

Anatomical, imaging and histological characterization of the medial buttress in the stifle joints of cranial cruciate ligament deficient canine patients

Purpose: Cranial Cruciate ligament disease (CCLD) is one of the most common conditions affecting the stifle joint of canine patients. One of the physical findings in dogs with CCLD is the presence of medial buttress, which is a firm palpable swelling along the medial aspect of the stifle (knee) called “medial buttress”. Despite it been described for decades, what it actually is has never been investigated. We want to look at this, medial buttress using radiography, ultrasound and magnetic resonance imaging and then during surgery, the surgeon will take a small sample of the medial buttress for histopathological examination.

By defining what medial buttress actually is, we can do further studies to ascertain if this physical finding correlates with damage to the meniscus, the medial joint capsule and the medial collateral ligament. If this association can be established, either in isolation or together with other variables, this could provide practitioners with a practical indicator of meniscal pathology and additional knowledge that may prompt surgical exploration of the joint thereby eliminating the need for potential future surgery. In order to prove this null hypothesis, medial buttress needs to be fully defined, anatomically characterized and graded.

This pilot study aims to:

1. Describe and define medial buttress anatomically and histologically, and its association with the medial collateral ligament and the joint capsule
2. Describe the imaging features of medial buttress
3. Establish a classification system for medial buttress

Clinical Protocol: Patients presenting for naturally occurring CCLR with palpable medial buttress on physical examination, and scheduled for Tibial Plateau Leveling Osteotomies (TPLO), will be considered for enrollment.

As part of the standard of care for patients receiving a TPLO, patients will receive a specialist physical examination, pre and post-operative radiographs (performed under sedation) and the TPLO surgical procedure, performed under general anesthetic by a board certified veterinary surgeon.

Patients enrolled in the study will have the following additional procedures performed (at no cost to the client).

1. Ultrasound examination of the affected stifle (under sedation)
2. Magnetic resonance imaging (MRI) study (performed under the same general anesthetic prior to the surgery)
3. A single punch biopsy along the medial stifle (during the TPLO procedure).

Eligibility: Client owned dogs with a diagnosis of cranial cruciate ligament rupture with palpable medial buttress in the index cruciate deficient stifle and scheduled for TPLO standard of care surgery will be pre-screened for eligibility and prospectively enrolled at the Veterinary Health Center at

Kansas State University College of Veterinary Medicine.

Exclusion criteria: Any history of prior surgery or intra-articular treatment interventions (mesenchymal stem cell therapy, prolotherapy or intra-articular drug administration) or if the history supports an acute traumatic injury resulting in the instability. Patients will not be excluded if the contralateral limb is affected by disease.

Fees for Services: The study will cover the costs of the following:

- The pre-operative stifle radiographs
- The ultrasound
- MRI of the cruciate deficient stifle
- Sedation for imaging protocols, as needed
- Anesthetic for MRI
- Histopathology of medial buttress biopsy

The small animal surgery examination fee, surgical fee, general anesthetic fee and all sundry expenses associated with the surgery is not included in the study costs.

For questions or concerns regarding this study, please contact either:

Dr. Nicolette Cassel (785)-532-5690

Clinicaltrials@vet.k-state.edu, (785)-532-3046