



METROPOLITAN VETERINARY ASSOCIATES NEWSLETTER

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ARTHROSCOPY IN CANINE ORTHOPEDIC DISEASE

By **Rebecca Wolf, VMD, DACVS-SA**

Veterinary arthroscopic surgery is gaining popularity, as clients increasingly are seeking minimally invasive procedures for their pets. Many of the disease processes most commonly addressed with arthroscopy carry a high level of morbidity when approached as an open arthrotomy, making an arthroscopic option even more appealing. This article will discuss some of the more common problems treated arthroscopically as well as prognosis and outcomes after treatment.

ELBOW DYSPLASIA

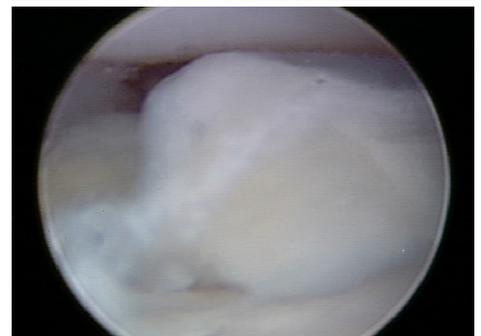
Elbow dysplasia is the most common cause of forelimb lameness in dogs. Pathology in the joint is secondary to abnormal bone and cartilage development and incongruity or stresses across the joint. One or more of the following diseases is seen in elbow dysplasia: fragmented medial coronoid process (FCP)/medial compartment disease, osteochondrosis dissecans (OCD), ununited anconeal process (UAP) and joint incongruity. Elbow dysplasia most commonly occurs in young large and giant breed dogs, but is also seen in smaller breeds. Elbow incongruity secondary to growth plate trauma can occur in any breed.

The majority of elbows that we treat arthroscopically have FCPs. Symptoms include forelimb lameness with elbow effusion and discomfort on palpation

of the medial aspect of the elbow and hyperextension of the joint. Radiographically, there is increased sclerosis of the ulnar notch and osteophytosis of the anconeal process. In later stages, arthritic changes are seen on the humeral epicondyles and radial head as well. In some cases, there is visible fragmentation of the medial coronoid observed on the cranio-caudal view. In dogs where radiographic changes are not dramatic, CT scan or arthroscopic exploration of the elbows can be used to definitively diagnose FCPs. Arthroscopy has the benefit of not only being a diagnostic tool, but also therapeutic.

“ELBOW DYSPLASIA IS THE MOST COMMON CAUSE OF FORELIMB LAMENESS IN DOGS.”

Arthroscopically, the fragment can be found to be in situ or displaced, with varying degrees of cartilage wear on the medial humeral condyle and radial head. Removal of the fragment and resurfacing of the region of the coronoid to prevent impingement on the radial head is performed, and depending on



Top: Radiographic evidence of elbow osteoarthritis suspicious for FCP Bottom: Arthroscopic view of displaced fragment

the degree of cartilage wear, hyaluronic acid or stem cells/platelet rich plasma can be injected into the joint.

Outcomes following arthroscopic removal of the fragment depend greatly on the degree of arthritis and cartilage loss present at the time of treatment. Early detection and removal is ideal, however early diagnosis can be complicated by lack of radiographic changes. Many dogs will need periodic treatment with anti-inflammatories and/or joint injections for the remainder of their life, even after fragment removal.

OSTEOCHONDROSIS DISSECANS

Osteochondrosis dissecans (OCD) is seen most commonly in the shoulder on the caudal humeral head, although it also occurs in the tarsus, stifle, elbow and other joints. Failure of endochondral ossification leads to loss of chondrocytes at the bone-cartilage interface, which allows separation of the overlying cartilage from the bone underneath.

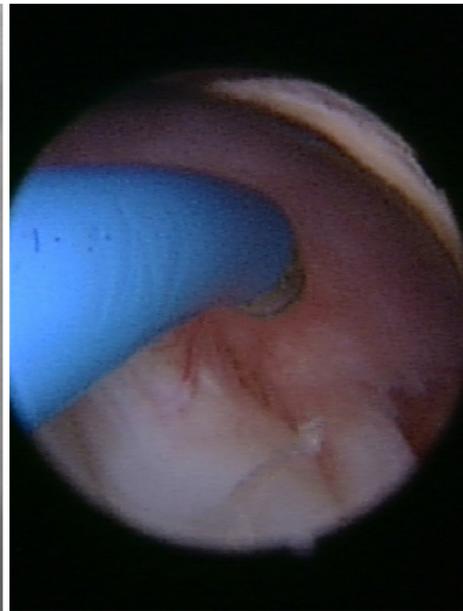
OCD of the shoulder is commonly seen in young, rapidly growing dogs. There is a 2:1 male:female ratio for shoulder OCD, and about 1/3 of cases have bilateral disease. Radiographically, flattening of the caudal humeral head with or without secondary osteoarthritic change is seen. In cases where the flap has become detached, it can be seen free in the joint.

Arthroscopic treatment of shoulder OCD involves removal of the flap and debridement of the abnormal subchondral bone to allow the defect to fill with fibrocartilage. In cases where the flap has become completely detached, thorough arthroscopic exploration of the joint is key – fragments can attach to the biceps sheath or other structures in the joint, causing further discomfort.

Prognosis following flap removal and debridement is excellent, with most dogs returning to full function and developing minimal osteoarthritic change in the shoulder.



