Inflammation

- **Inflammation**

Is defined as the local response of living tissues to injury due to any agent.

Body defense reaction eliminate or limit the spread of injurious agent.

Causes of inflammation

- ✓ Infective agents like bacteria, viruses, funqi and parasites.
- ✓ Immunological agents like antigen antibody reaction.
- ✓ Physical agents like heat, cold, radiation and mechanical trauma.
- ✓ Chemical agents like organic and inorganic poisons.
- ✓ Inter materials such as foreign bodies.

- **Signs of inflammation**

- ✓ Redness
- ✓ Swelling
- ✓ Heat
- ✓ Pain
- ✓ Loss of function

- **Types of inflammation**

Mainly 2 types of inflammation:

Acute inflammation

- Short duration.
- Represent the early body reaction- followed by healing.

Chronic inflammation

- Longer duration.

ACUTE

Rapid onset

Short duration

Fluid accumulation, plasma protein exudation

Neutrophils

CHRONIC

Onset- insidious

Longer duration

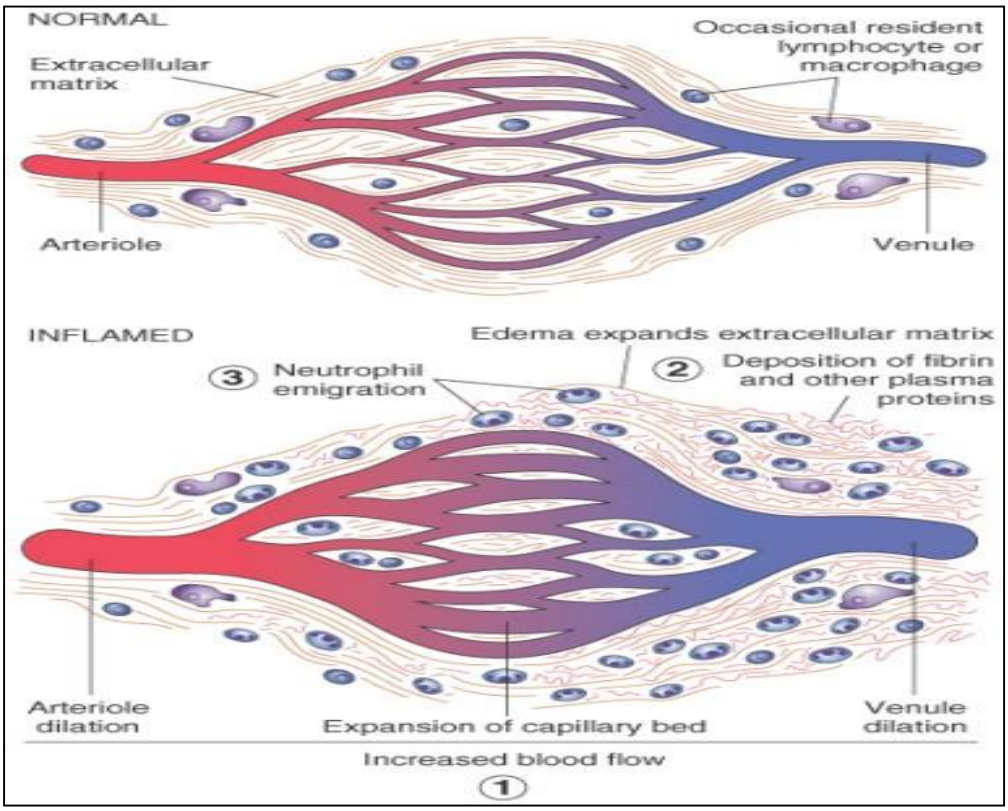
Lymphocytes, macrophages, plasma cells as inflammatory cells

- **Acute inflammation**

The main feature of acute inflammation is:

1- Accumulation of fluid and plasma at the affected site.

