

DIAGNOSTIC TOOLS

CHEST X-RAY

(CXR)





X-rays are made by using low levels of external electromagnetic radiation to produce images of the body for diagnostic purposes.

The more solid a structure is, the whiter it appears on the film. For this reason, bones appear very white on an x-ray film, but less dense tissue such as muscle, blood, skin, and fat appears darker. Air appears black.



The amount of radiation is very low and safe for any child.

Why is a chest x-ray performed?

1-Respiratory System (Chest)

- Pneumonias
- Chronic cough

2-Cardiovascular System (Heart)

Congenital & Acquired HD

3-Oncology (Mediastinum)

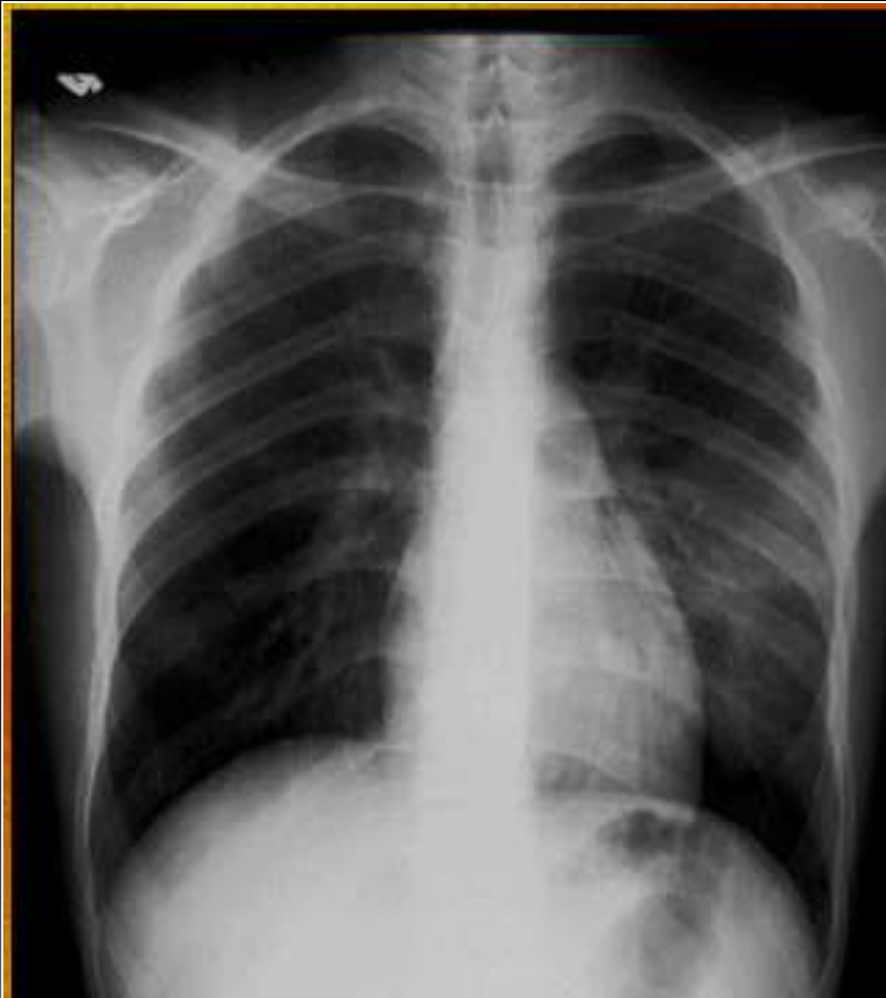
To assess staging of the disease.

CXR



- I-GENERAL INFORMATION**
- II-EXTRACARDIAC STRUCTURES**
- III-CARDIAC SHADOW**
- IV-LUNG FIELDS**

I-GENERAL INFORMATION

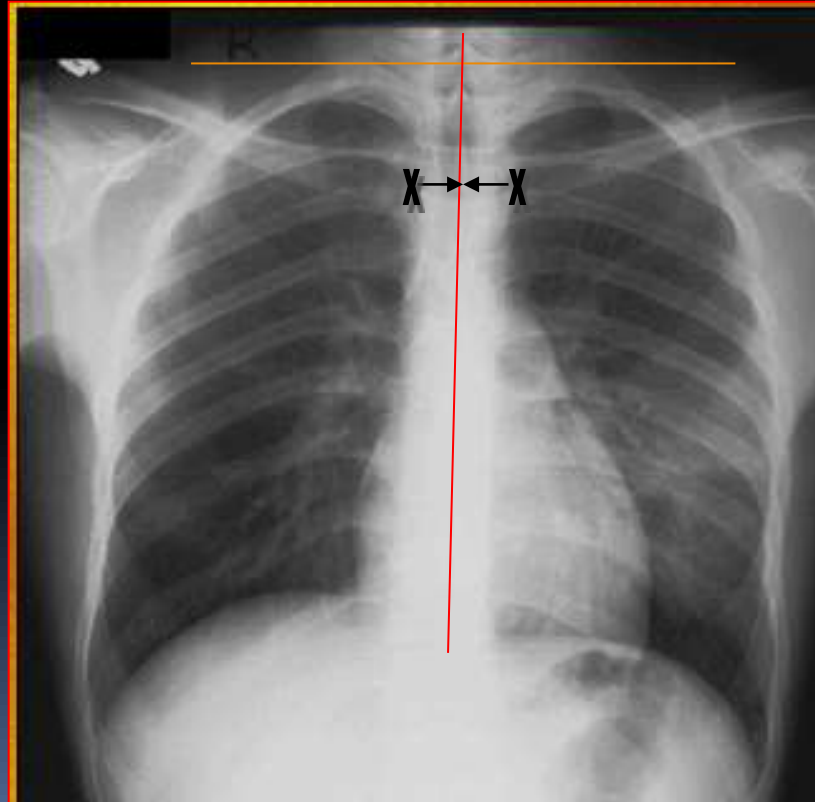


1-TYPE OF IMAGE
2-POSITION OF PATIENT
3-QUALITY OF FILM

Position Of The Child

The child must be **centralized** (not tilted)

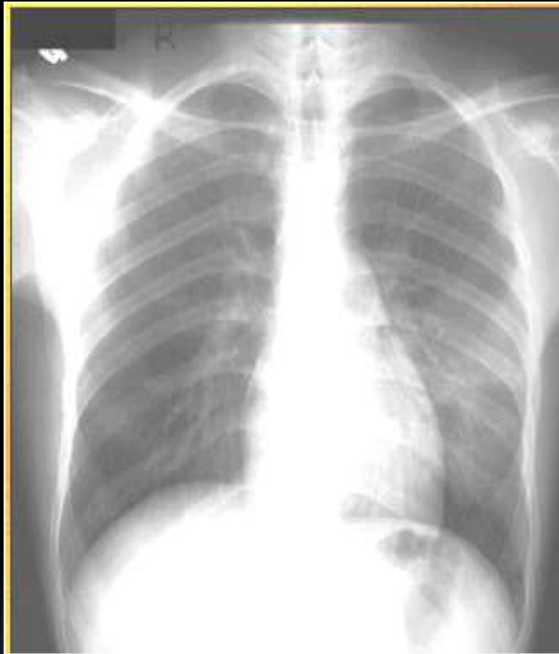
Straight (not rotated)



Quality



Good



Soft



Hard

II-EXTRACARDIAC STRUCTURES



1-BONY SKELETON

2-TRACHEA

3-MEDIASTIUM

4-DIAPHRAGM



CXR Report



CXR

I-General Information:

- *Postero-anterior view of X-ray chest & heart
- *The child is centralized & straight (not tilted & not rotated).
- *The quality of the film is good.

II-Additional features:

- *The chest cage is symmetrical .There is no rib notching or fracture.
- *Trachea is centralized (or slight shift to right)
- *There is no pathological mediastial shadow
- *The both copula of diaphragm are intact, not elevated with clear both costophrenic angles.

CXR, INTERPRETATION

III-The Heart

- *It has a normal site(1/3 to the right & 2/3 to the left; and normal suits(apex towards the left side).**
- *There is no cardiomegaly (C/T =50%)**
- *It has a normal bear shape with normal characteristic shadow or silhouette.**

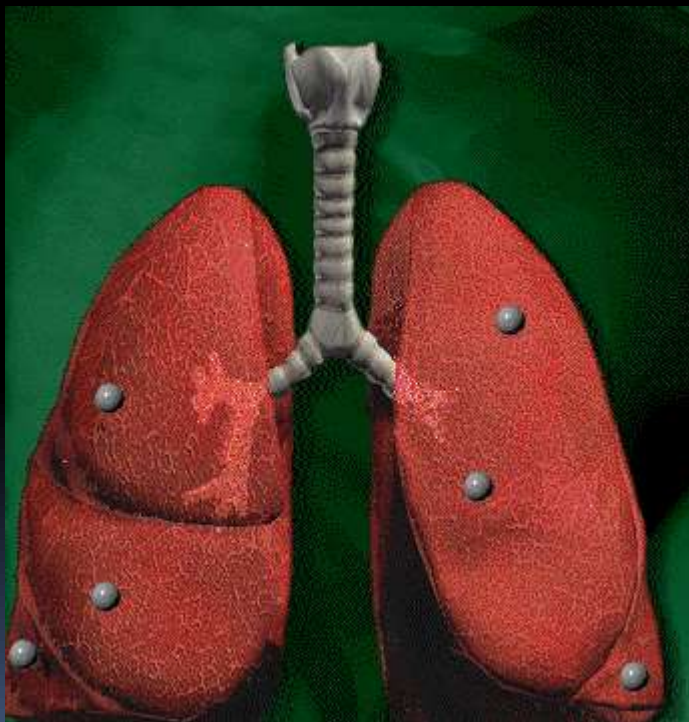
CXR, INTERPRETATION

IV-The lungs

- *The pleura appears normal (there is no thickness, trapped air or accumulation of fluids).
- *The pulmonary vascular pattern is normal (the is not oligemic or plethoric).
- *As regards to lung fields ,there is no abnormal lung shadows.

