Acellular Urinary Bladder Matrix in a Collagenase Model of Superficial Digital Flexor Tendonitis in Horses

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Tendons were treated with urinary bladder matrix (UBM) and a saline control over an 84-day treatment period in a collagenase model of superficial digital flexor (SDF) tendonitis. There were no significant differences in clinical, ultrasonographic, or histologic data. Lesion size continued to increase over the first 42 days, which suggests that there was prolonged activity of the collagenase with possible destruction of the UBM. Additional studies are needed to further determine the efficacy of intralesional UBM in treating SDF tendonitis. Authors' addresses: Department of Clinical Sciences, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, 300 West Drake Road, Fort Collins, CO 80523 (Wallis, Baxter); Equine Orthopaedic Research Center, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, 300 West Drake Road, Fort Collins, CO 80523 (Werpy, Frisbie); Department of Microbiology, Immunology, and Pathology, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, 300 West Drake Road, Fort Collins, CO 80523 (Mason); and Hoersholm Horseclinic, Kongevejen 124 D, DK-3480 Fredensborg, Denmark (Jarloev); e-mail: ty.wallis@colostate.edu (Wallis). © 2007 AAEP.

1. Introduction
Porcine urinary bladder matrix (UBM) has been proposed to promote improved healing in tendonitis. The purpose of this study was to determine the efficacy of intralesional UBM in a collagenase-induced model of tendonitis in the horse.

2. Materials and Methods
Superficial digital flexor (SDF) tendonitis was created bilaterally in eight horses with collagenase. One randomly selected limb of each horse was treated with UBM, and the opposite limb was treated with an equal volume of saline as a control. Horses were blindly evaluated clinically and ultrasonographically during the study; they were euthanized after 84 days to evaluate the tendons grossly and histologically.

3. Results
There were no significant differences found between the treatment and control groups for any of the response variables evaluated. Lesions were smaller in the treated tendons, but the gross pathology scores were higher. There was a trend toward
the treated limbs having lower lameness scores ($p = 0.1$). There was also a trend toward control tendons having a significantly larger cross-sectional area (CSA) of the lesion ($p = 0.06$).

4. Discussion

Based on this study, the collagenase model may not be a suitable model of clinical tendonitis. The lesion size enlarged for the initial 42 days of the study (including 28 days of treatment), which suggests that there was continued collagenase activity and degradation of tissue. Therefore, UBM may not have been an effective treatment for collagenase-induced SDF tendonitis, because the UBM, which is predominantly collagen, may have also been degraded. This study was also limited by the 84-day healing period and the relative severity of the lesions produced by the collagenase.

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Footnote

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