Cranial Cruciate Ligament Injuries: What Do I Do?

By Cathy Reese, DVM, DACVS

Cranial cruciate ligament injuries are one of the most common orthopedic conditions that we see. We perform several cruciate ligament repair surgeries daily at Angell. It is also one of the most hotly debated topics in the orthopedic community, as it is still questionable as to what is the best surgical repair for this injury. While no one has the definitive answer to that question, I can tell you what I tell owners and how we decide which surgery is the best for their individual pet.

At Angell, we offer three different methods of surgical repair for cranial cruciate ligament injuries: the extracapsular lateral fabellotibial suture method, the tibial plateau leveling osteotomy (TPLO), and the tibial tuberosity advancement (TTA). There are numerous other surgical techniques, too, such as the fibular head transposition, the Tightrope extracapsular repair, the cranial tibial wedge osteotomY, the proximal tibia intra-articular osteotomy, and the triple tibial osteotomy, but we do not perform these at Angell. Which method of repair we perform is based upon the dog’s size, age, and activity level; owner’s opinion; and sometimes finances.

The extracapsular lateral fabellotibial suture method, or “lateral suture” method, has been the gold standard for cranial cruciate ligament repair since Dr. Gretchen Flo first described the Modified Retinacular Imbrication Technique (MRIT) in 1975. The lateral suture method is a modification of the MRIT in which only lateral fabellotibial sutures are placed, as opposed to medial and lateral fabellotibial sutures as done in the MRIT. I usually recommend the lateral suture technique for small dogs, cats, and geriatric/inactive dogs. I have had success with this technique in large-breed dogs as well, so it should not be ruled out as a choice for repair in these patients, especially if the owner has financial constraints. The concern with doing the lateral suture repair in a large-breed or active dog is that the repair is not sturdy enough, but with appropriate exercise restriction and post-operative rehabilitation, it can be very successful.

The TPLO was described by Dr. Barclay Slocum in 1993. It functionally stabilizes the stifle during weight-bearing by eliminating cranial tibial thrust or cranial tibiofemoral shear force through reduction of the tibial plateau angle (TPA). The TPLO diagram.

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Corneal Ulcers in Dogs

Non-healing Superficial Corneal Ulcers in Dogs

By Dan Biro, DVM, DACVO

Otherwise known as spontaneous chronic corneal epithelial defects (SCCEDs), these clinical cases often frustrate the clinician because the normal wound-healing process for superficial corneal ulcers is thwarted, and often the affected dogs have prolonged periods of discomfort and in some cases progressive keratitis despite aggressive medical treatment. Other names for this condition include Boxer ulcers, non-healing erosions, persistent corneal erosions, indolent ulcers, or idiopathic persistent corneal erosions. While recognized frequently in Boxers, almost all canine breeds can experience this condition.

Diagnosis is in part directly related to the history of a superficial ulcer with or without corneal neovascularization, conjunctival hyperemia, and irregular or inconsistent patterns of shifting size and shape. On clinical examination there is frequently a discrete superficial ulceration, geographic or multifocal, with loss of the normal epithelial covering, corneal erosion, and intense conjunctival hyperemia. Biopsy samples of corneal epithelium or conjunctival scrapings may be normal or show signs of inflammation. Biopsy samples of the corneal epithelium may show signs of chronicity and loss of normal appearance.

SCCEDs usually present as chronic superficial lesions, with or without conjunctival hyperemia or irregularity and inconsistent patterns of shifting size and shape. They are usually unilateral, although bilateral involvement can occur.

Treatment for SCCEDs typically involves topically instilled antibiotics, anti-inflammatory agents, and lubricants. However, these treatments are often ineffective in stopping the progression of the ulceration.

Tibial Tuberosity Advancement (TTA) Diagram

The tibial tuberosity advancement (TTA) was originally described in 1999 in the British Journal of Surgery as a method for correcting cranial cruciate ligament rupture in dogs. The procedure involves a bone plate and screws, and after the TPLO is done, there will be a bone plate and screws. After the TTA is done, there will be a bone plate and screws. The TTA is a slightly less invasive procedure than the TPLO and is recommended for dogs with a low TPLO angle (TPLO Angle < 60 degrees) or a moderate to high TPA angle (TPA Angle > 45 degrees).

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approximately five degrees. The tibia is stabilized in this position with a bone plate and screws. After the TPL is done, there will still be a positive cranial drawer test, but there should be no cranial tibial thrust.

The tibial tuberosity advancement (TTA) was described by Dr. Siobhan Tepic in 2002. It stabilizes the stifle during weight-bearing by advancing the tibial tuberosity to the point that the angle between the patellar tendon and tibial plateau is 90 degrees. This effectively neutralizes tibiofemoral shear force and eliminates cranial tibial thrust. These patients will still have a positive cranial drawer test after repair, but should not have any cranial tibial thrust.

In my experience, dogs that undergo either the TPL or TTA procedures appear to experience a faster return to normal weight-bearing than the lateral-suture method.

This could translate into less muscle atrophy in the recovery period and a shorter rehabilitation period. Some have theorized that these techniques provide greater stability to the stifle than the lateral suture method and thereby have less arthritis development in the future, although to my knowledge this has not been clinically documented.

