Case Series

Recurrent or persistent pneumonia: A case series with discus-sion

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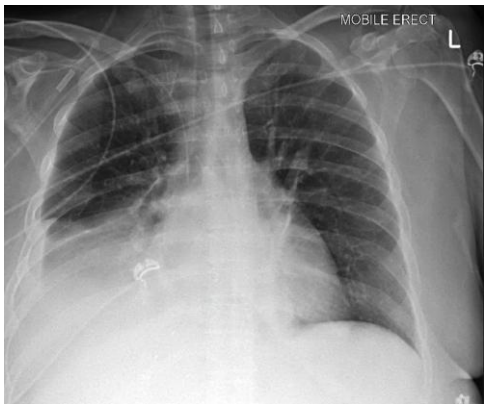
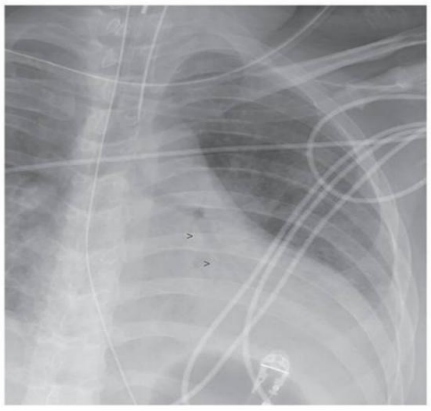
1. Introduction

Recurrent pneumonia is defined as two episodes of pneumonia in 12 months / three or more episodes of pneumonia in a lifetime. With the characteristics of clinical/radiological persistence >6 weeks despite appropriate therapy, with radiological clearance in-between.

1.1 Definition: Pneumonia

As per WHO, any child who presents with fast breathing is technically classified as having S. pneumonia. Clinically, the X-ray shows fluffy alveolar consolidation involving a lobe or the whole lung +/—air bronchogram and/or effusion on the lateral pleural space. This was developed specifically for children with Pneumococcus and Hib.





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1.2 Is it necessary to document resolution?

1. In the first episode of uncomplicated pneumonia, in an otherwise healthy child no need.

2. Resolution X-ray is recommended when

- 2nd Episode of Pneumonia
- Clinical pointers to immunodeficiency
- Focal changes during clinical examination
- Complicated pneumonia- sometimes

2. Case Presentation

Case-1

Question 1: Is it a pulmonary lesion?

A 15-year-old asymptomatic girl, with an incidental shadow on an X-ray and no clearance with antibiotics.

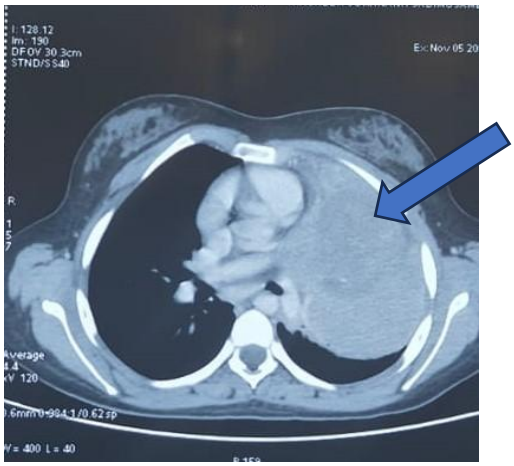
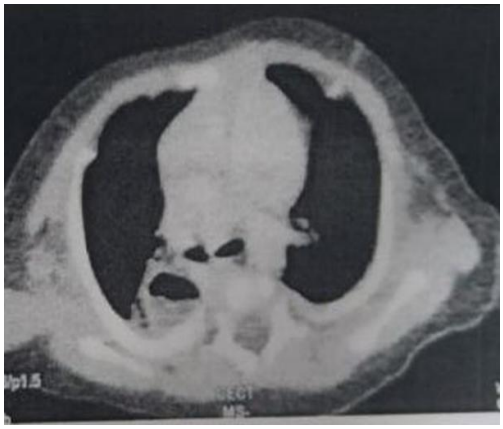
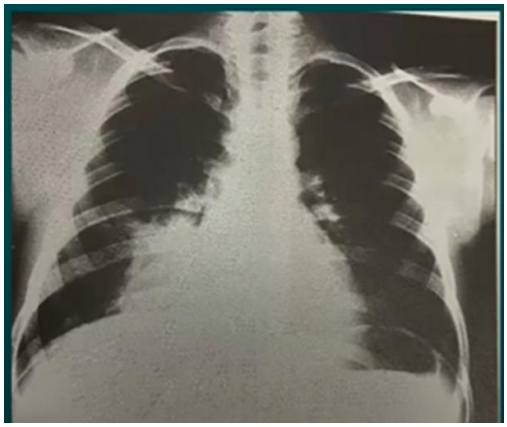


