Incomplete Sagittal Fractures of the Talus in 11 Racehorses

Elizabeth J. Hammer, DVM; Michael W. Ross, DVM; and Eric J. Parente, DVM

Incomplete sagittal fracture of the talus is an uncommon injury occurring in racehorses and may need advanced diagnostic techniques for identification. Horses with this fracture are amenable to nonsurgical treatment and have a good prognosis for return to racing. Authors' address: Dept. of Clinical Studies, New Bolton Center, University of Pennsylvania, 382 West Street Rd., Kennett Square, PA 19348-1692. © 1999 AAEP.

1. Introduction

Fractures of the tarsus are unusual injuries and may result from a single traumatic event or from repetitive stress. Osteochondral fragmentations in the tarsocural joint and slab fractures of the third and central tarsal bones are the most common tarsal conditions in racehorses. Sagittal fractures of the talus are rare and may be difficult to diagnose, especially if fractures are incomplete. The purpose of this study was to describe clinical features, treatment, and postinjury performance of 11 racehorses with incomplete sagittal fracture of the talus.

2. Materials and Methods

Medical records of horses admitted to the George D. Widener Hospital for Large Animals between January 1992 and January 1999 that had a sagittal fracture of the talus were reviewed. Signalments, anamnesis, results of lameness examination, and results of radiographic and nuclear examination were recorded. Radiographic examination included dorsoplantar, lateromedial, dorsolateral-plantaromedial oblique, and dorsomedial-plantarolateral oblique views. A dorsoplantar (flexed) view was performed in 1 horse. An image 10 to 20° in the dorsolateral-plantaromedial oblique projection (“off DP”) was useful to demonstrate the fracture line. Delayed (bone phase) scintigraphic images were obtained 2 to 3 h after intravenous injection with 99mTc-HDP in 8 horses. Images obtained using a gamma camera included standing lateral (100,000 counts), plantar (150,000 counts), and flexed lateral images of the affected tarsus. Follow-up information was obtained by telephone contact with owners, trainers, or referring veterinarians. Racing performance was assessed by comparing pre-injury and post injury race records (U.S. Trotting Association, Bloodstock Research Information Services, Inc).

3. Results

From January 1992 and January 1999, of 37,704 horses admitted, a 1 to 3 Standardbred to Thoroughbred hospital population was observed. Eight Standardbreds and 3 Thoroughbreds were included in the study. There were 3 females, 5 geldings, and 3 intact males. Horses ranged in age from 3 to 8 years (mean, 5.5 years). Of the 8 Standardbreds, 6 were pacers, and 2 were trotters. The fracture
involved the right talus in 4 horses (4 Standardbreds), and the left talus in 7 horses (4 Standardbreds, 3 Thoroughbreds).

All horses had a history of chronic hind limb lameness (mean, 3.9 weeks; range 1–8 weeks), but were referred after developing acute, severe lameness immediately after racing. Lameness ranged from 2° to 4° out of 5° (mean, 3° out of 5°; 0° being sound and 5° being non-weight-bearing). Upper hind limb flexion performed in 7 horses was markedly positive in 6 horses; and in 2 horses, lameness worsened when circled toward the affected side. Tarsocural effusion was judged to be mild (4 horses) or moderate (4 horses) but was absent in 3 horses. Intra-articular analgesia improved lameness in 3 horses, but improvement was not seen in 1 horse.

Nuclear scintigraphic examination was performed in 8 horses. Lateral, plantar, and flexed lateral images were reviewed. In all horses moderate-to-intense, focal-increased radioisotope uptake was noted in the proximal aspect of the affected talus. In 6 of these horses, previous radiographs of the tarsus were negative, prompting scintigraphic evaluation. In the remaining 2 horses, a tibial stress fracture was suspected before scintigraphic evaluation.

Plain radiographs previously obtained in 9 horses were nondiagnostic, but a fracture could be seen on xeroradiographs in all horses. An image 10 to 20 degrees in the dorsolateral-plantar oblique projection (“off DP”) was judged to be best for demonstration of the fracture. A fracture line was visible extending from the proximal aspect of the sagittal groove of the talus in all horses. The fracture extended into the proximal one-third of the bone in 6 horses and to the middle one-third in 5 horses.

All horses were treated conservatively with recommendations for a minimum of 1 month of stall rest followed by a minimum of 1 month of small paddock turn out.

All horses raced before injury. Four horses did not race after injury; 1 died of unknown causes, 1 was retired from racing for breeding purposes, and 2 were unavailable for follow-up. Seven horses returned to performance, 1 horse is currently sound and is in training and 6 horses returned to racing performance after injury. The range of days to first start post injury was 115 to 341 (mean, 230 days). In 3 horses average earnings per start improved or remained the same after injury, whereas in 3 horses, performance decreased after injury.

4. Discussion
Incomplete sagittal fracture of the talus occurring in 11 horses is a rare problem, and based on the hospital population, Standardbreds appear to be over-represented. Fractures of the right and left hind were equally represented, and no apparent age predisposition existed.

Identification of the injury can be challenging, often requiring nuclear scintigraphic evaluation and high detail radiographic examination for positive identification. In addition to standard images, the flexed lateral scintigraphic image of the tarsus was useful to differentiate subchondral injury of the distal tibia from that of the proximal talus. Radiographically, the fracture line was best identified in an “off DP” view, and in many horses could not be identified in the standard dorsoplantar view.

The history of chronic lameness preceding acute lameness suggests a stress-related injury. Severe lameness without joint effusion, as seen in some horses, may be due to subchondral bone pain and fracture may not have involved the articular surface. Surgery was not performed and fractures healed, but previously, a successful outcome was reported in 1 horse with internal fixation.4 Horses treated conservatively returned to racing but postinjury performance may decline. Overall, horses with incomplete sagittal fracture of the talus have a good prognosis for return to racing.

References