



Volume 1

Manual of Chest X-ray

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Modules 1 and 2

Module 1

- How to Read
Normal Chest X-ray
- Soft Tissue Shadows
- Bony Cage
- Diaphragm

Module 2

- Trachea
- Heart
- Hilum
- Mediastinum
- Lung Parenchyma I
Zones, Lobes and Segments
Radiopaque Shadows
Infiltrative Lesions
Cavity



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How to Read Normal Chest X-ray

APPROACH TO CHEST X-RAY

Systematic approach: Read chest X-ray systematically before final interpretation (for less experienced readers)

Global approach: Read the abnormality first and then read all other points before final interpretation (for experienced readers)

Systematic Approach

- Technical points
- Anatomical points

Technical Points

- Side determination
- Plain/contrast
- View
- Rotation
- Exposure
- Inspiratory/expiratory

Anatomical Points

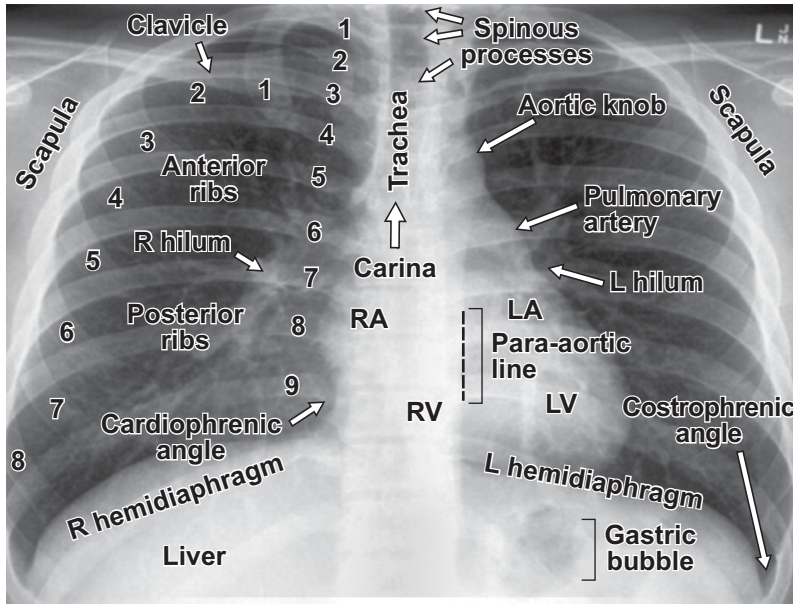
- Soft tissue
- Bony cage
- Trachea
- Diaphragm
- Heart
- Hilum
- Mediastinum
- Fissure
- Lung parenchyma

