What Is Your Diagnosis?

**History**

A 1.5-year-old neutered male Labrador Retriever was evaluated for mild lameness of the right pelvic limb of 6 months’ duration. The lameness was first noticed immediately after an episode of outdoor activity. Initially, the dog was non-weight bearing. The lameness had improved to partial weight bearing during the next 2 weeks, and the dog had been partially weight bearing on the limb during the next 6 months.

Physical and orthopedic examination revealed slight external rotation of the right pelvic limb when the dog was standing. Manipulation of the right stifle joint elicited mild crepitus through the normal range of motion and a slight pain response on deep palpation of the lateral femoral condyle. No cranial drawer or tibial thrust could be elicited. Radiographs of the right and left stifle joints were obtained for evaluation and comparison (Figure 1).

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

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Radiographic Findings and Interpretation

Soft tissue swelling is visible within the right stifle joint (Figure 2). The popliteal sesamoid bone is displaced distomedially. Several nodular mineral opacities are visible along the caudolateral aspect of the stifle joint and are associated with a focal defect in the lateral aspect of the femoral condyle. Periosteal proliferation and enthesiophyte production are evident adjacent to the defect. Differential diagnoses included avulsion of the popliteal tendon, traumatic fracture of the lateral femoral condyle, or an avulsion of the long digital extensor tendon or lateral collateral ligament.

Comments

Flexed lateral and lateral oblique radiographs were obtained (Figure 3). The defect in the lateral femoral condyle was in the proximity of the origin of the popliteus muscle tendon. The irregular mineralized fragment located adjacent to the lateral femoral condyle and the displaced popliteal sesamoid bone supported the diagnosis of popliteus muscle avulsion.

The right stifle joint was approached through a lateral parapatellar incision. The tendon of the popliteus muscle was displaced from its origin. A large fibrous tissue mass with mineralized fragments surrounding the proximal end of the tendon was removed and the underlying femoral defect debrided. A locking-loop suture and bone screw were used to anchor the remaining tendon near its origin. Two months after surgery, the lameness had resolved.

The tendon of origin of the popliteus muscle in dogs originates from the lateral femoral condyle and courses caudally, passing beneath the lateral collateral ligament of the femorotibial joint. The muscle belly extends obliquely on the caudal surface of the joint capsule to insert on the medial border of the proximal third of the tibia. A sesamoid bone is contained within the long tendon just proximal to the musculotendinous junction. The function of the popliteus muscle is to assist in flexion of the stifle joint and to maintain internal rotation of the tibia with respect to the femur.

Avulsion of the popliteal tendon should be considered as a differential diagnosis for stifle joint lameness in dogs.