

INFLAMMATION**Inflammation: -**

It is Complex biological response of vascularized living tissues to local injury or harmful stimuli, such as pathogens, damaged cells, or irritants. Inflammation is induced by chemical mediators that are produced by host cells in response to injurious stimuli.

Terminology

Inflammatory conditions are termed by adding the suffix (-itis) to the affected organ or tissue for example: -

Pulpitis: inflammation of pulp

Gingivitis: inflammation of gingiva

Hepatitis: inflammation of liver

Appendicitis: inflammation of appendix

Significance of inflammation

1-Destroy, dilute, or wall off the injurious agent, Inflammation is fundamentally a protective response, the ultimate goal of which is to rid the organism of both the initial cause of cell injury (e.g., microbes, toxins) and the consequences of such injury (e.g., necrotic cells and tissues).

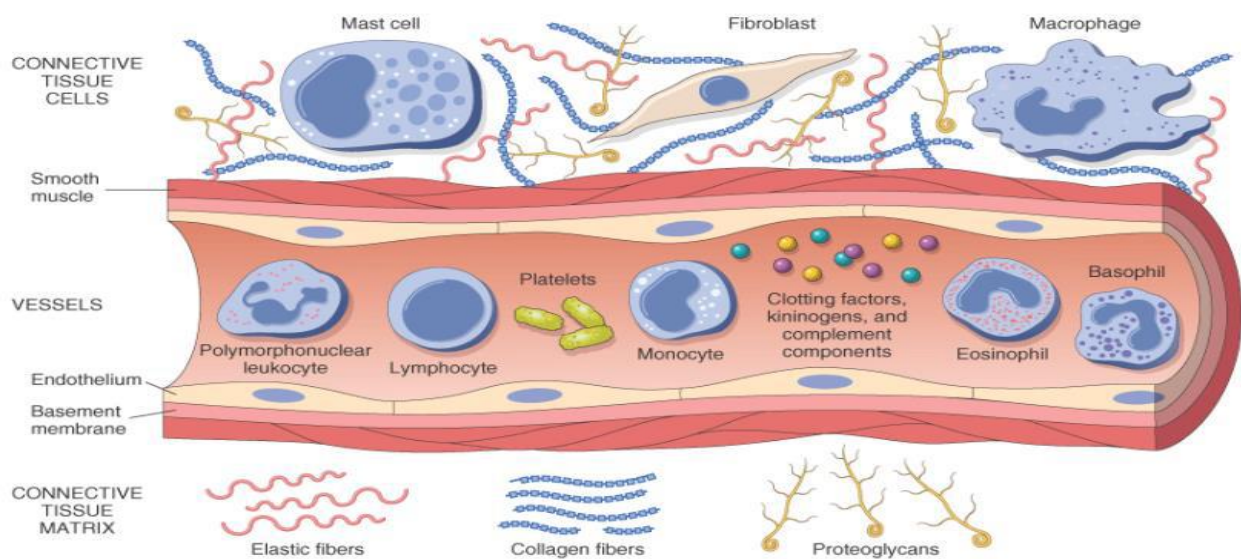
2- It sets into motion a series of events that try to heal and reconstitute the damaged tissue.

Note: *Without inflammation, infections would go unchecked, wounds would never heal.*

Inflammation may have harmful effects:

- 1- It can cause life-threatening hypersensitivity reaction.
- 2- It can cause progressive organ damage from chronic inflammation and subsequent fibrosis like rheumatoid arthritis and atherosclerosis.

The components of acute and chronic inflammatory responses: circulating cells and proteins, cells of blood vessels, and cells and proteins of the extracellular matrix.



The components of acute and chronic inflammatory responses: circulating cells and proteins, cells of blood vessels, and cells and proteins of the extracellular matrix.

Components of inflammation:

Many tissues and cells are involved in the inflammatory reaction, including

- 1- plasma fluid proteins.
- 2- circulating leukocytes (neutrophils, monocytes, eosinophils, lymphocytes, basophils, in addition to platelets).
- 3- blood vessels.

4-The connective tissue cells are mast cells, fibroblasts, macrophages, and lymphocytes.

5-The extracellular matrix consists of structural proteins (collagen, elastin), adhesive glycoproteins (fibronectin, laminin), and proteoglycans.

Inflammation is divided into

1- Acute inflammation

2-Chronic inflammation

Chronic inflammation	Acute inflammation
Later onset (days)	Early onset (sec. – min)
Longer duration (weeks – years)	Short duration (min. – days)
Inducing B.V. proliferation and scarring	Fluid exudation (oedema)
Involving lymphocytes and macrophages infiltration	Polymorph nuclearleukocyte emigration .(neutrophils)

The cardinal signs of inflammation

The classical signs of inflammation are:

1-Redness

2- Swelling

3-Heat

4-Pain

5-loss of function

These signs are typically more prominent in acute inflammation than in chronic inflammation

characters of inflammation: -

A- Inflammation is generally characterized by two main components:

1- Vascular wall response.

2- Inflammatory cell response.

B- The effects of inflammation are mediated by inflammatory mediators which are:1 -
Circulating plasma proteins

2- Factors produced locally by vessel wall or inflammatory cells.

C- Termination: Active anti-inflammatory mechanism begins when:

1- The causative agents is eliminated

2- The secreted mediators are removed