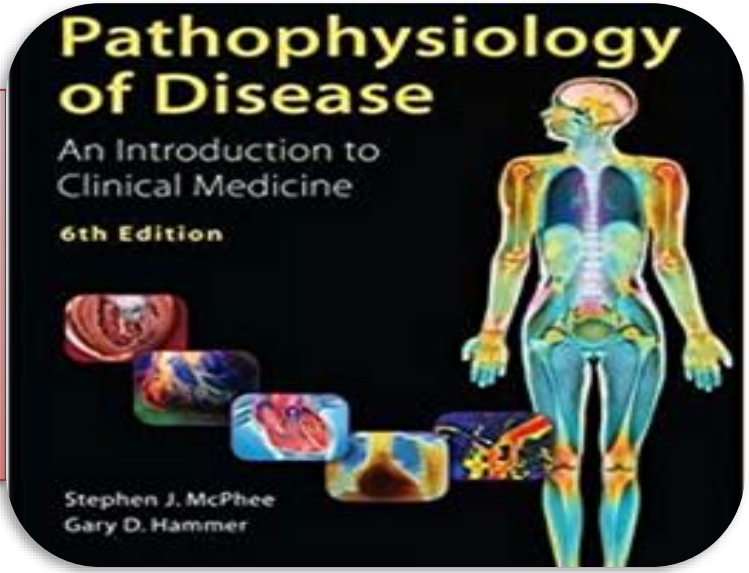
Inflammation

By:

Lecturer . Salim Dawood Salman



Practical Pathophysiology

Stage 3

Inflammation: **is** a response of living tissues to a harmful insult or agents. Its purpose is to **localize**, **eliminate** the injurious agent, **remove** damaged tissue and **replace** it with healthy new tissue (**repair**).

- Terms ending in the suffix "–itis" denote inflammation

It consists principally of:



1 Vascular changes :



1 Leukocyte infiltration and:



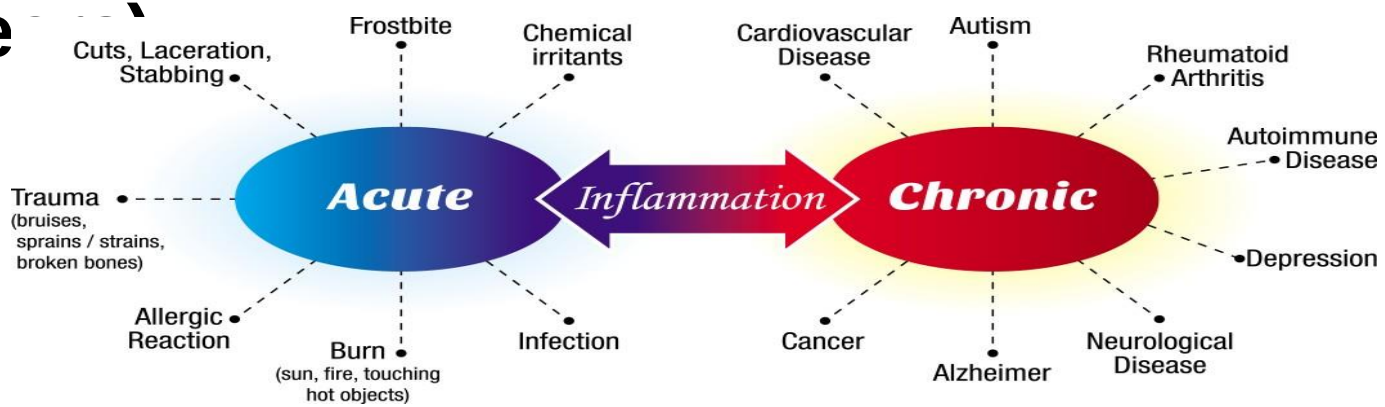
3-Systemic reaction.