Diagnosis: Normal X-ray Chest & Heart

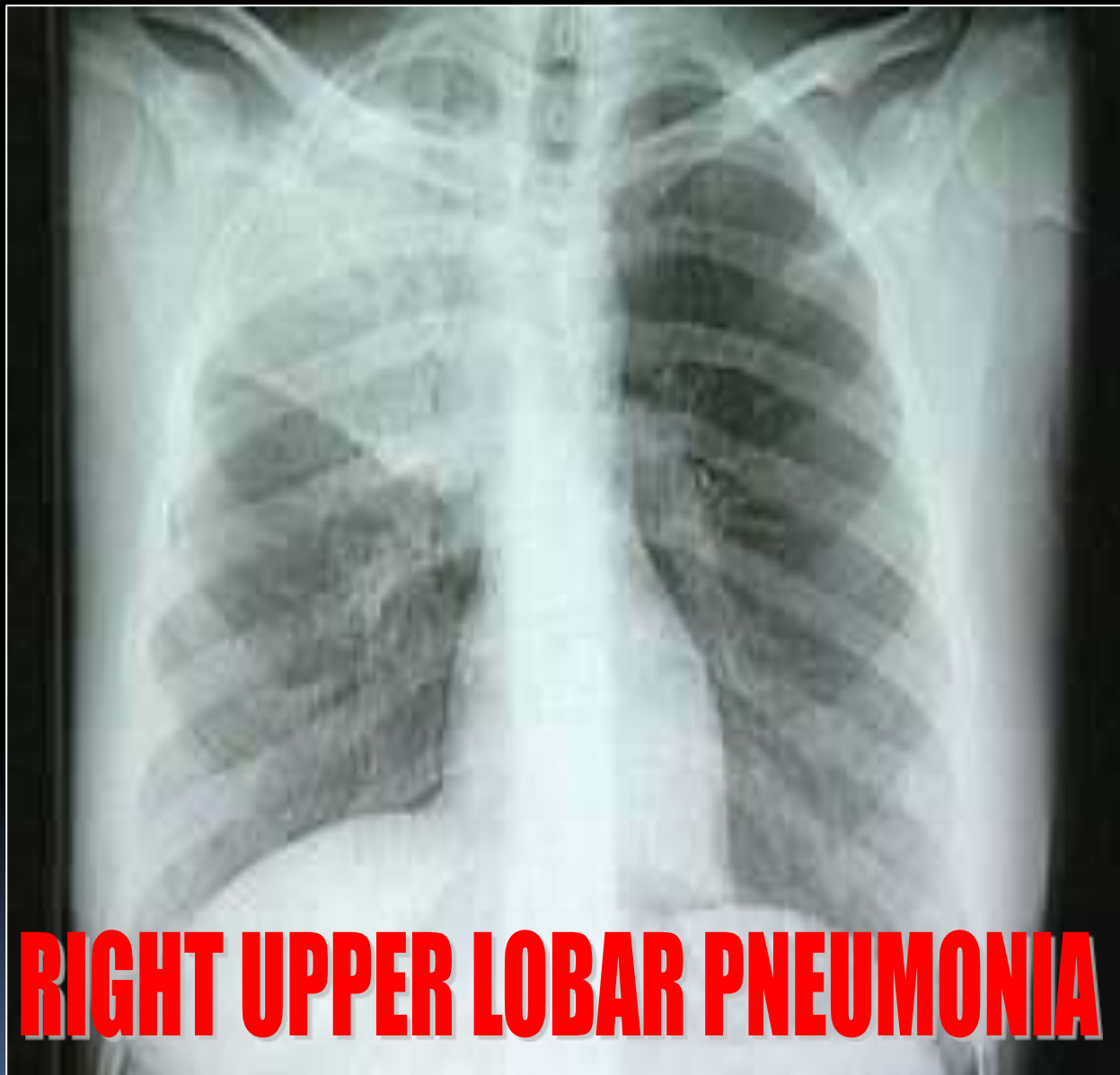
IV-THE LUNGS



1-LUNG FIELDS

2-PVP

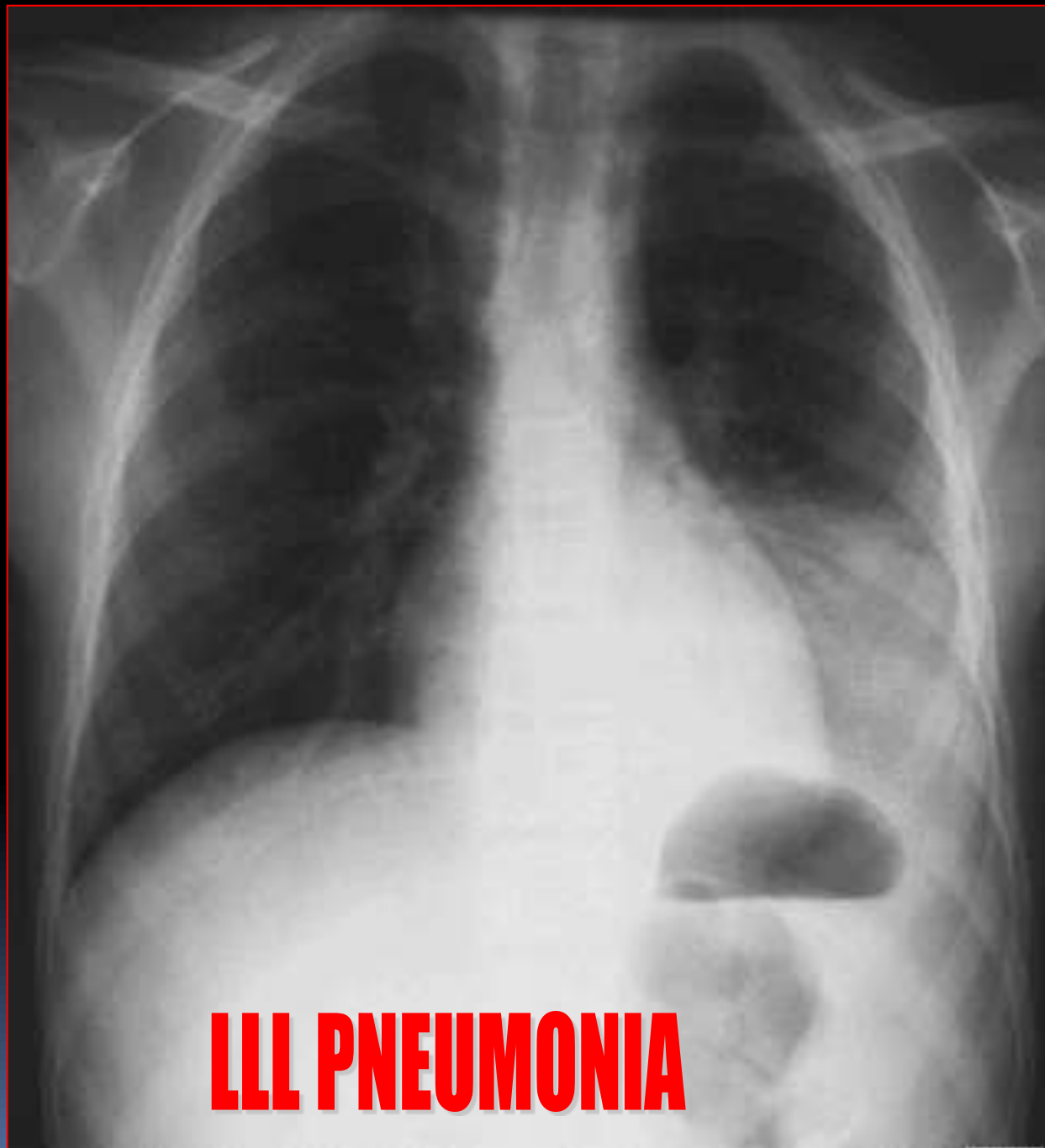
3-PLEURA



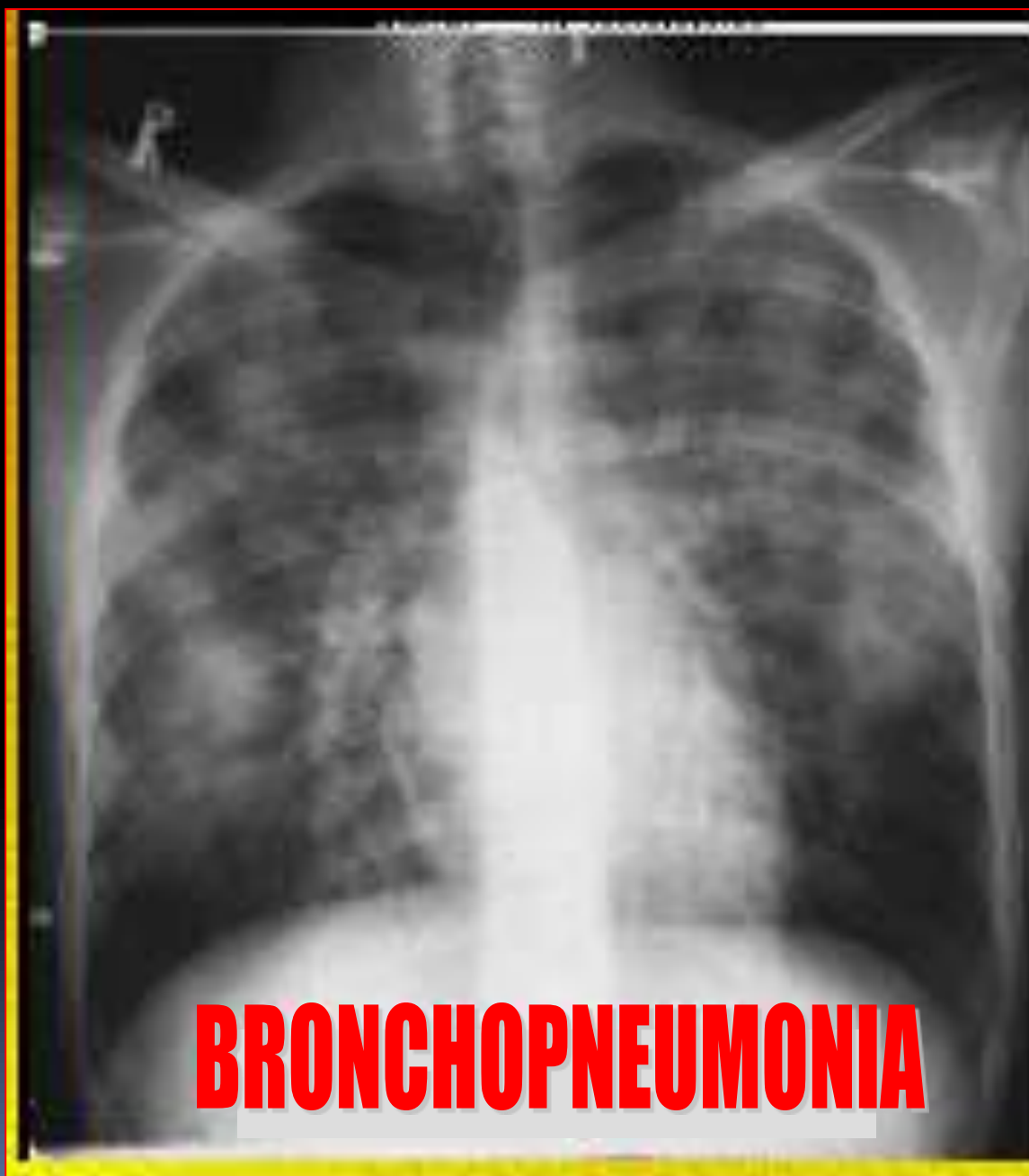
RIGHT UPPER LOBAR PNEUMONIA

RLL Pneumonia With PE¹⁹₁₉





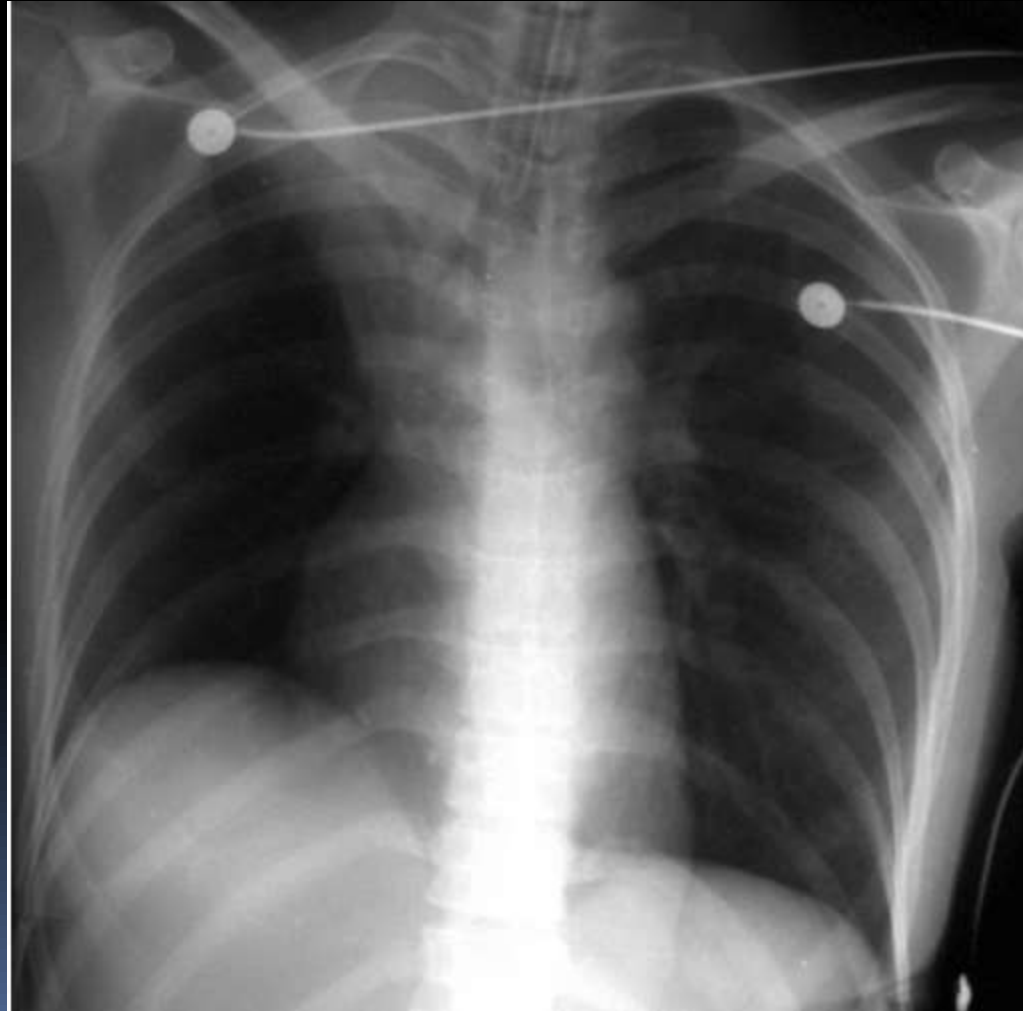
LLL PNEUMONIA

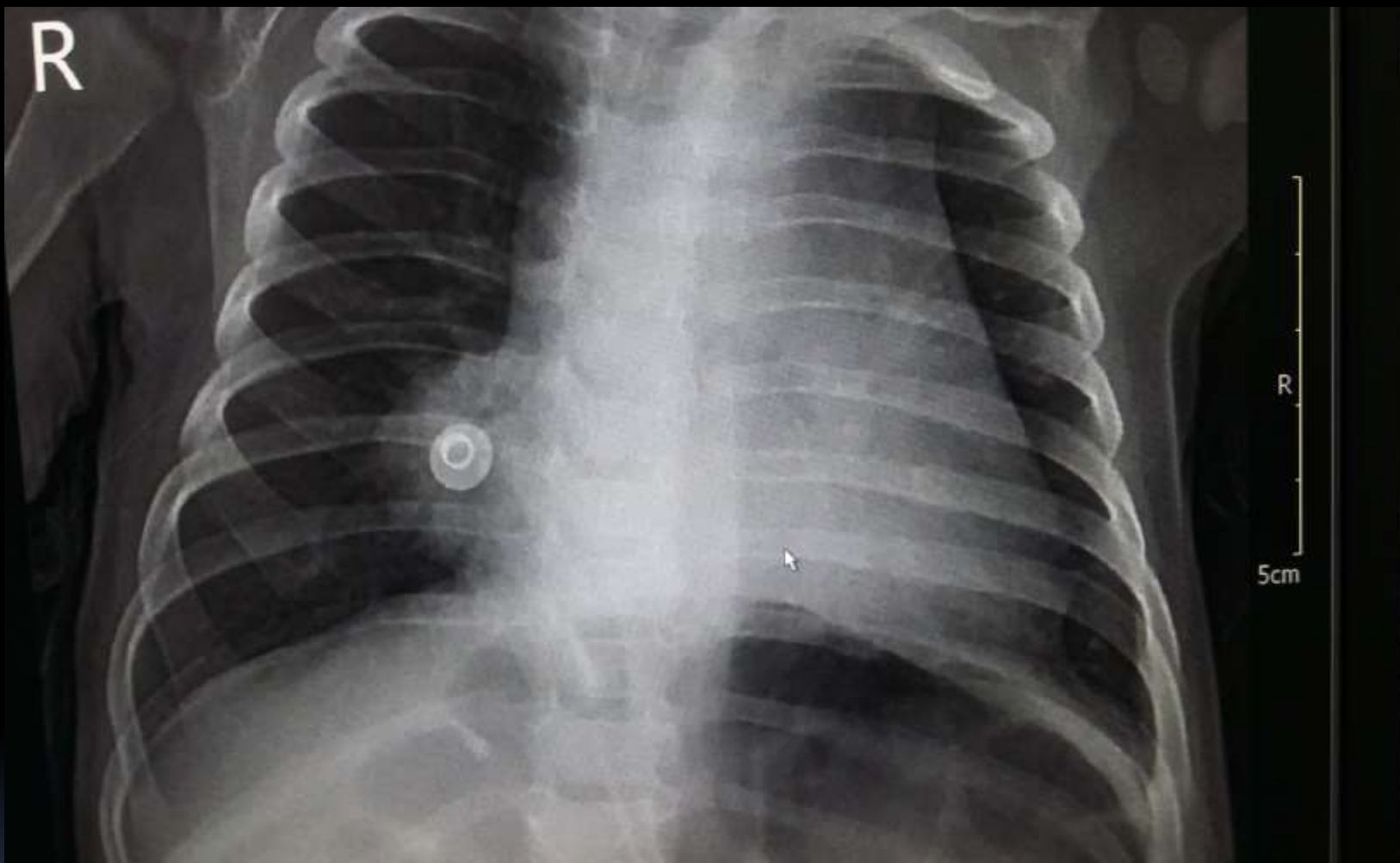


Lung abscess