Fig Arrow: Mediastinal Mass

Extrapulmonary Lesions





- Thymus
- Lymph Node
- Bronchogenic Cyst
- Mediastinal mass

Case-II

Question 2: Is it a Pneumonia?

A 5-year-old boy was previously admitted four times with a mild fever, cough, and fast breathing andimproved with nebulization.

H/O Eczema and allergic rhinitis

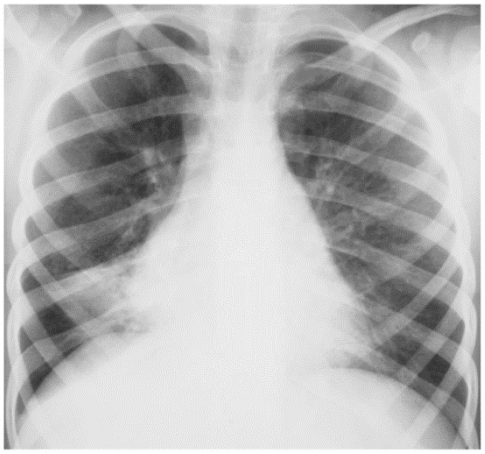


Fig: Right middle lobe syndrome

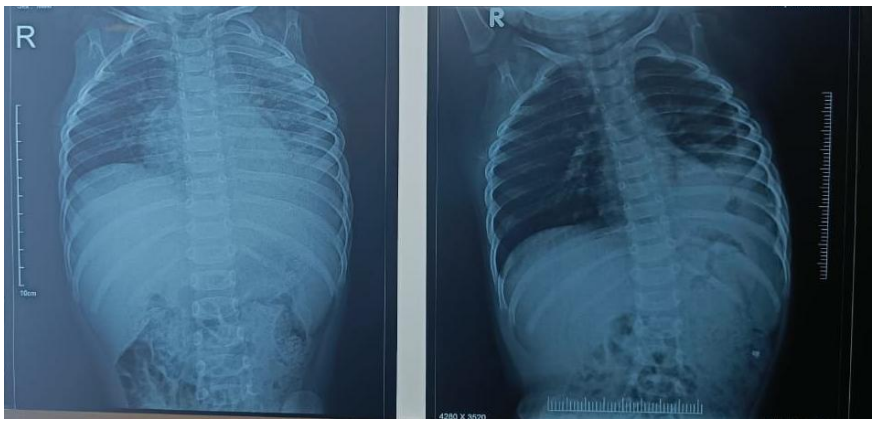
Recurrent Pulmonary Infiltrates

- Asthma
- Hypersensitive Pneumonitis
- Pulmonary Hemosiderosis
- ILD

Case- III

Question 3: *Is there clinical improvement?*

A 15-month-old, diagnosed with TB Empyema of the left side then started ATT; fever settled, weight improved. Follow up at 2 months, air entry still reduced



