

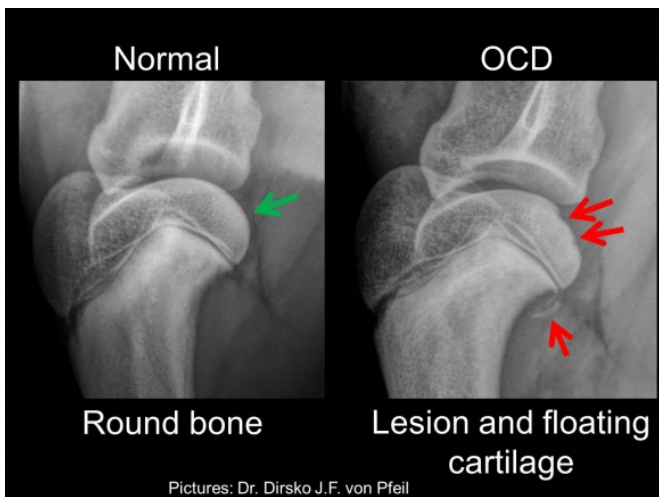
Osteochondritis Dissecans (OCD)

What is OCD?

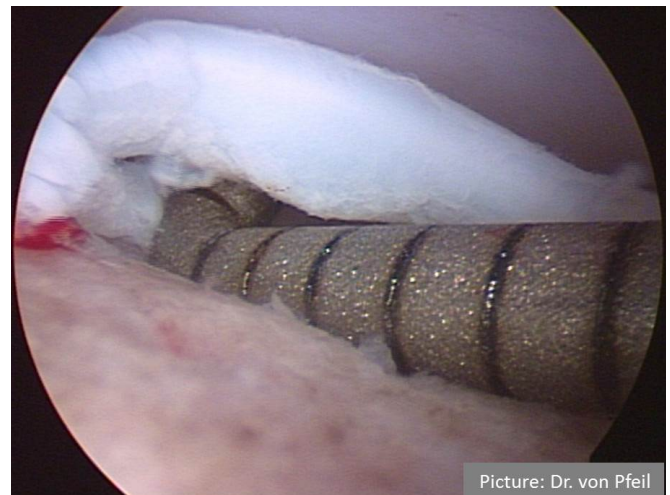
In a healthy dog, growth occurs by steady cartilage conversion into bone. This happens at the growth plates as well as at the articular cartilage (the surface of a joint). With *osteochondritis* (OC) there is retention of cartilage rather than conversion to bone during the growth process, leading to areas of thickened cartilage. Articular cartilage receives nutritional support from the joint fluid. This nourishment can only support cartilage of certain thickness. The thickened cartilage present with OC is subject to damage and may become separated from adjacent cartilage or underlying bone. Eventually a piece of cartilage will break off the diseased area and float free in the joint. This is often referred to as “joint mouse”. If such a fragment has formed, this form of osteochondritis (OC) is called *osteochondritis dissecans* (OCD).

What is the effect of OCD and in what joints can OCD occur?

A defect in the cartilage or a “joint mouse” results in synovitis (inflammation of the joint), joint effusion, and clinical signs of lameness. Depending on the stage of disease at the time of diagnosis, the degree of arthritis may be mild to severe. OCD can occur in the shoulder, elbow, knee, or hock joint. It can occur on one side only or on both sides. It can also occur in multiple joints or be associated with other orthopedic diseases.



Example of normal (left) and with OCD affected shoulder (right). Note the round shape of the bone in the normal shoulder (green arrow) versus the defect and the “joint mouse” in the diseased shoulder (red arrows). Treatment is warranted.



Arthroscopic view of a shoulder OCD lesion. The diseased cartilage flap is lifted from the underlying bone bed. It is then removed from the joint to allow pain-free movement.

What is the cause of OCD?

The cause of OCD is not clear. Decreased blood supply, hereditary factors, rapid growth and nutritional imbalances have all been suggested. We see this condition mainly in fast growing, very active patients.

Is there a way to prevent OCD?

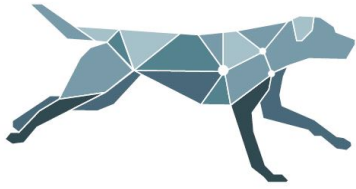
Prevention of OCD may be achieved by not feeding calcium and phosphorus supplementations, instead feeding low calorie, low energy, low protein diets and to prevent excessive running / training / jumping / activities with quick turns and stops (agility), especially during the growth spurt of dogs which is usually between 4-8 months of age.