Causes of inflammation

1) **Infection:** Bacterial ,Viral, Parasitic and microbial toxins
2) **Immunological:** hypersensetivity reactions and autoimmune diseases
3) **Physical agents:** trauma, radiation, burn
4) **Chemical agents:** strong acids and alkalines, toxins
5) **Foreign bodies:** splinters, sutures and dirts

Types of inflammation:

- Acute inflammation (sec, mins, hrs or days)
- Chronic inflammation (weeks, months, ye



Acute inflammation

An inflammatory response that :

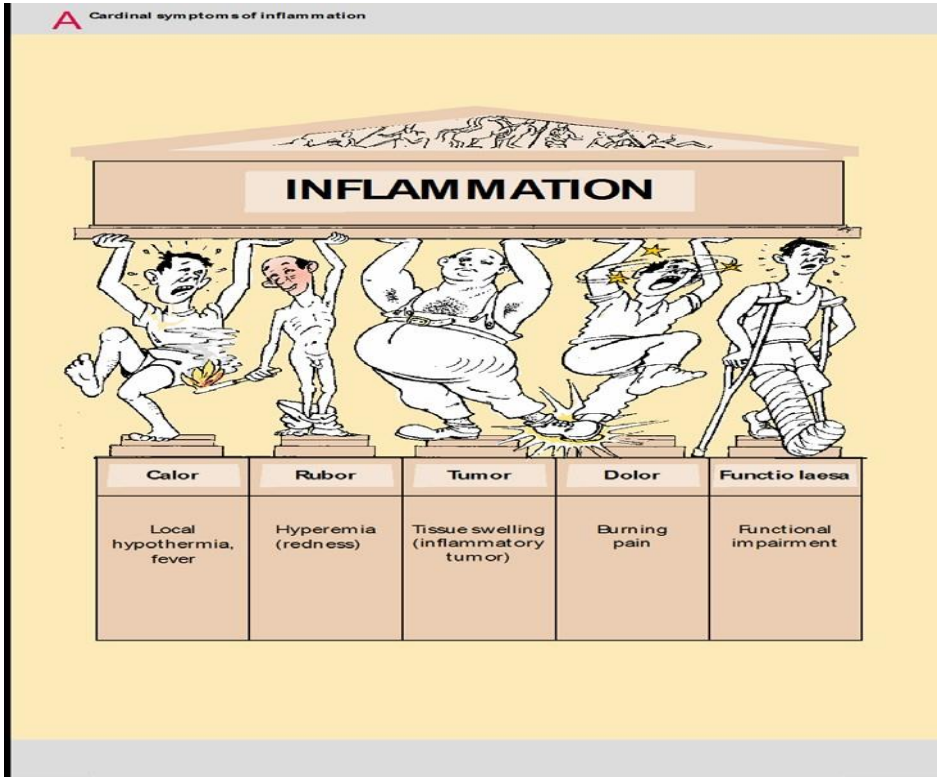
I. **Lasts only for short period.**

II. **Characterized by the exudation of fluid and plasma protiens**

III. **Emigration of leukocytes predominantly neutrophiles.**

The five Cardinal Signs of Acute Inflammation

- **Heat** (CALOR)
- **Redness** (RUBOR)
- **Swelling** (TUMOR)
- **Pain** (dolor)
- **Loss of function** (FUNCTIO LAESA)



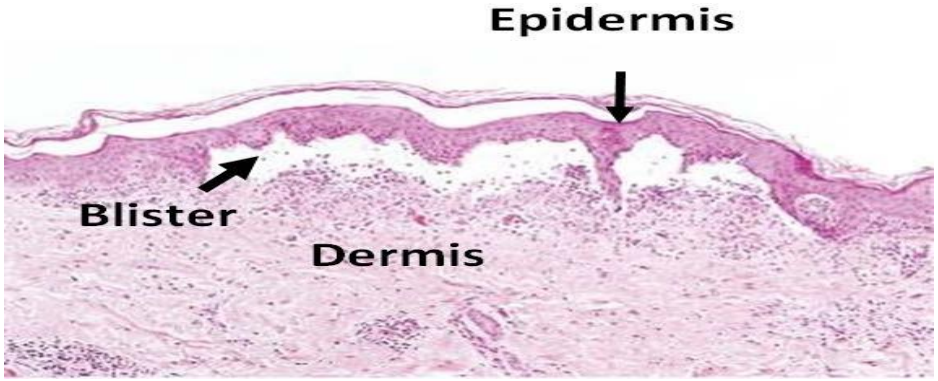
Morphological types of acute inflammation

1- Serous type:

The fluid exudate resumble serum or is watery ex.

