WOUND MANAGEMENT

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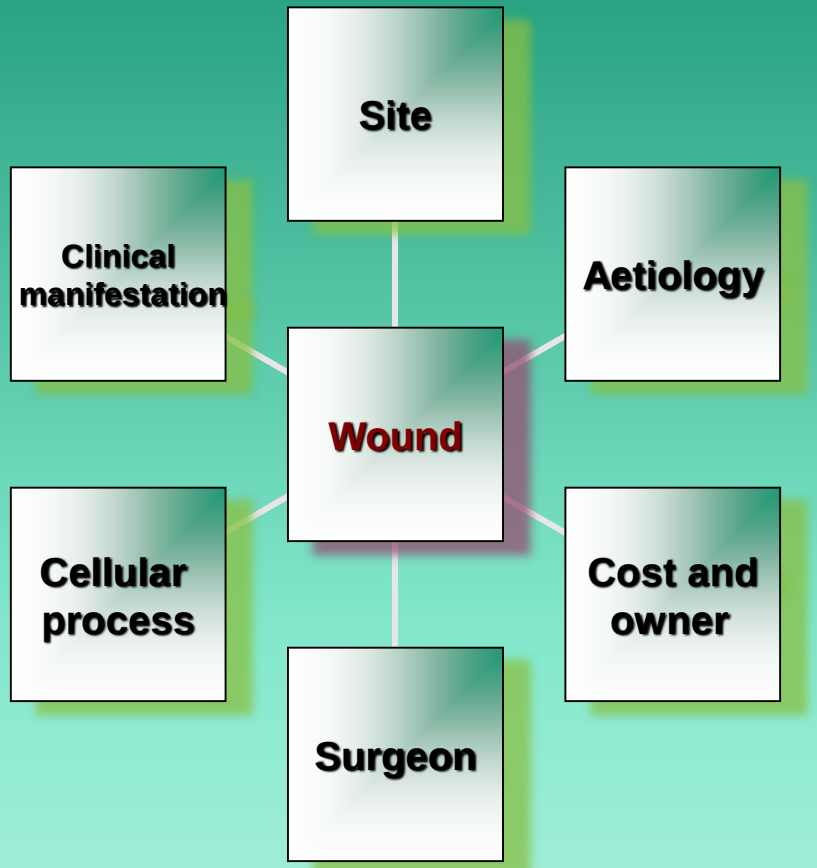
Site
Clinical manifestation
Aetiology
Wound
Cellular process
Cost and owner
Surgeon

Aetiology of wounds

Incisions

Abrasions

Degloving and avulsion

Shearing

Iatrogenic

Puncture wounds

Snake and insect bites

Burns and scalds

Ballistic injuries

Healing

Primary goals of the wound healing process

To restore continuity between the edges of the wound

To re-establish the function of the tissue after injury

Healing Phases

1. Reaction phase

2. Repair:

a) Organisation

b) Progressive fibrosis

3. Regeneration

Cellular exudate

Polymorph emigration

Chemotaxis

Diapedesis

Monocyte emigration

Macrophage

Fluid exudate

Serum bactericidal factors

Antibodies

Complement

Inflammatory mediators

Histamine, 5-hydroxytryptamine

Kinins, bradykinins, kallidin

Growth factors involved in the inflammatory process

Platelet derived growth factor (PDGF)

Epidermal growth factor (EGF)

Transforming growth factors α, β (TGF-α, TGF-β)

Heparin-binding epidermal growth factor (HB-EGF)

Insulin-like growth factor-1 (IGF-1)

Basic fibroblast growth factor (bFGF)

Ideal dressing criteria

- A balanced physical control at the dressing/wound interface to give an unsaturated but high humidity environment
- To allow gaseous diffusion
- Afford protection from external hazards and microbial or fluid contamination
- To be compatible with the humoral and cellular factors involved in healing
- To require infrequent replacement without tissue trauma

Future = BIOACTIVE

Deliver or stimulate delivery of substances active in the healing cascade

Present* = *INTERACTIVE

Controlled microenvironment

Past = PASSIVE

Absorbent - plugs and covers

Interactive polymeric dressings

Vapour permeable films

Polymeric foams

Hydrogels

Xerogels

Hydrocolloids

Bioactive

Deliver or stimulate delivery of substances active in the healing cascade

Bioactive Wound Management

Calcium
Iodine
Silver
Lyophilised Porcine Skin
Tissue engineering
Maggots
Leeches
Honey