What Is Your Diagnosis?

In cooperation with

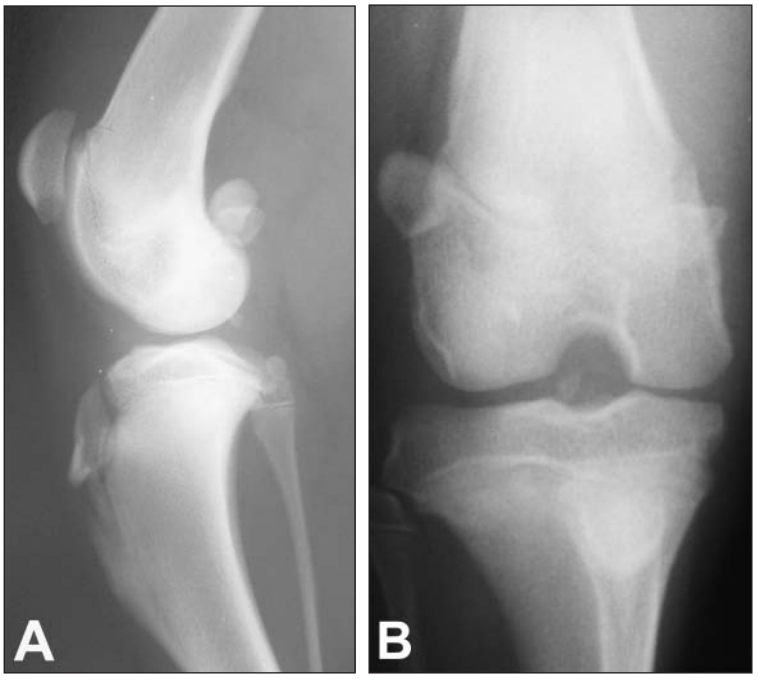

Figure 1—Lateral (A) and craniocaudal (B) radiographic views of the right stifle joint in a 7-month-old dog evaluated for an intermittent, nonprogressive right pelvic limb lameness of 3 weeks' duration.

History

A 7-month-old sexually intact female Boxer was evaluated for an intermittent, nonprogressive right pelvic limb lameness of 3 weeks' duration. The lameness may have been precipitated by a traumatic episode and was reported to be worse after prolonged rest. Physical examination revealed a consistent weight-bearing lameness of the right pelvic limb, with a repeatable pain response elicited during hyperflexion and extension of the stifle joint. A fluctuant swelling, presumed to be effusion, was palpated within the stifle joint. Cranial and caudal drawer signs were not elicited during examinations performed while the dog was awake or sedated. Results of valgus and varus stress tests were negative. Radiographic images of the right stifle joint were 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 craniocaudal radiographic view as in Figure 1. Notice the well-circumscribed osseous body (long arrow) within the stifle joint, at the level of the intercondylar notch. Sclerosis of the lateral condyle (small arrow) is also evident.

Figure 3—Axial (1-mm) helical CT image of the right stifle joint of the dog in Figure 1 at the level of the intercondylar notch. Severe, irregular, subchondral sclerosis with a lucent area is visible in the axial aspect of the lateral femoral condyle (arrow).

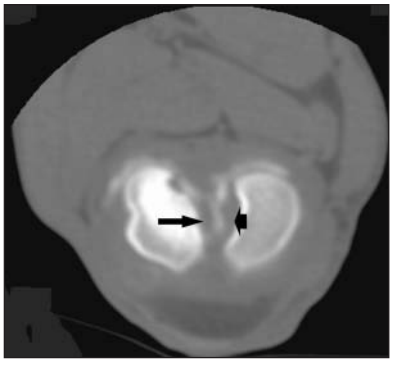

Figure 4—Postcontrast, axial (1-mm) helical CT image of the right stifle joint of the dog in Figure 1 at the level of the intercondylar notch. The radiodense contrast agent surrounds the normal cranial (long arrow) and caudal (short arrow) cruciate ligaments.