Technical Points: Side Determination

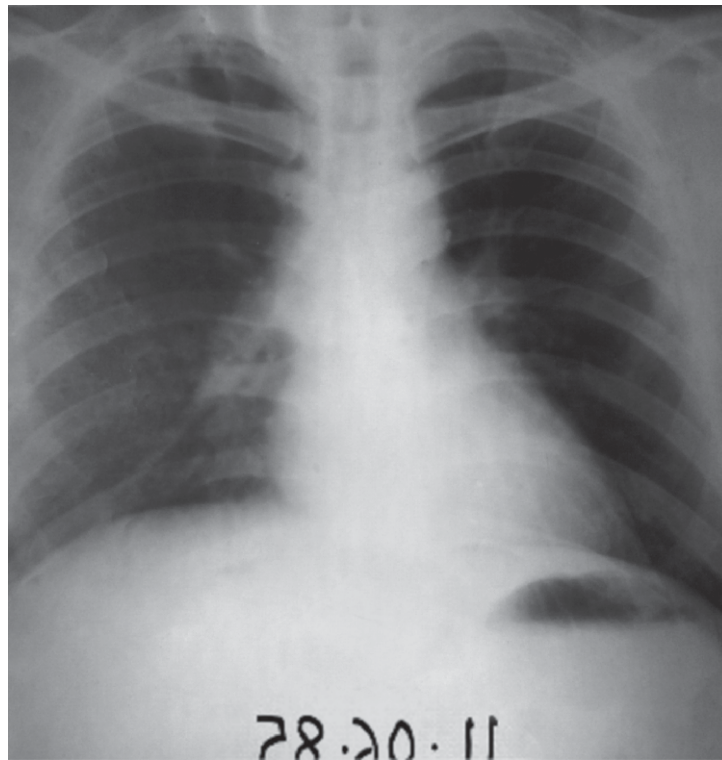
Landmarks on Left Side

- Fundal gas shadow
- Apex of heart (left ventricle)
- Aortic knuckle

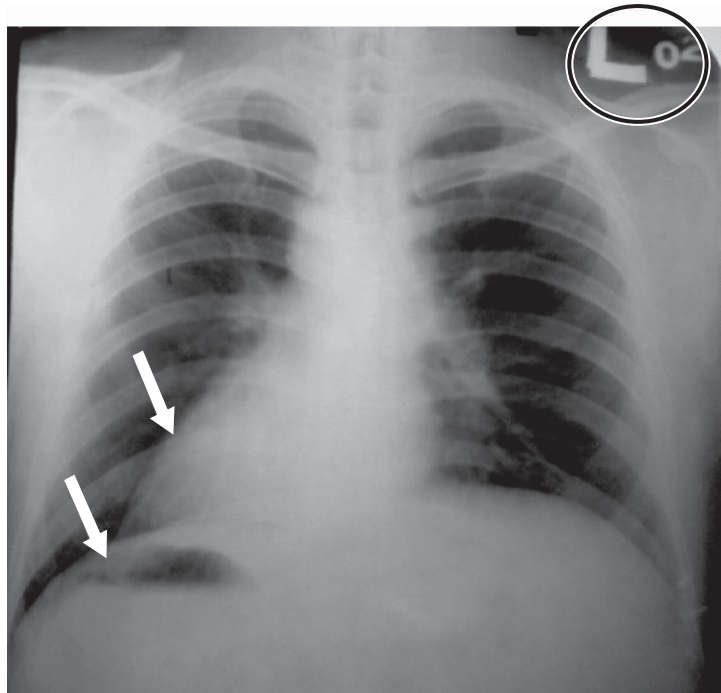
Marker on X-ray Plate: Most Important



1



What is this? and why date is written wrongly?



Situs inversus

Technical Points: Plain/Contrast



Plain film

Contrast Film

- Bronchography
- Barium swallow
- Angiography



Bronchography

It is a special study of bronchial tree by introduction of contrast medium into a particular bronchus. *It is rarely done now.*

Soft Tissue Shadows

Soft Tissue Shadow—*What to Look For?*

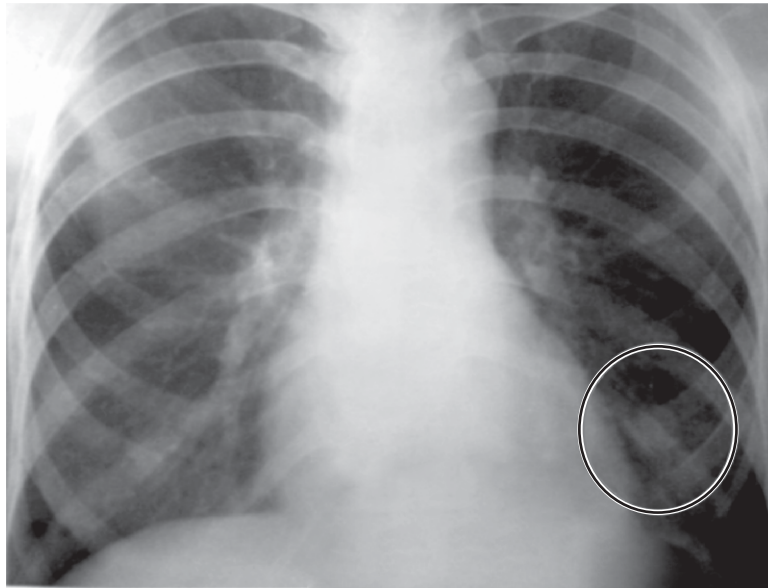
- Breast shadow
- Nipple shadow
- Subcutaneous emphysema
- Plaits of hairs
- Companion shadow
- Pacemaker
- Subcutaneous calcification (worms, glands)
- Pellets