RUL Collapse





Round pneumonia

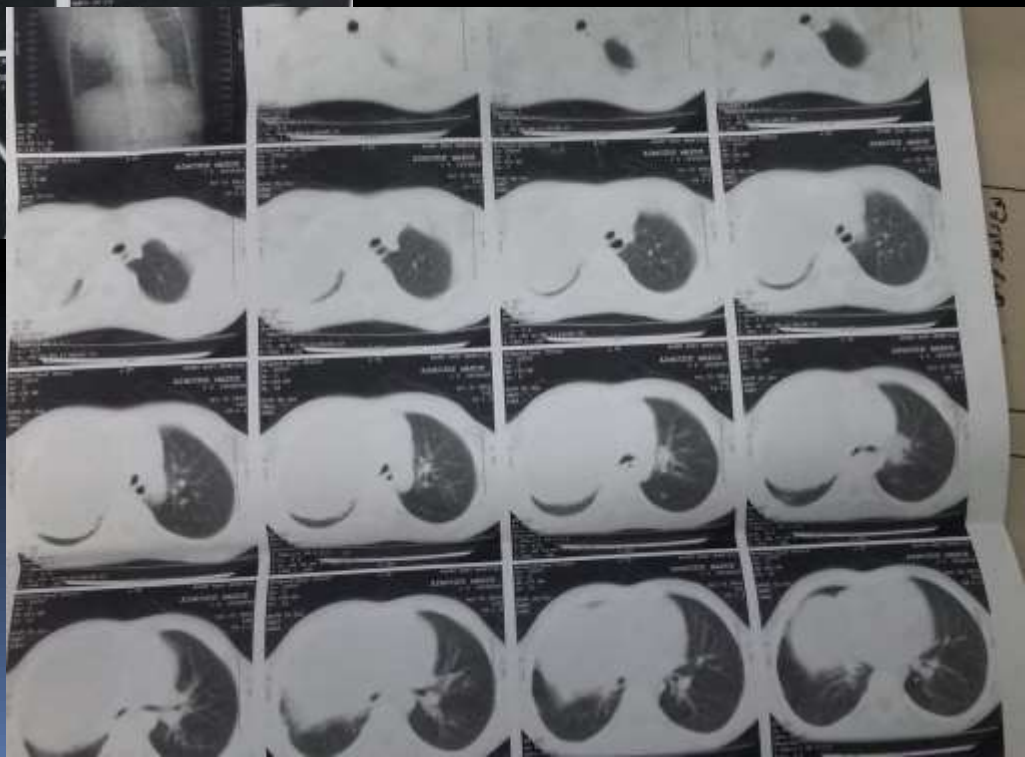
A child with CF

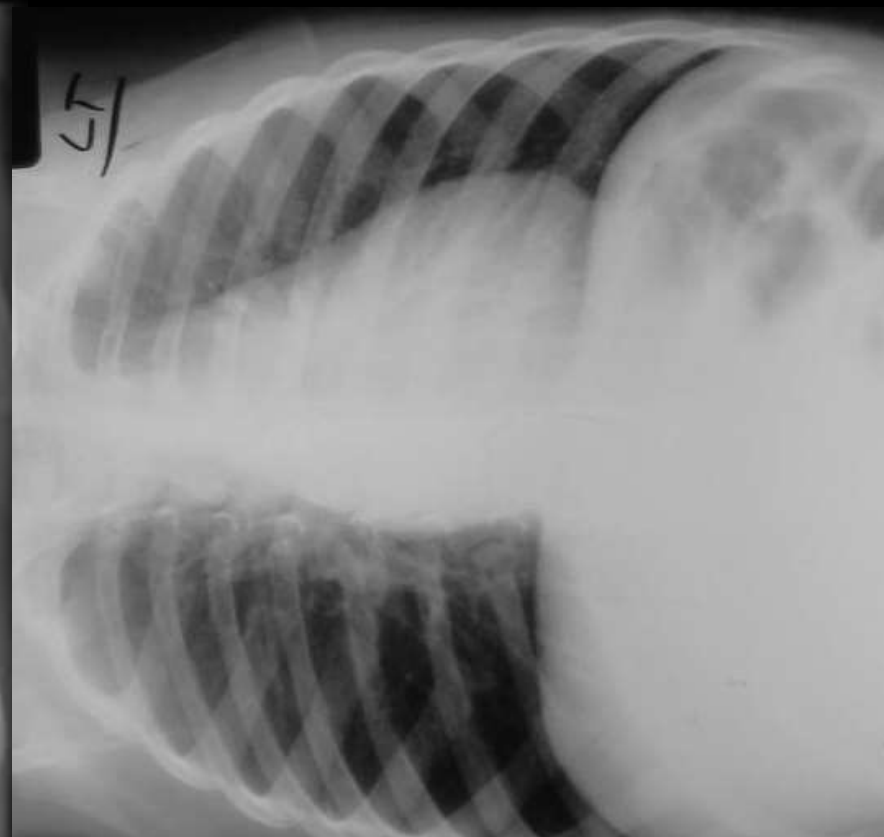


pneumomediastinum



10y/o girl with dyspnea



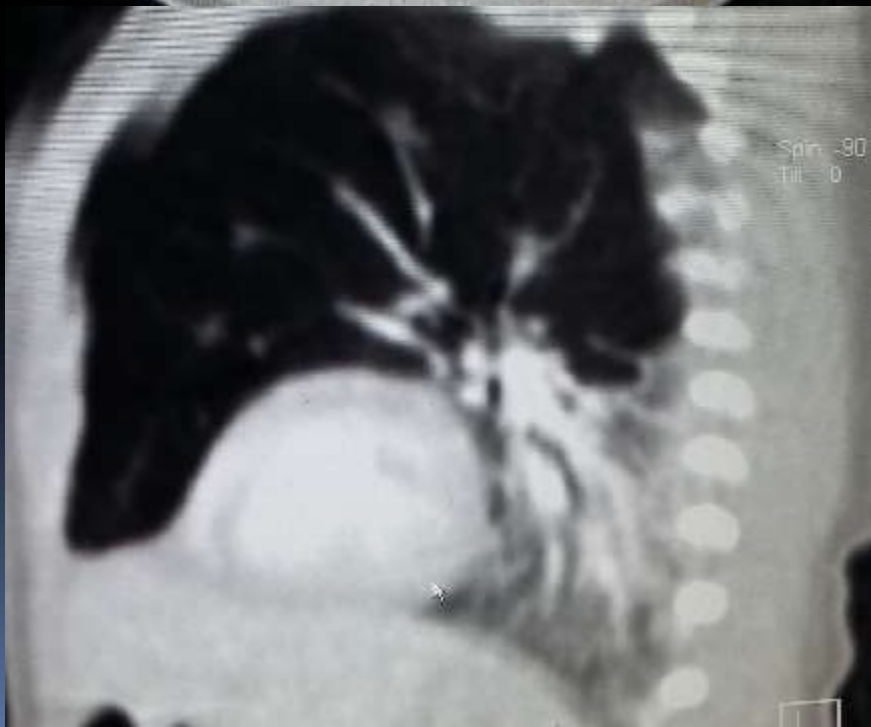
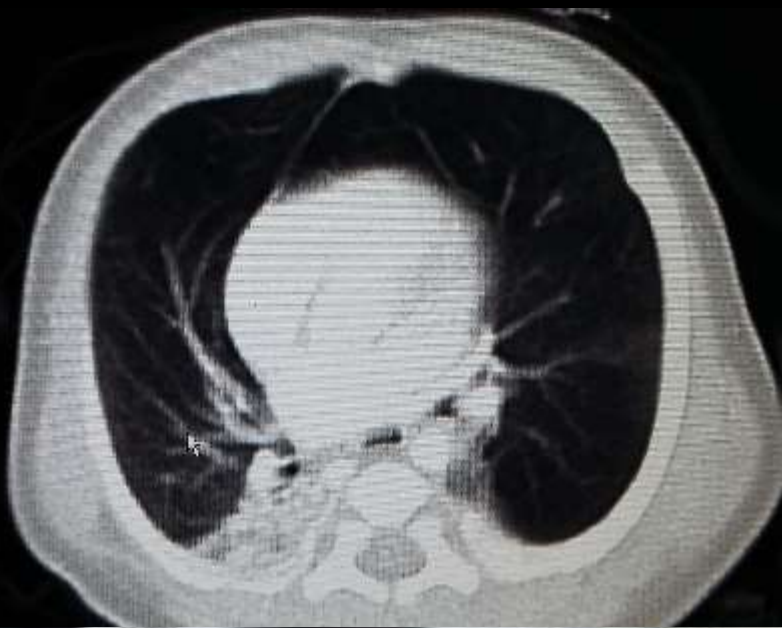


Aspirated Foreign Body

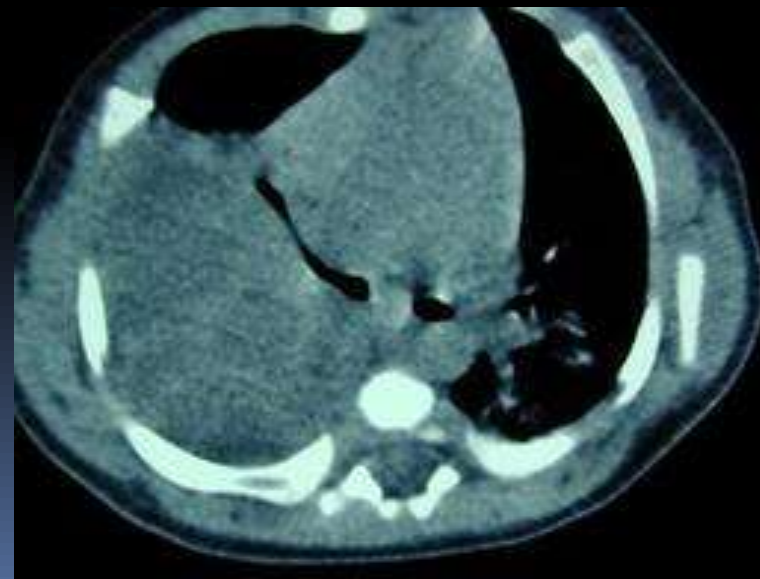
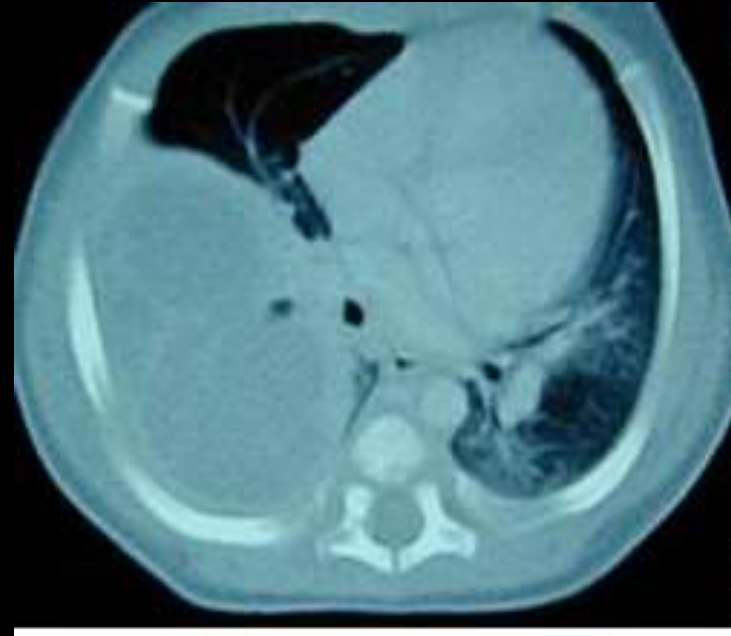


