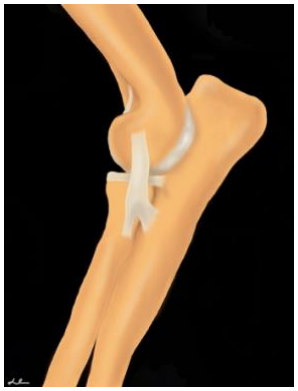
Elbow Dysplasia

Elbow dysplasia is a type of developmental orthopedic disease and common cause of lameness in dogs. The word “dysplasia” means abnormal growth and development. Elbow dysplasia is condition that dogs are born with and will eventually lead to arthritis. Genetics, trauma, and dietary factors may play a role in elbow dysplasia.

Anatomy

The elbow joint is made of three bones: the humerus (upper arm bone), radius and ulna (lower arm bones). Where these three bones meet is the elbow joint. The 3 bones must fit together perfectly in order for the joint to function properly. If there is abnormal growth, or dysplasia, the elbow bones don’t fit together like they should, cracks in the cartilage develop and arthritis eventually sets in.

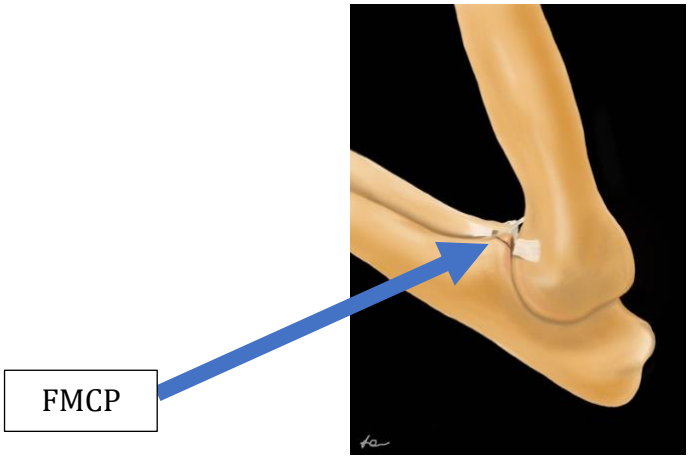


Normal Elbow

There are three types of elbow dysplasia: Fragmented Medial Coronoid Process (FMCP), Osteochondritis dissecans (OCD), and Ununited Anconeal Process (UAP). These conditions differ based on the area of the elbow that is abnormal. Some dogs can have more than one form of elbow dysplasia in the same joint.

FRAGMENTED MEDIAL CORONOID PROCESS (FMCP)

What is FMCP? FMCP is the most common type of elbow dysplasia. The medial coronoid process is a small tip of the ulna bone. FMCP means that there is a crack or complete separation of the medial coronoid process from the ulna. This may result from abnormal stresses placed on the coronoid process during growth and development.



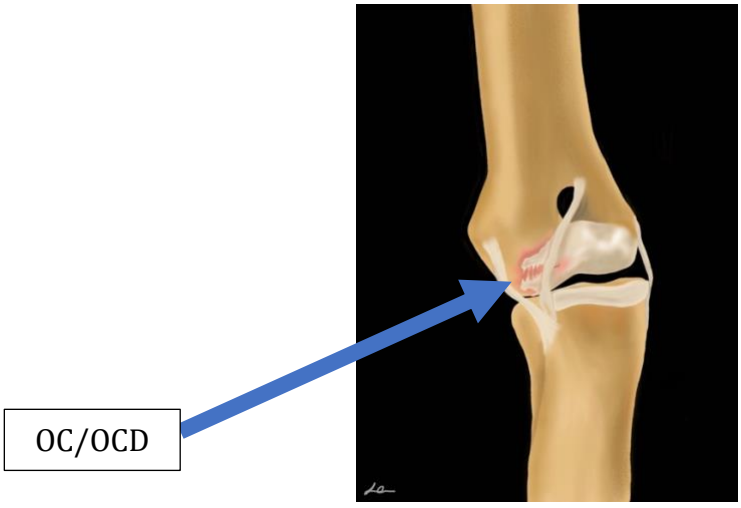
What are the clinical signs and how is FMCP diagnosed? Common clinical signs of FMCP begin between 5-8 months of age and include acute or chronic intermittent limping, stiffness, and choppy gait. Lameness is usually made worse by exercise, and is prominent after resting. In some cases, lameness is not apparent until later in life. Many dogs will stand with their leg turned outward to decrease pressure on the coronoid process. Your veterinarian may palpate swelling at the joint and pain with manipulation of the leg. Older dogs may have decreased range of motion of the joint. The clinical signs of FMCP are very similar to those of OCD, and it is likely that the two coexist in a third of cases. Most of the time FMCP is present in both elbows, but clinical signs may be worse on one side.

X-rays may show arthritic changes in the elbow, including sclerosis (increased whiteness of the bone) and osteophyte (bony spur) formation. It is difficult to visualize the coronoid process on radiographs, and FMCPs are rarely diagnosed on x-rays alone. Definitive diagnosis requires either susrgical joint exploration or CT scan.