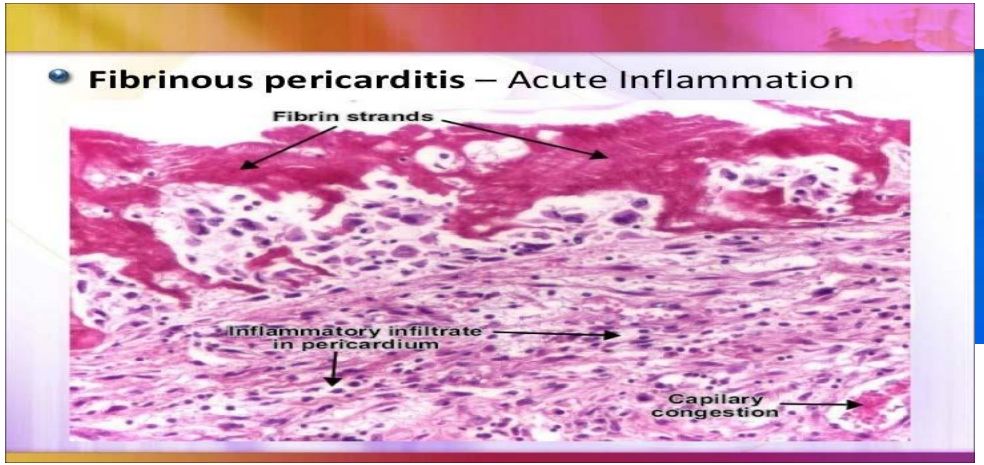
Skin blisters from burns or viral infection

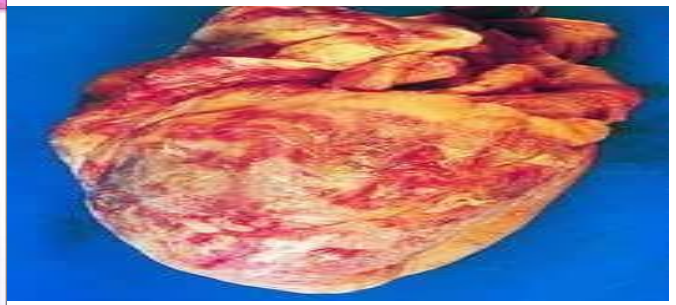




2- Fibrinous type:

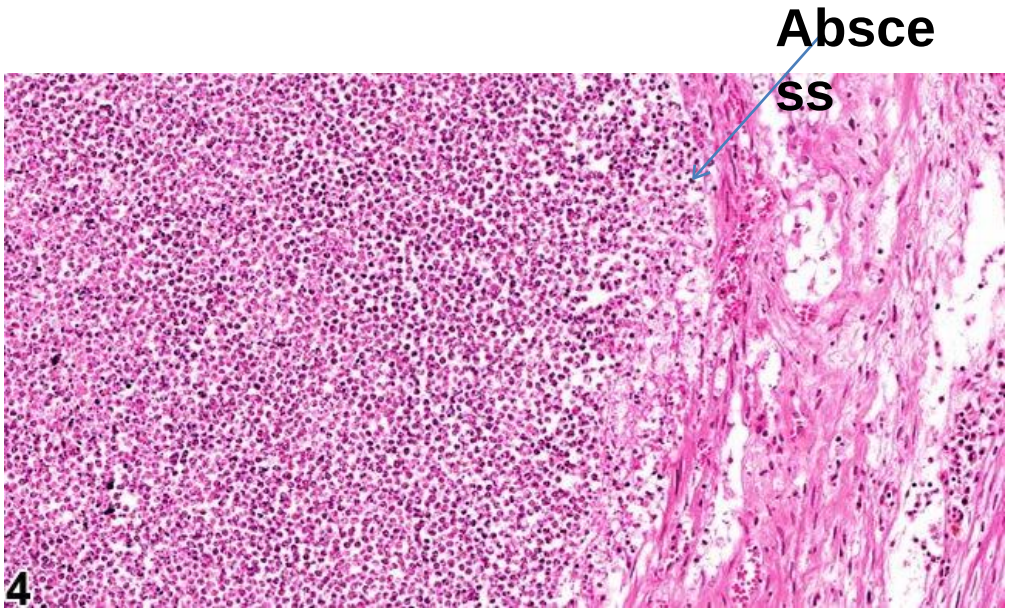
It is characterized by a thick exudate containing fibrin usually found in serous cavities as pericardium

