

UNILATERAL HYPERLUCENT HEMITHORAX UNCOMMON CAUSES OF A COMMON RADIOLOGICAL SIGN

Authors: Dr.DIVYA.R, Dr.Sivakumar

CO-AUTHORS – Prof.Dr. M. Prabakaran, Prof.Dr.N. Kailasanathan, Prof.Dr.K. Malathy, Dr. Nesam Manivannan, Dr. S. Sundareswaran, Dr. S. Kalpana, Dr. S. Babu Peter, Dr.D. Ramesh,, Dr. C. Amarnath, Dr. S. Devimeenal

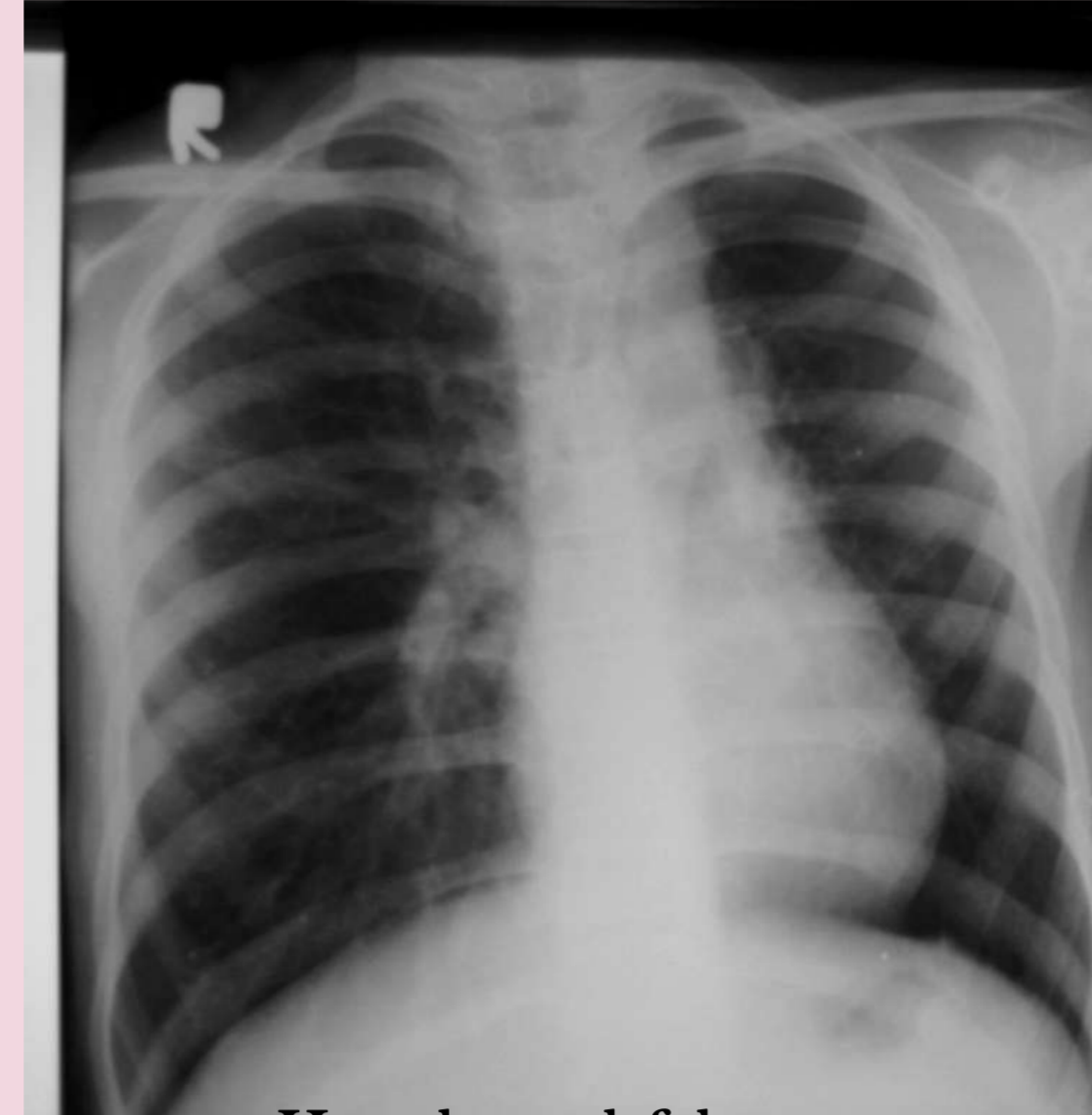
BARNARD INSTITUTE OF RADIOLOGY, MADRAS MEDICAL COLLEGE.