Pulmonary agenesis

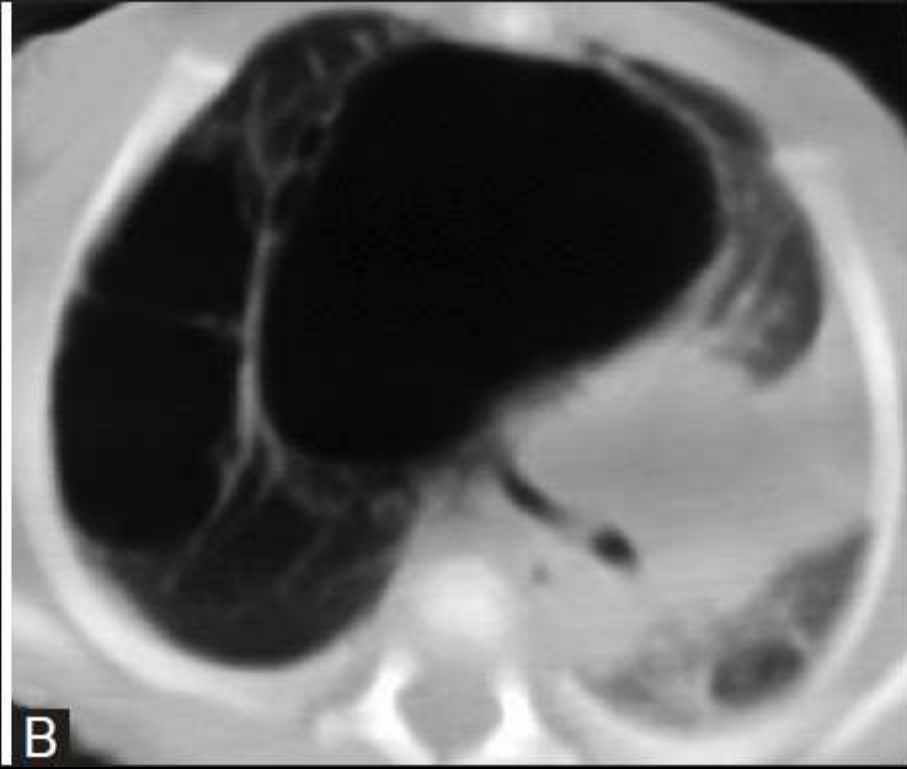




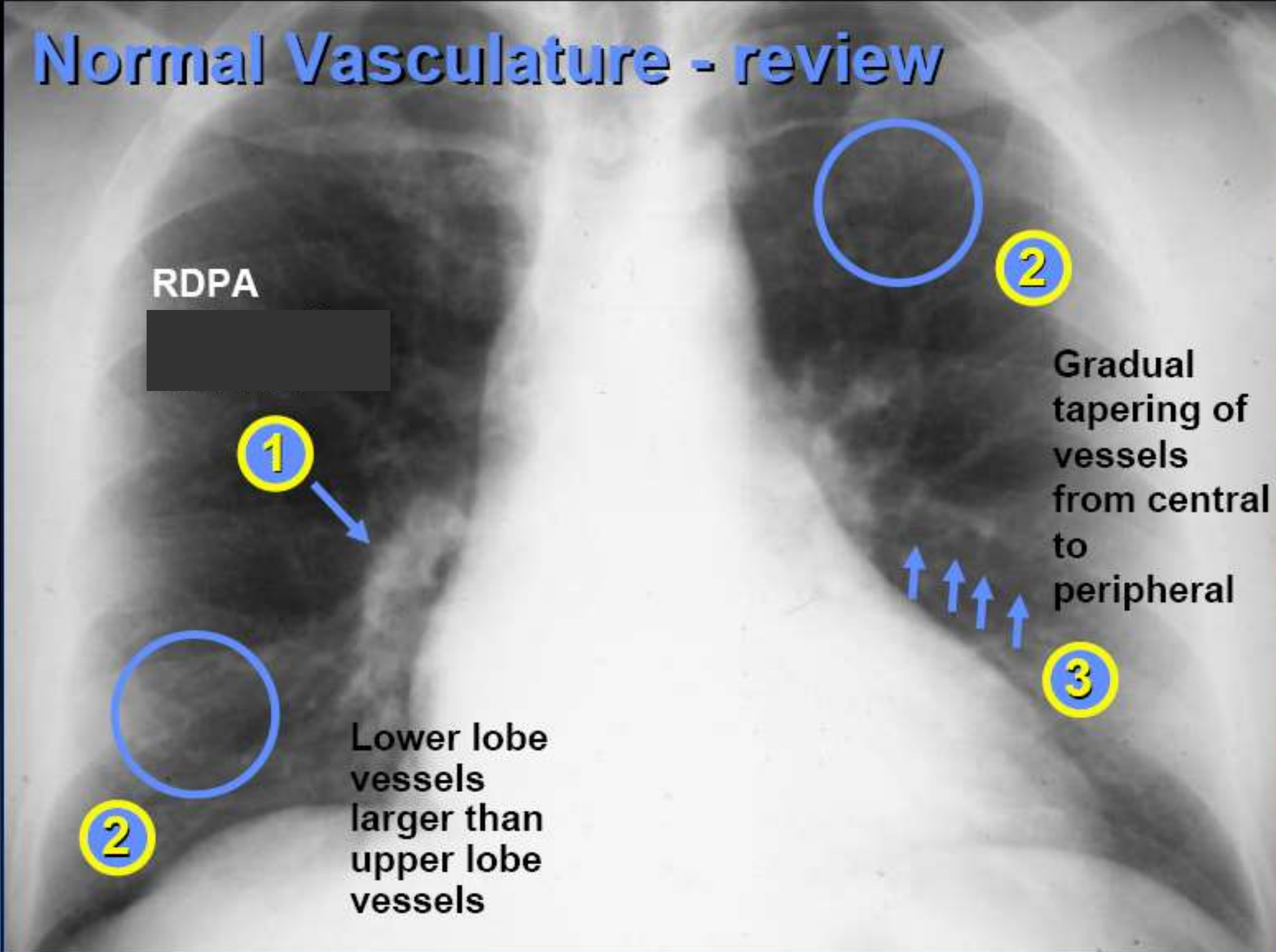
CLE



CCAM



Normal Vasculature - review





A



B

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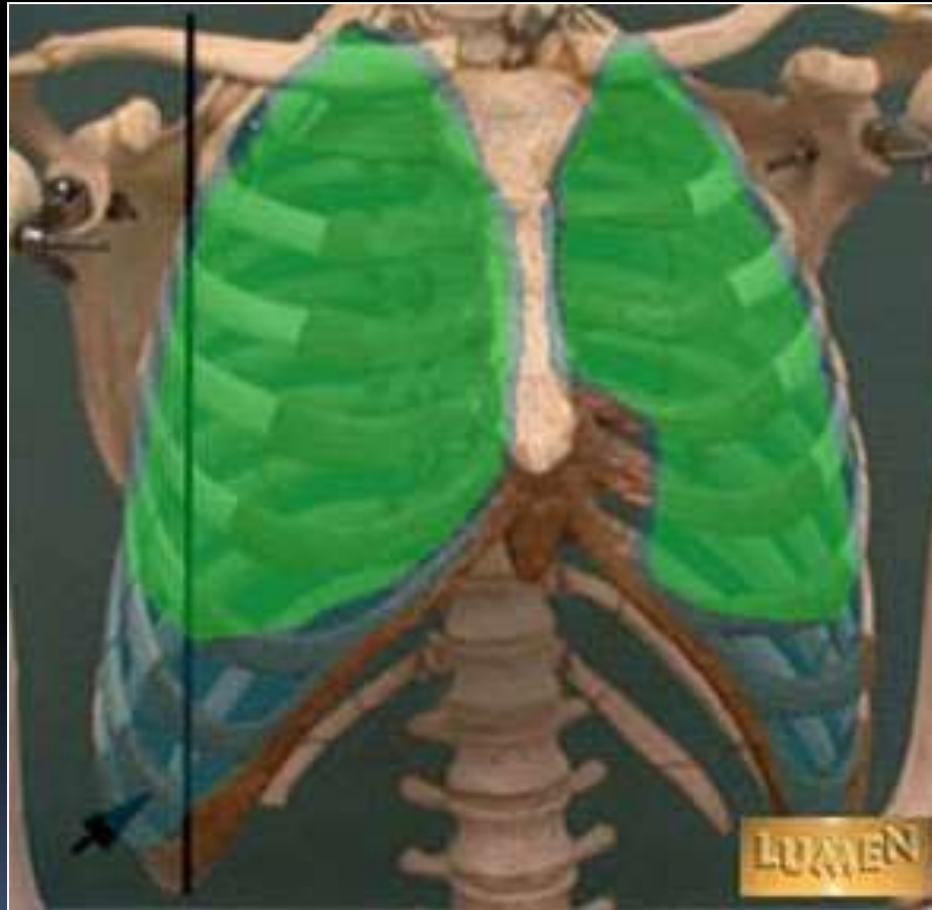


