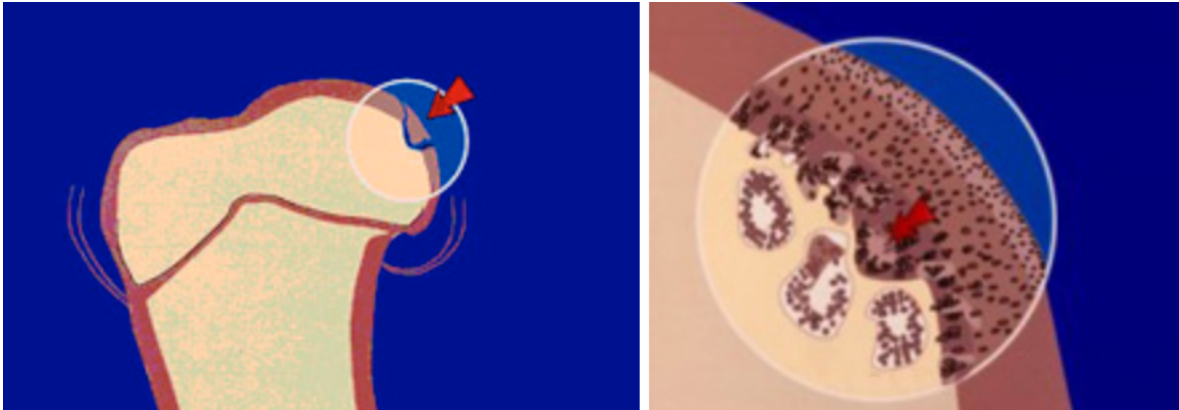


Osteochondrosis of the Shoulder

Associated Terms:

Osteochondritis, Shoulder OCD, Joint Mouse, Cartilage Chip, OCD, Osteochondritis Dissecans



OVERVIEW

“It’s just a blister in an odd location”.

“I don’t understand what OCD is; please help me understand the condition & the treatment.”

The dog shoulder is made up of the head of the humerus (upper arm bone; the “ball”), & the cup of the scapula (shoulder blade; the “socket”). Osteochondrosis in the dog shoulder starts in the bone underlying the cartilage on the back of the humeral head. The bone stock in a small cavity is poor, & a weak spot results. The overlying cartilage is NOT supported physically or nutritionally; a “blister” results. Depending on the size & location of the blister & the activity of the dog, this blister may pop. Up until that moment, *osteochondrosis* was NOT painful & did NOT cause a limp; no treatment was needed.

Once the blister pops, you have *osteochondritis dessicans (OCD)*. The “-itis” is the key...inflammation = pain.

Once the blister pops, there is a flap that bangs around on the crater site & doesn’t let it fill in with “bandaid cartilage” (i.e. fibrocartilage). The flap also can break loose, float free in the shoulder joint, & get into trouble up in the biceps tendon sheath.

Why this bone/cartilage blister develops in puppies is likely unknowable, but there is enough data to support a strong genetic contribution. It is recommended the owners of parent breeding stock be made aware of a puppy’s OCD diagnosis. Nutrition & activity probably have some contribution as well.

OCD occurs commonly in the shoulders of immature, large, & giant-breed dogs. The lesion usually appears on the caudal (back) surface of the humeral head. OCD begins with a failure of immature cartilage to form bone in the humeral head. This failure leads to abnormal cartilage thickening. Increased cartilage

thickness may result in malnourished cartilage cells that die. Loss of these cartilage cells deep in the cartilage layers leads to formation of a defect at the junction between cartilage & bone. Subsequently, normal daily activity may cause fissures in the cartilage that eventually communicate with the joint, forming a cartilage flap. It is with the formation of a flap that osteochondrosis becomes OCD. OCD is the form of osteochondrosis that is associated with pain & dysfunction. In some cases, the resulting flap occupies as much as half the humeral head. The cartilage flap may completely detach from the underlying bone & become lodged in the back of the joint pouch. Free cartilage flaps can lodge in joints & may increase in size with calcification becoming "joint mice" which can be seen on radiographs.

