BASIC PRINCIPLS

PLASTIC SURGERY

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PLASTIC SURGON

INTRODUCTION:

Plastic surgery is a multifaceted specialty that combines form, function, technique, (by definition, the Greek word plastikos means “to form or mold”).

Not limited to the skin and its adnexa, plastic surgery may encompass any area of the body..

The first objective in analyzing a reconstructive problem is:

1. a correct diagnosis.
2. The extent and type of missing tissue are assessed in order to formulate a plan for correction or reconstruction.
3. Planning the reconstruction by using a "reconstructive ladder" illustrates a basic principle. Planning includes consideration of the simplest alternative followed progressively by the more complex, advancing up the ladder to the most complex. Progression from

primary closure to skin grafts to local flaps to distant flaps and finally to microvascular free tissue transfers

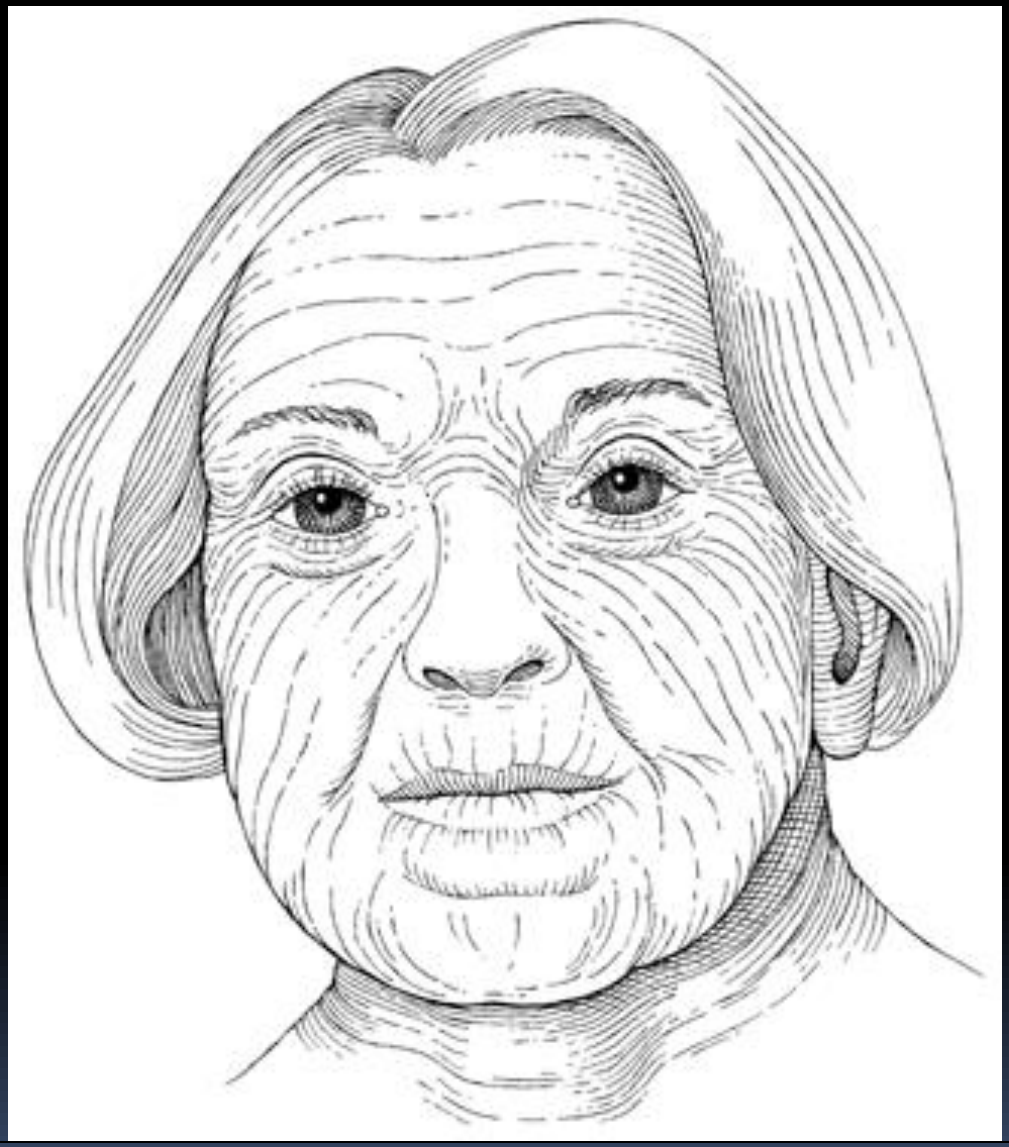
Obtaining A Fine-Line Scar :

The final appearance of a scar is dependent on many factors:

(1) the type of skin and location on the body,
(2) the tension on the closure,
(3) the direction of the wound,
(4) co-morbid conditions.
(5) The scar is also somewhat affected by the technique used for closure.
Minimizing damage to the skin edges with a traumatic technique,
Debridement of necrotic or foreign material,
Ample irrigation of traumatic or contaminated wounds,

A tension-free closure is the hallmark of obtaining the best possible scar.