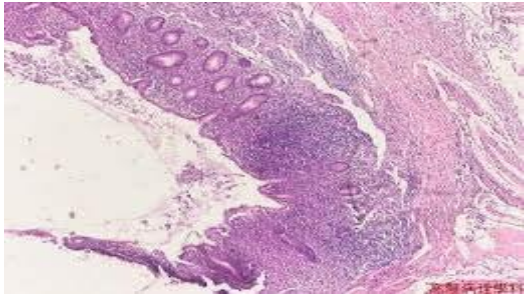




3- Suppurative type:

It is characterized by production of pus containing neutrophils, liquified cellular debris and edema fluid ex. Pyogenic bacterial infection. It may lead to abscess formation

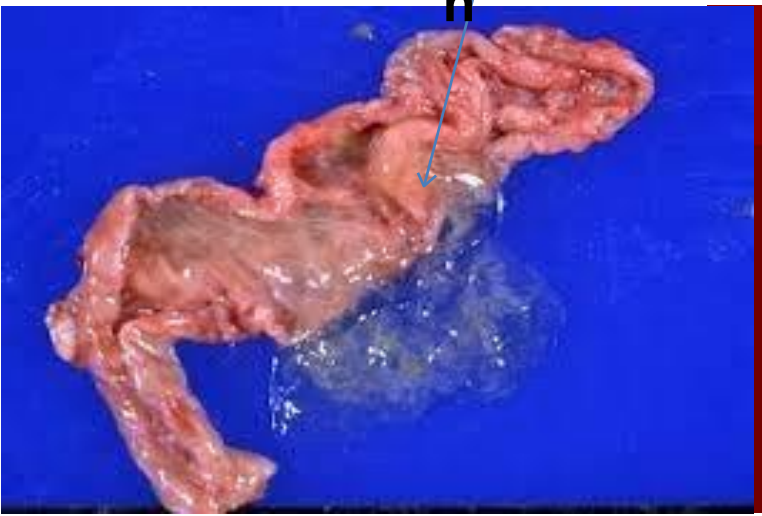


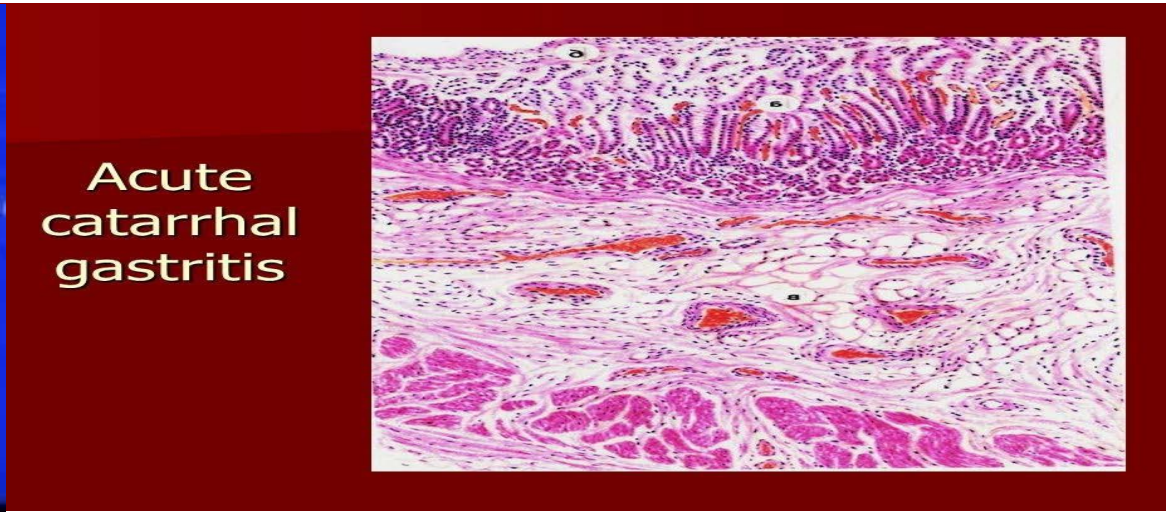


4- Acute catarrhal type:

