BRONCHIECTASIS

OSCE

Clinical Findings

- Cough
- Sputum – Look in sputum pot
- Finger clubbing
- Lung Crepitations –
  - Coarse - change character after cough
  - Inspiratory
  - Bilateral/unilateral
  - widespread/localized inspiratory
  - +/- wheeze

Your **Findings**

This patient is having inspiratory coarse crepitations bilateral lower chest and there is associated finger clubbing

What is your impression?

Most likely this patient is having bronchiectasis

What is your differential?

As there are bilateral lower lobe crepitations. My two main differential diagnosis would be *Interstitial lung disease* and *pulmonary oedema.*

How would you justify your findings to be due to bronchiectasis clinically?

- In *interstital lung disease*, the crepitations are usually end inspiratory and have a dry character likened to the opening of Velcro. Furthermore, these do not change character upon coughing.
- Crepitations of *pulmonary oedema* are fine and end inspiratory. If it is cardiogenic pulmonary oedema, S3 may also be audible in cardiac failure. There may also be other features like raised JVP and peripheral oedema (right heart failure features of congestive cardiac failure).

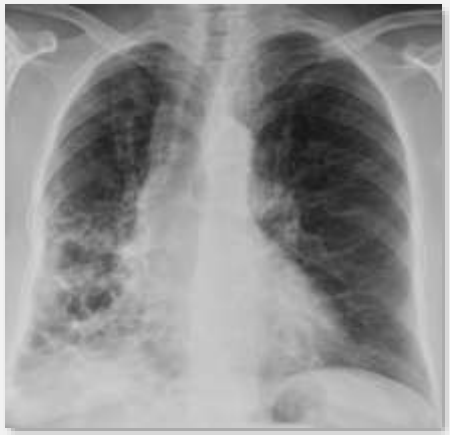
How would you approach for the diagnosis?

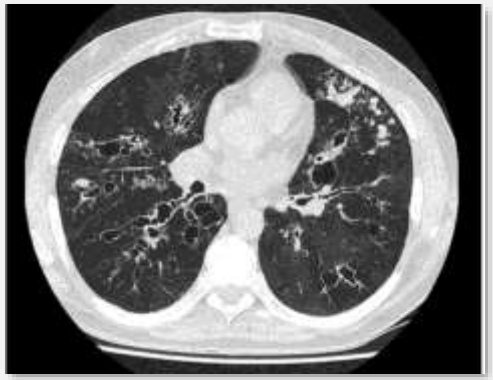
After taking detailed history and examination, I would like to do **chest x-ray**.

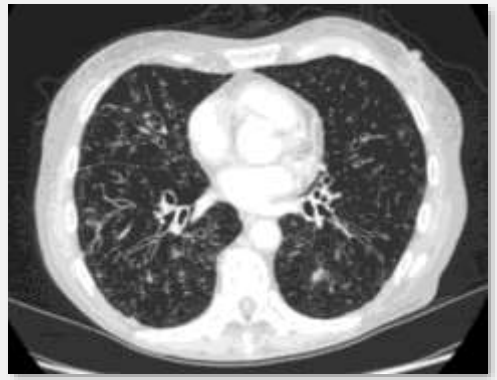
If it is unrevealing, I would proceed to do **HRCT scan chest** which is more sensitive. HRCT not only would *confirm* the diagnosis but also reveal *distribution* and *extent* of the disease.

What do you expect to find on radiographs in bronchiectasis?

There may be cystic shadows, thickened bronchi looking like tramline and ring shadows.







What other investigations would you like to do?

- **Sputum** gram staining, microscopy and culture during infections.
- Patient if having symptoms/signs of obstructive airway disease, **spirometry** is performed.
- **Bronchoscopy** is usually not necessary, but is done to locate site of hemoptysis, exclude or relieve any obstruction and taking samples for culture.
- History will guide for other investigation. To look for the cause of bronchiectasis like serum **immunoglobulins** for hypogammaglobulinemia; **serum precipitins**, **IgE levels**, **allergic skin testing** for ABPA; **sweat chloride** & **CFTR** test for cystic fibrosis; **tests for ciliary dysfunction** like saccharin pellet test, ciliary beat test and electron microscopy of biopsy.

What do expect on spirometry?

Obstructive pattern. i.e., reduced FEV1 to FVC ratio with no reversibility.

What are the complications of bronchiectasis?

- Massive Hemoptysis
- Repeated Infections/pneumonia
- Pulmonary hypertension
- Pneumothorax
- Cor-pulmonale
- Amyloidosis
- Spread of infections to other organs like cerebral abscess

What are the causes of bronchiectasis?

Congenital

- Cystic fibrosis
- Immotile cilia syndrome
- Kartegener's syndrome
- Young's syndrome
- Hypogammaglobulinemia

Acquired

- Infections during childhood like pertussis, measles, bronchiolitis, tuberculosis
- Autoimmune diseases like ulcerative colitis, RA
- Allergic bronchopulmonary aspergillosis (ABPA)
- Obstructing bronchial lesions like tumor, foreign body impaction or enlarged lymph-nodes causing obstruction of bronchus from outside
- Idiopathic

What are the causes of localized bronchiectasis?

Obstructing Lesions

- Bronchial tumor
- Inhaled foreign body
- Pressure on bronchial wall from outside eg, enlarged lymph-nodes

Chronic Aspiration

- Chronic alcoholics
- GERD

How will you treat this patient

- ***Physiotherapy*** *and timely* ***treatment of infections*** *is the cornerstone of management.*
- **Physiotherapy** with breathing exercises, postural drainage, use of mucolator agents, and use of flutter valve devices helps in expectoration of excessive sputum.
- **Antibiotics** shall be used early in management of infections and should be according to previous culture results.
- If there is obstruction, relieve it and **treatment of the cause**.
- **Bronchodilators** for obstructive airway symptoms.
- **Corticosteroids** and **Itraconazole** for the management of ABPA.
- **Surgery** in patients with limited disease not responding to medical treatment.

