

What Is Your Diagnosis?



Figure 1—Plantar bone-phase nuclear scintigraphic view of the left (left image) and right (right image) tarsi of a 3-year-old Thoroughbred with a hind limb lameness of 2 months' duration.

History

A 3-year-old Thoroughbred racehorse was admitted for evaluation of a hind limb lameness of 2 months' duration. The lameness was suggestive of an abnormality proximal to the metatarsophangeal joint.

Physical examination revealed an unusual hind limb gait that was attributed primarily to a left hind limb abnormality on the basis of observations during exercise at a trot. Flexion of the limb exacerbated the lameness. The right hind limb and left forelimb also appeared to be involved. Because it was difficult to determine location of the abnormalities responsible for the hind limb lameness, two-phase nuclear scintigraphy of the hind limbs and pelvis was performed using technetium Tc 99m medronate (Fig 1).

Determine whether additional imaging studies are required or make your diagnosis from Figure 1—then turn the page ▶

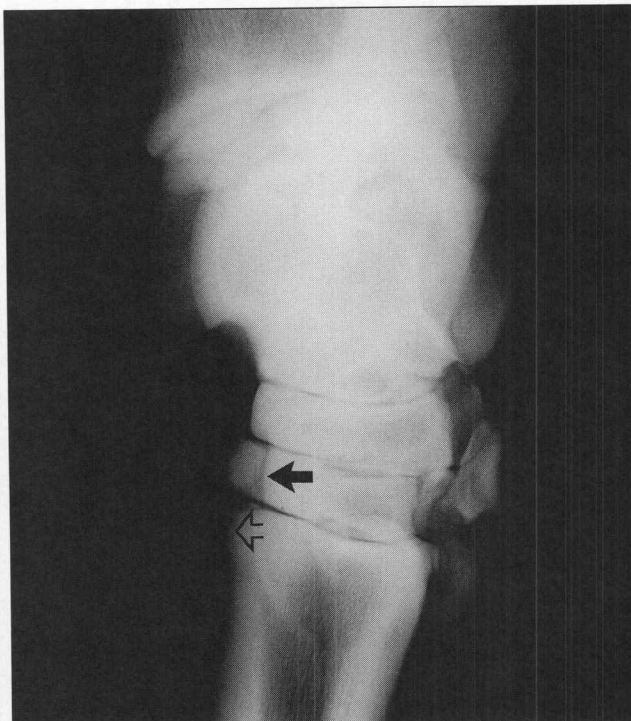
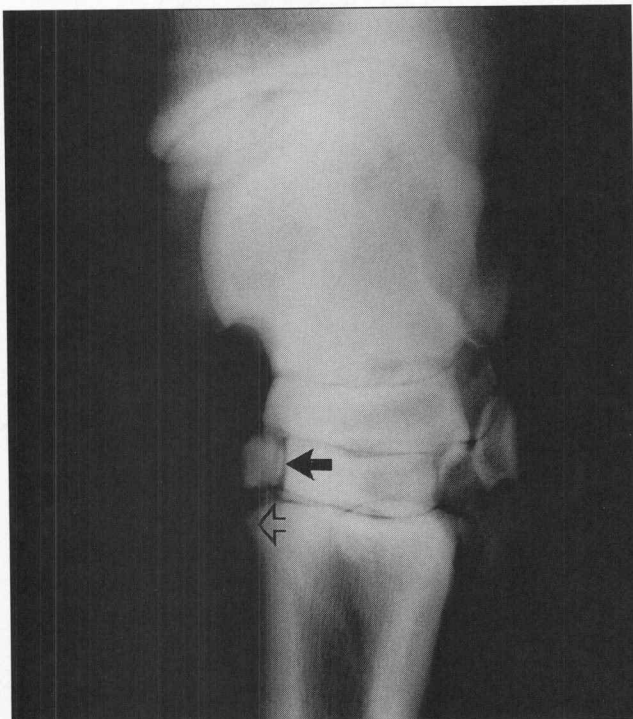


Figure 2—Dorsomedial-plantarolateral radiographic view of the left (left) and right (right) tarsi of the horse in Figure 1. Slab fractures (black arrows) of the third tarsal bones are evident. Notice periarticular new bone formation on the dorsoproximal aspect of the third metatarsal bones (open arrows).

Diagnosis

Scintigraphic diagnosis—Bilateral increased uptake of technetium Tc 99m medronate in the region of the tarsal joints.

Comments

On the basis of results of scintigraphy, radiographs of the right and left tarsi were obtained. Bilateral slab fractures of the third tarsal bone, best seen on the dorsomedial-plantarolateral radiographic views (Fig 2), were evident. Periarticular new bone was also evident, suggesting that these were not recent fractures. Because lameness examination results indicated that the left forelimb was also involved, radiographs of the left carpus and left metacarpophalangeal joint were obtained; however, radiographic abnormalities were not detected.

Bilateral slab fractures of the third tarsal bone are uncommon. The distal tarsal bones are subject to axial compression and torsional and tensile forces during exercise. Their main function is to absorb concussion and neutralize these twisting forces. When subjected to greater stress imposed during racing, these bones may fracture.¹

The diagnosis of fractures of the third tarsal bone can be difficult, especially when swelling is minimal and the fracture is not displaced. Dorsoplantar, lateral, dorsolateral-plantaromedial, and dorsomedial-plantarolateral views are the most informative.¹ In this report, two-phase nuclear scintigraphy was used to

localize abnormal areas that were likely causing the hind limb lameness prior to obtaining radiographs. Nuclear scintigraphy offers several advantages compared with plain radiography because scintigraphy provides a survey of all limbs to allow for identification of areas with high bone turnover, which appear as foci of increased uptake of the radiopharmaceutical. Moreover, this technique enables the early diagnosis of lesions resulting from acute injury that may not be detectable radiographically. Although this technique is sensitive and can be used to identify a bony lesion, plain radiography is required to identify the specific abnormality.

Treatment of an acute fracture of the third tarsal bone involves use of lag-screw fixation. Because of the apparent age of the fractures in the horse of this report, treatment was conservative and consisted of stall rest. After several months of rest, radiography was repeated to assess fracture healing. Intra-articular administration of corticosteroids was recommended; however, the horse was lost to follow-up. The prognosis for return to racing soundness in horses with this type of fracture is fair.

1. Stashak TS. Lameness. In: Stashak TS, ed. *Adam's lameness in horses*, 4th ed. Philadelphia: Lea & Febiger, 1987;710-711.

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