Inflammatory cells

- Polymorphonuclear neutrophils
  - phagocytosis of microorganisms
  - engulfment of Ag-Ab complexes
  - harmful effect- basement membrane destruction
- Eosinophils
  - allergic, parasitic, skin diseases
- Basophils
  - release of histamine
  - immediate & delayed hypersensitivity reactions

Inflammatory cells

- Lymphocytes
  - antibody formation(B cells)
  - cell mediated immunity(T cells)
  - chronic inflammation
- Plasma cells
  - prolonged infections- syphilis, TB
  - multiple myeloma

Mononuclear phagocyte system

- Blood monocytes
- Tissue macrophages
  - macrophages in inflammation
  - kupffer cells
  - alveolar macrophages
  - macrophages of bone marrow
  - tingible body macrophages
  - osteoclasts
  - microglial cells
  - langerhans' cells
  - mesangial cells

Scavanger cells, participate in immune system

Giant cells

- Foreign body giant cells
- Langhans’ giant cells
- Touton giant cells
- Aschoff giant cells
- Tumor giant cells
- Reed-Sternberg cells

Morphology of acute inflammation

- Serous

  - outpouring of thin fluid derived from plasma or mesothelial cells (effusion).

  e.g skin blister
- Fibrinous

  - in severe injuries, fibrinogen passes the vascular leaks & fibrin deposited mainly in extracellular space.

  - removed by fibrinolysis (resolution) or organization

- Suppurative/purulent

  - production of pus (neutrophils, necrotic cells, edema fluid) by pyogenic bacteria like staph

  - Abscess- localized collection of purulent inflammatory tissue in an organ

  e.g- Boil or furuncle, carbuncle
- Ulcer

  - local defect or excavation of surface of an organ. e.g necrosis of mucosa of mouth, stomach, typhoid ulcer; s/c infl of lower extremities

- Bacterial infection of blood

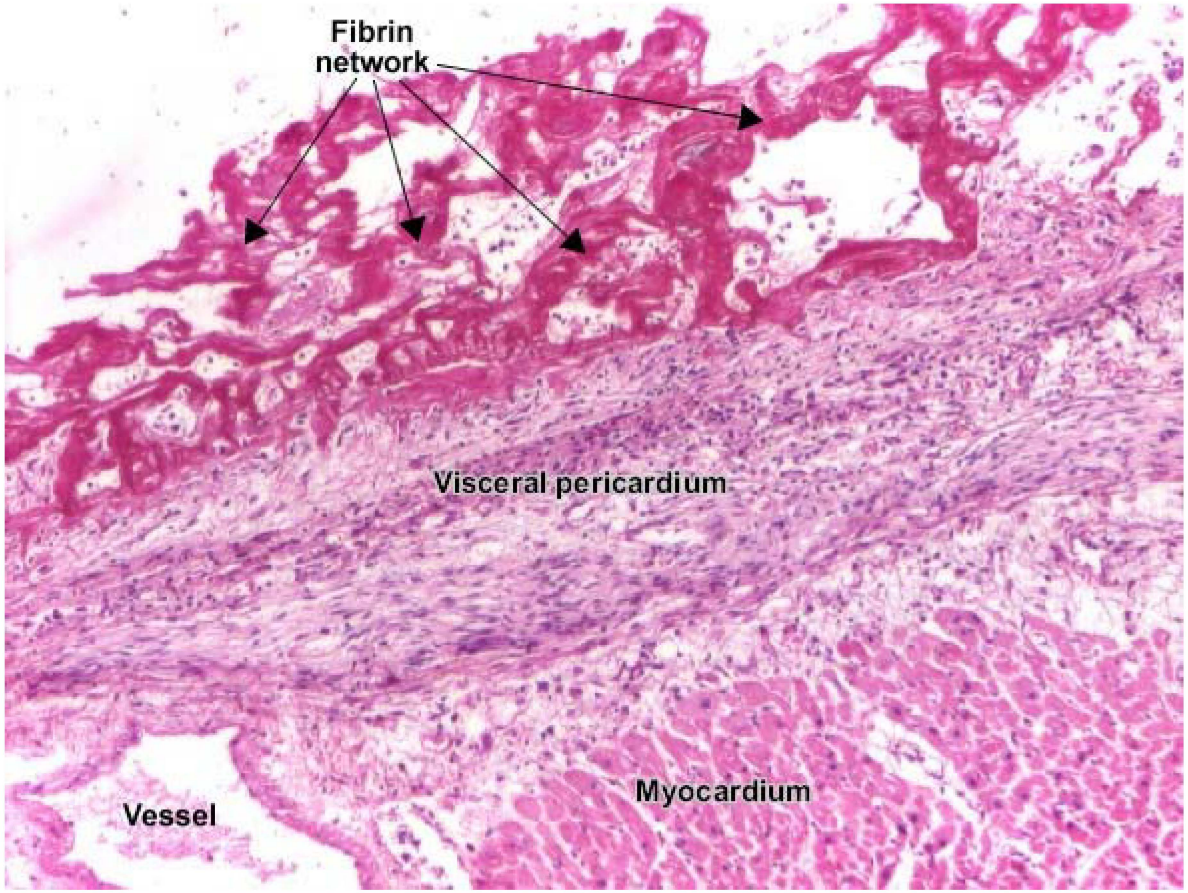
  - bacteraemia- small number of bacteria in the blood which are not detected by microscopy, culture is required. e.g- S. typhi, E coli