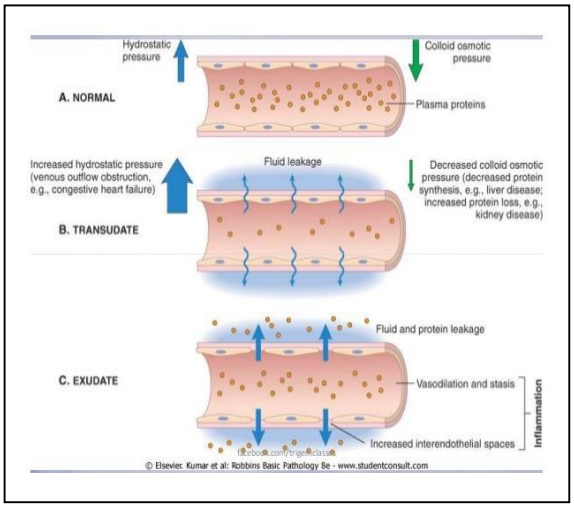
2- Polymorphnuclear neutrophils as inflammatory cells.

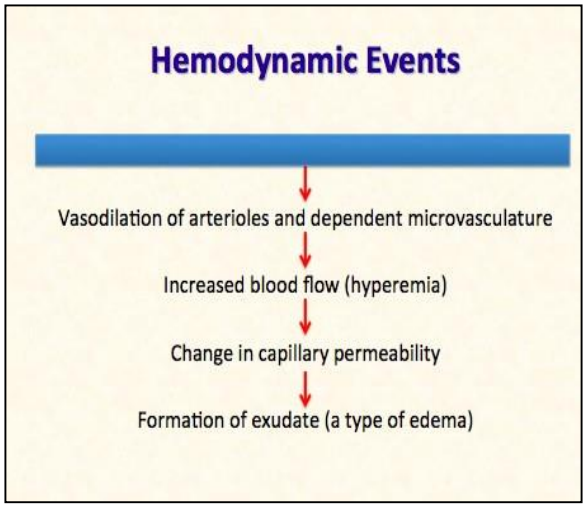


Acute inflammation divided into following two changes:

1- Vascular changes.

- Hemodynamic changes.
- Change in the vascular permeability.