It is inflammation of mucous membranes, characterized by mucus secretion, as in infections ex. Runny nose in common cold, gastritis, colitis

muci
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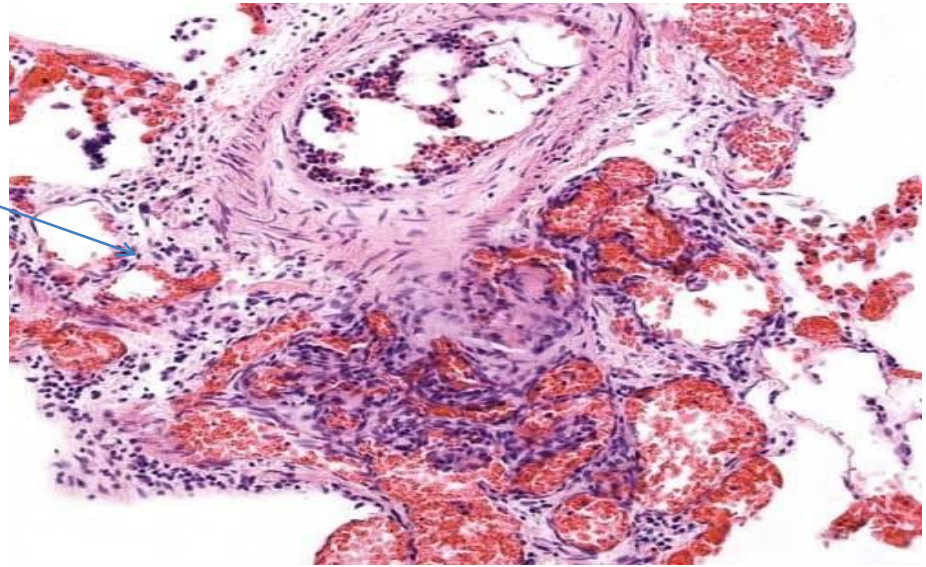


5- Acute hemorrhagic:

It is characterized by microvascular injury with massive microvascular bleeding producing an

exudate with a high erythrocyte content

The inflammed area is necrotic and filled with blood



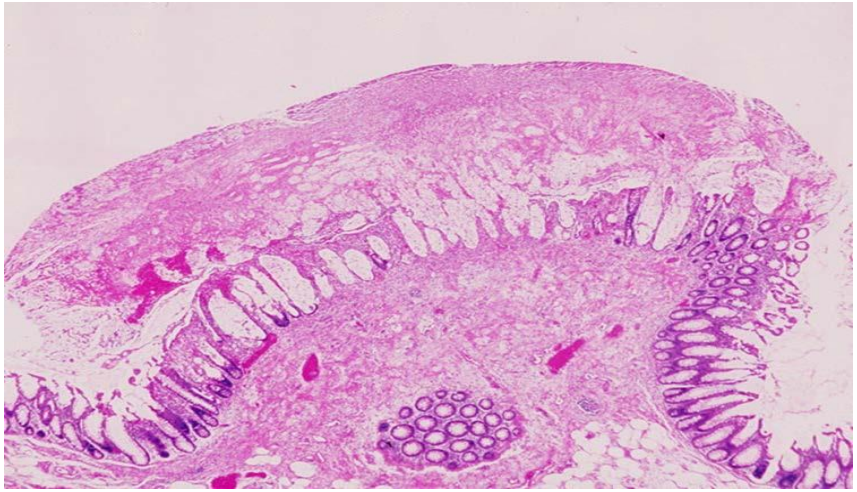
6- Pseudomembranous type:

Bacterial toxins damage mucosal lining producing a membrane composed of necrotic tissue ex.

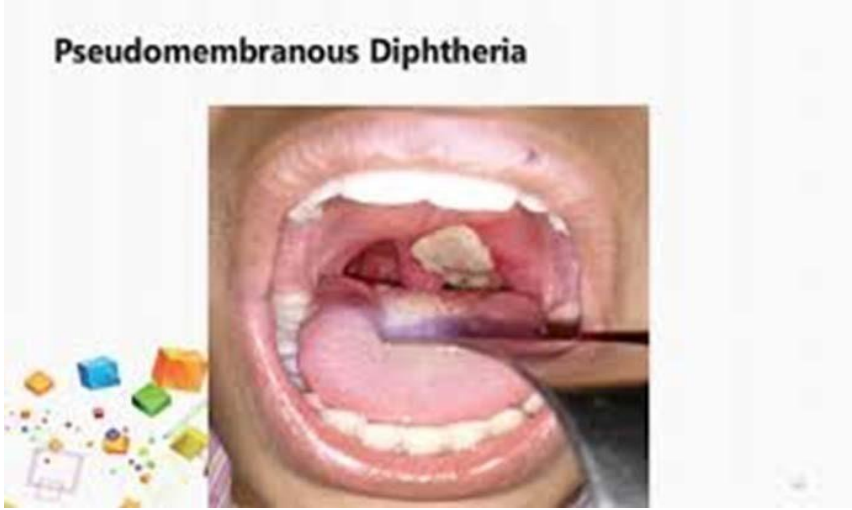
Corynebacterium diphtheriae produce pseudomembrane in

