

2nd Year MBBS Class Test Solutions

(Inflammation, Repair & Healing)

1. A 58-year-old patient with an ulcer on the left leg on steroid therapy for rheumatoid arthritis:

a. Type of healing: Secondary intention healing.

b. Healing process in a stepwise manner:

1. Hemostasis: Formation of a blood clot.
2. Inflammation: Recruitment of neutrophils and macrophages to remove debris.
3. Granulation tissue formation: Fibroblasts lay collagen; angiogenesis begins.
4. Reepithelialization: Epithelial cells proliferate to close the wound.
5. Remodeling: Collagen crosslinking and scar formation.

c. Three complications of wound healing:

1. Infection
2. Chronic ulcers
3. Hypertrophic scar/keloid formation.

2. An ulcer in the buccal mucosa of a student during exams:

a. Labelled diagram of the cell cycle: G1, S, G2, Mitosis, with checkpoints at G1/S and G2/M.

b. Classify epithelial cell types by proliferative potential with examples:

1. Labile cells: Continuously dividing, e.g., mucosal epithelium.
2. Stable cells: Divide only upon injury, e.g., hepatocytes.
3. Permanent cells: Do not divide, e.g., neurons.

3. A 12-year-old boy after a road accident develops abrasions and painful swelling on the leg:

Sequence of events leading to the pathological event:

1. Tissue damage: Abrasions cause loss of epithelial integrity.
2. Acute inflammation: Neutrophil recruitment, cytokine release, and swelling.

3. Edema formation: Increased vascular permeability.

4. Healing begins: Fibroblast activity and granulation tissue formation.

4. Granuloma and Giant Cells:

a. Define granuloma and morphology of a tuberculous granuloma:

Granuloma: A collection of epithelioid macrophages surrounded by lymphocytes.

Morphology: Central caseous necrosis surrounded by epithelioid cells, giant cells, and lymphocytes.

b. Two characteristic features of Giant Cells:

1. Multinucleated appearance.

2. Formed by the fusion of macrophages.

5. A 42-year-old woman with low-grade fever, cough, and weight loss with opacity in the right lung:

a. Type of inflammatory process: Chronic inflammation.

b. Cells and mediators involved in chronic inflammation:

- Cells: Macrophages, lymphocytes (T-cells and B-cells), and plasma cells.

- Mediators:

- Cytokines (IL-1, TNF-alpha)

- Growth factors (VEGF for angiogenesis)

- Chemokines (attracting immune cells).