↑PV

Normal

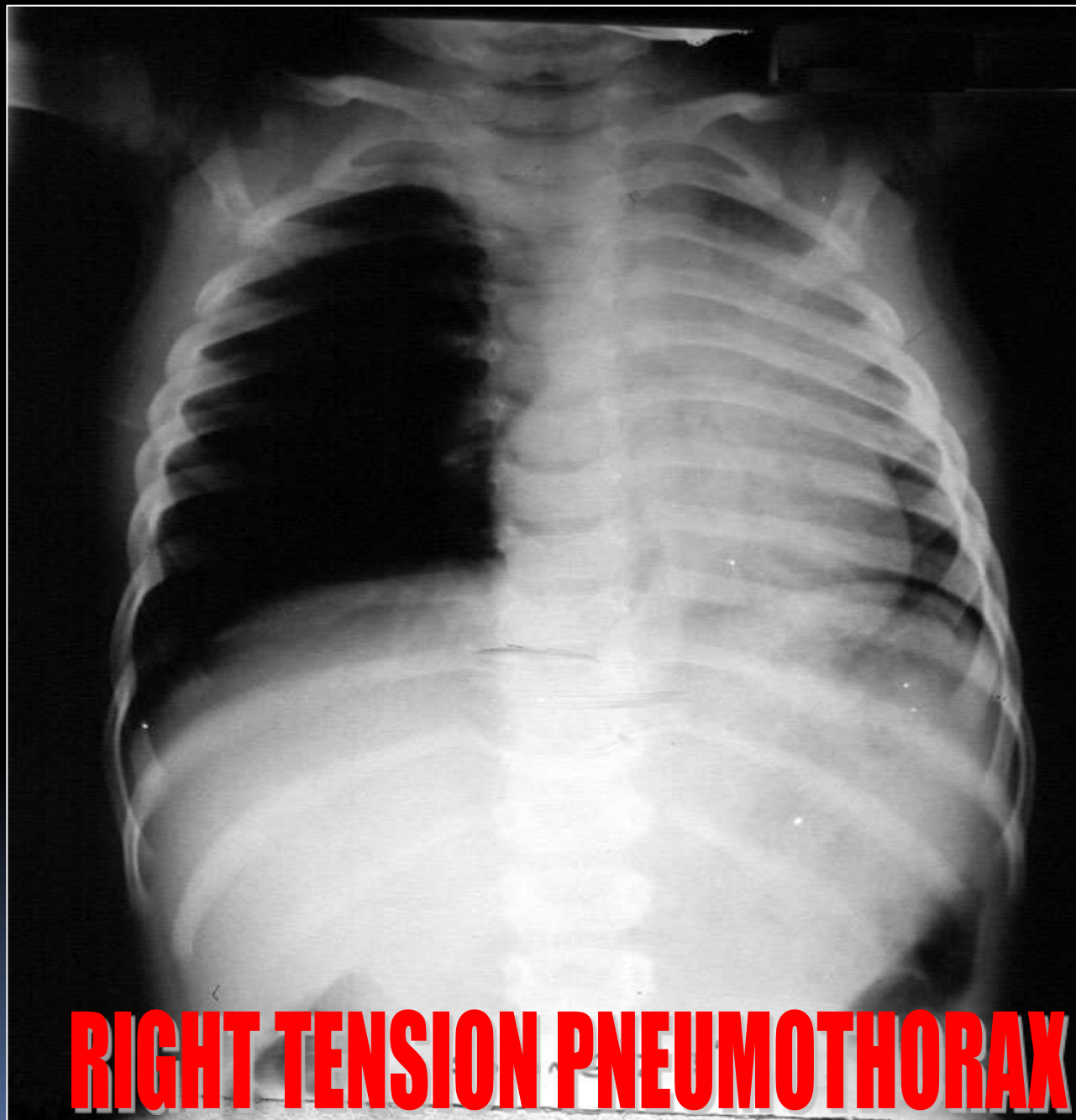
↓PV

1-Pleura



Empyema





Pyopneumothorax with Total Lung Collapse

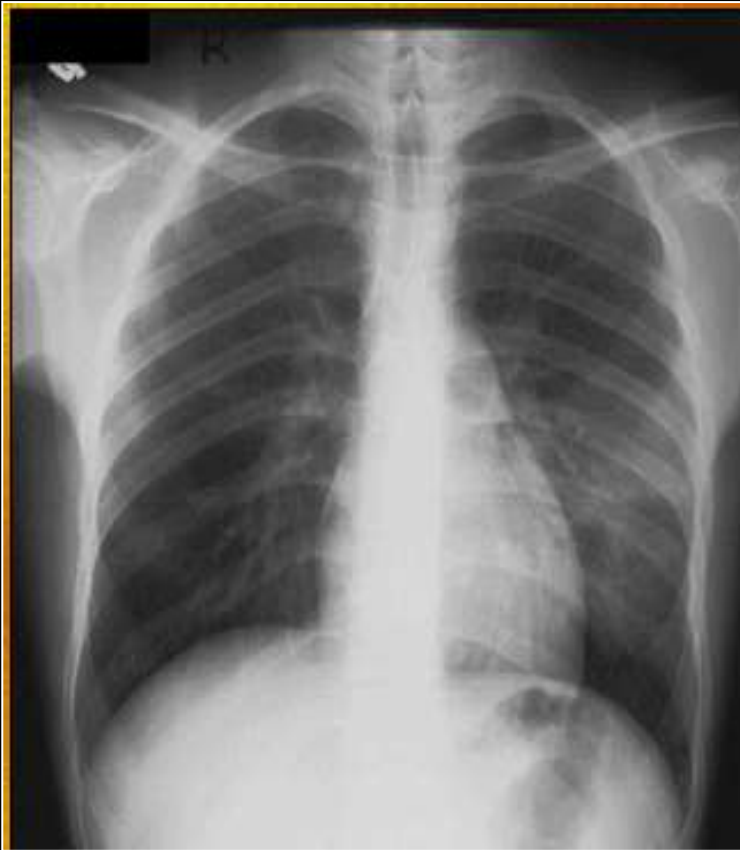


III-THE HEART



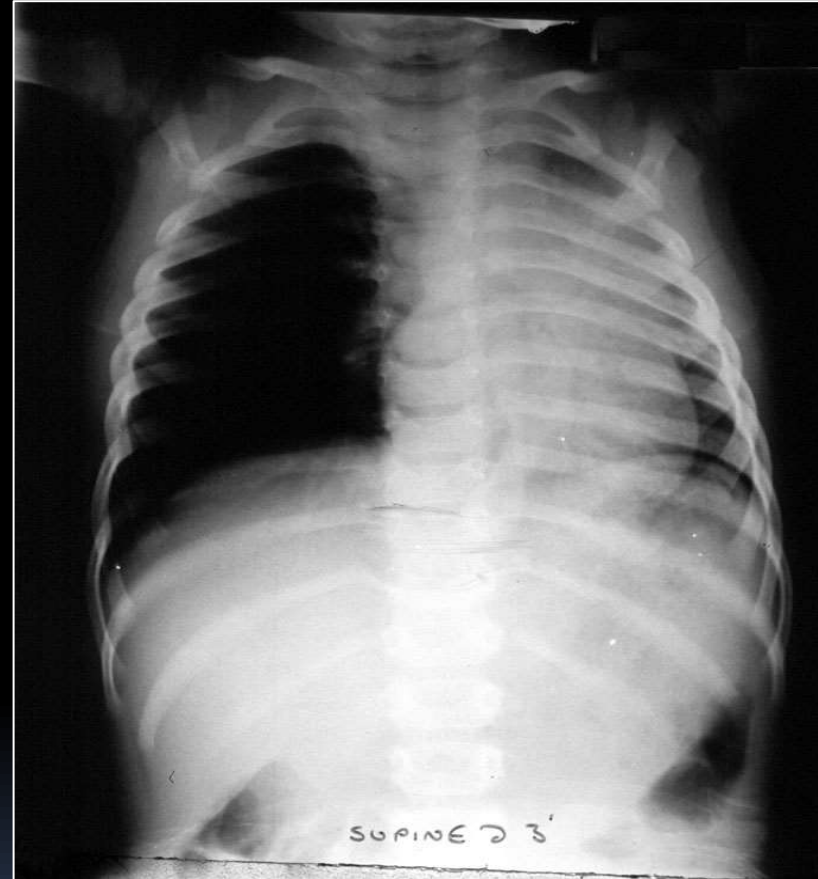
SITE
SIZE
SHAPE
SHADOW

SITE



1/3 to Rt & 2/3 to Lt
Apex towards Lt

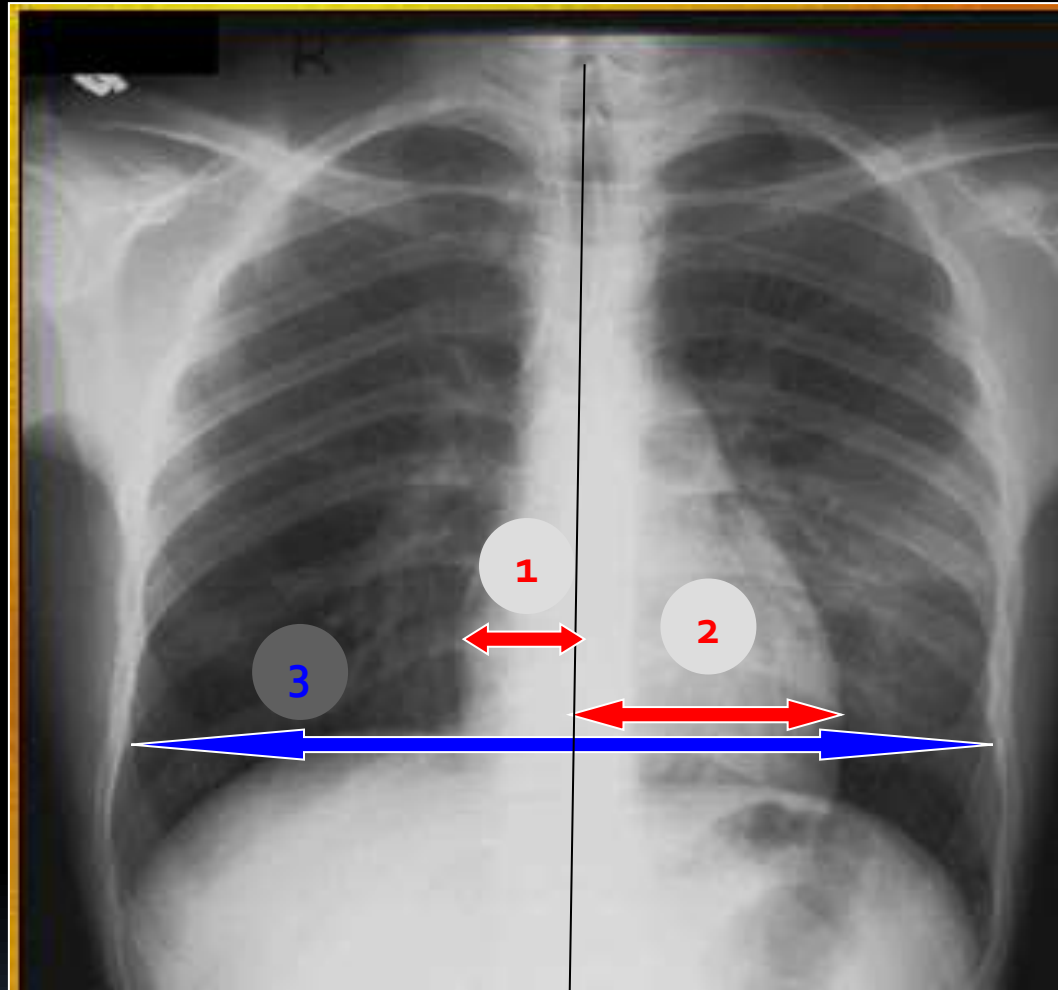
(Normal)



Whole heart to Lt

Site





SIZE

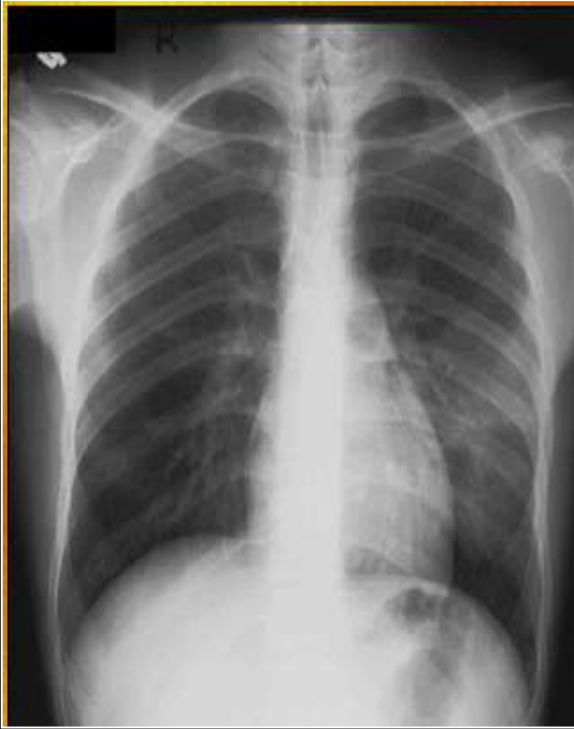
CARDIAC DIAMETER (1+2)



THORACIC DIAMETER (3)

=50-55%

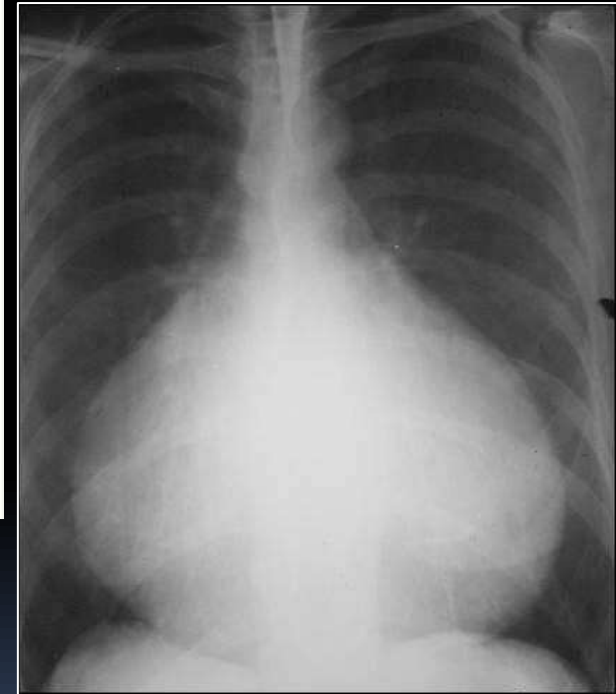
SHAPE



Pear shape
(Normal)

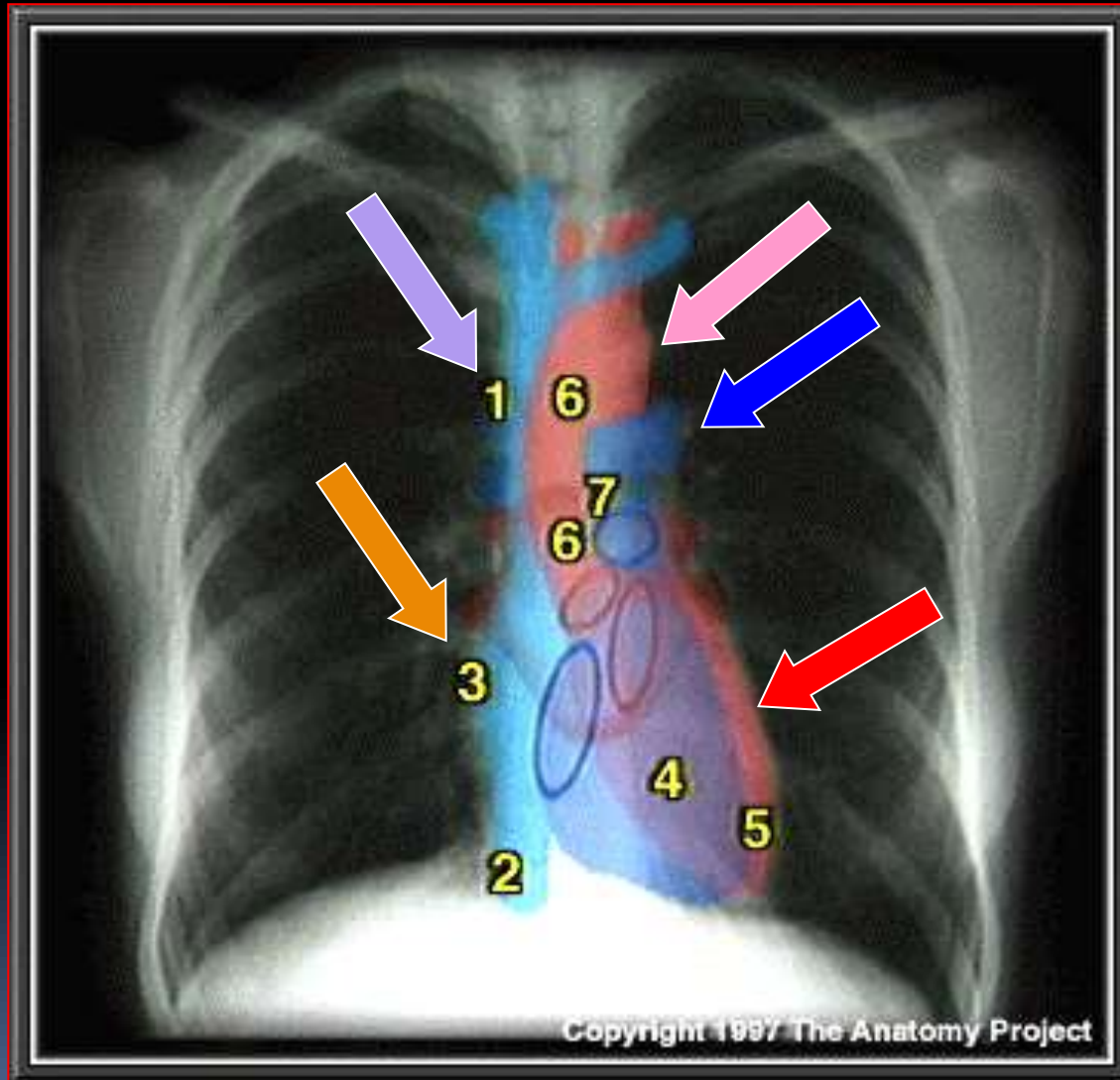


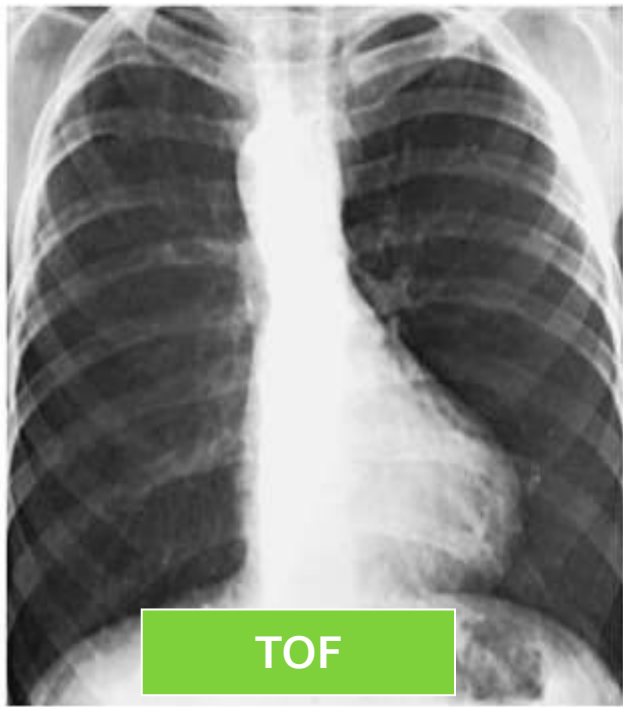
Boat shape
(TOF)



