How to Make a Bandage Cast and Indications for its Use

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Introduction
Frequently the equine practitioner encounters situations in which an alternate form of external coaptation is desirable in the management of injuries of the lower limb. Traditional fiberglass casts are ideal for providing rigid coaptation in most cases but do not allow access to the soft tissues of the limb and typically require replacement every 3–6 weeks. A bandage cast is a reusable form of a traditional cast that maintains rigid stabilization of the limb yet is amenable to frequent removal and resetting with the primary advantage of allowing the clinician access to the underlying soft tissues.

The most common indications for the use of the bandage cast in our practice are for the management of severe soft tissue injuries (i.e., tendon lacerations, extensive wounds over areas under tension) and for selected orthopedic injuries. We also use the bandage cast routinely as a form of temporary external coaptation for horses recovering from general anesthesia after undergoing internal fixation for lower limb fractures.

Case selection is very important when deciding if a bandage cast has advantages for case management over traditional casting methods. If instability of the lower limb exists, it is imperative that the horse can comfortably and safely stand during the bandage changes without compromising the integrity of the repair.

Methods
In most cases, a bandage cast is initially conformed to the limb while the horse is under general anesthesia and in association with a surgical repair of the injury. The bandage cast can be applied in a standing horse although this is less desirable.

1. A light sterile dressing of conforming gauze is placed over the incision or wound.
2. Two or three pieces of thin sheet cotton are gathered together and rolled tightly around the limb and secured with a roll of brown gauze. The foot is included. Follow with a roll of Vetrap to make a smooth bandage.
3. Place a strip of orthopedic felt around the proximal cannon bone and secure. Stockinet is usually not necessary.
4. Apply one roll of casting foam around the limb and follow with the desired number of rolls of fiberglass casting material. Incorporate the foot and shape as you would a traditional cast. Provide adequate reinforcement to the bottom of the foot to insure longevity of the cast.
5. **Optional:** Pre-cut the cast with cast cutters along the medial and lateral aspects (leave the bottom of the foot intact) and then wrap tightly with Duct-tape the entire length of the limb for recovery from anesthesia.

6. If the cast was precut, run a scalpel blade down through the grooves to release the tape and remove when a bandage change is desired. If not precut, bivalve the cast under mild sedation and restraint and pull the cast apart, lifting the foot out of the bottom.

7. Tend to the incision or wound and replace the bandage, making sure to wrap firmly so that the limb will fit back into the cast. Place the bivalved cast back on the limb and apply duct tape—an assistant may be required to hold the two pieces tightly together while the tape is being applied.

**Results and Discussion**

All horses have generally tolerated a bandage cast as they would a traditional cast and have rarely shown discomfort. Cast sores have been negligible due to the amount of padding provided by the bandage material. Length of time of use has ranged from 3–12 weeks with bandage changes performed every 3–4 days depending upon the demands of the particular injury. The most common problems encountered with the cast are premature wearing of the bottom of the cast and occasional difficulty in refitting the cast if bandage material has been applied too loosely.

For management of soft tissue injuries in our practice, the bandage cast has been a very useful adjunct in the treatment of extensor and flexor tendon lacerations, open wounds of the fetlock and pastern joints, severe run-down lacerations, and large chronic granulating wounds. Orthopedic injuries managed with a bandage cast include fetlock joint subluxations, several cases of internal fixation which required regular wound care, and two cases of previously repaired cannon bone fractures that subsequently became unstable in the postoperative period. In these two cases, general anesthesia for cast application was undesirable and previously made bandage casts were applied instead.

For lower limb fractures repaired with internal fixation (i.e., fractures of the distal cannon or proximal first phalanx), a generic bandage cast is fitted and applied to the limb for anesthetic recovery and then removed shortly thereafter. These casts have...
been previously constructed and are tailored to fit each individual by the amount of bandage material placed underneath. This method of coaptation for recovery has been used successfully and safely in approximately 300 cases in our practice with no untoward effects.

**Conclusion**

In summary, a bandage cast offers the clinician the advantages of rigid external coaptation yet allow for the opportunity to provide care to the soft tissue structures of the limb. Additionally, a bandage cast can be a cost-efficient method of providing external immobilization for recovery of selected cases from general anesthesia.

**Footnotes**

- Vetrap Bandaging Tape, 3M Animal Care Products, St. Paul, MN 55144-1000.
- 3-M Custom Support Foam, 3M Animal Care Products, St. Paul, MN 55144-1000.