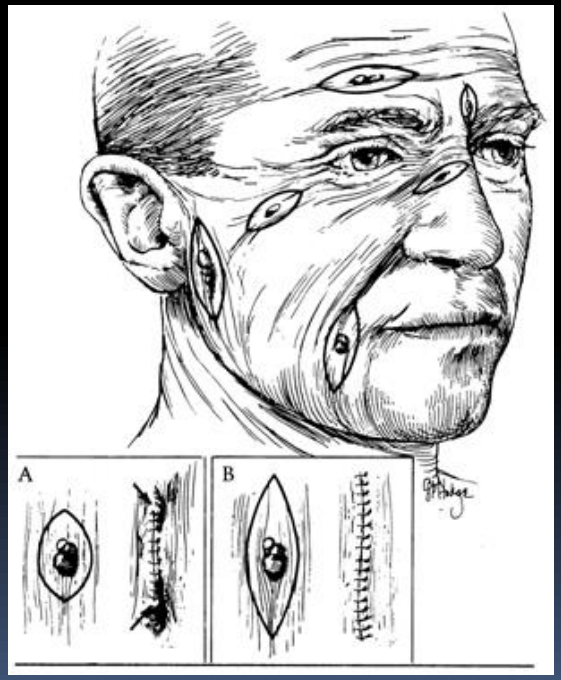
Ultimately, however, scar formation is unpredictable even with meticulous technique.

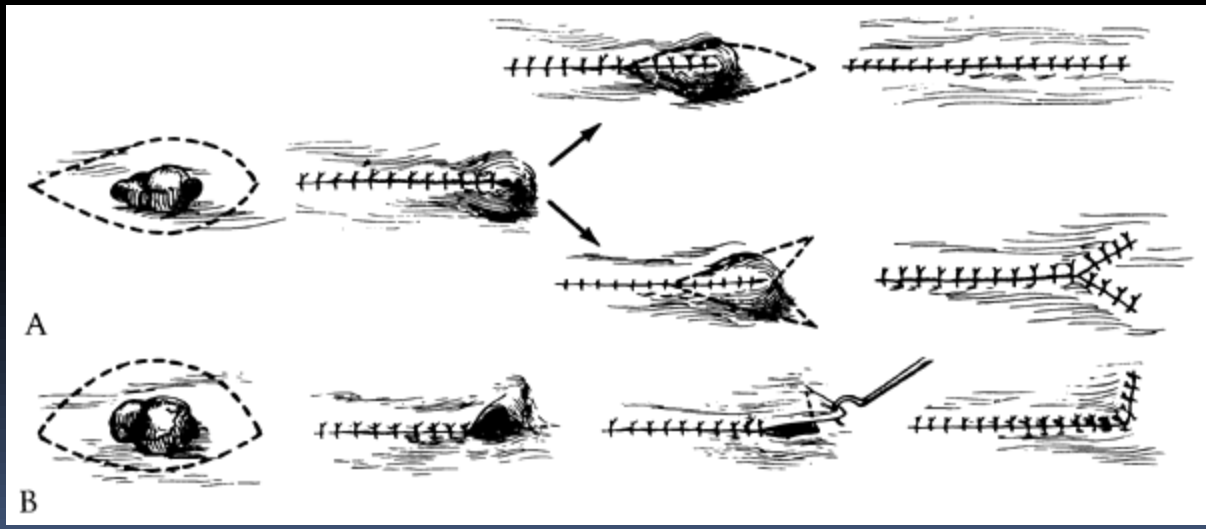


RELAXED SKIN TENTION LINES

Methods of Excision

Lesions of the skin can be excised with
1.elliptical, 2.wedge, 3.circular excision.
Simple elliptical excision is most commonly used .

