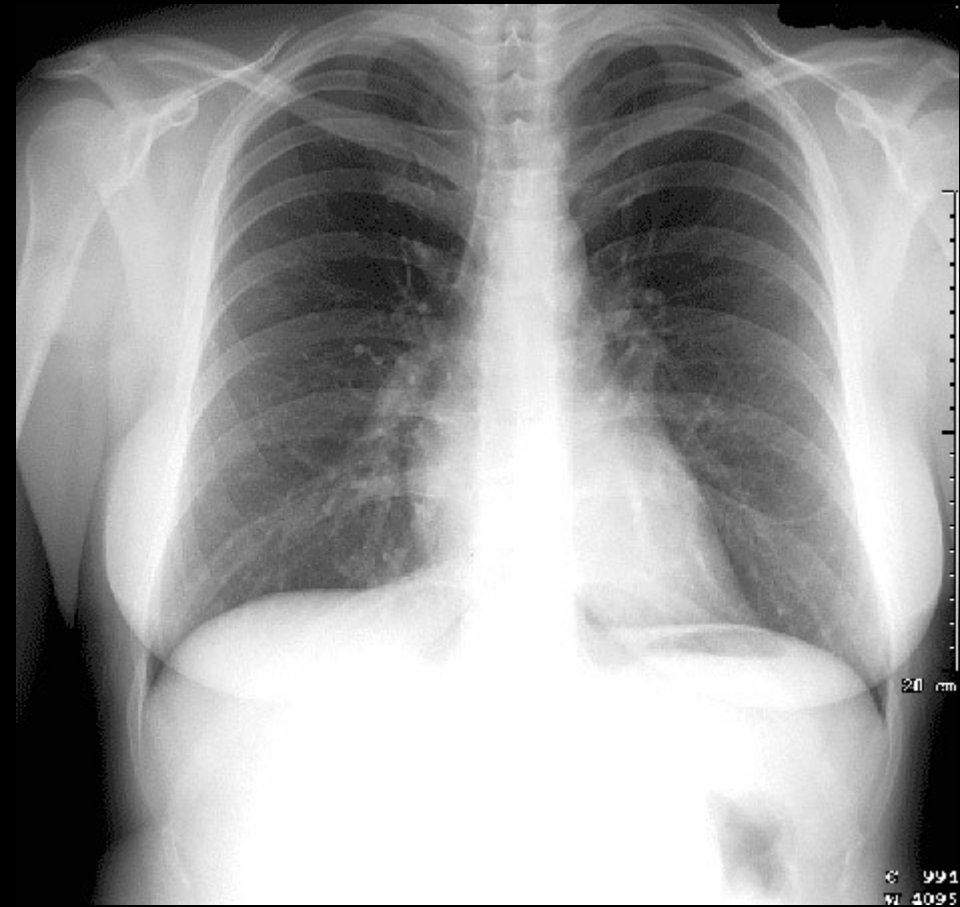
Positioning PA



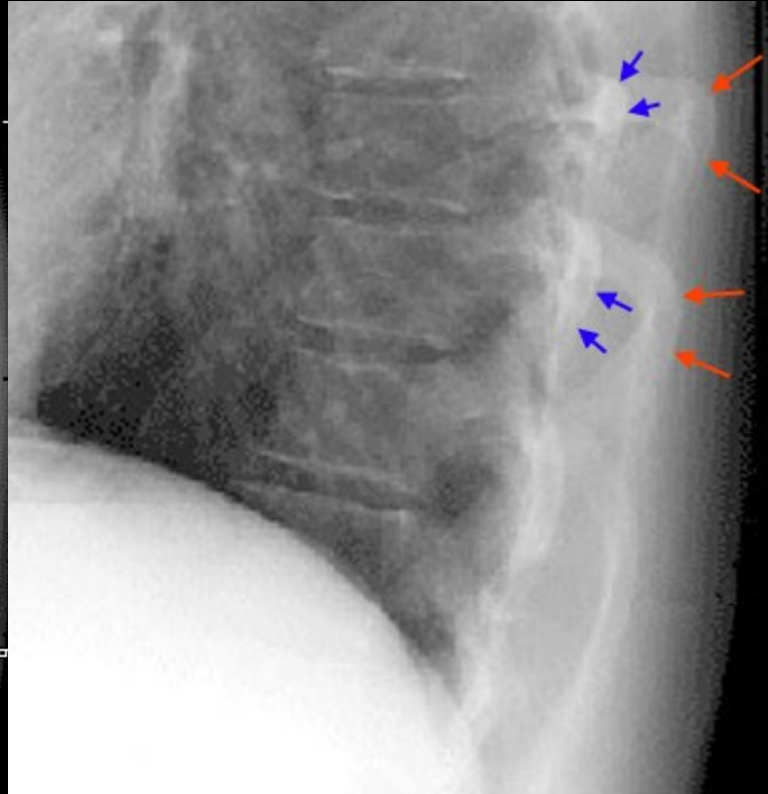
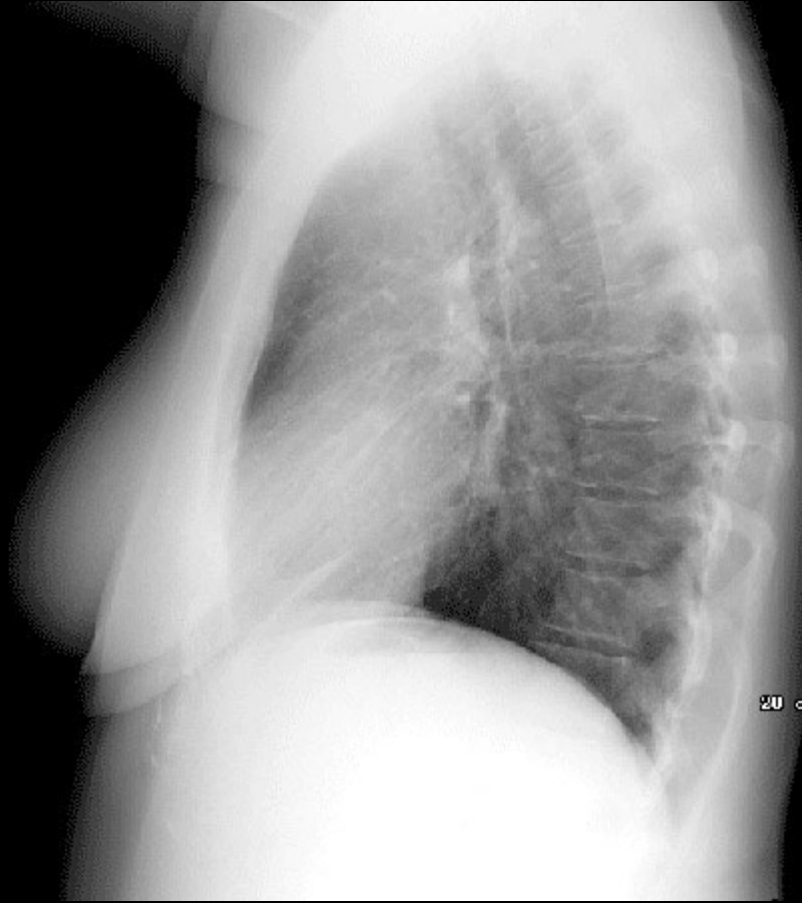
Positioning lateral

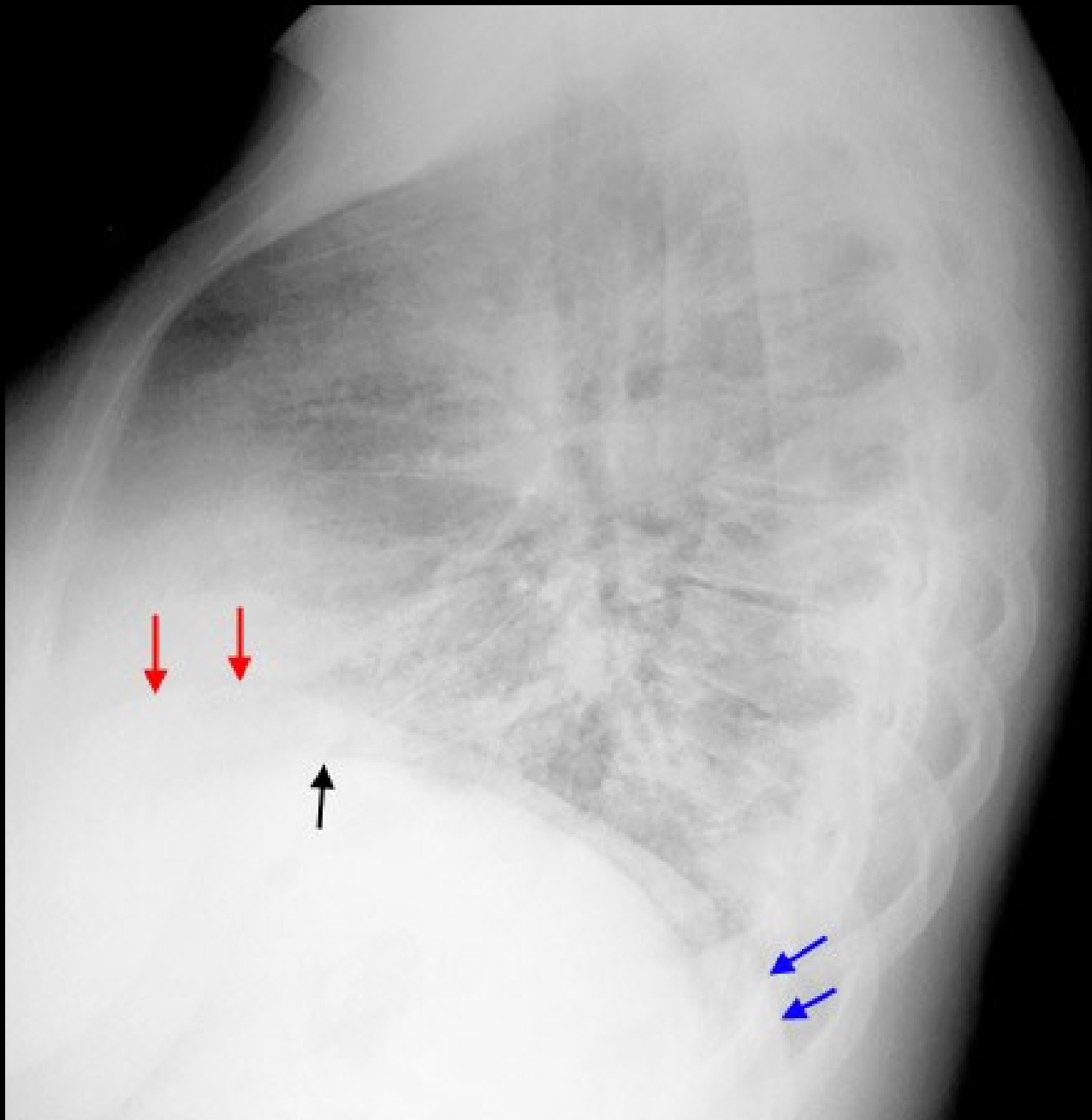


Always read together



positioning





Positioning PA vs AP

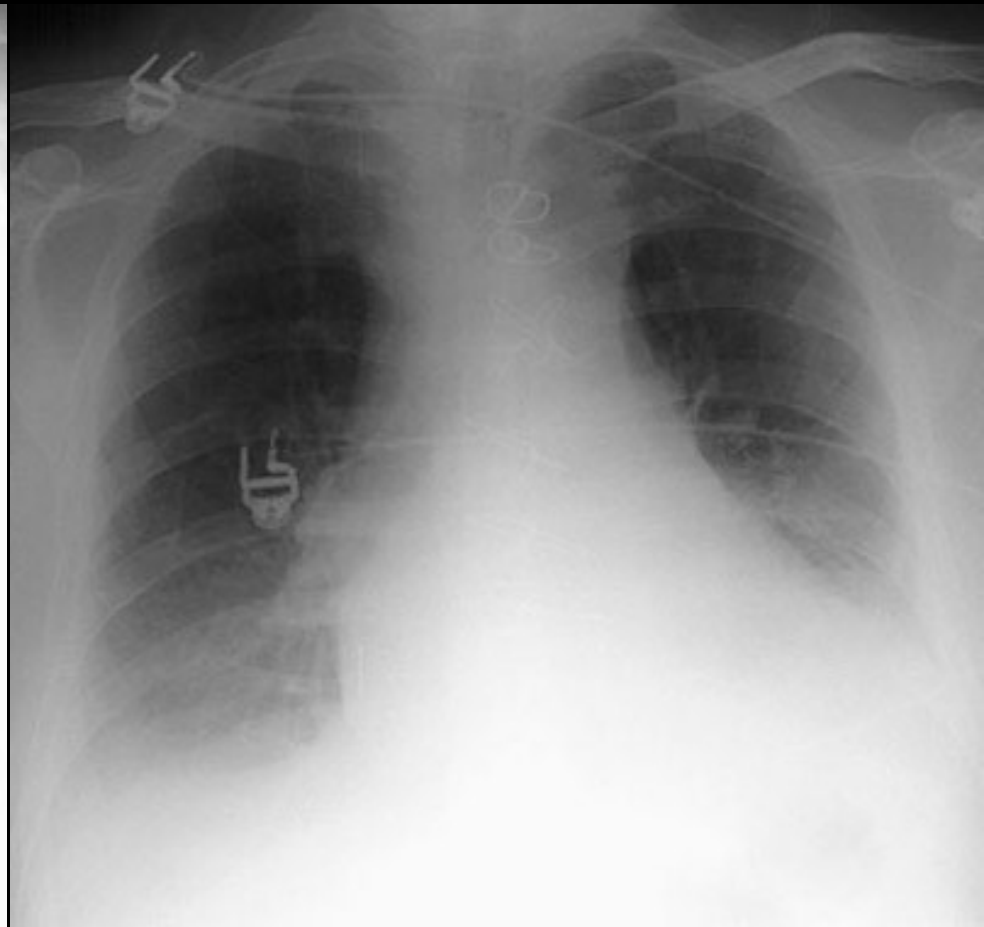
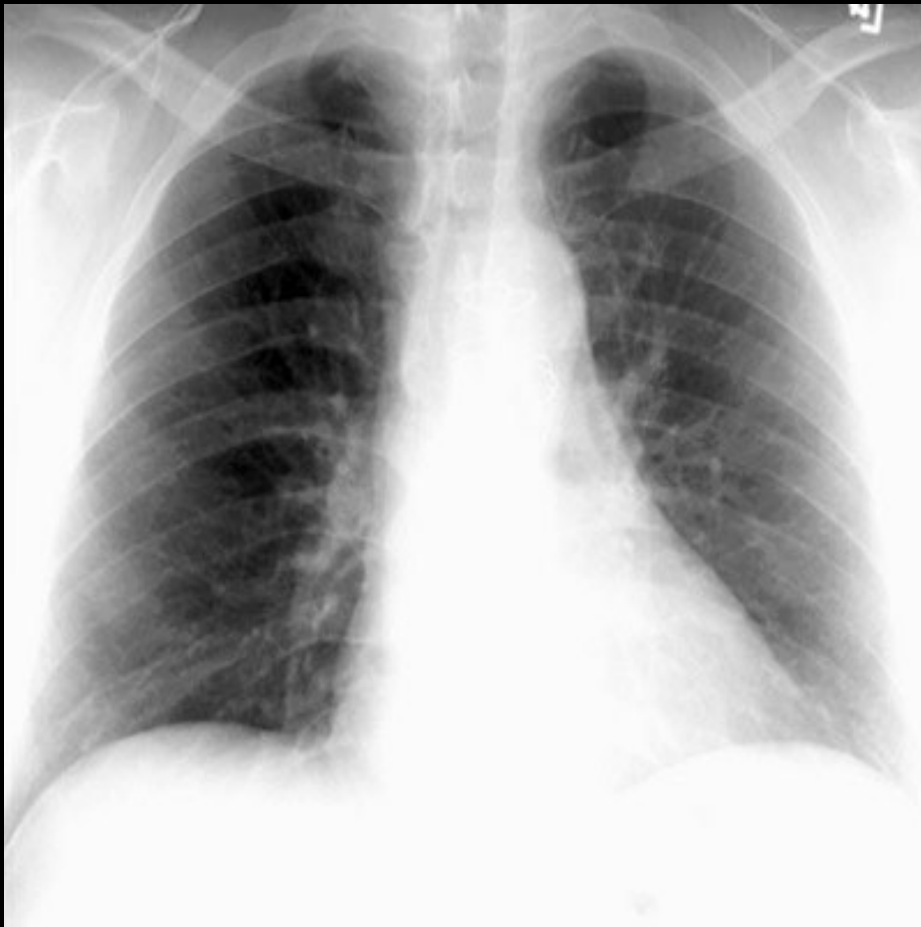