What are clinical signs and what are examination findings with OCD?

Clinical signs of OCD consist of a shortened stride, weight bearing to non-weight bearing lameness that is exacerbated by exercise. Examination often reveals discomfort upon shoulder manipulation and muscle atrophy as well as pain upon palpation of the caudal humeral head.

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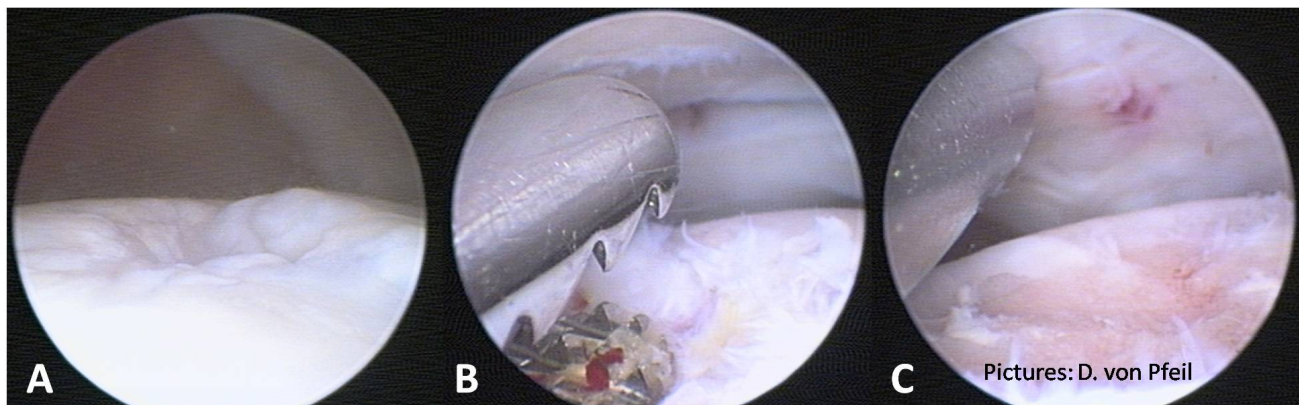


How is OCD diagnosed?

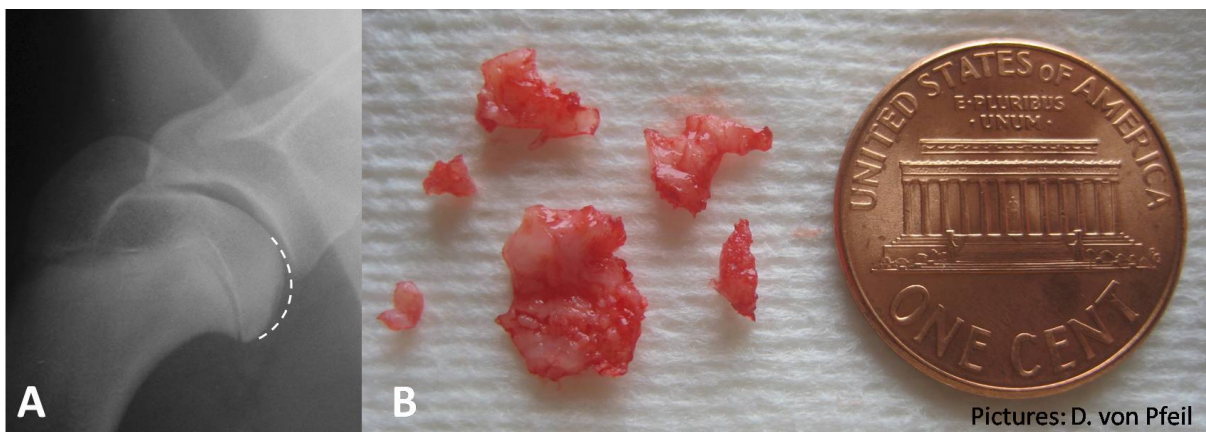
The diagnosis of OC or OCD can be made by radiographs (x-rays). In most cases, a defect of the affected bone can be seen. In early cases, the best diagnostic tool is arthroscopy. With arthroscopy, a small camera is introduced into the joint, allowing visualization and treatment of the defect.