The causes of OCD are multifactorial with genetic & nutritional interactions thought to be the central factors. Risk factors for OCD may include:

- Breed genetics (Polygenic trait)
- Age
- Gender
- Anatomic abnormalities
- Rapid growth
- Nutrient excesses (primarily protein, energy, calcium, & phosphorus)
- Trauma

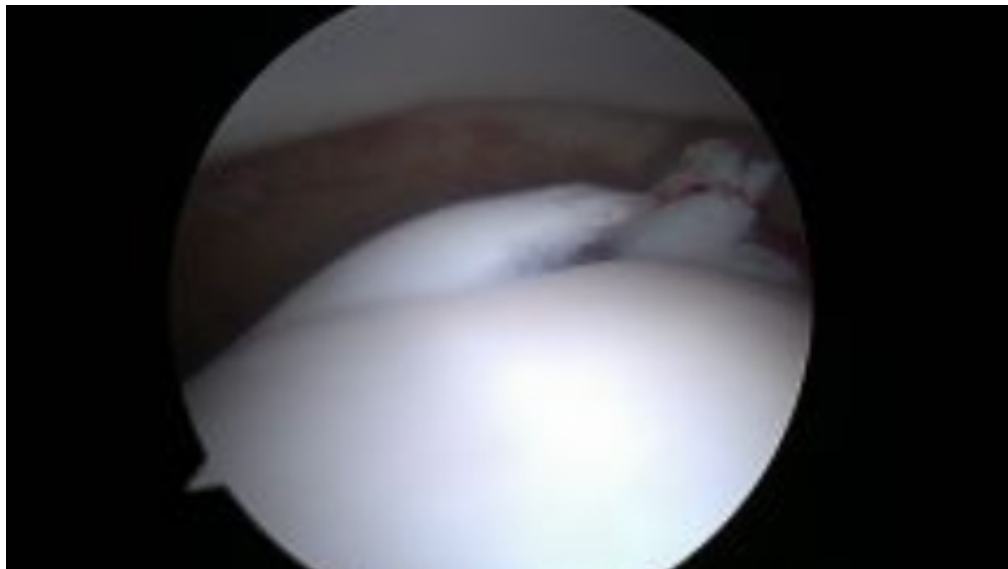
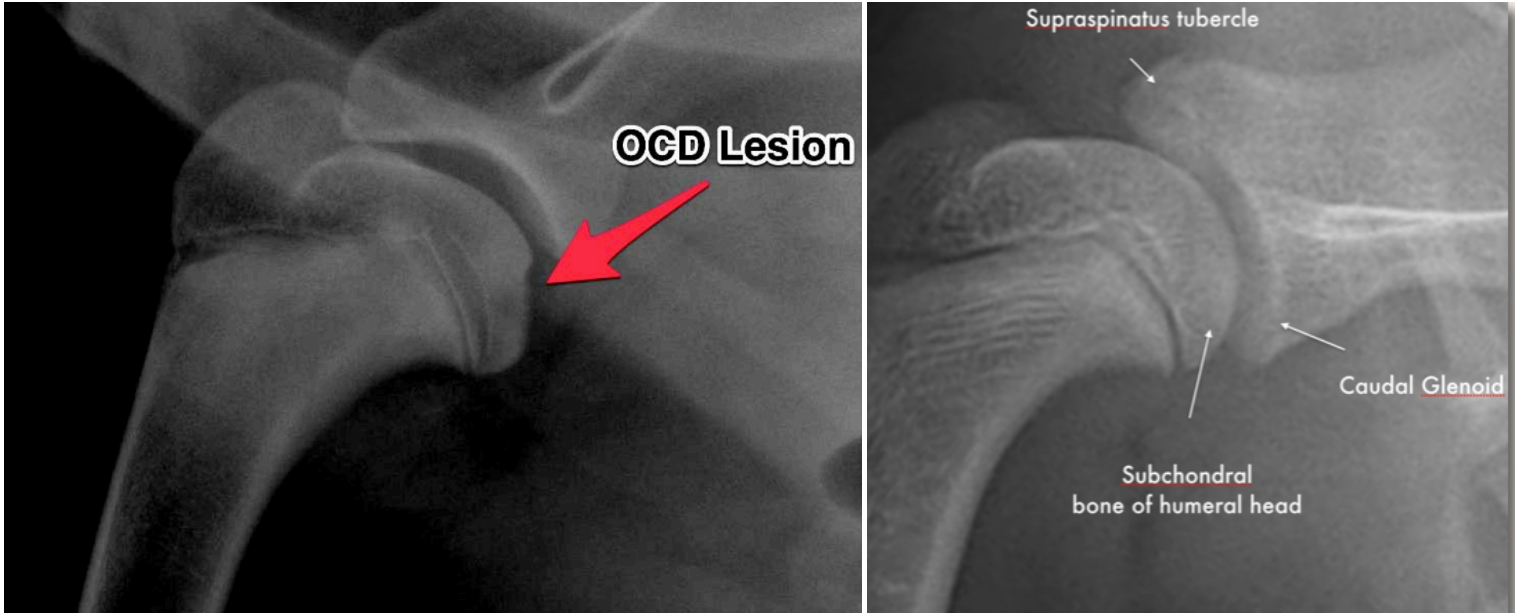
Due to the high frequency of occurrence within certain breeds of dogs & within certain bloodlines, heredity may be an important factor. Males are more commonly affected than females.