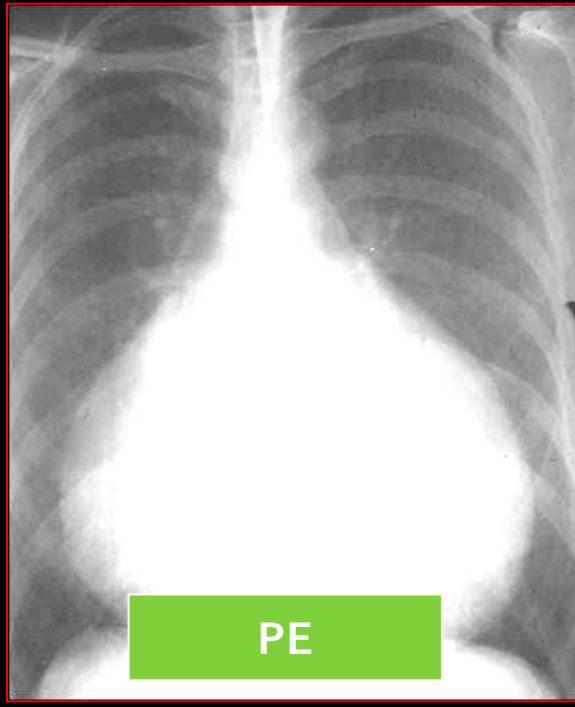
Flask shape
Pericardial effusion

SHADOW

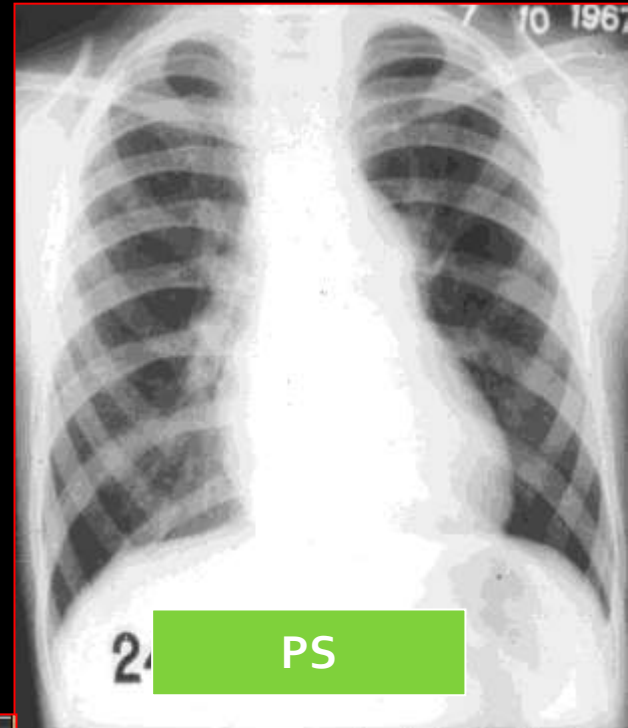




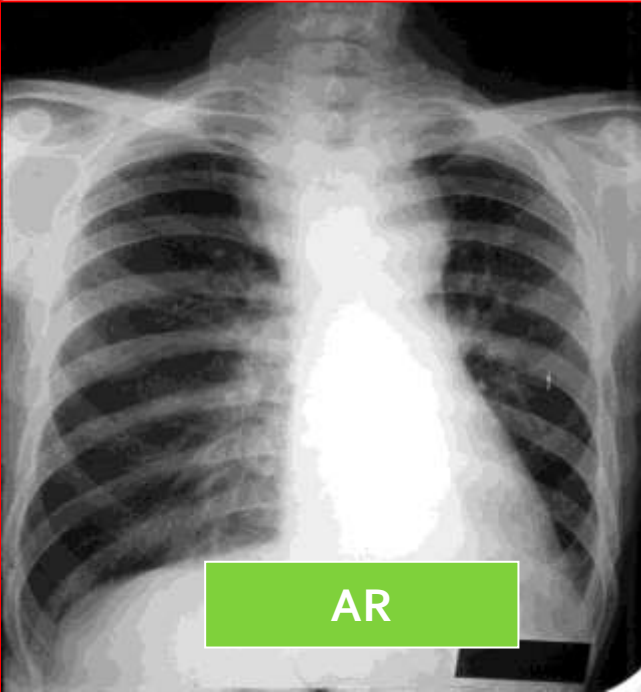
TOF



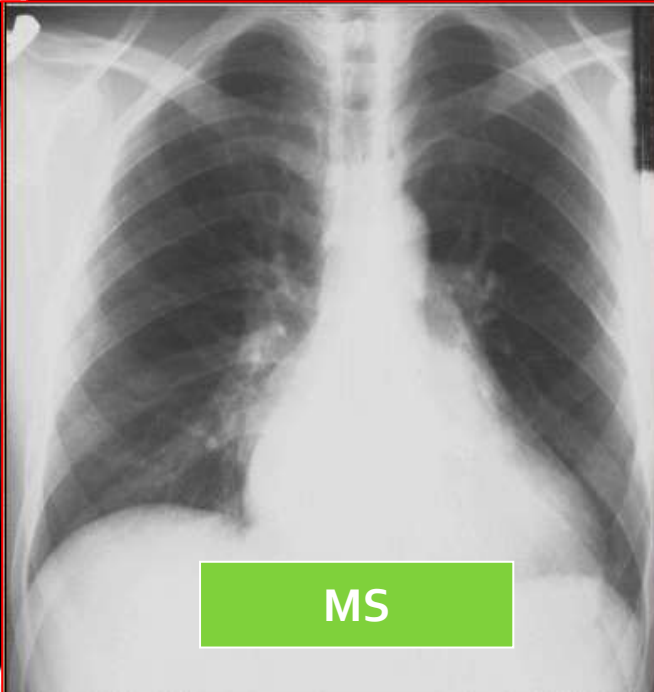
PE



PS



AR

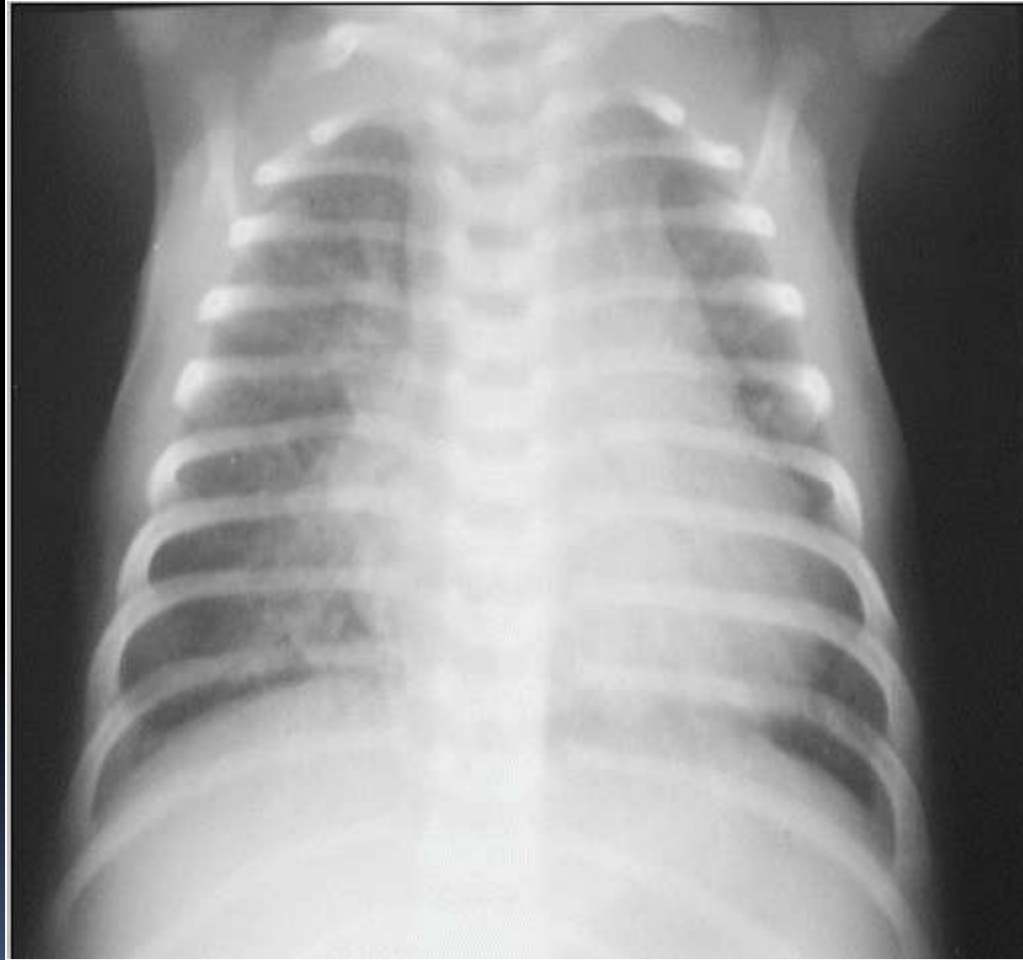


MS

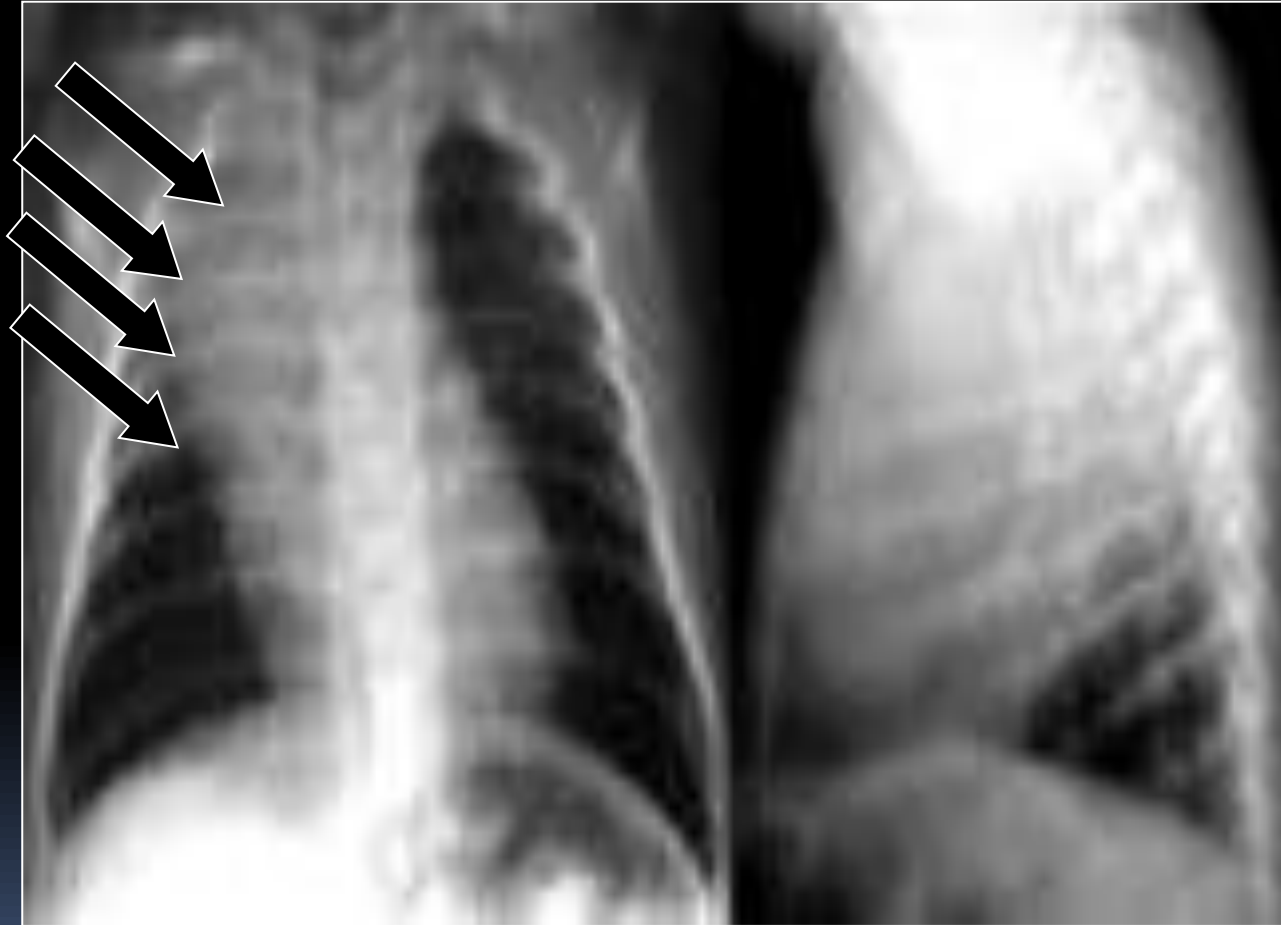


ES

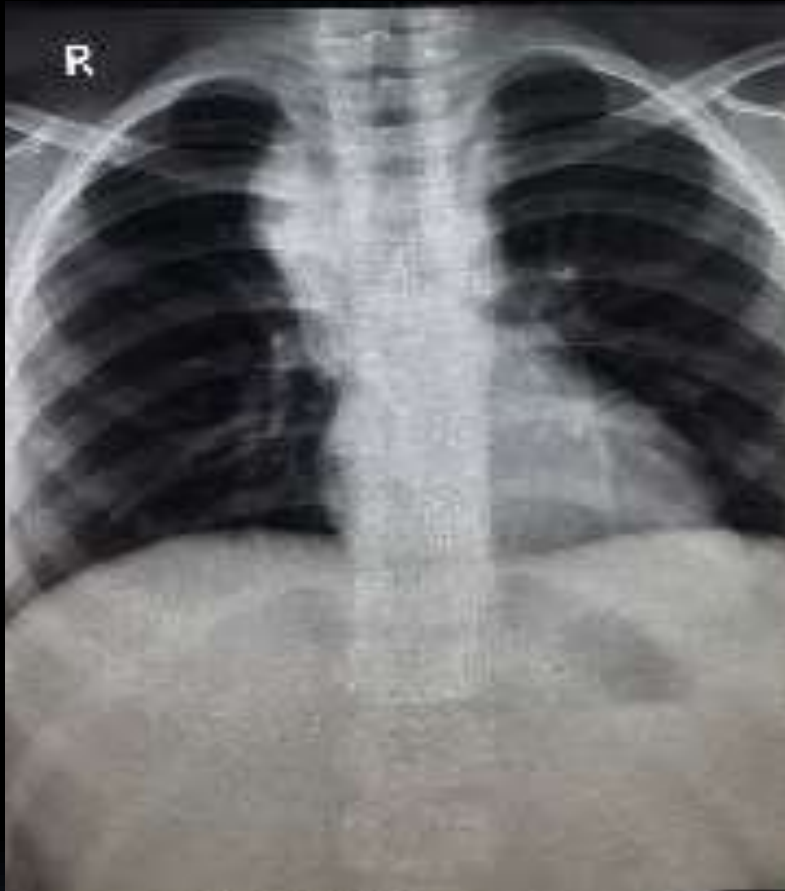
VSD



3-The Mediastinum (Shadow)