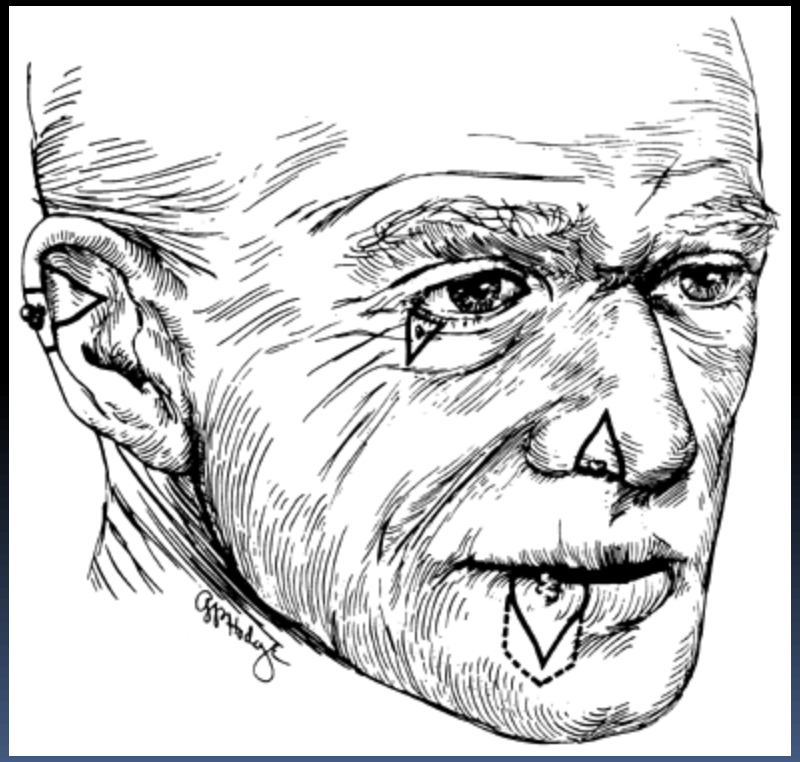




Simple elleptical excision

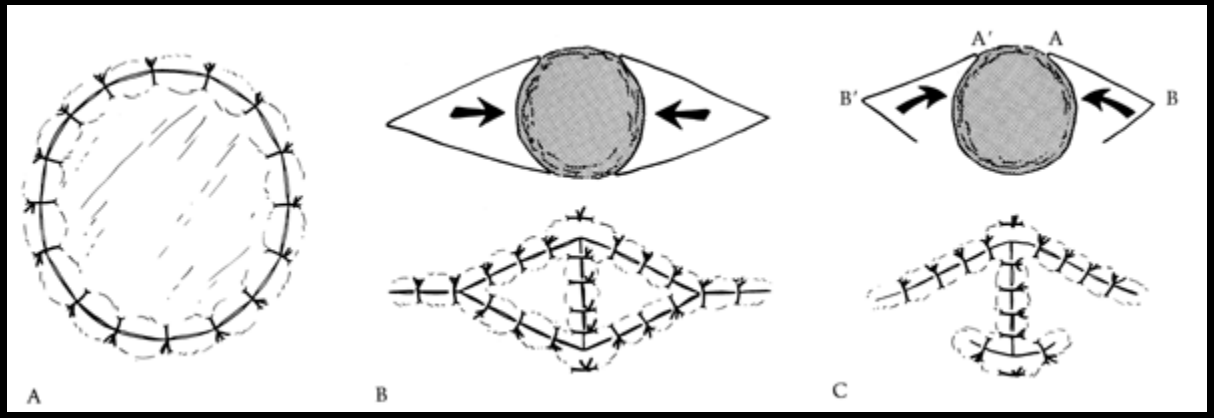
Wedge Excision :

Lesions located at or adjacent to free margins can be excised by wedge excisions. One-third of the lower lip and one-fourth of the upper lip and eyelid can be excised with primary closure.
Lesions near the rim of the ear can be excised in a simple V shape and directly approximated. If excisions are large, stepping the limbs of the V at the helix will prevent notching.



Circular Excision:

When preservation of the skin is required in areas such as the nose or the anterior surface of the auricle, the lesion can be excised in a circular manner and the defect closed with a skin graft or skin flap.



Multiple Excision Technique :

Serial excision or tissue expansion is frequently employed for large lesions such as congenital nevi.

The inherent viscoelastic properties of skin are utilized, allowing the skin to “stretch” over time. These techniques allow wound closure to be accomplished with a shorter scar than if the original lesion was elliptically excised in a single stage.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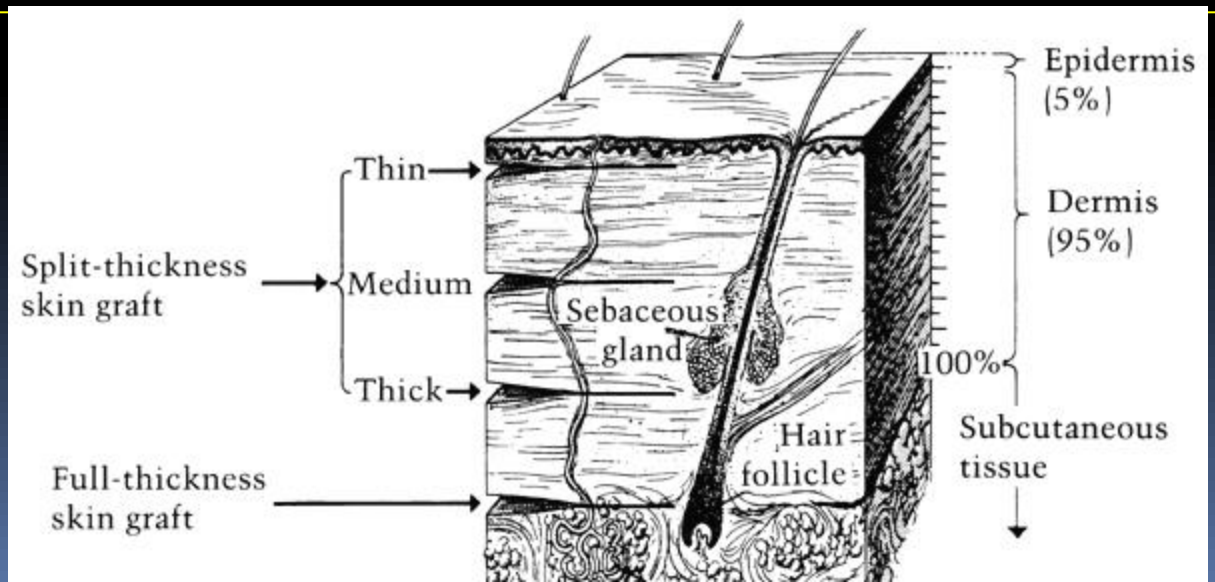
Skin grafts :

are a valuable option for closing defects that cannot be closed primarily. A skin graft consists of epidermis and some portion of dermis that is removed from its blood supply and transferred to another location.

Skin Graft Types :

A skin graft may either be full or split thickness, depending on how much dermis is included. Split-thickness skin grafts contain varying thicknesses of dermis while a full-thickness skin graft contains the entire dermis. All such grafts contain adnexal structures such as sweat glands, sebaceous glands, hair follicles, and capillaries



The number of epithelial appendages transferred with a skin graft depends on the thickness of the dermis present.