SWYER JAMES SYNDROME

HISTORY

13 year old boy, Cough, Mild dyspnoea, h/o near drowning, Pulmonary infection in early childhood

INSPIRATION

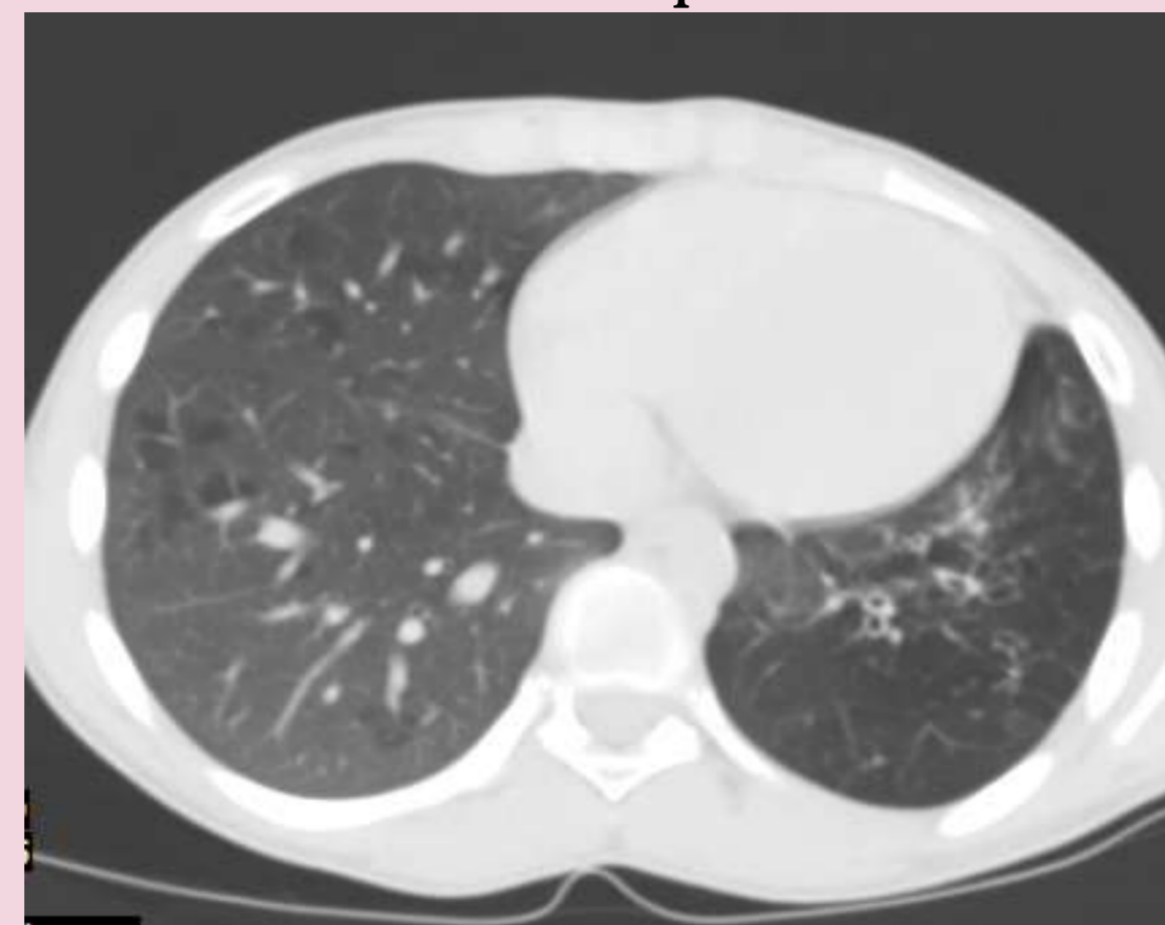


Hyperlucent left lung
Reduced left lung volume