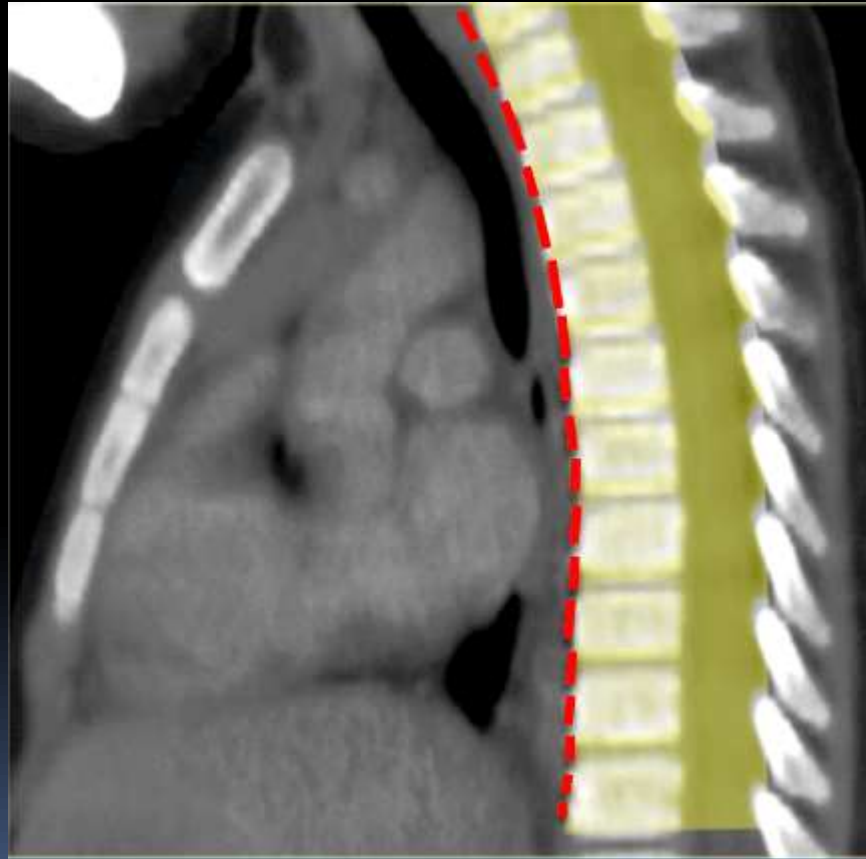
Thymus gland



10 year old boy with fever and respiratory tract infection



ganglioneuroblastoma



Posterior

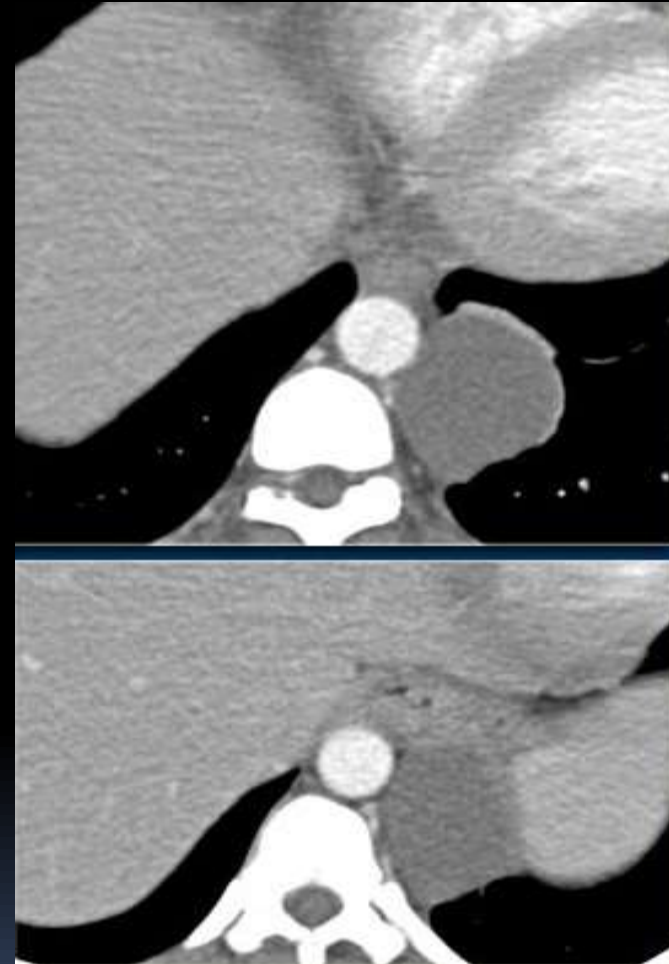
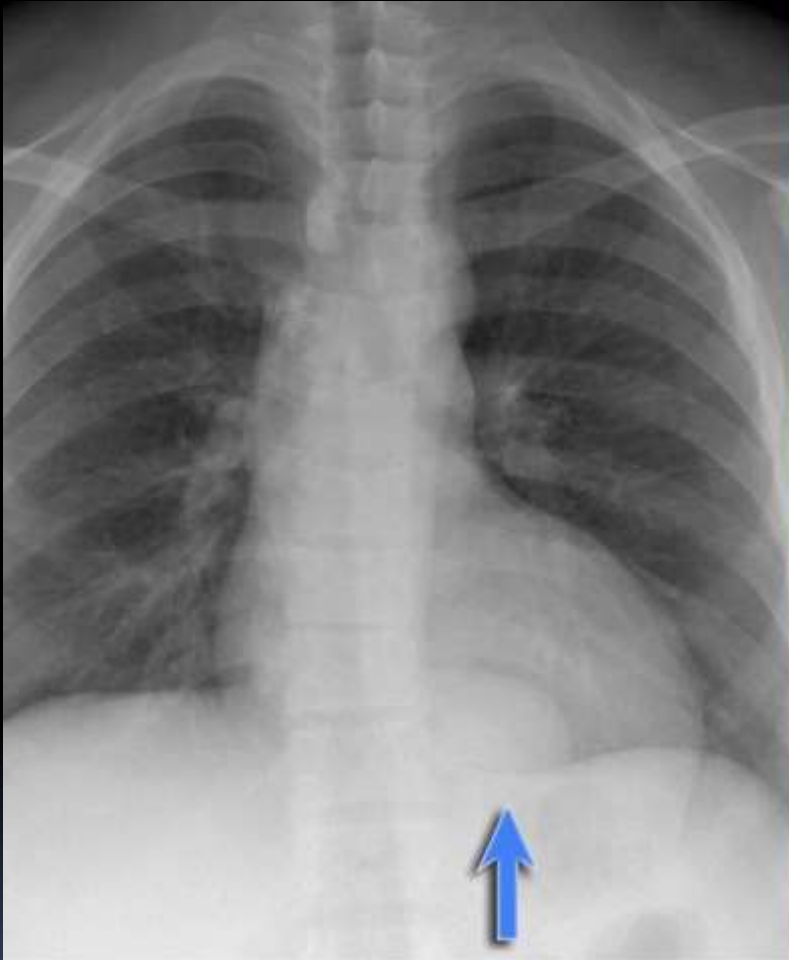
Virtually always
neurogenic origin

1st decade

usually malignant
Most commonly
neuroblastoma

2nd decade

usually benign
Ganglioneuroma
Neurofibroma
Rarely schwannoma
Extramedullary
hematopoiesis

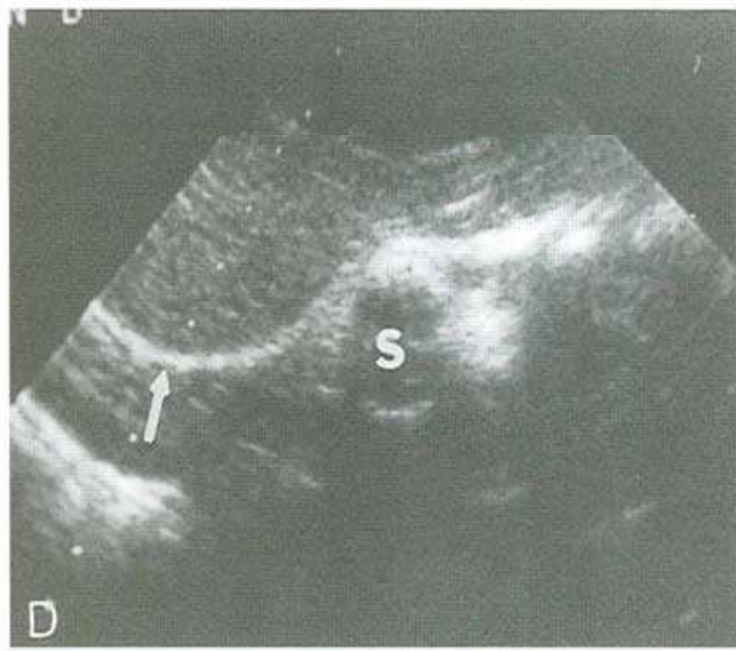
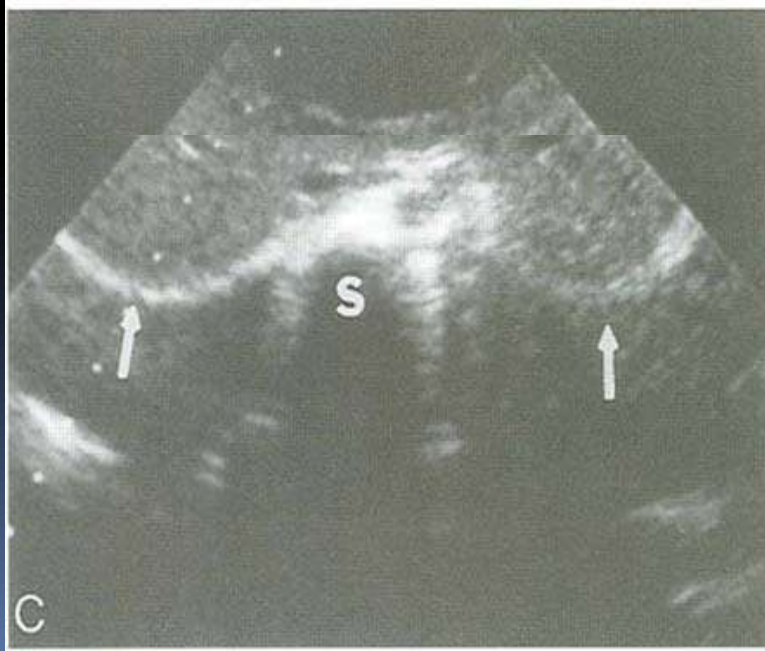
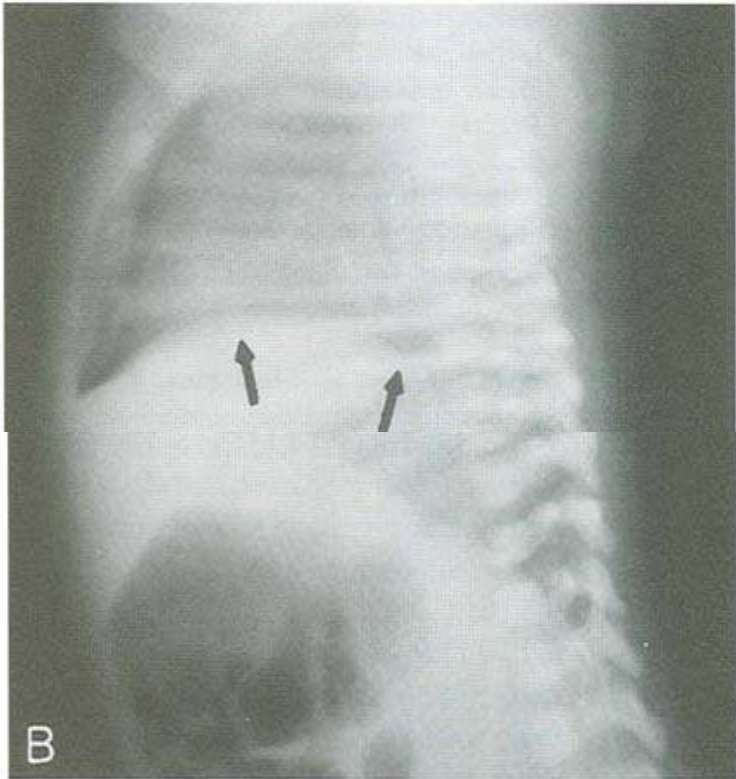
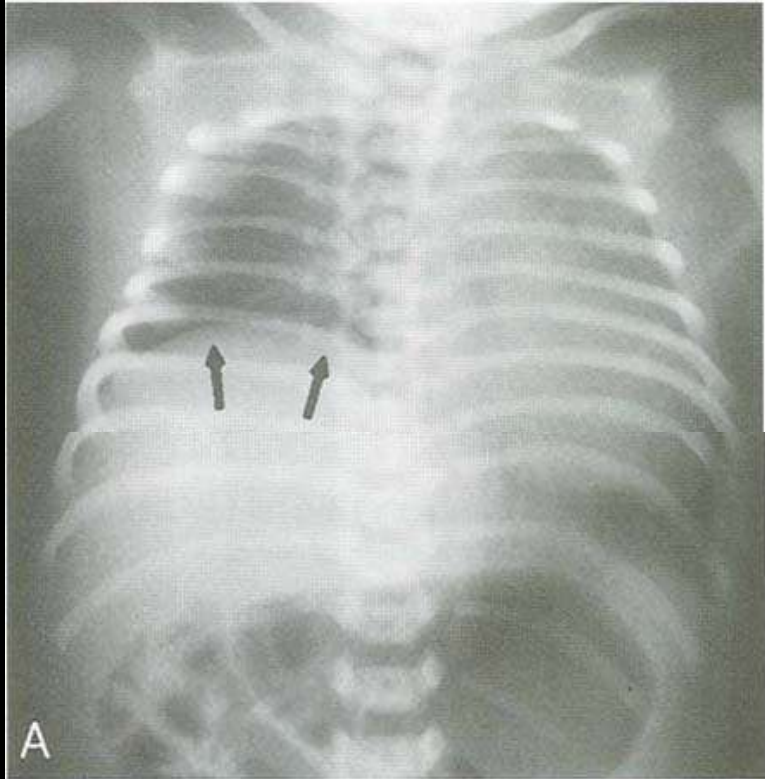


