Recurrent or Persistent Pneumonia

Lower Respiratory Tract

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Recurrent or Persistent Pneumonia

- Definitions
  - Recurrent pneumonia
    - more than two episodes of pneumonia in 18 months
  - Persistent pneumonia
    - symptoms that do not clear within 14 days
    - radiograph that do not revert to normal within 4-6 weeks
- Most common causes of recurrent pneumonia
  - PTB
  - foreign body aspiration
  - misdiagnosed or inappropriately treated asthma
  - HIV
  - bronchiectasis

Approach to recurrent pneumonia

- Localize disease
  - Clinical
  - X-ray
- Localized disease
  - most likely a local abnormality of a bronchus or lung parenchyma
  - common causes
    - TB (glands)
    - foreign body aspiration
    - localized bronchiectasis
  - bronchoscopy and RT of the lung usually indicated

Approach to recurrent pneumonia

- Widespread disease
  - immune compromised group
    - acquired (AIDS & NAIDS)
    - congenital immunodeficiency syndromes
  - non-immune compromised group
    - aspiration syndromes
    - abnormal cough mechanism
    - abnormal mucus clearance
    - “fragile lung” after insult

Anatomic localized illness

- Narrowed airway
  - Extrinsic compression
    - Lymph nodes
      - TB, Lymphoma, Neoplasm
    - Vascular ring
  - Bronchial wall
    - bronchomalasia, web, stricture
  - Endobronchial pathology
  - Endobronchial pathology(continued)
    - foreign body, TB granuloma, neoplasm
- Congenital lung lesions
  - Bronchogenic cyst
  - Congenital lobar emphysema
  - Lung sequestration
- Focal bronchiectasis

Widespread Disease with Immunodeficiency

- Acquired
  - NAIDS
  - HIV lung illness
    - Bacterial pneumonia, TB, CMV, PCP
    - Other opportunistic infections
      - Candida albicans
      - Cryptococcus neoformans
    - LIP
    - Lymphoma / Kaposi
  - Immune suppression
- Congenital
  - B cell defects
  - T cell defects
  - Phagocyte defects
  - Complement defects
  - Combined defects

Widespread Disease with Normal Immunity

- Allergy
  - Undiagnosed asthma (mucus plugs)
  - Eosinophil pulmonary infiltrates
- Persisting lung infection - TB
- Recurrent aspiration
  - Sucking or swallowing abnormalities
  - TOF
  - GOR
- Muco-ciliary clearance defects
  - CF, Immotile cilia
- Heart lesions
  - L to R shunting with increased pulmonary blood flow
- “Fragile” lung
  - BPD, Post necrotizing pneumonitis
- Interstitial pneumonitis

Approach to the child with recurrent pneumonia

- Step one
  - careful history
  - clinical evaluation
- Step two
  - localize disease
    - clinical examination
    - CXR
  - exclude common causes
    - TB work-up
    - foreign body aspiration
    - asthma
    - HIV
- Step three
  - diagnose & treat if possible - if not
  - refer for specialist work-up& treatment
    - for localized disease
      - RT
      - bronchoscopy most likely to be done
    - for widespread illness
      - further specialist work-up depending on situation

