Diseases Presenting With Dyspnea and Wheezes Like Asthma

(Mimics of asthma)

✪ PULMONARY DISEASES:

A) Lower Airway Diseases:

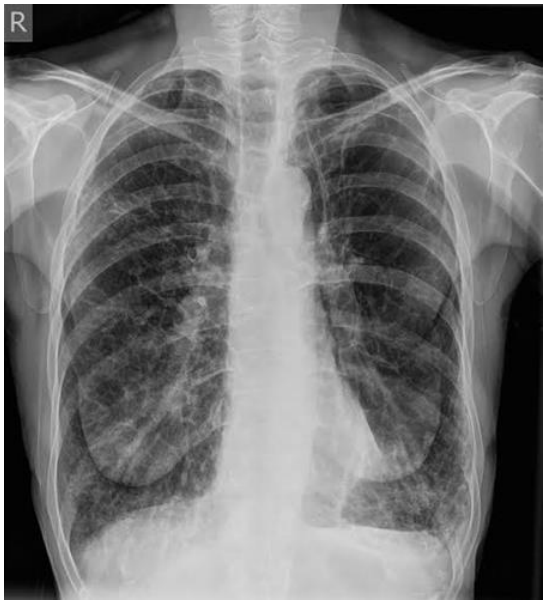
1) COPD (Chronic bronchitis > Emphysema)

Clues:

- Productive cough for at least 3 months in the last consecutive 2 years
- Usually in smokers with significant smoking history / Wheezy chest /
- No variability (no morning dip as in asthma: no decrease in FEV1 in the morning),
- No reversibility (no increase 12% of baseline FEV1 with bronchodilators.

Exam:

- You may find signs of hyperinflation (barrel shaped chest /bilateral hyperresonance on percussion /bilateral decreased air entry with prolonged expiration + Exp .RHONCHI.



DX:

- Spirometry (obstructive pattern)
  FEV1/FVC < 70%, no variability or reversibility (to differentiate it from asthma)
- Imaging (CXR, CT chest could help in cases of Emphysema or long history of the disease.

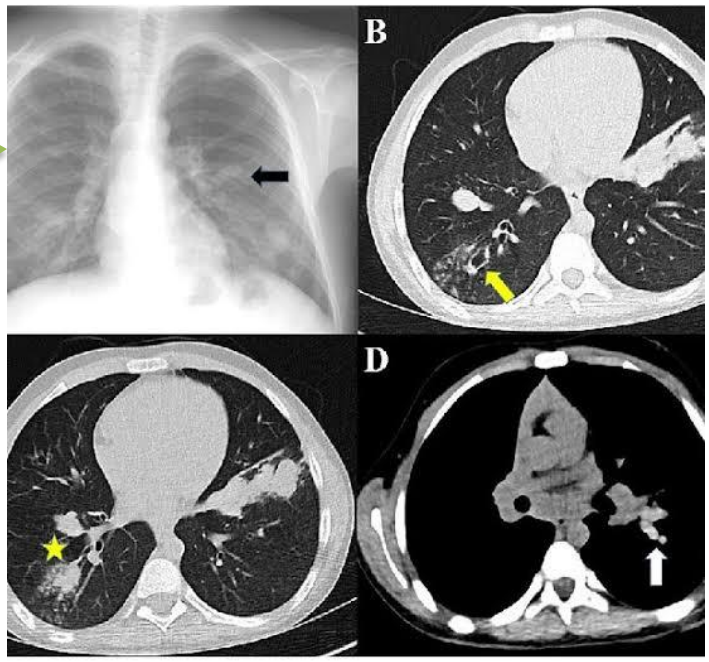
2) Allergic Bronchopulmonary Aspergillosis (ABPA)

Clues:

- Wheezy chest: difficult to treat
- Signs of bronchiectasis (proximal bronchiectasis): Productive cough with significant amount of sputum

DX:

- Peripheral blood eosinophilia
- High serum IgE
- CT chest: proximal bronchiectasis



