

What Is Your Diagnosis?

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Figure 1—Nonstandard 10° caudolateral-craniomedial oblique radiographic view of the left shoulder joint of a 27-year-old Arabian horse evaluated for acute left forelimb lameness.

History

A 27-year-old Arabian gelding was referred for evaluation of an acute onset of left forelimb lameness. The horse had been kept at pasture with other horses and was found severely lame 4 hours prior to hospital admission. On physical examination, the horse was bright and alert, with a rectal temperature (38.2°C [100.8°F]) within reference limits, slight tachycardia (48 beats/min), and tachypnea (30 breaths/min). The horse had a grade 4/5 lameness of the left forelimb, but would voluntarily bear weight on the limb while standing and walking. The horse did have difficulty extending its left forelimb and had a markedly shortened cranial phase of the stride on that limb. At the time of hospital admission, distal extremity lameness was initially ruled out by observation, negative reaction to hoof testers, and a negative response to perineural anesthesia at the level of the proximal sesamoid bones (abaxial sesamoid nerve block). A mild soft tissue swelling was observed, located on the craniolateral aspect of the shoulder joint. Moderate pain and mild crepitus were evident on palpation and manipulation of the upper left forelimb. A nonstandard radiographic view of the left shoulder joint and adjacent area was obtained (Figure 1).

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

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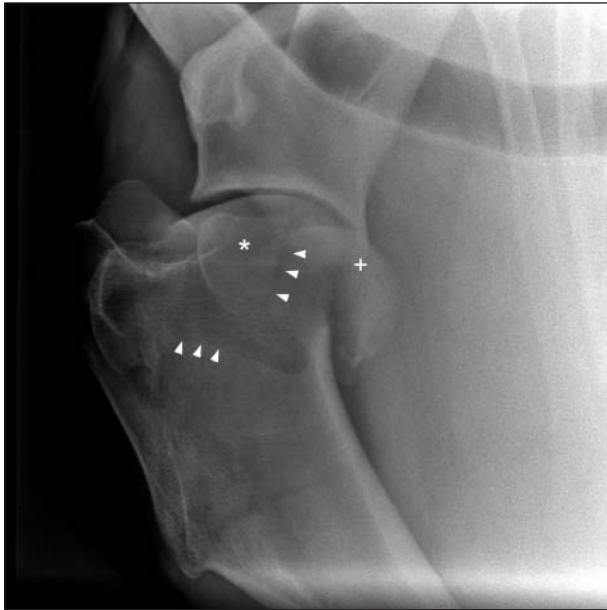


Figure 2—Same radiographic image as in Figure 1. Notice the comminuted parasagittal fracture of the medial head of the humerus (plus sign), involving the lesser tubercle (asterisk). The fragments are displaced caudally and distally. Several fracture lines are evident (arrowheads).

Diagnostic Imaging Findings and Interpretation

Two large bone fragments are visible at the caudal aspect of the humeral head. There is a comminuted parasagittal fracture of the proximal portion of the humerus involving the lesser tubercle and the medial aspect of the humeral head. The fracture fragments are displaced caudally and distally (Figure 2).

Ultrasonographic examination of the cranial region of the shoulder joint was performed immediately after the horse was euthanized (Figure 3). The tendon of origin of the biceps brachii muscle is absent from its normal anatomic location overlying the humeral tubercles because of medial luxation and tearing of its lateral lobe secondary to the displaced fracture of the lesser tubercle and the medial aspect of the humeral head.

Comments

On the basis of radiographic findings, a diagnosis of a complete comminuted sagittal fracture of the medial aspect of the humeral head and lesser tubercle was made. The horse was euthanized at the owner's request because of the poor prognosis for pasture soundness on the basis of the horse's age and fracture configuration and location. The related severe soft tissue damage was identified on an ultrasonographic examination performed to further evaluate the shoulder region after euthanasia.

Fractures of the humeral head are usually the result of direct trauma such as a fall, kick, or collision with a solid object.¹ Fractures in this location are rare; however, horses with similar fractures that have had an acute onset of lameness and concomitant damage to the

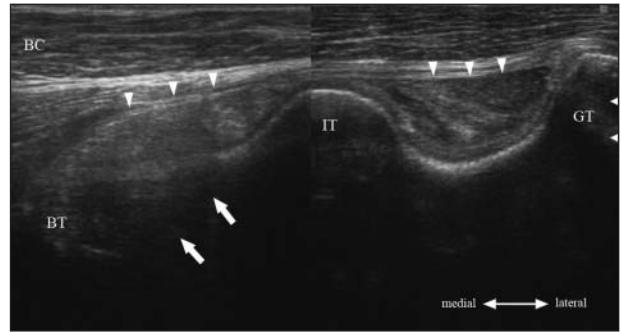


Figure 3—Composite transverse ultrasonographic image obtained at the level of the humeral tubercles of the same horse as in Figure 1. The image was obtained immediately following euthanasia. The biceps brachii tendon is absent from its normal anatomic location overlying the humeral tubercles (arrowheads). Notice the absence of the lesser tubercle at the fracture site (arrows). BC = Brachiocephalicus muscle. BT = Biceps brachii tendon. GT = Greater tubercle. IT = Intermediate tubercle.

tendon of origin of the biceps brachii muscle have been reported.^{2,3}

Diagnostic radiographic views of fractures in the shoulder region in horses can be challenging to obtain because of the associated soft tissue structures and the difficulty typically encountered when extending a painful forelimb in the standing horse. Standard lateromedial survey projections of the shoulder joint can be supplemented with other diagnostic tests if a fracture is suspected but the fracture configuration is not clearly defined. When lateromedial radiographic results are inconclusive, flexed cranioproximal-craniodistal (skyline) oblique radiographic projections,¹ ultrasonography of the region, and bone scintigraphy should be considered.³ For the horse of this report, diagnostic radiographic images were challenging to acquire and a nonstandard oblique view was required to characterize the fracture. In addition, the associated soft tissue injuries were not apparent until an ultrasonographic examination was performed.

The diagnostic imaging findings were confirmed at necropsy. Extensive edema and hemorrhage were observed in the soft tissues medial to the shoulder joint. As was identified on ultrasonographic examination, the tendon of origin of the biceps brachii muscle was displaced medial to the humerus and there was partial disruption of the lateral aspect of the tendon. In addition, there were 3 fracture fragments originating from the humeral head. As was observed on the caudolateral-cranio-medial 10° oblique radiographic image of the shoulder joint, the largest fragment was displaced from the medial aspect of the humeral head, included the entire lesser tubercle, and measured 5 × 4 × 2 cm.

1. Mez JC, Dabareiner RM, Cole RC, et al. Fractures of the greater tubercle of the humerus in horses: 15 cases (1986–2004). *J Am Vet Med Assoc* 2007;230:1350–1355.
2. Coudry V, Allen AK, Denoix JM. Congenital abnormalities of the bicipital apparatus in four mature horses. *Equine Vet J* 2005;37:272–275.
3. Seco Diaz O, Reef VB, Martin BB Jr, et al. Rupture of the biceps tendon in a Thoroughbred steeplechase horse. *Equine Vet J* 2003;35:110–112.