I usually recommend the TPL or TTA in large-breed, active dogs.

I choose one over the other based on the pre-operative TPA measurements, and presence or absence of tibial torsion. Tibial torsion and high TPA can be effectively corrected with a TPL, but with a TTA due to limitations in implant size. So, if the patient has a moderate TTA and a straight tibia, then I choose the TTA. If the TPA is high and there is tibial torsion present, then I choose the TLA. The TLA is in my opinion a slightly less invasive type of osteotomy, as the weight-bearing axis of the tibia is preserved, and there is no causal soft tissue dissection, which results in less post-operative swelling and presumably less discomfort.

However, if you ask three different orthopedic surgeons what they do for a cranial cruciate ligament tear, you’ll probably get three different answers!

For more information, please visit angel.org/surgery. Dr. Cathy Reese may be contacted at creece@angel.org. Angel’s surgeons are available for consultation via phone or e-mail (surgery@angel.org) Monday–Friday, 9:00 a.m.–5:00 p.m. To reach an Angel surgeon by phone or to refer a patient to the Angel Surgery service, please call Kim Swank at 617 541-5048.

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A definitive diagnosis of sino-nasal aspergillosis can be challenging, as it typically requires general anesthesia and fairly expensive testing. Routine labwork is often normal, although some affected dogs will have an inflammatory leukogram. Serology has been recently shown to be quite useful as an initial screening test for this disease. Agar-gel immunodiffusion is the most commonly employed method of serologic testing, and a recent study found a 98% specificity and a 67% sensitivity. While a negative serology does not rule out infection, a positive serology is highly suggestive of Aspergillus infection. Nasal imaging is a very useful modality in diagnosing sino-nasal aspergillosis. Intranasal radiographs typically reveal increased soft tissue opacity and turbinate destruction. CT evaluation (the preferred imaging study) typically reveals turbinate lysis and may reveal a frontal sinus proliferative mass effect. Importantly, a CT scan is necessary for evaluating the cribriform plate prior to topical antifungal treatment.

Confirmation of Aspergillus infection requires visualization of destructive rhinitis with fungal plaques on rhinoscopy, and histopathological evidence of fungal hyphae on biopsy. Fungal Confirmation of Aspergillus infection requires visualization of mass effect. Importantly, a CT scan is necessary for evaluating the cribriform plate prior to topical antifungal treatment.

Clinical cure rates with the above topical protocols are reported to be in the 85% to 90% range. A recent study that used follow-up rhinoscopy to attempt to confirm resolution of fungal disease after topical antifungal administration found persistent fungal disease in 50% of these patients (approximately one to four months after initial treatment). Previous studies relied on clinical signs pre- or post-exam to calculate the percentage of efficacy. It is therefore recommended to repeat rhinoscopy/sinuscopy one month after treatment to ensure disease resolution, or repeat treatment prior to extensive fungal regrowth if plaques are still present. Some dogs may have recurrent antibiotic responsive nasal discharge after aspergillosis cure, likely secondary to irreversible damage to the normal nasal defense mechanisms from previous fungal infection.

At Angell Animal Medical Center, we typically diagnose several cases of sino-nasal Aspergillus infection per year. We have had several cases where we have only been able to diagnose this disease via sinuscopy, with visualized biopsy (i.e., no plaques visible on rhinoscopy). Please feel free to contact the Angell Internal Medicine department if you have a case that you would like to send for workup and treatment of this disease.

For more information, please visit angell.org/intermedicined. Dr. Chris Rollings may be contacted at crrollings@angell.org.

Class II: There is a remote probability of adverse health consequences. Class III: Use of the product is not likely to cause adverse effects. The most common reasons for drug recalls include concerns over the quality of raw materials, inaccurate labeling, or faulty packaging and suspected contamination of the final product.

Drug recalls are classified based on the probability that the affected product will cause serious harm or death in the patient.

Class I: A reasonable probability exists that the use of the product will result in serious, adverse health consequences or death.

Class II: A remote probability of adverse health consequences from the product exists.

Class III: Use of the product is not likely to cause adverse effects.

Drug Shortages and Recalls: Why Do They Happen So Often?

By Mary Grace, R.Ph., M.S.

It would seem that the most difficult part of treating your patient should be diagnosing their illness and not obtaining the appropriate medication to treat the illness. Yet that is the position in which many veterinarians have recently found themselves. It seems like every month another important and common medication, both human and veterinary, is unavailable due to a drug shortage or a drug recall. The Food and Drug Administration (FDA) estimates that there were close to 300 drug recalls in just the first six months of 2010. Last year alone, cyclosporine ophthalmic ointment, furosemide injectable, ketamine, propofol, buprenorphine, Terramycin® and Vetulsol® have all been on the backorder list at one time or another, leaving both veterinarians and clients to seek alternative therapies.