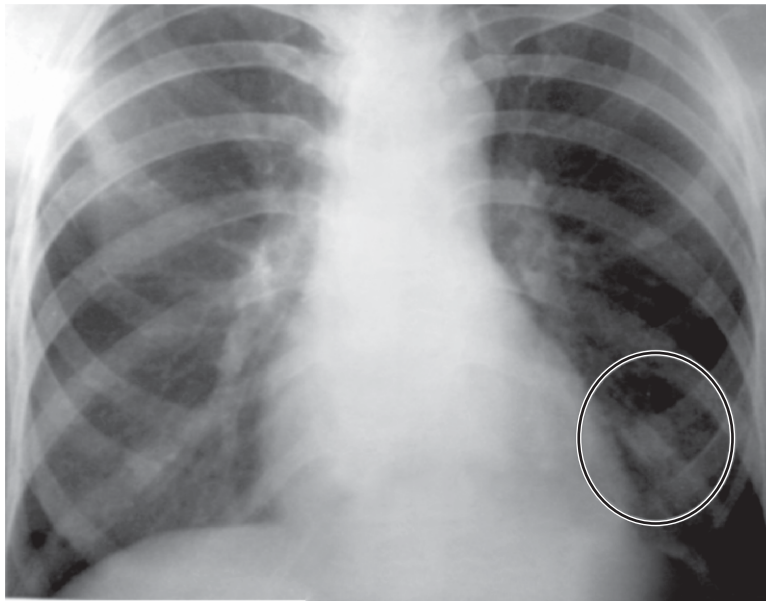
What is this?
See very carefully



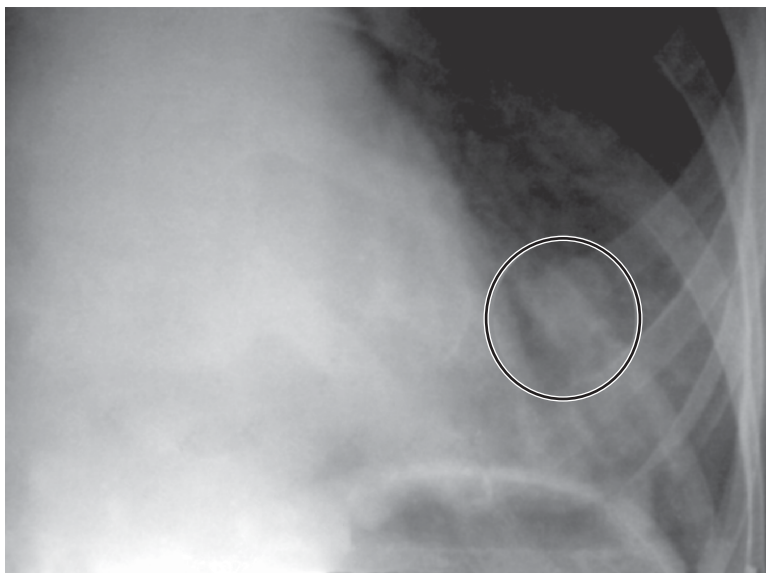
Absent breast shadow right side



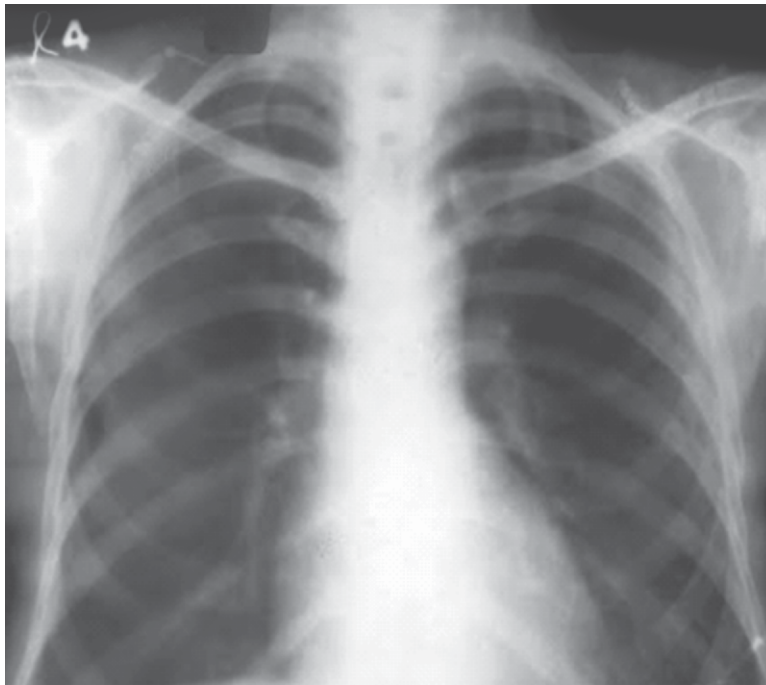
What is this?



