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Diagnostic and Therapeutic Advances in Small Animal Arthroscopy



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Arthroscopy has been used in veterinary medicine since 1978, and has since dramatically evolved to allow veterinarians to diagnose and treat a multitude of joint diseases. Because arthroscopy requires a smaller skin incision and creates less surgical trauma compared to an open approach, it provides substantial advantages. Improved joint observation with magnification, less tissue disruption, reduced scarring and a faster return to function are all reported benefits. At Garden State Veterinary Specialists, we offer arthroscopy for a wide array of diseases.

Osteochondrosis Dissecans (OCD)

OCD is a disorder of endochondral ossification that typically affects immature medium to large breed dogs. Although the exact cause is unknown, diet, genetics, growth rate, trauma and endocrine imbalances have all been implicated. Abnormal thickness of cartilage leads to fissuring and separation of a cartilage flap. OCD can be found in the shoulder, elbow, stifle and hock joints. Radiographically it appears as a flattened or radiolucent



Figure 1

area within subchondral bone (Figures 1,2). Although OCD in joints such as the shoulder and the stifle is relatively easy to diagnose, OCD at other sites is not always so obvious. Arthroscopy can be a minimally invasive way to explore a joint to make a diagnosis, and if an OCD lesion is encountered, the flap can be removed during the same procedure via arthroscopic assistance. Although arthroscopy does involve general anesthesia and several 1/2cm skin incisions, it can ensure a 100% success rate in the diagnosis

of OCD, and allows for a minimally invasive treatment that otherwise would require a large open approach.

Elbow Dysplasia; Fragmented Coronoid Process (FCP)

FCP is part of a larger disorder known as elbow dysplasia. It typically affects medium to large breed dogs between 5 and 10 months of age and is more common in males. Dogs with FCP typically present with forelimb lameness at a young age, but radiographically, the disease is often not apparent until 7-8 months of age. FCP fragments can be hard to see radiographically and tentative diagnoses are often made based on degenerative



Figure 3

changes seen on radiographs (Figure 3), coupled with clinical pain during elbow manipulation. Arthroscopy can be used to allow definitive diagnosis of the disease. Once a fragment is identified with the arthroscope, a small instrument portal can be developed to break the fragment free and remove it from the joint (Figure 4).

Cranial Cruciate Ligament Rupture / Medial Meniscal Injuries

Cranial cruciate ligament rupture is one of the most common orthopedic injuries in dogs. Although dogs of all sizes can be affected, medium to large breeds are



Figure 2

over-represented. The ligament can tear acutely or chronically, and once torn leads to instability of the stifle joint.

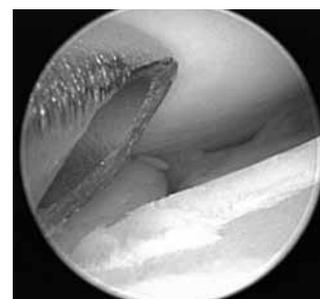


Figure 4

Although dogs with complete cruciate ligament rupture are relatively easy to diagnose, partial tears can be a diagnostic challenge. Dogs with partial ligament tears can present with moderate to severe chronic lameness but often lack cranial drawer on evaluation. In these dogs, arthroscopy can be used to diagnose a partial ligament tear prior to complete rupture and allows intervention at an earlier stage of the disease. As well, menisci can be evaluated arthroscopically and if a tear is noted (Figure 5), the torn portions can be removed via arthroscopic assistance. Once a diagnosis of cranial cruciate ligament rupture is made, arthroscopic assistance can be used to remove the torn ligament, to address the menisci (if applicable), and to minimize exposure to the stifle joint regardless of method of stabilization. Arthroscopic assistance can minimize the invasiveness of most stifle stabilization procedures including nylon and TPLO repair, and often leads to a quicker recovery.

Other Indications

Other indications for arthroscopy in veterinary medicine include, but are not limited to, diagnosis and treatment of bicipital tenosynovitis, shoulder instability, ununited anconeal processes, evaluation of intra-articular fractures, and exploration of any joint in which a minimally invasive approach is desired over an open procedure. If any further questions regarding possible arthroscopy for orthopedic patients arises, please do not hesitate to call me at **Garden State Veterinary Specialists 732-922-0011.**



Figure 5

Figure 1: Lateral Radiograph showing OCD of the scapulohumeral joint (arrow). Note flattening of the subchondral bone.

Figure 2: Craniocaudal radiograph of the stifle showing an OCD lesion on the lateral femoral condyle (arrow). Note the radiolucent defect in the bone.

Figure 3: Flexed lateral radiograph showing osteophytosis on the anconeal process and sclerosis at the ulnar notch. These radiographic findings are typical in dogs with FCP, but often don't allow for a definitive radiographic diagnosis.

Figure 4: Intra-operative arthroscopic image of a bone curette being use to break free an FCP fragment in the elbow of a dog.

Figure 5: Intra-operative arthroscopic image of a torn medial meniscus. Rather than laying flat in the joint space between the femoral condyle and the tibial plateau, this meniscus has a wrinkled appearance and is dislodged from the back of the joint.