What is the treatment for OCD?

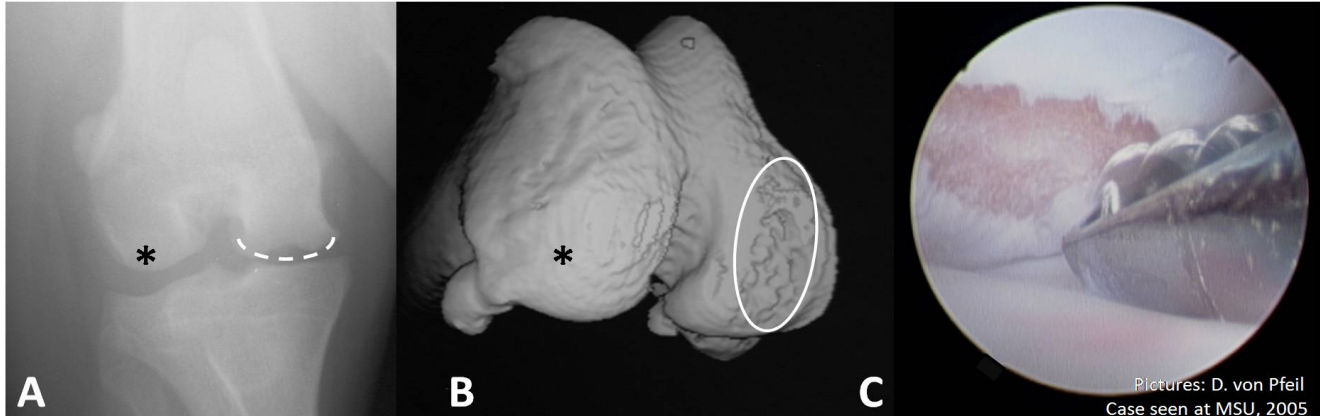
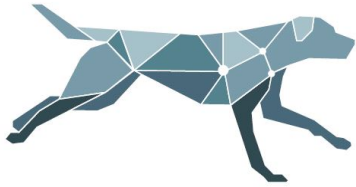
Treatment consists of removal of loose cartilage and creating a bone bed that facilitates formation of fibrocartilage. Fibrocartilage is similar to articular cartilage. In many cases the OCD lesion can be treated arthroscopically. Occasionally, a standard open arthrotomy (the joint is opened in standard fashion) is required to adequately address the lesion. The tarsus is the most difficult joint to treat arthroscopically. OCD of the tarsus is, in our hands, best treated by an arthroscopically assisted approach, or by using a standard open arthrotomy. OCD examples are shown below.



A: Arthroscopic view of OCD. B and C: Treatment of an OCD lesion to create a healthy joint.



A: Osteochondritis dissecans (OCD) lesion of the shoulder. Note the indentation of the articular cartilage (Normal joint surface outlined by the dashed line). B: Fragments of an OCD lesion in comparison to coin.



A: Radiograph (x-ray) of a stifle joint with OCD. Compare normal (star) with diseased cartilage (white dashed line, ellipse). C: Arthroscopic treatment of the OCD lesion using a shaver.

Are there other treatment options for OCD?

Current advances in the treatment of OCD are focused on the development of cartilage transport techniques and on the use of artificial cartilage plugs which are placed into the defect. However, while successfully applied in some of our patients, much remains to be accomplished before these strategies become widely accepted or utilized.

What is the postoperative care after OCD surgery?

Activity: After surgery the surgical site has to heal. For good healing to occur it is essential that the activity of your pet is significantly limited for 4-6 weeks. The animal must not run, jump, rough-house, or play during this time. It must be kept separated from other animals in the household. Short leash walks to go to the bathroom are allowed. Too much activity will likely increase the risk for complications. In large dogs that underwent bilateral surgery, it may be necessary to assist the dog for the post-operative time when walking / using the bathroom.

Controlled physical rehabilitation can be initiated at approximately 4 weeks post-surgery and will help to improve range of motion, built up of muscle mass and return to normal function. This should be done under professional guidance.

