SKIN GRAFTS AND FLAPS

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Skin Graft

• A skin graft is a procedure performed where healthy skin is removed from one area of the body, the donor site, and transplanted to another, the recipient site.

• The areas of the body that are most commonly used as donor sites for skin grafts are the leg, inner thigh, upper arm, forearm and buttocks.
Types of grafts

1) *Split or partial thickness graft (Thiersch grafts)* – This is the most common type of graft. The epidermis and part of the dermis are removed from the donor site and transplanted on the damaged area. The cosmetic result is often not good. Skin on the donor site can grow back from sweat glands and hair follicles.
2) Full thickness graft (Wolfe grafts) – The entire epidermis and dermis are transplanted to the recipient site.

Although the cosmetic effects can be good, full thickness grafts are only suitable for small areas.

The donor site needs to either be closed with stiches, or have a partial thickness graft transplanted.
3) **Composite skin grafts** (usually skin and fat, or skin and cartilage). Often taken from the ear margin and useful for rebuilding missing elements of nose, eyelids and fingertips.

4) **Nerve grafts**. Usually taken from the sural nerve but smaller cutaneous nerves may be used.

5) **Tendon grafts**. Usually taken from the palmaris longus or plantaris tendon (runs just anteromedial to the Achilles tendon) and used for injury loss or nerve damage correction.
How does a skin graft survive?

• 1) initially by *imbibition* of plasma from the wound bed.

• 2) after 48hr fine anastomotic connections are made, which lead to *inosculation* of blood. Capillary ingrowth then completes the healing process with fibroblast maturation.
Reconstructive ladder

• When faced with a tissue defect, reconstructive surgeons use a hierarchy of repair techniques based on operative complexity – reconstructive ladder.
Flaps

• A flap is a piece of tissue that is transferred from one part of the body to another with its blood supply preserved or immediately re-established by microsurgical means.

• This is in contrast to a graft where the tissue is detached and relies on nourishment from the recipient bed for its survival.
Classification of flaps

Flaps can be classified according to:

- A) Method of movement
- B) Blood supply
- C) Composition
Method of movement

• **1) Local flap** – This is when the donor site is immediately adjacent to the recipient site. The required area of skin and tissue is moved without interrupting the blood supply.

• **2) Distant flap** – Distant flap is when a flap is from an entirely different area of the body, for example, a flap taken from the leg might be used for a wound on the neck.
Local flap

Subdivided into –

• 1) Advancement flaps – move directly forward into the defect without any lateral movement.

• 2) Transposition flaps – move laterally into a defect about a pivot point with the creation of a secondary defect.

• 3) Rotation flaps – move in a circular movement directly into the defect without the creation of a secondary defect.
Distant flap

Subdivided into –

• 1) Direct flaps – where tissue is placed directly from the donor to the recipient site.

• 2) Tube pedicled flaps – where the pedicle is long and tubed around itself to close off the raw area of the pedicle to prevent desiccation and infection.

• 3) Free flaps – where tissue is harvested at a distance with identification, dissection and division of its arterial supply and venous drainage with reconnection using microsurgical techniques.
Classification according to Blood supply

• 1) Random pattern flaps – here flaps containing skin and subcutaneous fat nourished by musculocutaneous perforators at the base of the flap connecting with the subdermal plexus.

• 2) Axial pattern flaps – which is nourished by a named direct cutaneous vessel running along its longitudinal axis within the subcutaneous tissue.
Classification according to composition

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<th>FLAP CLASSIFICATION</th>
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<tbody>
<tr>
<td>Cutaneous</td>
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- Cutaneous
- Fascio-cutaneous
- Osteo-cutaneous
- Muscle
- Osseous

- Skin
- Fat
- Deep fascia
- Muscle
- Bone
Pathogenesis of flap failure

**Extrinsic Factors**

- 1) Haematomas under the flaps
- 2) Wound infection
- 3) Systemic hypotension
- 4) Tension of the flaps
- 5) Cigarette smoking

**Intrinsic factors**

- 1) Inadequate arterial inflow
- 2) Inadequate venous drainage
- 3) Arterio-venous shunting.