Positioning PA vs AP



Positioning

PA vs AP

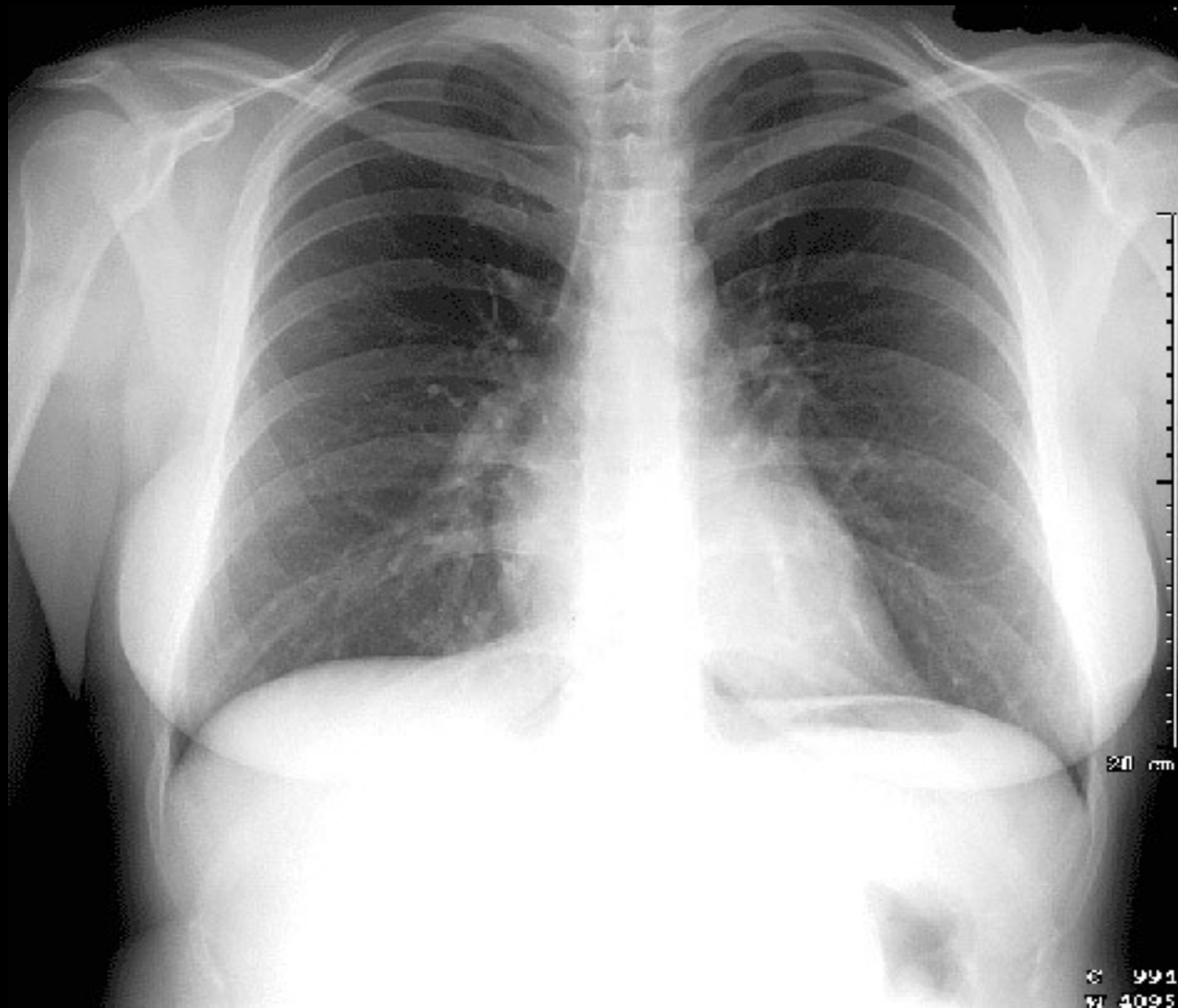


Positioning

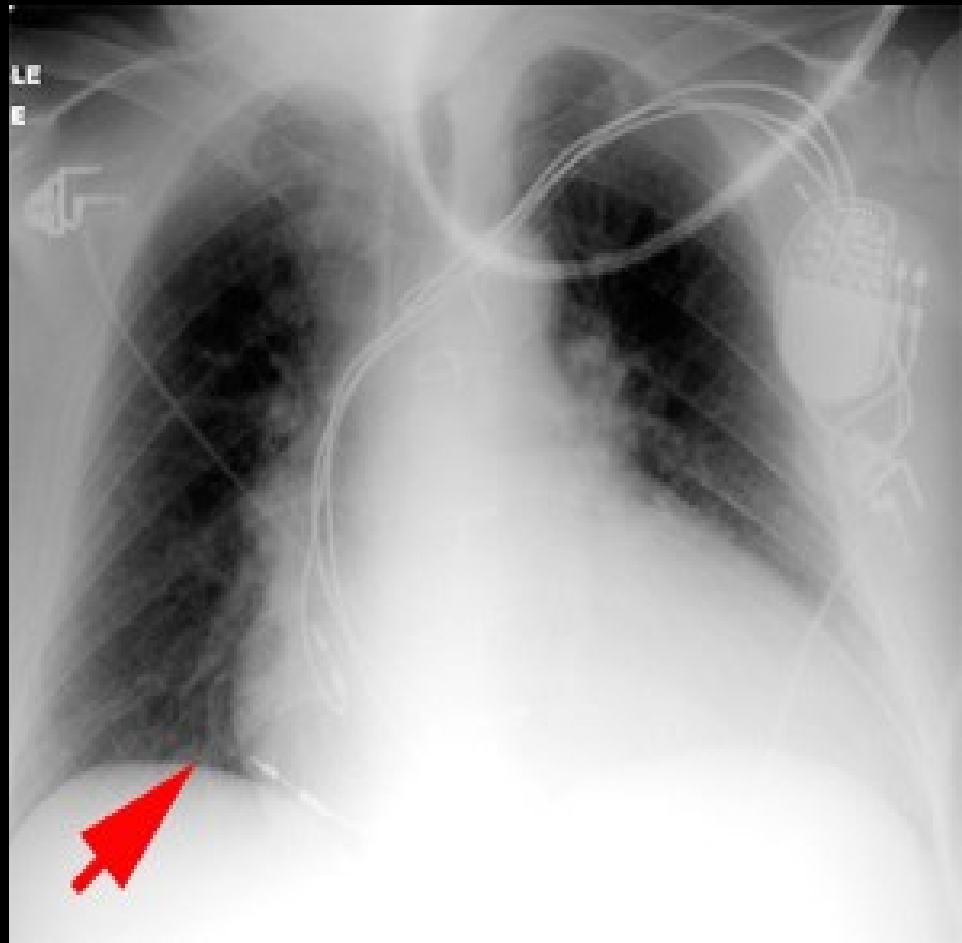
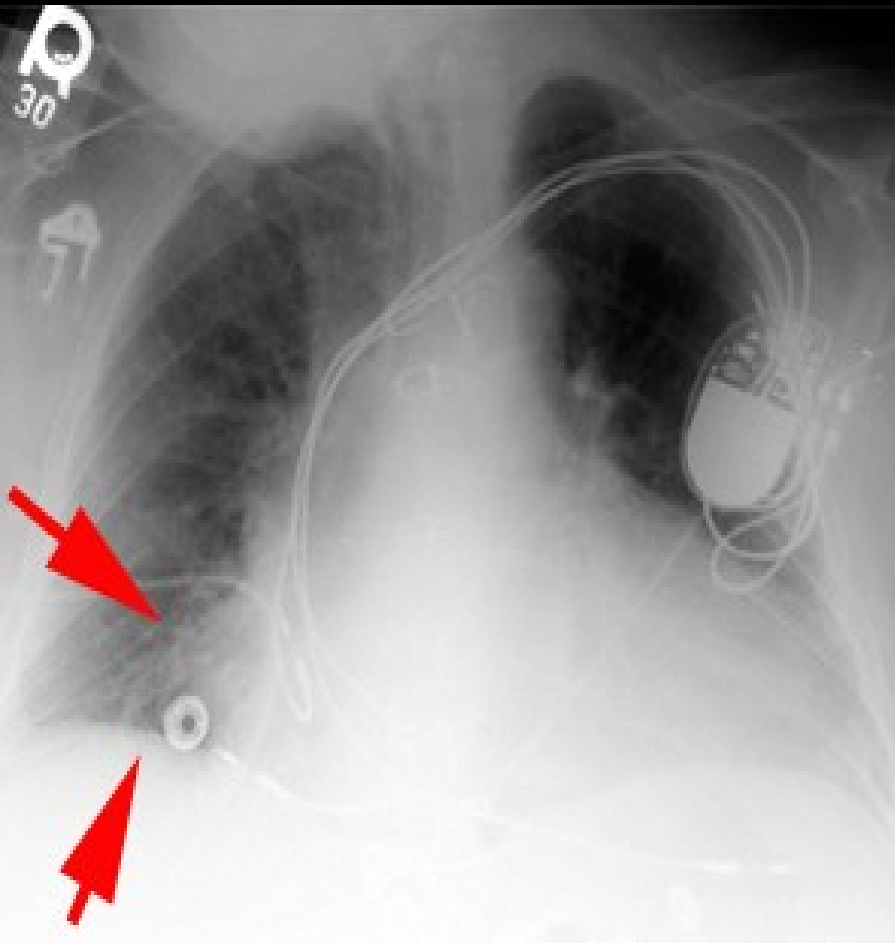
Lateral decubitus



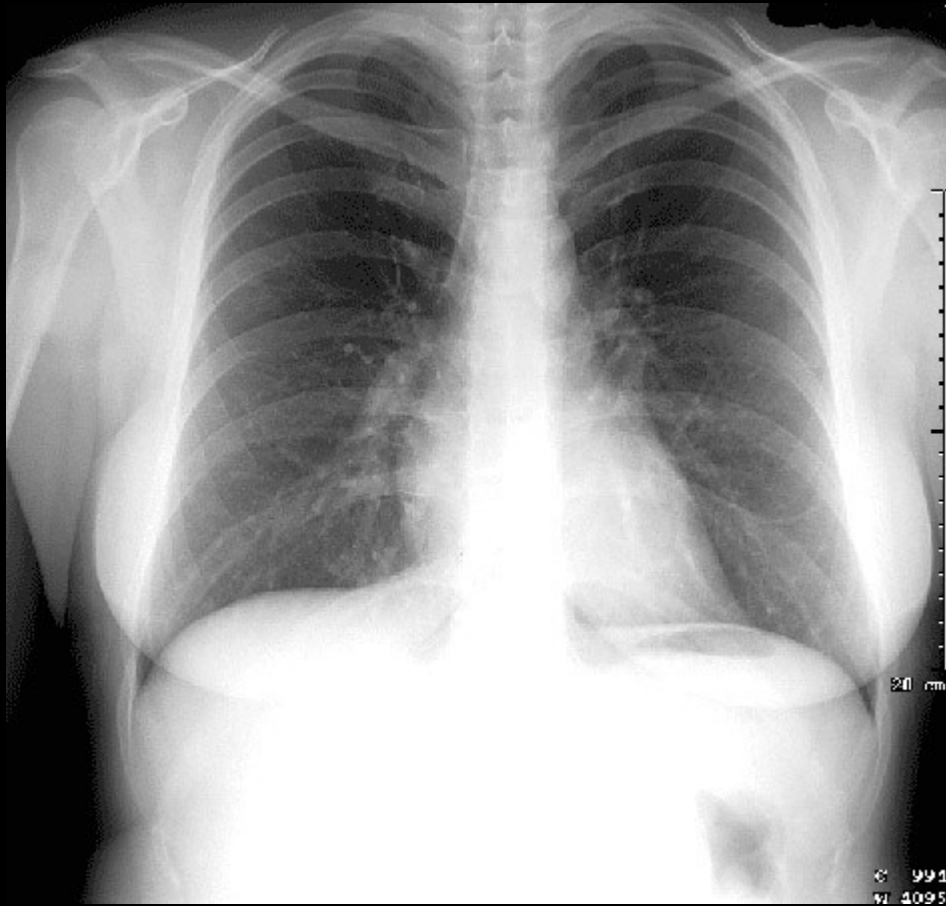
Technically adequate
inspiration



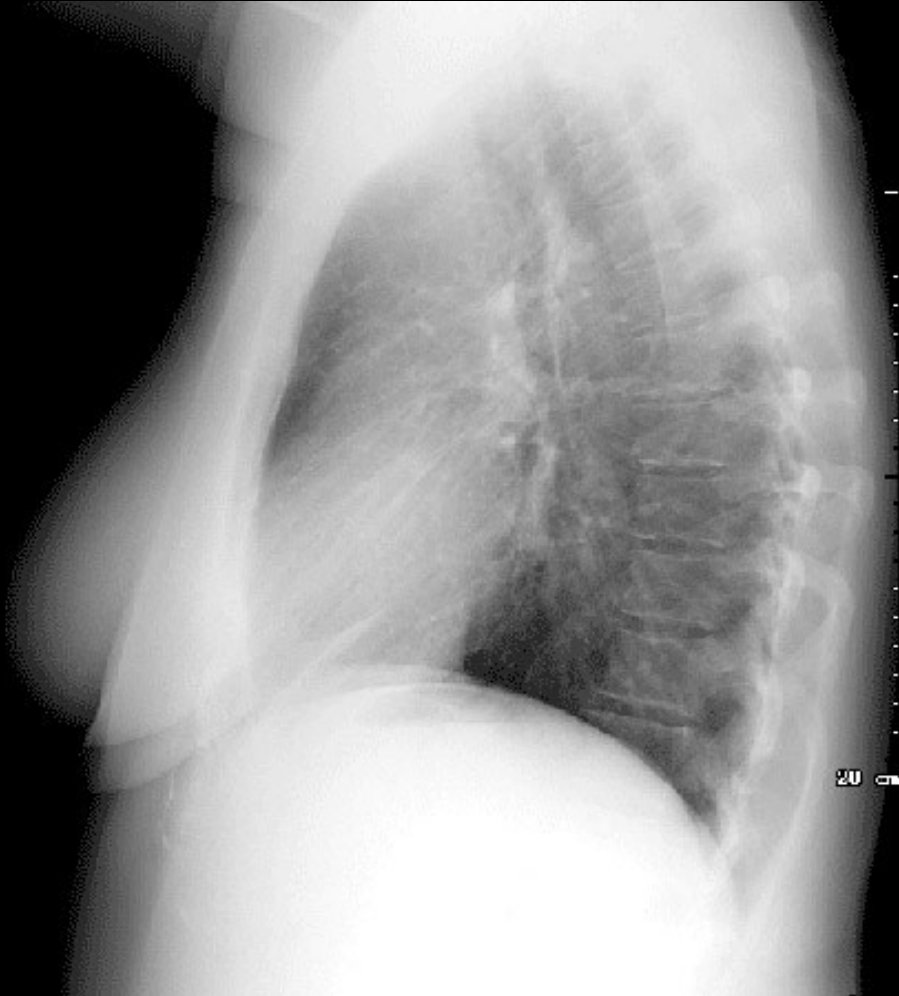
Technically adequate inspiration



Technically adequate Penetration



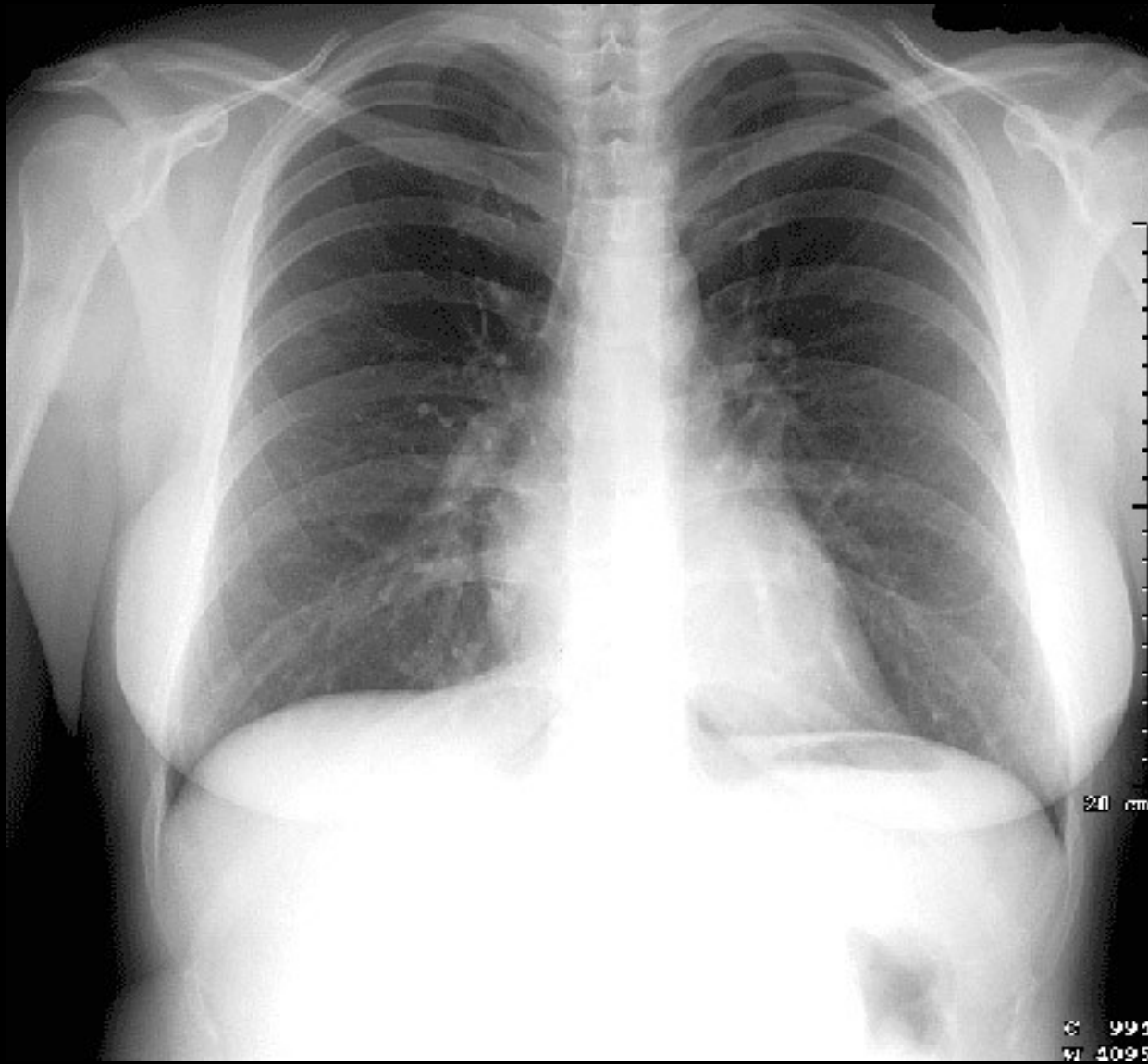
Technically adequate Penetration



Technically adequate Penetration



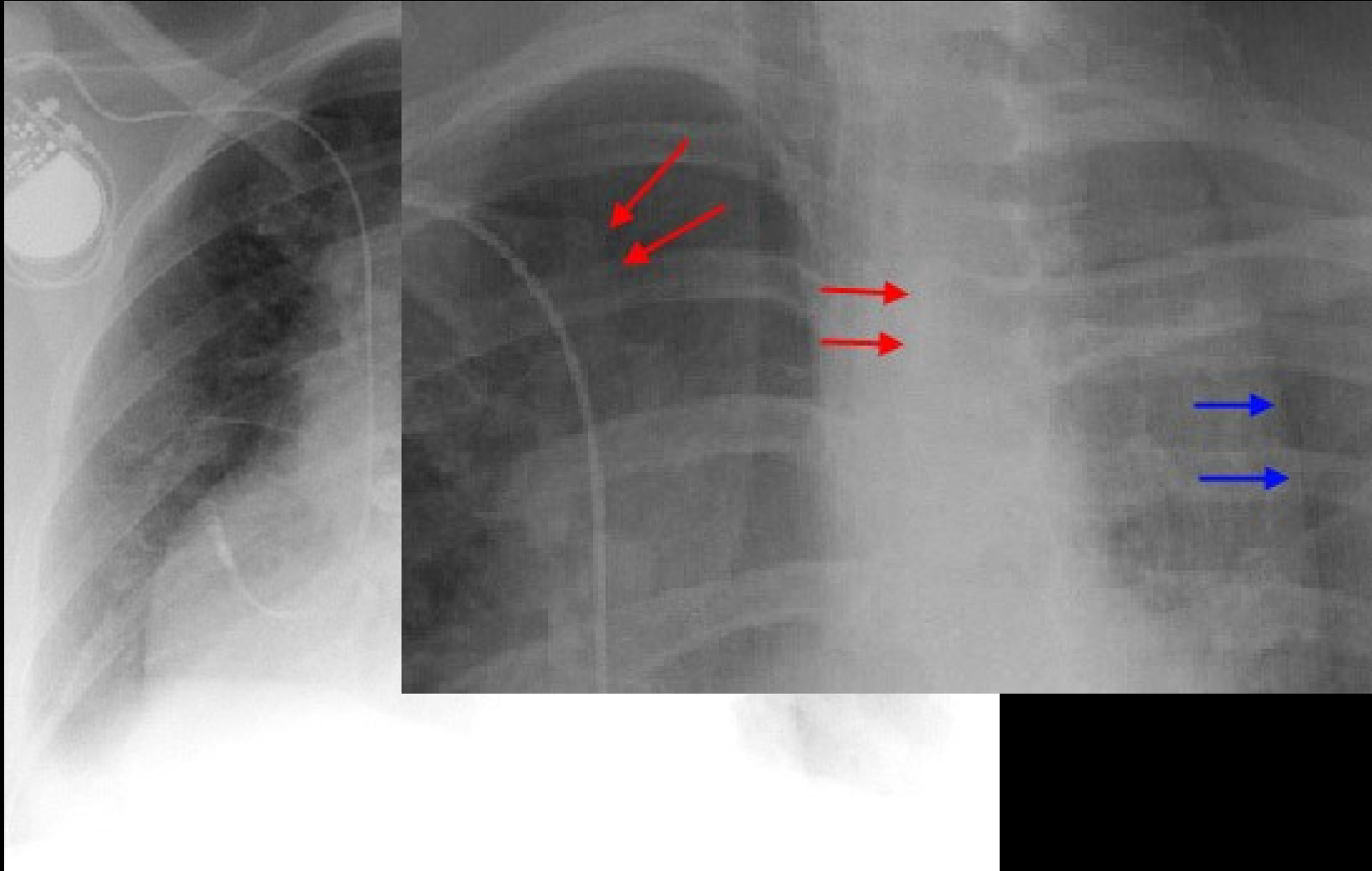
Technically adequate Rotation



Technically adequate Rotation

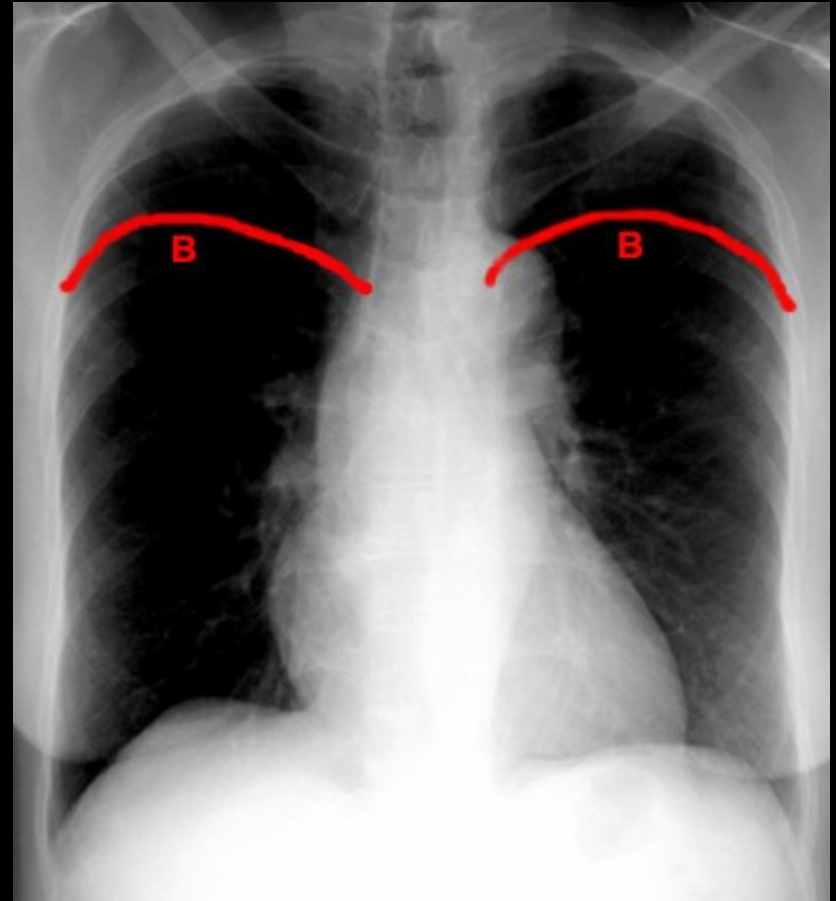
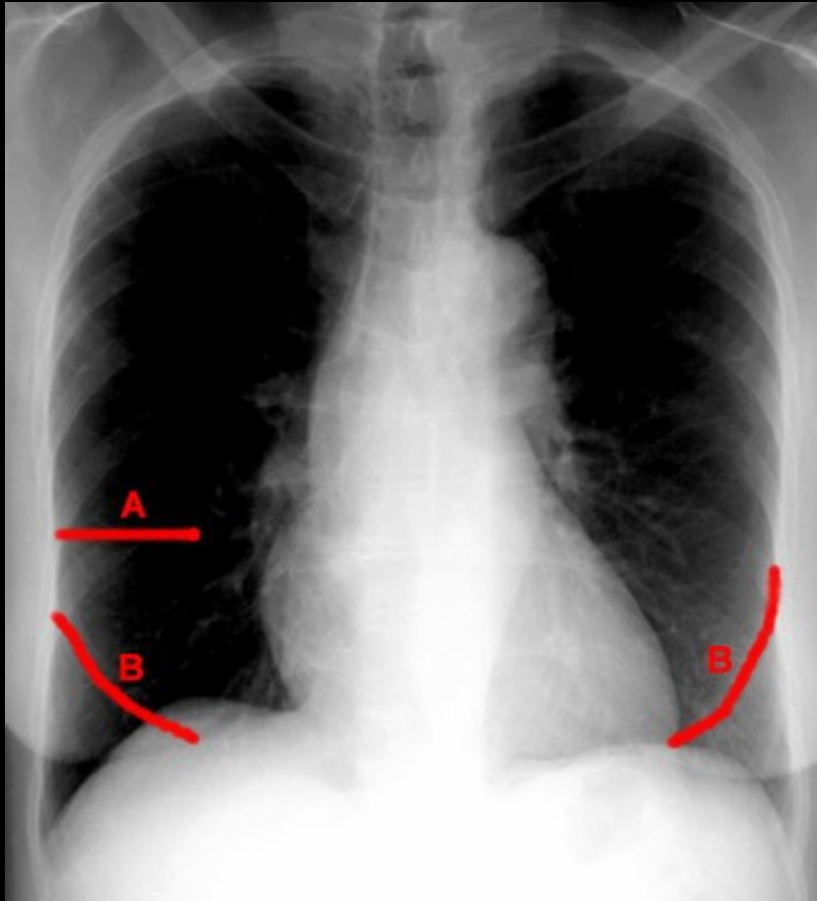