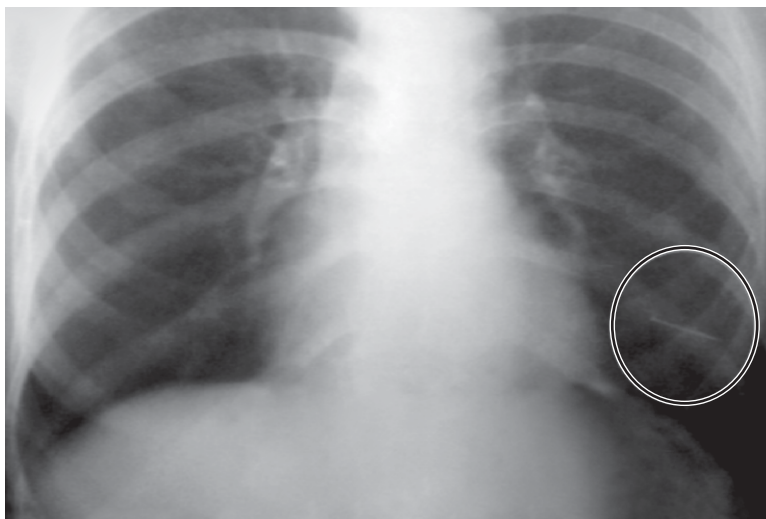
Nipple shadow



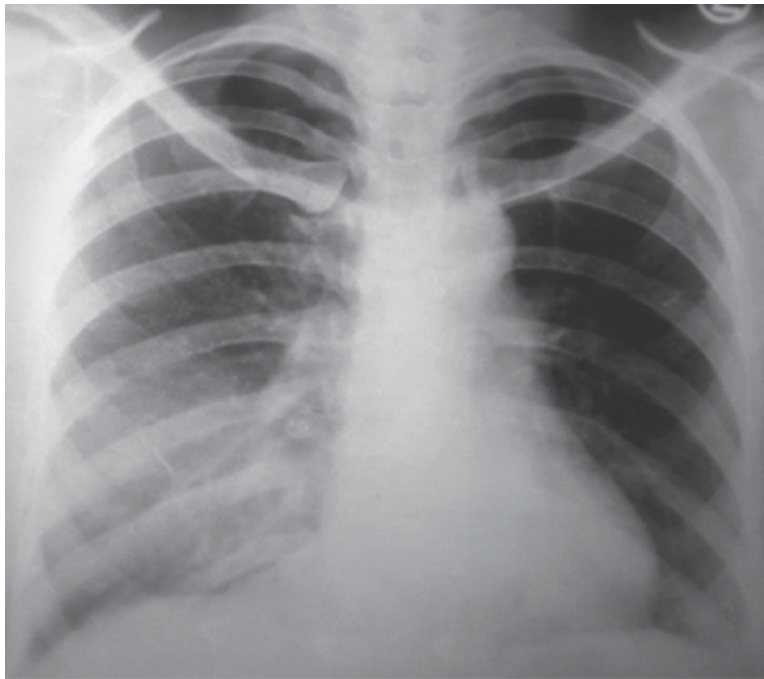
Nipple shadow (magnified view)



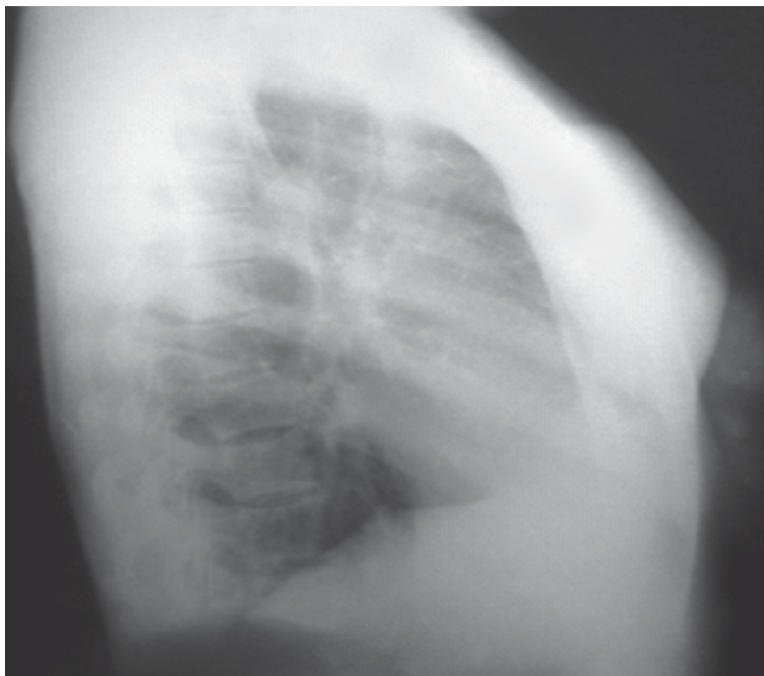
Chest X-ray PA view taken after stripping the breast
See that shadow has disappeared