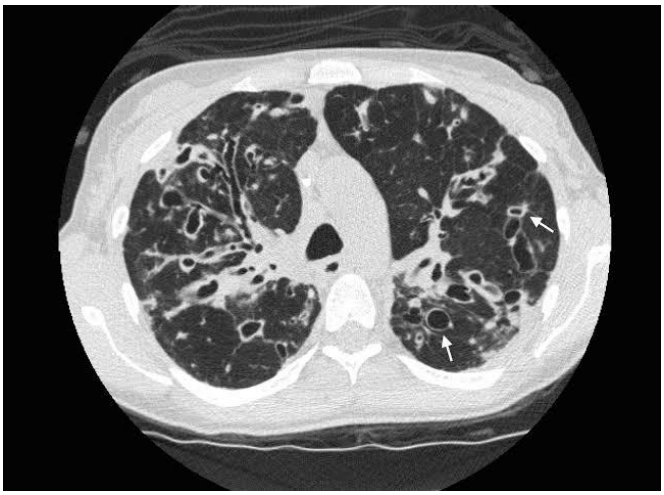
3) Bronchiectasis (irrespective of the underlying cause)

Clues:

- Productive cough with Large amounts of Sputum, Occasional Wheezes.
- Frequent chest infections, exacerbations and admissions at hospital.
- By Auscultation: RHONCHI are not Symmetrical, Asymmetrical Inspiratory Crepitations Which change in character after asking the patient to cough...
- History could reveal the cause: like TB, pertussis, hypgammaglobulinemia, Cystic fibrosis, Kartagner's Syndrome etc.

DX:

- HRCT chest: Typical changes are either Signet ring appearance ± Tram Track appearance.



4) Cystic Fibrosis: (Inherited autosomal recessive disease beginning since childhood)

Clues:

- Features of Bronchiectasis ± pancreatic insufficiency (steatorrhoea, epigastric pain) ± obstructive jaundice.
- History of Distal intestinal obstruction in childhood
- History of recurrent exacerbations

DX:

Specific: Sweat chloride test (> 60) is diagnostic, gene analysis (if available)

HRCT chest, CT pancreas + fecal elastase, U/S abdomen for evaluation of biliary disease

5) Alpha1 Anti-Trypsin Deficiency: (Inherited autosomal Co-dominant disease)

Clues:

- Features of Emphysema in adolescents and young adults
- + Early onset liver cirrhosis without explanation

DX:

- Genetic test & genetic counselling
- HRCT chest: specific type of Emphysema.
- Liver function tests with exclusion of all potential causes
- Liver biopsy: PAS stain: Diastase fat globules.
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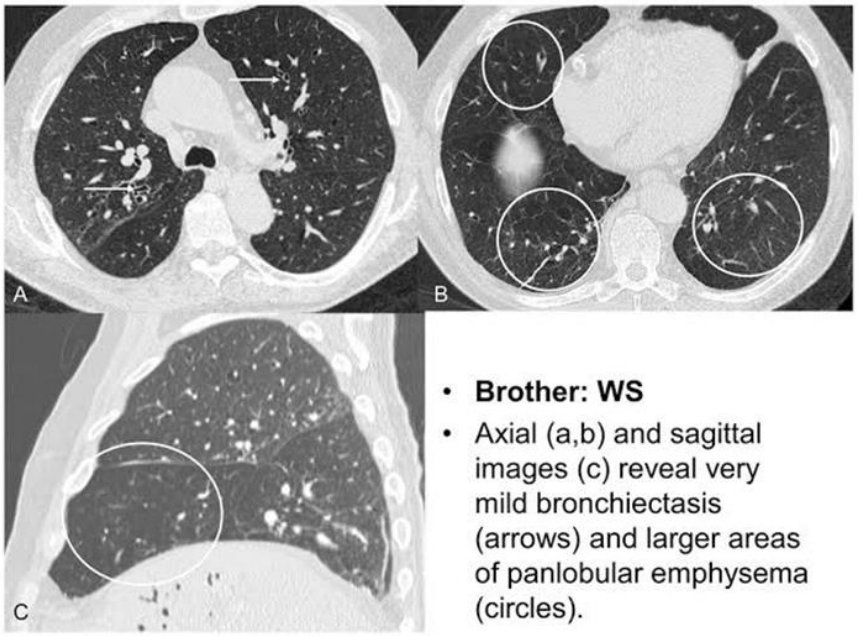


- **Brother: WS**
- Axial (a,b) and sagittal images (c) reveal very mild bronchiectasis (arrows) and larger areas of panlobular emphysema (circles).

