

# Equine wound management

**Author :** Katherine King

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**Katherine King** BSc(Hons), REVN, discusses how veterinary nurses can make the difference when it comes to dealing with such cases

## Summary

NURSES play a huge role in equine wound care and management. This role is vital at every stage of the process, from the initial assessment and work-up of the patient, treatment (including the application of dressings, monitoring and nursing care), through to discharging the patient back into the owner's care. There are many different types of wound, each requiring specific management to achieve optimal healing and a successful outcome. Small puncture wounds on the limbs pose a much higher risk to the horse than a large open wound to the main body. This article discusses the process involved when a horse is admitted to hospital with a wound and highlights the importance of a nurse's involvement with wound care and management.

## Key words

equine wound, debridement, dressing, wound healing, Robert Jones bandage

**HORSES are prone to injury, mainly due to their natural flight instinct. It is well known that they react first and think later.**

When the injury involves a wound, it is important to apply effective first aid, followed by the appropriate care and management specific to the type of wound sustained. Wounds are often ignored, neglected or badly managed by owners, and what started as a minor, fairly insignificant

wound can turn rapidly into a more serious situation, with prolonged healing and a bad outcome. When a horse is admitted to the hospital with a wound, the nurse's role forms an integral part of the patient's treatment.

## **Initial assessment**

One of the most important factors in successful wound management is appropriate assessment of the initial wound (Taylor, 2012). When a horse is referred to the hospital, first aid has often already been performed. It is still important to establish exactly what the first aid involved when taking a history from a client, as this may affect the treatment plan. As part of this process, the role of the nurse should be to inform owners about effective wound management, and that it should be applied from the outset. Quick referral is essential for a successful outcome in many cases – for example, wounds with synovial involvement or excessive haemorrhage – therefore, client education should be at the forefront of our minds. Unfortunately, it seems most owners would do things to their horse they would never dream of doing to themselves (Knottenbelt, 2009). We must encourage them to realise that some very small wounds are far more dangerous than some very big ones.

## **Work-up process**

The nurse's role in the work-up of a wound case is to assist the vet with the initial assessment and treatment of the wound, admit the patient for further treatment and to look after the clients at all times – including keeping them informed and offering support where necessary.

Under guidance from the vet, the nurse is responsible for cleaning and preparing the wound for further treatment. In the first instance, any dressings in place are removed and the affected limb or area is radiographed if a fracture is suspected. The next step is to protect the exposed tissues of the wound by applying a sterile, water-soluble carboxymethylcellulose gel (such as Intrasite gel) and then clip the hair from the skin edges and surrounding area. The wound and surrounding area is then cleaned using an aseptic technique and either dilute chlorhexidine solution (0.05 per cent) or dilute povidone-iodine solution (0.1 to 0.2 per cent). Chemicals of all descriptions will harm the wound's healing process and the concept of "disinfection" of wounds is largely discredited – therefore, we must remember that "dilution is the solution to pollution" (Knottenbelt, 2009). It is important to weigh up the benefits against any harm that may be caused, as thorough cleaning and debridement to remove dirt, foreign material and necrotic tissue is essential to avoid wound breakdown (Taylor, 2012).

If there is a suspicion the wound may communicate with a synovial structure, the nurse is required to assist with the collection of synovial fluid, as well as analysis of the total nucleated cell count and total protein from the sample. If this shows synovial sepsis, and surgery is indicated, the nurse's role is to prepare the patient as quickly as possible for theatre. This is where we must offer support to the clients at the same time, as they are likely to be anxious and may wish to ask questions.

Wounds that do not involve a synovial structure, but do require debridement, lavage and closure, are treated under standing sedation, providing the patient is compliant ([Figures 1 to 4](#)). The nurse's role in this procedure is to prepare the patient and any equipment required, assist the vet and prepare the dressing or casting material for the next stage in the wound management process.

## Dressings

Nurses should take pride in the application of dressings, and many would say that they are “a work of art” when finished. It is important to remember the dressing must look as good on the inside as it does on the outside though. The type of dressing applied should be tailored to the stage of wound healing and the type of wound (Taylor, 2012).

The use of the wrong dressing can be “actively” harmful to the healing process (Knottenbelt, 2009). Therefore, give careful consideration to the choice of dressing in each case, and the person applying the dressing must be trained to do so, including owners.

There may be periods when a dressing is not the best choice. Dressings increase the tendency to granulation tissue formation and so, in a late healing wound, it may be best to remove dressings altogether (Hendrickson, 2012). It is not possible to dress all wounds in the first instance either, due to their location ([Figures 3 and 4](#)). In these cases, the nurse's role would be concentrated on preventing infection by monitoring contamination of the wound and observing the patient for self-trauma.

## Immobilisation

One of the most important factors that slows the speed of wound healing on the distal limb is movement (Quinn, 2010). Immobilisation is, therefore, obviously the key in these cases. This can be achieved by the application of a Robert Jones bandage ([Figure 5](#)) or a cast ([Figure 7](#)), depending on the type and location of the wound.