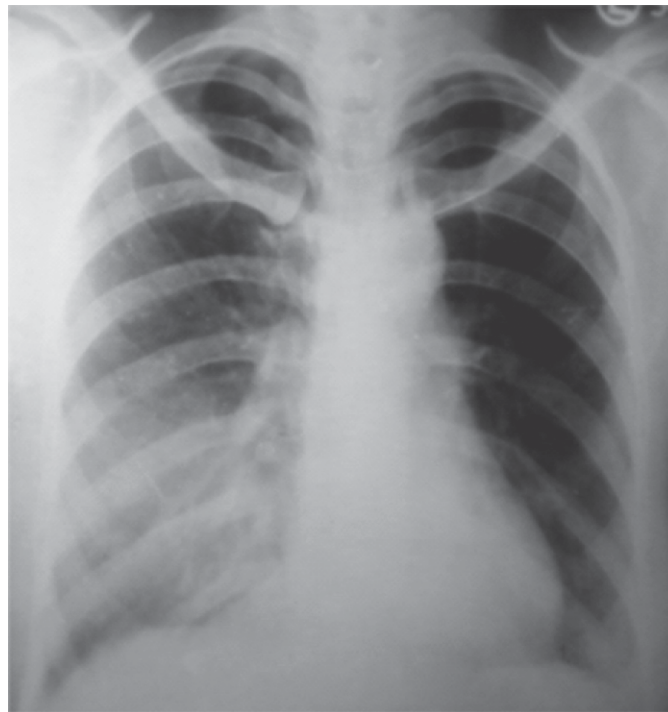
Chest X-ray PA view taken after attaching a pin to confirm



Homogenous shadow in right lower zone



Right lateral view showed no shadow in right lower lobe
How do you explain this?



Carcinoma breast causing shadow in the chest X-ray
(soft tissue shadow)

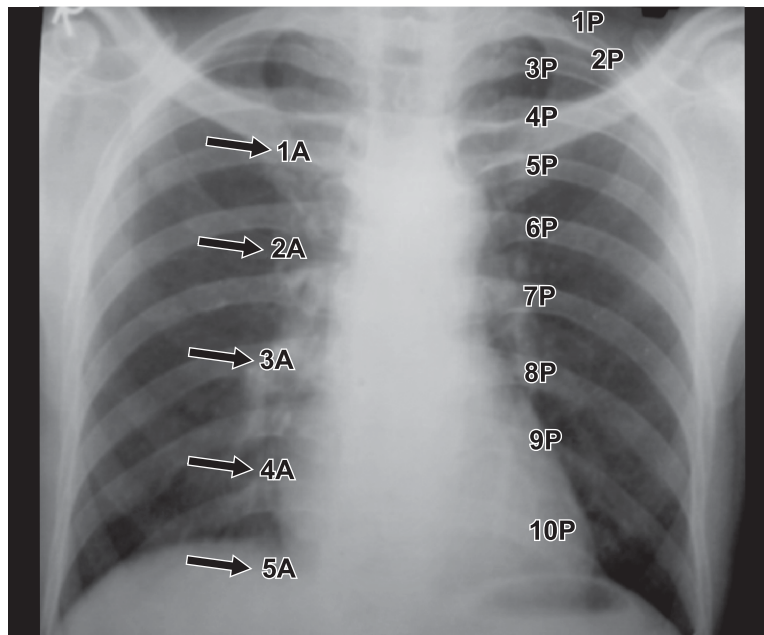
Bony Cage

Bony Cage—What to Look For?

- Clavicles
- Ribs (counting of ribs)
- Intercostal spaces
- Spines

HOW TO RECOGNIZE FIRST RIB?

