What's Your Radiographic Diagnosis

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Figure 1
Lateral-medial (A) and Dorsopalmar (B) radiographs of the left metatarsus of a 2 year old, Quarter Horse, gelding presented for previous lameness. At the time of presentation the horse was not lame. (Image enhanced for clarity.)

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Presentation

A two year old Quarter Horse gelding presented for evaluation of a previous vague lameness in the left hind leg. The horse was not lame at presentation. A radiographic survey of the tarsal and metatarsal region was made.

Radiographic Findings

The lateral-medial view shows a linear radiolucency coursing from proximal to distal within the dorsal cortex of metatarsal three (MT3) at the junction of its proximal and middle thirds. This lucency is identified as a vertically oriented line in the dorsoplantar view. At the endosteal level there is a slight bulging effect to the endosteal contour, but the margin is distinct. Additional oblique views and bright light viewing did not reveal associated soft tissue swelling or periosteal new bone. It is noted that the typical nutrient foramen is absent in the plantar cortex.

Radiographic diagnosis

Probable aberrant location of the nutrient foramen of the left MT3. The possibility of a dorsal cortical stress fracture was considered as the differential diagnosis.

Discussion

Knowledge of the location of nutrient foramina is important to avoid mis-interpretation of them as fracture lines. Standard veterinary anatomy texts describe the location of the nutrient foramen of MT3 to be in the plantar cortex at the junction of the proximal and middle thirds. Texts of radiographic anatomy and interpretation show the nutrient foramen to be in that location. Radiographic texts emphasize the importance of correctly interpreting the radiolucent tunnel created by the vessel as it traverses the plantar cortex. Variations in location and appearance of this nutrient foramen have been reported in the veterinary literature.

The most common ectopic location reported was in the dorsolateral cortex which coincides with the location of the lucency in this horse. One report speculated the incidence of the dorsolateral ectopic location to be 1:100 horses.

Periostitis and stress fractures of the dorsal surface of metacarpal three (MT3) are commonly observed in young fast gaited horses. The greatest incidence is observed in Thoroughbreds, but Quarter Horses and occasionally Standardbreds are affected. Similar lesions are infrequently identified in the hind limbs. Periostitis and microfractures most commonly involve the dorsal medial cortex of left MC3. The periosteal new bone can be observed radiographically but the microfractures usually are not depicted by standard radiography. Nuclear scintigraphy is more diagnostic of changes associated with microfractures. A more obvious acute fracture is observed in the dorsolateral cortex of MC3 at the junction of the middle and distal thirds in somewhat older horses (above 2 years). These fractures typically course in a dorsodistal to palmarproximal angle 35-45° to the long axis of MC3.

The radiographic findings in the case reported here were atypical of the periostitis and stress fracture complex. Ectopic nutrient foramen was considered more likely, especially considering a nutrient foramen was not present in the plantar cortex. Additional clinical assessment did not support a stress fracture. Nuclear scintigraphy would have been a useful procedure to differentiate the cause of the lucency, but was not available. Conservative treatment consisting of exercise restriction for 6 weeks was recommended. The horse returned after being rested. There was no change in the appearance of the lucency and the horse was not lame.

References

5. Orsini PG, Rendano VT, Sack WO. Ectopic


"Chewy, Cherokee and Comanche" photo R W Laimans (ISU '70).

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