

## Haemoptysis

### Sites:

- Spurious from nasopharynx/GIT
- Bronchial tract - common
- Pulmonary circulation - uncommon.
  - Bronchial arteries, alveolar vessels
  - Bronchial artery src worse as under systemic pressure.

*Features:* Bright red, alkaline, frothy, no melaena.

*Massive haemoptysis:* Variable vol (generally >600ml/day) - life-threatening from airway obstruction or blood loss.

### Causes:

- Infection - TB, bronchitis, lung abscess
- Neoplastic - Ca lung, 2° Ca, R main stem erosion from oesophageal Ca
- Cardiovascular - PE, APO, mitral stenosis, AVM, Thoracic aortic aneurysm, pulm HT
- Immunologic - Goodpasture's, collagen vascular diseases, Wegener's granulomatosis
- Congenital - CF
- Other - Trauma, coagulopathy, FB, idiopathic pulm. haemosiderosis, unknown (10%)

*Investigations:* CXR, fiberoptic bronchoscopy & angiography

### Management:

- General
  - If single lung bleeding:
  - Position bleeding lung down to aspiration (however may ↑bleeding as dependent)
  - Resuscitate -
    - A - Consider unilateral intubation
    - B - O<sub>2</sub>
    - C - Blood transfusion, avoid hypertension (↗permissive hypotension)
- Specific
  - Reverse anticoagulation (FFP, cryoprecipitate etc)
  - Bronchoscopic
    - Injection of adrenaline
    - Balloon tamponade
  - Bronchial artery embolisation
  - Surgery

*Prognosis:* Worse if Ca. 10% if <1L/24hrs. 60% mort.if >1L/24hr (rising to 75% if >150ml/hr).

## Bronchiectasis

Permanent dilatation of bronchi 2° to cycle of infection/inflammation. May be local or focal obstructive process. Produces chronic cough & sputum production ± SOB/wheeze. DDX: COPD.

*Assocs:* Bronchopneumonia recurrent localised pneumonia, TB, Ca, CF, Kartagener's.

### Management:

- Treat underlying conditions
- Reduce microbial load - Early ABx
- Reduce excessive inflammatory response
- Promote bronchial hygiene - postural drainage, physio,
- Surgery to remove affected segments/lobe

# Miscellaneous Respiratory Topics

## Pulmonary Nodules

### Isolated ("Coin" lesions)

- <3cm, focal opacity on CXR
- 30-40% malignant
- CT more sensitive for evaluating calcification
- Differential diagnosis:
  - Malignant - 1° Ca (lung, lymphoma, carcinoid) [not calcified, poorly defined, satellite lesions or linear lymphatic shadows connected to the hilum, umbilicated or cavitate if peripheral], solitary secondary [rarely calcify & are round & well defined]
  - Benign - hamartoma [rare, sharp, calcified, "popcorn"], adenoma, chondroma
  - Infectious - granuloma (TB [cavitation, calcification, apical], fungal - aspergilloma), round pneumonia [paeds], abscess, Nocardia, hydatids [lower lobes, water-lily sign]
  - Non-infective - RA [peripheral, ±cavitation], Wegener's granulomatous
  - Vascular - AVM, infarct, haematoma
  - Congenital - bronchial atresia, sequestration
  - Other - artefact, FB, pseudotumour (fissure fluid)

### Multiple

- 0.5-3cm in diameter
- Differential diagnosis:
  - Primary tumour
  - Secondary metastases - "cannonballs" - may vary in size
  - Sarcoidosis
  - Granulomatous infectious - TB, fungal
  - RA, vasculitis
  - Vascular - AVM, infarct
  - Silicosis
  - Septic emboli

### Miliary

- <5mm in diameter
- Differential diagnosis:
  - TB/fungal
  - Eosinophilic granuloma
  - Metastases (thyroid, melanoma, choriocarcinoma, renal cell, breast)
  - Previous chickenpox, pneumoconiosis, parasites
  - Sarcoidosis
  - Tuberoses sclerosis

## Lung Cavitation

- Bronchogenic carcinoma
- Necrotic pneumonia / abscess - Bacterial (S.aureus, Klebsiella sp), mycobacterial (TB most commonly), fungal (PCP, Histoplasmosis)
- Aspergillus
- Helminths - alveolar hydatid disease, Echinococcus, Paragonimiasis
- Emphysema
- Pulmonary embolism
- Also Neurofibromatosis type 1, Autoimmune (Rheumatoid disease, Takayasu's arteritis)