Left hilum less prominent

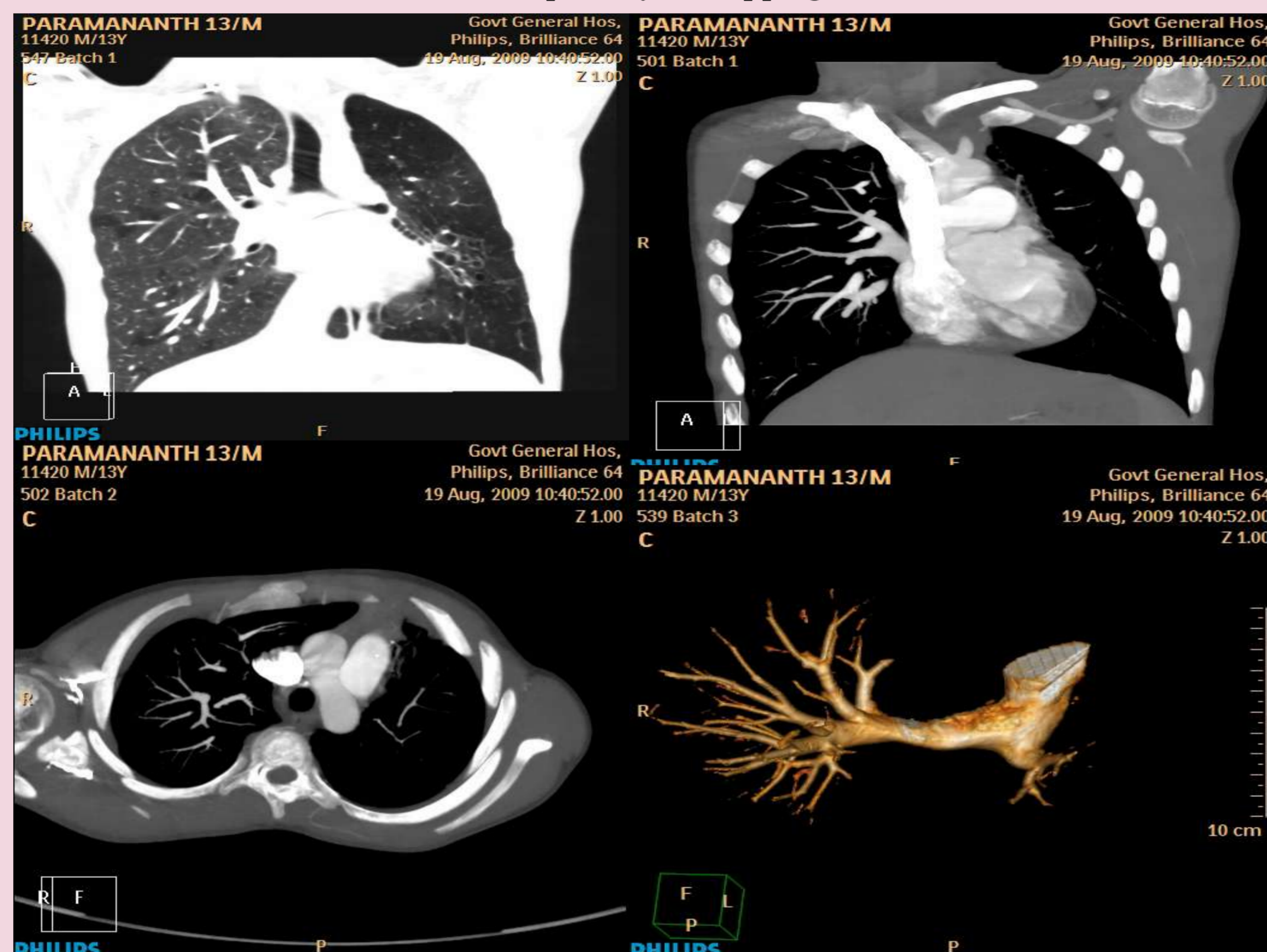
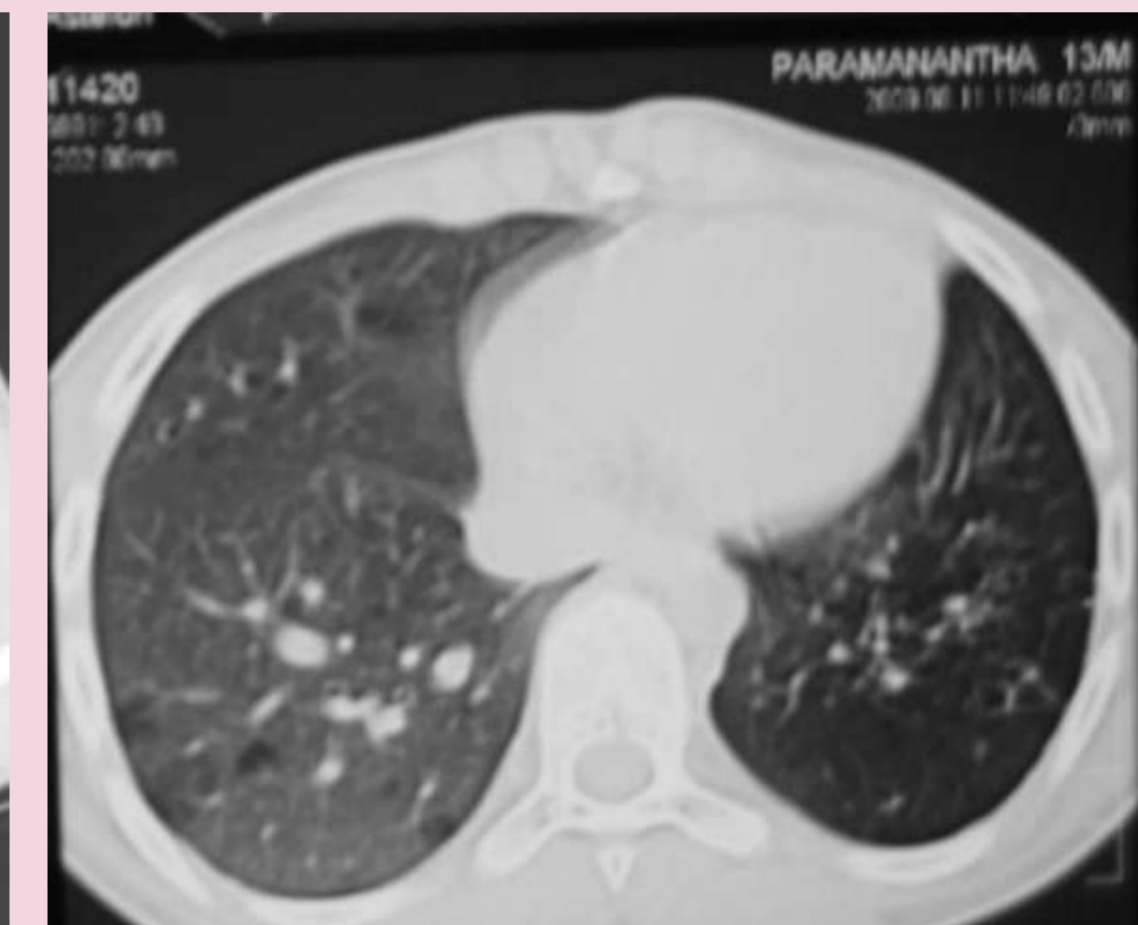
EXPIRATION



