Optimization of a Navicular Bursal Injection Technique That Avoids Penetration of the Deep Digital Flexor Tendon

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Injection of the navicular bursa can be performed from the lateral aspect of the distal pastern region, avoiding deep digital flexor penetration with the use of radiographic guidance. Authors’ addresses: Clinical Sciences Department (Daniel, Goodrich), Orthopedic Research Center (Goodrich, McIlwraith), and Department of Environmental and Radiological Health Science (Barrett, Valdes-Martinez), Colorado State University, 300 West Drake Road, Fort Collins, CO 80523; University of Florida, College of Veterinary Medicine, PO Box 100125, Gainesville, FL 32610–0125 (Werpy); e-mail: laurie.goodrich@colostate.edu. *Corresponding author; †presenting author. © 2013 AAEP.

1. Introduction
Injection of the navicular bursa is commonly performed from the palmar aspect of the limb, which results in penetration of the deep digital flexor tendon (DDFT). We investigated an injection of the navicular bursa from the lateral aspect of the limb to determine soft tissue penetration with the use of this approach.

2. Materials and Methods
Cadaveric specimens were collected and placed in a stand to simulate a standing position. Injection of the bursa was performed in specimens without synovial distension or with distension of the distal interphalangeal joint or digital flexor tendon sheath. A 100-mm, 20-gauge, titanium MRI-safe needle was placed into the bursa with the use of radiographic guidance to confirm accurate needle placement. Dilute contrast was then injected into the bursa before a final radiograph was performed. With the needle in situ, a complete MRI examination was performed.

3. Results
Successful navicular bursal injection was achieved in all specimens, and no penetration of the DDFT occurred on the basis of MRI examination. The optimal angle of needle penetration was determined relative to the horizontal and vertical planes from...
dorso-palmar and latero-medial radiographs. When the distal interphalangeal joint was inadvertently injected with contrast, a small correction in needle angle resulted in accurate bursal injection before MRI was performed.

4. Conclusions

With the use of the 1-Tesla MRI to gauge tissue penetration, the lateral approach of the navicular bursa appears to avoid penetration of the DDFT and the palmar fibrocartilage.