What is the recommended treatment for FMCP? Treatment consists of removal of the FMCP and any other cartilage fragments through arthroscopic (small camera and instrument portal, considered "minimally invasive") or traditional open surgery. However, it is important to realize that while removing the fragment often provides improvement in lameness (like removing a pebble from your shoe), this will not be a curative surgery and long-term management of arthritis will be required.

OSTEOCHONDRITIS DESSICANS (OCD)

What is OCD? Osteochondrosis is a defect in bone growth that results in an area of cartilage not forming properly and not being held tightly down to the underlying bone. Over time, this abnormal area of cartilage may partially split away, forming a cartilage flap which causes pain when it moves in the joint space. This condition is termed osteochondritis dissecans (OCD). Once formed, this cartilage flap cannot heal back down to the underlying bone. Instead, it will either continue to degenerate in place, or may break free and migrate to another area of the joint (these free pieces are known as "joint mice"). In either case, the presence of the flap will cause pain and inflammation within the joint. OCD can occur in the elbow as well as other joints including the shoulder, stifle (knee), and tarsus (ankle).

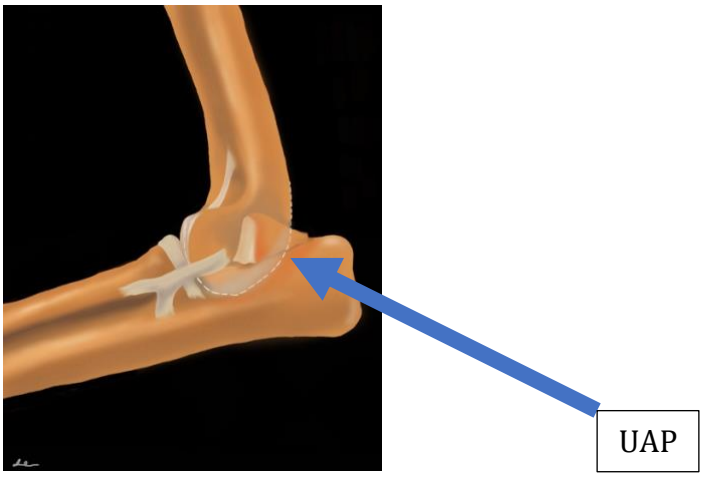


What are the clinical signs and how is OCD diagnosed? Common clinical signs of OCD begin between 5-8 months of age and include acute or chronic intermittent limping, stiffness, and choppy gait. Lameness is usually worse after exercise, and is prominent after resting. In some cases, lameness does not show up until later in life when arthritis has set in. Your veterinarian may feel swelling and pain in the joint with manipulation. Older dogs may have reduced range of motion of the joint. Diagnosing OC/OCD can often be made on x-rays, though CT or surgery may be needed to confirm the diagnosis.

What is the recommended treatment for OCD? Treatment for OCD consists of surgical removal of the flap and any other loose pieces of cartilage and smoothing out the area of the lesion to stimulate scar tissue filling in. This may be accomplished arthroscopically or through traditional open surgery. However, it is important to realize that while surgery often provides improvement in lameness, this will not be a curative surgery and long term management of arthritis will be required.

UNUNITED ANCONEAL PROCESS (UAP)

What is UAP? The anconeal process is the large upper tip of the ulna that articulates with the humerus. There is normally a growth plate in this part of the bone. UAP develops when this growth plate doesn't close, resulting in a partially attached anconeal process. This leads to instability or detachment of the process and arthritis of the elbow.



What are the clinical signs and how is UAP diagnosed? UAP is most commonly diagnosed in German Shepherds. Clinical signs are usually not seen before 5-8 months of age. Occasionally, lameness is not observed until the dog is several years old. In the earliest stages, the only clinical signs may be a slight limp, swelling on the outside of the elbow (often confused with a hygroma) and standing or walking with the paw turned out. Palpation of the joint in older dogs may reveal swelling and crepitus (crackling) within the joint. A preliminary diagnosis may be made by clinical signs, age and breed. The diagnosis will be confirmed by x-rays showing the partially or fully detached anconeal process.

What is the recommended treatment for UAP? There are several surgical options that may be considered for young dogs diagnosed with UAP. These include: arthroscopy to evaluate the entire joint, reattaching the anconeal process with a screw, cutting the ulna bone to relieve tension on the UAP so that it may fuse, or surgery to remove the anconeal process. Surgical options will be discussed by your veterinary surgeon. Like other components of elbow dysplasia, UAP will result in some degree of long-term arthritis.

What is the prognosis for a dog with elbow dysplasia? The best prognosis is expected with early treatment performed prior to extensive degenerative osteoarthritic changes. In young dogs (~ less than 2-3 years of age), most surgeons recommend arthroscopic surgery to evaluate the joint, confirm the diagnosis, remove any cartilage fragments, and evaluate the extent of arthritis in order to provide a realistic prognosis. Additional surgical techniques may be recommended based on the individual dog and surgeon. Most dogs show improvement in lameness, and return to good function is expected, although arthritic changes are expected to occur later in life. If extensive arthritis is already present in the joint, surgery may not be as helpful and non-surgical management would typically be recommended. No matter what, a comprehensive arthritis plan should be developed that includes weight management, regular, low impact exercise, and pain management when needed.