What Is Your Diagnosis?

History

A 6-year-old Appaloosa gelding was admitted to the Oregon State University Veterinary Teaching Hospital for examination and treatment of a left hind limb lameness of a few weeks' duration. On examination, the horse was grade-1 lame in the left hind limb. A firm swelling that extended deeply under the coronary band was detected on the dorsal hoof wall.

A combination of a plantar metatarsal nerve block and intra-articular anesthesia of the distal interphalangeal joint eliminated signs of lameness. A radiograph was obtained of the distal portion of the left hind limb (Fig 1).

Determine whether additional imaging studies are required, or make your diagnosis from Figure 1—then turn the page.
Radiographic diagnosis—Circumscribed ovoid nodule characterized by annular rings (onionskin pattern) of partially mineralized soft tissue in the hoof wall dorsal to the distal interphalangeal joint (Fig 2).

Comments

Differential diagnoses for the radiographic appearance of this nodule included fibroma, keratoma, calcified hematoma, or seroma. To remove the nodule and obtain a definitive diagnosis, surgery was performed. The horse was anesthetized, and a half-moon-shaped incision was made through the dorsal hoof wall of the left hind hoof. The incision was initiated at the ventral border of the coronary band down to the sensitive laminae, using a motorized burr. This U-shaped piece of hoof wall was roughly 3.5-cm wide at its base adjacent to the coronary band and extended 4 cm down the dorsal hoof wall. Using an osteotome, the distal end of the segment was elevated and the piece freed from its attachment to the coronary band. The mass under the hoof wall was firm and measured $3.0 \times 2.5 \times 2.0$ cm. It was loosely attached to hoof wall laminae and was sharply excised with a 1.5-cm curved osteotome. A portion of the distal interphalangeal joint capsule was attached to the excised mass, so the joint capsule defect was closed with 3-0 absorbable sutures in a single interrupted pattern. The hoof wall defect was packed with sterile gauze and covered with a light bandage. A hoof cast was applied to the midpastern region.

The excised soft tissue mass was firm to rubbery and encapsulated. Examination of sections of the mass after fixation in formalin revealed that the mass was formed by densely packed, concentrically laminated material with a central pale white chalky area approximately 1.0 cm in diameter. Histologic examination revealed that the mass consisted of mature keratinizing epithelium of uniform thickness, with a peripheral collagenous capsule and central densely packed concentric rings of keratin with areas of mineralization. The gross and histopathologic features were characteristic of keratoma. The horse recovered well, was placed in training again 4 months after surgery, and has since performed well as a western pleasure horse.

Keratomas have been reported in horses between 2 and 20 years of age1,2 with no apparent breed predisposition. These benign lesions most commonly develop beneath the hoof wall or sole1 and may develop following injury. Keratomas develop less commonly beneath the coronary band.1,2 Affected horses are lame, but hoof or sole resection and removal of the mass are often curative.1 Although the typical radiographic appearance is a discrete round to semicircular lytic defect in the adjacent distal phalanx as a result of pressure-induced bone resorption, partial mineralization of the mass has been described in a report of keratomas in the area of the coronary band.1


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