Suppurative Lung Disease

Bronchiectasis

Lung Abscess

Bronchiectasis

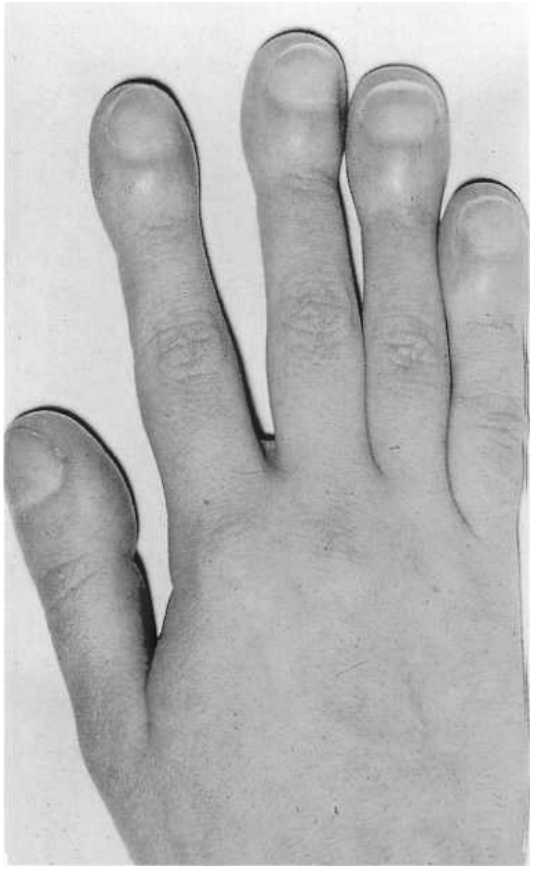
- Permanent destruction of bronchial walls and lung tissue due to chronic infection
- Mechanisms
  - Bronchial lumen obstruction
    - TB glands, foreign body, pertussis
  - Parenchymal destruction from necrotizing pneumonia
    - Bacteria: staphylococci, Klebsiella, anaerobes, tuberculosis
    - Viruses: measles, adenovirus
  - Repeated respiratory infections
    - Malnourished, cystic fibrosis, generalized immunodefficiencies, aspiration pneumonia, ciliary diskinesia

Clinical Picture

- History
  - Repeated visits or admissions with lower respiratory infections
  - Productive cough
    - Activity
    - Change in position
  - Difficult in children
  - Haemoptysis rare in children