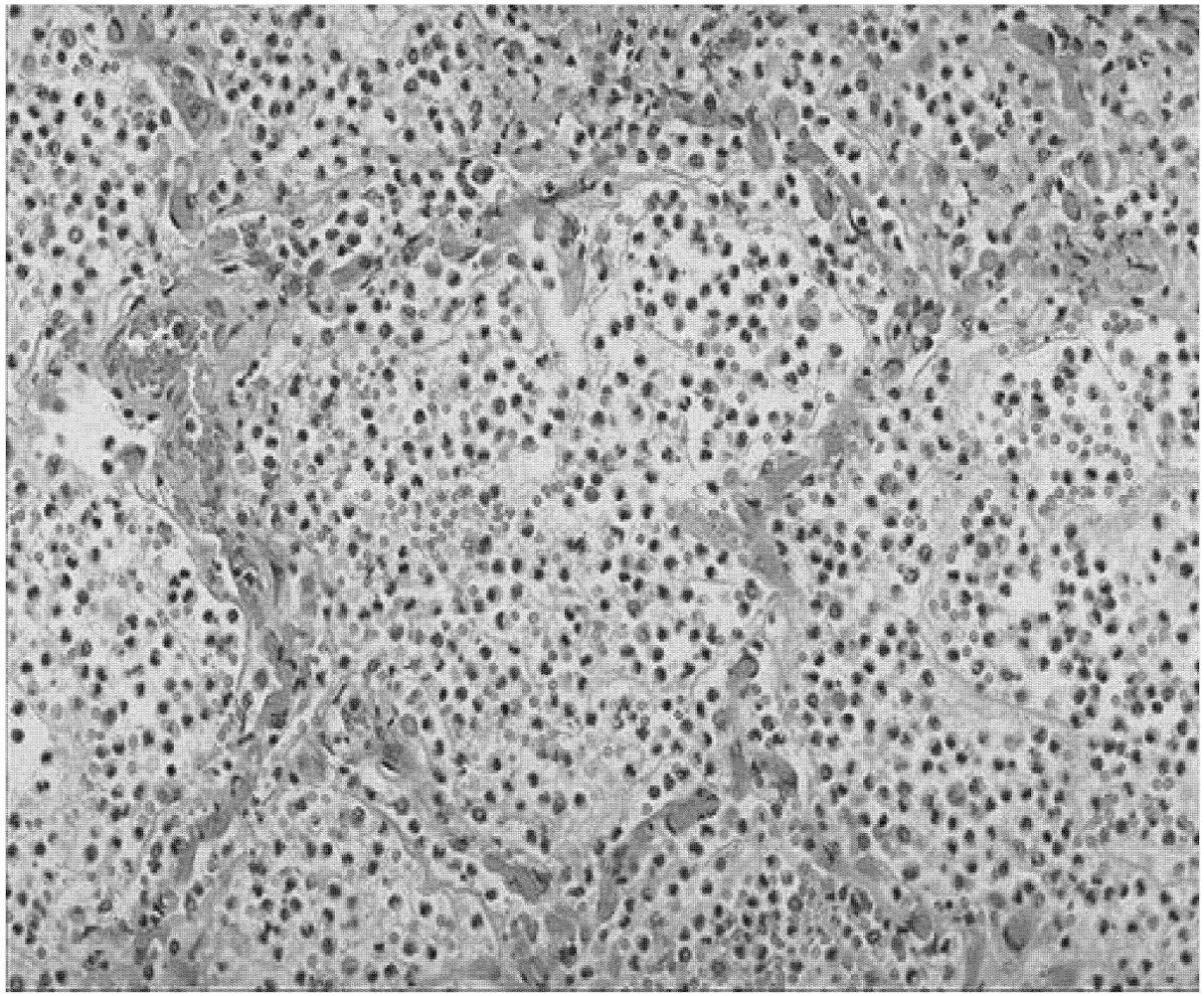
  - septicaemia- presence of rapidly multiplying highly pathogenic bacteria. Accompanied by systemic effects like toxaemia, neutrophil leukocytosis, DIC

