

Different types of scars and their management

Our skin acts as a barrier to the external environment. It protects us from fluid loss, bacteria and other harmful organisms from entering our body and also from the harsh atmosphere surrounding us. It has several other functions, like temperature control, toxin elimination and hormone production among others. Covering a surface area of around 2m² in an adult, makes it very vulnerable to external injuries. These injuries tend to heal in various ways and leave unsightly scars.

The skin is composed of two layers, the epidermis and the dermis, and below those layers, we have the subcutaneous fat. The skin appendages, like the hair follicles, sweat glands and sebaceous glands are located in the dermal layer and the colour producing cells, called melanocytes are located in the dermo-epidermal junction. This anatomy is very important as the deeper the injury and the more the appendages are destroyed, the more scarring will occur. The different causes of injuries are listed in table 1.

Different types of wounds heal in different manners, depending on the size of the skin defect and measures taken to aid the process

- 1. **Primary intention:** Apposition of skin surfaces of fresh wounds– can involve suturing, skin flaps, grafts
- 2. **Secondary intention:** Wounds are left open and allowed to heal naturally by epithelialization with granulation and contraction
- 3. **Tertiary intention:** The wounds are closed a few days later

Wound healing is an intricate process in which the skin repairs itself after the injury. There is a complex set of biochemical events that starts as soon as the injury is sustained and can proceed for years. The first stage is to form a fibrin clot to prevent further bleeding. Thereafter the injury goes through various phases of inflammation, where the debris and bacteria are phagocytosed and removed by various cells that migrate to the area. The proliferative phase starts soon after where new blood vessels are produced and new collagen fibres are deposited. Thereafter the wound tends to mature and remodelling starts. This can last for a few years. Factors affecting wound healing are listed in table II.

A scar is formed when the deep, thick layer of the dermis is damaged. The scar never completely goes away, but can improve with time and various other factors. **A good scar** is thin, flat and pale with a minimal trace of the original injury. **A bad scar** is raised or recessed, dark in colour and/or extends over the boundary of the original injury. 75% of all scars will go through hypertrophic or exaggerated scarring if not adequately managed. Thus every scar deserves scientific management.

Various insults to the skin lead to different types of scars. Common types of scars include, pigmentary disorders, hypertrophic and keloidal scars, atrophic scars, contracture scars, depressed scars and stretched scars. These scars can depend on the type of healing, skin colour, genetic factors and site involved. Excessive wound healing results in two types of scars: either keloids or hypertrophic scarring. Keloids tend to be more common in non-white races and occur mainly in the upper body. It is characterised by excessive tissue formation during wound healing that goes beyond the borders of the injury. Keloid formation may have a genetic predisposition and tends to be very difficult to treat. In many patients, it can be disfiguring and it is very challenging to treat. Hypertrophic scar is a raised, red scar, similar in appearance to a keloid but it does not extend over the injury site. This scar is formed when there are high areas of tension with 'pulling forces' in many directions e.g. sternum and back. It tends to improve with time.

Stretched scars occur when there is increased tension in one direction on the skin or scar area, e.g. in injuries such as the on joints, e.g. elbow, knee etc. Scars from excisional wounds on the trunk and limbs often stretch too. When the skin is burnt, a scar will form causing tightening of the skin, causing scars. This scar may go deeper to affect muscles and nerves. If the scar limits movements of the body (usually over joints) it is referred to as a scar contracture. Usually when one suffers from severe acne or chicken pox, scars are formed as a sunken recess in the skin giving it a pitted appearance. These are caused when underlying structures supporting the skin, such as fat or muscle, are lost.

All injuries to the skin will heal with a scar. Most can be made cosmetically pleasing, however, some can be unsightly. One should decrease the probability of scars by performing unnecessary procedures. Early treatment of skin diseases like acne, lupus or chicken pox, will decrease scars. In addition when treating a wound, good wound alignment and prevention of tension, use of silicone gels from the beginning(Hydrates and help the wound to heal faster) and prevention of infection can all assist in limiting scars.

Table1: Common causes of injury to the skin

- INJURIES
- OPERATIONS
- BURNS
- SKIN DISEASES- LUPUS, MORPHEA, CHICKENPOX
- ACNE VULGARIS
- ACNE KELOIDALIS NUCHAE

Table II: Factors affecting wound healing

- General factors:**
- ❖ Age (decrease protein turnover, diabetes etc)
 - ❖ Malnutrition (vit C,A, Zinc, Copper)
 - ❖ Systemic diseases(Anaemia, diabetes, neuropathy)
 - ❖ Cytotoxic drugs and steroids
 - ❖ Smoking
 - ❖ Genetic conditions(marfan’s Ehlers-Danlos
- LOCAL FACTORS:**
- ❖ Site- Wounds of head, neck and hands always heal well- good blood supply and abundant adnexal cells
 - ❖ Tension on tissues- inhibits blood supply leading to delayed healing
 - ❖ Local infection
 - ❖ Poor blood supply
 - ❖ Rest
 - ❖ Foreign body
 - ❖ Local radiation
 - ❖ Occlusion (decrease chance of infection and keep it moist)
 - ❖ Presence of dry eschar

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