

Inflammation and Healing

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1. Introduction

- Inflammation is the body's protective response to injury, infection, or irritants.
- Healing restores tissue structure and function after the threat is controlled.

2. Acute Inflammation

- Develops rapidly and is short-lived.
- **Cardinal signs:** redness, heat, swelling, pain, and loss of function.
- Involves vasodilation, increased vascular permeability, and neutrophil migration.

3. Chronic Inflammation

- Persists for weeks to years when the stimulus is not removed.
- Characterized by lymphocytes, macrophages, and tissue destruction.
- May cause fibrosis and granuloma formation, as in tuberculosis.

4. Mediators of Inflammation

- **Histamine:** causes vasodilation and increased permeability.
- Prostaglandins and cytokines amplify and sustain the response.
- The complement system aids pathogen clearance.

5. Healing and Repair

- **Regeneration:** replacement by identical functional cells.
- **Repair:** healing by connective tissue and scar formation.
- Outcomes depend on infection, blood supply, nutrition, and wound size.