Technically adequate Rotation



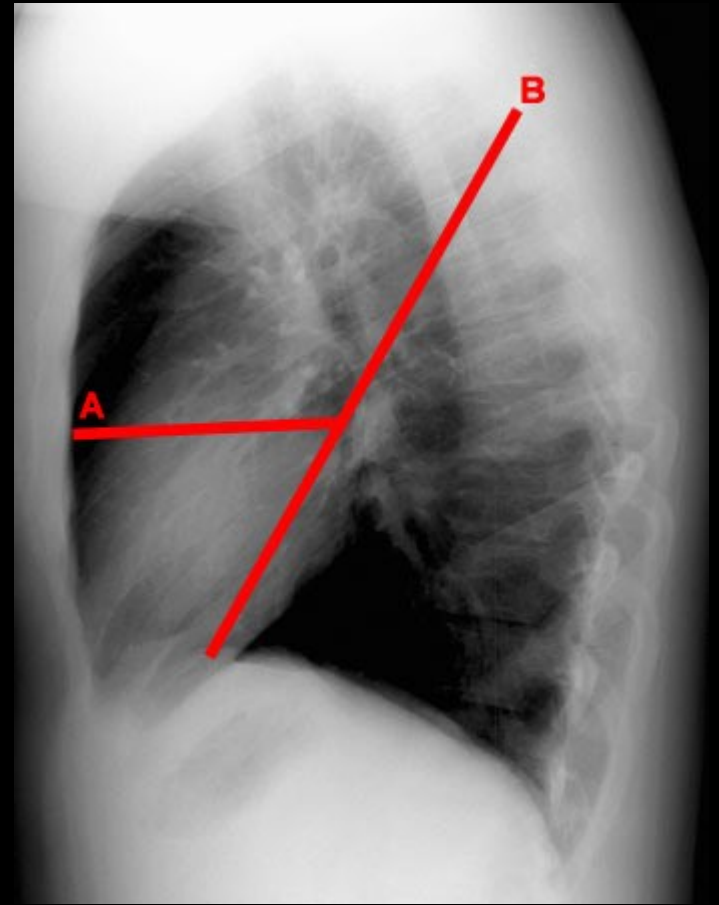
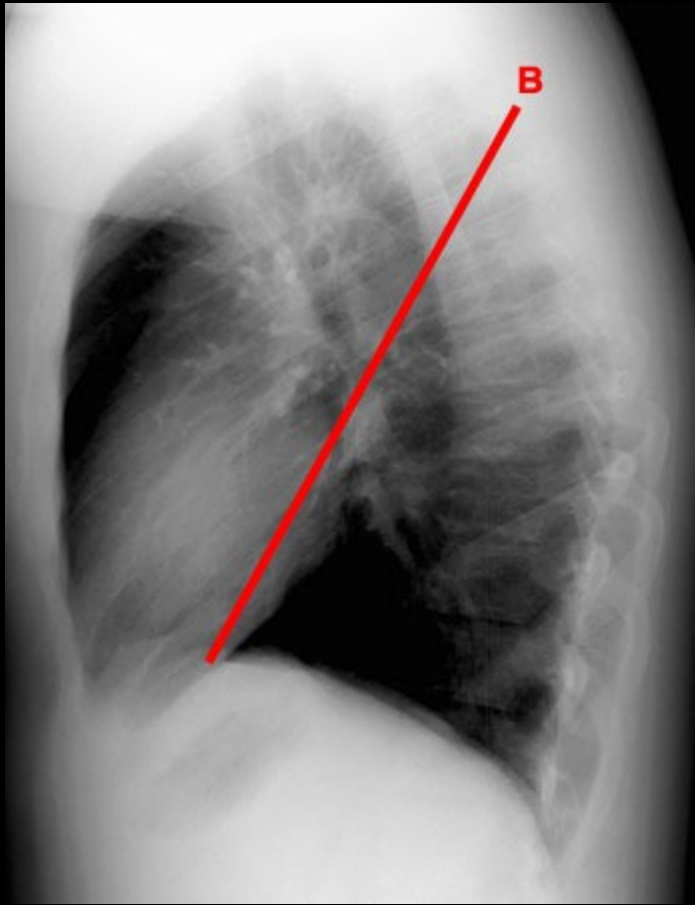
Anatomy

Lobes and Fissures



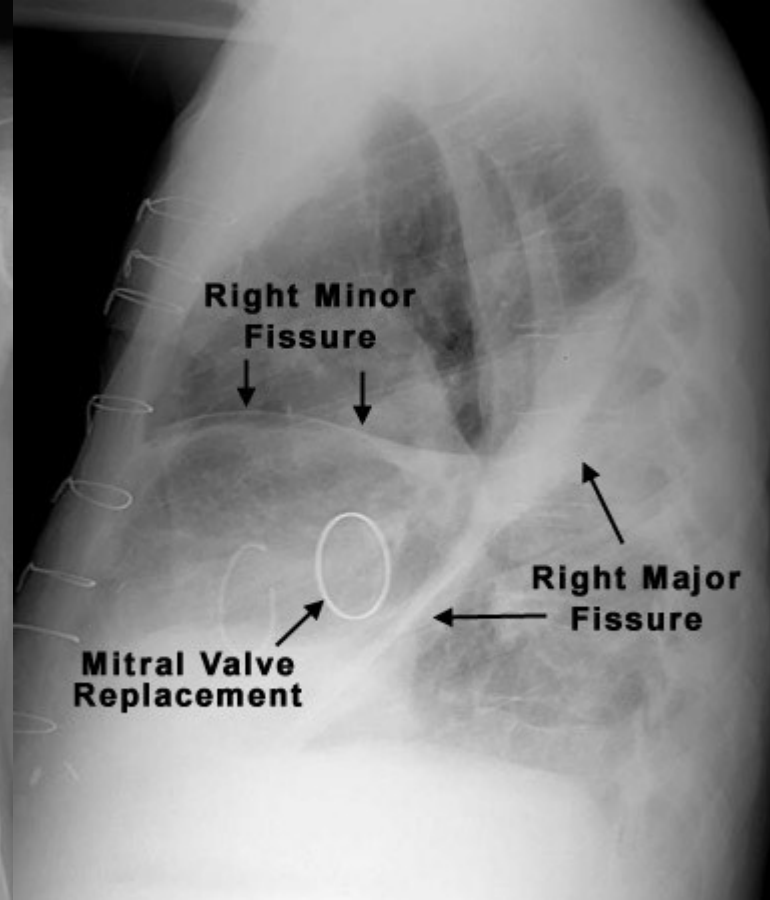
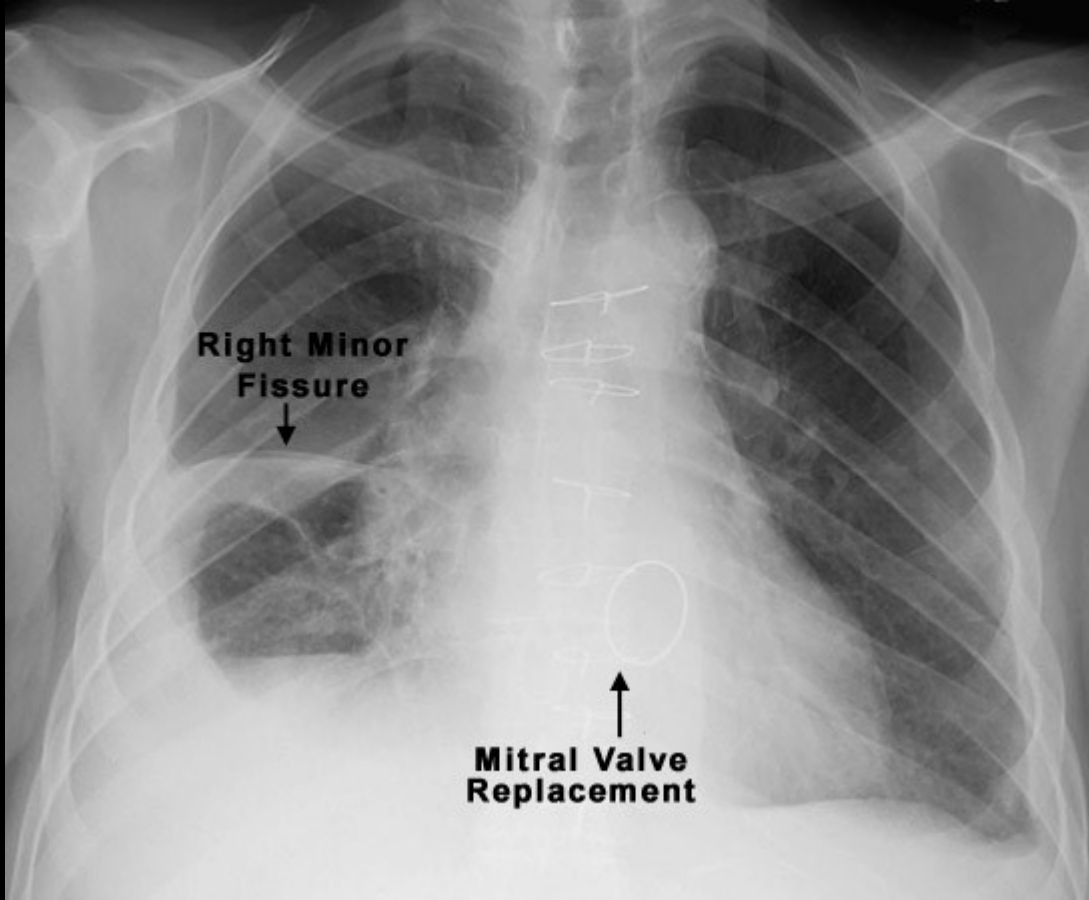
Anatomy