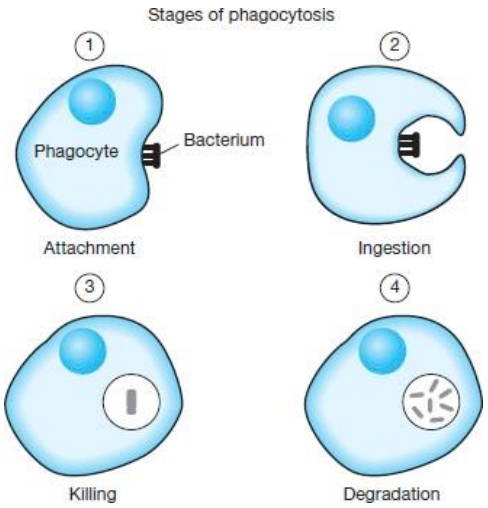


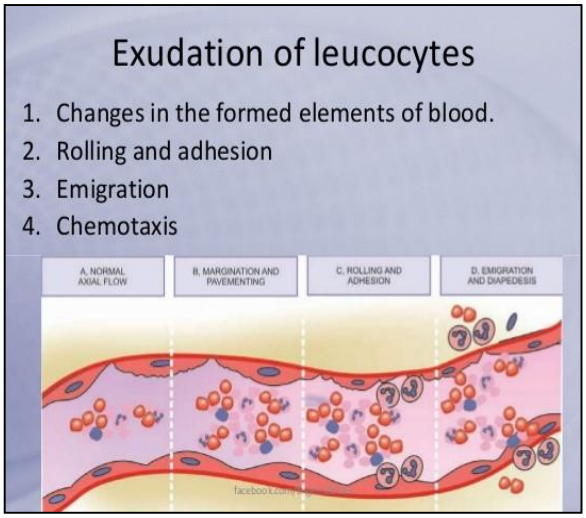


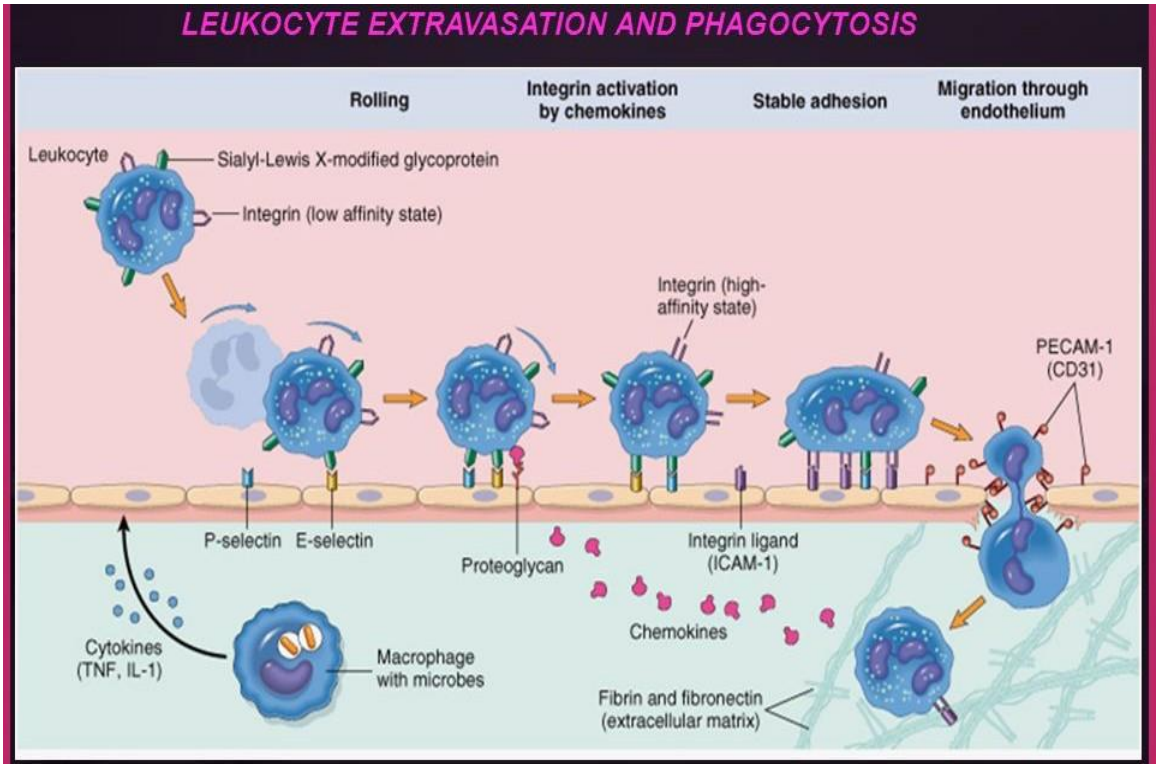
2- Cellular changes.

Cellular phase of inflammation consists of 2 processes

- Exudation of leucocytes.
- Phagocytosis.







First slide

Diagnosis: Acute inflammation

Organ: Lung

Stain: H&E

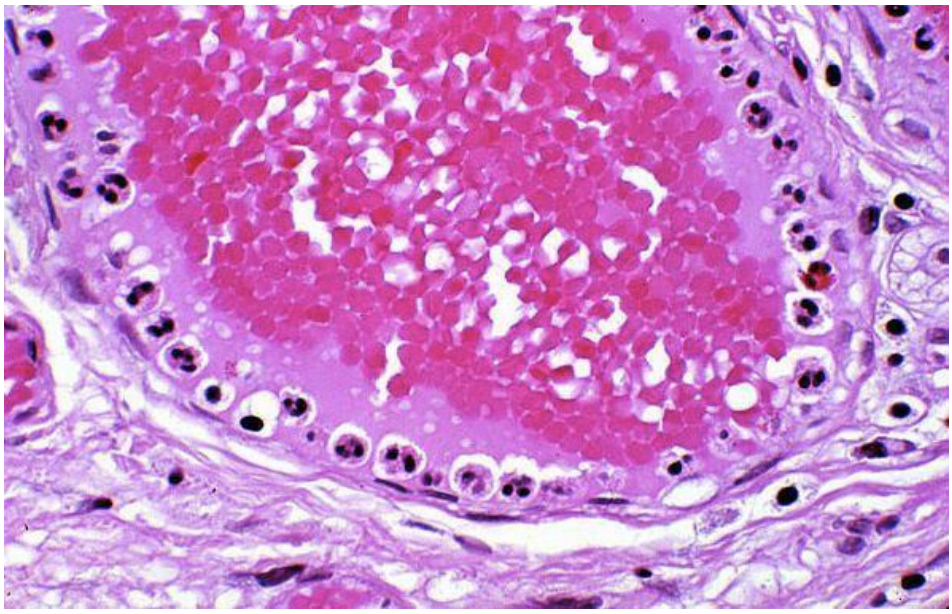
Lesion:

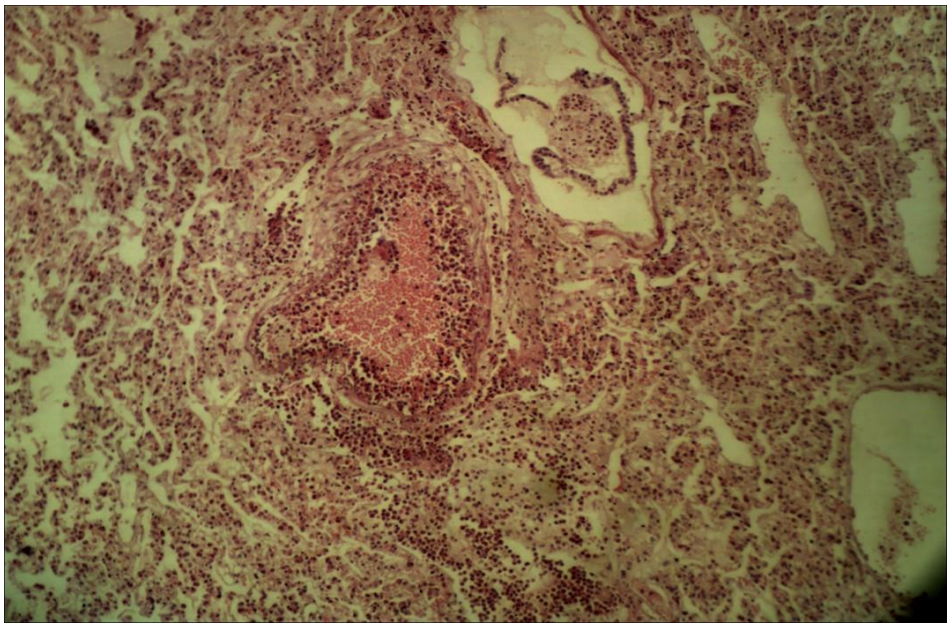
1- Severe congestion and hyperemia.

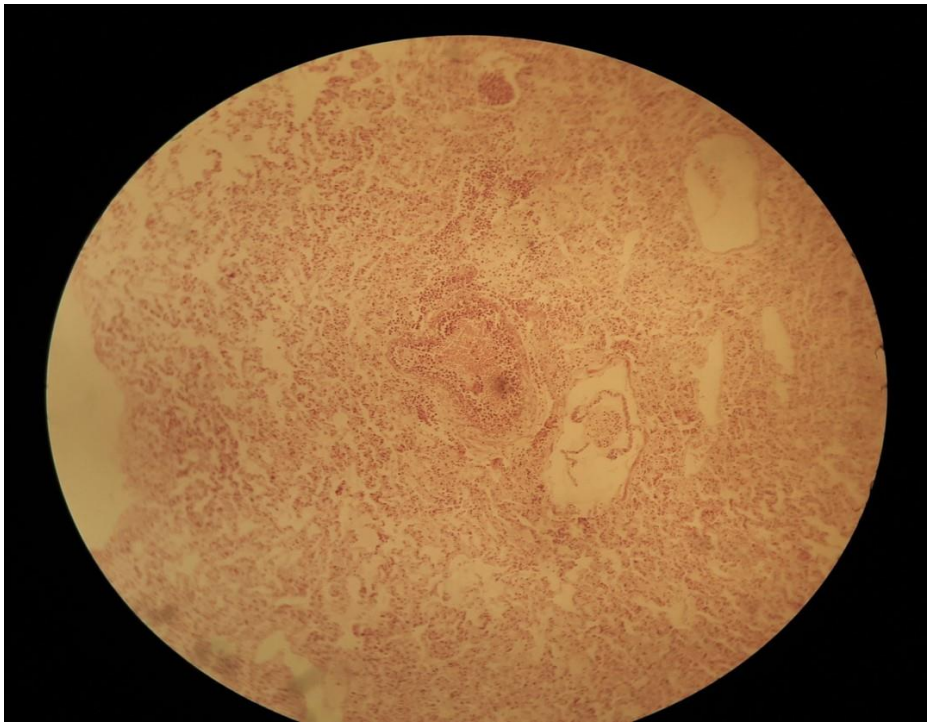
2- Inflammatory exudates in pulmonary alveoli.