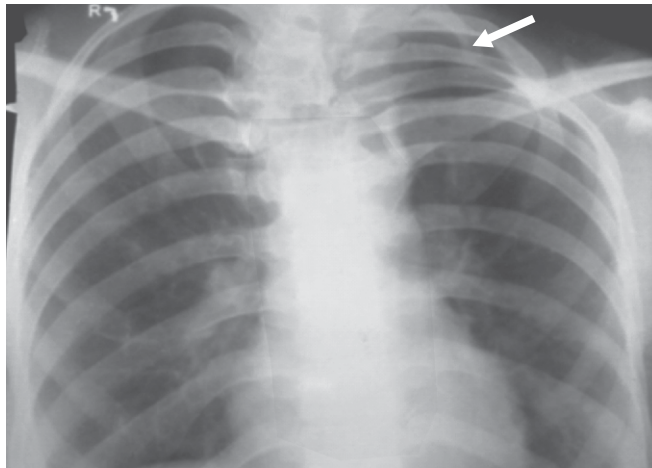
First Anterior End Just Below the Clavicle is the Anterior End of 1st Rib



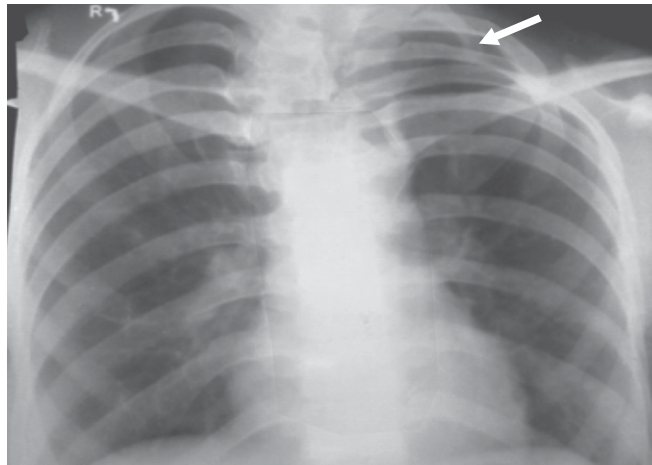
A = Anterior end of ribs; P = Posterior end of ribs

Bony Cage: Ribs—What to Look For?

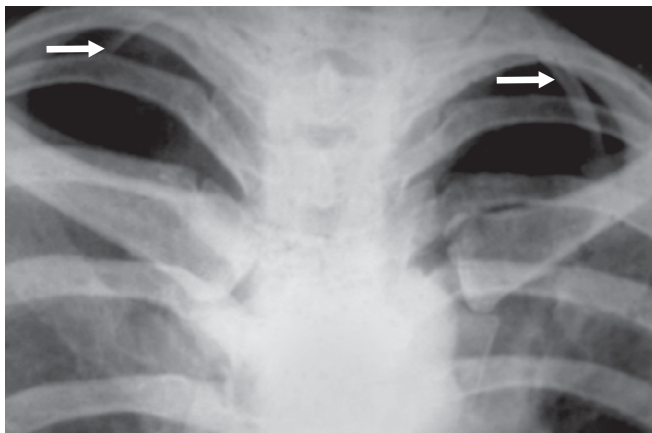
- Congenital Anomaly
 - ◆ Cervical rib
 - ◆ Bifid rib
- Fractured ribs
- Erosion of ribs
- Rib notching
- Punched out areas
- Destruction of ribs
- Post-operative absence of ribs



What is this?

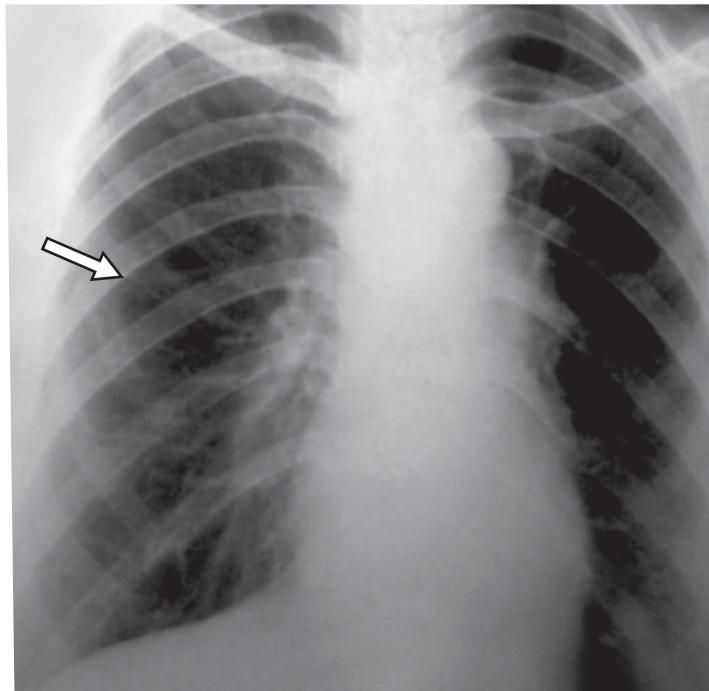


Cervical ribs (unilateral)