### Robert Jones bandage

The Robert Jones bandage (RJB), consisting of several layers of cotton wool, can be full-limb (hoof to elbow/stifle) or half-limb (hoof to carpus/tarsus). Each layer of cotton wool is wrapped around the limb to a thickness of approximately 1.5cm and secured by a knitted conforming bandage. This is repeated, with each layer being applied tighter, until the dressing is three times the thickness of the limb. A protective cohesive bandage is then applied, followed by a strong protective adhesive bandage to the top layer, to seal the bandage to the skin and hoof at the top and bottom to prevent bedding or dirt wicking into the inner layers (Stephen, 2008). Common mistakes in the application of a RJB include using layers that are too thick and not applying sufficient pressure with the conforming bandages (Walmsley, 1999).

It is important that, as the nurse applying the RJB, you are fully prepared before you begin. Having the correct type and amount of bandage material ready to hand is essential ([Table 1](#)). Ensuring the patient is effectively restrained by a competent handler and, if necessary, sedated, is paramount. It is vital the patient does not move during the application of the bandage.

## Nursing considerations

The bandage should be checked regularly and changed immediately if there is any sign of slippage, as this can lead to serious creasing and pressure in the inner layers that may result in bandage sores (Stephen, 2008). If the bandage becomes dirty or wet, or there is any suspicion that bedding may have wicked into the bandage, it must also be changed.

Monitoring the patient's comfort levels is essential. Any change in demeanour, heart rate, respiratory rate, temperature, appetite, physical appearance, urination or defaecation must be reported to a vet immediately. This may result in the bandage being changed or modification to the pain relief as necessary. It is highly likely these patients will be cross-tied as part of their management. Mobility is restricted to aid the wound healing process, but this can have implications for the patient's general health. The digital pulses of the three unaffected limbs must be checked regularly, as the patient will have an increased risk of laminitis. It is also important to support the contralateral limb with a stable bandage ([Figure 5](#)) as it will be supporting more weight than normal. In addition to this, it is vital the horse has access at all times to water and ad-lib hay at head height to maintain hydration status and normal gastrointestinal (GI) tract function, but also in an attempt to combat boredom. Picking handfuls of grass is also beneficial to maintain a healthy GI tract.

Offering patients hard feed provides a good opportunity to let their head down and allow them to eat from the floor as normal. This is to allow normal behaviour, relaxation and, most importantly, to allow fluid drainage from the respiratory tract, thus, reducing the risk of the patient developing pleuropneumonia. Stimulation in the form of grooming, physiotherapy and offering picks of grass are simple, yet extremely beneficial, nursing tasks – as is ensuring the patient has a clean bed to stand in. It is vitally important to make the time to perform these tasks, as they will contribute to a successful outcome in the healing process.

## Casts

The application of a cast to a heel bulb laceration ([Figure 6](#)) with the use of delayed primary closure can significantly reduce the time to complete wound healing (Taylor, 2012). Routine bandaging fails to adequately immobilise and protect the area in most cases. Initial wound contamination and secondary wound contamination (as a result of the proximity of the injury to the ground) interfere with successful healing (Booth and Knottenbelt, 1999). This highlights the importance of thorough cleaning, debridement and lavage of the wound prior to cast application. Foot casts can be applied successfully under standing sedation on a cooperative patient. However, in some cases it has to be carried out under general anaesthesia, particularly if the wound is grossly contaminated and

requires extensive debridement. As the nurse assisting the vet with casting, all materials ([Table 1](#)) and equipment must be prepared in advance and be to hand to avoid any delay in placing the cast layers, as this will affect its efficacy.

## Nursing considerations

As for a patient with an RJB in place, monitoring the patient's comfort is vital. The same parameters must be checked regularly. The cast should be monitored vigilantly for evidence of tissue swelling proximal to the cast, impending pressure sores at the top of the cast, abnormal discharge or odour and any change in the cast temperature. Any adverse signs should be taken seriously, as even the smallest pressure sores can become serious in a very short time. If in doubt, the cast must be removed immediately.

Patients with a foot cast are not normally cross-tied; however, the nurse in charge of the horse should aim to ensure normal behaviour is allowed where possible and nutritional requirements are met. A protective stable bandage on the contralateral limb is required and some horses may be noticeably uncomfortable on the unaffected limb, as a result of limb imbalance from the cast limb being slightly longer (Booth and Knottenbelt, 1999).

A foot pad to provide frog support on the contralateral foot may be necessary in these cases. Nurses play a huge role in wound care and management. Dressings technology and management techniques that have developed out of improved understanding of the physiology of wound healing, enable proactive measures to be taken. It is important, therefore, that nurses are aware of and keep up to date with the latest developments in wound management and continue to pass on their knowledge to owners, so that horses receive the best possible care both at the hospital and at home.

## Reviewed by Chris Shepherd BSc, MSc, BVM&S, MRCVS

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