Massive Haemoptysis

Definition: expectoration of blood exceeding 100 to 600 ml within 24 hours. (No consensus in definition). Consider ICU admission for close monitoring even if no respiratory failure

Causes of massive haemoptysis:

- Bronchiectasis
- Lung abscess
- Pulmonary tuberculosis
- Aspergilloma
- Bronchogenic carcinoma
- Alveolar haemorrhage due to Goodpasture's syndrome, systemic lupus erythematosus, Wegener's granulomatosis
- Chemotherapy and bone marrow transplantation related pulmonary haemorrhage
- Hereditary haemorrhagic telangiectasia
- Pulmonary arterio-venous fistula

Important points in history

- History of previous pulmonary diseases
- Exercise tolerance and lung function test results if available
- History of other medical illness – collagen vascular diseases, haematological diseases, renal failure
- History of previous haemoptysis and treatment
- Constitutional symptoms: fever, weight loss, anorexia and night sweating
- History of allergy to intravenous contrast

Investigations:

- Complete blood count and coagulation profile
- Renal function tests
- Cross match of blood
- Sputum for culture, AFB and cytology
- CT thorax (discuss with CT surgeon about the exact requirement : HRCT or conventional, contrast or non-contrast)

Management is difficult because of wide range potential aetiologies, unpredictable course of bleeding and lack of consensus in management.

General guideline in management: **A**irway, **B**reathing and **C**irculation

1) Oxygen
2) Put patient in decubitus position if one is sure of the site of bleeding
3) Assess for need of immediate intubation – poor gas exchange, large volume, ongoing haemoptysis, severe dyspnoea and haemodynamically instability.

   Decide for large bore single lumen tube or double lumen tube

   Advantages of single lumen
   - Insertion is easier than double lumen tube
   - Can start artifical ventilation immediately after successful intubation
   - Large lumen facilitates subsequent bronchoscopy and reduces the risk of blocked tube

   Advantages of double lumen tube
   - Separation of lungs prevents soiling of unaffected side

   Disadvantages of double lumen tube
   - Insertion is usually more difficult and takes longer time
   - Malposition might occur easily
   - Lumen can easily be blocked
   - Bronchoscopy difficult after insertion of double lumen tube

4) Urgent consultation of cardiothoracic surgeon for plan of management of haemoptysis
   - Urgent flexible bronchoscopy
   - Any need for urgent CT thorax ?
   - Any need for urgent surgery ?
   - Any need for urgent bronchial artery angiography and embolization (BAE)?

5) During office hours, interventional radiologists can be consulted directly. After office hours, the first-call radiologist can be consulted for discussion of urgent BAE

6) Adequate hydration and consider the use of N-acetylcysteine (600 mg Q12H) before radiological investigation to prevent contrast nephropathy

Note: Important potential complications of BAE: ischemic myleopathy by inadvertent embolization of anterior spinal artery and aortic subintimal dissection