Knee injuries in Dogs: Surgical options for repair.

The knee is a fairly complicated joint. It consists of the femur above, the tibia below, the kneecap (or patella) in front, and the bean-like fabella behind. Chunks of cartilage called the medial and lateral menisci fit between the femur and tibia like cushions. Assorted ligaments hold everything together and allow the knee to bend the way it should and keep it from bending the way it shouldn't.

There are two cruciate ligaments that cross inside the knee joint: the anterior (or, more correctly in animals, cranial) cruciate and the posterior (or, more correctly in animals, the caudal) cruciate. They are named for the side of the knee (front or back) where their lower attachment is found. The anterior cruciate ligament prevents the tibia from slipping forward out from under the femur.

Diagnosing the rupture

The ruptured cruciate ligament is the most common knee injury in dogs; in fact, chances are that any dog with sudden rear leg lameness has a ruptured anterior cruciate ligament rather than something else. The history usually involves a rear leg that is suddenly so sore that the dog can hardly bear weight on it. If left alone, the leg will appear to improve over the course of a week or two but the knee will be notably swollen and arthritis will set in quickly. Dogs are seen by the veterinarian in either the acute stage (shortly after the injury) or in the chronic stage (weeks or months later).

The key to the diagnosis of the ruptured cruciate ligament is the demonstration of an abnormal knee motion called a drawer sign. It is not possible for a normal knee to show this sign. The veterinarian stabilizes the position of the femur with one hand and manipulates the tibia with the other hand. If the tibia moves forward like a drawer being opened, the cruciate ligament is ruptured.

What happens without surgical intervention?

Without an intact cruciate ligament, the knee is unstable. Wear between the bones and meniscal cartilage becomes abnormal, and the joint begins to develop degenerative changes. Bone spurs called osteophytes develop, resulting in chronic pain and loss of joint motion. This process can be arrested by surgery but cannot be reversed. Osteophytes are evident as soon as 1 to 3 weeks after the rupture in some patients. This kind of joint disease is substantially more difficult for a large breed dog to bear though all dogs will ultimately show degenerative changes. Typically, after several weeks from the time of the acute injury, the dog may appear to get better but is not likely to become permanently normal.

Surgical options

**Extra Capsular**

This procedure is currently favored as the surgery can be performed in a relatively shorter time than the other procedures. The knee joint is opened and inspected. The torn or partly torn cruciate ligament is removed. Any bone spurs of significant size are bitten away with an instrument called a rongeur. If the meniscus is torn, the damaged portion is removed. A large, strong suture is passed around the fabella behind the knee and through a hole drilled in the front of the tibia. This tightens the joint to prevent the drawer motion, effectively taking over the job of the cruciate ligament.

- Typically, the dog may carry the leg up for a good 2 weeks after surgery but will increase knee use over the next 2 months, eventually returning to normal.
- Typically, the dog will require 8 weeks of exercise restriction after surgery (no running, only outside on a leash, including the backyard).
- The suture placed will break 2 to 12 months after surgery and the dog's own healed tissue will hold the knee.

**Tibial Plateau Leveling Osteotomy**

This procedure uses a fresh approach to the biomechanics of the knee joint and is meant to address the lack of long-term success seen with the above technique in larger dogs. With this surgery, the tibia is cut and rotated in such a way that the natural weight bearing of the dog actually stabilizes the knee joint. As before, the knee joint still must be opened and damaged meniscus removed. The cruciate ligament remnants may or may not be removed depending on the degree of damage.

This surgery is complex and involves special training in this specific technique. Many radiographs are necessary to calculate the angle of the osteotomy (the cut in the tibia). At this time, the TPLO is felt by many experts to be the best way to repair a cruciate ligament rupture regardless of the size of the dog and is especially appropriate for dogs over 50 lbs. This surgery usually costs twice as much as the extracapsular method and requires a specialist.

- Typically, most dogs are touching their toes to the ground by 10 days after surgery, although it can take up to 3 weeks.
- As with other techniques, 8 weeks of exercise restriction are needed.
- Full function is generally achieved 3 to 4 months after surgery and the dog may return to normal activity.

What to do if you suspect a cruciate injury in your dog

Schedule an appointment with your family veterinarian. They will be able to examine your dog, take radiographs, and explain the injury to you. They might recommend consulting with a Board Certified Surgeon for repair.

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