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**ILLINOIS**  
Veterinary Teaching Hospital  
COLLEGE OF VETERINARY MEDICINE

**Funded Study: Post-operative pain control following TPLO surgery**

College of Veterinary Medicine, University of Illinois at Urbana-Champaign  
Veterinary Teaching Hospital - Orthopedic Surgery

**Study Title:** Comparison of Local Infiltration of Liposomal Bupivacaine versus Epidural Injection of Morphine and Bupivacaine Hydrochloride for Pain Control in Dogs undergoing Tibial Plateau Leveling Osteotomy (TPLO)

**Purpose of Study:** Opioids are commonly used in the peri- and post-operative period to manage pain associated with knee surgery in dogs. Since the availability of opioids has decreased, this has led to an increase in the use of alternative techniques utilizing local anesthetics. Epidural injection is commonly used to provide pain relief to dogs undergoing hind limb surgical procedures, however it is not a benign procedure and can have undesirable side effects. An alternative to epidural injection is infiltration of a local anesthetic at the surgical site, however the effectiveness of this method is determined by the duration of action of the drug and infiltration technique.

We are actively recruiting dogs for participation in this open clinical trial with the objective of comparing the effectiveness of epidural injection to peri-articular infiltration of a long-acting local anesthetic (liposomal bupivacaine) for pain control in dogs undergoing TPLO surgery.

This FDA approved, long-acting, extended-release local anesthetic can provide pain relief for up to 72 hours post-administration and would enhance post-operative pain control in dogs following TPLO surgery. The investigators of the study speculate that peri-articular infiltration of liposomal bupivacaine will provide prolonged, but comparable analgesic relief to epidural injection of morphine and bupivacaine hydrochloride in dogs undergoing TPLO surgery.

**Eligibility Diagnostics:**

Prior to study entry, pet owners will be charged an initial consultation fee and be financially responsible for, and required to have, the following diagnostics performed on their dog:

1. Sedated orthopedic exam
2. Screening blood work and urinalysis
3. Radiographs of the affected stifle (knee) used for surgical planning
4. ± Screening radiographs of other areas of the pelvic limbs to rule out concurrent orthopedic disease

**Inclusion criteria:**

- Dogs between 1 and 8 years old
- Weighing between 15 and 50 kg and in good general systemic health
- Dogs that are administered oral analgesic medications and/or a non-steroidal anti-inflammatory drug (NSAID) will need to be washed out for a period of 3-5 days prior to allocation of treatment and surgery

- Dogs receiving oral corticosteroids (i.e., prednisone) will need to be washed out for a period of 5-7 days or longer prior to allocation of treatment and surgery

**Exclusion criteria:**

- Orthopedic disease in the hindlimbs other than a unilateral (one-sided) CCL rupture
- Require concurrent surgery at a site other than the affected stifle
- Require concurrent surgery for correction of a medial/lateral patellar luxation
- Had previous surgery at the planned surgical site or history of any stifle surgery on the other hindlimb
- Other systemic and/or neuromuscular disease
- Fractious, aggressive or fearful demeanor

**Treatment:**

Study dogs will undergo routine TPLO surgery for treatment of CCL disease. Delivery of local analgesia will either be provided by an epidural injection with morphine and bupivacaine hydrochloride (HCL) prior to surgery or local infiltration with liposomal bupivacaine (LB) at the time of surgery. All dogs will be provided carprofen (non-steroidal anti-inflammatory drug) following surgery. Assessment of pain scores, cutaneous sensory perception and body weight distribution will be measured for 72 hours following surgery. Rescue analgesia will be provided if dogs are assigned a total pain score  $\geq 5$  (Glasgow Composite Pain Scale – Short Form) or if the assessing veterinarian feels that additional analgesia is warranted. Study dogs will need to be hospitalized for a total of 4 days for study inclusion.

**Compensation:** The cost of the liposomal bupivacaine or epidural injection of morphine and bupivacaine (dependent on treatment group assignment) and 2 additional days of hospitalization and monitoring will be covered by the study, for dogs that meet all inclusion criteria. Additionally, a credit of \$200 will be applied to the client's account for all dogs that complete the study and will be deducted from the client's final bill when the study dog is discharged from the hospital. The cost of the orthopedic consultation, any associated diagnostics (x-rays, bloodwork, etc.), and anesthetic/surgical related costs are the financial responsibility of the owner. Post-operative recheck evaluations and complications are the financial responsibility of the owner.

**Study Period:** This is an ongoing clinical trial and the investigators are seeking eligible dogs for participation during the active study period (until January 22<sup>nd</sup>, 2021).

**Contact Information:** If you have a dog that would be a good candidate or would like additional information, please contact Dr. Kyle Chu at 217-480-5556 or [klchu@illinois.edu](mailto:klchu@illinois.edu). Any records and radiographs regarding the CCL injury would be helpful to determine the dog's eligibility into the study, which can be emailed to Dr. Chu or [VTHorthopedics@vetmed.illinois.edu](mailto:VTHorthopedics@vetmed.illinois.edu). Referring veterinarians and client calls are welcome.