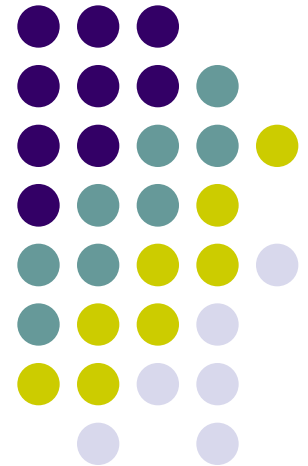


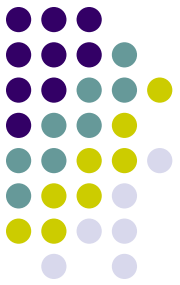
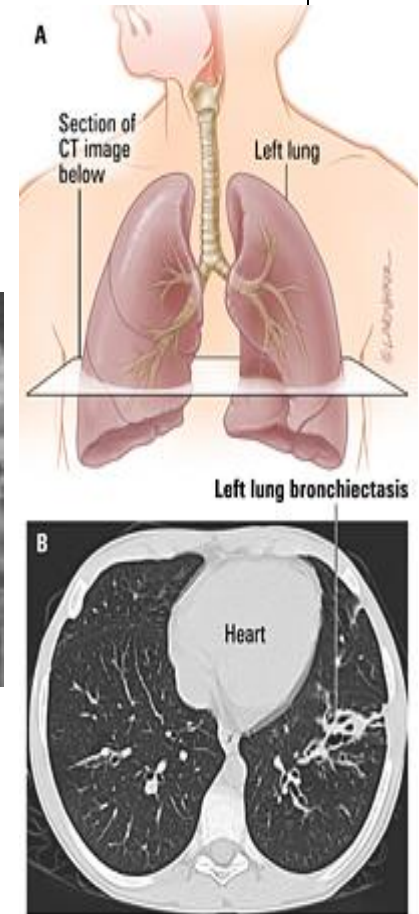
Bronchiectasis

Rahul Shrimanker
ST3 Respiratory Medicine



What is Bronchiectasis?

- Bronchiectasis is a condition in which an area of the bronchial tubes is permanently and abnormally widened (dilated), with accompanying infection.



What causes Bronchiectasis

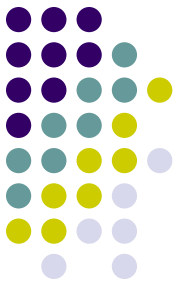


- Primary infections
- Bronchial obstruction
- Aspiration
- Cystic fibrosis
- Primary ciliary dyskinesia
- Allergic bronchopulmonary aspergillosis
- Immunodeficiency states
- Congenital anatomic defects
- Connective-tissue disorders
- Alpha1-antitrypsin (AAT) deficiency
- Autoimmune diseases
- Idiopathic inflammatory disorders
- Autosomal dominant polycystic kidney disease
- Traction from other processes
- Toxic gas exposure

Symptoms of Bronchiectasis



- Productive cough
- Haemoptysis
- Dyspnoea
- Pleuritic chest pain
- Lethargy, weight loss



Who to refer

- Suspected bronchiectasis
 - Signs/symptoms
 - Sputum colonised with pseudomonas
- Unexplained haemoptysis
- Known bronchiectasis with worsening symptoms/persistent infection
- COPD with recurrent infections/slow to recover

Investigations



- Lung function tests – spirometry, saturations
- Blood tests
 - FBC/U+Es/CRP/IgE/total immunoglobulins/IgE to aspergillus/aspergillus precipitans
- Sputum
 - Standard culture
 - Mycobacteria culture
- Baseline CXR
- High resolution CT (HRCT)
- All adults presenting with bronchiectasis at < 40 years should be tested for CF

