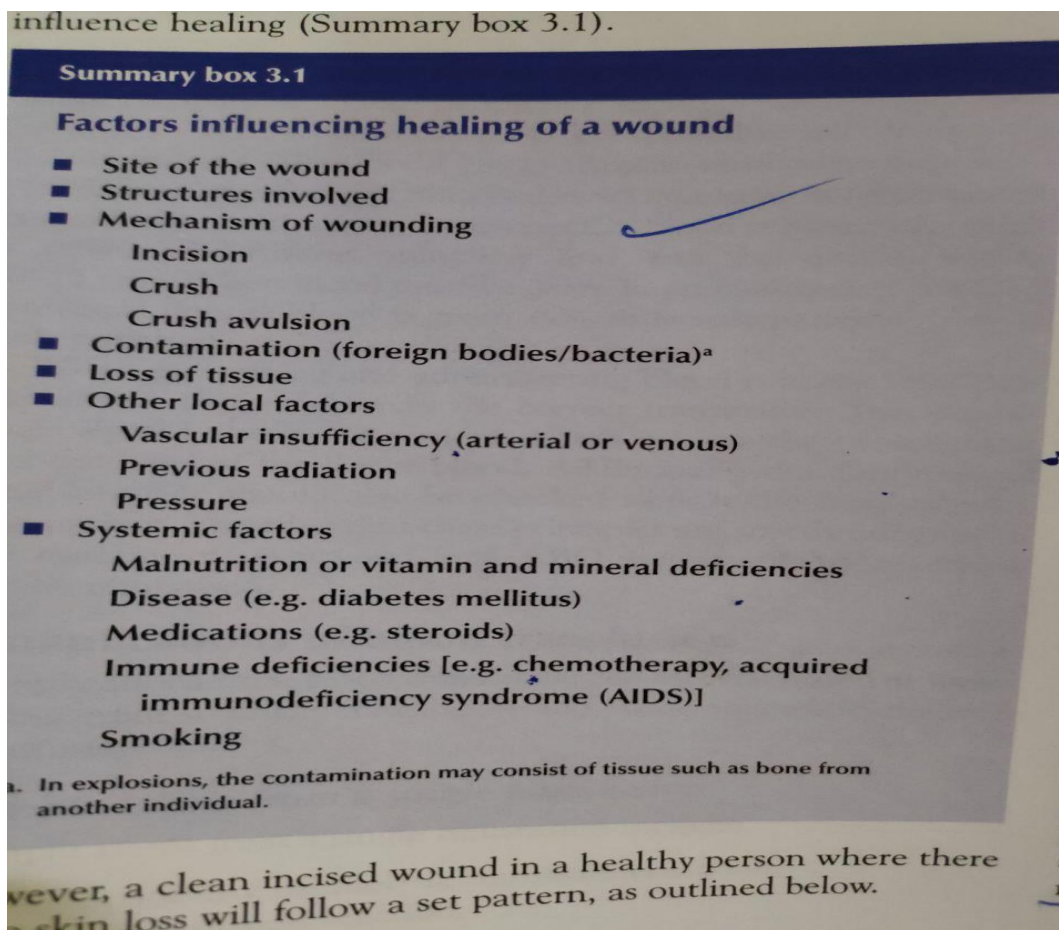


Wounds, tissue repair & scar:

Wound healing is a mechanism whereby the body attempts to restore the integrity of the injured part.

Several factors may influence the healing process.



Normal wound healing

_There are 3 phases

1. Inflammatory phase

2. Proliferative phase

3. Remodeling phase

The inflammatory phase begins immediately after wounding & lasts 2-3 days. Bleeding is followed by vasoconstriction & thrombus formation to limit blood loss. Platelets & the local injured tissue release the vasoactive substances (histamine, serotonin & prostaglandins). Inflammatory cells (macrophages) remove devitalized tissue & micro-organism.

The proliferative phase lasts from the third day to the third week consisting mainly of fibroblast activity with the production of collagen fibers, the growth of new blood vessels as capillary loops. The wound tissue formed in the **early** part of this phase is called **(granulation tissue)**. In the later part of this phase, there is an increase in the tensile strength of the wound due to increased collagen.

The remodeling phase achieved by a realignment of collagen fibers along the line of tension, decreased vascularity & wound contraction.

Abnormal healing

Delay healing may result in loss or poor tissue function or poor cosmetic outcome. The aim of treatment is to achieve healing by primary intention & so to reduce the inflammatory & proliferative responses.