The ability of grafted skin to sweat depends on the number of glands transferred and the sympathetic reinnervation of these glands from the recipient site.

Skin grafts are reinnervated by ingrowth of nerve fibers from the recipient bed and from the periphery.

Full-thickness grafts will have the greatest sensory return because of a greater availability of neurilemmal sheaths. Hair follicles can also be transferred with the graft. Full-thickness skin grafts will contain more hair follicles than split-thickness skin grafts.

Requirements for Survival of a Skin Graft:

The success of skin grafting, or "take," depends on the ability of the graft to receive nutrients and, subsequently, vascular ingrowth from the recipient bed.

Skin graft revascularization or "take" occurs in three phases:

The first phase :

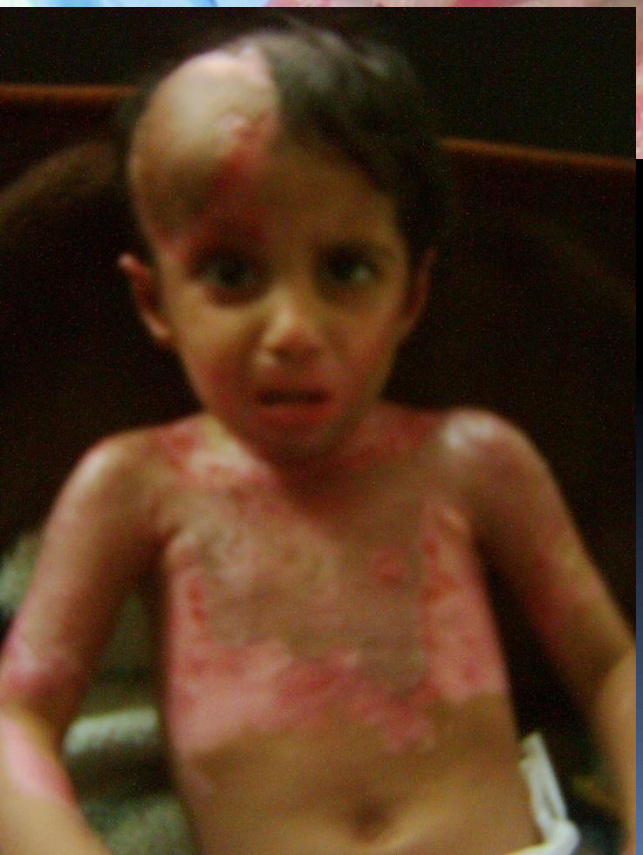
Involves a process of serum imbibition and lasts for 24 to 48 hours. Initially, a fibrin layer forms when the graft is placed on the recipient bed binding the graft to the bed. Absorption of nutrients into the graft occurs by capillary action from the recipient bed.

The second phase:

Is an inosculatory phase in which recipient and donor end capillaries are aligned.

The third phase:

The graft is revascularized through these "kissing" capillaries. Because the full-thickness skin graft is thicker, survival of the graft is more precarious, demanding a well-vascularized bed.

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Recipient site preparation:

1 Skin grafts require a vascular bed and will seldom take in exposed bone, cartilage, or tendon devoid of its periosteum, perichondrium, or paratenon. There are exceptions, however, as skin grafts are frequently successful inside the orbit or on the temporal bone, despite removal of the periosteum.

2. Close contact between the skin graft and its recipient bed is essential.

3. Hematomas and seromas under the skin graft will compromise its survival.

4. immobilization of the graft is essential.

Skin Graft Donor Sites :

The donor site epidermis regenerates from the immigration of epidermal cells originating in the hair follicle shafts and adnexal structures left in the dermis. In contrast, the dermis never regenerates. Since split-thickness grafts remove only a portion of the dermis, the original donor site can be used again for subsequent split-thickness graft harvest. Thus, the number of split-thickness grafts harvested from a donor site is directly dependent on the donor dermis thickness.

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FROM WHERE WE CAN TAKE SKIN GRAFT ?

Skin grafts can be taken from anywhere on the body, although the color, texture, thickness of the dermis, vascularity, and donor site morbidity vary considerably. Skin grafts taken from above the clavicles provide a superior color match for defects of the face.. Full-thickness skin graft harvest sites can be closed primarily. The abdominal wall, buttocks, and thigh are common donor sites for split-thickness skin grafts

FLAPS:

Unlike a graft, a flap has its own blood supply. Although the skin graft is often simpler, there are cases in which a flap is required or may be more desirable. Flaps are usually needed for :

1. **covering recipient beds that have poor vascularity;**
2. **reconstructing the full thickness of the eyelids, lips, ears, nose, and cheeks;**
3. **padding body prominences (i.e., for bulk and contour).**
4. **Flaps are also used when it is necessary to operate through the wound at a later date to repair underlying structures.**
5. **In addition, muscle flaps may provide a functional motor unit or a means of controlling infection in the recipient**

TYPES OF FLAPS :