SIGNS & SYMPTOMS

Clinical signs often develop when the dog is between four & 8 months of age. Dogs usually begin limping on one of their forelimbs. In many cases, a gradual onset of lameness improves after rest & worsens after exercise. Although your pet may be lame on only one leg, this condition may be present in the opposite leg too.

DIAGNOSTICS

There are several modality options that may be recommended when diagnosing OCD (X-rays, CT scan, MRI, arthroscopy). Commonly, diagnosis of OCD can be seen as a defect (flattening) present in the humeral head on X-rays of the shoulder. Despite apparent lameness in only one limb, radiographs of both shoulders are recommended because this condition may be present on both sides. Often, older dogs that have chronically untreated OCD present with large calcified fragments “joint mice” & osteoarthritis.



TREATMENT

Seek veterinary advice if your young large breed dog is persistently lame in a forelimb, especially after exercise. Dogs with recurrent lameness unresponsive to medical treatment may require surgical intervention. Surgical treatment involves removal of the cartilage flap from the joint & scraping the edges of the bony defect to ensure removal of all affected cartilage. This may be accomplished through an open surgical approach or arthroscopically. Arthroscopy is a minimally invasive procedure that uses very small portals through which a camera & specialized instruments can be passed to best accomplish this task.

“Why is this procedure being recommended for my pet?”

Surgical removal of the OCD free cartilage flaps is generally recommended. This removal speeds up healing of the blister site, & prevents future problems associated with a large free-floating flap acting like a “rock in your shoe”. Some patients will develop degenerative joint disease (DJD; “arthritis”) very slowly over time, although this does NOT appear to be a significant cause of lameness in these patients. Patients generally return to normal leg performance without lifestyle restrictions after the healing period.

“What options do I have to treat my pet’s condition?”

Surgery can be performed via several different techniques; these techniques vary based on surgeon preference/experience, location of the “blister”, & available equipment. The common components of the surgery are to explore the joint, remove the blister “flap” & tidy up the blister site to promote fast healing with “bandaid” cartilage.

A conservative/non-surgical approach is always an option. This can have good outcomes if the blister & flap are small; the challenge is determining the size & status of the OCD site. X-rays help us confirm the diagnosis but are NOT sensitive enough to characterize the cartilage flap (cartilage cannot be seen on plain x-rays). Often the diagnostic tools that allow us to look closer at the site require general anesthesia & additional costs. The results of these tests (CT, dye study, scope) have NOT been scientifically evaluated to link results with prognosis (surgical vs non-surgical). The risk: benefit analysis is NOT strongly in favor of using these tests for surgical decision-making (although, we may use these same tests to confirm an OCD diagnosis if plain x-rays are NOT clear cut).

AFTERCARE & OUTCOME

Your pet's activity should be limited as directed by your primary care veterinarian in order to allow the incision(s) to heal. Gradually return your pet to full activity. Potential complications related to surgery include infection & postoperative seroma (fluid accumulation within the incision site) formation. Progressive osteoarthritis can occur with this condition, but is uncommonly associated with symptoms.

