LUNGS (NORMAL STRUCTURE)

- Adult right lung weight: 375 to 550gm (450 gm)
- Lobes: 3 (upper, middle, lower)
- Adult left lung weight: 325 to 450 gm (400 gm)
- Lobes: 2 (upper, lower), middle-Lingula
- Tracheal bifurcation to small bronchi: 8 divisions
- Small bronchi to terminal bronchiole: 3-4 divisions
- Distal to terminal bronchiole: Acinus
Histology Lung

• Bronchi up to bronchiole: Lined by pseudostratified ciliated columnar epithelium, mucus cells, neuroendocrine cells

• Bronchioles: Single layer of PSCE, no mucus cells, have non ciliated clara cells
Atelectasis and collapse

- **Atelectasis**: Incomplete expansion of lung/part (Still born/new born – premature)
  
  Causes: Cerebral birth injury, CNS malformation, Intrauterine hypoxia

- **Collapse**: Reduction in lung size (Previously expanded) children and adult i.e.
  
  Compression-pleural effusion, pneumothorax, hemothorax, tumors)
  
  Obstruction-mucus plug in asthma, foreign body, bronchial tumors, ch bronchitis, bronchiectasis
  
  Contraction-localised fibrosis
Bronchiolitis, bronchiolitis obliterans

- Inflammatory conditions of small airways: Pediatric and elderly persons

- Aetiology: Viral infection (Adeno virus & RSY), bacterial, fungal, toxic gases, aspiration of gastric contents

- M/E: Bronchioles lumen narrowed by fibrous plugs, bronchiolar wall show lymphocytes, plasma cells. Interstitial pneumonitis & fibrosis
Pulmonary Hypertension

- Normal blood pressure in pulmonary vein: 3-8 mmHg
- PH: systolic blood pressure > 30 mmHg
- 1. Primary
- 2. Secondary
• **Primary PH:** Young females 20-40 yrs/ children < 5 yrs

**Aetiopathogenesis:**
* Neurohumoral
* Thromboemboli/amniotic fluid emboli in pregnancy
* Collagen vascular disease
* Pulmonary veno-occlusive disease
* Ingestion of bush tea, oral contraceptive, appetite depressants
* Familial
• **Secondary PH**: due to lesion in heart/lungs. More common, can occur at any age

Aetiopathogenesis:

*Passive pulmonary HT: Mitral stenosis, Ch LVF*

*Hyperkinetic PH: PDA, ASD/VSD*

*Vaso-occlusive PH: 3 sub types*

  Obstructive: Multiple emboli/thrombi, sickle cell disease, schistosomiasis

  Obliterative: Ch emphysema, Ch bronchitis, bronchiectasis, PTb, Pneumoconiosis

  Vasoconstrictive: High altitude, P obesity, Polio, Kyphoscoliosis
• **Morphologic changes**: Similar in primary & secondary PH

• Arterioles & Small pulmonary arteries: Medial hypertrophy, Thickening & reduplication of elastic lamina, intracapillary tuft of capillary formation

• Medium sized pulmonary arteries: Medial hypertrophy, concentric intimal thickening, adventitial fibrosis, Thickning & reduplication of elastic lamina

• Large pulmonary arteries: Atheromatous deposits