3- Infiltration of polymorph nuclear inflammatory cells represented by neutrophils.

4- Pavementation of WBC.







Second slide

Diagnosis: Fibrinous inflammation

Organ: Appendix

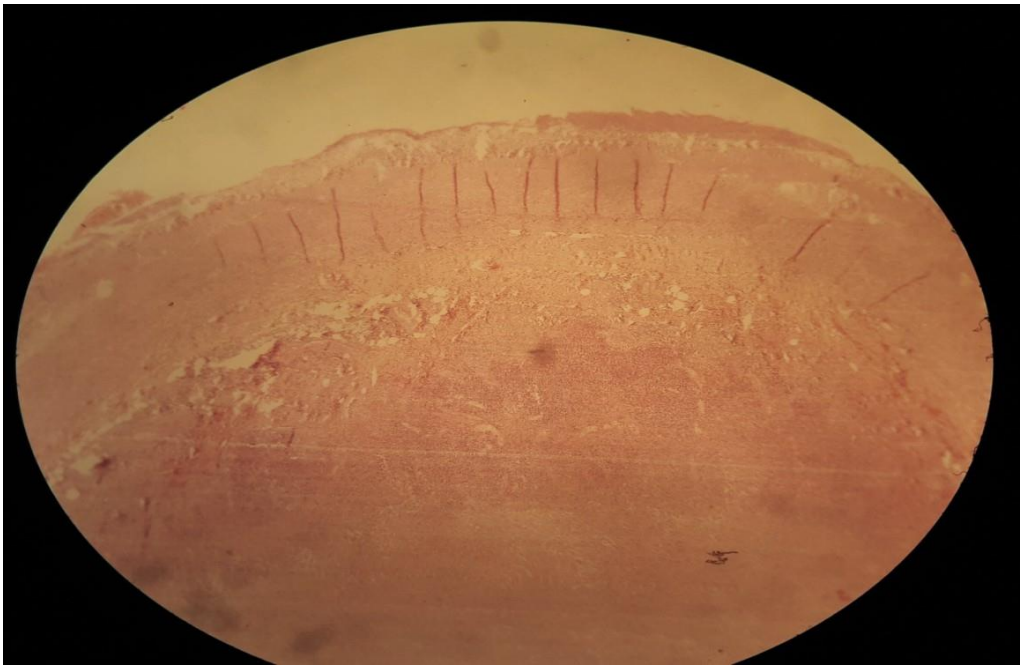
Stain: H&E

Lesion:

1- Cellular and vascular change in the tissue.

2- Non homogenous pink exudates because presence of fibrin and fibrin threads which are structure less.

3- Infiltration of polymorph nuclear inflammatory cells.



- **Chronic inflammation**
- Inflammation of prolonged duration (weeks to months to years).
- It involves mainly following events.

✓ Angiogenesis.

✓ Mononuclear cell infiltration- macrophages, lymphocytes, and plasma cells.

✓ Fibrosis- scar.

- **Causes of chronic inflammation**

1- Following acute inflammation. Persistence of the injurious agent (abscess).

2- Recurrent attacks of acute inflammation. Repeated bouts of acute inflammation (chronic pyelonephritis).

3- Chronic inflammation starting *de novo*. Low pathogenicity is chronic from the beginning (TB).

- **Chronic inflammatory cells**

✓ Macrophage
✓ Lymphocytes
✓ Plasma cells
✓ Eosinophils
✓ Mast cells

Third slide

Diagnosis: Chronic suppurative inflammation (Abscess).

Organ: Liver.

Stain: H&E.

Lesion:

1. Necrotic foci in the tissue represent liquefactive necrosis containing the suppurative exudate with bacteria & calcium salt deposition.
2. Infiltration of inflammatory cells represented by live & dead neutrophils with mononuclear inflammatory cells such as macrophages & lymphocytes.
3. Presence of capsule consist of fibrous tissue surrounding these foci forming large structureless cyst