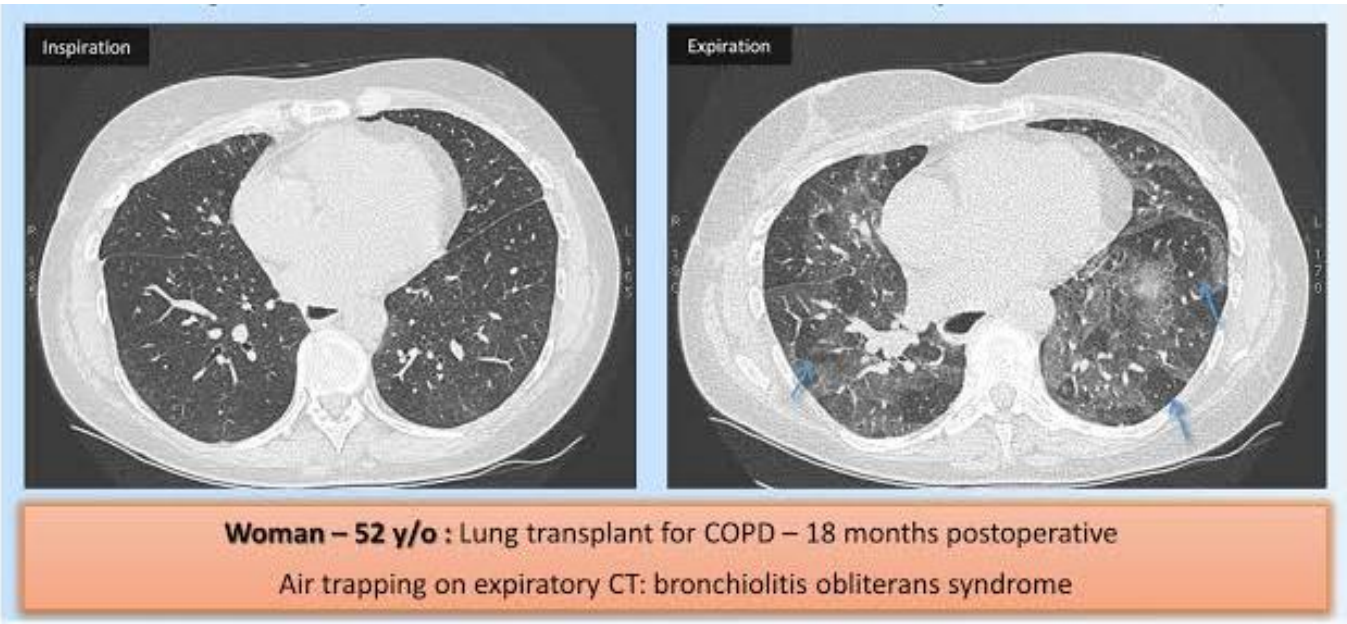
6) Bronchiolitis Obliterans :

Clues:

- Signs of obstructive airway disease on lung auscultation (bilateral inspiratory rhonchi) With Certain underlying diseases like Rheumatoid arthritis and after organ transplantation (Hematopoietic stem cell transplantation) , inhalation of certain chemicals (NO)