Summary box 3.2

A classification of wound closure and healing

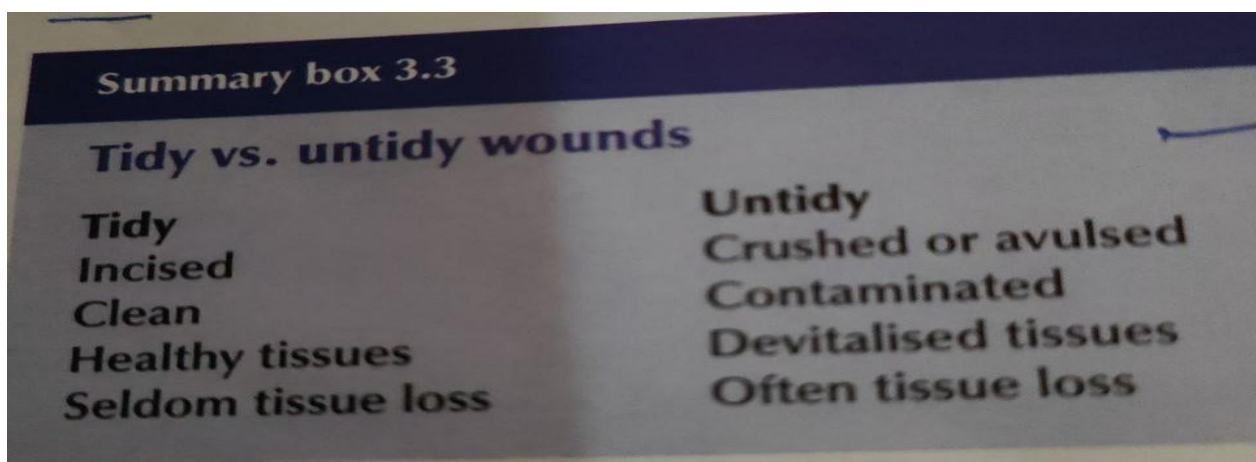
- **By primary intention**
Wound edges opposed. Normal healing. Minimal scar
- **By secondary intention**
Wound left open. Heals by granulation, contraction and epithelialisation
Increased inflammation and proliferation
Poor scar
- **By tertiary intention (also called delayed primary intention)**
Wound initially left open
Edges later opposed when healing conditions favourable

Healing by primary intention:

Because of minimal surrounding tissue trauma, it causes the least inflammation & leaves the best scar. Delayed primary intention healing occurs when the wound edges are not opposed immediately, which may be necessary in contaminated or untidy wounds. Healing by 2ndary intention occurs in the wound that is left open& allowed to heal by granulation, contraction & epithelialization.

Types of wounds ---Tidy VS Untidy

The aim is to convert untidy to tidy by removing all contaminated & devitalized tissue



Summary box 3.3	
Tidy vs. untidy wounds	
Tidy	Untidy
Incised	Crushed or avulsed
Clean	Contaminated
Healthy tissues	Devitalised tissues
Seldom tissue loss	Often tissue loss

Primary repair of all structures (e.g. bones, tendons, vessels, & nerves) may be possible in tidy wounds, but a contaminated wound with dead tissues requires debridement on one or several occasions before definitive repair can be carried out. This is true in injuries caused by explosions, bullets.

Managing of acute wound.

1. Examine the whole pt.
2. Examine the wound itself.
3. Bleeding wound should be elevated & a pressure pad applied.
4. After assessment, thorough debridement is essential.
5. Devitalized tissue must be excised until bleeding occurs with the obvious exception of nerves.
6. Skin closure should always be carried out without tension.

Chronic wounds:

1. Leg ulcer: An ulcer defined as a break in the epithelial continuity. It is a long standing wound (ulcer) of the leg

Summary box 3.5

Aetiology of leg ulcers

- Venous disease leading to local venous hypertension (e.g. varicose veins)
- Arterial disease, either large vessel (atherosclerosis) or small vessel (diabetes)
- Arteritis associated with autoimmune disease (rheumatoid arthritis, lupus, etc.)
- Trauma – could be self-inflicted
- Chronic infection – tuberculosis/syphilis
- Neoplastic – squamous or basal cell carcinoma, sarcoma