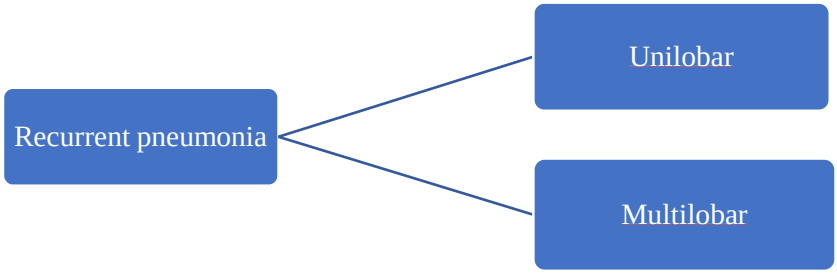
Delayed Radiological Clearance

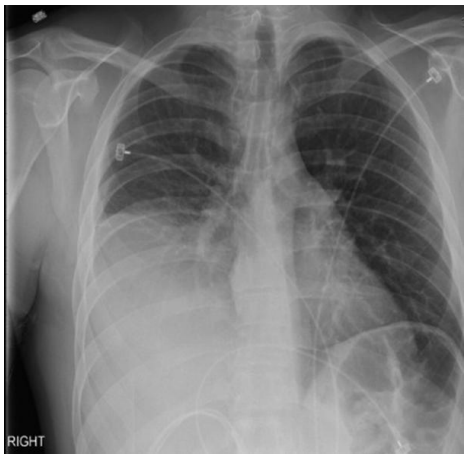
- TB
- Adenovirus
- Mycoplasma

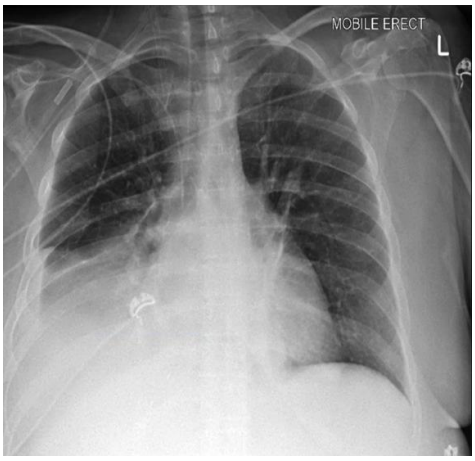
Case-IV

Question 4: Is it Unilobar/Multilobar?

A 7-year-old boy was admitted twice, both for right lower lobe pneumonia.







CT After resolution of the second episode

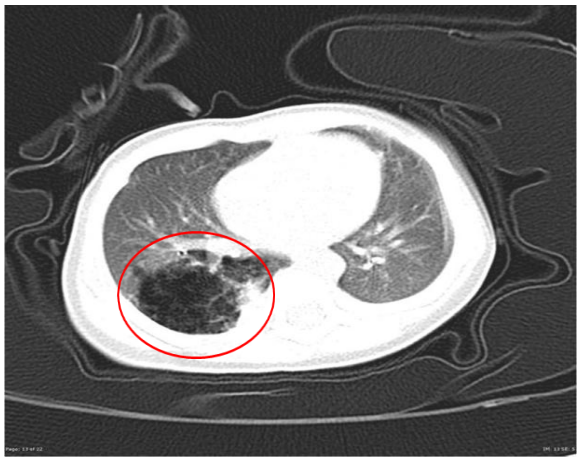
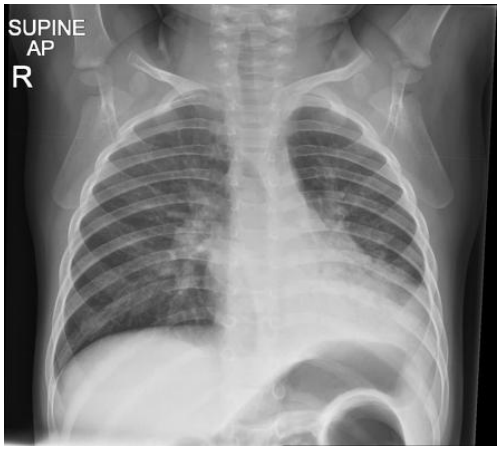


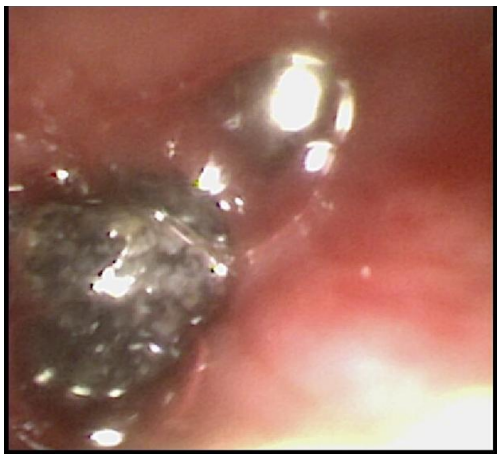
Fig: Congenital Pulmonary Airway Malformation

