

# WOUNDS

## Plan of lecture:

- Classification of wound
- Wound Healing
- Management of wound

# Wound

**Is an injury caused by physical means, with disruption of the skin and underlying tissues**

# Classification of wounds

## 1. Depending on

- surgical,
- accidental

## 2. According to

- incised;
- stab;
- chopped;
- contused;
- lacerated;
- bite;
- gunshot;

- extensive tissue damage
- high speed of the wound infecting
- injury by bone fragments

3 areas from a gunshot wound of damage are identified:

1. wound canal- contains tissue and clothing fragments and foreign bodies
2. area of primary traumatic necrosis – consists of necrotised tissues adjacent to the wound canal
3. area of concussion- is characterised by impaired capillary blood flow

# Classification of wounds

## 3. Depending on infection:

- aseptic;
- infected;
- purulent

## 4. In relation to

- penetrating (or joint)
- non-penetrating



# Clinical signs

- Pain
- Bleeding (extent depends on calibre and type of the weapon)
- Gaping of wound edges results from contraction of elastic skin fibres, deep lying muscles and tissues defect because of the trauma



# Inspection of wounds

**For assesment of possible injuries to the nerves, arteries or internal organs are taken note of:**

- **Size of wound**
- **Type of wound**
- **Floor of wound**
- **Deformation of extremity**
- **Presence of active and passive movements**
- **State of sensibility**
- **Presence of pulse on the peripheral arteries of the limb**

# Wound Healing

# Stages or phases

## 1. Inflammatory phase

- begins immediately after wounding;
- Lasts for 4-6 days in uncomplicated postoperative wound closures ( primary intention healing)

## 2. Proliferative phase (collagen or fibroplastic phase)

- is characterized by the production of collagen and glycosaminoglycans from fibroblasts

## 3. Remodeling phase

- is characterized by maturation of collagen and continued turnover



## Wound contraction

- **Open wounds heal by a bimodal process of epithelial migration and contraction of the wound edges**
- **The main cell responsible for wound contraction is the myofibroblast, which is a specialized fibroblast with contractile properties**

# Factor impeding wound healing

## 1. Local factors

- Hematoma
- Foreign bodies

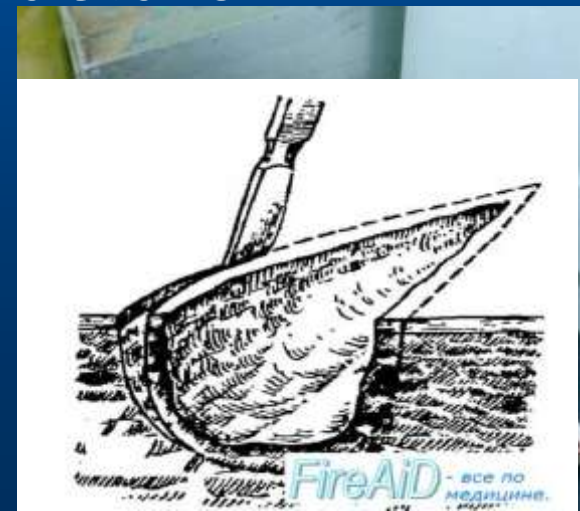
## 2. Systemic factors

- Tissue hypoxia:
  - Hypotension
  - Hypovolemia
  - Anemia
  - Lung disease
  - Hypothermia
  - Edema
- Cytotoxic drug
- Chronic glucocorticoid therapy
- Diabetes mellitus

# Management of wound

# Primary surgical wound debridement

- Aim is to remove nonviable tissues together with microbes and in that way prevent the development of wound infection
- Involves excision of wound edges, bases and walls up to intact tissues with restoration of anatomical structure
- Is divide into:
  - Early ( < 24 hours)
  - Delayed (24-48 h.)
  - Late (> 48 h)





# Surgical sutures due to phase of wound healing

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Inflammatory

Proliferative

Remodeling

## • Primary

- is done within **24 hours** after injury

## • Primary – delayed

- are applied during **5-7 days** after primary surgical wound debridement,

before the formation of granulation tissue if the wound did not get infected

## Early secondary

- is done between

**days 8-15**

on a granulating wound

## Late secondary

- is done in later periods –

in about **2 weeks** when

scar already set in at the wounds edges and walls.

- Bringing the wound edges together is impossible unless the edges are mobilised and scar tissues excised