Lobes and Fissures



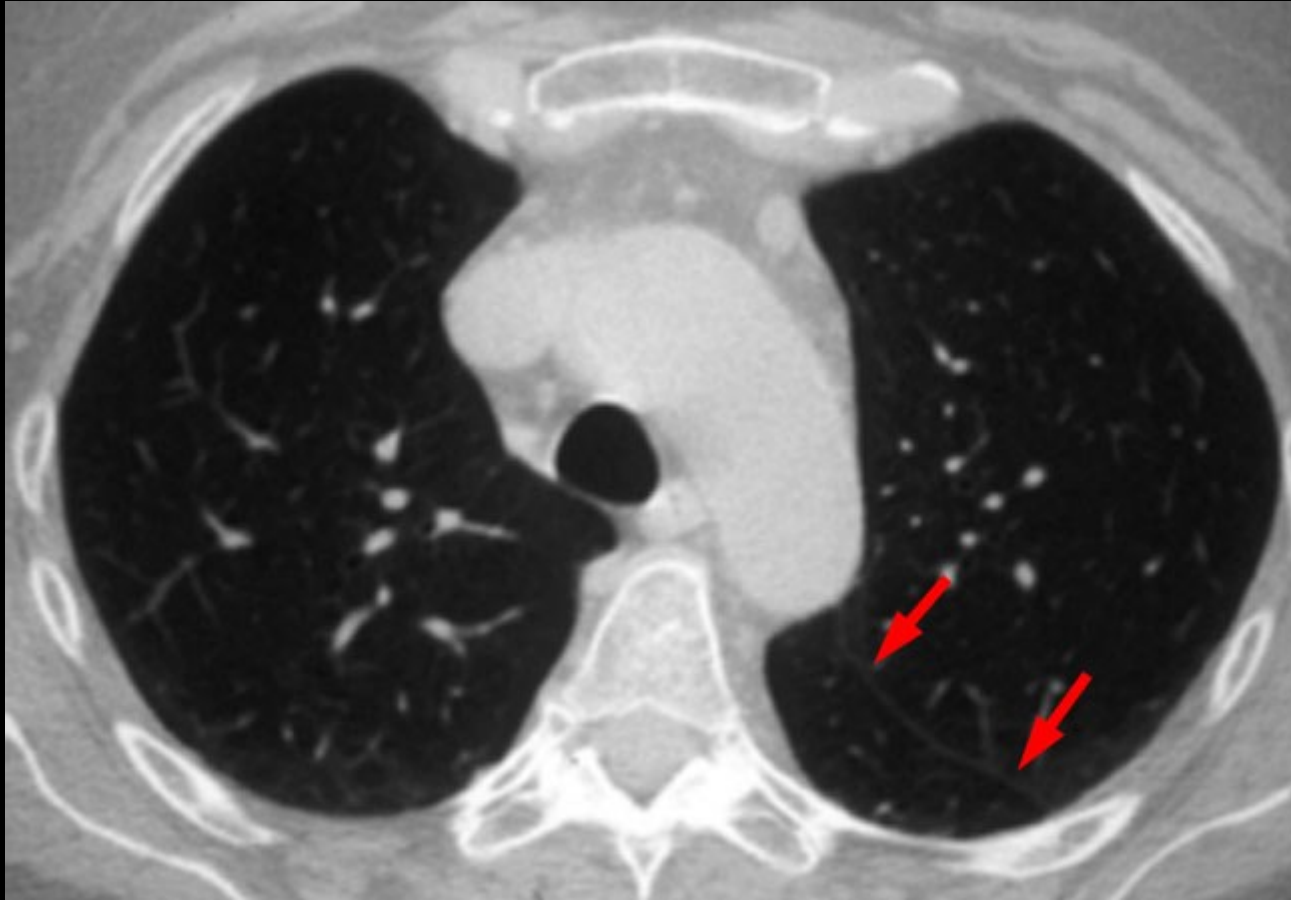
Anatomy

Lobes and Fissures



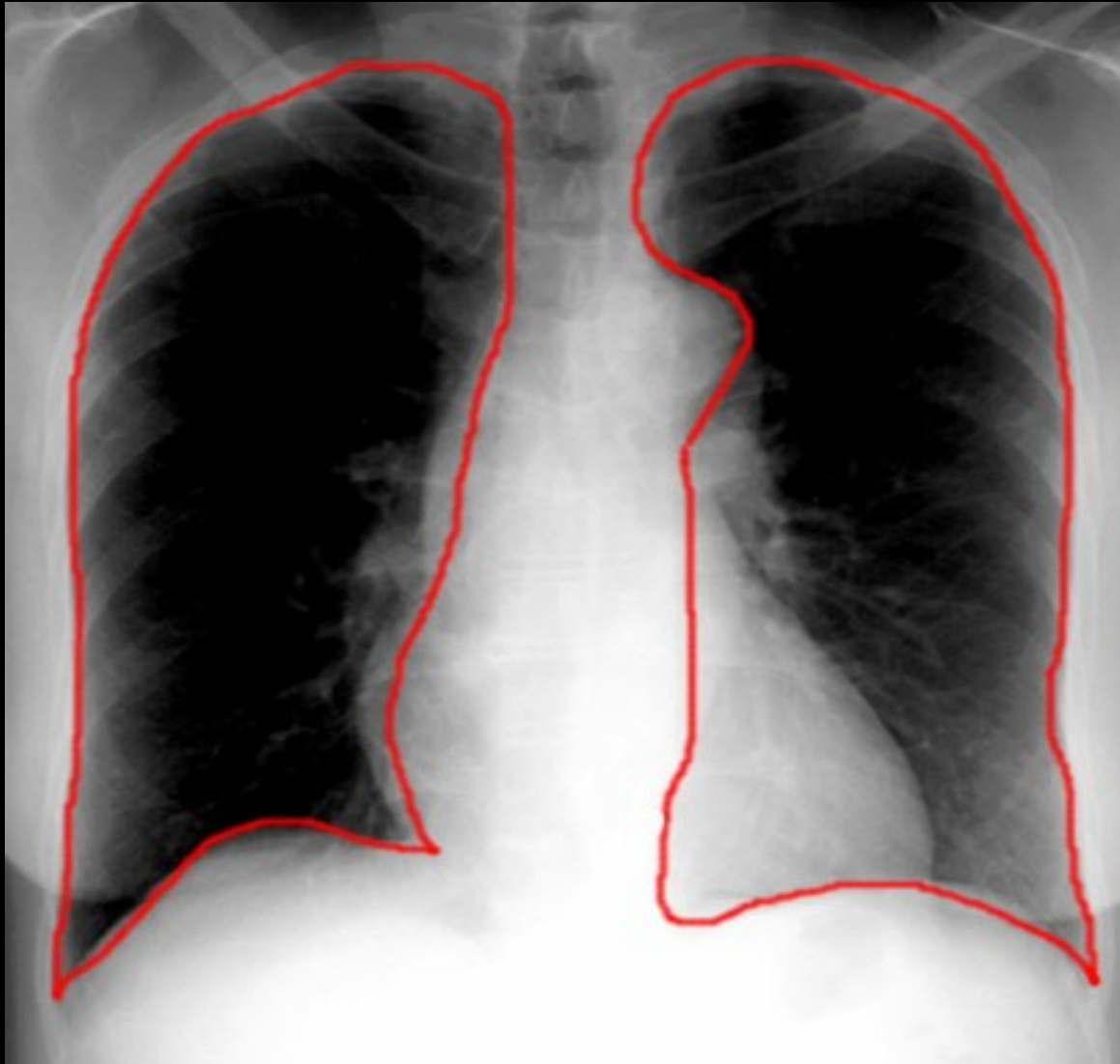
Anatomy

Lobes and Fissures

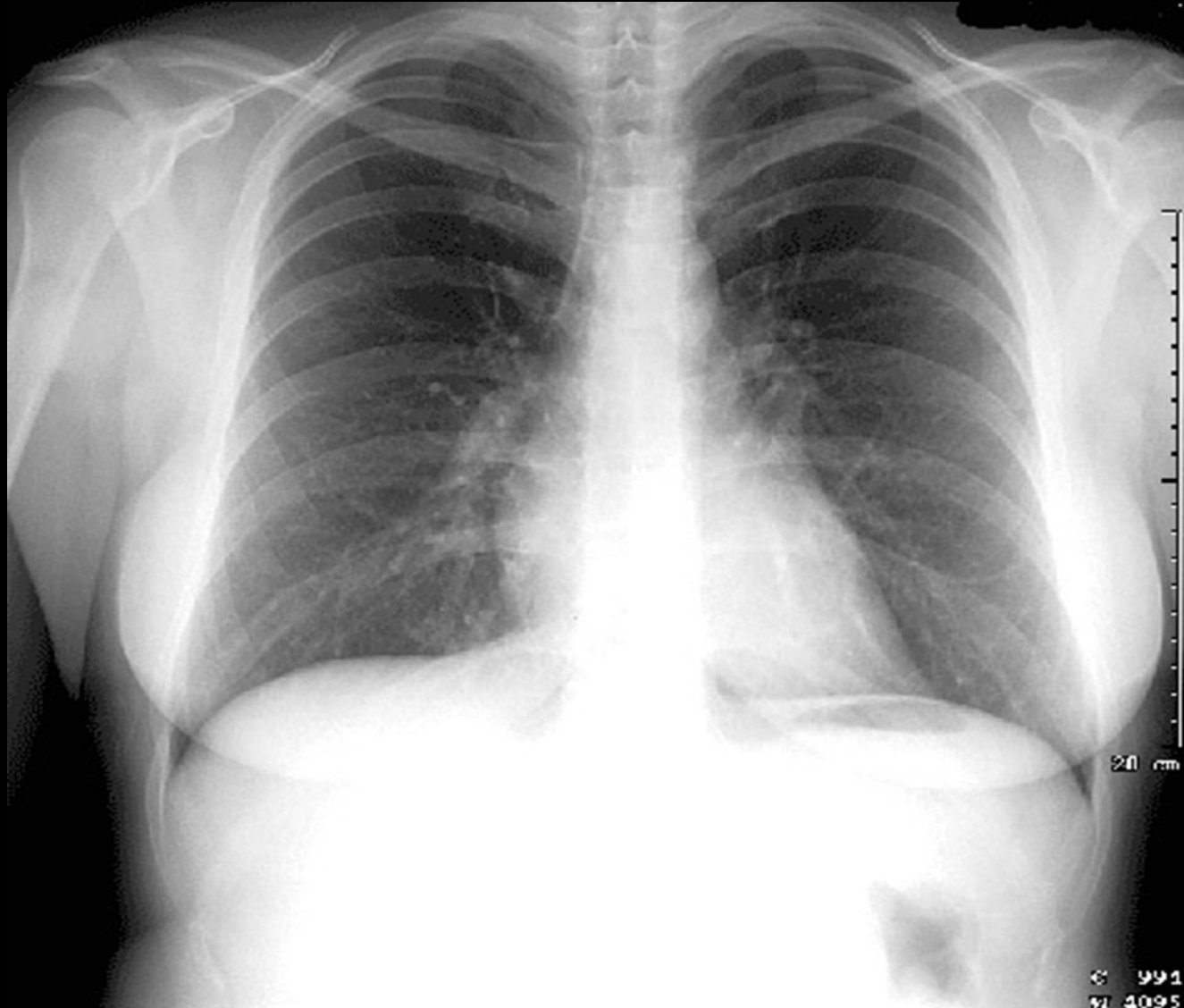


Anatomy

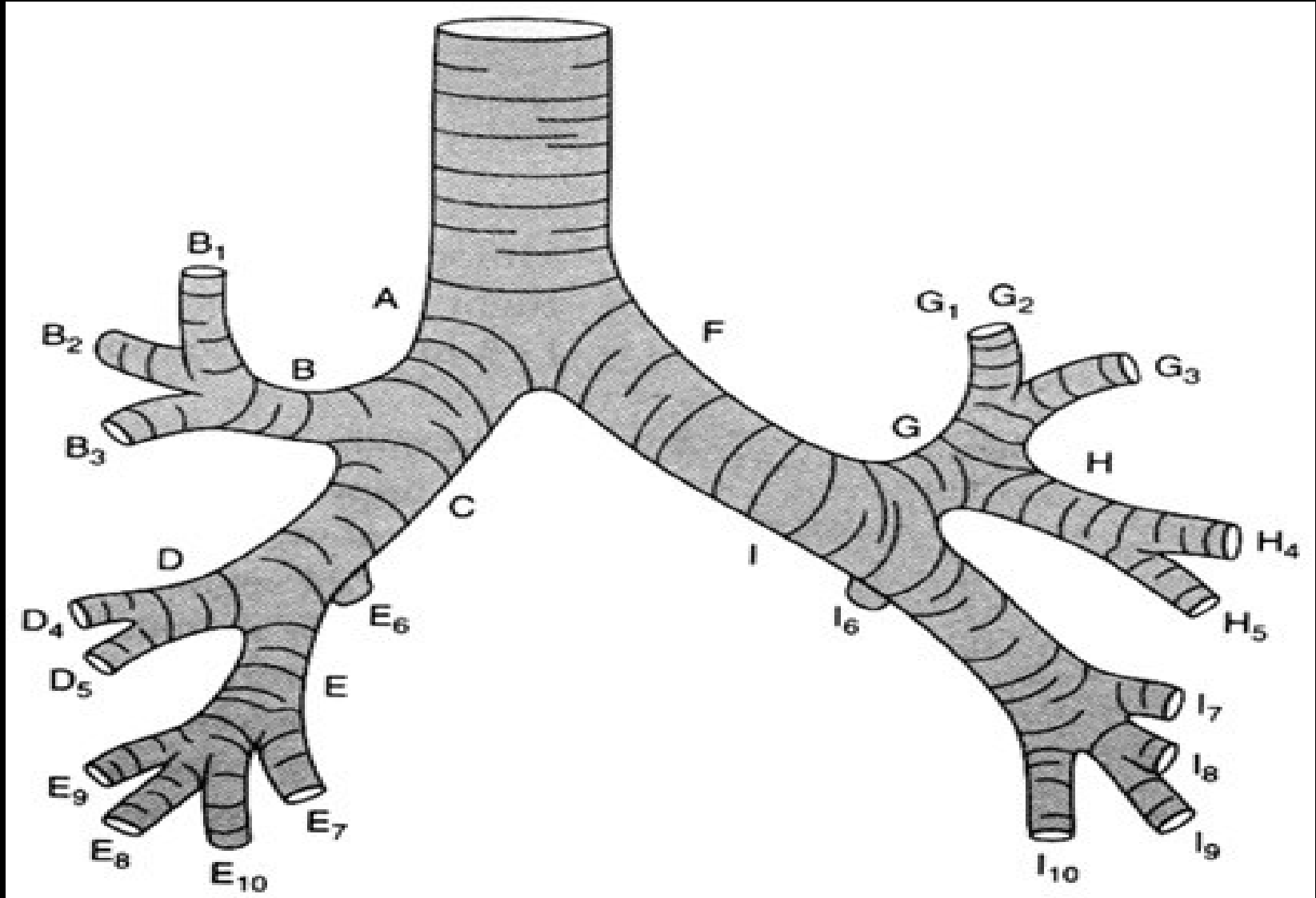
Mediastinum and Lungs



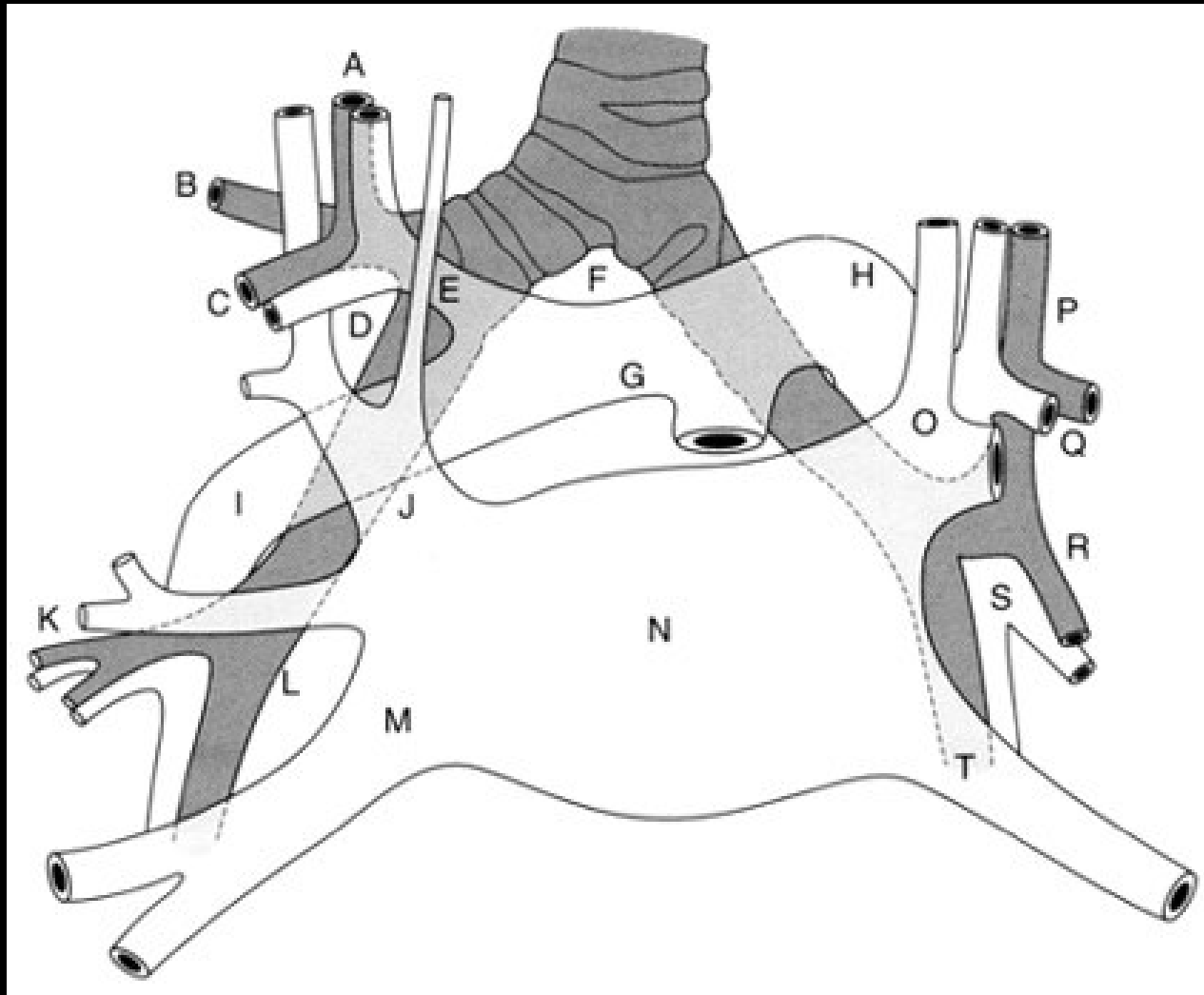
Anatomy



Anatomy Bronchi



Pulmonary vasculature



How to read a Chest X-Ray

Turn off stray lights, optimize room lighting, view images in order

Patient Data (name history #, age, sex, old films)

Routine Technique: AP/PA, exposure, rotation, supine or erect

Trachea: midline or deviated, caliber, mass

Lungs: abnormal shadowing or lucency

Pulmonary vessels: artery or vein enlargement

Hila: masses, lymphadenopathy

Heart: thorax: heart width > 2:1 ? Cardiac configuration?

Mediastinal contour: width? mass?

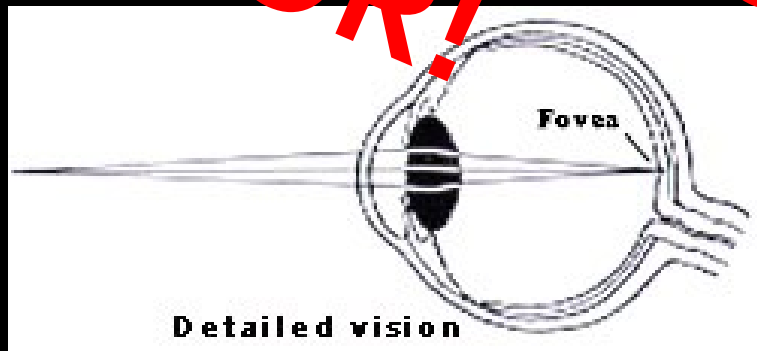
Pleura: effusion, thickening, calcification

Bones: lesions or fractures

Soft tissues: don't miss a mastectomy

ICU Films: identify tubes first and look for pneumothorax

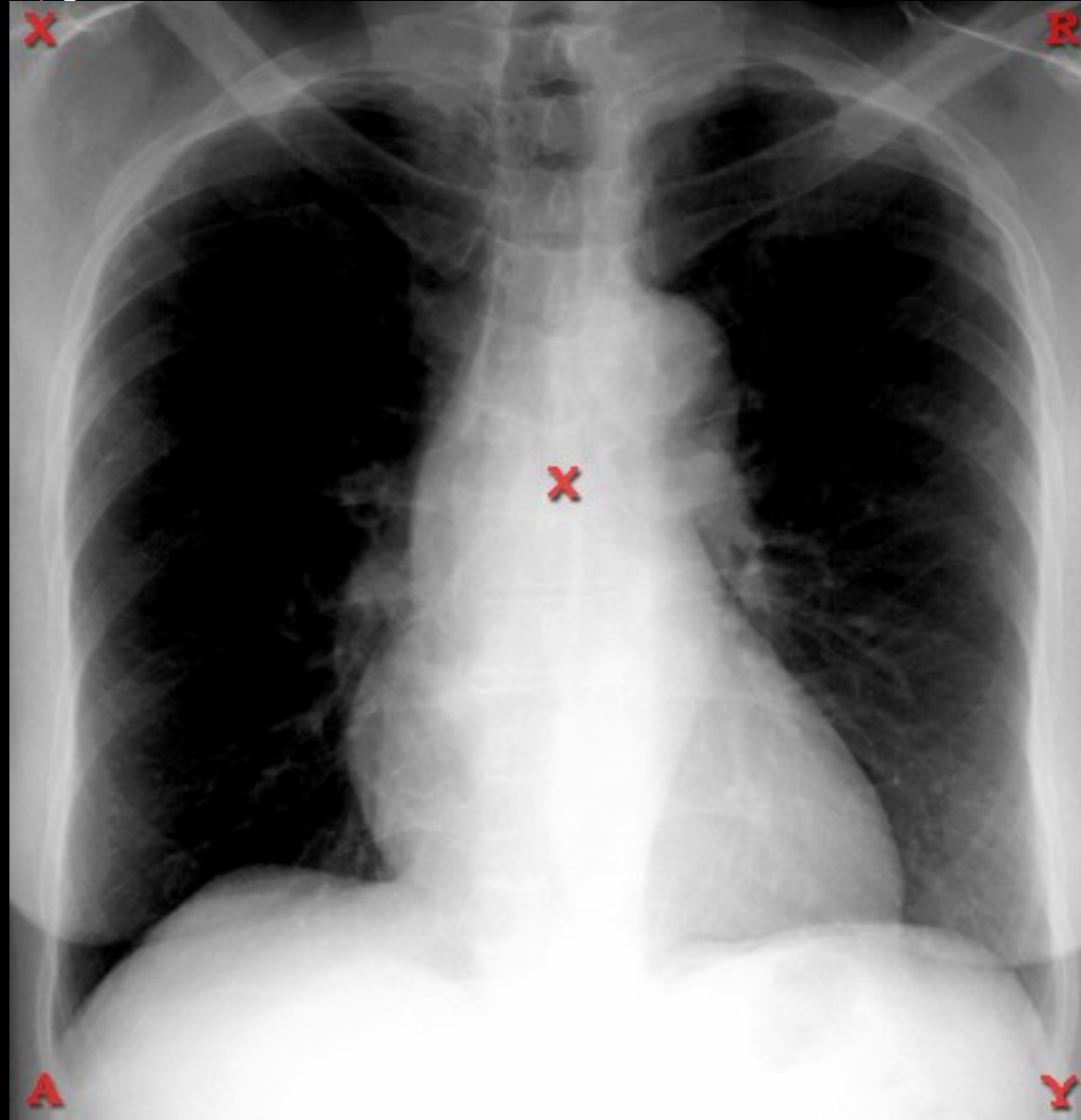
Looking for abnormalities



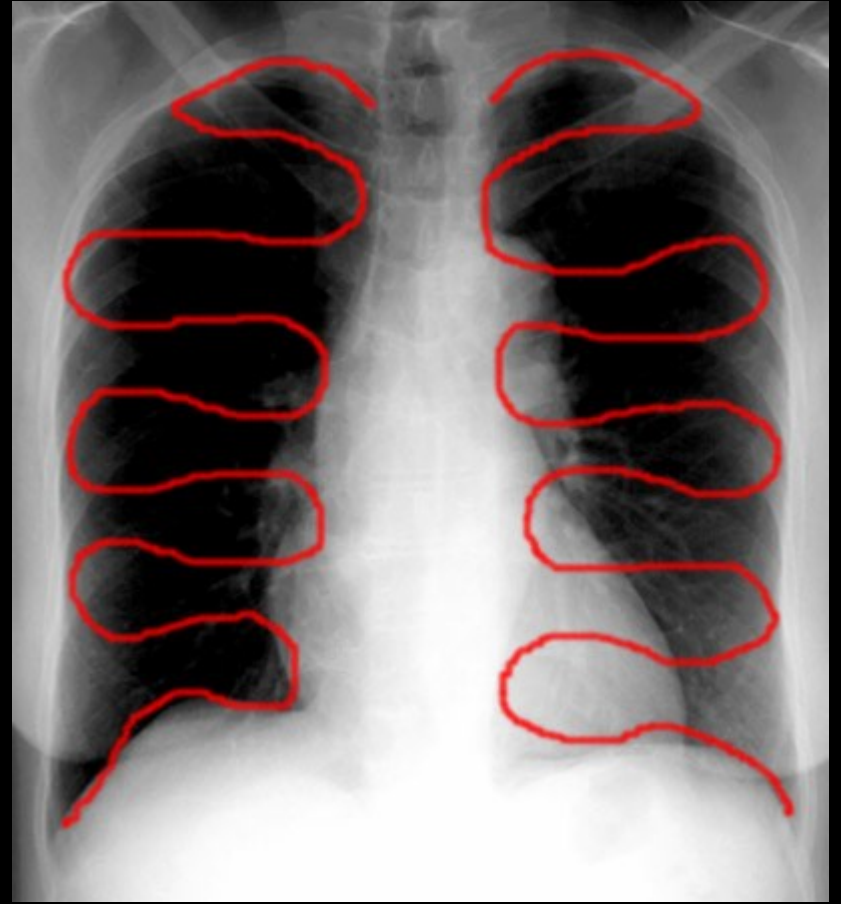
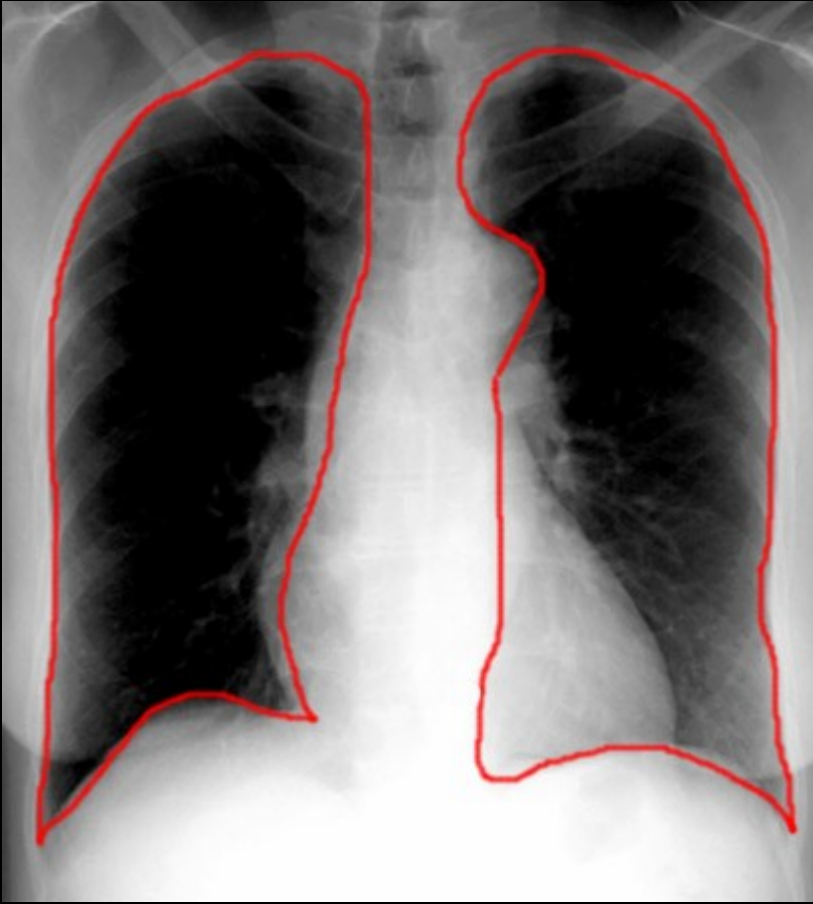
Your eye gaze should scan all portions of the film, follow lung/mediastinal interfaces and look again carefully in areas where you know that mistakes are easily made, such as over the spine on the lateral view and in the apex on the PA view.

YOU ONLY SEE WHAT YOU ARE LOOKING FOR!