Diagnostic Imaging Findings and Interpretation

A well-circumscribed osseous body is evident within the caudal aspect of the stifle joint at the level of the intercondylar notch (Figures 1 and 2). Compared with normal stifle joints, a moderate increase in fluid opacity is evident within the affected stifle joint, as evidenced by cranial displacement of the fat pad and distention of the caudal aspect of the joint capsule. The subchondral bone of the caudal aspect of the lateral condyle is sclerotic (Figures 1 and 2). The presumptive diagnosis was osteochondritis dissecans (OCD) of the lateral femoral condyle. Concurrent avulsion of the right cranial or caudal cruciate ligaments or possible lateral meniscal mineralization was also considered.

Computed tomography (CT) of the right stifle joint was performed before and after intra-articular injection of iohexol diluted in saline (0.9% NaCl) solution (90 mg I/mL).[1] An irregular lucency and severe subchondral sclerosis are associated with the axial aspect of the lateral femoral condyle. The sclerosis extends proximally to efface the normal trabeculae in the medullary cavity of the femur (**Figures 3 and 4**). On the contrast arthrogram, the cranial and caudal cruciate ligaments are clearly visible and deemed to be normal (Figure 4). On the basis of results of radiography and CT, OCD of the axial aspect of the lateral femoral condyle was diagnosed.

Comments

Routine arthroscopy of the joint was performed with a 2.7-mm, 30° arthroscope and camera.[2] The cartilage associated with a large portion of the axial aspect of the lateral femoral condyle was grossly abnormal and easily fissured during instrument probing. An OCD lesion was confirmed. Fraying of a small portion of the cranial cruciate ligament was identified and believed to be a result of disruption of the ligament's origin by the OCD lesion. The ligament was competent when stressed. A motorized shaver was used to perform a notchplasty and to debride abnormal cartilage down to bleeding, subchondral bone.

Osteochondritis dissecans of the femoral condyle is an uncommon cause of lameness in immature large-breed dogs. Bilateral involvement is reported in 72% (97/135) of cases studied, with the distal aspect of the lateral femoral condyle affected most commonly. Axially located OCD lesions, as in the dog of this report, may have more discrete radiographic changes, thus precluding a definitive diagnosis on the basis of standard radiography alone. Involvement of the medial condyle has been reported to occur in approximately 4% of affected stifle joints.[3] Osteochondritis dissecans is a clinical manifestation of osteochondrosis, which occurs secondary to disturbances or failures in endochondral ossification. Proposed causes for the development of OCD include genetic tendencies, trauma, hormonal imbalances, diet, rapid growth rate, and joint morphology.[3,4]

A presumptive diagnosis of stifle OCD can usually be attained through standard radiography. Radiolucent subchondral bone deficits with flattening and sclerosis of the affected condyle are common radiographic findings. Osteophytosis and joint mice can also be observed radiographically. Joint effusion will also often accompany these changes.[3-5] Confirmation of an OCD lesion can be achieved through arthroscopic evaluation or arthrotomy of the affected stifle joint. Computed tomography can be helpful in defining the extent of a lesion and for determining bilateral involvement, especially when standard radiography has been unrewarding. If additional injuries are suspected, CT arthrography can be used for assessment of intra-articular ligamentous abnormalities.[1]

Clinical signs had improved by the time of the 6-week postoperative follow-up examination of the dog in this report. A mild lameness was still observed; however, the owner had noticed progressive improvement.

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2. Beale BS, Hulse DA, Schulz KS, et al. Arthroscopically assisted surgery of the stifle joint. In: Kersey RR, LeMelledo D, eds. *Small animal arthroscopy*. Philadelphia: WB Sanders Co, 2003;118–157.
3. Montgomery RD, Milton JL, Henderson RA, et al. Osteochondritis dissecans of the canine stifle. *Compend Contin Educ Pract Vet* 1989;11:1199–1205.
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