“What postoperative complications do I need to know & understand when considering this surgery?”

It is NOT uncommon for a seroma to develop under the incision; this is a pocket of normal tissue fluids that develops in a high motion area such as the shoulder joint. Warm compresses & time are usually all that is needed for treatment.

Temporary nerve palsy can result from surgical manipulation of the nerves around the shoulder joint; this is quite rare & typically minor.

“Are there situations when the surgical outcome is NOT what we hoped it would be?”

In some cases, a large free flap will have broken loose by the time of surgery & migrated out of easy reach (commonly into the biceps tendon sheath, which is connected to the joint). If a blister “crater” is confirmed but a flap is NOT found, options after cleaning up the crater are to extend the shoulder joint exploration or not.

The benefit of continuing to search for the flap is, if found, future concerns for flap-related problems are eliminated; the drawback of continuing the search is the added surgical disruption to the joint (prolonging healing & recovery time.) Some flaps do break up & get cleaned out by normal joint processes when they are small (as mentioned above.)

Full return to function is most common. Arthritis can develop over time but is rarely a significant limitation to high quality leg use & comfort in the shoulder joint.

“How is my pet's life & lifestyle likely to change after this procedure?”

The defect on the joint surface will fill-in with new cartilage very similar to the cartilage that normally covers the joint; the surface will again be smooth & the joint pain-free.

“Are there things I can do to prepare myself, my home and/or my pet for this procedure?”

Your dog will have a very significant postoperative lameness. If surgery is performed on both shoulders at the same time, s/he will have trouble walking for 1-2 weeks. Helping them with their mobility will be necessary. A well-fitting forequarter/chest harness with a handle (designed for assisting dogs, NOT just for leash use) is strongly recommended to allow for liberal support/assistance during postoperative rehabilitation.

Outpatient surgery & anesthesia can be uncomfortable, painful, disorienting, & frustrating experiences for animals; watching your pet work through the early postoperative period & recover from anesthesia & pain medications can be worrisome, scary & frustrating for pet owners. The vast majority of the time this period of difficulty is brief, & *your pet is actually more comfortable & secure at home with you*. Sometimes it doesn't feel like that at two in the morning when your pet is anxious & NOT consolable, & you are unsure of what to do. You always have the option of transporting your pet to a 24-hour veterinary facility postoperatively. If you do NOT want to have your pet home in the first few days postoperatively, please advise your primary care veterinary staff. They will provide contact information for a local 24-hour veterinary facility & help get an estimate for the ongoing care.

It is important that you have proper expectations about this procedure; your experience & your pet's outcome will benefit greatly. Please discuss this information with your veterinarian when working through the decision-making process regarding **OCD of the shoulder joint**.

Post-Operative: O C D (Shoulder)

Your pet has had shoulder surgery with removal of abnormal cartilage & bone secondary to osteochondritis dessicans (OCD). The defect on the joint surface will fill-in with new cartilage very similar to the cartilage that normally covers the joint; the surface will again be smooth & the joint pain-free. Some patients will develop degenerative joint disease (DJD; “arthritis”) very slowly over time, although this does NOT appear to be a significant cause of lameness in these patients. Patients generally return to normal leg performance after the healing period.

ACTIVITY RESTRICTION x 6 weeks

- Please keep your pet in a comfortable, safe indoor location with no free access to stairs for the initial 24hours following the procedure. Your pet may be groggy for the first few days. He or she may whine or appear more anxious than usual; this may indicate pain/discomfort or side-effects of the medications. Please call your veterinarian for assistance with medication adjustments or return for exam & additional pain medications as needed.
- Minimal, supervised access to stairs is recommended for 4 weeks. Use baby gates, etc. to prevent free access to stairs during this restricted period.
- Please use a short, hand-held leash when outside to urinate/defecate. Confine your pet to a small area/room/crate when unattended. Please do NOT allow your pet to run, jump or play during this restriction period.
- Use a sling under the chest/armpits if needed during the first 7-10 days to assist & prevent falling on slippery surfaces.
- Your pet should start touching his/her toes down within the first week. Thereafter, leg use should steadily improve. If you notice a sudden deterioration or your pet stops using the leg(s) at any time after surgery, please call your veterinarian for advice.
- Your pet will feel like using the leg(s) normally before the cartilage defect is well healed. Please continue the restriction during this difficult time when he/she is feeling “too” well!

