What is your diagnosis? 
Answer to the question on page 196.

Acute pelvic limb lameness in a dog following a fall

Discussion
Differential diagnoses included chip fracture of the patella, femur or tibia, or an avulsion fracture of a ligament insertion. Based on location and cranial-caudal instability, avulsion of the origin of the cranial cruciate ligament was considered most likely, with concurrent lateral collateral ligament sprain, and potential further intra-articular damage. Exploratory surgery of the stifle joint was performed to confirm the origin of the bone fragment and allow treatment. Findings included grade II lateral collateral ligament sprain, avulsion of the origin of the cranial cruciate ligament, and maceration of the axial portion of the medial meniscus that was debrided (1). In addition, there was full thickness cartilage loss of the medial femoral condyle and corresponding proximal tibial plateau that was micro-picked. The small size of the bone fragment precluded internal fixation and the CrCL was transected at its insertion and submitted for histological examination (Fig. 2). The joint was stabilized by placement of a prosthetic lateral collateral ligament and paired lateral and medial fabellar sutures.

Avulsion of the cranial cruciate ligament, which has been rarely reported in the dog, typically occurs in the young or skeletally immature dog where the ligament tends to be stronger than bone (2–6). In the older dog, traumatic rupture of the cranial cruciate typically occurs instead of avulsion, commonly in association with other stifle derangement injuries. Nevertheless, avulsion of the origin has been reported bilaterally in one dog and partially in another (4, 5).

Treatment involves fixation of the bone fragment where feasible, combined with synovectomy in skeletally immature dogs, or resection of the bone fragment and passive stabilization of the stifle joint if the bone fragment is considered too small for reconstruction (2–6). Assessment of concurrent injuries of the stifle joint is mandatory. Prognosis is dependant upon concurrent injuries but is considered fair.

References

Fig. 1 Caudocranial (A) and mediolateral (B) radiographs of the stifle joint.

Fig. 2 A) Intra-operative picture of the stifle joint following lateral arthrotomy. The forceps are grasping the avulsed bone (arrow) with the cranial cruciate ligament still attached. B) Image of histological section showing the fractured bone edge (1), bone fragment (2) Sharpey’s fibres (3) and cranial cruciate ligament (4).

Diagnosis
Traumatic avulsion of the origin of the cranial cruciate ligament, and concurrent stifle joint injuries.

Tom Smith; Jennifer Warnock
Oregon State University, College Veterinary Medicine, Corvallis, Oregon, United States

Correspondence to:
Tom Smith, MA, VetMB, CertSAS, MRCVS
College Veterinary Medicine
Veterinary Teaching Hospital
Oregon State University
Corvallis, Oregon 97331, United States
Phone: +1 541 602 2560, Fax: +1 541 737 4818
E-mail: tjsmithuk@hotmail.co.uk

Vet Comp Orthop Traumatol 2011; 24: 196, 252
doi:10.3415/VCOT-10-09-0132
Accepted: September 20, 2010

Fig. 1 Caudocranial (A) and mediolateral (B) radiographs of the stifle joint.