ROSSDALES
VETERINARY SURGEONS

Bandaging techniques for horses

Horses sustain many different types of injuries caused by many different reasons. Some are superficial needing minimal care, while others are deep or more substantial and therefore require veterinary intervention.

Ideally the wound should be assessed, cleaned and have damaged tissue removed (debrided) before a bandage is applied, but in an emergency, a temporary bandage may be necessary to stop haemorrhage and to prevent further contamination.

Bandaging is a more complex procedure than people believe and for many bandage types, specialist training is necessary to ensure correct application, preventing iatrogenic complications.

The functions of any bandage are to:

- Protect the wound from contamination.
- Prevent the tissue from desiccation (drying).
- Provide a warm moist healing environment.
- Immobilise skin edges.
- Reduce swelling or haemorrhage.
- Stabilise or immobilise the area.

THE THREE LAYERS OF A BANDAGE

A standard bandage consists of three layers. Firstly, an appropriate wound dressing should be chosen. This is held in place by either a soft lightweight orthopaedic padding such as Soffban™ or cotton wool. The choice of dressing depends on the type of wound that is being treated and the amount of wound exudate that is being produced.

A secondary layer of cotton wool or gamgee, compressed by an open-weave conforming bandage (such as Knitfirm™) is then applied for padding, support and to absorb any further wound exudate. Open-weave bandages should be applied starting distally, spiralling proximally and overlapping by at least half.

The tertiary layer consists of an adhesive bandage designed to protect from external contaminants and to secure the bandage to the area, Elastoplast™ or Vetrap™ are commonly used.

BANDAGING SPECIFIC PARTS OF THE LIMB: AVOIDING PRESSURE SORES

Although the bandaging layers stay the same, bandaging technique will vary depending on the area that the bandage needs to be applied to. A distal limb bandage is the simplest to apply, stretching from the carpus or hock to the foot. The bandage should include the fetlock for stabilisation and support. A knee bandage will often be combined with a distal limb bandage to prevent it from slipping and to reduce swelling of the limb.

The bandage can either be applied using a figure-of-eight technique, or alternatively, an incision can be made through the outer layer of the completed bandage to alleviate pressure over the accessory carpal bone. Similarly, it is important not to put too much pressure over the point of the hock when bandaging the hind limb. A figure-of-eight technique should be used, allowing some slack in the bandage across the superficial flexor tendon to prevent pressure sores when the animal flexes the joint.

Fig 1a: Dressing held in place by Soffban

Fig 1b: The completed primary layer

Figure 2: The secondary layer of gamgee is applied with a conforming bandage on top.

Figure 3: The tertiary layer is applied.

Figure 4: Figure-of-eight bandage applied to the hock.

Figure 5: Knee bandage with a cut at the accessory carpal bone to alleviate pressure

To alleviate these pressures an elasticated tubular bandage such as Tubigrip™, or specialised stretch fabric bandages such as Pressage™ can be used instead of the more ridged Elastoplast bandage for the tertiary layer. Pressage bandages are especially useful for long term wound management as they can be washed, reducing the number of bandages needed.

Fig 6: Hock presage boot.

THE THORAX AND ABDOMEN

Specialised stretch fabric bandages are also an effective method in managing wounds on the abdomen or thorax. Similar to Pressage bandages, these are easy to apply and washable.

Fig 7: Specialist abdominal bandage

Fig 8: Specialist bandage for the thorax.

They are however very costly to purchase and therefore standard bandage materials may be used as an alternative. Abdominal bandages should be applied using an adhesive bandage such as Elastoplast to prevent it from slipping. The bandage should be applied using even tension around the abdomen with extra padding applied around the withers. Care must be taken when applying these bandages and they should be monitored carefully to prevent rubbing at the stifles or elbows.

Fig 9: An abdominal bandage using adhesive material

Some veterinary surgeons choose to use stents rather than bandaging abdominal and thoracic wounds and stents are also used for other areas which are difficult to bandage. Stents are sterile absorbent dressings that are sutured in place with Nylon. This is a particularly useful technique for highly discharging wounds and ones that need extra pressure or protection.

Fig 10: A stent applied on a hip wound

THE FOOT

Wounds on the sole, frog or coronet band will require a foot bandage. These do not have need of a conforming bandage but want a more hard-wearing waterproof outer layer. After applying the primary layer, the distal phalangeal area should be enclosed in a square of gamgee. Duct tape should be placed on the bottom of the foot and Vetrap applied around it, spiralling proximally up the pastern. A distal limb bandage may be applied for further support. Deep or non-healing wounds of the foot may require the application of a cast for further immobilisation.

THE ROBERT JONES BANDAGE

Movement plays a key factor in inhibiting wound healing in horses. Severe limb injuries may therefore require more immobilisation and this can be achieved by applying a Robert Jones Bandage (RJB). A typical RJB bandage is an adaptation of the standard bandage, consisting of more secondary layers of cotton wool, to provide even tension around the leg and restricting movement of the adjacent joints. A RJB should be one and a half times the circumference of the leg and is usually seven layers thick. Many say that when you tap the completed bandage it should sound like a 'ripe melon'. For further immobility and strength, a splint can be incorporated into the layers. These bandages are difficult to apply and can be very costly.

BANDAGE COMPLICATIONS

Signs relating to bandage complications:

- Swelling develops above the bandage.
- Showing increased lameness.
- Stamping the bandaged leg.
- The bandage feels wet.
- Discharge can be seen through the bandage layers.
- Patient interferes with the bandage (i.e chewing).

There are many factors which cause delayed wound healing and inappropriate bandaging technique is a common iatrogenic factor. Poor bandaging technique may result in problems such as pressure sores, tissue necrosis, excessive granulation tissue formation and patient interference. Most problems are caused due to the fact that the bandage is either too tight or too loose. These problems may be caused on application; but can also occur if the limb swells excessively, the bandage slips, the limb is inadequately padded out, the bandage has become wet or the bandage is left on for too long. Good communication and compliance from the client is also vital. On discharge from the hospital, owners should be advised on what complications to look out for and that they must not ignore any problems. Bandages should be checked regularly and must be changed as instructed by the veterinary surgeon. Clients should be urged to contact the practice if at all concerned.

Fig 11: A routine foot bandage

Fig 12: Foot bandage including the distal limb

Fig 13: Foot cast.

Fig 14: Robert Jones Bandage

CONCLUSION

Bandages when applied correctly aid wound healing, but if applied incorrectly cause problems that will delay wound healing and caused prolonged complications long term. Specific expertise in bandaging is an important aspect for preventing problems but client education is also a significant key. Owners who are attentive and report concerns early can make a great difference to the outcome.