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Management of Chronic Wounds

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Key Factors that Delay Wound Healing in Horses:

- Movement
- Presence of a foreign body/sequestrum
- Infection
- Large tissue deficits
- Presence of necrotic tissue/contamination
- Poor/loss of bloody supply
- Continued trauma
- Involvement of underlying structures
- Malignant transformation of tissue
- Poor tissue oxygenation
- Poor general health status

Figure 1. Initial wound

Key Points to Consider:

1. The recognition and elimination of any of the above impediments is a pre-requisite for successful intervention
2. No wound products/dressing replaces the need to address the above impediments.
3. All wounds ultimately heal once all impediments have been eliminated
4. The healing rate cannot be increased, but the provision of an optimal environment will allow the wound to heal as fast as biologically possible.

5. A dry environment encourages scab formation which retards healing. A moist and low-O_2 / high-CO_2 environment (bandage or cast) creates an optimal environment.
6. Inflammation, debridement, repair and maturation – what stage of healing is the wound at, what needs to be done to move it to the next stage?

Figure 2. Cleaning up wound

Figure 3. Wound appearance while healing

Recommended protocol for dealing with Chronic Wounds

1. Estimate the Age of the Wound
    a. Granulation tissue can be first recognised in a wound after 4 to 5 days
    b. A white rim around the wound (advancing epithelial margin) is first noted around 14 days
2. Think anatomy – Rule out the involvement of underlying structures, especially bones, tendons and synovial structures
3. Identify and eliminate any impediments of wound healing

Removal of Necrotic debris and contamination

- Lavage with saline or if not available with water, as early as possible
- Sharp surgical debridement (scalpel, not scissors as they crush tissue) is highly effective in heavily contaminated wounds
- DO NOT remove flaps of tissue if there is any evidence of viability as it will function as a Biological band aid

Elimination of Movement by use of

1. Multi-layered, properly applied bandages
2. Splints – commercial options, drain pipe or wood
3. Cast – half limb casts and foot casts are highly effective as they immobilise and provide an ideal environment for wounds to heal

Dressing Choice

Dressings do one of three things: Donate moisture, absorb exudate or debride. Think carefully what you need your dressing to accomplish; a healthy wound should not require a dressing designed to absorb exudate.

How to Recognise Complications

- Exposed bone – Think sequestrum; consider taking radiographs 4-6 weeks after wounding especially if drainage is identified
- Skin wounds should not cause lameness; if the horse is lame, look for involvement of underlying structures
- Large wounds with big tissue deficits, excess movement – consider grafting & splinting/casting
- Infection is one of the most common complications. Possible management options if you are concerned:
  - Swab & culture for targeted antimicrobial therapy
  - Topical antimicrobials combined with a hydrogel
  - Regional Perfusion
  - Honey – A highly effective topical antimicrobial, used for wound debridement, but will also desiccate healthy granulation tissue.

Figure 4. Outcome