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Class III: Use of the product is not likely to cause adverse effects. The most common reasons for drug recalls include concerns over the quality of raw materials, inaccurate labeling, or faulty packaging and suspected contamination of the final product. Much of this may be attributable to the rush to market a generic version of a drug when the brand-name product loses patent protection. The first company to bring the generic product to market wins the right to exclusively market that drug for 180 days. This “first-one-on-the-block” situation can be quite lucrative for the drug manufacturer, as it is a perfect opportunity to gain and maintain market share. It does not, however, allow for a very long learning curve. Often the manufacturing process is not optimized and consequently a drug recall follows.

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When drug recalls are inconvenient and may be costly, one can argue that the high number of recalls has actually improved the safety of the drug supply in the country. The FDA has the power to mandate drug recalls, thus holding manufacturers accountable for producing high-quality, safe, and efficacious products. Unfortunately, sometimes practitioners are not even aware of a drug recall until, while attempting to reorder a medication, they are informed that a shortage of the product exists.

Drug shortages can also cause significant disruption in the course of treatment for a patient. The major reasons for drug shortages include:

- Limited availability of raw ingredients required to manufacture the product
- FDA actions that halt production of the product
- A voluntary recall by the manufacturer
- Limited manufacturing capacity
- Rumors of shortage, leading to hoarding of product
- Poor inventory-management practices by manufacturers and distributors
- Business decisions made by drug companies to discontinue drugs
- The FDA cannot force any company to manufacture a drug. The agency can, however, work with manufacturers with the intent of bringing the product back to market. Sometimes this is accomplished by the development of special distribution networks, and other times through a strict approval process. This is especially true when the product in short supply is deemed by the FDA to be medically necessary and there are no equivalent products available.

When commonly used medications are unavailable, clinical practice can be severely impacted. Research must be conducted to find alternative products, and treatment protocols must be adjusted to accommodate them. Straying from familiar protocols can severely impact a practice’s ability to treat patients effectively. When commonly used medications are unavailable, clinical practice can be severely impacted. Research must be conducted to find alternative products, and treatment protocols must be adjusted to accommodate them. Straying from familiar protocols can severely impact a practice’s ability to treat patients effectively.

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We encourage you to e-mail Angell’s specialists with questions. We hope you will use Angell as a resource, and we look forward to working with you as we continue our legacy of providing compassion and care for animals.

Main Phone: 617 522-7282
Veterinary Referrals: 617 522-5011

Chief of Staff
Ann Marie Manning, DVM, DACVECC
amanning@angell.org

Avian & Exotic Animal Medicine
Jennifer E. Graham, DVM, DABVP (Avian/Exotic Companion Mammal), DACZM
jgraham@angell.org

Cardiology
Nancy J. Laste, DVM, DACVIM (Cardiology)
nlaste@angell.org
Rebecca I. Malakoff, DVM, DACVIM (Cardiology)
rmalakoff@angell.org

Clinical & Anatomical Pathology
Patty Ewing, DVM, MS, DACVP
pewing@angell.org
Pamela Mouser, DVM, MS, DACVP
pmouser@angell.org

Dentistry
William Rosenblad, DVM
wrosenblad@angell.org
Curtis A. Stiles, DVM, DAVDC
cstiles@angell.org

Dermatology
Kathy Tater, DVM, DACVD
dermatology@angell.org

Diagnostic Imaging
Jessica Basseches, DVM, DACVR
jbasseches@angell.org
Kathy A. Beck, DVM, DACVR
kbeck@angell.org
Joan Regan, VMD, DACVR
jregan@angell.org

Emergency & Critical Care Medicine
Kiko Bracker, DVM, DACVECC
kbracker@angell.org
Jennifer Holm, DVM, DACVECC
jholm@angell.org
Megan Whelan, DVM, DACVECC
mwhelan@angell.org

Internal Medicine
Doug Brum, DVM
dbrum@angell.org
Maureen Carroll, DVM, DACVIM
mccarroll@angell.org
Erika de Papp, DVM, DACVIM
edepapp@angell.org
Jean Marie Duddy, DVM
jduddy@angell.org

Neurology
Andrew Farabaugh, DVM
afarabaugh@angell.org
Allen Sisson, DVM, MS, DACVIM (Neurology)
asisson@angell.org

Nutrition
Rebecca I. Remillard, PhD, DVM, MS, DACVN
rremillard@angell.org

Oncology
Christine Anderson, DVM, MS, DACVIM (Oncology), DACVR (Radiation Oncology)
canderson@angell.org
Jennifer Mahoney, DVM
jmahoney@angell.org
Carrie Wood, DVM, DACVIM (Oncology)
cwood@angell.org

Ophthalmology
Daniel J. Biros, DVM, DACVO
dbiros@angell.org
Martin Coster, DVM, MS, DACVO
mcoster@angell.org

Pain Medicine
Lisa Moses, VMD, DACVIM, CVMA
lmoses@angell.org

Surgery
Sue Casale, DVM, DACVS
scasale@angell.org
David W. Knapp, DVM, DACVS
dknapp@angell.org
Michael M. Pavletic, DVM, DACVS
mpavletic@angell.org
Catherine J. Reese, DVM, DACVS
creese@angell.org
Nicholas J. Trout, MA, VET MB, MRCVS, DACVS, DECVS
ntrout@angell.org