

haemoptysis

general

- massive haemoptysis is >600ml in 24 hours
- massive haemoptysis is usually from a bronchial artery (hence blood is lost under systemic pressure)

tracheobronchial disorders

- tracheobronchitis
- gastric aspiration
- bronchial adenoma or bronchogenic carcinoma
- bronchial endometriosis
- bronchial telangiectasia
- bronchiectasis
- foreign body aspiration
- tracheo-oesophageal fistula
- tracheobronchial trauma

diffuse parenchymal diseases

- Goodpasture's
- Legionella
- SLE
- Wegener's
- viral pneumonitis
- scleroderma
- vasculitides

localised parenchymal diseases

- bacterial pneumonia
- tuberculosis
- amebiasis
- ascariasis
- aspergilloma
- coccidioidomycosis
- histoplasmosis X
- metastatic cancer
- nocardiosis
- lung abscess

cardiovascular disorders

- mitral stenosis
- pulmonary embolism
- CCF
- fat embolism

haematological disorders

- anticoagulants
- DIC
- leukaemia
- thrombocytopenia

iatrogenic

- intubation
- suction catheters
- tracheoarterial fistula
- PA rupture

causes

investigations

- basic investigations include:
- (i) Full blood count and coagulation studies
 - (ii) Chest X-ray
 - (iii) ECG
- further investigation includes:
- (i) visualisation of the airways with flexible bronchoscopy (rigid bronchoscopy may be required if bleeding is massive)
 - (ii) CT chest
 - (iii) echocardiography

management

resuscitation

- goals are:
 - (i) to maintain airway patency (of paramount importance because asphyxia is the commonest mechanism of death in these patients)
 - (ii) to protect the healthy lung
 - (iii) fluid resuscitation
- if haemorrhage is occurring from a focal site and the site is known the patient should be positioned with the bleeding site dependent to prevent contamination of the non-involved airways
- if haemorrhage is diffuse, the patient should be placed in the Trendelenburg position
- bronchoscopy-guided intubation of the non bleeding mainstem bronchus or placement of a double lumen ET tube should be considered

acid base & electrolytes abnormalities

- goals are:
 - (i) stop haemorrhage
 - (ii) prevent repeat haemorrhage

specific therapy

- if a cause is known, specific therapy (such as antibiotics for bronchiectasis or steroids for pulmonary vasculitis) should be instituted to stop ongoing haemorrhage
- coagulopathies should be corrected
- life-threatening focal haemorrhage may require an aggressive strategy:
 - (i) bronchial artery embolisation
 - (ii) bronchoscopic laser photocoagulation
 - (iii) iced normal saline lavage of involved lung segments
 - (iv) topical adrenaline administration
 - (v) iv vasopressin
 - (vi) surgery

evaluation of underlying causes