Left: Radiographs often show minimal radiographic changes with MSI
Right: Radiofrequency used to tighten the medial stabilizers in the shoulder



MEDICAL SHOULDER INSTABILITY

While previously diagnosed primarily in working and agility dogs, medial shoulder instability (MSI) is now being recognized more frequently in family pets. Repetitive micro-strain of the medial glenohumeral ligament, stretching of the medial joint capsule, and strain of the subscapularis tendon leads to forelimb lameness that is worse after activity and has little response to rest and treatment with anti-inflammatories.

Physical exam reveals varying degrees of atrophy of the muscles of the shoulder, increased angle of abduction, and discomfort with abduction. Measuring the angle of abduction with a goniometer can also be helpful, either in an awake or sedated patient. A normal shoulder should have approximately a 32° angle of abduction. Mild instability is recognized up to 45°, moderate 45° to 65° and severe greater than 65°. Radiographs of the shoulder are usually unremarkable, or show evidence of non-specific osteoarthritis in more chronic cases.

Arthroscopic evaluation of the medial shoulder stabilizers is the best way to definitively diagnose MSI. Secondary changes can be seen with MRI, but arthroscopy allows dynamic evaluation and palpation of the intra-articular structures. In mild cases, placement

of the dog in forelimb hobbles for 2-3 months and physical therapy can resolve the problem. For dogs that are more significantly affected, arthroscopic tightening of the collagen fibers of the medial glenohumeral ligament, subscapularis tendon and joint capsule with radiofrequency is indicated, followed by hobbles and rehabilitation. Severe cases require reconstruction of the medial

“ARTHROSCOPIC EVALUATION OF THE MEDIAL SHOULDER STABILIZERS IS THE BEST WAY TO DEFINITELY DIAGNOSE MSI.”

stabilizers and recovery can take up to 6 months. Moderate to severe injury also can benefit greatly from stem cell/PRP injection of the shoulder to help decrease inflammation, regenerate and heal the injured tissue, stimulate new blood supply and supply growth factors for more complete healing and a better long-term outcome.

In addition to the conditions discussed above, arthroscopy is used at MVA to help diagnose cruciate disease and meniscal injury, treat biceps tendon injury, and monitor progression of healing with second-look arthroscopic exams. If you have a patient you think could benefit from this minimally-invasive modality, please do not hesitate to call to discuss the case and refer them for an appointment. 🐾

UPCOMING CONTINUING EDUCATION

Magnetic Resonance Imaging (MRI) in Veterinary Medicine

Date: Thursday, May 4, 2017

Time: Registration and Dinner 6:00pm | Lecture 7:00pm

Where: The Philander Chase Knox Estate | 151 Library Lane, Malvern

Credits: 2 RACE Credits *pending approval*

Speaker: Melissa Logan, PhD, DVM, DACVIM (Neurology)

Creating a Cat-Friendly Home: Cat Social and Territorial Behavior

Date: Tuesday, May 16, 2017

Time: Registration and Dinner 6:00pm | Lecture 7:00pm

Where: Pomme | 175 King of Prussia Road, Radnor

Credits: Approved 2 CE credits

Speaker: Carlo Siracusa, DVM, MS, PhD, DACVB, DECAWBM / UPenn

Introduction to the Recover Initiative: New CPR guidelines for Veterinary Technicians

Date: Thursday, June 15, 2017

Time: Registration 6:00pm | Lecture 6:30pm

Where: Metropolitan Veterinary Associates | 2626 Van Buren Ave, Norristown

Credits: Approved 2 PVMA CE Credits

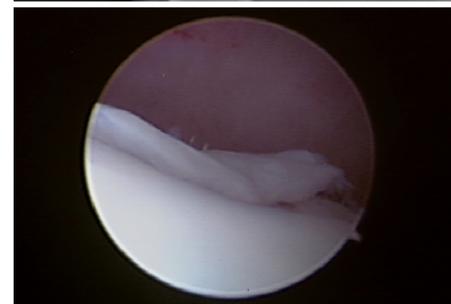
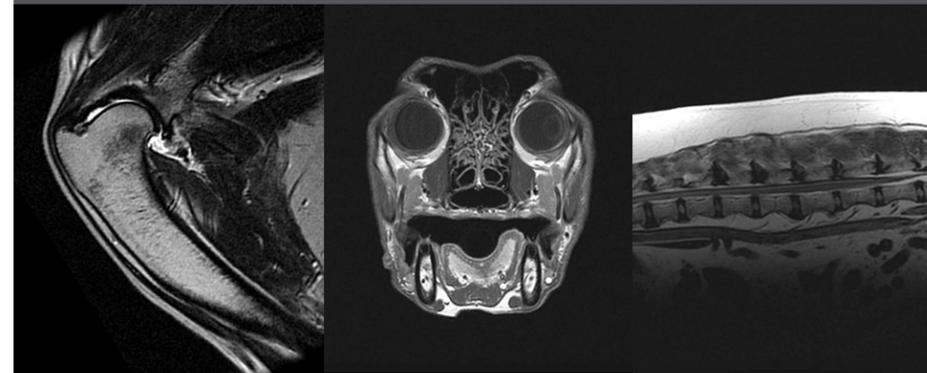
Speakers: Denise E. Wyse, CVT and Nicole Thomas (CPR Certified)

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ANNOUNCING

OUR NEW, HIGH STRENGTH MAGNETIC RESONANCE IMAGING

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Top: Radiographic evidence of shoulder OCD
Bottom: Arthroscopic view of cartilage flap

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