PATHOLOGY

LUNG ABSCESS

- It is a localized areas of necrosis of lung tissue with suppuration.
- Morphologic features – Abscess due to aspiration are more likely to be in the right lung due to more vertical main bronchus and are frequently single. They are commonly located in the lower part of right upper lobe or apex of right lower lobe.
- Abscess developing from preceding pneumonia and septic or pyaemic abscesses are often multiple and scattered throughout the lung.

- **Grossly** –Abscess may be variable size from a few millimeters to large cavities.5-6 cm in diameter. The cavity contains exudate.
- **Histologically** – Destruction of lung parenchyma with supprative exudate in the lung cavity. The cavity is initially surrounded by acute inflammation in the wall but later there is replacement by chronic inflammatory cell infiltrate composed of lymphocytes , plasma cells and macrophages.

PNEUMONIAS

- **Morphologic Features** – Laennec's original description divides lobar pneumonia into 4 sequential pathologic phases –
- 1. **Stage of congestion** – (Initial phase) – It is the early acute inflammatory response to bacterial infection that lasts for 1-2 days. Grossly the affected lobe is enlarged, heavy dark, red and congested.

- **Histologically** – typical features of acute inflammatory response to the organisms are seen. These are under –
- 1. Dilation and congestion of the capillaries in the alveolar walls
- 2. Pale eosinophillic edema fluid in the air spaces
- 3. A few red cells and neutrophils in the intra-alveolar fluid.
- 4. Numerous bacteria in the alveolar fluid by gram staining.

- 2. **RED HEPATISATION** – Early consolidation -
- This phase lasts for 2-4 days. The term hepatisation in pneumonia refers to liver-like consistency of the affected lobe on cut sections.

- **Grossly** – the affected lobe is red, firm and consolidated. The cut surface of the involved lobe is airless, red-pink, dry, granular and has liver like consistency. The sate of re hepatisation is accompanied by serofibrinous pleurisy.

- **Histologically –**
- 1. The edema fluid of the preceding stage is replaced by strands of fibrin.
- 2. There is marked cellular exudates of neutrophils and extravasations of red cells.
- 3 Many neutrophils show ingested bacteria.
- 4. The alveolar septa are less prominent than in the first stage due to cellular exudation.

- 3. **Grey hepastisation(Late consolidation)**
- **Lasts for 4-8 days.**

- Grossly – the affected lobe is firm and heavy. The cut surface is dry, granular and grey in appearance with liver-like consistency. The change in color from red to grey begins at the hilum and spreads towards the periphery. Fibrinous pleurisy is prominent.

- Histologically –
- 1. Fibrin strands are dense and more numerous
- 2. The cellular exudate of neutrophils is reduced due to disintegration of many inflammatory cells. The red cells are fewer. The macrophages begin to appear in the exudates.

- 3. The cellular exudate is often separated from the septal walls by a thin clear space.

- 4. The organisms are less numerous and appear as degenerated forms.

- 4. **Resolution** – this stage begins by 8 – 9 days if no chemotherapy is administered and is completed in 1-3 weeks.

- **Grossly** – the previously solid fibrinous constituent is liquefied by enzymatic action, eventually restoring the normal aeration in affected lobe.

- Histologically – 1. Macrophages are predominant cell in the alveolar spaces, Neutrophils are reduced.
- 2. Granular and fragmented strands of fibrin in the alveolar spaces are seen due to progressive enzymatic digestion.
- 3. alveolar capillaries are engorged.

- 4. There is progressive removal of fluid content as well as cellular exudates from the air spaces, partly by expectoration but mainly by lymphatics.