Looking for abnormalities



Looking for abnormalities



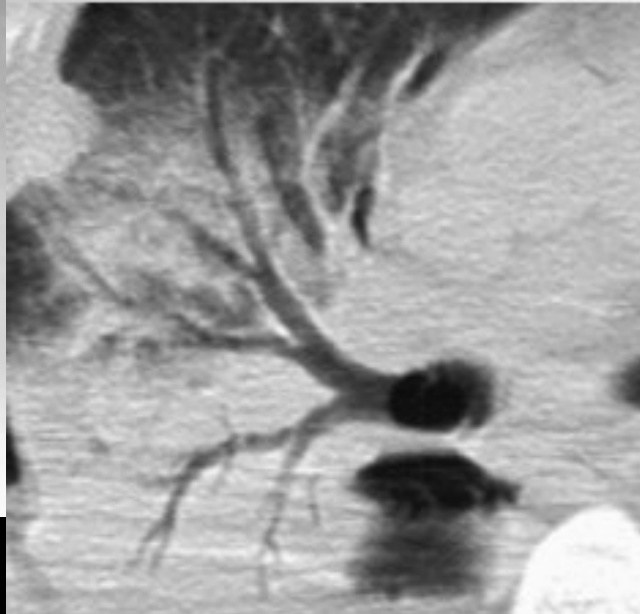
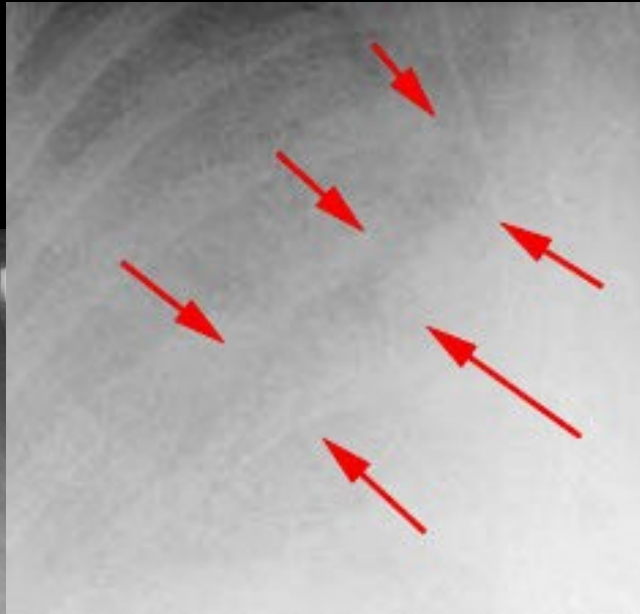
Looking for abnormalities



Silhouette sign



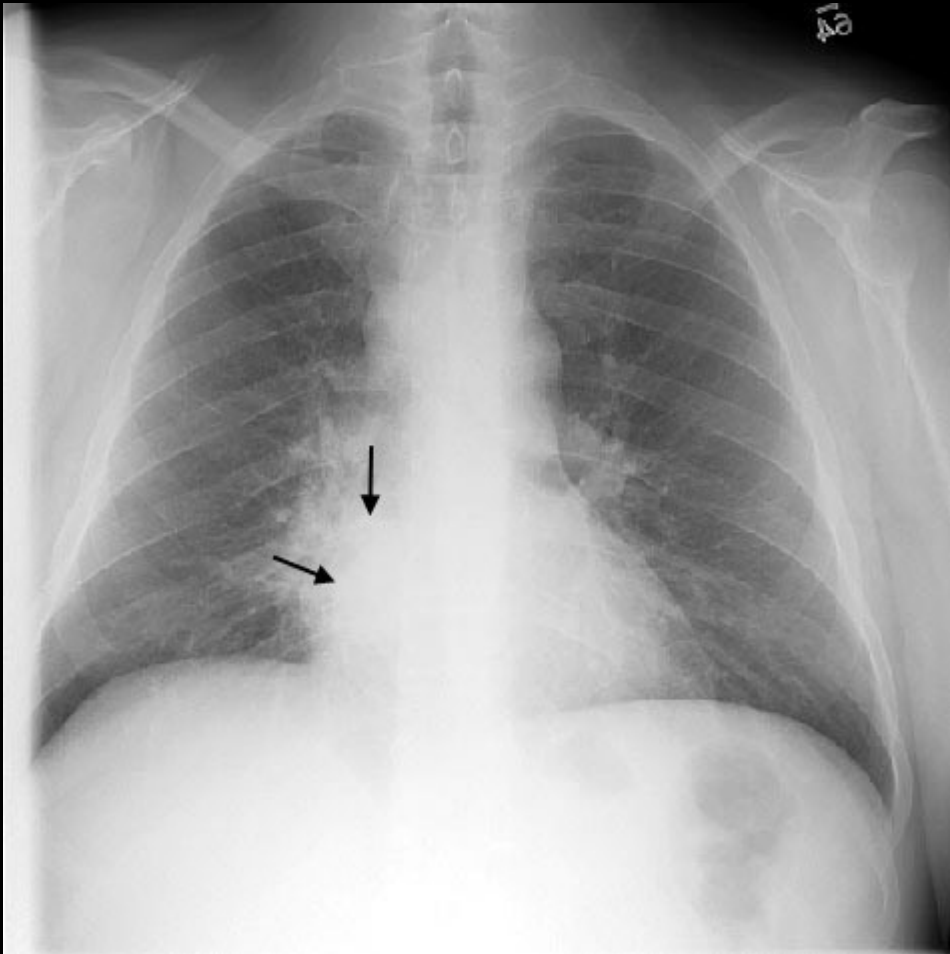
Air Bronchogram



Solitary pulmonary nodule

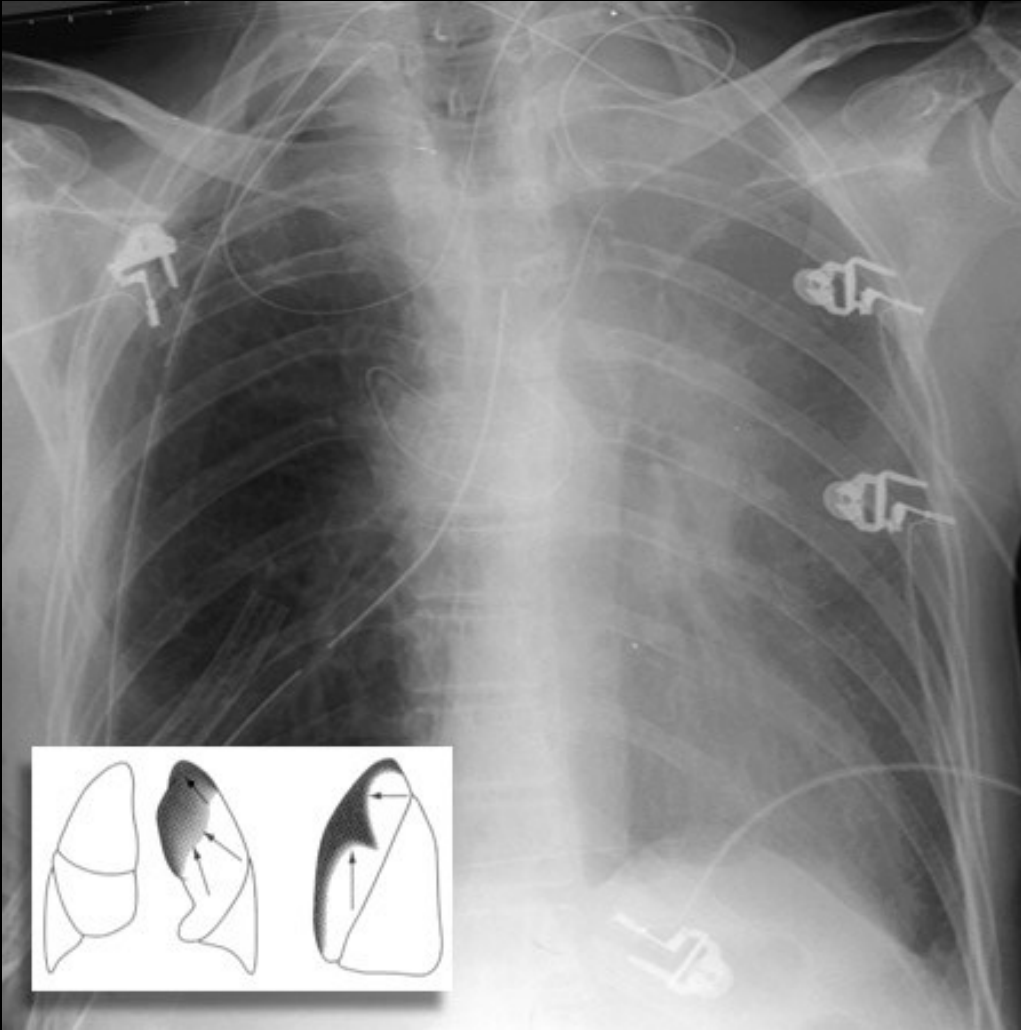


Cont.



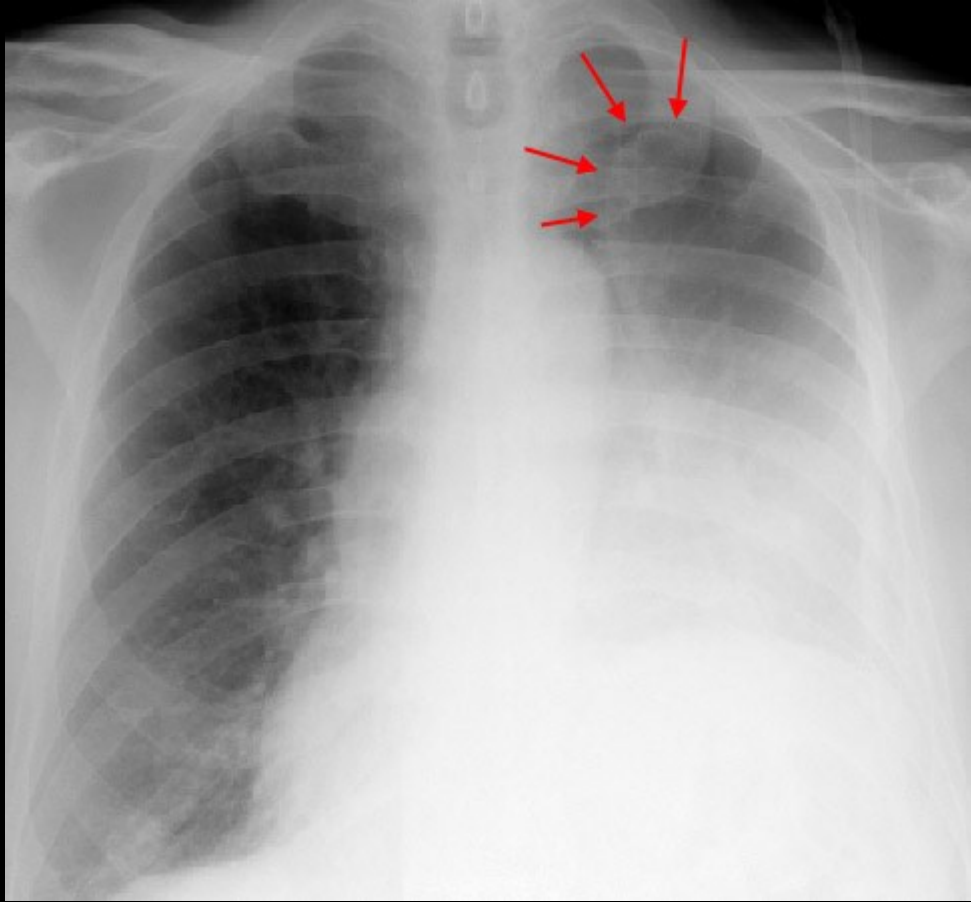
Pathology

Atelectasis



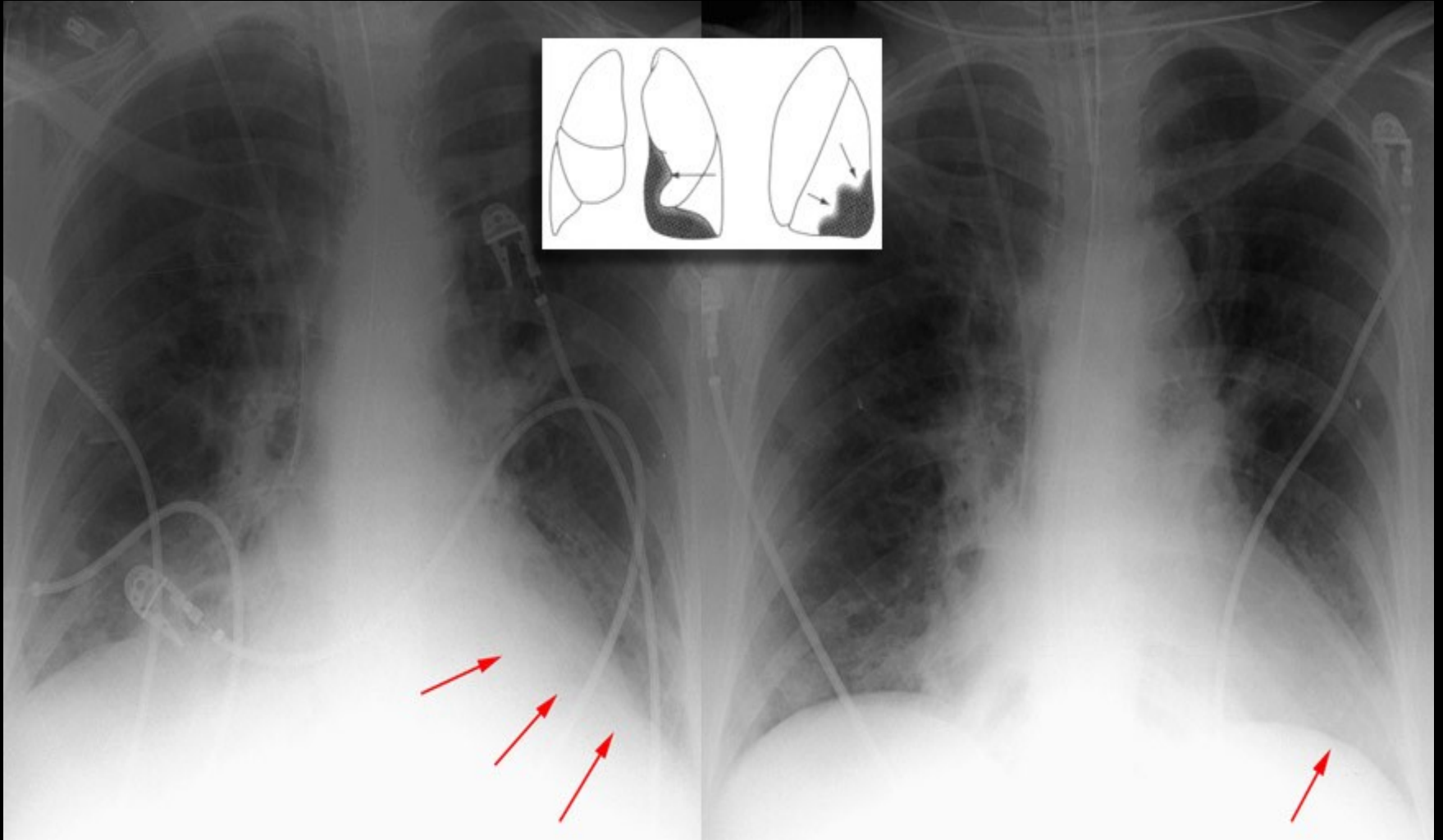
Pathology

Atelectasis



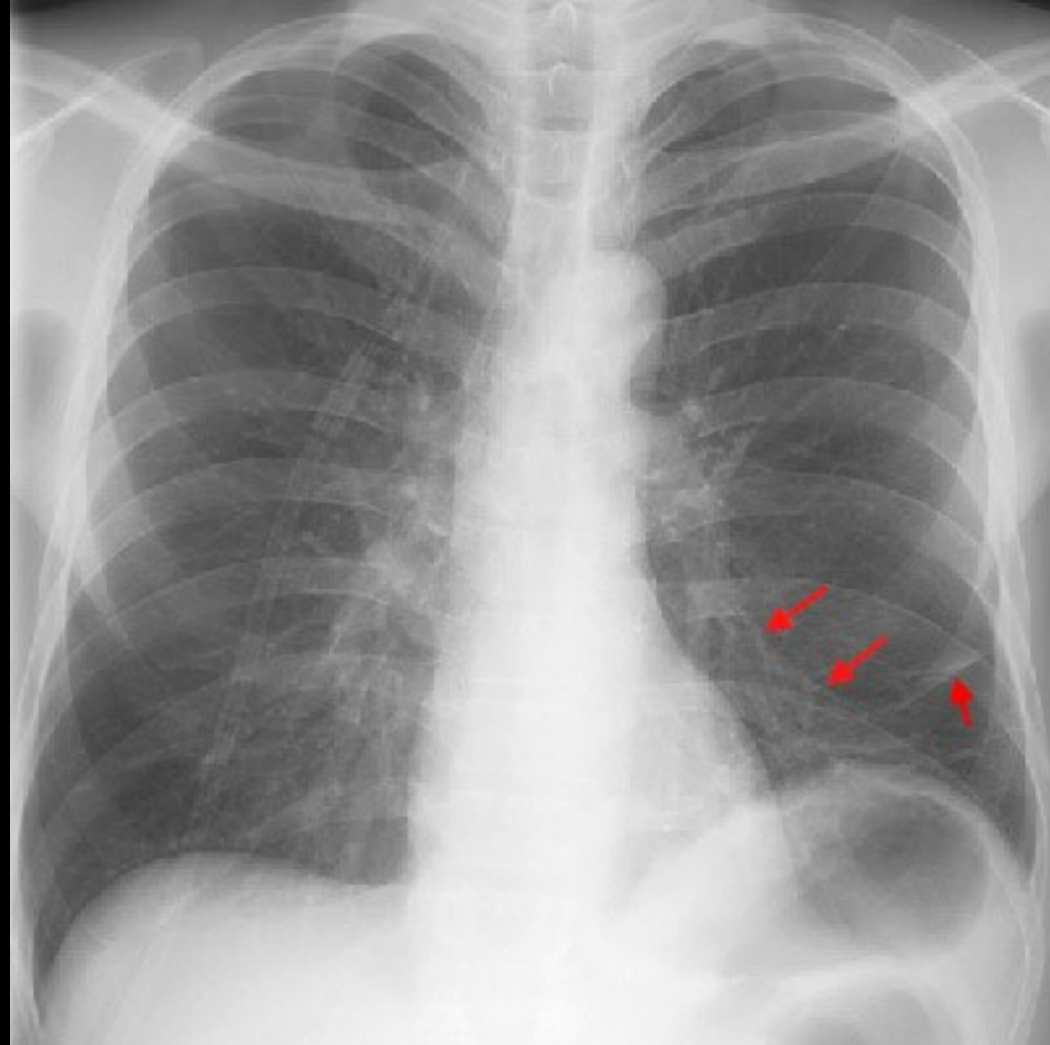
Pathology

Atelectasis



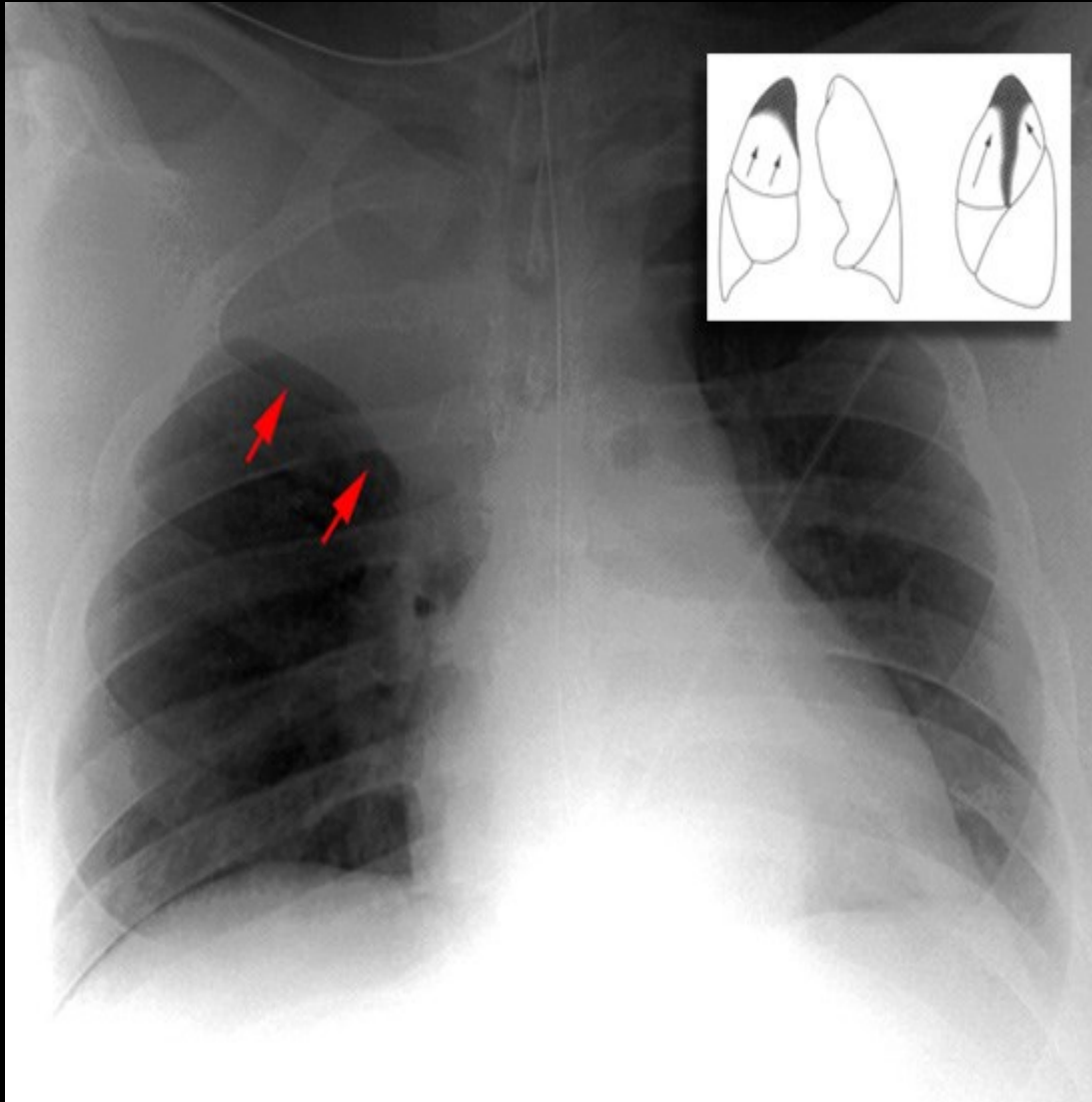
left lower lobe atelectasis followed by partial resolution

