

Equine Wounds: What Horse Owners Should Know

Wounds are one of the most common equine emergencies. Horses are especially prone to wounding themselves because of their size and speed. Their often violent flight response means that collisions with objects are common. Their large size and fast movements mean that the forces of impact are great and wounds are often serious.

This article explains basic wound healing and successful wound care. It is very important to differentiate between potentially serious wounds, and ones that will heal well on their own or with simple care. The key, as I've discussed in many other articles, is knowing when to call your veterinarian for advice. He or she will help you to determine which wounds you can treat on your own and those that should be seen. See *Handling Equine Emergencies: What Horse Owners Should Do*, *Horse Owner Self-Help: Knowing When to Call a Veterinarian*.

BASICS OF WOUND HEALING

There are three basic "stages" of wound healing starting from the moment that the wound is created until all healing and scarring has taken place. These stages overlap but their division into stages simplifies understanding. Depending on the wound in question, the healing process can take months or longer.

The initial stage, lasting from the moment of wounding to a few days following, involves the formation of a clot and the recruitment of infection fighting cells and more blood flow to the area. This process allows the breakdown of irreversibly damaged tissue and foreign material, and controls wound infection.

The next stage involves the creation of a scaffold in the wound defect (granulation tissue) that serves as a basis for

more mature tissue to be laid down and for skin to migrate over. This stage lasts from about five days to several weeks after wounding. The granulation tissue produced is the red colored filling tissue so familiar to horse owners which, when it grows above the wound bed, is known as proud flesh.

The next stage involves wound contraction as the skin is actually pulled together by cells in and around the wound, and skin migration, as skin cells multiply along a front and migrate over the wound. The healing wound then gains strength over weeks to months as more organized, tough tissue replaces the early scar. This stage actually starts as early as 2 days after wounding and so overlaps the other stages.

How well wounds heal depends on many interrelating factors affecting each of these stages. Wounds penetrating internal body spaces like joints, sinuses, and the ab

domen often result in infection of these structures, which can be life threatening. Wounds that contain foreign bodies like wood or other material will not heal until that material is removed.

HEAD WOUNDS

Severe equine head wound before and after repair.

Head and neck wounds are common in equines. There are several important things to know about head wounds:

- The head has an excellent blood supply that helps with rapid healing, but there is little extra skin over the bones of the face. Thus, wounds with significant skin loss take a long time to heal. If there is skin loss involved in a new wound, a veterinarian may be able to save lots of healing time by repairing it if the skin is still viable.
- Head wounds often result in loose flaps of skin. A veterinarian should repair these wounds as soon as possible. Suturing these wounds saves months of healing time and results in improved cosmetic appearance.

- Head wounds often involve bone, which is just under the skin in most places. Thus, a common complication of head wounds is damaged and infected bone. This may require surgical removal immediately or at a later date.
- The sinuses are air-filled cavities within the skull that communicate with the upper respiratory tract. Wounds fracturing the facial bones and entering into these cavities can result in their infection, which can be a chronic and severe problem. Signs of sinus infection are yellow or whitish nasal discharge (often with a foul odor), and chronic swelling or drainage at the wound site.
- A severe wound of the head or neck requires assessment of the whole horse to ensure that their brain and spinal cord have not been injured.
- Wounds near to or involving the eye require a veterinarian's assessment immediately. Proper repair of eyelid lacerations is critical to the future function of the eye.

BODY WOUNDS

Body wounds are common and most heal quickly. As was discussed with head wounds, the critical question is whether the wound involves deeper structures or penetrates into the abdominal cavity.

- A wound that penetrates into the abdominal cavity or chest introduces life-threatening infection into the cavity and results in severe illness within hours.

Severe abdominal wound, before and after treatment. The wood splinters (shown on the far right) penetrated into the abdominal cavity, introducing life-threatening infection. Prompt and aggressive treatment was required to save the horse.

- Wounds along the top-line lack the ability to drain, and

so pose more problems healing.

- Wounds to the underside of the body are common and generally heal well as long as there is no foreign body and the wound does not penetrate body cavities.
- Whether or not body wounds are sutured depends on many factors, including location, age of wound, degree of contamination, and muscle damage.
- Uncomplicated body wounds (especially chest wounds) left open often heal very well by wound contraction.

