Symptoms, Signs and Pathophysiology in Respiratory Disease

Department of Respiratory Medicine, Prince of Wales Hospital, Randwick 2031.
Sites of Respiratory Disease

Nose
Naso-pharynx
Larynx
Trachea
Bronchi/smaller airways
Alveoli
Pleura
Chest wall/muscles
Diaphragm
CNS-Control of breathing
Symptoms

Shortness of breath, breathlessness
  aggravating/relieving factors, time of day
Pain-related to site of inflammation or injury
  relieving factors: e.g. rest, shallow breathing
  aggravating factors: e.g. exercise, deep breaths, coughing
Cough
  Frequency, time of day...productive?
Sputum
  Amount, colour, consistency, smell, blood
Never forget
family history, social history, occupational history, smoking
Signs

**Anterior and Posterior**

**Inspection**
- The whole patient and his/her surroundings
- Hands- clubbing of nails
  - peripheral cyanosis
  - palmar erythema, bounding pulse, flap
- Lymph nodes
- Central cyanosis
- Expansion, respiratory rate

**Palpation**
- Trachea
- Expansion-upper & lower
- Tactile vocal fremitus
Signs (cont)

**Percussion**
- Normally resonant except: liver, cardiac

**Auscultation**
- Breath Sounds; quality, additional sounds
- Vocal Resonance
  - (Whispering pectoriloquy)

At 45 degrees inspect for:
- JVP
- RV impulse
- heart sounds
- peripheral oedema
Functions of the Respiratory System

Oxygenation of the blood
Removal of carbon dioxide
(Hydrogen ion balance)
Other functions?
Diseases affecting the Respiratory System

Nasal diseases: rhinitis
  polyps
  sinusitis
Oropharynx/tongue
Larynx laryngitis
  carcinoma
Trachea tracheitis
Pleura pleurisy
  mesothelioma
  pleural effusions
Chest wall deformity, neurological deficit
CNS
Major Respiratory Diseases

1. Airways

Increase in size (bronchiectasis)
Decrese in size:
    - asthma
    - chronic bronchitis
    - local obstruction: carcinoma, mucus

Disappear: bronchiolitis, small airways disease
Major Respiratory Diseases

2. Airspace Diseases

Increase
  Emphysema

Decrease
  Fibrosis: rheumatoid disease, cryptogenic fibrosing alveolitis, systemic sclerosis

Disappear
  Consolidation/Atelectasis
  transient e.g. pneumonia, infarction
  permanent-obstruction, large infarcts
Major Respiratory Diseases

3. Pulmonary Vascular Disease
   - Increased pulmonary arterial pressure
     - lung disease, hypoxia, ‘primary’
   - Decreased pulmonary venous drainage
     - left ventricular failure
   - Destruction of vessels/lumen
     - vasculitis/pulmonary emboli
Major Respiratory Diseases

Ventilatory Diseases

Pleural disease

Pleural effusions, pleural thickening, pneumothorax

Chest wall disease-mechanical defects, skeletal deformities, muscle diseases

Diaphragm weakness
Major Respiratory Diseases

Control of Ventilation

CNS  Efferent

Medulla
Cervical spine
Neuropathies/poliomyelitis

Afferent

Hypoxic: carotid, aortic bodies
Hypercapnic: medulla