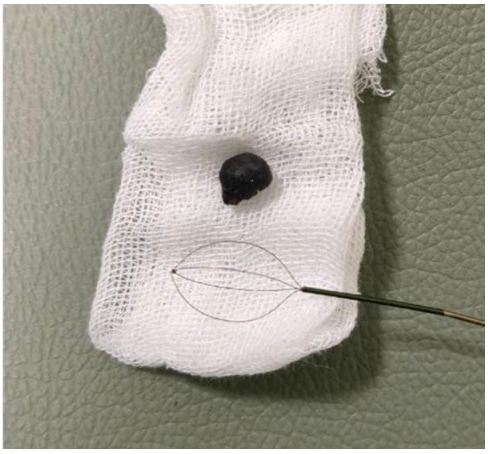
Case - V

A 3-year-old girl with persisting consolidation in left lower lobe then was treated with antibiotics.

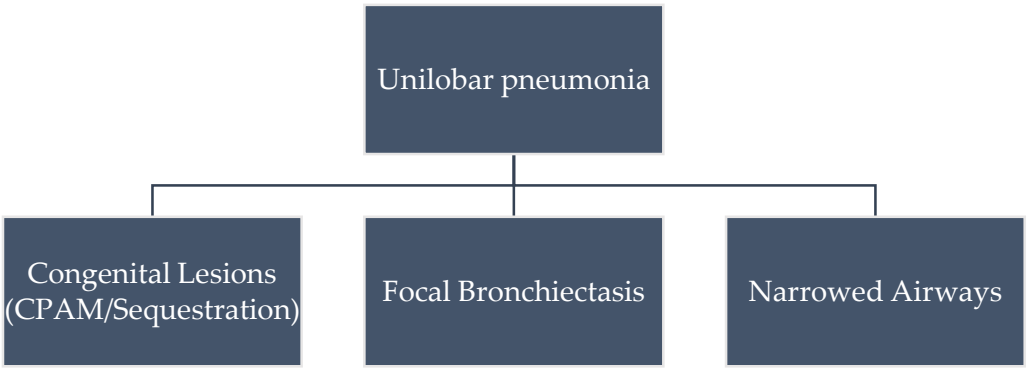
Results: No fever, but wet cough persistent.







Recurrent Unilobar Pneumonia



Narrowed Airways

Extrinsic compression	Bronchial wall	Endo bronchial
Lymph node Vascular Ring Mediastinal tumor	Bronchomalacia Stricture/Stenosis	Endobronchial TB Foreign Body Tumor

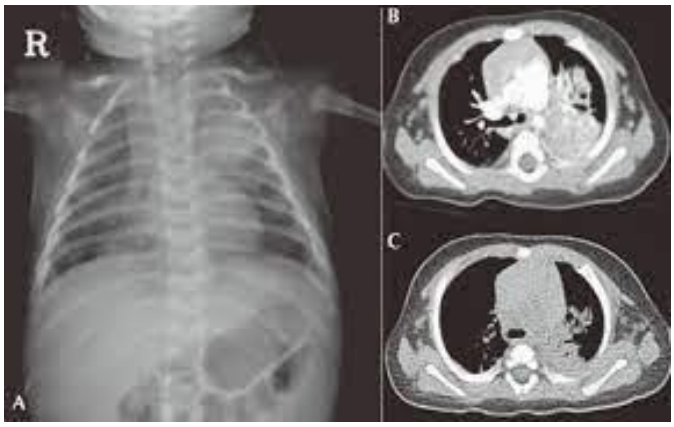
Investigations: Unilobar

- HRCT Chest +/- Contrast
- Bronchoscopy

Case - VI

A 3-year-old boy had a previous history of psoas abscess at 6 months.