Treatment for Bronchiectasis

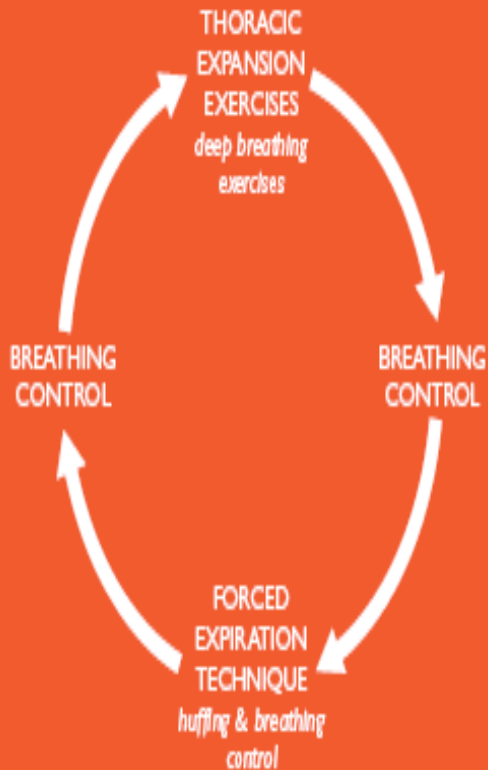


- **Physiotherapy**
 - **Airway clearance techniques**
 - **Postural drainage**
 - **Positive expiratory pressures (PEP)/Oscillating PEP**

PHYSIOTHERAPY



The 'active cycle' of breathing exercises



All breathing techniques should be taught by a physiotherapist.

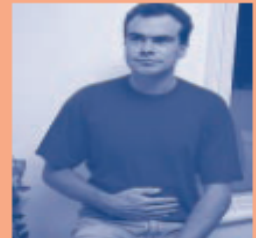
Breathing Control

Aims

- to encourage relaxation and ease breathlessness
- to reduce over inflation of the upper chest and encourage a more normal breathing pattern
- to allow "relaxation" of the airways so that secretions can be cleared more easily

Method

- Rest your hand lightly on your tummy
- Try to relax the muscles around the neck and upper chest
- Breathe quietly and gently (as you breathe in, your tummy should swell slightly and, as you breathe out, sink down again). You should feel more movement around the waist and less around the upper chest



Breathing control in sitting position

Thoracic expansion (deep breathing) exercises

Aims

- to loosen secretions
- to keep the chest mobile

Method

- Relax the upper chest
- Apply pressure with your hand to the lower part of the ribcage
- Breathe in slowly and deeply, filling up the lungs with air and expanding the lower chest as much as possible
- Release pressure with your hand and breathe out quietly



Thoracic expansion in sitting position

PHYSIOTHERAPY cont



Forced expiration technique (huffing & breathing control)

AIMS

- to move secretions from the smaller to the larger airways so that they can be cleared from the lungs more efficiently

METHOD

Stage 1: Huffing

Take a medium sized breath in

Squeeze the air out, contracting your tummy muscles and keeping your mouth and throat open. The huff should not be violent

The breath out should be prolonged but not continued until the lungs are completely empty. This may make you cough as secretions are moved. If secretions do not come up in one or two coughs, try to stop coughing or you will become tired

Stage 2

Do some breathing control

Stage 3

Stages 1 and 2 may be repeated until secretions can be felt high in the chest

Stage 4

When you feel secretions high in the chest, you should take in a deep breath and huff or cough to clear them



Huffing in sitting position

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Chest clapping

This technique can also help to loosen secretions. A cupped hand is used to clap the chest firmly (it's more comfortable through clothing or a towel). A friend or relative can do the chest clapping but many people do it themselves when they're old enough.



Cupped position of hands for chest clapping

Chest shaking

Some people find that this technique is especially helpful in moving secretions if used with breathing exercises, although the technique is effective when used on its own.

METHOD

- Place your hands on the chest
- On the 'out' phase of a deep breath, shake the chest firmly, squeezing out the air in short bursts and applying the pressure inwards

You may not be successful with this method at first but keep trying – it takes practice to do shaking comfortably and effectively.



Chest shaking on "out" phase of deep breath

Positions and techniques for breathlessness

When you feel breathless, there are certain positions which can help you feel more comfortable. If you adopt one of these positions, and do some gentle breathing control, this can help direct air to the lower part of the chest, reducing overwork for the upper chest.

There may be times when you feel breathless walking uphill, going up and down stairs or exercising. In these cases, you should concentrate on how you're breathing, because there's a tendency to over-use the upper chest and to tighten up the muscles around the neck and shoulders.

- Try to relax tense muscles around the upper chest, neck and shoulders.
- Concentrate on 'breathing control' with a good breathing pattern; try not to have too much upper chest movement.
- Rhythmical breathing with activities can bring some relief. One example would be to time your breathing with walking, such as breathing in for one step and breathing out for two – or in for one and out for one. Your physiotherapist will be able to help you find out what works best for you.



