Ultrasonographic Diagnosis of Fetlock Collateral Ligament Rupture in 17 Horses

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Fetlock collateral ligament rupture should be considered in horses with acute lameness and fetlock swelling with or without palpable joint instability. Ultrasound can be used to provide a quick and reliable diagnosis of collateral ligament rupture, allowing for early initiation of treatment. Conservative treatment consisting of limb immobilization and stall rest can produce favorable results despite severe initial injury. Authors’ addresses: Veterinary Medical Teaching Hospital (Tenney) and Department of Surgical and Radiological Sciences (Whitcomb), School of Veterinary Medicine, University of California, Davis, CA 95616; e-mail: tenneydvm@hotmail.com. © 2008 AAEP.

1. Introduction
Rupture of the collateral ligaments (CL) of the metacarpo(tarso)phalangeal or fetlock joint is not likely to be frequently encountered by the individual practitioner but may be seen with some regularity at equine referral centers. The diagnosis is straightforward in horses presenting with medial or lateral luxation of the fetlock joint or in horses with open injuries, but it is often more challenging in horses with lameness and fetlock swelling as the primary complaint. Radiography and/or joint manipulation under general anesthesia can be useful to diagnose CL injury in such cases. Ultrasonographic evaluation of the superficial (long) and deep (short) components of the normal fetlock joint has been described, but there is limited published information regarding the appearance of fetlock CL injuries. Treatment of affected horses is generally aimed at joint stabilization with casting and stall confinement; however, surgical repair with implants has also been described to aid joint stabilization. Prognosis for affected horses has been described as good for breeding and guarded/poor for athletic use, but many reported cases sustained severe open injuries and/or luxation with joint deviation that may have contributed to this prognosis. It is possible that horses with less severe injury can have an improved outcome. The purpose of this report is to describe the use of ultrasound to diagnose fetlock CL rupture in a group of horses that primarily sustained closed injuries and to describe their outcome based predominantly on conservative treatment. Such information should be useful to practitioners when advising clients faced with similar cases.

2. Materials and Methods
Cases were selected from all horses that presented to the Large Animal Ultrasound Service at the University of California, Davis-Veterinary Medical Teaching Hospital (UCD-VMTH) for fetlock ultrasonography from 1999 to 2005. All horses were evaluated for lameness and underwent radiographic and ultrasonographic evaluation of the fetlock joint as previously described. Transducer orientation
to obtain longitudinal views of the long (superficial) and short (deep) CL components and normal reference ultrasound images are shown in Figs. 1 and 2. Horses were included based on a positive ultrasonographic diagnosis of rupture of at least one CL component.

3. Results

CL rupture was diagnosed in 17 horses during the 6-yr study period. Quarter Horses represented over one half (53%) of the study group. Multiple other breeds were represented. Horses ranged in age from 1 to 19 yr. Males and females were similarly represented. Injuries were sustained because of limb entrapment or other trauma in 53% of horses and affected all four limbs with similar frequency. All horses were lame (mean = 3.7 using the American Association of Equine Practitioners scale of 0–5), and nearly all horses had fetlock swelling. Joint laxity was palpable in 53% of horses, but only four horses had a witnessed episode of luxation. No horse sustained an open luxation, but wounds communicated with the fetlock joint in two of six horses with wounds. Only one of these wounds directly involved the injured CL.

The lateral CL (LCL) was affected in 11 horses, and the medial CL (MCL) was affected in seven horses. No horses sustained concurrent MCL and LCL rupture. Radiographs revealed the presence of fractures in less than one-half of the cases, including six horses with CL avulsion fractures of the distal third metacarpal bone/third metatarsal bone (MC3/MT3) or proximal phalanx (P1). Pre-existing mild to moderate degenerative joint disease was found in eight horses. Medial-to-lateral and lateral-to-medial stressed radiographic projections performed in 11 horses revealed evidence of joint laxity in 10 horses, but subluxation/luxation was only produced in four cases. Ultrasonographic evaluation revealed ipsilateral rupture of both (long and short) CL components (Figs. 3 and 4) to be more common than single component ruptures, although horses with single component ruptures often had concur-

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Fig. 1. Proper transducer placement to obtain a longitudinal image of the long (superficial) component of the fetlock collateral ligament with corresponding reference ultrasound image. Note the linear fibers of the long component (arrows) as they course from the origin on the third metatarsal bone (MT3) to the proximal phalanx (P1).

Fig. 2. Proper transducer placement to obtain a longitudinal image of the short (deep) component of the fetlock collateral ligament with corresponding reference ultrasound image. Note the differing orientation of the short component compared with that of the long component in figure 1. The linear fibers of the short component (arrows) are visualized as they course from their origin at the condylar fossa of the third metacarpal bone (MC3) to the insertion onto P1.
rent desmitis of the non-ruptured ipsilateral CL component. Ultrasound was able to identify two avulsion fragments in addition to those seen radiographically. Ultrasound also identified CL desmitis on the non-ruptured side of the joint in 53% of horses, and this desmitis was also commonly associated with small avulsion fragments. Interestingly, 50% of these fragments were not visible radiographically.

All horses were treated for their injuries with the exception of one horse that was euthanized after diagnosis because of severe injuries in another limb. Horses were most often placed into fiberglass casts that incorporated the hoof capsule and extended to the proximal metacarpus/metatarsus. Most casts were placed and replaced in the standing horse. Duration of casting varied according to patient tolerance, clinician preference, and duration of injury before presentation.

Splinting, bivalved bandage casts, and heavy bandaging were used in non-casted horses. Surgical repair of ruptured CLs was not attempted, but joint lavage was performed in three horses with wounds. All horses were treated with stall confinement for an average of approximately 90 days. Horses generally began handwalking after cast or splint removal. Ultrasound rechecks revealed some evidence of healing of most long component injuries but little evidence of healing of short component injuries. Radiographic re-evaluation revealed mild progression of degenerative joint disease in 50% of cases, although one horse progressed from moderate to severe. This horse was retired from riding, and another horse was retired for reasons unrelated to the injury. One of three broodmares was euthanized because of reinjury at 328 days. Long-term outcome was not available for three horses, but 50% of study horses were able to return to riding purposes.

4. Discussion

Acute lameness and fetlock swelling were consistent clinical signs in horses with fetlock CL rupture and should raise the index of suspicion when encountered. In contrast, palpable joint laxity and subluxation were inconsistently noted. Ultrasound provided a rapid and accurate diagnosis in our horses and was able to document the number of CL components injured as well as osseous abnormalities associated with the injury. Rupture of both CL components was encountered more frequently than rupture of a single component, and LCL rupture appears to be more common than MCL rupture. Although bilateral rupture did not occur in any of our cases, desmitis was frequently identified in the CL contralateral to the ruptured side. Ultrasound was somewhat helpful to monitor the healing process, but sonographic improvement was typically only seen in long component ruptures.

Conservative management formed the mainstay of treatment in affected horses and consisted primarily of stall rest and limb immobilization. Casting was well tolerated, and cast changes could be performed in the standing horse. Limb immobilization eventually progressed to splints, bivalved casts, or heavy bandages when indicated. Although one treated horse was euthanized because of rerupture, final outcome in many cases was favorable. Fifty-percent of treated horses returned to riding, including pleasure riding and jumping. In many cases, the degree of osteoarthritis remained unchanged or progressed only one grade during the follow-up period. The absence of open luxations and the use of ultrasound to promptly diagnose affected horses likely contributed to the successful treatment of many cases. These results indicate that early diagnosis and initiation of conservative treatment can yield a favorable prognosis in cases of fetlock CL rupture.
References