Air trapping left side noted



Expiratory air trapping



MIP CORONAL RECONSTRUCTION/AXIAL CT
LEFT LUNG

- > Ipsilateral small hilum
- > Diminished pulmonary vascularity
- > Small lung volume
- > Bronchiectasis

SWYER JAMES SYNDROME represents the result of postinfectious bronchiolitis obliterans in infancy or early childhood that damages the terminal and respiratory bronchioles preventing the normal development of alveolar buds. This leads to reduced lung volumes in adulthood and air-trapping. Patients may be asymptomatic or may experience cough, chronic pulmonary infections, decreased exercise tolerance, and haemoptysis.

Swyer-James Syndrome

X-ray Appearance

Small hemithorax
Increased radiolucency of affected lung
Small hilum
Diminished pulmonary vasculature
Air-trapping on expiratory film
(No air trapping with Hypogenetic lung)
Cylindrical bronchiectasis

CT

Small/normal lung
Patent bronchial tree
Diminished/normal lung attenuation
Small central and peripheral pulmonary artery
Bronchiectasis
Minor subpleural parenchymal scarring or atelectasis

BRONCHOGRAPHS

Obstruction of peripheral airways
Reduced branching
Lack of normal alveolar filling pattern
Bronchiectasis

ARTERIOGRAPHY

Small central pulmonary artery with reduced branching and small intraparenchymal vessels

SIN QUO NON - SWYER JAMES SYNDROME

Nonspecific
Small lung volume
Increased lung lucency (60%)
Reduced size of peripheral vessels
Central bronchiectasis
HRCT – decreased lung attenuation
-- decreased vessel caliber
-- air trapping
-- bronchiectasis / atelectasis

UNILATERAL HYPERLUCENT HEMITHORAX - CAUSES

Technical

Chest wall defect
Partial bronchial occlusion with obstructive emphysema
Congenital absence of pulmonary artery
Pulmonary artery occlusion
Unilateral bullous emphysema
Pneumothorax
Lobar collapse
Congenital lobar emphysema
Compensatory emphysema
Bronchiolitis obliterans – unilateral type

CONGENITAL PULMONARY ARTERY ABSENCE

Failure of development of the right or left sixth branchial arterial arch
Characterized by short segment atresia of the proximal left or right pulmonary artery
More distal segments are usually present
Associated with various congenital cardiac defects (e.g. tetralogy of Fallot) and normally occurs on the side opposite the aortic arch

Radiological features

Small volume ipsilateral lung
Small ipsilateral hilum
NO AIR TRAPPING (compare with Macleod's syndrome)
Occasional opacities may be found in the affected lung owing to systemic-pulmonary collaterals
Confirmation of the absence of the pulmonary artery
Radionuclide imaging or angiography (conventional, CT, or MRI)

CONGENITAL LOBAR EMPHYSEMA

Marked over aeration of a single pulmonary lobe, usually an upper lobe
Male/female - 3:1
Symptomatic during the neonatal period