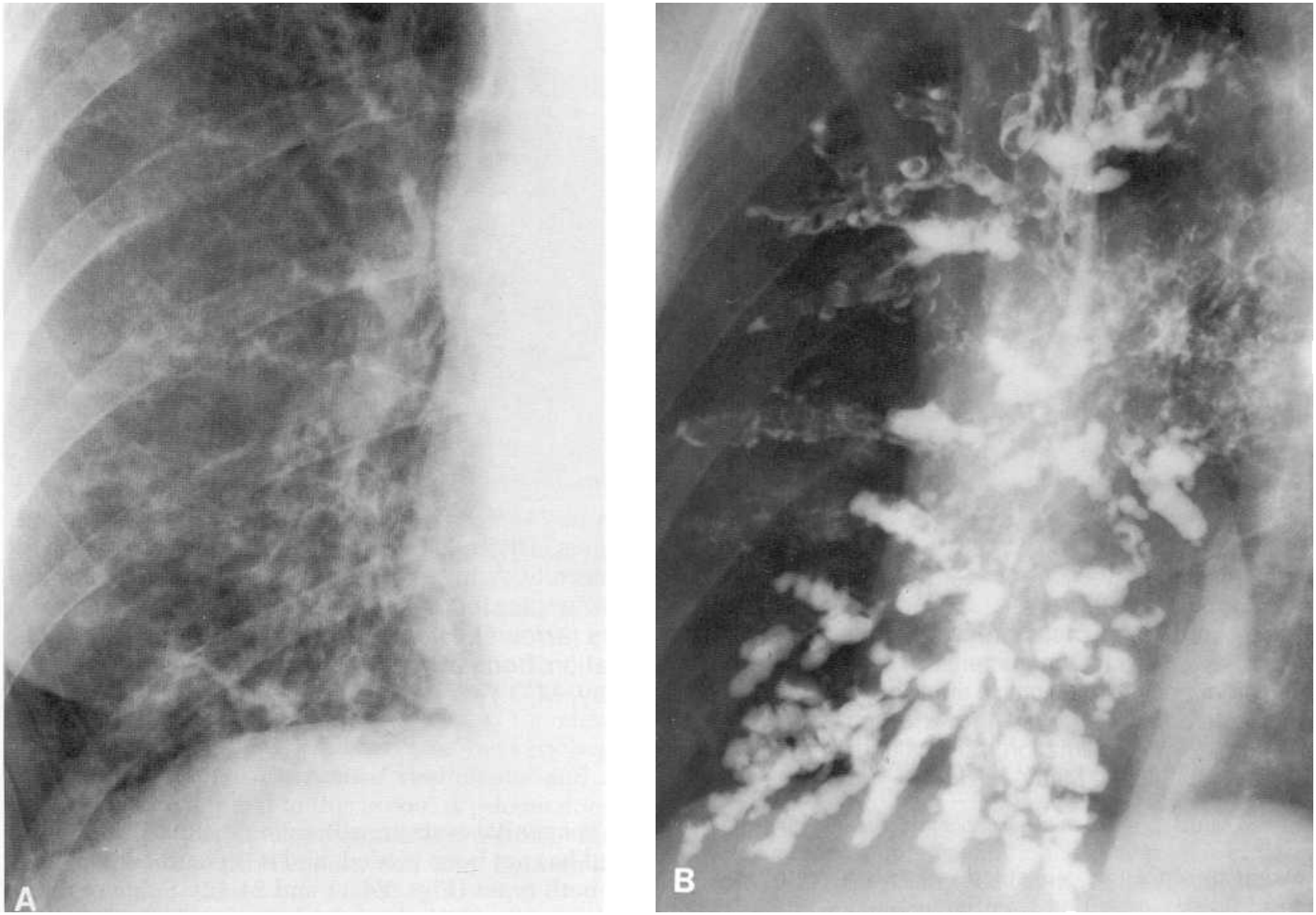
Clinical Picture

- Examination
  - Clubbing after ± 1 year
  - Halitosis
  - Growth retarded
  - Wide spread crackles and wheezes
  - Pulmonary hypertension and cor pulmonale



Diagnosis

- Clinical picture
- Chest radiograph
  - Non specific or
  - Area of opacification that fails to resolve
  - Honey comb appearance (small cysts)
  - Widespread destruction, fibrosis and loss of volume
- Computed tomography


A
B

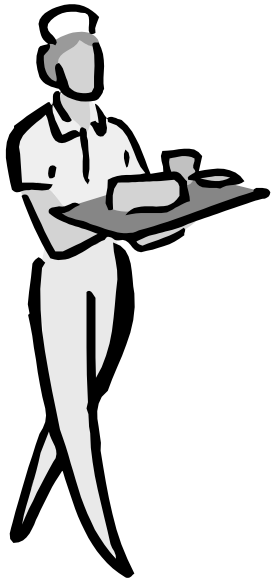
Differential Diagnosis

Evaluate every patient with bronchiectasis for

- Sinusitis
- Ciliary dyskinesis
- Immunodeficiency
- TB
- Asthma
- CF

- If not found, bronchoscopy for
  - Stenosis, strictures, foreign bodies, tumours
  - Bacterial cultures

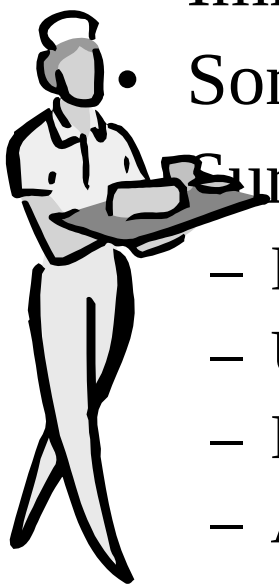
Treatment



- Prevention
  - Immunization
  - Correct treatment of pneumonia
  - Correct treatment of foreign body inhalation
  - Early detection and treatment of TB
- Physiotherapy with postural drainage

Treatment

- Appropriate antibiotics
- Immunized against influenza
- Some benefit from bronchodilators
- Surgery if
  - Disease progression and
  - Unilateral
  - No pulmonary hypertension
  - Adequate lung function

