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An approach to wounds in horses

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One of the most commonly encountered injuries in equine practice are wounds. Indeed it seems that of all the species dealt with by veterinary surgeons, the horse is particularly prone to wounds. The conditions in which horses are kept, the type of work that they are involved in, and the potentially “flighty” equine temperament probably all contribute to the high incidence of such injuries.

Healing is an orderly biologic process of repair that restores continuity to injured tissue. Healing occurs by first intention when union or restoration of continuity of tissue occurs directly without the production of granulation tissue. Wounds are sutured with the intent that they will heal by first intention. Wounds left un-sutured heal by second intention. Third-intention healing (delayed closure) occurs when closure is delayed to allow treatment.

Wounds move predictably down a common pathway of healing, and knowledge of the predictable events of healing can be used to decide steps in wound management. The sequence of events progresses through 4 overlapping phases:

1. inflammatory phase
2. debridement phase
3. repair phase
4. maturation phase

When examining a wound it is useful to ask yourself the question, what phase of healing is this wound in, and what is required to move it forward into the next phase.

There are a number of factors, some unique to the horse, which can cause problems for, or delay, wound healing. These include; limited soft tissue coverage of the distal limbs, involvement of sensitive underlying structures such as joints or tendon sheaths; excessive movement; production of exuberant granulation tissue; heavy contamination with soil, debris and faeces, and the potentially unco-operative nature of the animal. Further challenges include the potential for wound treatment to become very expensive for the client.

Time elapsed between wounding and treatment should be given only modest consideration. Veterinary surgeons have traditionally held to the principle that wounds should be closed during the "golden period," which is the time necessary for contaminating bacteria to multiply to the concentration of \(10^5\) organisms per gram of tissue. This period is generally considered to be 6 to 8 hours from the time of wounding, but this period is arbitrary and may differ among areas of the body. For example, wounds of the head have a long grace-period because the blood supply to the head is excellent and causes bacteria in a wound of the head to multiply slowly to the concentration of \(10^5\) organisms per gram of tissue. Most soft tissue wounds of the head can be closed safely within 24 hours after wounding. Infected, inflamed wounds should not be closed, and if a wound managed by primary closure develops signs of infection- the closed wound may need to be opened.

Whether the wound is being closed or left open, the wound and surrounding skin should be
cleansed to remove microfauna, gross contaminants, and blood clots.

Hair in a closed wound acts as a foreign body, therefore care should be exercised to avoid contaminating the wound when removing hair. Hair surrounding the wound should be dampened with water or coated with K-Y water soluble jelly.

The skin surrounding the wound should be cleansed with antiseptic solutions, but these should not be applied to the wound itself or they may interfere with healing.

Contaminating bacteria on wounds can be reduced to noninfective concentrations by using high-pressure lavage, debridement, and antimicrobial drugs administered systemically or topically.

Pressure of 8 pounds per square inch or higher is classified as "high-pressure," and pressure below this level, as obtained with a bulb syringe, is designated as "low-pressure." Pressure exerted through a 19-gauge needle by a 35-ml syringe is 8 psi. A common concern about high-pressure lavage is that it may disseminate foreign material and bacteria from the surface of the wound into the depths of the tissue, but this concern is not valid. High-pressure lavage can damage tissue, however, and should not be used indiscriminately.

When assessing a wound, the following information may be important: when and how did the wound occur; how big it is and which part of the body is affected; could there be involvement of underlying structures; is the horse lame? If the wound is recent, is there evidence of infection or severe inflammation? Is it discharging?

It is the expectation of many horse owners that the wound will or should be closed immediately, this is often NOT in the horse’s best interests particularly where there is a substantial loss of skin and/or a great deal of contamination.

A great many options have been advocated for dealing with equine wounds and some of these will be discussed in the course of this presentation.

Some tips to help you deal with a wounded horse.

1. Do not forget that no matter how bad a wound may look initially, most do well as long as they receive the appropriate treatment.

2. Assess were the wound is, small wounds over a joint or tendon sheath can be far more serious or life threatening than larger wounds in other areas. Don’t forget that absence of obvious lameness does not rule out penetration of a joint or sheath.

3. Bring the horse to an area where it can be assessed. Then wash the wound with water to remove contamination. A running hose is the best way to do this, if the horse will tolerate it.

4. Don't apply anything to the wound other than a clean, dry dressing —resist the temptation to apply wound powder, purple spray or oily creams. (Detergent, antiseptics, wound powder may actually inhibit healing!)
5. Suprisingly, skin wounds are not very painful and should not cause much lameness, if the horse is very lame, it is very likely there is damage to some underlying structure or infection is present.

6. Don’t forget to check the tetanus vaccination status of the horse.