

## An Update on Elbow Dysplasia and Management

I don't know about you, but I find management of elbow dysplasia and associated degenerative joint disease (DJD) to be some of the most frustrating diseases to treat. Pet owners and veterinarians alike get frustrated with the disease course, response to therapy is widely variable, and the recommendations on therapy change somewhat frequently. Ask fifty surgeons about how they advise owners and manage elbow dysplasia patients, and you are likely to get a similar number of opinions. So, here is my approach, for what it's worth. I fully admit that my approach to managing these cases stems from not only evidence based medicine, but my own experience and borrowing from the experience of colleagues. Until we know a bit more about the etiology (yes, that keeps changing, too!) and the ideal therapy plan, there will continue to be a variety of approaches out there. I have broken this down into the types of patients we encounter.

### Young Dogs with Medial Compartment Syndrome

These tend to be medium to large breed dogs. They have fragmented coronoid process (FCP) most commonly, but also can have osteochondrosis dissecans (OCD), or incongruency. Occasionally, a combination of these occur. The latest theory on etiology of FCP circles back to the early hypothesis that FCP is a form of OCD, i.e. a subchondral bone defect rather than a cartilage defect. Physical examination is the most important method of diagnosis, but most commonly confirmed on survey radiographs. I prefer AP, standing angle lateral, and a flex lateral view for each elbow. CT combined with arthroscopy further increase the chances of accurate diagnosis, and have less inter-observer variability, but have a higher financial cost and risks.

When I diagnose or suspect a young (6-18 months) dog has medial compartment syndrome, I offer arthroscopy to the owner as a method of confirming and characterizing the disease, with a "chance for improvement". Some dogs have long-term benefit from arthroscopic debridement, but not as many as we initially hoped. Arthroscopy should be viewed as one of the tools in our toolbox to help manage disease, but is not the "cure" we would like it to be. A recent study of dogs with unilateral medial compartment disease showed improved limb kinetics with arthroscopy, but not to full function. The further advanced the disease process, the less likely there is to be significant improvement. But even in elbows with very mild changes at surgery, the disease progresses at least radiographically.

There are several procedures being performed by surgeons to change the load bearing of the medial compartment, including sliding humeral osteotomy, the CUE and TATE elbow replacements, and ulnar osteotomies. Outcomes appear to vary greatly for all of these procedures. The only one I currently recommend is ulnar osteotomy, and only if there is a notable elbow incongruence diagnosed by radiographs and confirmed by CT or arthroscopy (radiographs alone are not as reliable).

Non surgical intervention includes a variety of strategies. If you are going to pick one and only one nutraceutical, a daily mega dose of Omega-3 fatty acids (fish oil-100mg/kg body weight) is the most strongly proven. Glucosamine/chondroitin supplementation is worth doing too, though, if the owner is willing to do two. Other management tools I strongly recommend include Adequan injections and intra-articular injections of hyaluronic acid (HA) and/or a steroid. Pain management in the form of NSAIDs and acupuncture are effective in many cases. Intra-articular steroid administration should not be performed while a patient is taking NSAIDs. Other drugs such as gabapentin, tramadol, acetaminophen, and amantadine have variable bioavailability or

more mild effects, but may help as additions to the treatment plan. Weight management is recommended as needed, and is extremely helpful in many patients.

#### Dogs with Advanced Elbow Disease

Surgical intervention for elbows with advanced DJD is not likely to change outcome. For chronic cases, intra-articular injection with HA and a steroid, followed by 2 additional injections of HA alone (each 1 week apart) is performed to break the cycle of inflammation and increase the joint fluid quality. Many dogs have a prolonged benefit from periodic injections. The other tools such as Adequan, acupuncture, and life-long oral supplements can be beneficial. Pain management is attempted as described for young dogs. Many dogs with advanced disease are also overweight, and correcting this is extremely beneficial. Physical rehabilitation to strengthen supporting musculature and increase conditioning is recommended.

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