Principles of Skin Grafts

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Anatomy

Epidermis

- Stratified squamous epithelium/keratinocytes
- Melanocytes and Langerhan’s cells
Dermis

- Papillary dermis
  - Thinner
  - Loose connective tissue
  - Elastic fibers
  - Reticular fibers
  - Some collagen

QuickTime™ and a decompressor are needed to see this picture.
- **Reticular dermis**
  - Thicker
  - Dense connective tissue
    - Larger blood vessels
    - Closely interlaced elastic fibers
    - Coarse, branching collagen fibers arranged in layers parallel to the surface
    - Fibroblasts
    - Mast cells
    - Nerve endings/sebaceous glands/hair follicles
    - Lymphatics
    - Some epidermal appendages
Functions of Skin

- Protective barrier
- Trauma
- Radiation
- Infection
- Thermoregulation
- Vasoconstriction/constriction
- Insensible fluid loss control
History of Skin Grafts

- Full thickness grafts first successfully transplanted in sheep by Baronio of Milan in 1804,
- Humans by Buenger of Germany in 1823
When and why

- Trauma
- Burns
- Skin lesion
- Defect
- Wound healing
- Cosmetic
Phases of graft take

- Phase One (0-48 hours)
  - Plasmatic Imbibition - diffusion of nutrition from recipient bed
- Phase Two (2-3 days)
  - Inosculation - vessels in graft connect with those in recipient bed
- Phase Three (3-5 days)
  - Neovascular Ingrowth - graft revascularised by ingrowth of new vessels into bed
Types of grafts

- Partial thickness (split skin graft thin/thick)
  - 100% epidermis and part of dermis
- Full thickness
Split skin grafts

- **Indications**
  - No primary closure
  - Large wounds 5-6cm

- **Advantages**
  - Surface coverage
  - Drainage

- **Disadvantages**
  - Cosmetic
  - Limitations
Full thickness

- Indications
  - Small wound - facial/hand

- Advantages
  - Colour match
  - Cosmetic
  - Less contraction

- Disadvantages
  - Blood supply
  - Donor wound
  - Cant reharvest
QuickTime™ and a decompressor are needed to see this picture.
Post graft care

- Pressure
- Dressings
- Infection
- Contracture
Complications

- Infection
- Haematoma/Seroma
- Traction
- Contraction
- Rejection
  - systemic factors
  - unsuitable site
Biological agents

- Cell cultures
- Spray-on skin
Case Study

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