Medications: Anti-inflammatory and pain medications as well as sedative are frequently used during the recovery period. Injections of Adequan are recommended during the first 4 weeks post-surgery. Injections of platelet rich plasma (PRP) might be recommended in some cases, particularly in patients who seem to exhibit some remaining lameness after surgery.

Joint health supplements (fish oil, chondroitin sulfate, glucosamines, MSM etc) are recommended to be administered for life to improve joint function.

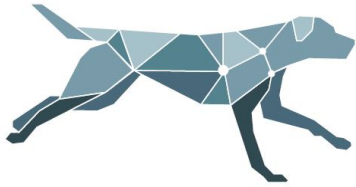
When are rechecks scheduled?

Incision inspection/suture removal is at 10-14 days. At 2-3 months post-surgery a recheck with the surgeon is scheduled. At that time it will be decided if the patient can return to completely normal activity.

What are possible complications?

Complications associated with treatment for OCD may include, but are not limited to infection, hematoma (accumulation of blood), seroma (accumulation of inflammatory fluid), arthritis, and limited range of motion, nerve damage, or the formation of new joint mice (see above). One or more additional surgeries may be necessary to treat severe complications.

Fortunately, in the vast majority of cases treated for OCD not major complications develop. However, it is important to understand that the prognosis for excellent long-term function differs depending on the treated joint. See the next paragraph to learn more about this.



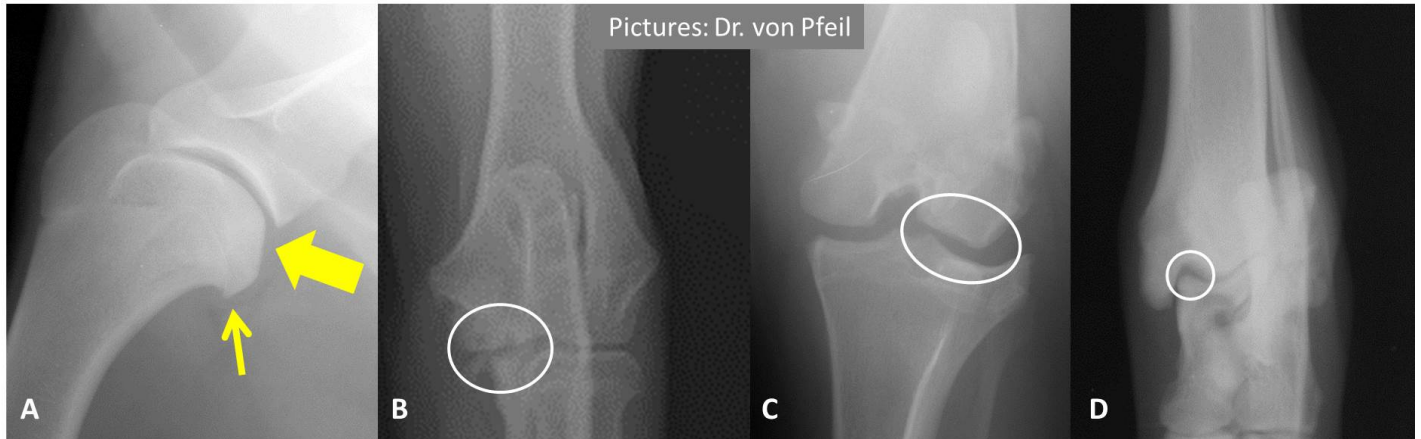
What is the prognosis?

The prognosis varies, depending on affected joint, and advancement of arthritis.

In general, most dogs with osteochondrosis of the shoulder have an excellent prognosis.

Clinical data and experience shows that animals with OCD of the elbow, knee, or hock may be at higher risk for lameness even with surgery.

In general, OCD of the hock carries the worst prognosis.



The prognosis for excellent outcome decreases from shoulder (A=excellent), to elbow (B=favorable), to knee (C=guarded), to hock/ankle (D=poor).

In severe cases of OCD and associated arthritis, arthrodesis (surgical joint fusion) may be the best first treatment option, or has to be considered as possible necessity if no significant improvement can be achieved after initial standard treatment.

Importantly, despite possible complications and concerns related to the affected joint, with appropriate post-operative care and supportive medical treatment, the clinical signs are typically improved after surgery and most patients can enjoy a good quality of life following treatment.