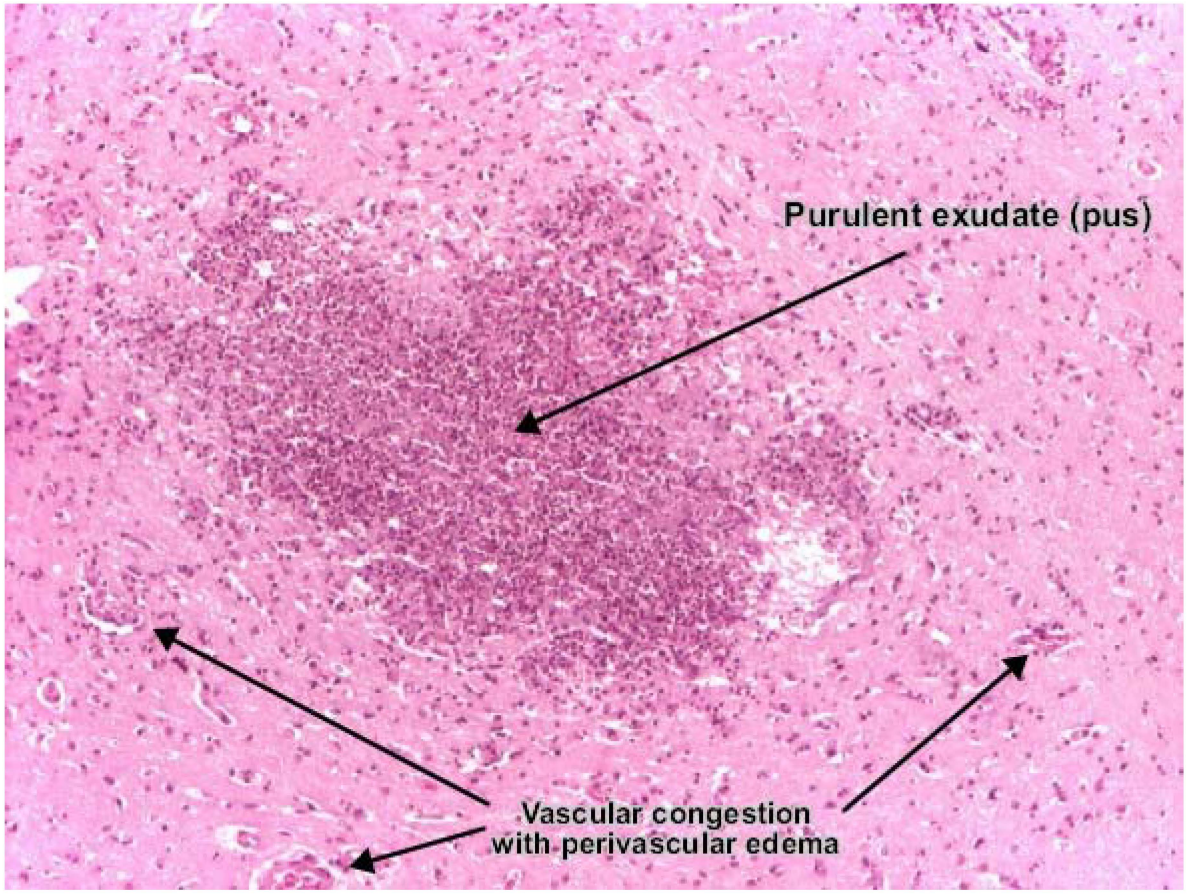
  - pyaemia-dissemination of small septic thrombi in the blood which cause effects at the site where lodged

