



INFLAMMATION



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INFLAMMATION

What is Inflammation

- ❖ A vascular and cellular response to trauma.
- ❖ Its purpose is to initiate the healing of the injured tissue
- ❖ The body's attempt to dispose of microorganisms, foreign material and dying tissues so that tissue repair can occur
- ❖ An inflammatory response may result from external or internal factors (infection)
- ❖ Protects to the body by localizing and removing the injuring agent

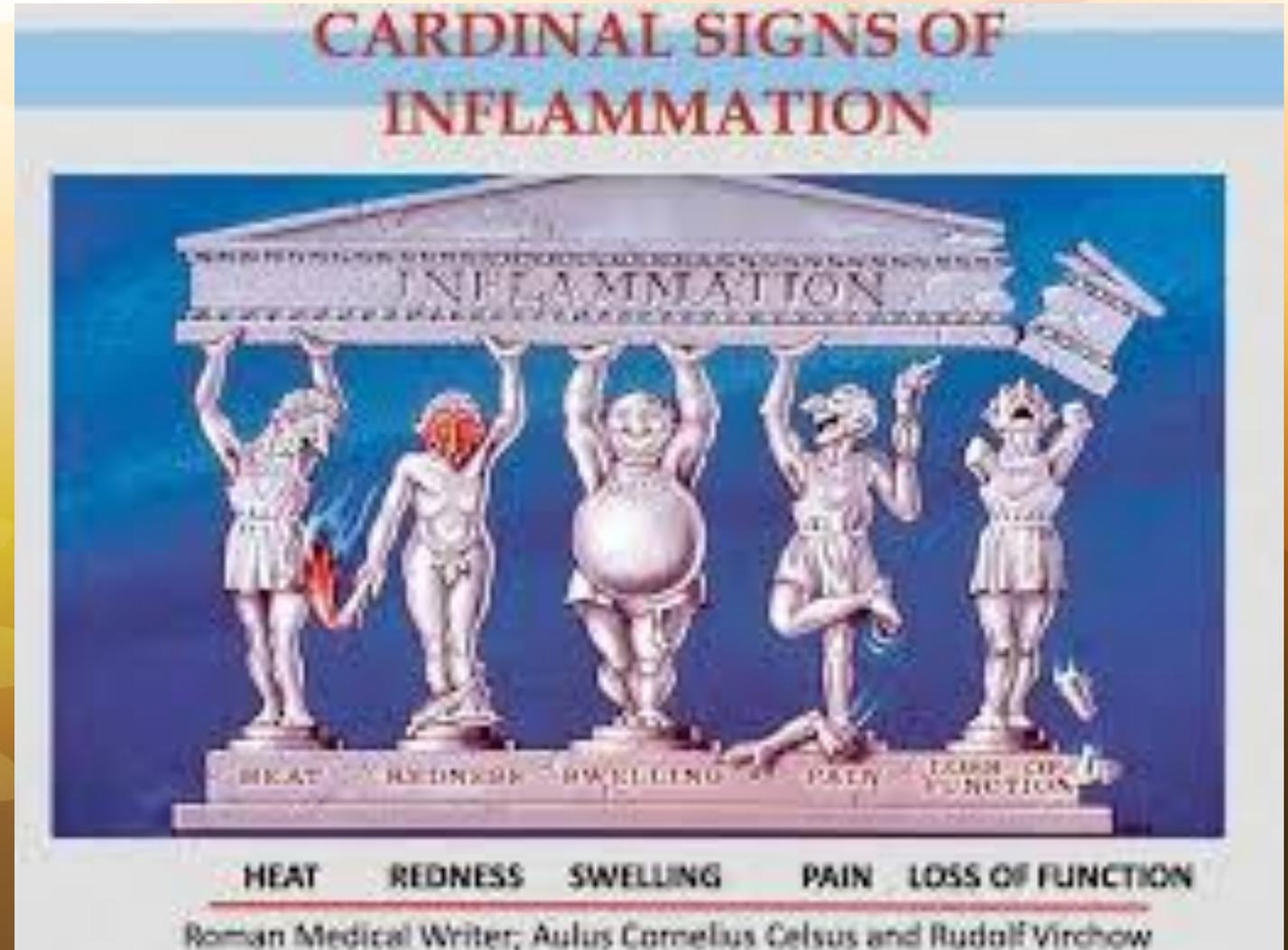
CAUSES OF INFLAMMATION

1. Infective agents like bacteria, viruses and their toxins, fungi, parasites.
2. Immunological agents like cell-mediated and antigen antibody reactions.
3. Physical agents like heat, cold, radiation, mechanical trauma.
4. Chemical agents like organic and inorganic poisons.
5. Inert materials such as foreign bodies.