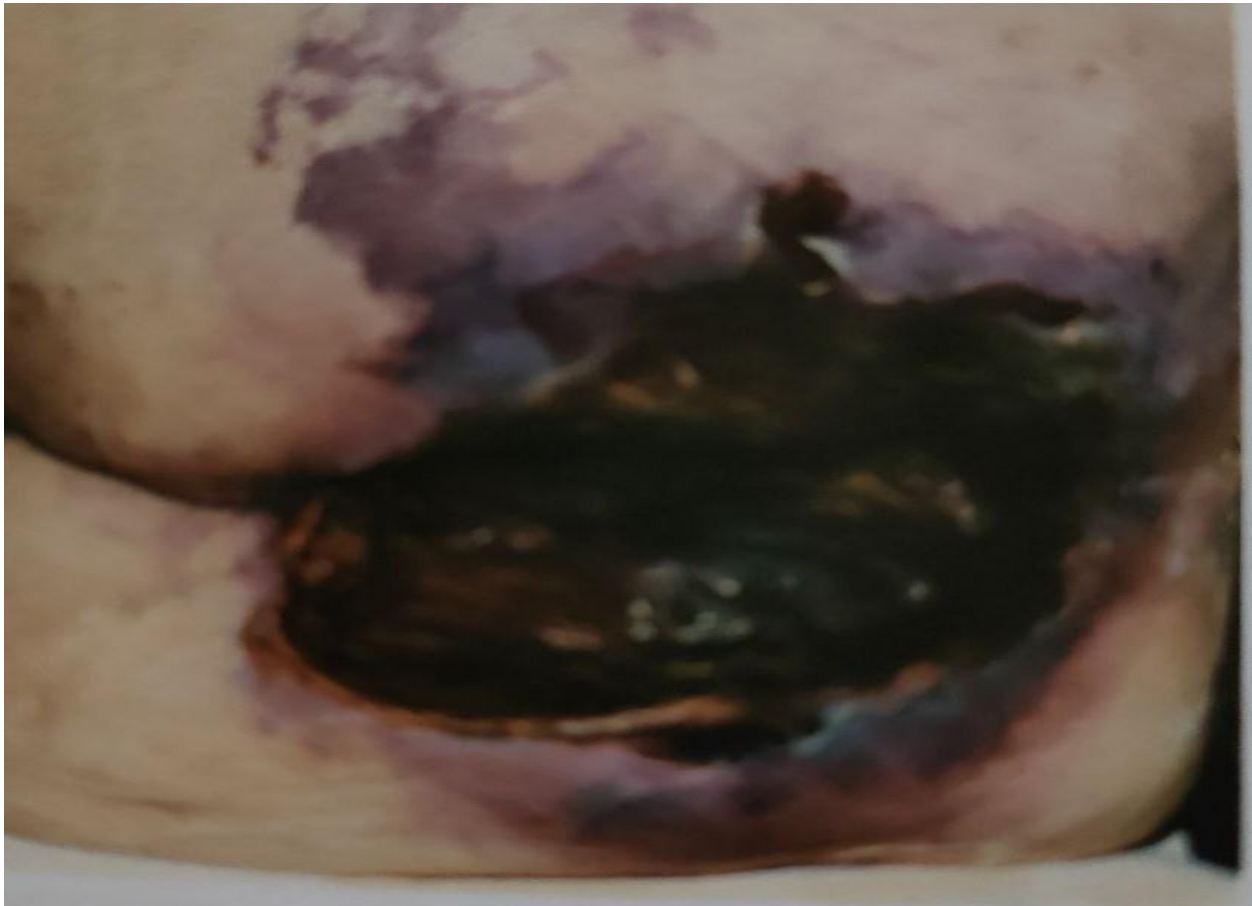
2. Pressure sores

Summary box 3.6

Pressure sore frequency in descending order

- Ischium
- Greater trochanter
- Sacrum
- Heel
- Malleolus (lateral then medial)
- Occiput

:



Scars :

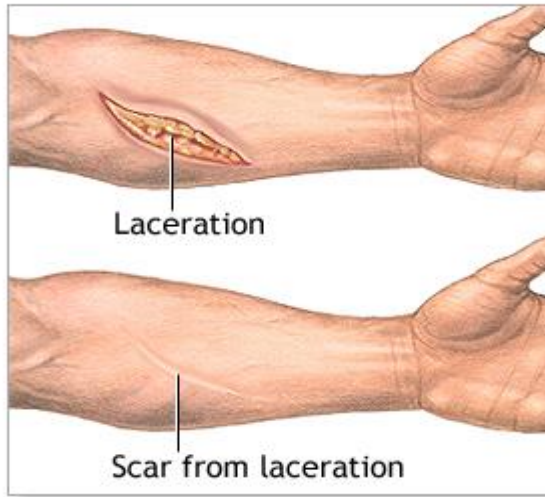
Is the maturation phase (end phase) of wound healing.

The external appearance of the scar becomes pale , white , soft, flattens& its itching diminishes. Most of these changes occur over the first 3 months, but scar continue to mature for 1-2 years.

An atrophic scar is pale, flat & stretched in appearance.

A hypertrophic scar is defined as excessive scar tissue that does not extend beyond the boundary of the original wound. It results from a prolonged inflammatory phase of wound healing & from unfavorable scar sites

A keloid scar is defined as scar tissue that extends beyond the boundaries of the original wound.



ADAM.