INCISION CARE

- Please look at the incision twice daily. It should be dry & only slightly red along the margins; the edges will have subtle swelling. Over several days, it should lose redness & swelling. Problems to have evaluated by your veterinarian: discharge, gapping, or excessive swelling.
- It is NOT uncommon for a seroma to develop under the incision; this is a pocket of normal tissue fluids that develops in a high motion area such as the shoulder joint. If the swelling is smaller than a plum, please monitor. Warm compresses applied to the area will encourage the fluid to reabsorb more quickly (3-7 days.) If the seroma progressively enlarges, please have your veterinarian assess the problem.
- Do NOT allow your pet to lick or chew the incision. Dogs tend to want to lick early in the healing period & this can compromise the incision & predispose to infection. During the first 2 weeks, please use an E-collar or put a T-shirt on your dog to prevent incision damage, if you must leave your pet unattended.

DIET

- Ideally, keep your pet on the thin side of normal his/her whole life. Any orthopedic condition can progress with arthritis over time with excessive, wear & tear; carrying less body weight will relieve some of this stress from the shoulder (and other) joints. Good parameters to monitor body condition are:
 - 1) you should be able to feel the ribs & pelvic bones, but NOT see them;
 - 2) your pet should have an “hour glass” figure when viewed from above looking down;
 - 3) your pet should have a tucked up belly when viewed from the side.
- Glucosamine/chondroitin supplements might have some beneficial effects in these cases, but this has NOT been clearly established. You & your primary care veterinarian should discuss whether orNOT these products would be helpful for your pet.

PHYSICAL THERAPY REGIMEN

- Our lives are often very busy, so if you must err, err on the "do less" side of these instructions. Less physical therapy will result in a slower return to function, but more aggressive physical therapy by a non-professional too early may result in poor recovery.
- *Week 1:* Apply ice packs (wrapped in thin cloth) to incision area twice daily for 10-15 minutes. Baggies of frozen peas work well for this, or make an ice pack by freezing 2 parts isopropyl alcohol to one part water in a ziplock bag. Continue 5 days.
- *Week 2:* Range of Motion Exercise- Have your pet lie on his/her good side. Apply a warm compress to the shoulder, & hold with one hand. Hold the elbow with the other hand. Slowly & gently push the arm backward into full flexion of shoulder; hold for 5 seconds. Slowly pull the arm forward into full extension of the shoulder; hold for 5 seconds. Repeat this motion 15-20 times slowly once to twice daily. This exercise should NOT be performed to the point of pain or resentment. Continue 4 weeks.
- *Weeks 3-6:* Swimming is wonderful rehabilitation exercise when performed correctly. You may allow controlled swimming after week 2. Controlled swimming requires that your pet NOT jump or leap into the water; walking into the water until it is deep enough to swim is required. Throwing balls to fetch often results in sudden jumping & lunging, which can cause serious problems in the healing phase. Do NOT over extend your pet; start with short excursions (5 minutes) & increase duration & frequency gradually. Do NOT exceed once daily swimming until week 6.

PROGRESS EXAM

- Please make an appointment to see your veterinarian in 10-14 days for a progress exam. Shoulder function will be assessed at this time, any sutures will be removed, & questions regarding physical therapy can be addressed.

LONG TERM LIFESTYLE

- The prognosis for dogs treated surgically for shoulder OCD is considered good to excellent. The majority of dogs return to a normal gait, level of activity, & endurance. Following the 6 week recovery period, there are no recommended limitations to their lifestyle.

If you would like assistance with your pet's exercise recovery, please let your veterinary team know so we can provide a referral to a local veterinary physical rehabilitation center. If you have any questions, please feel free to ask your primary veterinarian &/or veterinary surgeon.

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