SKIN FLAPS

MYOCUTANEOUS FLAPS

OSTEOMYOCUTANEOUS FLAPS

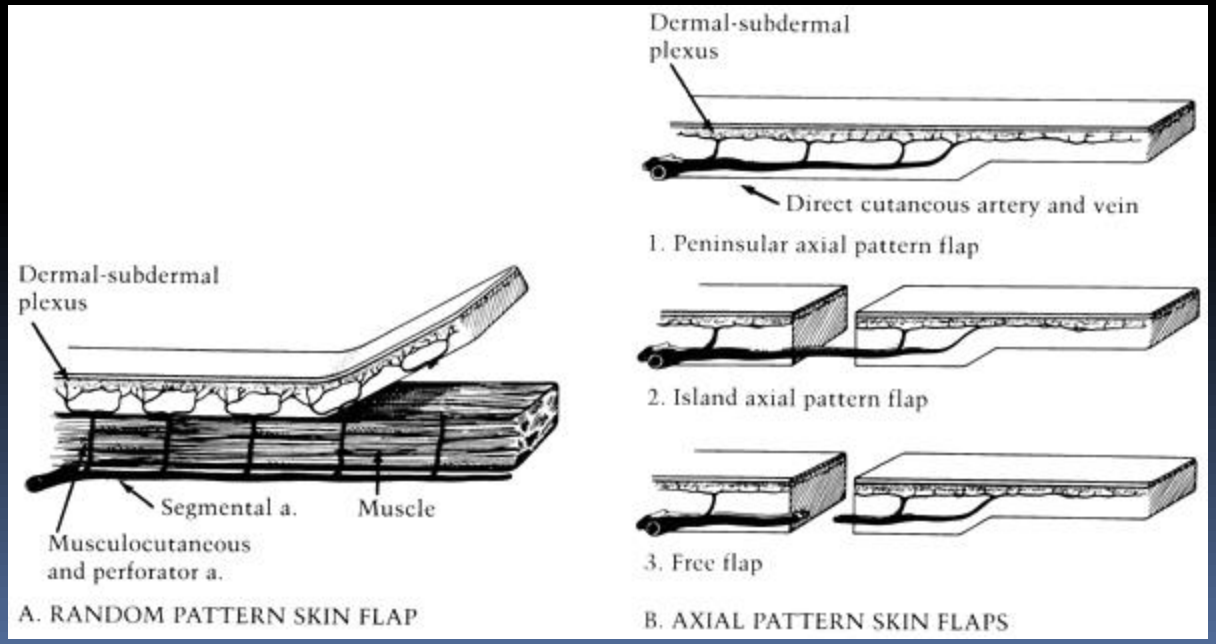
MUSCLE FLAP

BONE FLAP

FREE FLAP

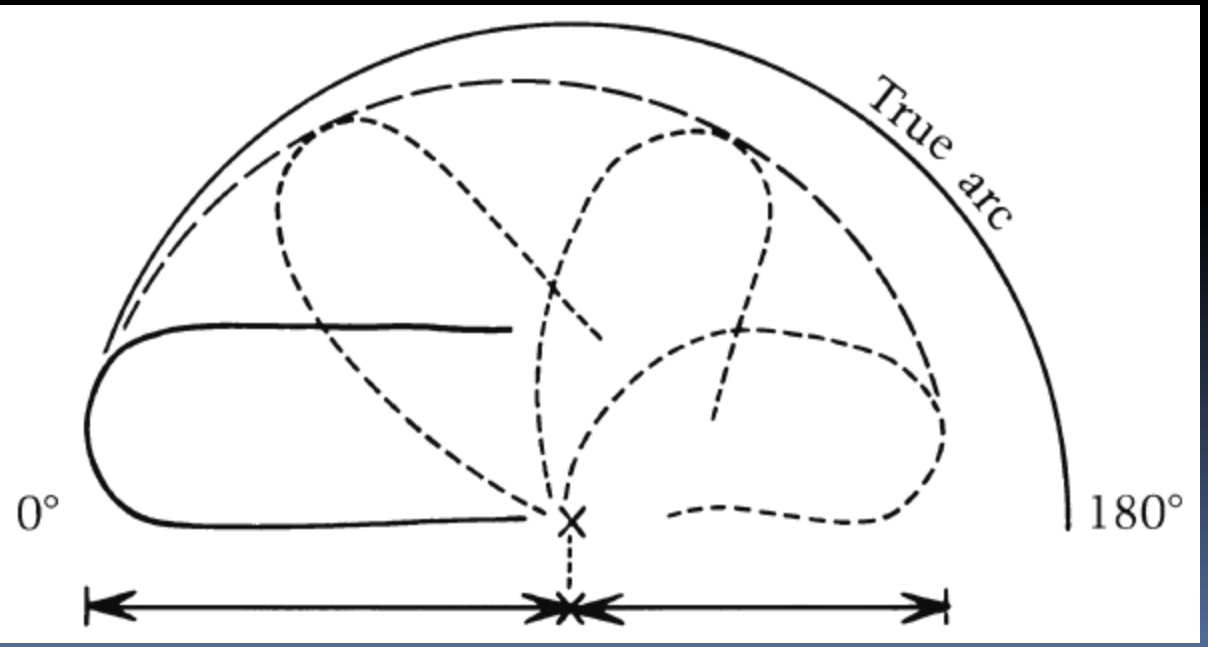
A skin flap:

consists of skin and subcutaneous tissue that are transferred from one part of the body to another with a vascular pedicle or attachment to the body being maintained for nourishment. Proper planning of a flap is essential to the success of the operation. All possible sites and orientations for the flap must be considered to be certain that the most suitable one is selected.