Two examples of positions which can help ease breathlessness



Relaxed sitting



High side lying supported with pillows

Timing breathing in and out with walking up stairs



Antibiotics/Microbiology

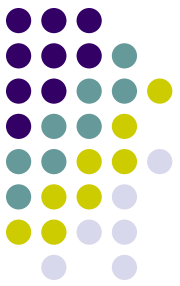


- H influenzae is the most frequently isolated pathogen, being found in up to 35% of patients
- Pseudomonas is found in between 5-35% of patients
- A significant but variable isolation rate of pathogens such as S pneumoniae, S aureus and M catarrhalis is also seen. Aspergillus species are found in a small number of patients.

Antibiotics/microbiology

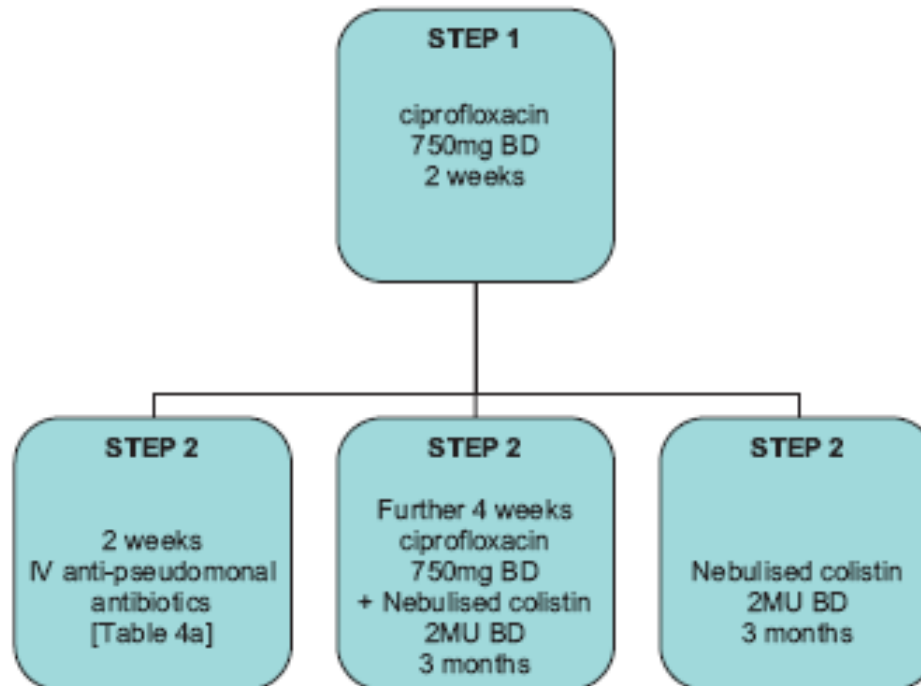


- Identifying exacerbations
 - Increase in cough/breathlessness/wheeze
 - Increase in sputum volume/viscosity
 - Increase in sputum purulence
- Antibiotics
 - Send sputum sample first
 - Based on previous microbiology
 - Empirical – amoxicillin 500mg TDS or clarithromycin 500mg BD for 2 weeks



Antibiotics

- Ciprofloxacin in pseudomonas infection
 - If first time isolate then attempt to eradicate



Antibiotics



- Sometimes dual antibiotic and/or long term antibiotic therapy is needed (months of treatment) depending on microbiology/symptoms
- Nebulised antibiotics
- Be aware of need to test for mycobacteria in some circumstances.



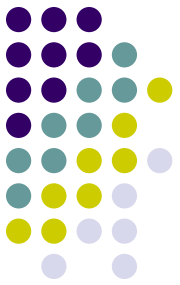
Other treatments

- Bronchodilators where there is evidence of airways obstruction/asthma
- Inhaled corticosteroids if there is evidence of asthma/COPD
- Mucolytics (Carbocisteine)
- Nebulised sterile water/normal saline/hypertonic saline

Surgery/Intervention



- Lung resection can be considered if localised disease
- Bronchial artery embolisation if massive/recurrent haemoptysis
- Lung transplantation
- Home oxygen



Thank you, questions?