LOWER LIMB WOUNDS

Lower limb equine wounds can be serious, even life-threatening, if vital structures are involved.

Lower limb wounds are very common and are always potentially very serious. For the best outcome, any wound below the hock or carpus (knee) should be evaluated by an experienced veterinarian.

- Vital structures like joints, tendon sheaths, ligaments and bone are just a few millimeters from the skin surface. If these structures are involved, life threatening or chronic lameness may result. Excellent veterinary management of these injuries from the beginning is the key to successful outcomes.
- Excessive movement, little loose tissue for contraction, and a poor blood supply in the lower limb results in difficult and slow wound healing.
- Overgrowth of healing tissue (proud flesh) is common in lower limb wounds of the horse. Proud flesh is excessive healing tissue that accumulates to a level above the wound bed or surrounding skin surface. It inhibits healing by preventing the skin from migrating over the wound bed. It must be removed and managed. Proper wound care controls the formation of proud flesh.
- Suturing of selected lower limb wounds is usually

accompanied by careful bandaging or casting, and long-term confinement. A properly applied cast can result in a quick, cosmetic and functional outcome in what otherwise would be a slow and difficult healing process.

UPPER LIMB WOUNDS

- Upper limb wounds are common and generally heal rapidly.
- There is much more musculature in the horse's upper limb than in the lower limb, so bone and vital structures are generally less often involved.
- There is a better blood supply here than in the lower limb, which aids wound healing. The additional tissue mass means wound contraction can aid healing more than in the lower limb.
- Severe wounds to the upper limb can result in tremendous muscle loss but usually this does not reduce function much.
- Cared for properly, most of these wounds with extensive muscle loss heal well and result in acceptable function of the limb.
- Veterinarians sometimes choose to repair these wounds by suturing, but often recommend treatment leaving the wound open.

WOUND GUIDELINES

- Know when to call your veterinarian, and when in doubt, give them a call anyway.
- Understand that wounds in proximity to or involving eyes, joints and tendon sheaths, abdomen (belly area), and other body cavities may be very serious and may require immediate veterinary attention.
- Depending on the location, age of wound, degree of contamination and other factors, your veterinarian will choose whether or not a wound should be sutured. While horsemen know that there is an early window of

opportunity to suture wounds, there are many other factors that determine whether suturing is the treatment of choice.

- Always call your veterinarian immediately if a wound causes lameness visible at the walk.
- Bleeding is rarely life threatening in horses, although it can be with laceration of the large vessels in the body and neck. Because of their size and large blood volume, horses can lose gallons of blood before going into shock. It is important to understand that even severe bleeding can usually be controlled with direct pressure. This means firm and even pressure right on the bleeding vessel. This is most commonly needed on the lower limb, where the large vessels are commonly cut.
- Antibiotics are often used in wounds that involve or are near important structures or are infected. Antibiotics should only be given after consultation with your veterinarian.
- Phenylbutazone (bute) is a potent pain reliever and anti-inflammatory. It and other anti-inflammatory medications can be helpful in some wounds to reduce swelling and pain, but should be used under the supervision of your veterinarian. They can be dangerous when used incorrectly.
- Bandaging is very helpful in some lower leg wounds, but must be done correctly. Improper bandaging can damage vital structures of the limb. Improper bandaging may also lead to increased formation of proud flesh.
- Ointments should be used cautiously and under the direction of your veterinarian. While some have positive effects, many actually retard healing. Wound treatments that make miraculous healing claims are usually too good to be true.

- In our practice, I encourage my clients to send to me photos of wounds via e-mail on my computer or phone. By seeing these wounds, I can better advise my clients regarding whether a particular wound should be examined by me.

In assessing the severity of equine wounds I examine their location and the structures involved. The largest uncomplicated wound may heal uneventfully and with little scarring, whereas the smallest wound in the wrong place can be life-threatening. While horse owners can treat many less severe wounds successfully, the key is early communication with your veterinarian to decide whether veterinary care is needed. The Internet, email and Smartphones provides a new and great opportunity for quick, easy and effective communication of wound severity to your veterinarian.

By Douglas O. Thal DVM Dipl. ABVPBoard Certified in Equine Practice
Thal Equine LLC
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