Note the elevation of the left hemidiaphragm



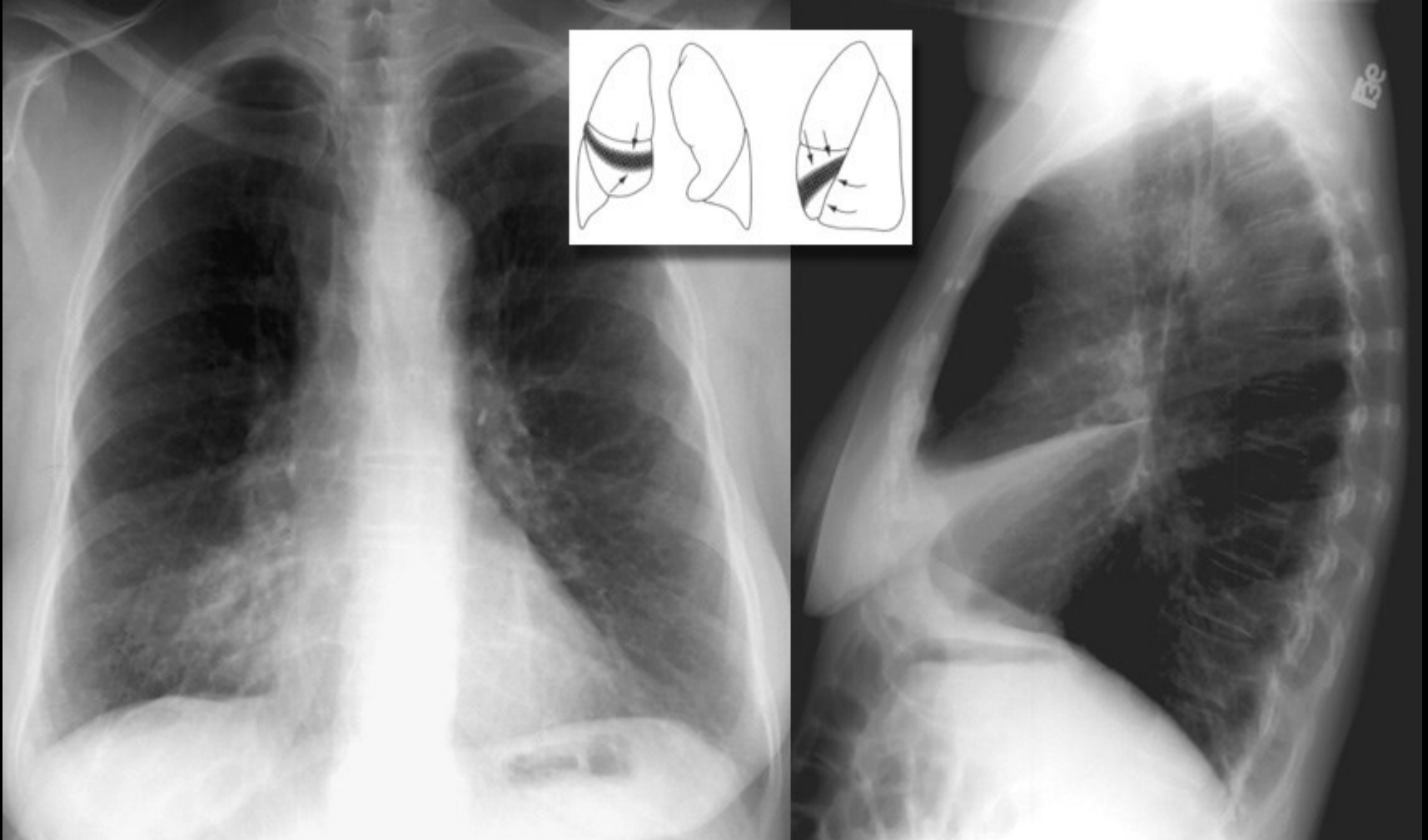
Pathology

Atelectasis



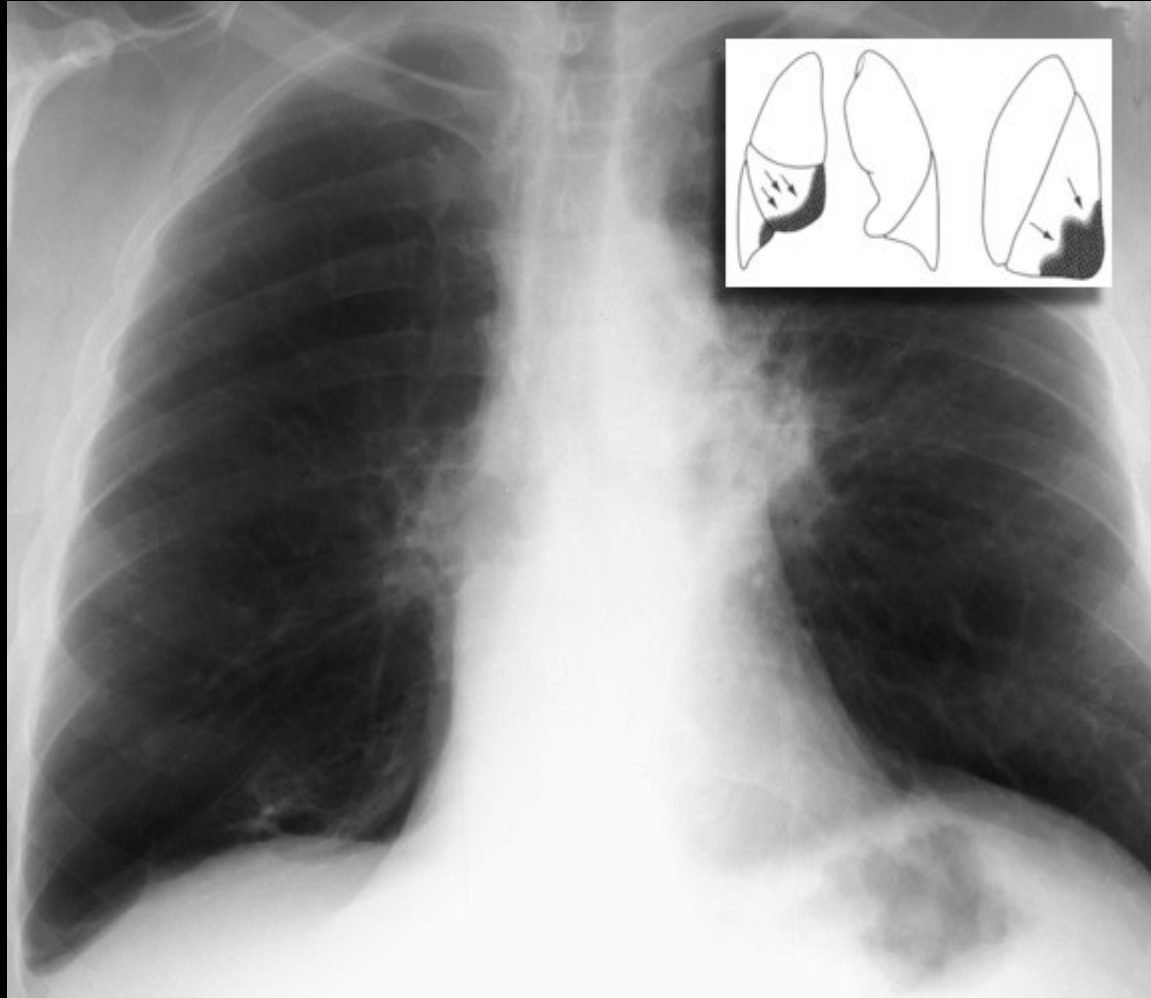
Pathology

Atelectasis

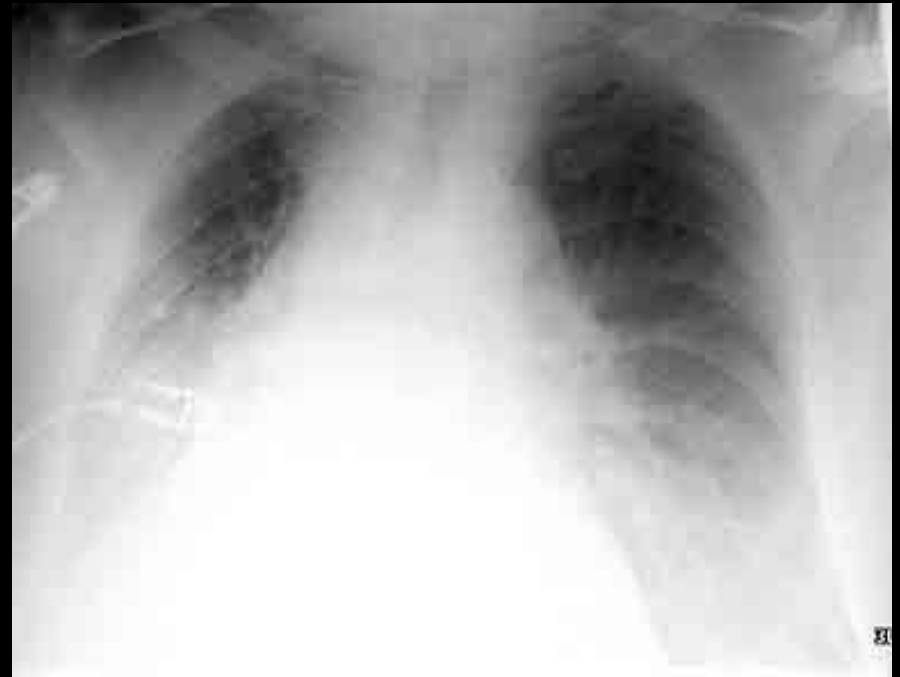


Pathology

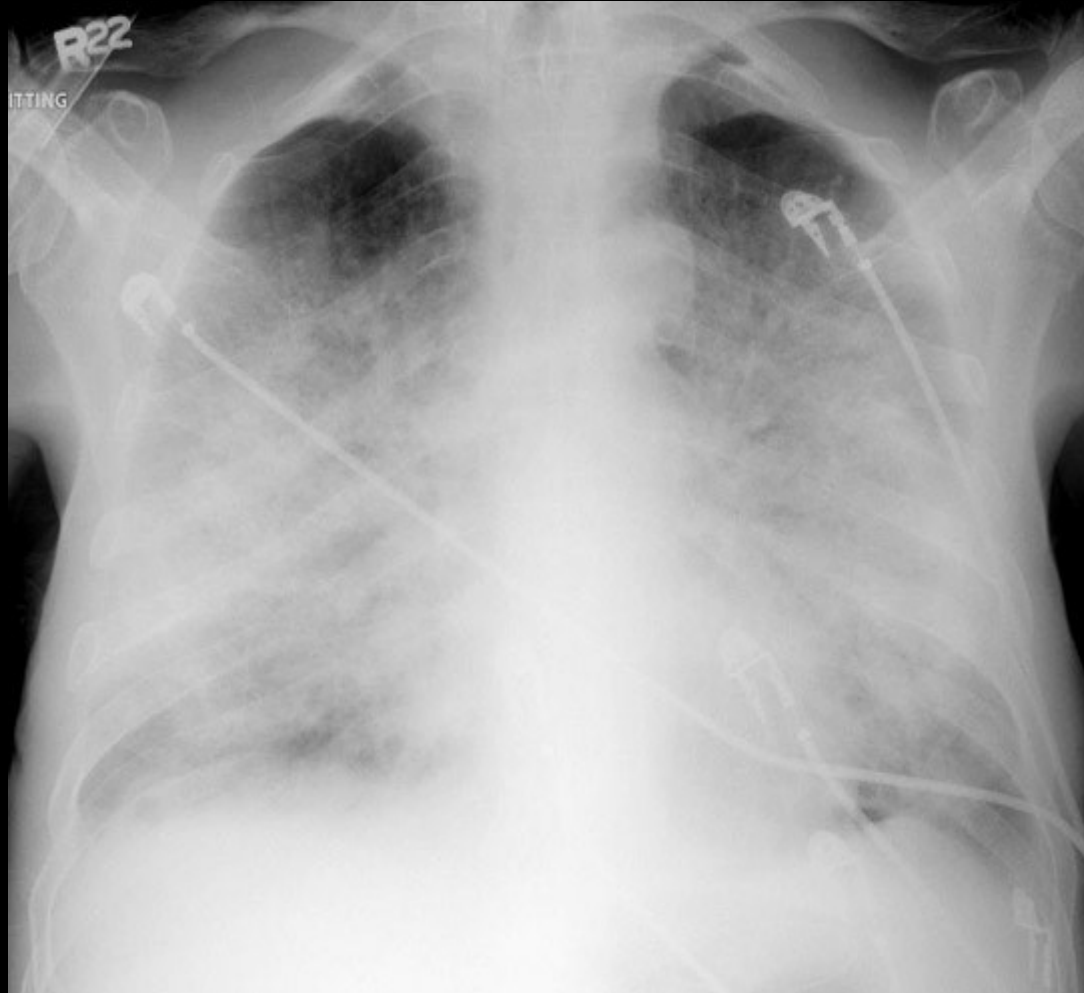
Atelectasis



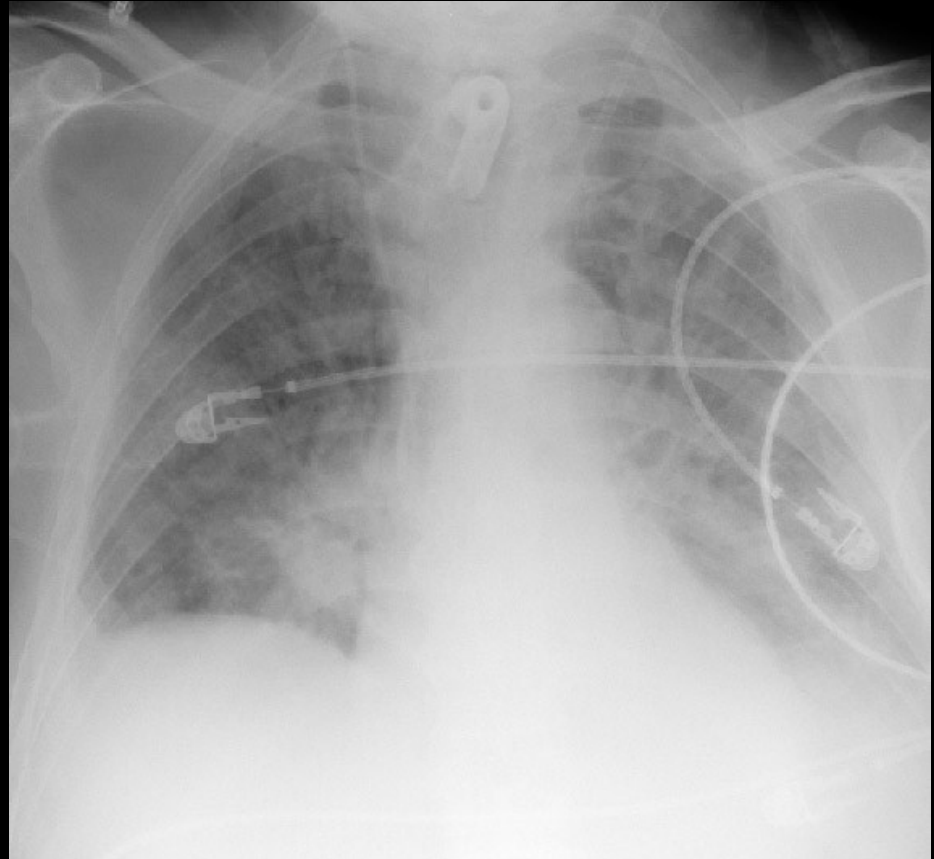
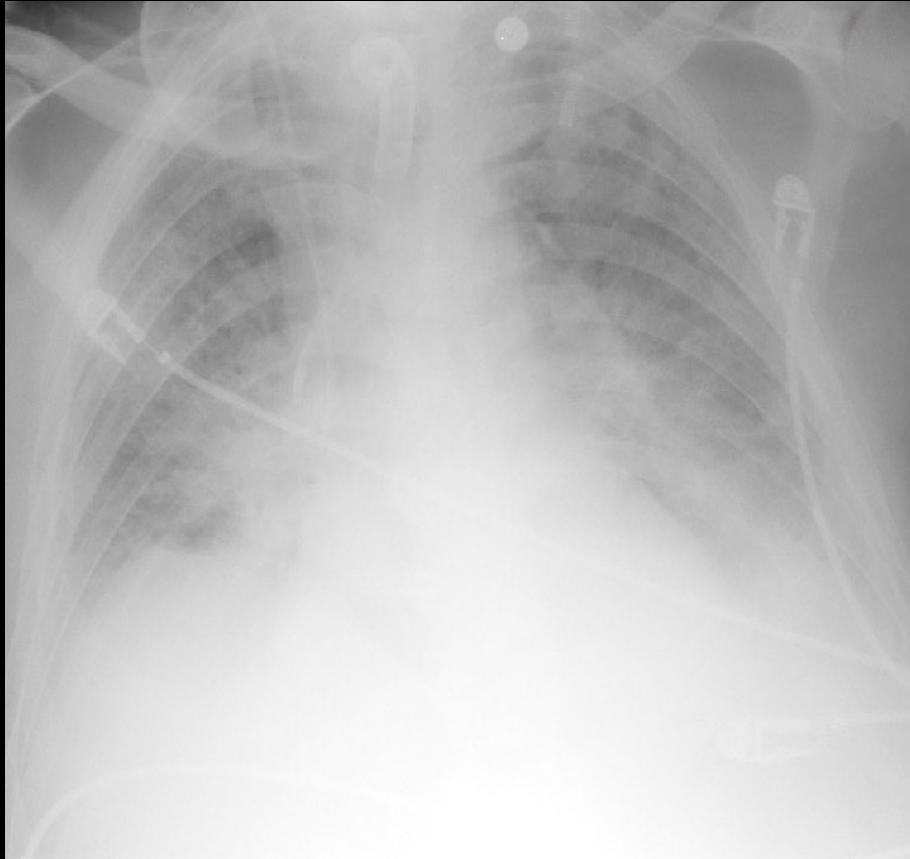
Mucus Plug



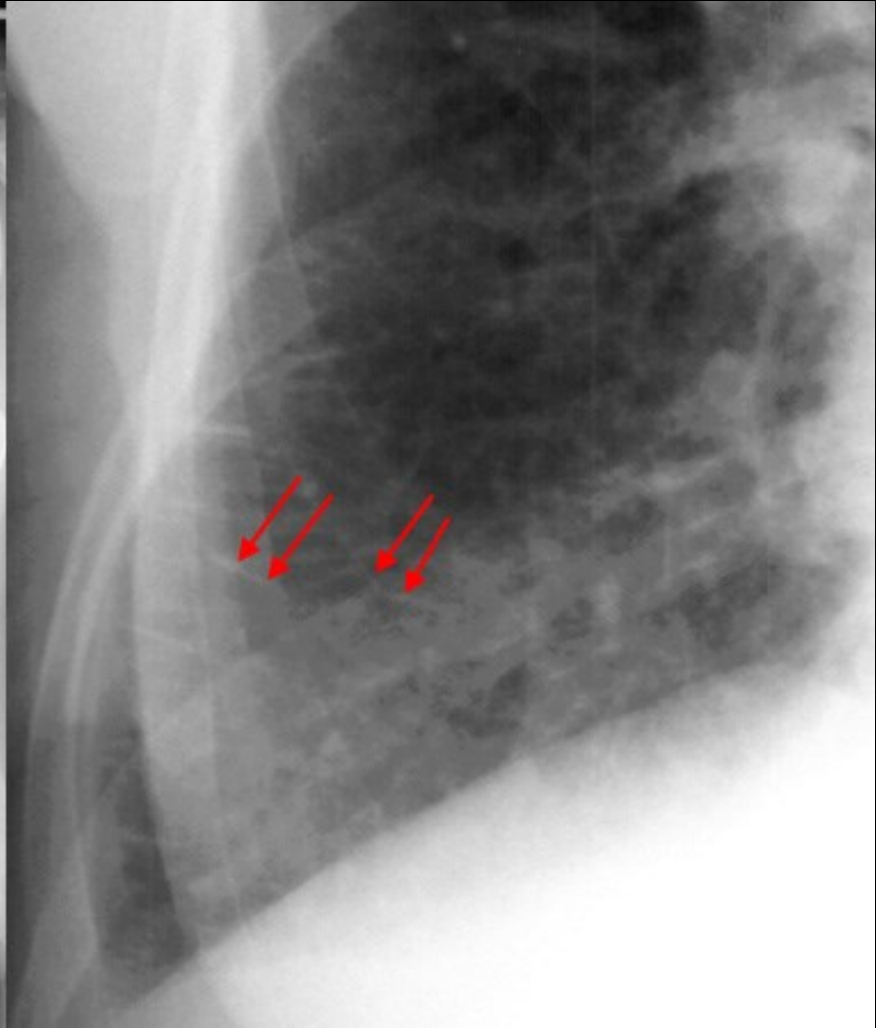
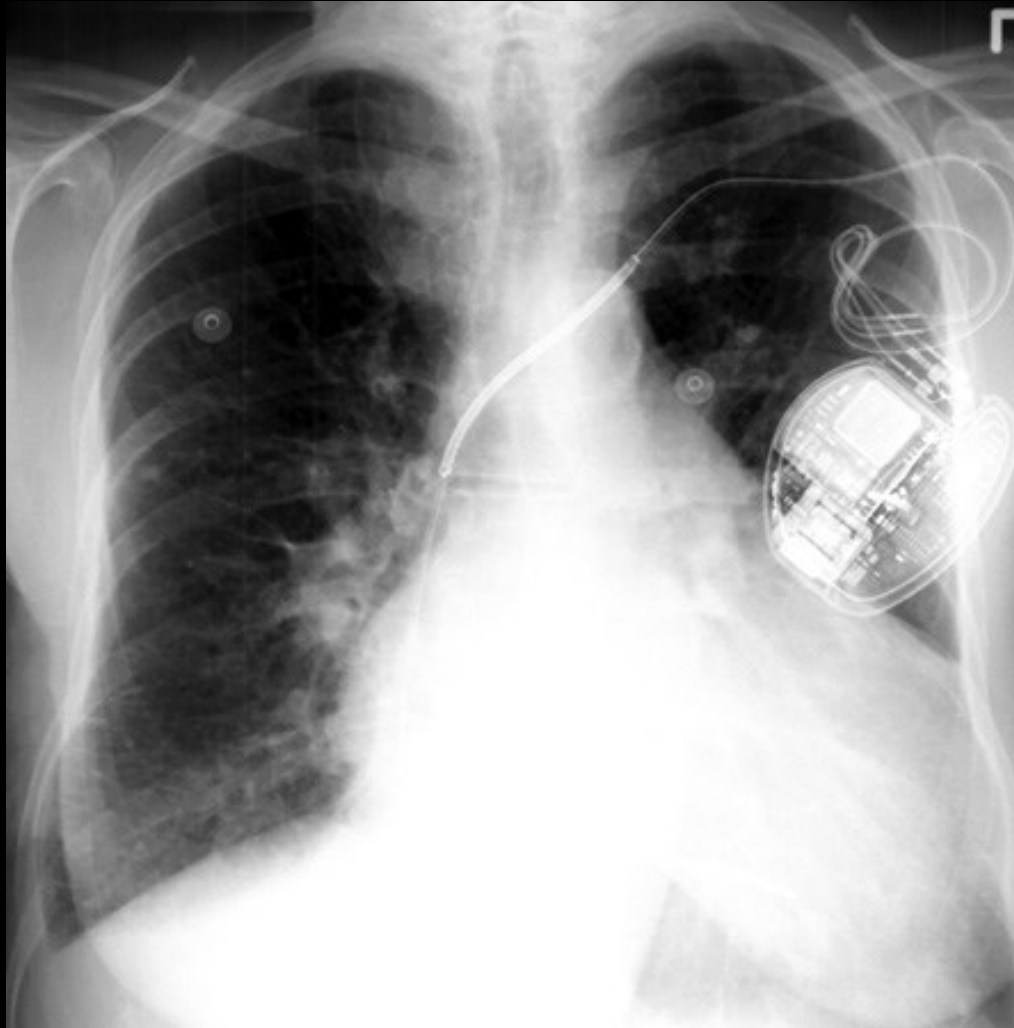
Pulmonary edema



