Distension of the Navicular Bursa to Determine the Presence of Adhesions Using Magnetic Resonance Imaging

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Distension of the navicular bursa further delineates pathologic changes in the navicular bursa with magnetic resonance examination. In particular, the presence and degree of adhesions can be defined. Authors’ address: Equine Orthopaedic Research Laboratory, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, CO 80523; e-mail: mmaher@colostate.edu. © 2008 AAEP.

1. Introduction
Magnetic resonance imaging (MRI) is often performed to determine the cause of palmar heel pain. The presence of adhesions between the navicular bursa, deep digital flexor tendon (DDFT), distal sesamoidean impar ligament (DSIL), and collateral sesamoidean ligament (CSL) significantly worsens the prognosis and is of significant clinical relevance. It is important to accurately identify the presence or absence of adhesions to offer an appropriate prognosis. This study evaluates how distension of the navicular bursa elucidates the MR appearance of the navicular bursa and associated structures.

2. Materials and Methods
An MR evaluation was performed on eight normal cadaver limbs and two cadaver limbs with lameness localized to the foot. The normal navicular bursae were injected with 2, 4, or 6 ml of solution. The bursae of the horses with lameness were injected with 4 or 6 ml, and MRI was repeated. All the bursae were dissected out to verify the presence or absence of adhesions. Various clinical cases that had initial MRI abnormalities suggesting adhesions also had the bursae distended and a repeat MRI to determine the presence or absence of adhesions.

3. Results
Distension of the proximal recess of the normal navicular bursa, proximal to the collateral sesamoidean ligament, was achieved with 2 ml. Separation of the CSL from the deep digital flexor tendon was achieved with 4 ml. The separation of the navicular bone (NB) from the DDFT and DSIL required 6 ml. Adhesions were more clearly defined in the bursa of the two pathologic cadaver limbs after distension. This technique was used on clinical cases that allowed for the determination of the presence or absence of adhesions. In these cases, distension of the bursae proved to be a
valuable diagnostic tool to confirm or deny the presence of adhesions.

4. Discussion
This study showed the usefulness of distension of the navicular bursa in cases where the presence of adhesions cannot be clearly defined by MRI. The volume required to more clearly evaluate the bursa and surrounding structures depends on the area of interest and the severity of the abnormalities.