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Therapy for cranial cruciate ligament rupture - what has been done so far

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Introduction

Little information exists in the literature about therapy outcomes after conservative or surgical treatment of cranial cruciate ligament rupture in cats.

For a long period conservative treatment has been advocated to be the best option. The cat is confined to cage rest for 4-6 weeks and treated for the first couple of days with NSAIDs. Study results showed that a nearly or complete restoration of gait was observed within 3-4 months. With the use of gait analysis, a study pointed out, that peak vertical forces in the affected hind limb never reached the same values. Many cats had progressive signs of osteoarthritis (>80%), joint instability, medial capsular thickening and muscle atrophy. Authors speculate that surgical intervention might minimize and reduce the progression of secondary degenerative joint changes and restore full limb function earlier. Similar to the dog, there are several surgical therapy options in cats. Depending on the surgeon’s preference either an intraarticular or extraarticular technique is chosen.

Intraarticular procedures use fascia, parts of the patellar tendon (over the top) or synthetic material (Westhues) to reconstruct the ruptured ligament. The lateral retinacular imbrication technique is most commonly used, because it is easy to perform, less invasive than intraarticular techniques and cheaper. A standard lateral approach to the stifle joint, debridement and closure of the joint capsule is performed. A nylon leader line (23kg breaking strain) or monofilament suture (2-0) is placed between a bone tunnel of the tibial tuberosity (drilled transversely or with a slight angle to reduce stress on the suture material) and the lateral fabella. In contrast to the medial fabella, which in non pedigree cats consists mostly of fibrocartilage and is radiolucent, the lateral fabella is normally ossified. The lateral facia is imbricated and the subcutaneous and skin layers are closed continuously or in a simple interrupted pattern.

During the postoperative period, cats need to receive proper pain management. It has been reported that intraarticular operations are more painful in cats compared to dogs, because of the larger quantity of afferent nerve endings.

Our experience

Between 1997 and 2011 data of 96 cats, which were presented to the small animal hospital in Hollabrunn, Austria, were retrospectively analyzed. Criteria to include cats into the analysis were isolated cranial cruciate ligament rupture confirmed via arthrotomy. All cats had a lateral retinacular imbrication suture using a nylon leader line (10kg breaking strain). According to Roe et al, from 2008 to 2011 suture placement at the tibia was as close to the extensor groove as possible and not through the tuberosity anymore. Two views of radiographs were taken pre- and postoperatively. As many cats as possible had been re-examined clinically as well as radiographically for signs of DJD, joint swelling and positioning of the femur in relation to the tibia.

We were able to re-examine 27 cats clinically between 4 weeks and 5.5 years postoperatively. Radiographs were available in 14 patients. All of the re-examined cats were weight bearing 10 days after operation. Clinically the lameness improved in 18 cats after 4 weeks. However 1-5.5 years later 9 patients were still lame. Clinically the cats had grade I-II lameness, marked muscle atrophy and thickening of the joint. Evaluated radiographs showed joint swelling (10/14), progressive DJD around the lateral fabellar bone, the apex of the patella and the meniscus (14/14) and muscle atrophy. We saw meniscal calcification in 6 cats preoperatively and progressing calcification on re-examination in 5 of the six cats.
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<tr>
<td>Number of patients</td>
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<td>Therapy</td>
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<td>Lat. Retinac. Suture</td>
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<td>no lameness 7</td>
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<tr>
<td></td>
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<td>Radiographic outcome</td>
<td>DJD 4</td>
<td>DJD 25</td>
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Table 1: Outcomes after surgical stabilization of the cruciate deficient stifle joint in cats

References