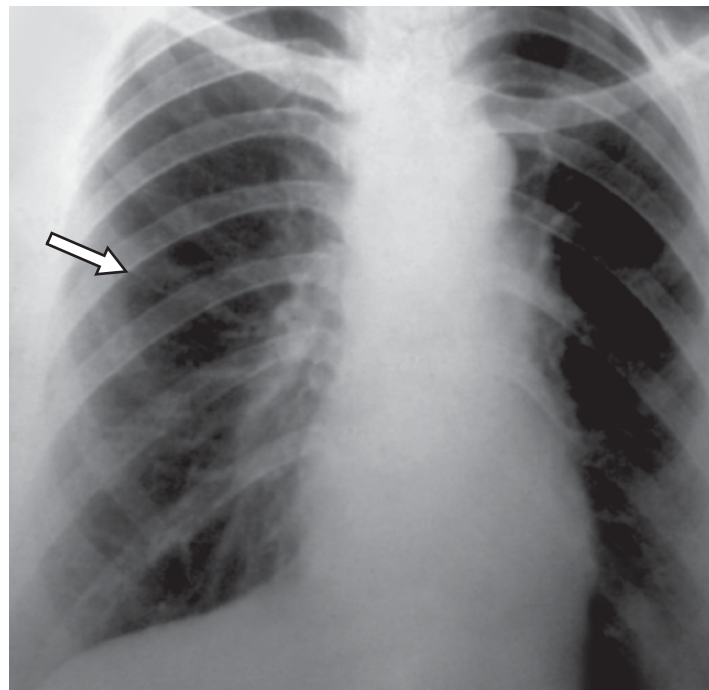


Cervical ribs (bilateral)

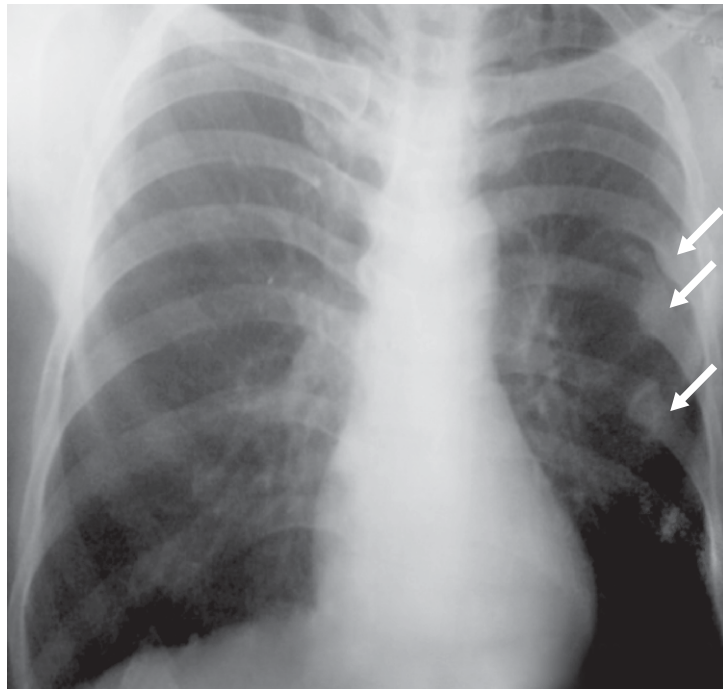
*Remember any anterior end, above anterior end of the 1st rib is cervical rib
It may be unilateral/bilateral*



