ACUTE INFLAMMATION
Characteristic

• **Course of disease**: short Days--one month

• **Changes**: Alteration, exudation Tissue destruction

• **Inflammation cells**: major neutrophils
TYPES

- Serous Inflammation
- Fibrinous Inflammation
- Suppurative Inflammation
- Hemorrhagic Inflammation
Serous inflammation

**Conception**: It is characterized by the outpouring of a watery, relatively protein-poor fluid (effusion). The main content is serum.

**Characteristic**: Watery, low protein content, derived from blood or lymph fluid.
Serous inflammation

- **Site:** mucous membrane, serosa, lung, loose connective tissue, skin.

- **Examples:** skin blister resulting from burn, scalding or viral infection, pleural effusion associated with tuberculosis, common cold, etc.
Serous inflammation (Skin blister)
Serous inflammation
Conception: It occurs as a consequence of more severe injuries, with greater vascular permeability allowing larger molecules (fibrinogen) to pass the endothelial barrier.
Fibrinous Inflammation

**Characteristic:** lots of fibrin in the exudate.

**Causes:**
- Shigellosis
- Streptococcus pneumonias
- Corynebacterium diphtherias
- Uremia
Fibrinous Inflammation

**Site:**

- Serosa
- Mucous membrane: Pseudo-membrane
- Lung

**Examples:** rheumatic pericarditis, dysentery, diphtheria, lobular pneumonia, etc.
Lobar pneumonia
Lobar pneumonia
Fibrinous Inflammation

Special disease:

“cor villosum” -- Fibrinous pericarditis
hairy heart

Pseudo-membranous inflammation
The epicardial surface of the heart shows a shaggy fibrinous exudate.
Figure 1.35 Organizing fibrinous pericarditis (detail); HE stain.
Fig. 2.66. “Bread-and-butter” pericarditis.
Fibrinous Inflammation

**Pseudomembranous inflammation:**

- **site:** occurring at the surface of mucosa (intestinal mucosa, throat, etc.)

- **Components:** it consists of fibrin, neutrophils, necrotic mucosa epithelial cells and organism.
pseudomembrane

Bile dyed the membrane yellow-green
Fibrinous Inflammation

Outcome

- Resolution
- Organization
**Conception:** It is manifested by the presence of large amounts of purulent exudate (*pus*) consisting of neutrophils, necrotic cells and edema fluid.

**Pus composed of:** dead and dying neutrophils, liquefied tissue, pyogenic organisms.
Causes: staphylococci, pneumococcus, gonococci, gram-negative rods, and some nonhemolytic streptococci.

Types:
(1) Abscess;
(2) Phlegmonous inflammation;
(3) Surface purulence
(4) Empyema
Abscess:
It is a focal collection of pus and typically has a central, largely necrotic region with a surrounding zone of proliferated connective tissue, often accompanied with vomica formation.

It is often caused by *staphylococci*
abscess
Hepatic abscess
Normal hepatic cord

Hepatic abscess

Sinus
Outcome of abscess

**Ulcer:** a local defect on the surface of skin or mucosa where an epithelial surface become necrotic and eroded.

**Sinus:** deep abscess perforated to body surface or body cavity to form a tract with one opening.

**Fistula:** a tract of pus discharge with more than one opening.

**Cavity:** a gap formed by necrotic tissue be drainaged from nature tract in visceral organs.
Sinus fistula form a tract with one opening.

A tract of pus discharge with two openings.

Abscess in the rectum.

Anus

Fistula

Abscess
Phlegmonous inflammation

**Conception:** Diffuse purulent inflammation process of soft tissue.

**Cause:** commonly by β-hemolytic streptococcus.

**Characteristic:** Diffuse infiltration of neutrophils. Tissue necrosis is not obvious.

**Site:** Often occurred in subcutaneous tissue, muscle, appendix.
phlegmonous appendicitis

Color, size, shape, surface
Acute phlegmonous appendicitis

Diffuse infiltration of neutrophils
Myocarditis

Diffuse infiltration of neutrophils

myocyte
Purulent / suppurative inflammation

Surface purulence (purulent catarrh)

purulent inflammation of mucosa or surface of tissue.
Purulent catarrh on the surface of meninges
Purulent meningitis
Empyema

purulent exudate cannot be effective drainaged and accumulated in body cavity or tract.

Example: intestinal duct, oviduct, gallbladder, thorax.
Characteristic: Marked Hemorrhage, many blood cells in inflammatory exudate.

Some severe infectious diseases:
- streptococcal pneumonia, pestis, epidemic hemorrhagic fever, etc.
- Endemic Hemorrhagic Fever
- SARS...
Hemorrhagic inflammation