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Rupture of the origin of the Long Digital Extensor tendon associated with patellar luxation (9 cases)

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INTRODUCTION
The tendon of the Long Digital Extensor (LDE) arises in the extensor fossa on the lateral condyle of the femur and passes through the sulcus muscularis of the tibia. It is underlaid on its deep surface by a pouch of the meniscotibial portion of the stifle joint capsule, creating a capsular synovial bursa. The tendon of insertion extends distally along the dorsal surfaces of metatarsal bones and digits II to V.

Lesions of the LDE tendon are uncommon and include avulsion fracture of the site of origin, luxations of the tendon and complete or incomplete ruptures of the tendon of origin. To the best of our knowledge, there are no reports in the veterinary literature concerning the association between patellar luxation and rupture of the LDE tendon. The objective of this communication is to document this complication of patellar luxation in 9 cases and to report the outcome of the surgical correction of these cases of patellar luxation.

MATERIAL AND METHODS
Clinical records and radiographs of dogs undergoing orthopedic surgery at Veterinary Surgical Center during the period 1996-2007 were reviewed. Cases of LDE tendon rupture of non-traumatic origin were further analysed. Information collated included signalment of the case, etiology and duration of the injury, and other concurrent orthopedic injuries.

RESULTS
Nine dogs were available for the study. There were 3 males and 6 females. Breeds affected were medium, large and giant in most cases. Only a poodle and a Cocker weighed less than 10 Kg. Most of the animals were immature or young dogs. The mean age was 11 months (range: 6-30 months). The mean weight was 28 Kg (range: 4-45 Kg). All patients had chronic hind limb lameness of different degrees unresponsive to rest and NSAIDs for at least 3 weeks (mean duration:10 weeks). More than half of the dogs (66%) had a noticeable synovial effusion. Analysis of this synovial fluid showed a non-inflammatory nature. No other particularities were noted in these cases during the physical examination.

In all patients diagnosis of the tendon rupture had been made during arthrotomy to repair a patellar luxation. The aetiology of the patellar luxation was congenital in all patients, and no traumatic incidents were reported in any case. Most of the patellar luxations were Grade III (7/9), and two cases were Grade IV. In 77% of the cases (7/9) the direction of the patellar luxation was lateral. Only two dogs had a medial luxation.

Except in 5 dogs, the rupture was incomplete. In these dogs, some fine strands of tendon were still attached to the extensor fossa. The rupture had occurred at or very close to the origin of the tendon and no mid-substance derangements were recorded. Secondary changes in and around the extensor fossa of the femur suggested that the lesion was chronic in nature and not what might be expected in a traumatic rupture.

No attempts to reconstruct the origin of the tendon were made. The suspected chronicity of the lesion retracted the body of the tendon away from the stifle and into the surrounding muscles, making it difficult to exteriorize and fixate it. In one case, careful dissection through the cranial tibial muscle helped to identify the tendon ends, although the distance to the femur (about 7 cm) and the fibrotic nature of the tendinous tissue discouraged the surgeon to attempt any kind of reconstruction.

Outcome of surgical treatment was good in 7 cases. No deleterious effect from the LDE rupture was noted in the postoperative period in any of these dogs. Two animals had a fair outcome despite a correct patellar stabilization. No revision surgery was required for any of these dogs, so it is difficult to ascertain whether the lameness was due to a deficient patellar repair or the ruptured tendon contributed to it and to what extent.

CONCLUSIONS
Relevant features of a previously unreported association between patellar luxation and rupture of the LDE are described herein. True incidence of LDE rupture is probably higher than previously thought. Careful assessment of the extensor fossa during arthrotomy or arthroscopic examination of the stifle joint is recommended to properly diagnose this lesion.

The effect of the ruptured LDE on the outcome of surgical repair of patellar luxation is unclear although it might influence the results in some dogs.