Fractures of the Distal Phalanx and Associated Soft Tissue and Osseous Abnormalities in 22 Horses With Ossified Sclerotic Ungual Cartilages Diagnosed With Magnetic Resonance Imaging

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Fracture of the distal phalanx in horses with ossified sclerotic ungual cartilages and concurrent injury to the associated soft tissue structures diagnosed on MR images should be considered a potential source of foot lameness. In these cases the ligaments and adjacent soft tissue structures associated with the ossified sclerotic ungual cartilages are abnormal on MR images. Authors’ addresses: Department of Radiology (Selberg) and Equine Orthopaedic Research Laboratory (Werpy), College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, Colorado 80523; e-mail: ktselberg@gmail.com. © 2010 AAEP.

1. Introduction

Ungual cartilage ossification of the distal phalanx of the forelimb is a common finding in horses. Subtle pathology associated with the collateral cartilages can be difficult to identify. Evidence elucidating that soft tissue and osseous structures are dependent on one another and injury to one structure can lead to other injuries can occur in conjunction makes magnetic resonance imaging (MRI) an important diagnostic tool for evaluation of the foot.

2. Materials and Methods

MRI findings of 22 horses (23 forelimbs) with a fracture of the distal phalanx and ossified sclerotic ungual cartilage in the lame limb were recorded. Findings on MR images were documented, and MRI abnormalities were graded.

3. Results

All patients had forelimb fractures (11 left fore and 12 right fore). Eleven involved a left forelimb (7 medial and 4 lateral), and 11 involved a right forelimb (5 medial and 7 lateral). All of the 23 fractures (one horse had a bilateral fracture) were non-articular. All fractures were simple in configuration and non-displaced. The fractures were oriented in an axial proximal to abaxial distal and palmar to dorsal orientation and extended from the base of the ossified ungual cartilage into the distal phalanx. The fracture involved the fossa of the collateral ligament on the distal phalanx in 17 of 23 forelimbs cases. Sclerosis of the affected palmar process and ossified collateral cartilage in all horses. Adjacent ligaments and soft tissues to the fractured ossified cartilages were affected in all cases.
4. Discussion

The routine site of fracture in this study at the base of the ossified ungual cartilage suggests a biomechanical cause or focal stress point from cycling. Injury to the ligaments associated with the collateral cartilages has been thought to a source of lameness. In this study, the ligamentous structures associated with the ungual cartilages were often affected, showed altered signal intensity and thickening, and were thought to be contributing to the lameness.