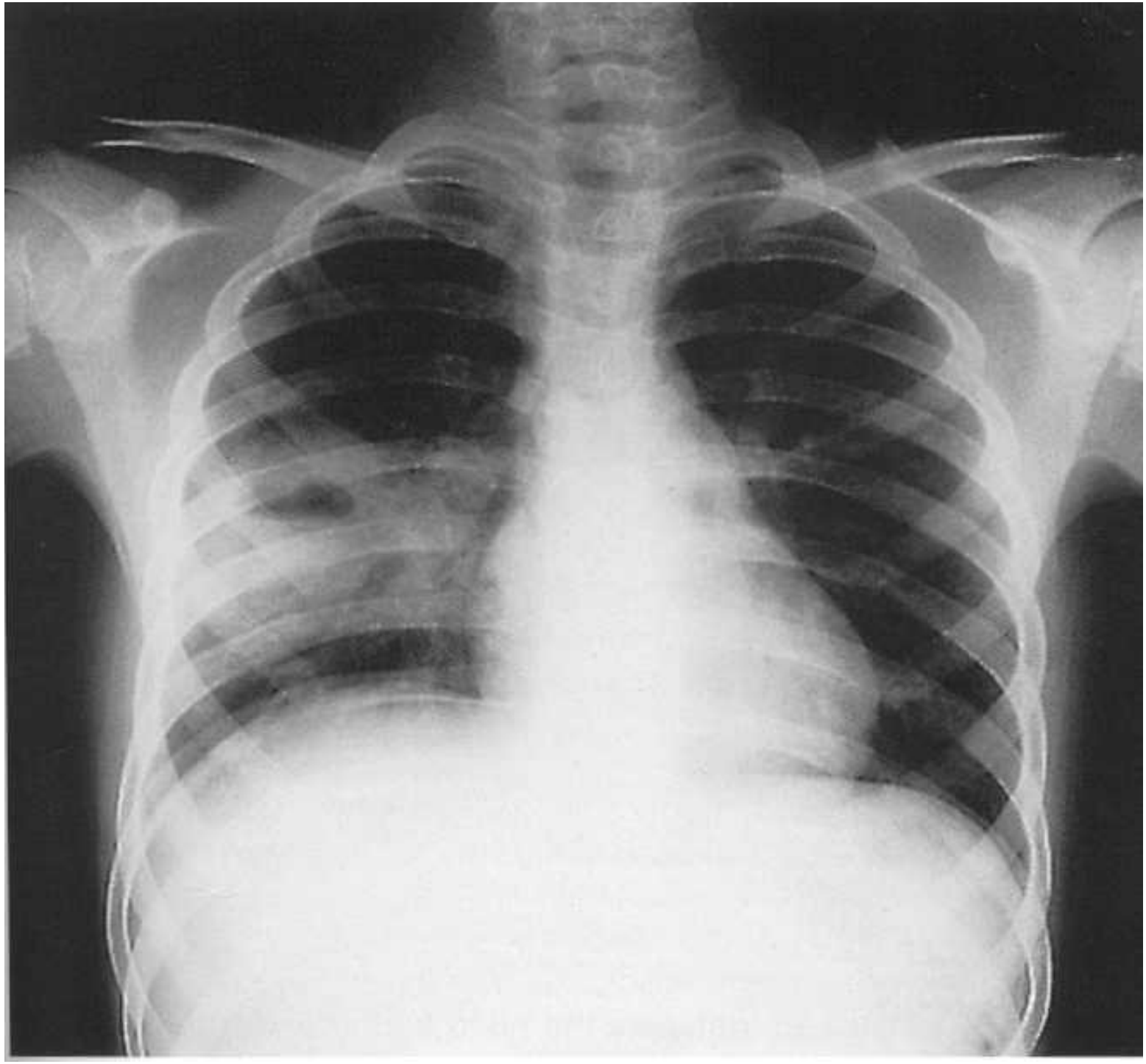


Lung abscess

- Abscesses follow infection with:
  - Staphylococcus aureus
  - Haemophilus influenza
  - Klebsiella pneumoniae
  - Mycobacterium tuberculosis
  - Anaerobic infections
  - Streptococcus pneumoniae (rare)
- In children most often after aspiration of infected material

Lung abscess

- Clinical picture
  - Toxic, malaise
  - High swinging fever
  - Foul smelling sputum
  - Respond poorly to antibiotics
  - Amphoric breathing
  - CXR: cavity with fluid level



Treatment

- Postural drainage
- Intravenous antibiotics
  - Penicillin
  - Cloxacillin
  - Aminoglycoside
- Exclude bronchial obstruction
- Drainage