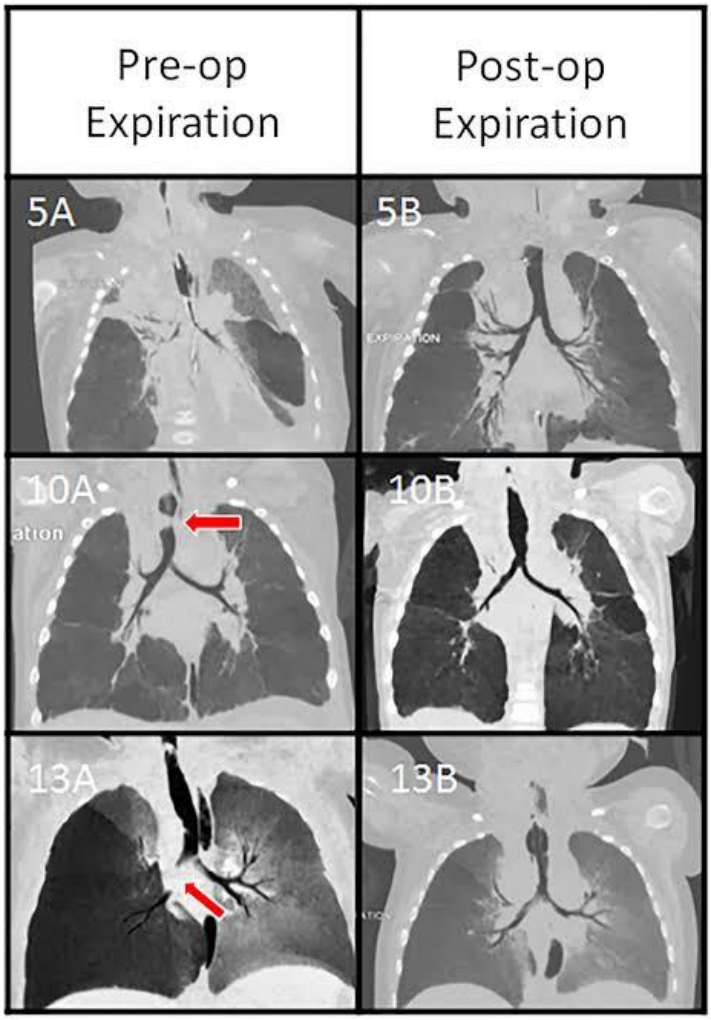
DX:

- exclude asthma & COPD
- High index of suspicion if features related to the aforementioned risk factors.



7) Tracheobronchomalacia:

- Collapse of trachea/bronchi during expiration due to defect in cartilage
- It could inherited (children) or acquired
- Acquired: tracheostomy, prolonged intubation, trauma, compression by Goiter and relapsing polychondritis etc. .



Clues:

- Dyspnea+ cough + wheezes
- Episodes of Stridor or Wheezes with chocking with such risk factors.

DX:

- Dynamic CT chest and Dynamic Bronchoscopy with forced expiration
- Spirometry
- Flow volume loop.

8) Localized airway obstruction

By Foreign body: (endobronchial)

Clues:

- History is the key of DX
- Localized audible RHONCHI

DX:

- Bronchoscopy is the gold standard of DX and management as well
- CXR/CT chest: may reveal lobar collapse.

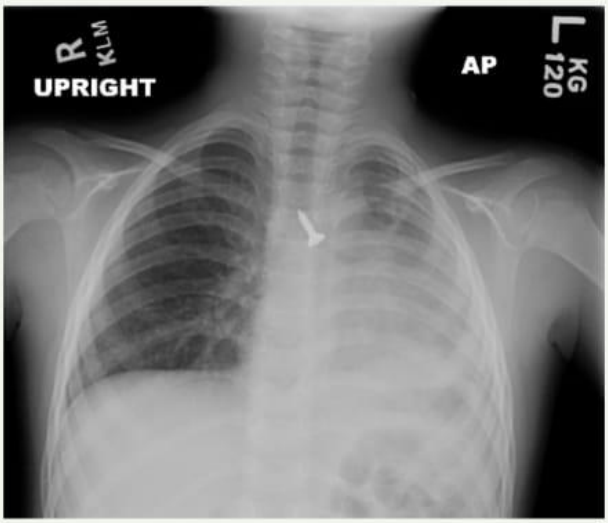


Figure 1: Upright AP Chest radiograph demonstrating a foreign body at the level of the carina

B) Parenchymal Lung Diseases:

- As a general rule, parenchymal lung diseases tend to cause alveolo-interstitial pathology, so the bronchi/bronchioles are often not affected, So RHONCHI are not common in such Group, but occasionally some interstitial lung diseases present with wheezy chest in addition to other symptoms
- **Diseases can present with wheezy chest like :**

1) Hypersensitivity pneumonitis (EAA)

- It has 3 types (acute, Subacute and chronic)
- It is an allergic reaction of the alveoli and airways to certain antigens like
    - Certain fungi: micropolyspora faeni ----> Farmer's lung
    - Protein in feathers and bird excreta ----> Birdfancier's lung
    - Thermophilic actinomyces -->Mushroom's workers' lung.