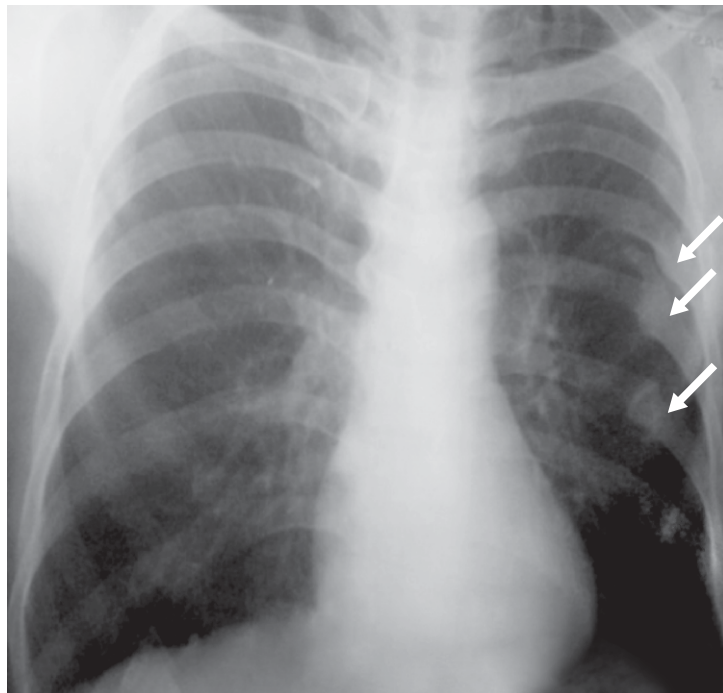
What is this?



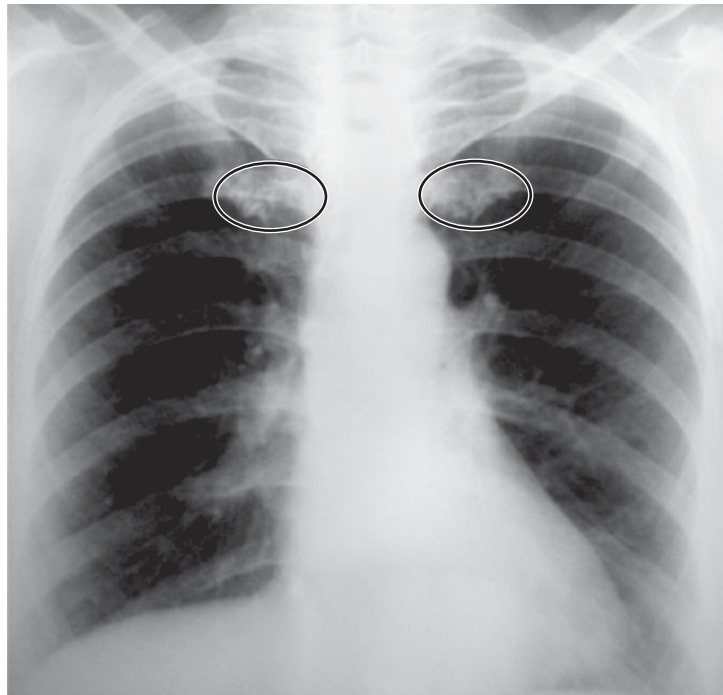
Bifid rib of anterior end of 4th rib
Beware! you may confused with cavity



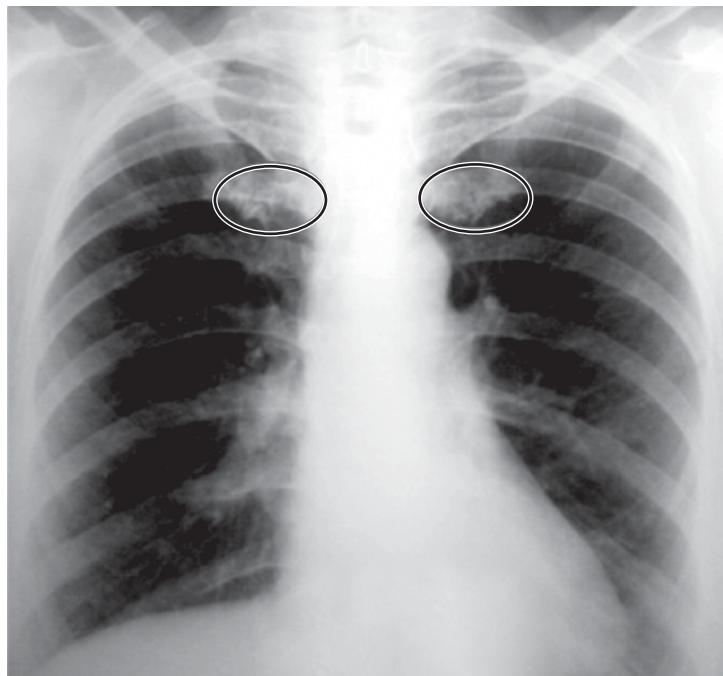
What are these shadows?



Old fractured ribs—callus formation
Ask for history of trauma in the past



What is this?



Calcified first costal cartilage
Sometimes confused with tuberculosis