SIGNS OF INFLAMMATION

Cardinal Signs

- ❖ Redness (Rubor)
- ❖ Swelling (Tumor)
- ❖ Pain (Dolor)
- ❖ Warmth (Calor)
- ❖ Loss ROM



TYPES OF INFLAMMATION

❖ Acute inflammation

- » Short duration
- » Edema
- » Mainly neutrophils

❖ Chronic inflammation

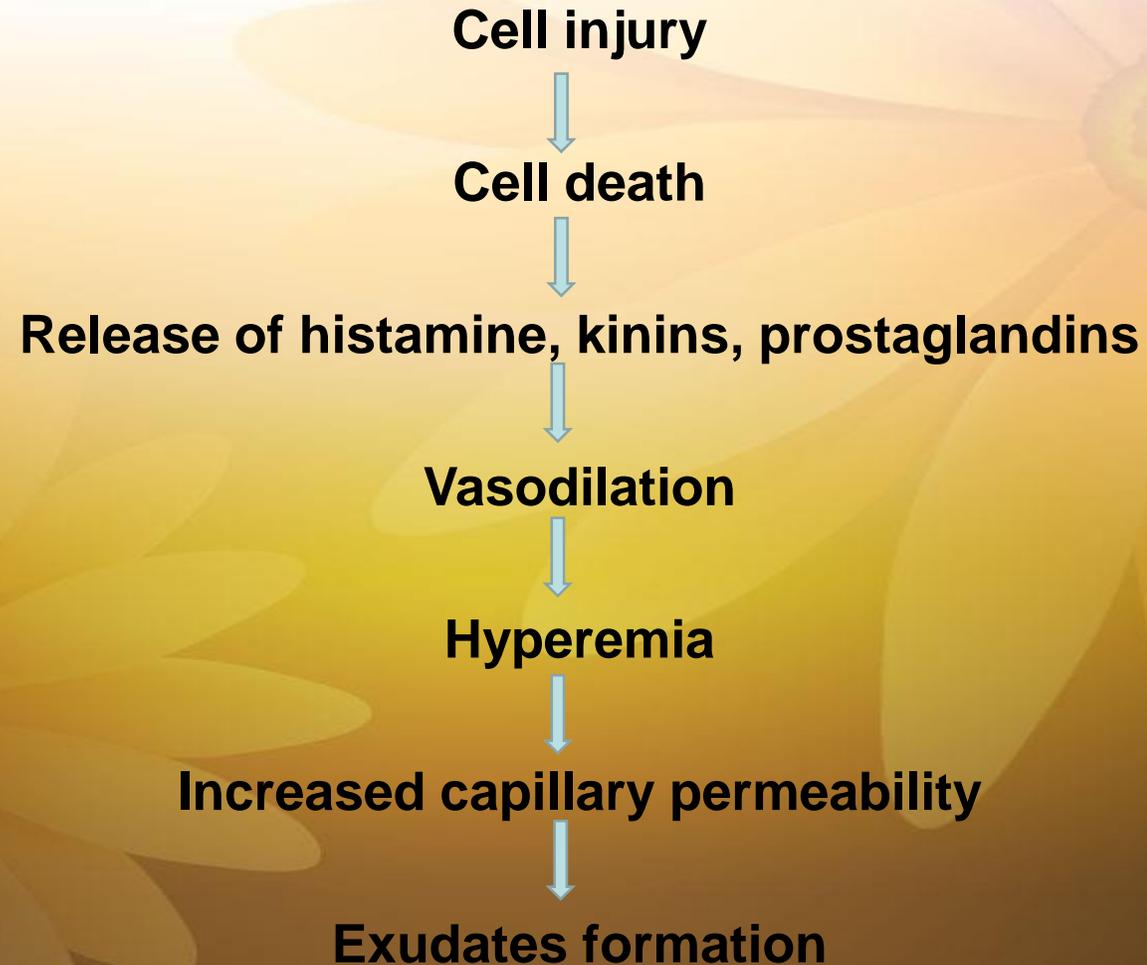
- » Longer duration
- » Lymphocytes & macrophages predominate
- » Fibrosis
- » New blood vessels

PROCESS OF INFLAMMATION

Inflammatory process consist of following steps:

- ❖ Vascular Response
- ❖ Cellular Response
- ❖ Exudates Formation
- ❖ Healing Response

VASCULAR RESPONSE



VASCULAR RESPONSE

The acute vascular response follows within seconds of tissue injury & last for some minutes. This results from vasodilation & increased capillary permeability due to alteration in the vascular endothelium, which leads to increased blood flow (hyperemia) that causes redness (erythema) & the entry of fluid in the tissues (edema)

CELLULAR RESPONSE

Cell injury causes cellular response



Chemotaxis, Margination, diapedesis of blood leucocytes



Migration of blood leucocyte to injury site Neutrophil lymphocytes



Immune response Monocytes



Macrophages



Phagocytosis



Cellular exudates response

CELLULAR RESPONSE

If infection has occurred, the acute cellular response takes place over the next few hours. The hallmark of this phase is the appearance of granulocytes, particularly neutrophils, in the tissues. These cells first attach themselves to the endothelial cells within the blood vessels (margination) & then cross into the surrounding tissue (diapedesis). During this phase erythrocytes may also leak into the tissues & a haemorrhage can occur. If the vessel is damaged, fibrinogen & fibronectin are deposited at the site of injury, platelet aggregates & become activated, & the red cells stack together in what are called “Rouleau” to help stop bleeding & aid clot formation. The dead & dying cells contribute to pus formation.