Clues:

- Dyspnea, cough, wheezes ± fever in relation to exposure to such allergens or antigens is the Key of DX,
- Inspiratory creps + wheezes are often heard on chest

DX:

- HRCT chest, restrictive pattern of Spirometry, Bronchoalveolar lavage

2) Loffler's Syndrome :

Clues:

Acute onset of Cough, dyspnea, wheezy chest, fever after parasitic infestations

3) Eosinophilic pneumonia

- Rare parenchymal lung disease which is characterized by infiltration of the lungs by eosinophils leading to picture similar to pneumonia or ARDS in severe cases

Clues:

Fever, cough, dyspnea, OCCASIONAL RHONCHI (least symptom)

+ Peripheral blood eosinophilia (very very important)

DX:

- hypoxia with low O2 sat [[[Peripheral blood eosinophilia]]]
- CXR& CT chest: photonegative picture of pulmonary edema.
- Bronchoalveolar lavage: gold standard

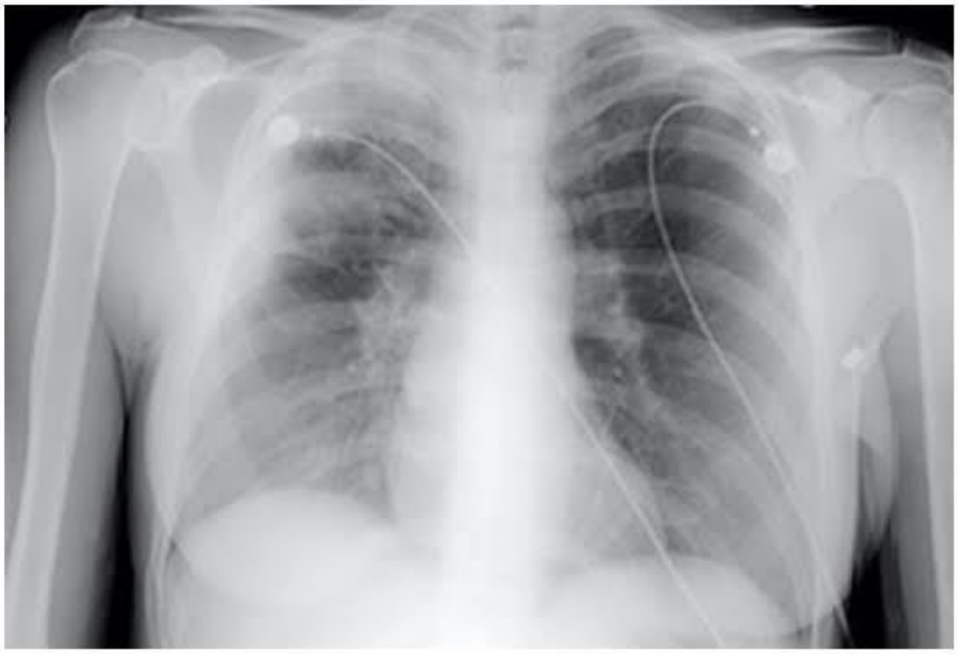


Figure 1 Chest X ray of a patient with CEP demonstrating peripheral opacities.
Abbreviation: CEP, chronic eosinophilic pneumonia.

- History + imaging + eosinophilia = DX

Even without Bronchoalveolar lavage (BAL)

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✪ EXTRA- PULMONARY DISEASES :

A. Cardiac Asthma :

- Occurs in some patients with Congestive heart failure , it is a type of volume overload with edema of the bronchial walls , it could progress to frank pulmonary edema .

