

Overview of Procedures Used by Practicing Veterinarians for Percutaneous Injection of the ACell Vet[®] Powder for Treatment of Equine Tendon and Ligament Injuries

Note: INSTRUCTIONS FOR USE OF ACELL VET POWDER ARE FOUND IN THE PRODUCT INSERT. THIS IS NOT THE PRODUCT INSERT. This document is offered as a courtesy, and provides an overview of the general protocol utilized by various experienced investigators who have found ACell Vet Powder to be safe and effective for the treatment of equine tendon and ligament injuries. The actual treatment protocol utilized should be based on the assessment of each individual case by the attending veterinarian. Consequently, this document is provided for background and informational purposes only. If you have any questions about ACell Vet Powder or the information contained in this document please contact the **ACell customer and technical support line: 1-800-826-2926.**

1. RECOMMENDED NEEDLES

- A. 23 gauge x 3/4" needle
 - 1. Superficial digital flexor tendon including branches in pastern and part behind carpus.
 - 2. Suspensory ligament body and branch
- B. 20 gauge x 1 1/2" needle
 - 1. Gastrocnemius Tendon
- C. 21 gauge x 3/4" needle and 21 gauge x 1 1/2" needle
 - 1. Deep digital flexor tendon behind fetlock and in pastern area: Injection approach is the lateral position.
 - 2. Suspensory ligament: insertion

3. PREPARATION

- A. Perform ultrasound examination to determine location of injured tissue.
- B. The acute lesion should be treated conventionally with ice and NSAIDs until the intra-tendinous bleeding is stable. After this initial inflammatory phase the ACell Vet Powder treatment can proceed.
- C. Combine ACell Vet Powder with sterile saline and agitate to ensure complete suspension of powder.
 - 1. 0.2 g of ACell Vet Powder with 6 ml of sterile saline for use in lesion lengths larger than 3".
 - 2. 0.1 g of ACell Vet Powder with 3 ml of sterile saline of sterile saline for use in 3" lesion lengths or smaller.
- D. Equally divide the Vet Powder suspension into separate 3cc syringes containing 0.5ml.
- E. Administer medication so that the injection procedure can be performed under standing sedation (suggested agents: detomidine, butorphanol). If still sensitive, regional anesthesia should be considered.

4. INJECTION GUIDELINES

- A. Clip and aseptically prep site of injury using a surgical scrub and rinse thoroughly with sterile saline.
- B. Use a 7.5MHz linear ultrasound probe with stand-off. It is important to adjust focus in order to appropriately differentiate tendon, sheath and surrounding soft tissue.
- C. Make a **transverse** ultrasound image of the lesion.

D. Use ultrasound imaging to guide your injection locations into the lesion.

Note: The injection should be done with full weight on the leg except for the proximal part of the Suspensory ligament, which can be performed with the leg flexed.

E. Perform an ultrasound guided injection directly into the lesion as follows:

- Start at the lower end of the lesion and work your way up the lesion in 1/2" increments
- Position needle into central part of the lesion
- Inject 0.5ml per injection site

Note: If there is strong injection resistance, check for correct needle position using ultrasound.

Note: Inject only the amount of suspension needed to fill the lesion. Do not force or overfill.

Note: In hind legs with insertion desmopathy, a proximal metatarsal fasciotomy should be considered in connection with ACell Vet Powder suspension if the first injection has not achieved complete healing. Administer Sulfadiazine/TMP orally SID (once a day) for 5 days if a surgical procedure (fasciotomy) has been performed with the injection.

Note: For additional reference, see ACell Vet website for instructional video: www.ACellVet.com Treatments – Tendon & Ligament - Video

5. POST INJECTION GUIDELINES: INFLAMMATION

Some patients react locally with swelling, heat, and moderate pain (lameness) for 2-5 days. The reaction has no influence on the ACell Vet Powder function. The following is recommended for minimizing and/or treating these reactions as well as optimizing overall treatment results:

- A. Administer 1mg/kg flunixin meglumine intravenously at the time of treatment, continuing with 250 mg flunixin meglumine, BID, orally for a total of five (5) days.
- B. Apply a sterile bandage to the treated leg for 2-4 hours. After 2-4 hours, remove bandage and ice the limb for 30 minutes at the affected area BID (3 times daily) for three days. **The importance of icing and its inhibition of tissue degenerative enzyme activity and development of edema cannot be stressed enough.**
- D. Do not apply any products or sweat therapies to the affected tendon or ligament site that will generate additional heat to the area.

6. POST INJECTION GUIDELINES: REHABILITATION PROTOCOL

Exercise is a very important part of the rehabilitation and wound healing process as the ACell Vet Powder requires a physiological load/stress on the tissue. Controlled physical activity is highly recommended. It should also be noted that the rate at which a patient recovers from an injury is dependant upon many variables (size, location, and the age of the lesion). It is recommended that each patient be evaluated weekly and the progress noted before continuing to increase activity at any stage.

A. Acute Lesions:

1. First 24 hours post treatment: Stall rest

2. Days 1 – 13 post treatment: Begin hand walking 10-15 minutes, twice daily, once in severe cases. Even if the horse is uncomfortable, some activity is encouraged.
3. Day 5: Optional ultrasound evaluation five (5) days post injection to assess healing response.
4. Days 14 – 21: Hand walking 15-20 minutes twice daily, once in severe cases.
5. Days 22 – 60: Continue hand walking, increasing the duration, for the first thirty (30) days after the injection. Then light trotting in a straight line and walking under tack 20–35 minutes once or twice a day. **Light trotting only in cases with no lameness!**
6. Day 30: Ultrasound evaluation at thirty (30) days is recommended to assess healing response.
7. Days 30 – 60: If the animal shows no signs of lameness continue to increase the activity by 5-10 minutes each week for up to sixty (60) days post injection.
8. Day 60: Ultrasound re-examination should be compared to the initial scans. If the horse is ultrasonographically and clinically sound, continuous physical rehabilitation should continue.
9. Day 60 and after: If the animal continues to show no signs of lameness, increase the activity at sixty (60) days to light trotting and walking under tack 20-35 minutes daily.
10. Day 120 and after: All surgical cases should be hand walking by 120 days.

B. Chronic lesions of the suspensory origin and body:

1. Begin hand walking for 10 minutes twice a day for 30 days.
2. Walk/trot after thirty (30) days if there is no lameness.
3. Newer injuries – continue walking an additional thirty (30) days, however, may often be done under saddle.