EXUDATES FORMATION

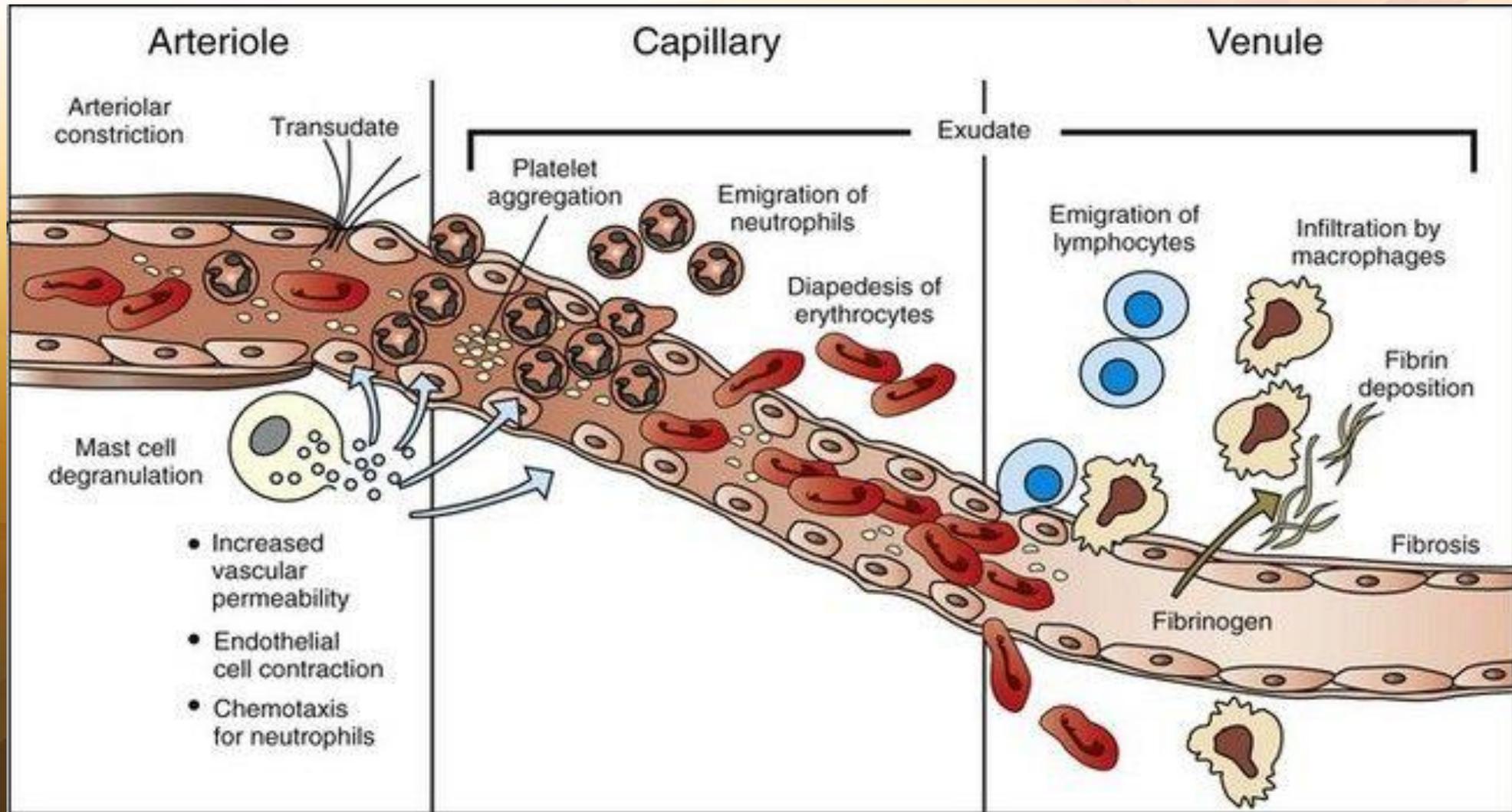
Exudates consists of fluid, leucocytes that move from circulation to site of injury.

HEALING RESPONSE

It is final phase of inflammatory response. It consists of two types.

- ❖ **Regeneration:** It is the replacement of lost cells & tissues with cells of some types.
- ❖ **Repair:** lost cells being replaced by connective tissue.

INFLAMMATORY RESPONSE





THANK YOU