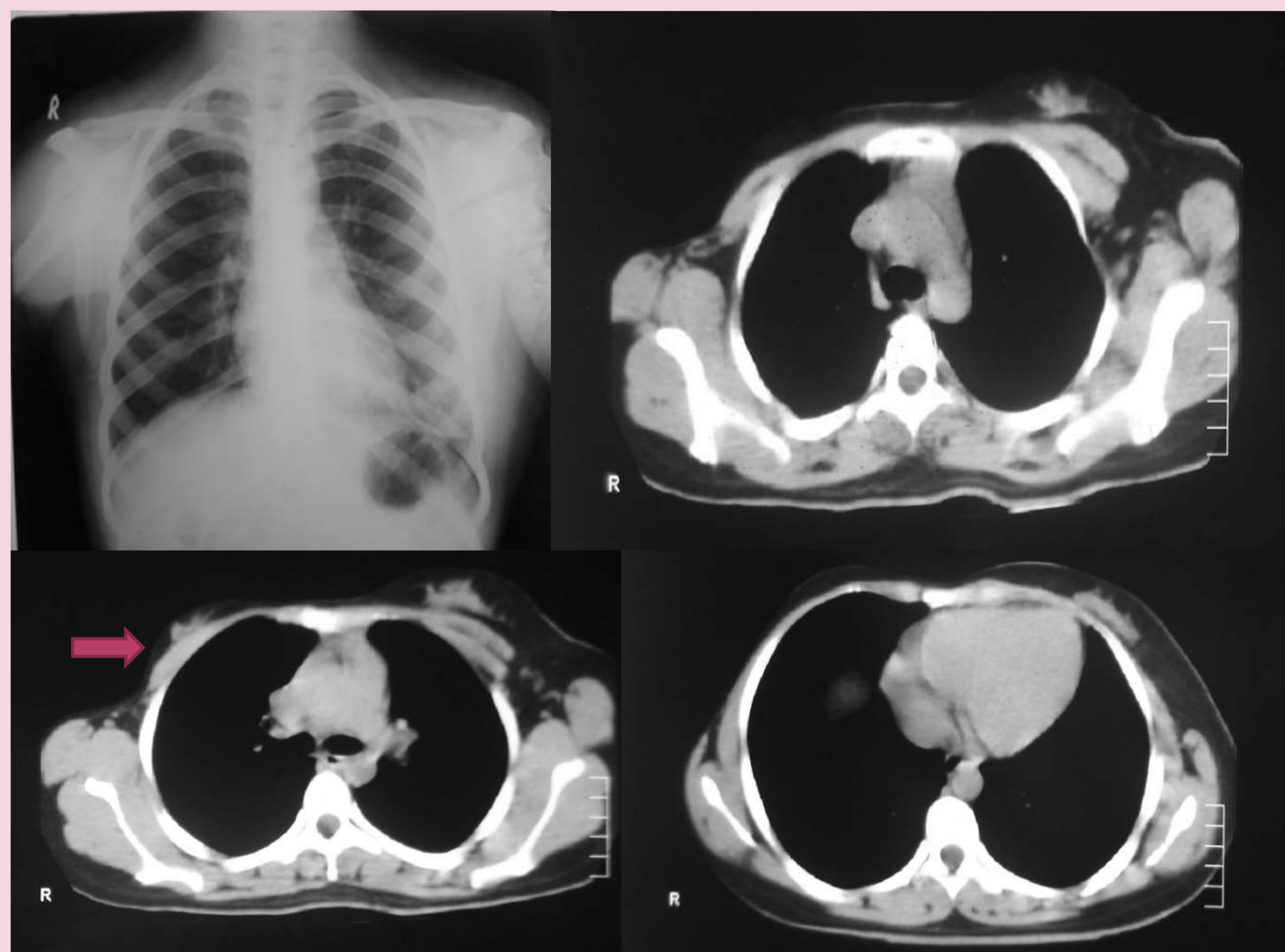
Radiological findings

- > Affected lobe -hyperlucent due to reduced pulmonary vascularity
- > Gross overinflation with compression of the remaining lobes of the lung
- > Contralateral mediastinal shift

Decubitus and cross table lateral views help distinguish CLE from tension pneumothorax
Treatment is resection of the involved lobe

SWYER JAMES SYNDROME – Unilateral lung abnormality / Rule out other causes of air trapping

POLAND'S SYNDROME



HYPERLUCENT RIGHT HEMITHORAX
ABSENT RIGHT PECTORALIS MAJOR MUSCLE
UNDERDEVELOPED RIGHT PECTORALIS MINOR

Named after **Sir Alfred Poland**. Poland syndrome is characterized by a defect of the chest (pectoralis) muscle on one side of the body and webbing of the fingers (cutaneous syndactyly) of the hand on the same side (ipsilateral hand). The four essential features of this condition are 1) unilateral shortening of the index, long, and ring fingers, 2) syndactyly of the affected digits, 3) hypoplasia of the hand, and 4) absence of the sternocostal portion of the ipsilateral pectoralis major muscle(right-sided three times more often than it is left-sided)

DIFFERENTIAL DIAGNOSIS

BRONCHIAL ADENOMA



HYPERLUCENT LEFT HEMITHORAX
SOFT TISSUE DENSITY LESION LEFT MAIN BRONCHUS
AIR TRAPPING LEFT LUNG

Arises from duct epithelium of bronchial mucous glands
Location: most commonly near/at bifurcation of lobar/segmental bronchi
complete obstruction/air trapping in partial obstruction (rare)/obstructive emphysema/recurrent postobstructive infection/ atelectasis/consolidation of a lung/lobe/segment (78%)

REFERENCES

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