Left lower lobe Pneumonia 1.5 years back, now came with severe bilateral pneumonia but poor response to antibiotics. History of a sibling death at 3 years- recurrent infection



Discussion

- Very early onset
- Sibling death
- Multiple sites of infection
- Deep seated abscess

Investigations

TC	35,000;
N	90
CRP	115
Blood Culture	Burkholderia
NBT	< 10% dye accumulation
Exome	Chronic granulomatous disease

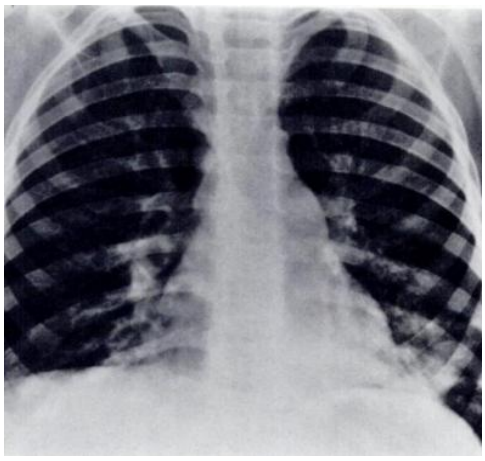
Primary Immunodeficiency

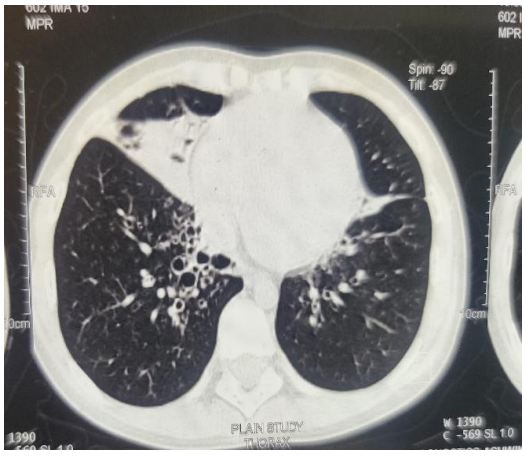
- T cell defects - very early
- CVID/B Cell - Sinopulmonary
- CGD - Deep seated abscess
- Hyperactive IgE – Eczema

Case – VII

A patient with multiple admissions for respiratory illness and chronic nasal stuffiness along CSOM.

Persisting shadows on the X-ray



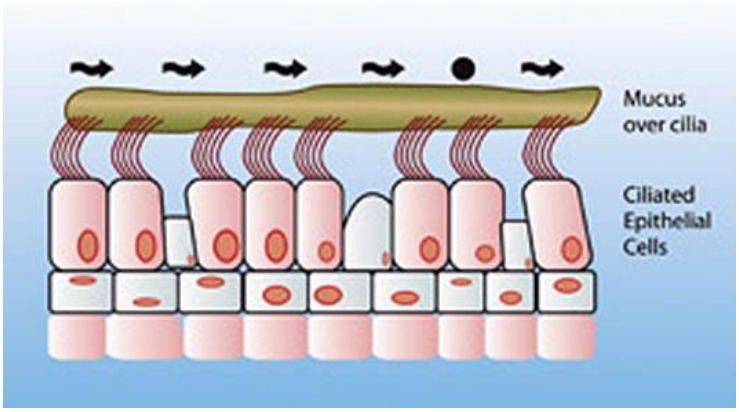


Impression

- Collapse Lingula and Right Middle Lobe,
- Bronchiectasis
- BAL - Pneumococcus
- Clinical Exome - Primary Ciliary Dyskinesia

Primary Ciliary Dyskinesia

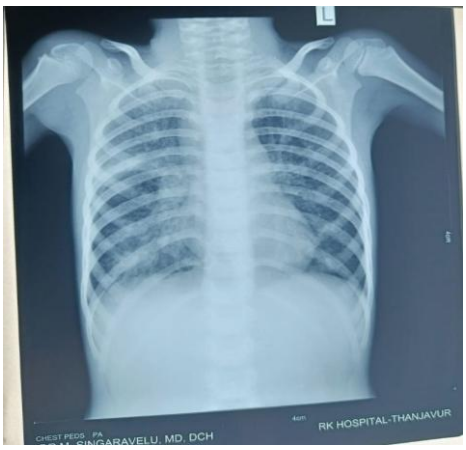
- Bronchiectasis
- CSOM
- Chronic Rhinorrhea
- Situs inversus (50%)

