

## **New options for dogs with cruciate ligament injury and luxating patellas available in Topeka, Kansas**

University Veterinary Care Center is excited to announce the expansion of our orthopedic surgery services. We will now be performing state of the art options for dogs affected by cruciate (ACL) injury and luxating patellas (knee caps) that, until now, have not been offered in the Topeka region. Dr. Gratton has completed training from Orthomed North America in the Modified Maquet Procedure (MMP) and Ridgestop™ techniques.

### **Cruciate Ligament Tears**

Until now our pet, athlete and working dog companions had limited options if they “blew a knee”. Although Dr. Gratton has performed various forms of the lateral suture stabilization for over 20 years with good results, it has a slow recovery and may not result in complete return to optimum performance. The addition of in-house stem cell therapy greatly improved long term outcomes, but significantly increased costs. The only other option in NE Kansas has been referral to K-State in Manhattan or Blue Pearl in Kansas City for a Tibial Plateau Leveling Osteotomy (TPLO).

The lateral suture (or extra-capsular stabilization) method is a relatively simple and minimally invasive procedure. It stabilizes the abnormal motion in the knee allowing (over time) thickening of the connective tissues in the area to provide the final “repair”. Numerous variations of the procedure have been widely used for over 60 years. It provides suitable functionality for approximately 80% of dogs. It has an 8-12 month recovery time. Although suitable for many pets, it often does not provide acceptable results for very large and very active patients. Often canine athletes cannot return to their previous performance levels.

First published in the early 1990’s, the TPLO is at the other end of the spectrum. The procedure is much more invasive and complicated. The TPLO is performed by making a large curved cut through the top portion of the tibia (shin bone) and using a plate and screws to change the orientation of the bone. A TPLO alters the biomechanics of the knee so that the torn cruciate ligament becomes irrelevant. It has a quicker recovery but more potential complications. Most surgeons performing it require severe exercise restrictions for 8-12 weeks, allowing time for the realigned bone to heal. Most insist on strict crate confinement to avoid serious complications. Complete recovery takes 6-9 months. Due to its faster return to weight bearing, it is preferred by most surgeons for large, active, athletic or working patients.

The TTA technique was adapted in the early 2000’s from the Maquet procedure used to treat severe knee osteoarthritis in people. The Maquet procedure dates back to the 1960’s and was widely used prior to the development of newer arthritis drugs and knee replacement surgery. Similar to the TPLO, the TTA also changes the biomechanics of the knee to make the torn ligament irrelevant. It differs by cutting loose the front ridge of the tibia, inserting a spacer and using a variety of specialized plates to re-attach the bone. Common versions of the TTA, require specialized equipment and complicated, usually very expensive, implants. Like the TPLO, the TTA also has rapid return to use of the leg, but also significant exercise restriction. TTA is also preferred for large, active, working and athletic patients. Because of its complexity, TTA surgery has traditionally also only been offered by surgical referral centers, although it has been very limited in NE Kansas.

The Modified Maquet Procedure (MMP) procedure is a unique adaptation of the TTA surgery. The MMP technique utilizes Orthomed's patented Orthofoam wedge implant: A rigid (yet compressible), biocompatible, titanium sponge-like material that encourages rapid ingrowth of new blood vessels followed by new bone along nearly the entire length of the bone cut. Unlike traditional TTA spacers, the Orthofoam wedge provides broad, secure contact between the cut bone piece and the tibia, nearly eliminating many of the complications with older TTA techniques. Unlike the TPLO, the MMP does not cut across the top of the shin bone. This means there is no interference with the portioned the bone that supports the weight of the pet, significantly reducing early post-operative pain when standing. Since the Orthofoam wedge provides more stable support and allows faster bone healing, less post-op exercise restriction is required. Increased movement and activity help maintain muscle mass and flexibility while shortening the time to return to athletic conditioning. Unlimited leash walks are allowed for 6-8 weeks and crate confinement is often eliminated completely.

The MMP procedure uses a patented template system to perform the bone cut and match it to specific wedge sizes based on the size of the patient. Compared to TPLO and TTA, this greatly simplifies the procedure, reducing surgical time and cost, while also decreasing surgical variability between patients. A consistent and repeatable technique produces more consistent outcomes while minimizing post-operative complications. By not cutting across the tibia or leaving large gaps for new bone to fill, the MMP nearly eliminates the potential for catastrophic failure. Additionally, The Orthomed MMP system is easily adaptable to patients from toy breeds like Chihuahuas and Yorkies up to giant breeds like Mastiffs and Great Danes and everybody in between.

The MMP technique has been in development for 15 years. Clinical experience over 10 years and more than 50,000 patients has proven its success. Compared to TPLO, MMP has been shown to have slightly better return to function at both 6 and 12 months post-operatively. By 24 months, there was no demonstratable difference in either outcome or complications.

## **Patellar Luxation**

Although Dr. Gratton has been performing corrective surgery for patellar luxation for over 20 years as well, he is very excited to bring a significant upgrade to our procedures for these patients as well. The causes of the knee caps popping out (or becoming permanently trapped out) of their normal groove on the front of the knee are numerous and complex. The most common are having an inappropriately positioned point just below the knee to which the patella is anchored (tibial tuberosity) and/or a groove that is too shallow.

Moving the anchor point is more precise and complications are reduced using some of the MMP hardware and techniques designed for cruciate ligament surgery (without the Orthofoam wedge). In fact, for those dogs that have a luxating patella which contributed to also tearing their cruciate ligament, the two techniques can often be combined to address both problems with a single surgery.

Previously, pets with a too shallow of a groove, had to have the groove deepened by cutting through the joint cartilage, and down through the underlying bone. A wedge of bone with the cartilage on top was then lifted out of the joint. Next, bone was trimmed away from the wedge and the resulting trough. Followed by setting the wedge back, deeper, in the trough. Although this has been a very effective therapy, and considered the standard of care, it did involve significant trauma to the structures of the joint and was very painful for the pet.

Orthomed's Ridgestop is a synthetic implant that builds up the (too low) side of the groove without the need to cut through the bone and cartilage. The implant is machined from the same material that is used on the surface of human knee and hip replacement hardware; medical grade ultra high density polyethylene (UHDPE). After opening the joint capsule, the correct implant size is selected, a matching template is placed next to the edge of the groove to precisely drill 2 or 3 holes for the small screws that secure the implant to the bone. In addition to our patient's recovery being less painful, it is also much faster (no need to wait for bone to heal) returning our pets to normal activity much sooner. This technique alone will correct the majority of luxating patellas, but can also be combined with other surgeries if warranted. The implants are available in sizes to accommodate all sizes of dogs (cats too).

	<i>Tibial Plateau Leveling Osteotomy (TPLO)</i>	<i>Modified Maquette Procedure / Tibial Tuberosity Advancement (MMP/TTA)</i>	<i>Lateral Suture / Extra-capsular Stabilization</i>
<i>Post-op Exercise restrictions</i>	Strict cage rest 8-12 weeks	Leash walks -8 weeks	Leash walks -8 weeks
<i>Return to use of leg</i>	1-10 days	1-3 days	5-10 days
<i>Complexity</i>	****	**	*
<i>Return to functional weight bearing</i>	2-8 weeks	1-10 days	2-12 weeks
<i>Potential for minor complications</i>	**	*	**
<i>Potential for severe complications</i>	Rare	Extremely rare	Extremely rare