What Is Your Diagnosis?

History

A 2-year-old castrated male Labrador Retriever was referred for evaluation of a left hind limb lameness of 3 weeks' duration. The dog had been struck by a car 3 weeks earlier, and craniodorsal luxation of its left hip joint was diagnosed on the basis of physical examination and radiographic findings (Figure 1). Luxation of the hip joint was treated by closed reduction and placement of an Ehmer sling for 10 days. After sling removal, the dog had a non-weight-bearing lameness in the left hind limb.

At the time of referral, physical examination revealed a non-weight-bearing left hind limb lameness, signs of pain with manipulation of the left hip joint, and left gluteal muscle atrophy. The left hip joint remained in proper reduction on the basis of findings on palpation. No other abnormalities were noted. Pelvic radiographs were obtained (Figure 2).

Determine whether additional imaging studies are required, or make your diagnosis from Figures 1 and 2—then turn the page →

This report was submitted by Scott A. Christopher, VMD; John P. Punke, DVM; Wes Cowan, DVM; and James L. Cook, DVM, PhD, DACVS; from the Veterinary Medical Teaching Hospital, University of Missouri, Columbia, MO 65211 (Christopher, Punke, Cook); and Shoal Creek Animal Hospital, 8850 NE Flinlock Rd, Kansas City, MO 64137 (Cowan). Dr. Christopher's present address is Veterinary Orthopedic and Sports Medicine Group, 10975 Guilford Rd, Annapolis Junction, MD 20701. Address correspondence to Dr. Christopher (schristopher@vosm.com).
Radiographic Findings and Interpretation

On radiographic images obtained at the time of injury, craniodorsal luxation of the left hip joint is evident (Figure 3). An irregular radiolucency is present in the subchondral bone of the central aspect of the left femoral head. An object of mineral opacity is visible within the acetabular fossa. The ventrodorsal radiographic view obtained at the time of referral (Figure 4) confirms maintained reduction of the hip joint, a femoral head radiolucency, and intra-articular fragment. The presence of an intra-articular avulsion fragment from the femoral head was thought to be the cause of persistent lameness and signs of pain.

Comments

Arthroscopic assessment of the left hip joint was performed as a diagnostic and therapeutic modality. The round ligament of the head of the femur (ligamentum capitis ossis femoris) was partially avulsed from the acetabular fossa. An attached osteochondral avulsion fragment from the femoral head and multiple interstitial tears were also present. After arthroscopic confirmation of the diagnosis, the fragment was grasped and the ligament transected at its acetabular origin to allow for complete removal. The dog was discharged to the owner on the day of surgery. The patient was weight bearing on the left hind limb at the time of discharge and was reported by the owner to be fully weight bearing with no signs of pain within 72 hours of surgery. Resolution of signs of pain and muscle atrophy and return to level of function before injury were verified on the basis of reexamination by the referring veterinarian at 3 months after surgery and follow-up telephone conversation with the owner at 7 months after surgery.

Craniodorsal luxation of the hip joint is a common sequela to vehicular trauma and accounts for up to 90% of all joint luxations in dogs. Accurate and comprehensive diagnostic tests are vital in these dogs for effective treatment. The primary decision with respect to treatment involves the choice for closed versus open reduction of the luxated joint. Complete physical examination, palpation, and orthogonal radiographic views of the pelvis are prerequisites for definitive diagnosis and working through the treatment algorithm. Closed reduction is considered a viable treatment option when conformation of the femoral head and acetabulum is normal or near normal, articular fractures are not present, and concurrent trauma does not preclude management of the affected limb in a non–weight-bearing manner by use of a sling. Even in dogs considered optimal for closed reduction, the recurrence rate for joint luxation ranges from 15% to 71%. Open reduction is recommended when the criteria for closed reduction are not met or when initial attempts at closed reduction fail. Hematoma, damaged joint capsule, and fractures are the primary impediments to successful closed reduction of a luxated joint and can often be missed on routine radiographic images. In addition to physical impediments to joint reduction, intra-articular fracture fragments may affect joint congruity, preclude effective stabilization, and contribute to pain and secondary osteoarthritis. In this case, teres ligament rupture with femoral head avulsion did not preclude adequate reduction and stabilization of the hip joint but apparently was a cause of persistent lameness and signs of pain. Arthroscopic-assisted removal of the avulsion fragment proved successful in resolving the clinical signs while avoiding more invasive surgery.