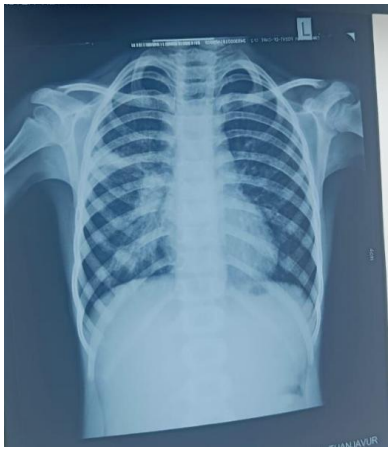


Case - VIII

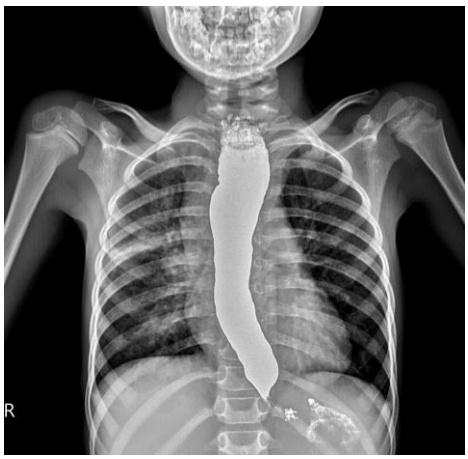
A 6-year-old boy, apparently normal till 5 years. History of recurrent respiratory illness with fever for the past 1 year, then improved with antibiotics but recurred

X-ray revealing infiltrates in various lobes during various admissions. Grade 2 clubbing, bilateral fine crepitations





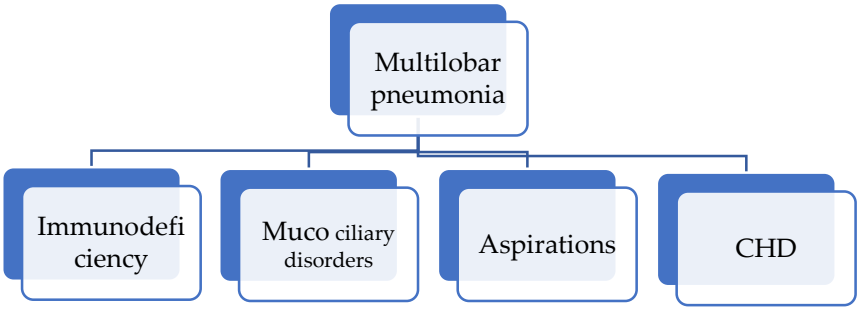
2.3 Clinical Presentation



Impression

- ACTH- >1000, Cortisol low
- Barium swallow - Achalasia
- Schirmer's Test - Alacrimia
- AAA Syndrome- recurrent aspiration pneumonia
- Started on replacement steroids, underwent hellers myotomy

Multilobar Pneumonia



3. Discussion

3.1 Multilobar Pneumonia

- PID (Pelvic Inflammatory Disease) Workup: Ig Profile, T/B cell markers, GGD workup (NBT/DHR)
- HIV
- Tests for aspiration - Barium swallow, Milk Scan, Bronchoscopy/OGD scopy
- Echocardiogram
- Sweat chloride/ Clinical exome sequencing

3.2 Cystic fibrosis and Primary Ciliary Dyskinesia

- Echogenic Bowel Focus
- Raised IRT
- Delayed passage of meconium/ Oily Stools
- Cholestasis/ Hepatits
- Unexplained anemia
- Rec Respiratory infections
- Pseudo- Barter Syndrome
- Recurrent Respiratory Infections/ Bronchiectasis
- CSOM
- Nasal Polyposis
- Azoospermia.