

Surgical Treatment of Rupture of the Anterior Cruciate Ligament in a Cat Caused by Dog Bite

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ABSTRACT

Background: Cranial cruciate ligament (CCL) ruptures in the cat is uncommon. Rupture of the feline cruciate ligament was generally described as or assumed to be of a traumatic etiology and its surgical repair was documented in individual cases. Traumatic cruciate ruptures commonly occur as a result of falls. While rupture of the CCL is common in those circumstances, it is almost always part of “polytrauma” to the stifle. To the authors’s knowledge no description has been published of ruptur of CCL in cats caused by dog bite. This paper reports a first case of ruptur of CCL caused by dog attack in a Turkish Angora cat.

Case: A 2 year-old intact female Turkish Angora cat was presented because of acute pain in the left hindquarters. The cat experienced difficulty in locomotion and weight-bearing on left hind limb. The owner reported that the cat was attacked from a Bull Terrier dog. Since then, the cat had lameness. Examination under general anesthesia revealed a pronounced cranial drawer sign in the left stifle joints. Radiographic examinations revealed distal displacement of the left popliteal sesamoid bones and cranial displacement of the tibia. Surgical exploration confirmed cranial cruciate rupture of the left stifle. Contusions were pronounced in the soft tissues surrounding the stifle joints suggesting a traumatic etiology. The involved stifle joints were stabilized with two strands of 0 non-absorbable suture materials using the lateral retinacular imbrication technique. Two weeks post-operatively, the cat was using both hind legs somewhat gingerly.

Discussion: In a survey of nine cases of degenerative feline cruciate ruptures, the cats averaged 8.5 years of age and had a mean weight of 6.5 kg. Significant differences in age or sex distribution could not be demonstrated. In a survey of 165 dogs with CCL rupture, conducted from 1983 to 1990, 78% were small breeds (under 15 kg), with a mean age of 8.7 years. Many of these dogs were overweight. In this study, a 2-year-old intact female cat weighing 2.3 kg was presented to the Veterinary Medical Teaching Hospital, Adnan Menderes. Diagnosis of feline CCL rupture is usually easily confirmed on physical examination. Drawer motion is pronounced in most affected cats. Radiographic signs are similar to those seen in the dog and may include joint effusion, degenerative joint disease, and distal displacement of one or both popliteal sesamoid bones. In this case, radiographic examinations revealed distal displacement of the left popliteal sesamoid bones and cranial displacement of the tibia. Treatment of CCL rupture in cats is not without controversy. Multiligamentous traumatic injuries can be stabilized by ligament reconstruction techniques or the placement of a transarticular pin. The “dogma” concerning degenerative CCL rupture in cats has favored conservative therapy, including confinement and nonsteroidal anti-inflammatory medication. Published results of extracapsular surgical repair in cats, including those of this survey, indicate that results are at least as good as those achieved with conservative treatment, and that surgery provides quicker and more reliable return to function.

Keywords: cat, CCL ruptur, dog bite, diagnosis, surgery.

INTRODUCTION

Cranial cruciate ligament (CCL) rupture in the dog ranks second to none as subject matter in veterinary orthopedic literature. It is most often a degenerative condition that has a genetic basis [1,14]. By comparison, relatively little has been written about cruciate ligament rupture in the cat. Rupture of the feline cruciate ligament was generally described as or assumed to be of a traumatic etiology and its surgical repair was documented in individual cases [2,3,5,6].

Traumatic cruciate ruptures commonly occur as a result of falls. Cats with so-called “apartment syndrome,” that is fall from significant heights, may suffer stifle injuries, among other traumas. While rupture of the CCL is common in those circumstances, it is almost always part of “polytrauma” to the stifle. Caudal cruciate and medial collateral ligament injuries are most commonly associated with this type of trauma, along with meniscal tears in at least 50% of these cases [7,8]. To the authors’s knowledge no description has been published of ruptur of CCL in cats caused by dog bite.

This paper reports a case of rupture of the cranial cruciate ligament in a Turkish Angora cat caused by dog attack.

