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PATELLAR LUXATION STABILIZATION

INTRODUCTION:

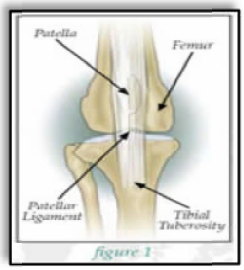

figure 1

The patella is commonly referred to as the kneecap. Patellar luxation is a dislocation of the patella out of the normal groove it sits in called the trochlear groove located on the femur. Patellar luxation can be medial towards the inside of the stifle (MPL – medial patellar luxation) or lateral towards the outside of the stifle (LPL – lateral patellar luxation) or both. Patellar luxation is one of the most common stifle (knee) joint abnormalities in dogs. Patellar luxation may result from traumatic injury or congenital (present at birth) deformities. Patellar luxation is most common in small breed animals. Clinical signs of patellar luxation vary depending upon severity and chronicity of the disease. With mild forms of patella luxation animals may occasionally pick up the affected leg when they run. With more severe patella luxation animals may present with increased lameness, decreased ability to jump and abnormal leg rotation. Some animals with grade 1 – 2 patellar luxation can tolerate patella luxation long term with minimal consequences. However this may predispose the hock (ankle), stifle and hip joint to other injuries and painful conditions such as degenerative arthritis and ruptured ligaments. Patella luxation is diagnosed based upon history, physical exam findings, and radiographs. The goal of surgery is to stabilize the patella in the trochlear groove and allow a normal return to function. Patella luxation stabilization can involve a single technique or a combination of techniques. If surgical stabilization is performed before arthritis occurs, the prognosis is excellent and the patient should retain full use of the limb. If arthritic disease is present then arthritic pain may be present post-surgery. Arthritis may occur post-surgery but it will be significantly lessened with surgery. Recovery depends upon weight, age, physical activity and degree of involvement of the surgical stabilization techniques.

IMBRICATION: Imbrication is the tightening of the joint capsule on the opposite side of the luxation to prevent the patella from luxating during normal movement. This prevents the patella from having enough "slack" to luxate out of the trochlear groove. A MPL is treated with a lateral imbrication and vice versa. Imbrication may involve a "release" on the side of the luxation by incision of the joint capsule on the side of the luxation. A MPL is treated with a medial release incision and vice versa. Imbrication involves incision of the joint capsule on the side of the luxation close to the patella. The patella side of the incision is then sutured to the base of the capsule pulling the patella to the opposite side of the luxation and positioning it within the trochlear groove. A release incision relieves tension on the luxation side and allows the patella to be repositioned into the trochlear groove. Imbrication may also involve implantation of a large synthetic monofilament surgical suture on the opposite side of the luxation to produce a physical means to keep the patella in the trochlear groove. The surgical suture is typically implanted in the soft tissue around the patella and anchored to a small bone behind the femur called the fabella.

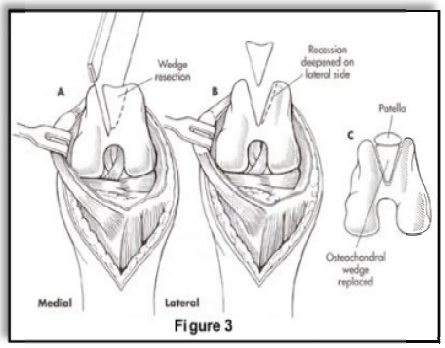

Figure 3

TROCHLEOPLASTIES (figure 3): The trochlear groove develops in young animals because of the presence of the patella. Therefore in young animals with grade 3 – 4 patellar luxation, a normal trochlear groove may not be present or may be very shallow. Trochleoplasty is essentially deepening the trochlear groove allowing the patella to seat deeper in its normal position. Wedge resection trochleoplasty involves resecting (cutting) the trochlear cartilage and underlying subcondral bone in a v-shape piece and removing it. The trochlear groove is deepened by removal of bone and the v-shaped piece of cartilage is replaced. Chondroplasty is a variation of a trochleoplasty. Chondroplasty involves removal of only the cartilage in a v-shape piece without any subcondronal bone. The trochlear groove is deepened similar to the trochleoplasty. Chondroplasty allows a deeper trochlear groove in comparison to a trochleoplasty. Both the trochleoplasty and chondroplasty preserve contact between the patella and the underlying cartilage reducing bone wear and the progression of Osteoarthritic (OA) disease. Trochleoplasty and chondroplasty can be used when healthy trochlear cartilage in present. In certain cases a trochlear resection is performed instead of a trochleoplasty or chondroplasty. Trochlear resection is the resection (cutting) of trochlear bone and cartilage to deepen the groove. The removed bone fills in with a secondary scar tissue type cartilage. Trochlear resection may be used in cases where the trochlear cartilage is severely damaged.

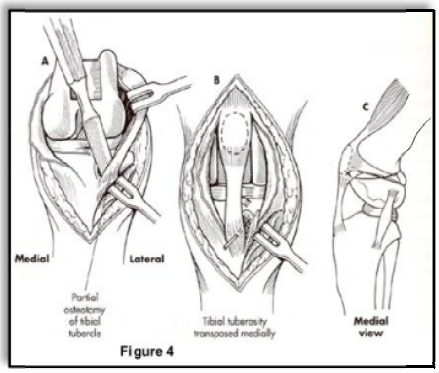

Figure 4

TIBIAL TUBEROSITY TRANSPOSITION (figure 4): The patellar ligament is attached to the tibia at a prominence called the tibial tuberosity or crest. This technique is used when rotation of the tibial tuberosity has occurred and involves realignment of the extensor mechanism over the front of the femur allowing normal positioning of the patella. An osteotomy (bone cut) is performed on the tibial tuberosity and it is transpositioned so that the patella is centered in its normal position in the tibial groove. The tibial tuberosity is then stabilized with pins and a tension band wire. Most animals with tibial tuberosity transpositions have an odd gait with the hocks pointing outward in external rotation and internal tibial rotation (cow-hocked). These animals usually have normal ability to flex and extend the stifle despite the odd gait.