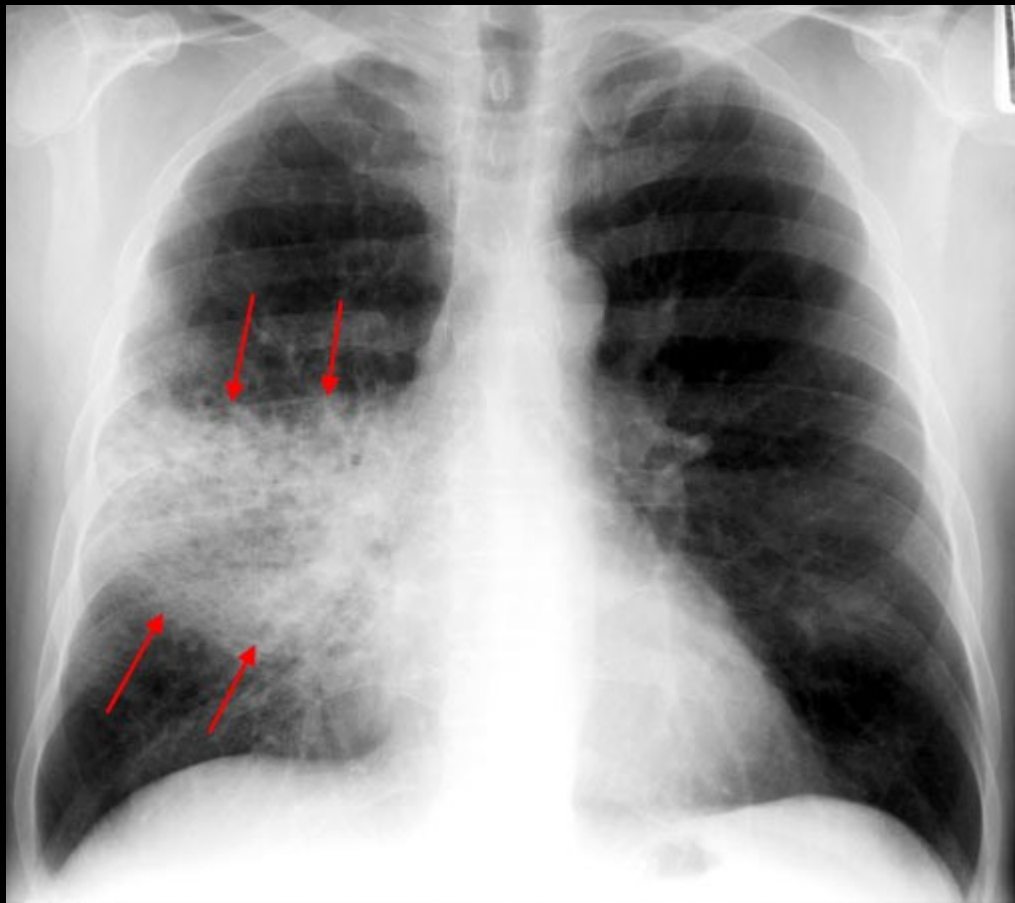
Pulmonary edema



Kerley B lines



Pneumonia



Atelectasis

Volume Loss

Associated Ipsilateral Shift

Linear, Wedge-Shaped

Apex at Hilum

Pneumonia

Normal or Increased Volume

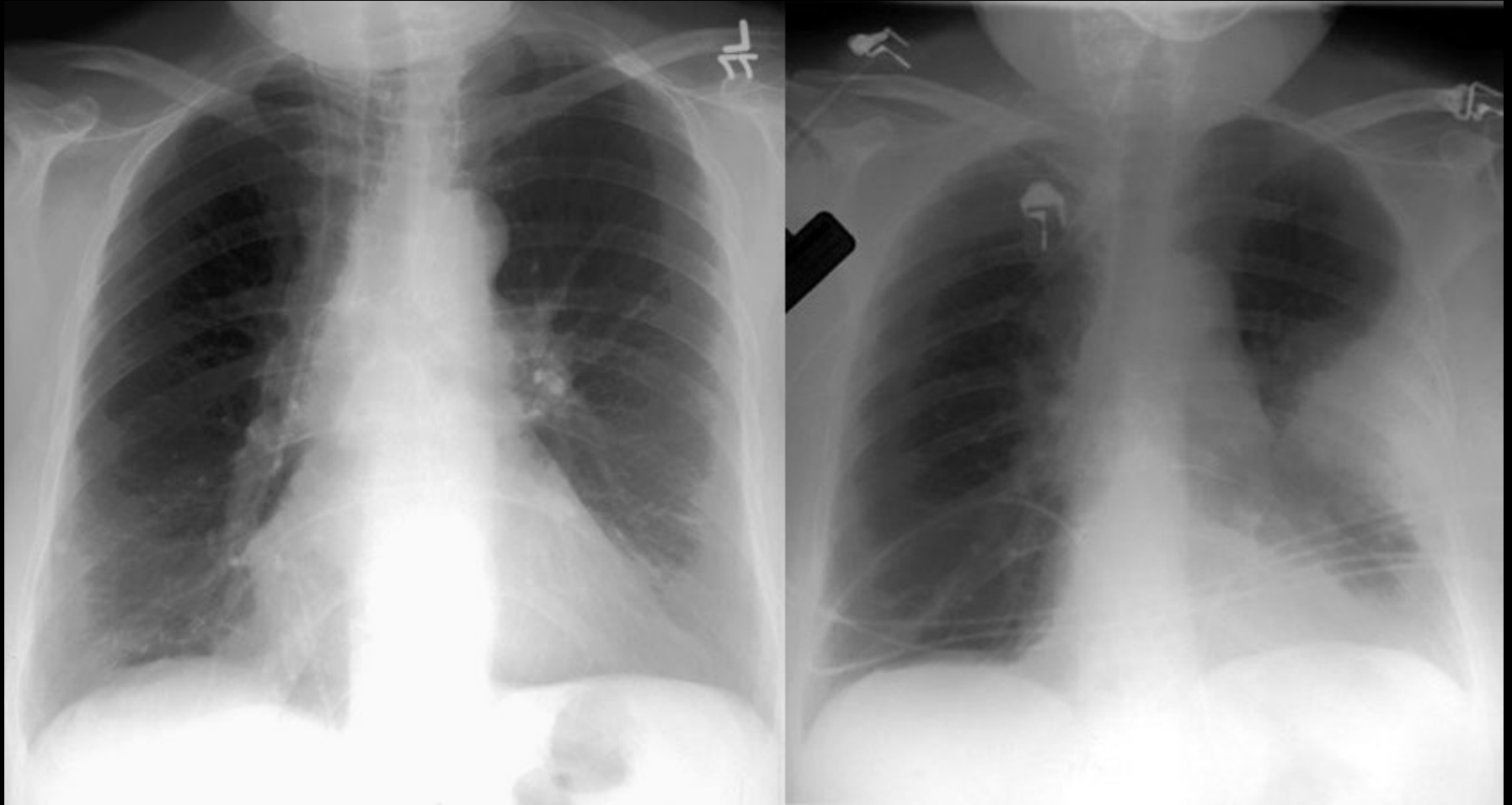
No Shift, or if Present Then
Contralateral

Consolidation, Air Space Process

Not Centered at Hilum

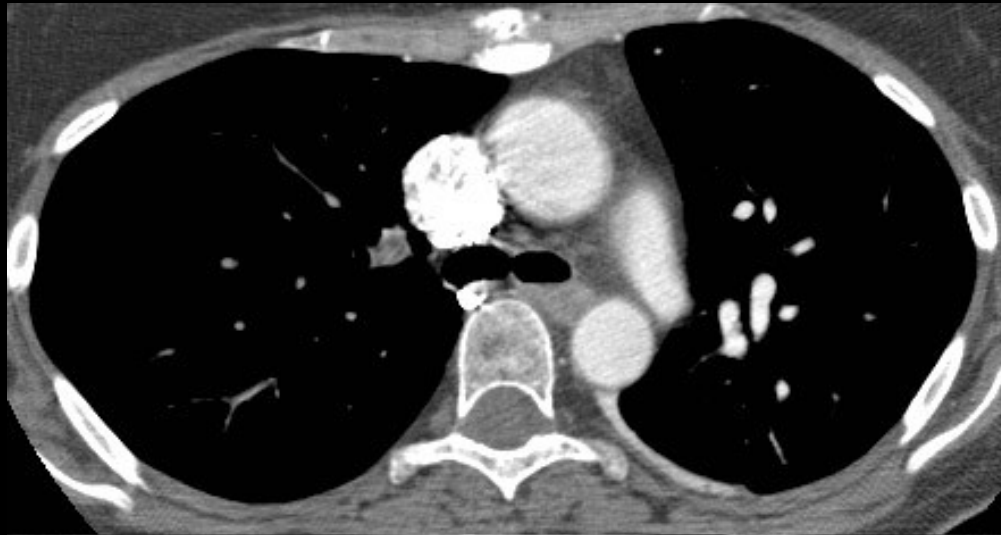
Air bronchograms can occur in both.

Pulmonary embolism

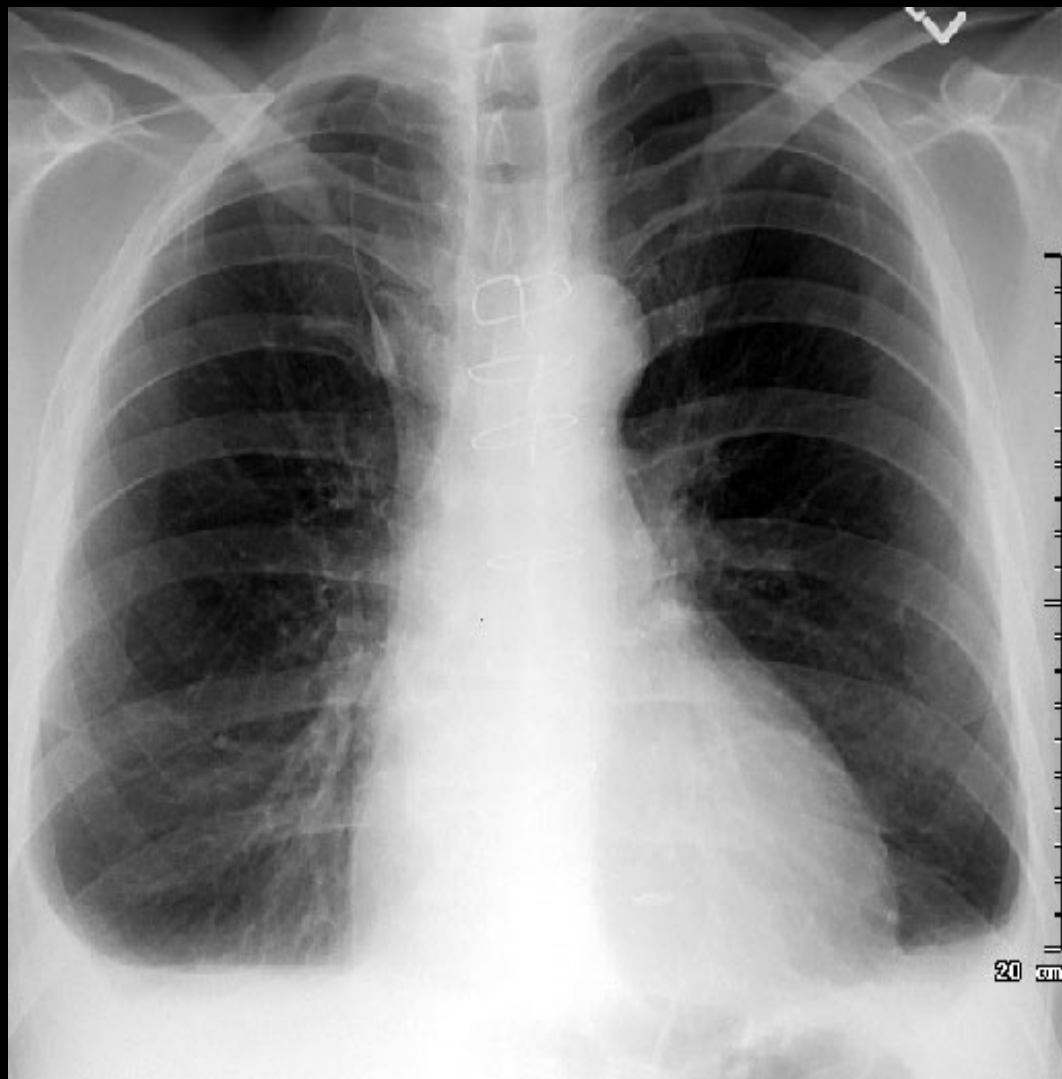


What is the most common chest X-ray finding in PE?