CASE REPORT

A 2 year-old intact female Turkish Angora cat was presented because of acute pain in the left hind-quarters. The cat experienced difficulty in locomotion and weight-bearing on left hind limb. The owner reported that the cat was attacked from a Bull Terrier dog. Since then, the cat had lameness. Examination under general anesthesia revealed a pronounced cranial drawer sign in the left stifle joints. Radiographic examinations revealed distal displacement of the left popliteal sesamoid bones (Figure 1A) and cranial displacement of the tibia (Figure 1B). Surgical exploration confirmed cranial cruciate rupture of the left stifle. Contusions were pronounced in the soft tissues surrounding the stifle joints suggesting a traumatic etiology (Figure 2). The involved stifle joints were stabilized with two strands of 0 non-absorbable suture materials¹ using the lateral retinacular imbrication technique (Figure 3). Two weeks post-operatively, the cat was using both hind legs somewhat gingerly.



Figure 1. Radiographic view of ruptur of CCL of a cat after dog bite. (A) Distal displacement of the left popliteal sesamoid bones (arrow) (B) Cranial displacement of the tibia (arrow).



Figure 2. Contusions in a cat caused by dog bite were seen in the soft tissues surrounding the stifle joints.



Figure 3. The involved stifle joints of the cat were stabilized with non-absorbable suture materials using the lateral retinacular imbrication technique.

DISCUSSION

In a survey of nine cases of degenerative feline cruciate ruptures, the cats averaged 8.5 years of age and had a mean weight of 6.5 kg. Significant differences in

age or sex distribution could not be demonstrated [7]. In a survey of 165 dogs with CCL rupture, conducted from 1983 to 1990, 78% were small breeds (under 15 kg), with a mean age of 8.7 years. Many of these dogs were overweight [4]. In this study, the cat was 2 year-old intact female and had a weight of 2.3 kg.

Diagnosis of feline CCL rupture is usually easily confirmed on physical examination. Drawer motion is pronounced in most affected cats. Radiographic signs are similar to those seen in the dog and may include joint effusion, degenerative joint disease, and distal displacement of one or both popliteal sesamoid bones [4,12]. Dystrophic mineralization, which can be seen radiographically in any stifle joint with CCL lesions, seems to be more common in the cat. The mineralization is most often located at the insertion point of the CCL on the cranial aspect of the tibia, but mineralization of a meniscus may also develop. In this case, radiographic examinations revealed distal displacement of the left popliteal sesamoid bones and cranial displacement of the tibia.

While feline CCL rupture is not rare, it is not nearly as common as in the dog. This may be because the CCL in the dog is smaller than the caudal cruciate ligament, whereas the reverse is true in the cat [8,11]. It may be that the genetic inheritance of CCL rupture documented in the dog is absent or less likely in the more heterozygous feline population. The smaller size of cats is also a potential factor, since degenerative changes in stifle joints are known to be more severe and to occur earlier with increasing weight [9]. Finally, the prevalence of CCL rupture in the cat is likely to be

under-reported, since more cats than dogs appear to recover from this lameness without treatment.

A possible link between feline CCL rupture and hypertrophic cardiomyopathy, which may also involve hyperthyroidism, has been proposed. The death of two cats shortly after CCL rupture repair and a subsequent necropsy diagnosis of hypertrophic cardiomyopathy has been reported [13]. Two out of eight cats in our survey were diagnosed with hyperthyroidism within 2 years of their CCL surgery. The connection between hyperthyroidism and hypertrophic cardiomyopathy has been well documented.

Treatment of CCL rupture in cats is not without controversy. Multiligamentous traumatic injuries can be stabilized by ligament reconstruction techniques or the placement of a transarticular pin [8,10]. The “dogma” concerning degenerative CCL rupture in cats has favored conservative therapy, including confinement and nonsteroidal anti-inflammatory medication. This recommendation is based primarily on one publication detailing the results of 16 cats [10]. Published results of extracapsular surgical repair in cats, including those of this survey, indicate that results are at least as good as those achieved with conservative treatment, and that surgery provides quicker and more reliable return to function [7].

SOURCE AND MANUFACTURER

¹Dermalon, Davis & Geck, Gosport, Hampshire, UK.

Declaration of interest. The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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