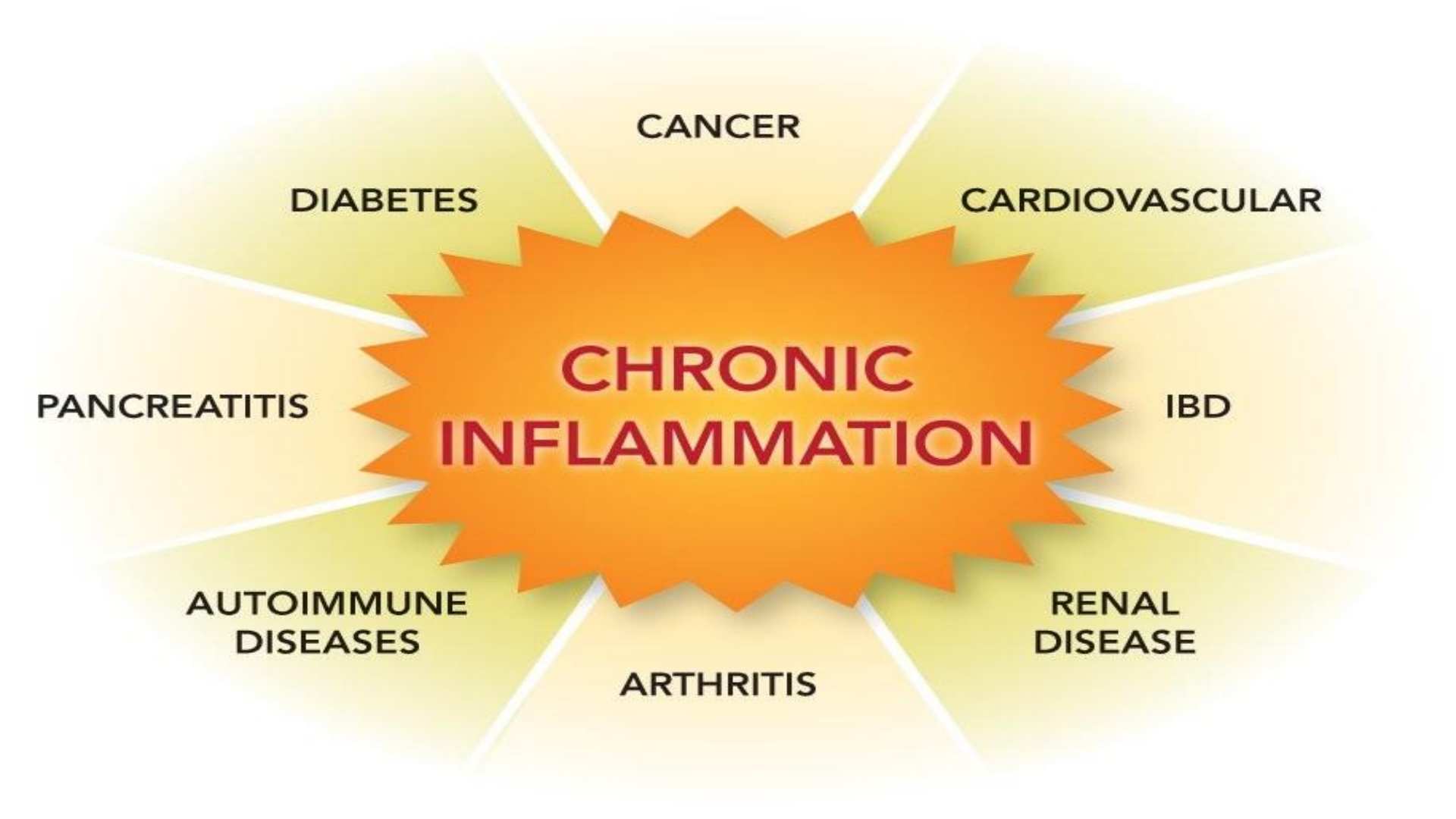
the pharynx and trachea

Pseudomembranous



Diphtheri




CANCER
DIABETES
CARDIOVASCULAR
CHRONIC INFLAMMATION
PANCREATITIS
IBD
AUTOIMMUNE DISEASES
RENAL DISEASE
ARTHRITIS

Chronic inflammation is defined as prolonged process in which tissue destruction, inflammation and attempt to repair occur at the same time.