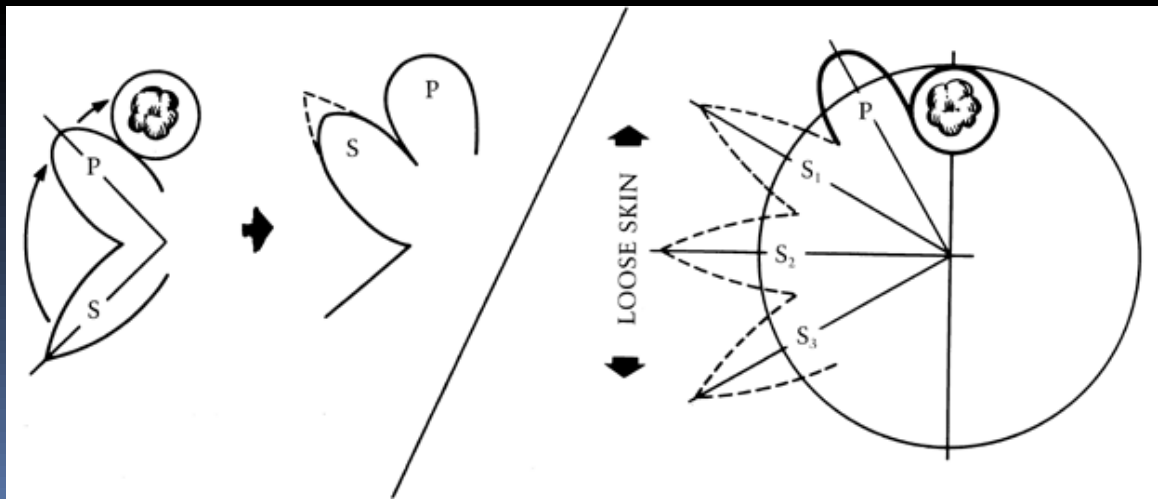
Local skin flaps are of two types:

1. **Flaps that rotate about a pivot point**
   (rotation, transposition, and interpolation flaps)
2. **Advancement flaps**
   (single-pedicle advancement, V-Y advancement, Y-V advancement, and bipedicle advancement flaps).



Flaps Rotating About a Pivot Point

Rotation, transposition, and interpolation flaps have in common a pivot point and an arc through which the flap is rotated. The radius of this arc is the line of greatest tension of the flap. The realization that these flaps can be rotated only about the pivot point is important to their planning



INTERPOLATION FLAP

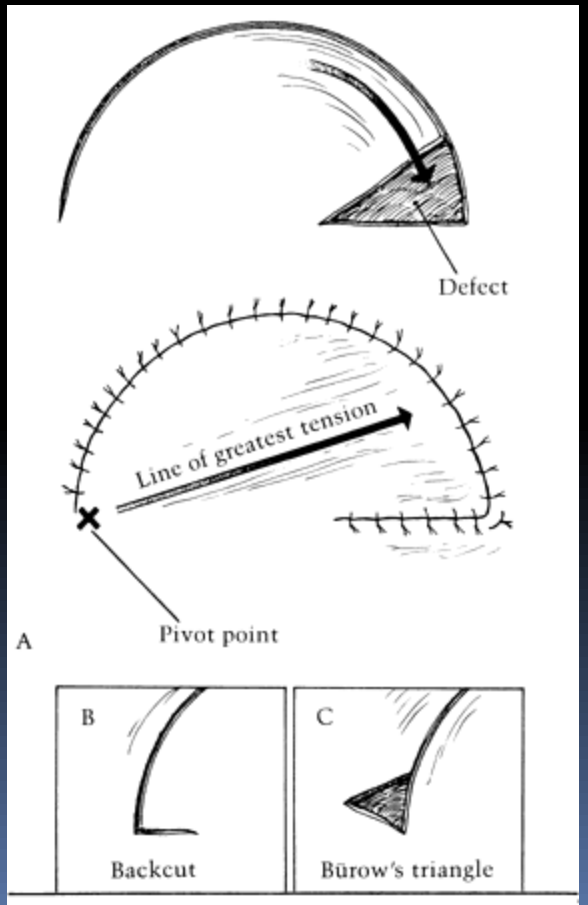
INTERPOLATION FLAP

The rotation flap :

is a semicircular flap of skin and subcutaneous tissue that rotates about a pivot point into the defect to be closed . Its donor site can be closed by a skin graft or by direct suture of the wound.

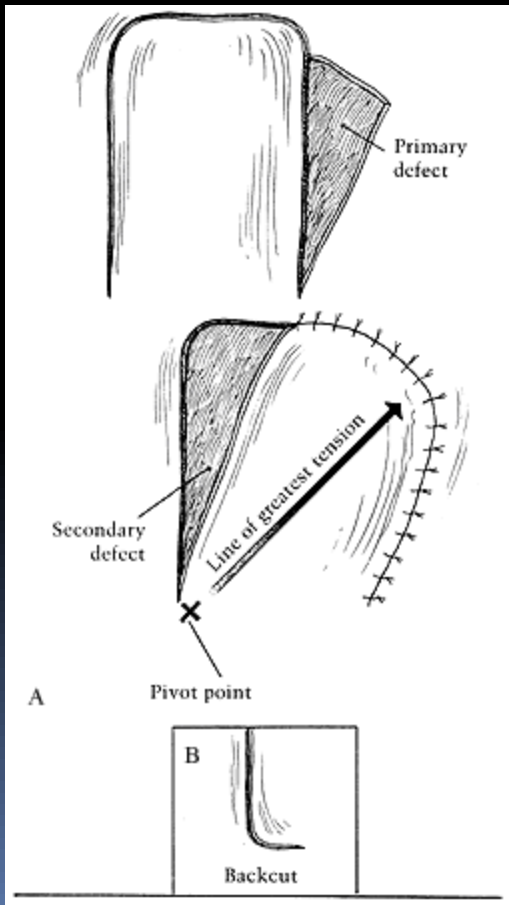
The interpolation flap:

Is semicircular or rectangular flap that rotate about a pivot point and bridge a normal tissue to the defect



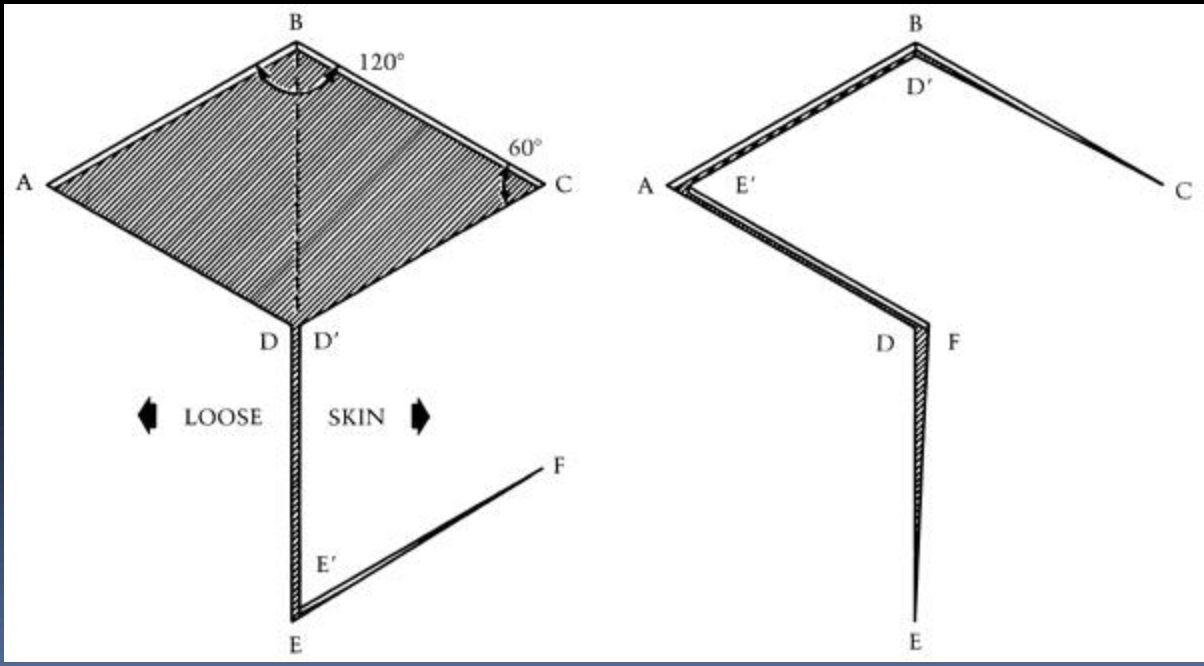
The transposition flap:

is a rectangle or square of skin and subcutaneous tissue that also is rotated about a pivot point into an immediately adjacent defect. The flap donor site can be closed by skin grafting, direct suture of the wound, or a secondary flap from the most lax skin at right angles to the primary flap.



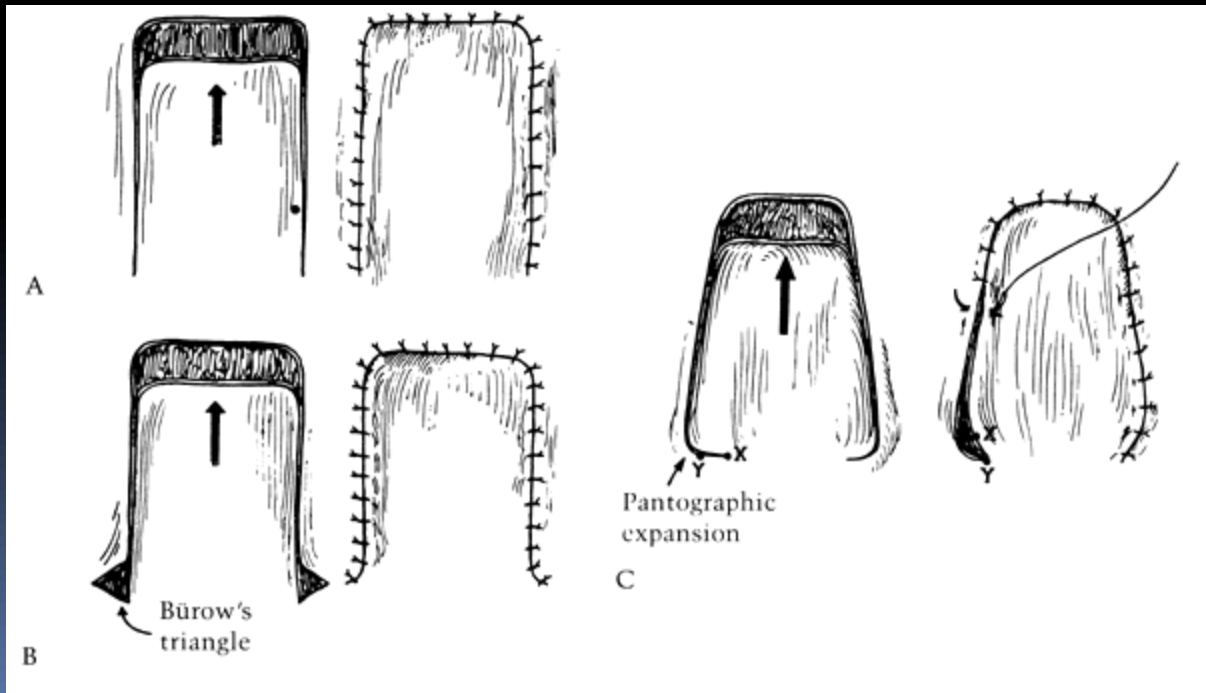
Limberg flap:

is another transposition flap.



Advancement Flaps

All advancement flaps are moved directly forward into a defect without any rotation or lateral movement. Modifications are the single-pedicle advancement, the V-Y advancement, and the bipedicle advancement flaps.



The V-Y advancement technique:

has numerous applications. It is not an advancement in the same sense as the forward movement of a skin flap just described. Rather, a V-shaped incision is made in the skin, after which the skin on each side of the V is advanced and the incision is closed as a Y .This V-Y technique can be used to lengthen such structures as the nasal columella, eliminate minor notches of the lip, and, in certain instances, close the donor site of a skin flap.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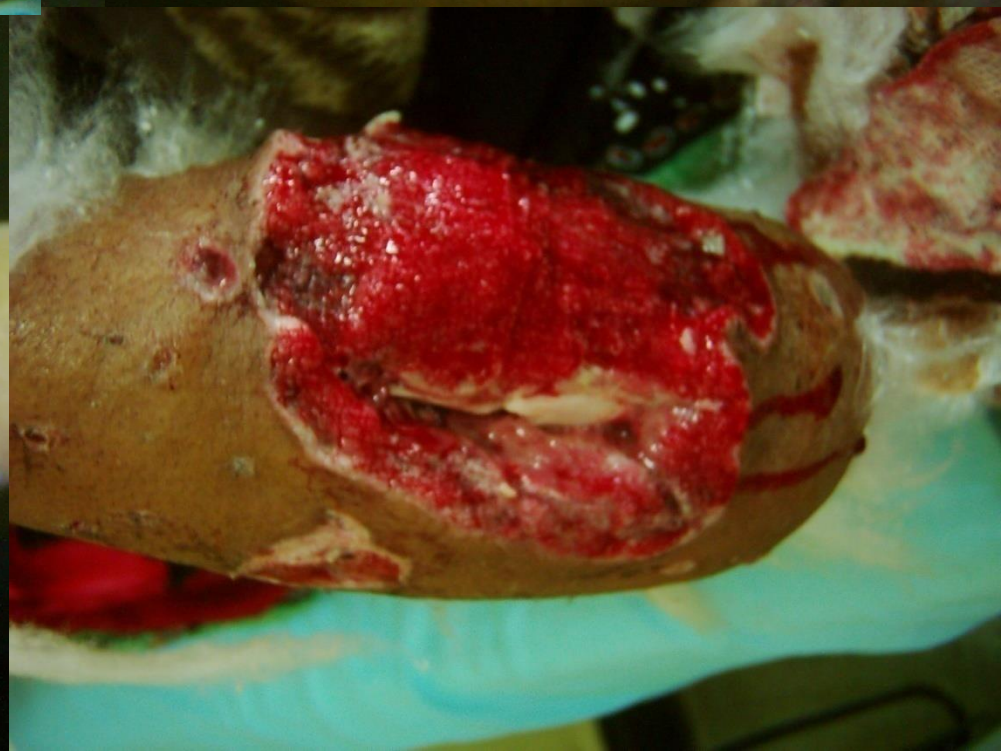








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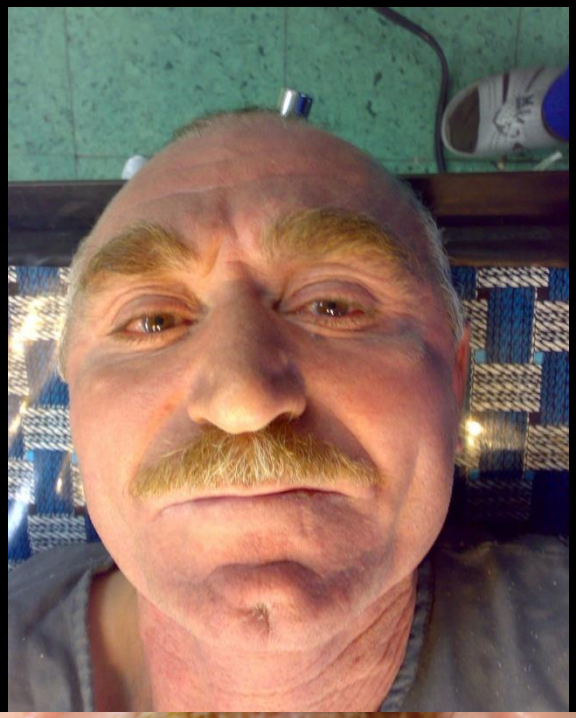


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