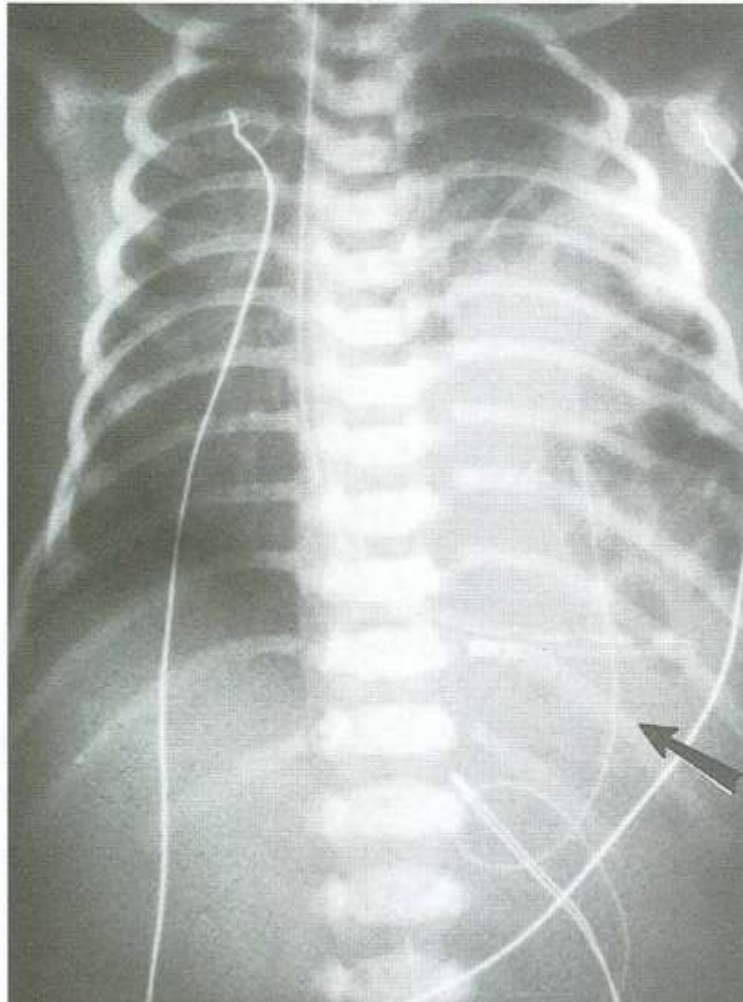
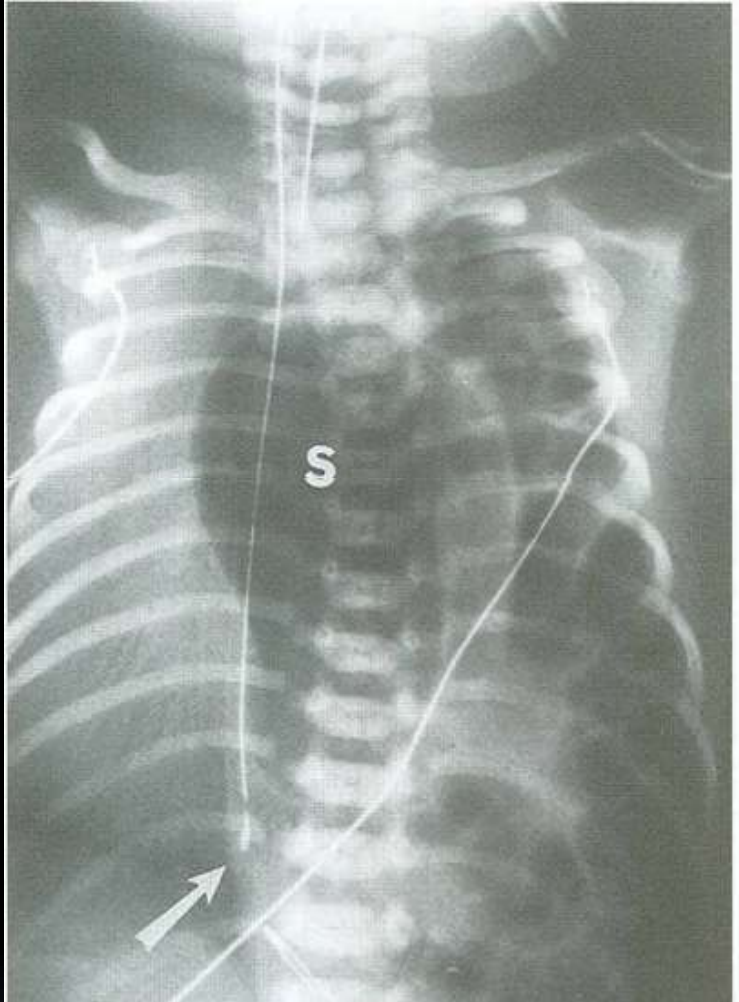
a well defined lesion of water attenuation in the lower mediastinum in close proximity to the esophagus, which is typical for an enteric foregut cyst



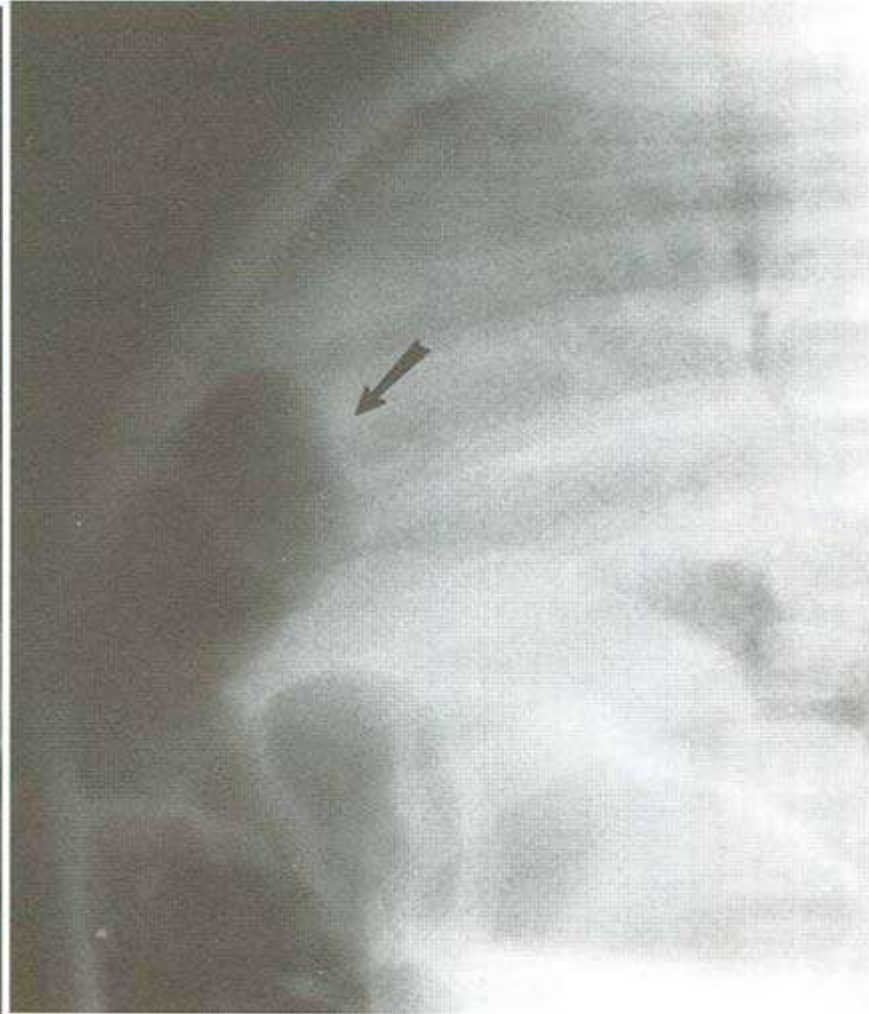
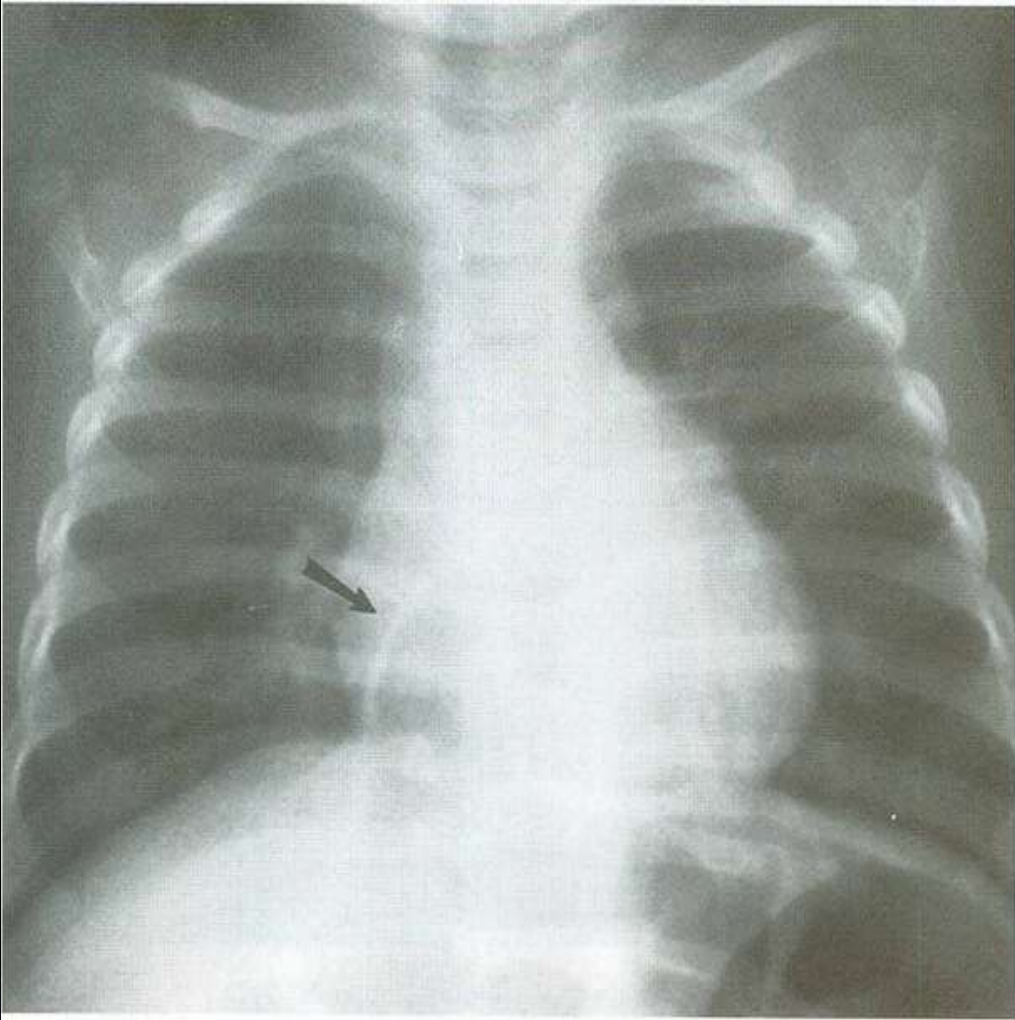
Diaphragm







numerous loops of air-filled intestine and the air-filled stomach in the left hemithorax. There is marked contralateral shift of the mediastinal structures. The tip of the nasogastric tube is in the distal esophagus . later, with the nasogastric tube now advanced into the stomach note how the stomach has been decompressed and the intestines partially decompressed. There is much less mediastinal shift. Note paucity of gas in the abdomen.



Morgagni hernia

