Treating Cranial Cruciate Ligament Tears

Cranial cruciate ligament (CCL) tears are arguably the most common orthopedic disease in dogs. Identifying and treating meniscal injury is crucial when treating CCL disease as meniscal pathology affects surgical outcomes. This prospective study evaluated how meniscal injury affects the prognosis in dogs being treated for CCL tears. The CCL tears were treated with 1) arthroscopy and TightRope (arthrex.com) stabilization; 2) arthroscopy and tibial plateau leveling osteotomy (TPLO); or 3) open arthrotomy and TPLO. The authors evaluated 163 dogs (223 stifles) with CCL tears.

Source
Incidence and type of meniscal injury and associated long-term clinical outcomes in dogs treated surgically for cranial cruciate ligament disease. Ritzo ME, Ritzo BA, Siddens AD, et al. *VET SURG* 43:952-958, 2014.

The type of surgical technique used to repair a CCL rupture did not affect whether the dog developed a subsequent tear in the meniscus. In 83% of stifles evaluated by arthroscopy a meniscal tear was diagnosed, compared with only 44% with arthrotomy. Subsequent meniscal tears were diagnosed in 1.3% of cases with concurrent meniscal tears at CCL treatment, and in 21% of cases without concurrent meniscal tears at CCL treatment. Dogs treated with a meniscal release did not develop subsequent meniscal tears; however, 11% of dogs that did not have a meniscal release developed a subsequent meniscal tear.

Median time to diagnosis of subsequent meniscal tear was 5.8 months.

Global Commentary

Part of this complex pathology is meniscal injury, which plays an important role in postoperative recovery. According to the results in this study, meniscal injury can actually be more common than we thought, in part because we are missing them. Dogs with concurrent meniscal injuries present a lower risk of future meniscal pathology, which is the most common postoperative complication, and better long-term outcome. A thorough intraoperative evaluation of the menisci is therefore imperative. As confirmed by this study, stifle arthroscopy is a superior technique for the diagnosis of meniscal injury, as it involves an enlarged visualization of the menisci and palpation of these structures with a probe. Although bucket handle tears that have flipped cranially are easy to diagnose, I spend a significant amount of time exploring and carefully probing apparently healthy menisci. You would be surprised how some meniscal tears can hide! Even if arthroscopy is not available and arthrotomy is the technique performed, I would recommend to always probe the menisci.—*Pilar Lafuente, DVM, PhD, DACVS, DECVS (Hertfordshire, England)*

Research Note: Immunosuppressive Therapy

Immunosuppressive therapy in dogs often entails a large expense and a high risk for complications and mortality. The most common diseases treated with immunosuppressive drugs are immune-mediated hemolytic anemia (IMHA) and immune-mediated thrombocytopenia (ITP). The goal of treatment is non-specific immunosuppression, which can be challenging. A better understanding of the pharmacokinetic and pharmacodynamic profiles of various immunosuppressive drugs would allow for a more tailored, effective, and safe treatment of these diseases.

This study sought to determine the 50% T-cell inhibitory concentration (IC_{50}) of several immunosuppressive drugs. Various concentrations of dexamethasone, cyclosporine, and the active metabolites of azathioprine and leflunomide were added to T-lymphocytes cultured from the blood of 5 healthy dogs. Using flow cytometry, the mean IC_{50} was determined for each drug. Each immunosuppressive drug showed a concentration-dependent decrease in T-lymphocyte proliferation. In addition, there was variance between the dogs, most noted with dexamethasone and the metabolite of leflunomide. This study may offer beginning steps in in providing canine patient-specific immunosuppressant protocols that will offer safer and more effective autoimmune disease treatment.

Source
In-vitro immunosuppression of canine T-lymphocyte-specific proliferation with dexamethasone, cyclosporine, and the active metabolites of azathioprine and leflunomide in a flow-cytometric assay. Nafe LA, Dodam JR, Reinero CR. *CAN J VET RES* 78:168-175, 2014.

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