What organisms are commonly implicated during infection in bronchiectasis?

- H. influenzae
- Strep pneumoniae
- Staph aureus
- Pseudomonas aeruginosa

What is the distribution of bronchiectasis in ABPA?

The bronchial dilatation occurs in more proximal bronchi (**Central bronchiectasis**) as a result of type III immune complex reactions.

What is the indication of long term antibiotics and what are the choices?

- If 3 or more infective exacerbations in a year, long term antibiotics can be considered.
- Choices include thrice a week *Azithromycin* or nebulized *Colistin*.

What choices do you have to treat the Pseudomonas infection positive on culture?

- Patient is not severely ill - oral *Ciprofloxacin*
- Severe illness - IV antipseudomonal beta lactam antibiotics like *Piperacillin/Tazobactam* and *Ceftazidime*.

What sort of bronchiectasis occur in Interstitial Lung diseases?

The bronchiectasis found in interstitial lung diseases are due to traction from interstitial fibrosis on bronchial walls and so the name '**Traction bronchiectasis**'.

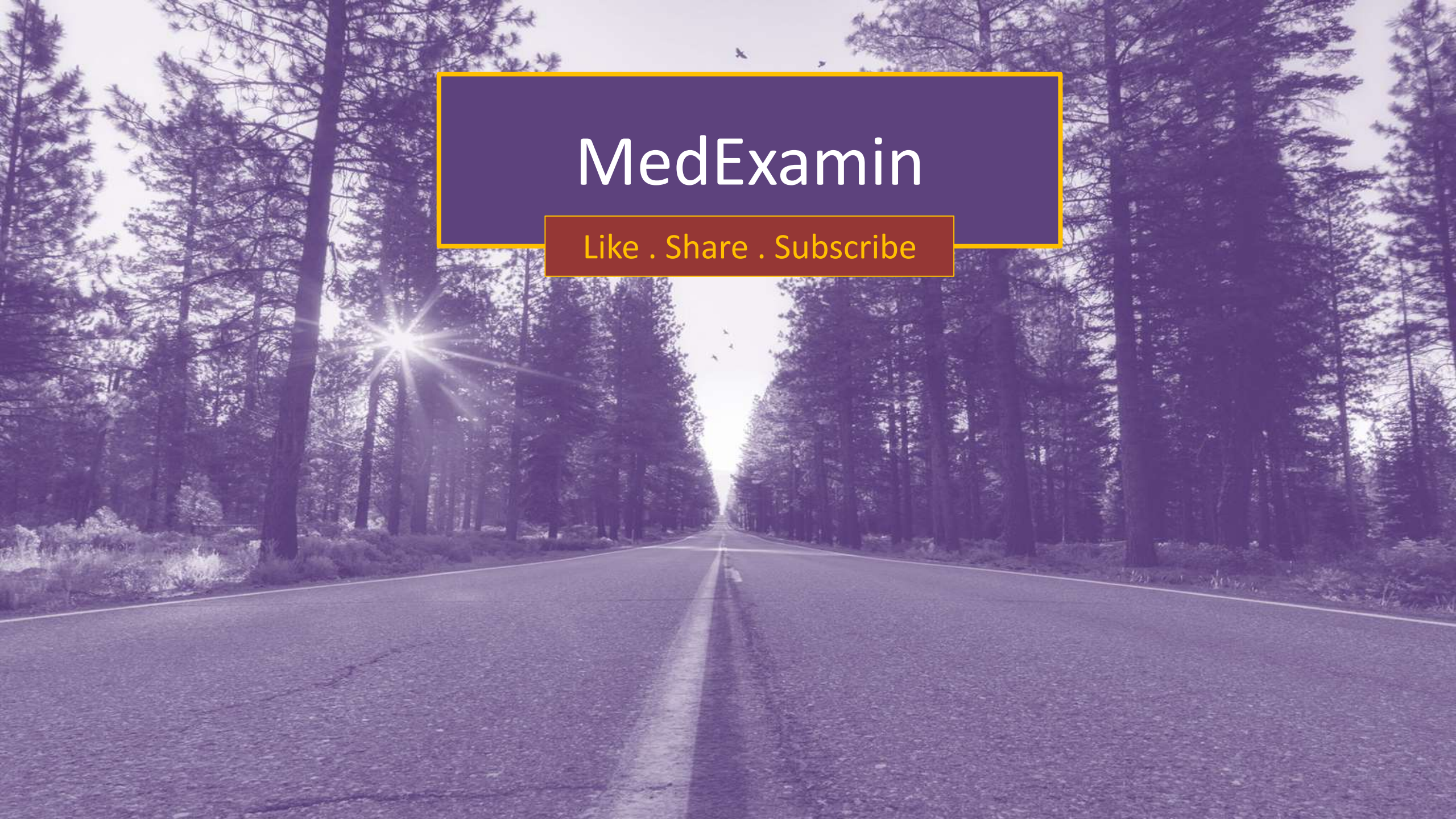
How would you treat hemoptysis?

Mild hemoptysis usually resolves with the treatment of infection in bronchiectasis.

Massive hemoptysis may need bronchial artery embolization or surgery.

How is the disease prognosis?

- Bronchiectasis due to congenital causes are usually progressive and respiratory failure occurs.
- In other cases, the prognosis is good with the treatment of underlying cause, good physiotherapy and time/aggressive use of antibiotics.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