Clues:

Signs of CHF , orthopnea , raised JVP

Cardiomegaly, S3 gallop, bilateral basal creps with expiratory RHONCHI

DX:

Clinical + ECHO + CXR

B. GERD :

- GERD can present with Extra- esophageal features like asthma (Wheezy chest)

Clues:

Wheezy chest in relation to features of GERD (Heart burn, regurgitation)

With exclusion of other causes

DX: diagnosis of exclusion

C. Multi-System Syndromes

1) **Vasculitic Syndromes**

- Pulmonary -renal ANCA positive vasculatures (EGPA, GPA, MPA)
- But the main disease of them is Eosinophilia Granulomatosis with polyangiitis (EGPA) which is previously known as "Churg Strauss Syndrome"

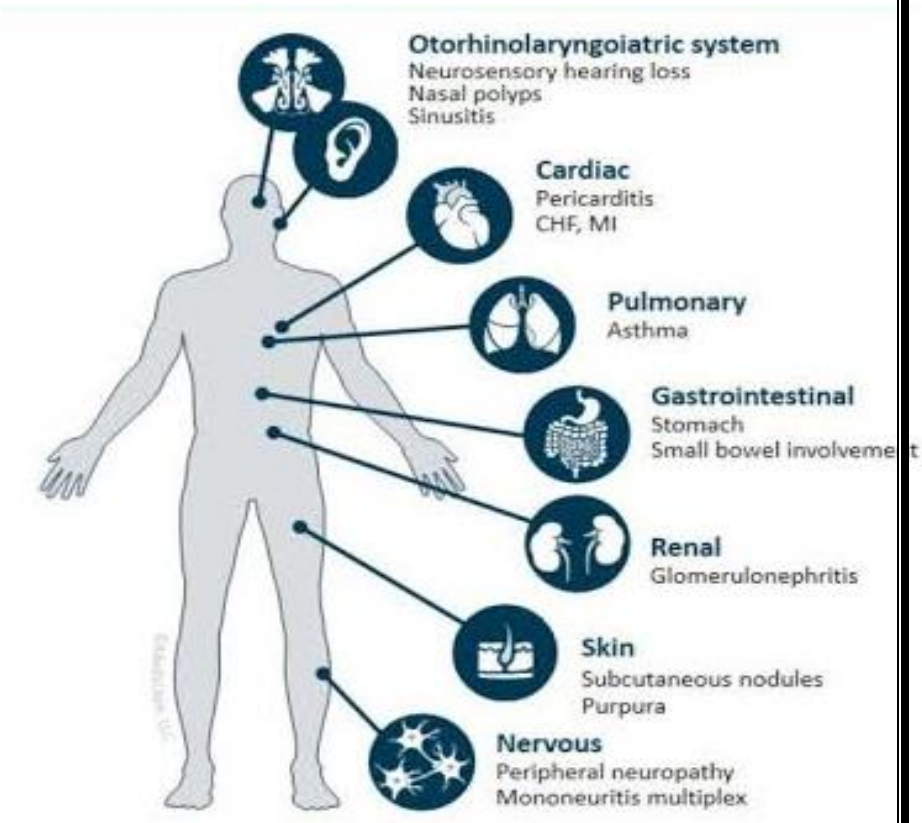
EGPA (Churg Strauss Syndrome)

Clues:

- Difficult to treat asthma (refractory)
- Rhinosinustis ± polyps
- Renal affection (GN)
- Mononeuritis multiplex
- Vasculitis rash
- ± cardiac affection
- ± cranial nerve affection

DX:

- American college of Rheumatology (ACR) criteria
- Supported by positive P-ANCA
- Peripheral blood eosinophilia
- Migratory lung infiltrates on imaging



2) **Carcinoid Syndrome :**

- It occurs due to release of serotonin in blood by a carcinoid tumour (GIT , or lung) , this occurs only when the tumour results in metastases to liver , as a result Serotonin is not metabolized by the liver ,

Clues:

Triad of Facial Flushing +Wheezy Chest + Secretory Diarrhoea

±

Facial telangiectasia

±

Evidence of tricuspid stenosis or pulmonary stenosis

DX:

- 24 hr. urine HIAA
- Serum Chromogranin A
- Whole body Octreatide scans (for localization