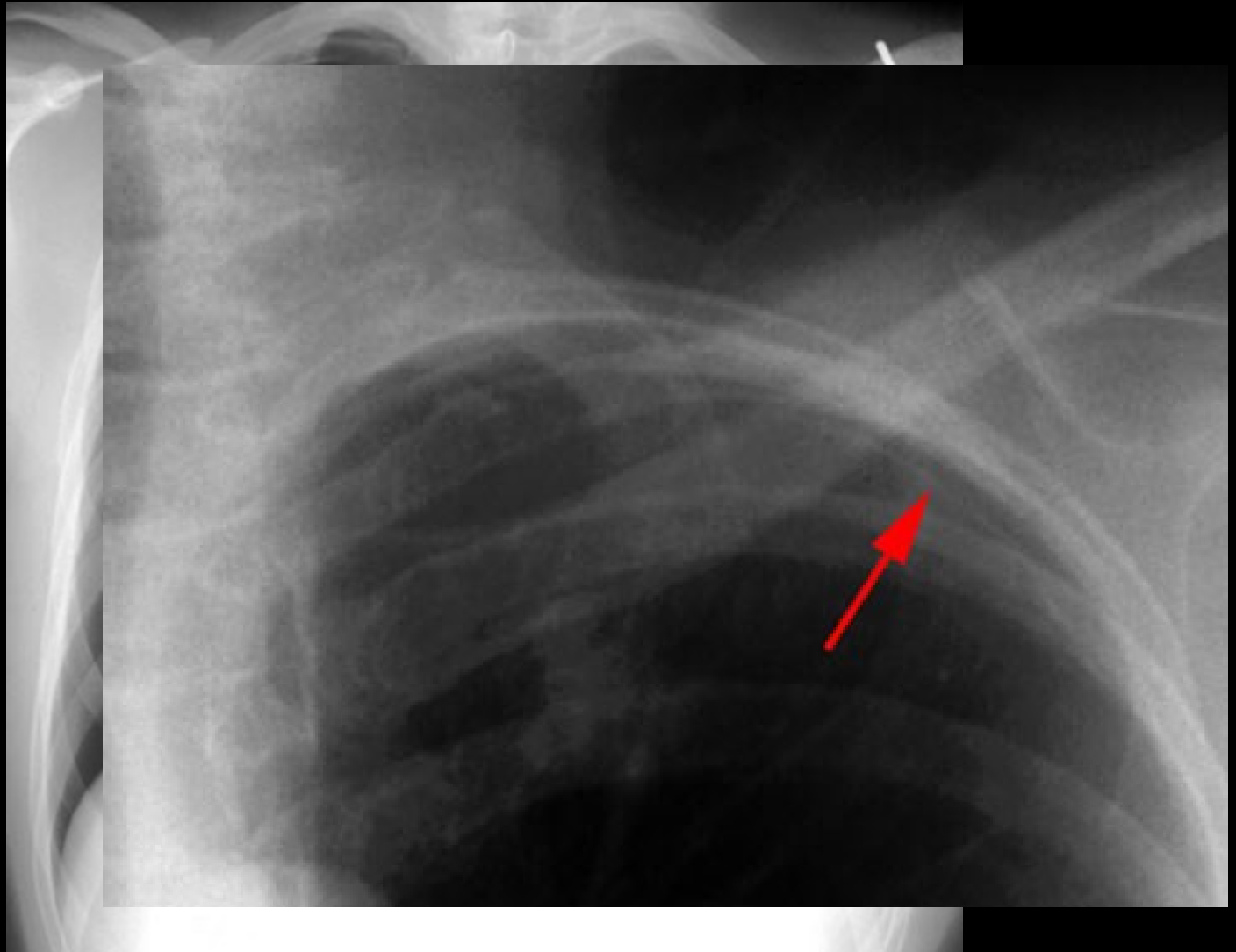
Pulmonary embolism



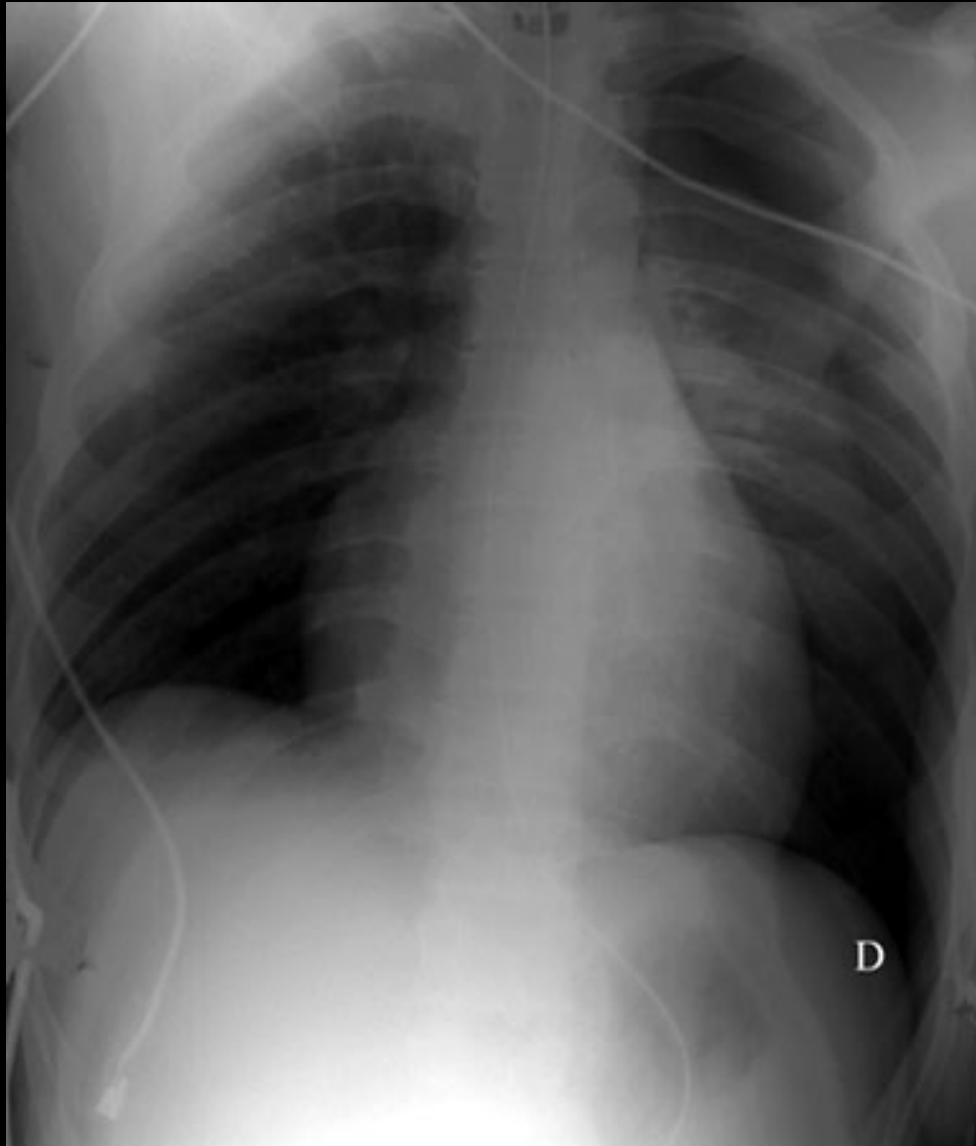
Pleural effusion



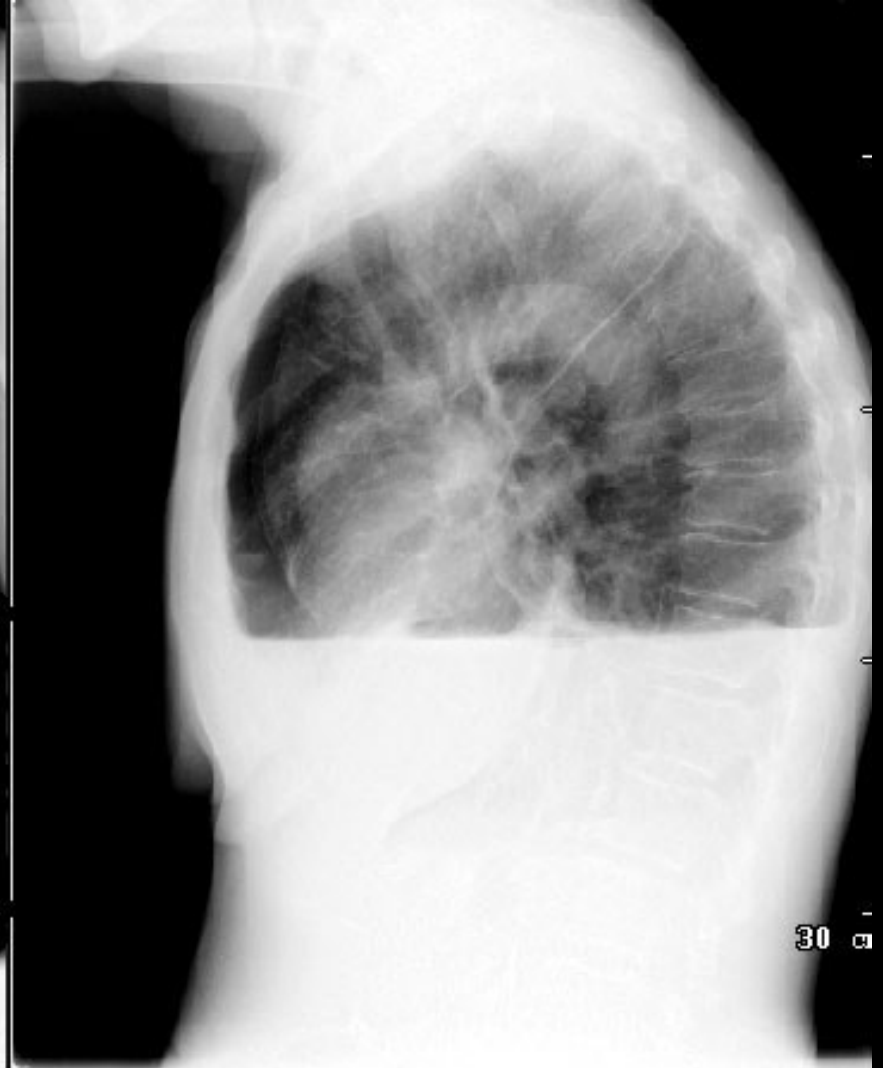
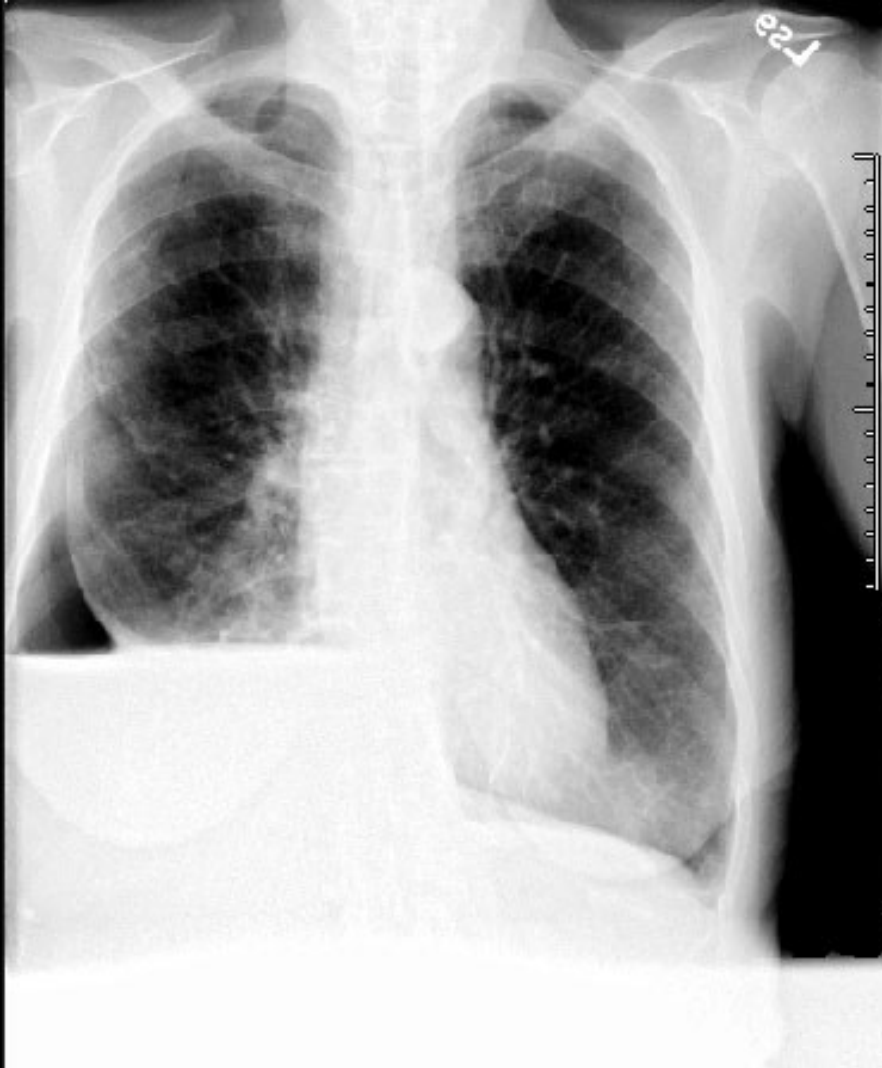
Pneumothorax



PTX deep sulcus sign



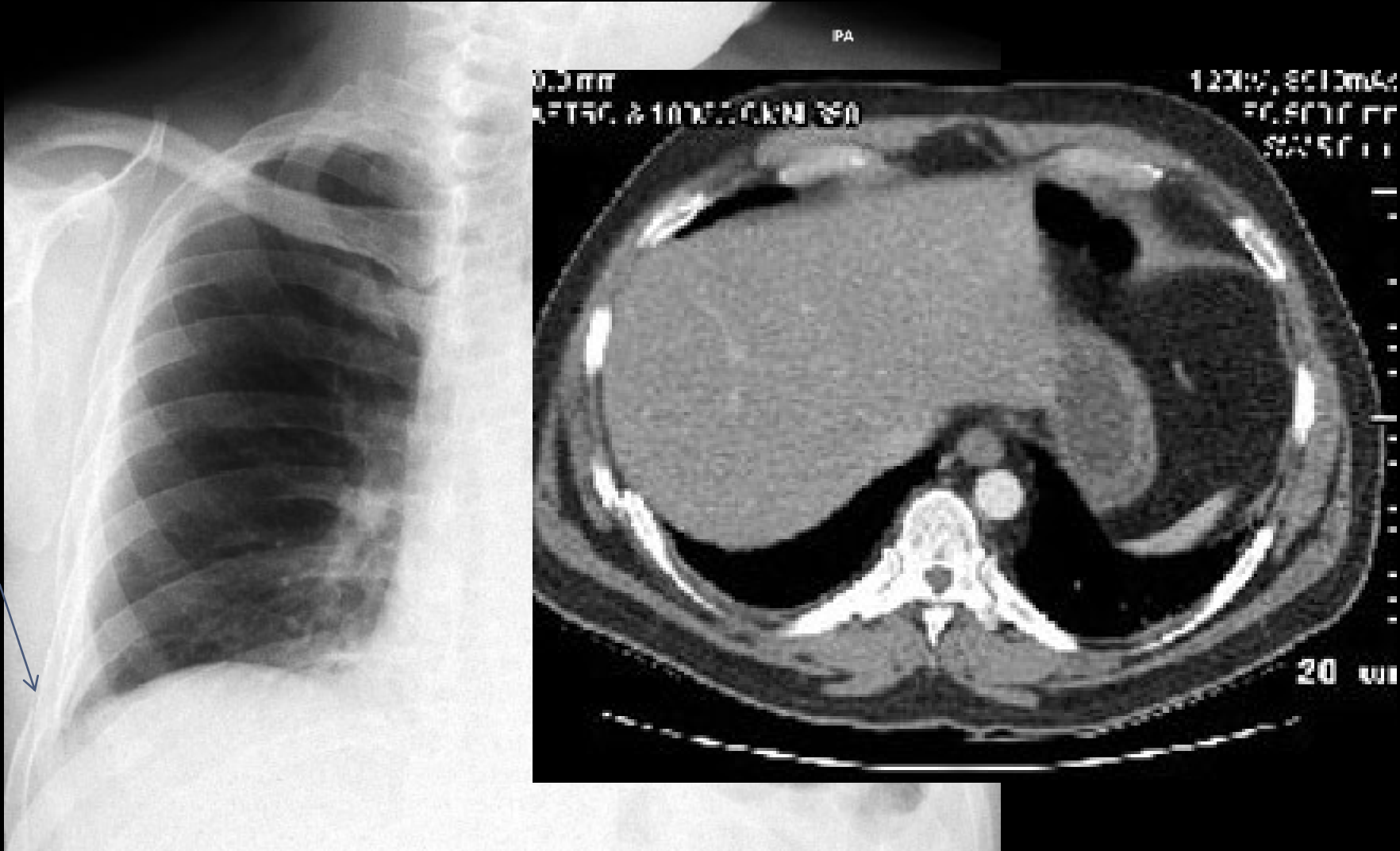
hydropneumothorax



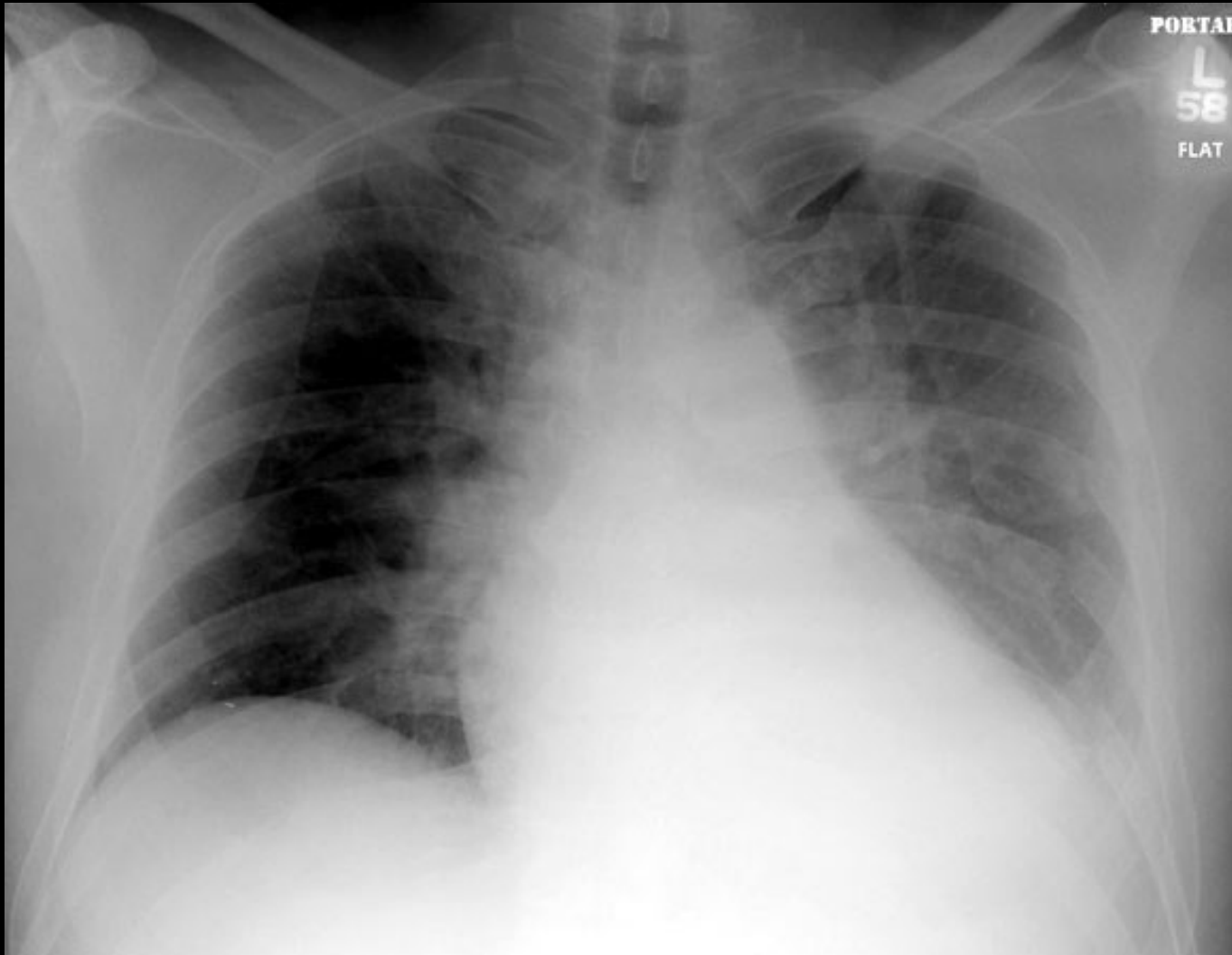
Emphysema



Rib Fracture



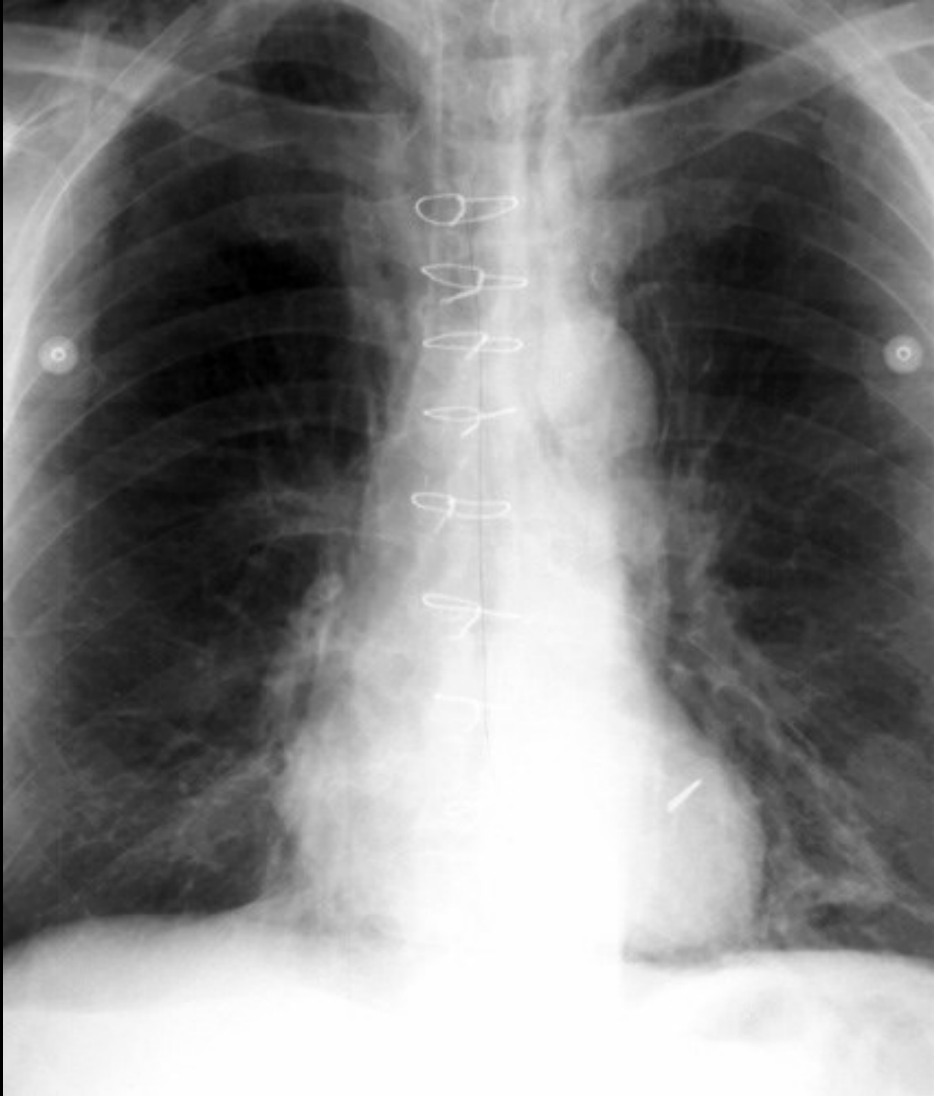
Flail Chest

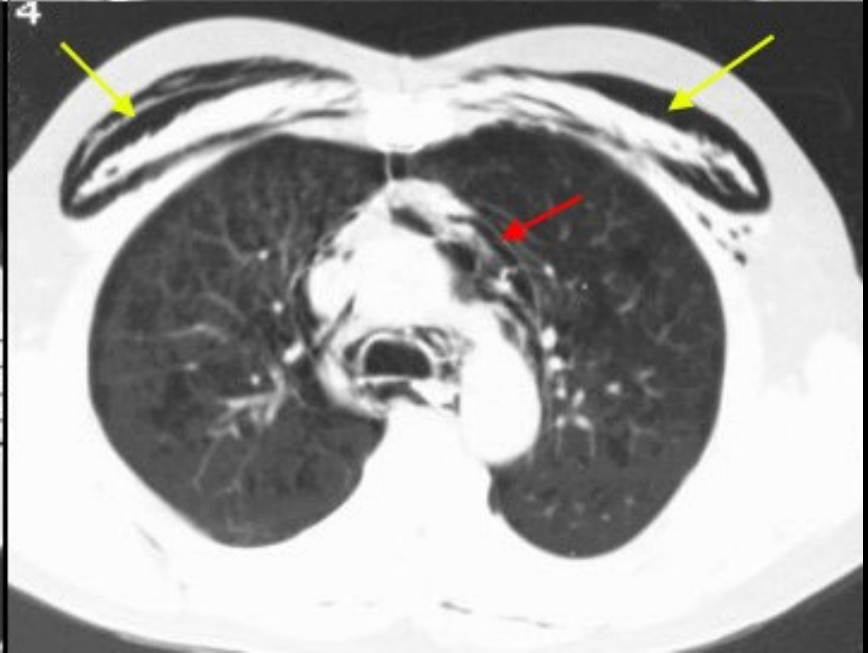
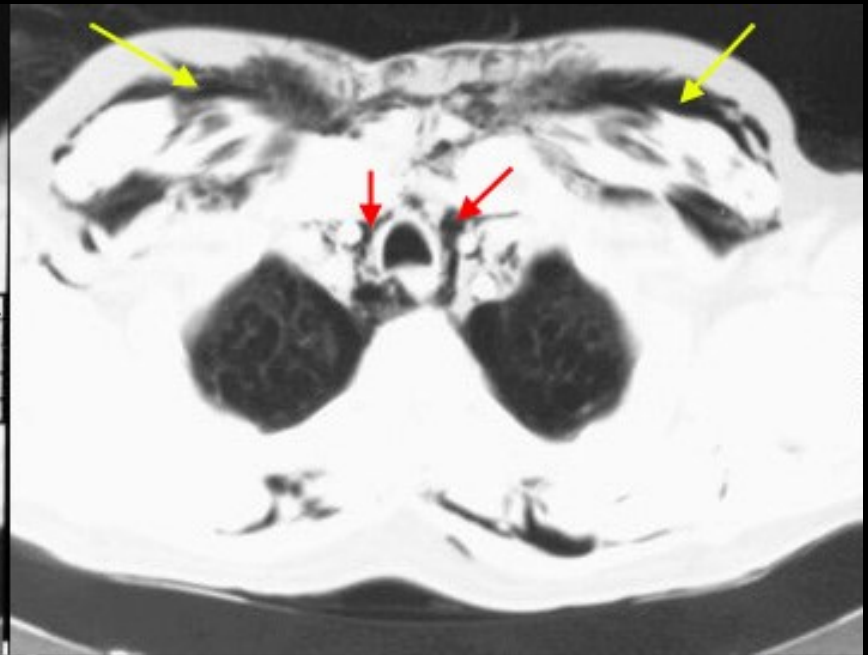
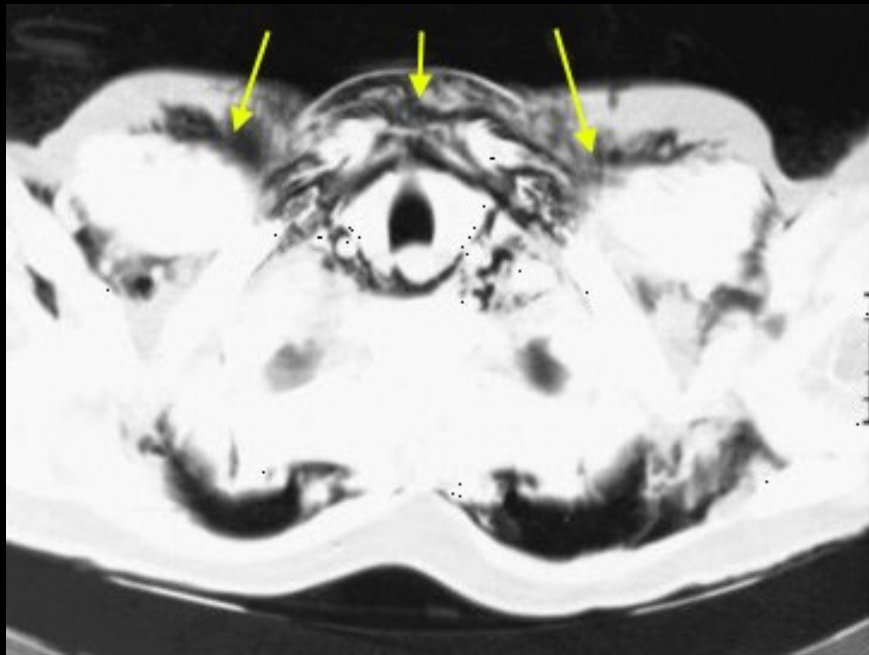


Anterior Mediastinal Mass



Pneumomediastinum





Hiatal Hernia



THANK YOU.....