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Pelvic or Femur Fracture? Better Check for Both

Horses are athletic wonders most days, deftly maneuvering tricky terrain on trails and miraculously staying upright while galloping across muddy fields. But sometimes a slip in slick grass, over a jump, or on a rocky trail turns into a hard fall, and it's not uncommon for a horse to suffer pelvic and upper-hind-limb trauma—even fractures—in the process. One researcher recently reported that detecting these fractures and telling them apart can be tricky, offering tips on how to pinpoint the cause in unresolved upper hind limb lameness cases.

During a presentation at the 2015 American Association of Equine Practitioner's Convention, held Dec. 5-9 in Las Vegas, Georgette Shields, DVM, a resident at Colorado State University's Veterinary Teaching Hospital, in Fort Collins, described "William," who went in for a veterinary exam six weeks after he'd fallen due to lameness that failed to resolve. An earlier ultrasound of William's pelvis and lumbosacral and sacroiliac joints of the spine had not revealed any abnormalities. However, a current nuclear scintigraphy exam (bone scan) showed radioactive marker uptake in a specific part of the upper hind limb—the third trochanter of the femur—indicating inflammation and injury.

The third trochanter is a bony protrusion on the femur located about halfway between the hip and the stifle, Shields explained. The area is difficult to radiograph due to the overlying large muscle mass. It's more conducive to ultrasound exam, which in William's case—once veterinarians at the referral hospital knew to look there based on the bone scan results—revealed a large fracture fragment where the gluteal muscle's tendon and tensor fascia muscle insert. Because this protrusion doesn't bear weight and is not involved with the stifle joint, a horse can still use the leg even though he's quite lame.

Shields reviewed abnormal imaging findings of the femoral third trochanter, describing a case review of 20 horses examined at the University of California, Davis Veterinary Teaching Hospital, from December 2004 to June 2014. Veterinarians used ultrasound to diagnose 14 horses presenting with acute lameness due to third trochanter fractures. Ultrasound exam also showed focal fluid (blood or serum) accumulation, muscle tearing, and/or hemorrhage around the fracture site. The majority of the horses were Grade 3 (out of 5) lame, said Shields.

Of the horses in this group, six returned to full function within eight to 18 months, while two returned to riding at a lower level; two were still lame at six months to one year; two were euthanized (one due to unrelated injury); and two were lost to follow-up.

The remaining six out of 20 horses showed only mild radioactive marker uptake over the third trochanter on scintigraphy. Three of the horses were severely and acutely lame, and ultrasound of the third trochanter was either normal or not performed. Veterinarians later attributed the lameness to another cause in two horses and lameness remained undiagnosed in one. The remaining three horses presented with a vague chronic history of lameness.

"Nuclear scintigraphy prompted a focused ultrasound exam in nine of the 14 positive fracture cases," Shields explained. "Pelvic and third trochanter fractures can present similarly; therefore, it is important to ultrasound both areas."

Three-quarters of the horses with third trochanter injuries needed at least two imaging modalities to confirm their injury. None of these cases were considered for surgery. Stall rest was the treatment of choice followed by slow and progressive increases in hand walking, and then light activity slowly increased over a many-month period.

In a previous study of eight cases of third trochanter injury, horses returned to athletic function within two to eight months, with all but one returning to full athletic potential. "Prognosis for return to full athletic activities in this study was not as favorable as what had been cited in the previous study," noted Shields.

Take-Home Message

Third trochanter fractures generally produce more lameness than what one would expect with sacroiliac injury, which is a common injury site to rule out when a horse presents with an upper-hind-limb lameness. Anytime a veterinarian suspects an upper limb fracture, Shields recommends performing an ultrasound of both the pelvis and femur.