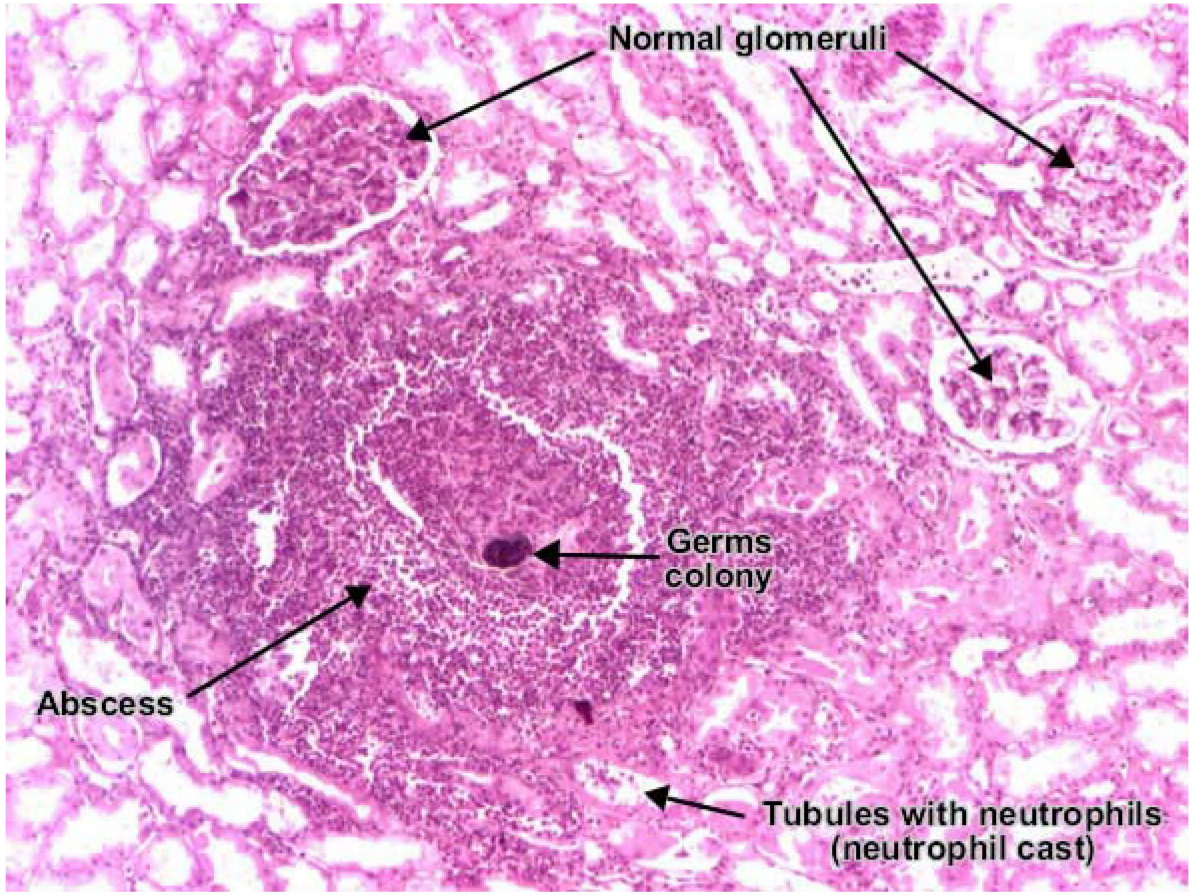
    -- pyaemic abscess- small abscesses in organs like brain, heart, kidney

    -- septic infarcts- result from lodgement of larger fragments of septic thrombi in arteries


Fibrin
network
Visceral pericardium
Myocardium
Vessel




Purulent exudate (pus)
Vascular congestion
with perivascular edema


Normal glomeruli
Germs colony
Abscess
Tubules with neutrophils (neutrophil cast)


CM
1
2
3
4
5

Systemic effects

- Fever

  secretion of acute phase proteins- CRP, PG, IL1, TNF
- Leukocytosis
  - Neutrophilia
  - Lymphocytosis
  - Eosinophilia
- Shock
- Lymphangitis- lymphadenitis

Outcomes of acute inflammation

- Complete resolution
  - injury short lived or little tissue destruction
  - neutralization of chemical mediators, death of neutro, removal of edema fluid by lymphatics
- Abscess- in pyogenic organisms
- Healing by fibrosis- organization
  - after tissue destruction & abundant fibrin exudation
- Chronic inflammation
  - when acute inflammatory response cannot be resolved