Chronic inflammation can be caused by one of the following 3 ways:

1. **Progression of acute inflammation e.g. osteomyelitis**
2. **Recurrent attacks of acute inflammation lead to chronicity e.g. in recurrent urinary tract infection leading to chronic pyelonephritis, repeated acute infection of gallbladder leading to chronic cholecystitis.**

3 . Chronic inflammation starting de novo:

i. **Infection: Tuberculosis. TB. Leprosy, Syphilis**

ii. **Foreign body : surgical sutures**

iii. **Hypersensitivity reactions (HSR): Systemic Lupus Erythematous (SLE), Rheumatoid Arthritis (RA)**

Systemic Effect of Chronic Inflammation

- **Mild Fever, loss of weight and weakness**
- **Anemia**
- **Leukocytosis**
- **Elevated ESR**

Types of chronic inflammation

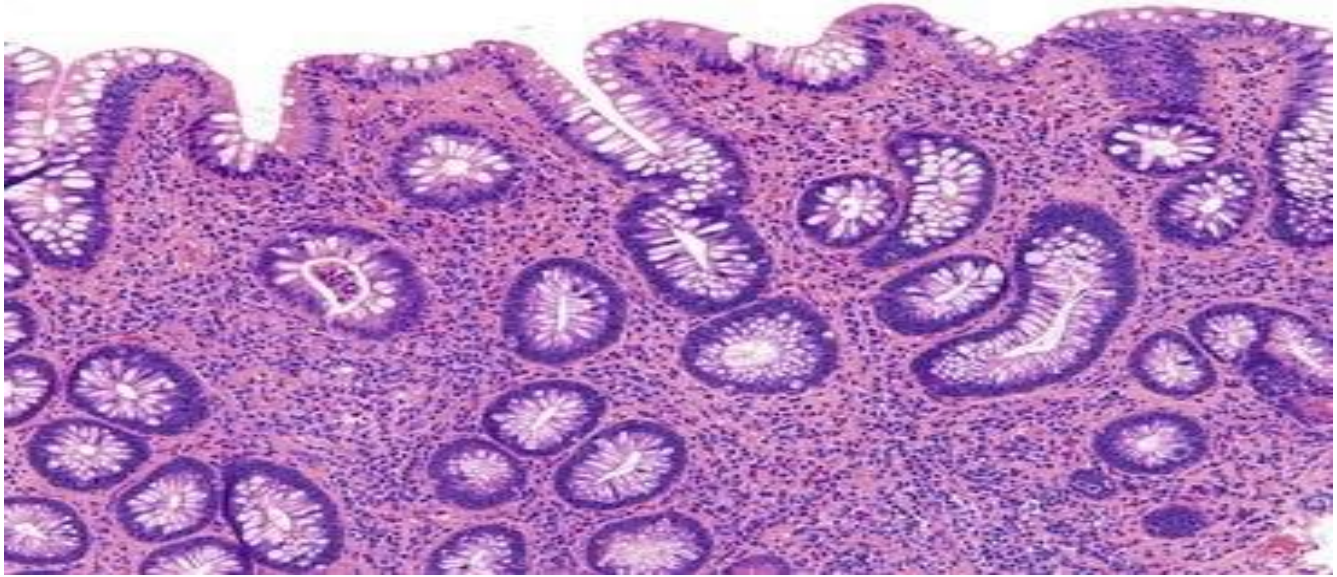
Chronic inflammation is subdivided into 2 types:

1. **Chronic non-specific inflammation. It is characterized by chronic inflammatory cell infiltration e.g. chronic osteomyelitis, lung abscess.**

2. **Chronic granulomatous inflammation. It is characterized by formation of granulomas**

   e.g. tuberculosis, foreign body

Chronic non specific inflammatory bowel




Thank
You