

OSTEOCHONDROSIS AND OSTEOCHONDRITIS DESSICANS (SHOULDER): Yes, there IS more than an academic difference.



Synopsis-- Anatomy and the Disease

Osteochondrosis in the dog shoulder starts in the bone underlying the humeral head cartilage. The bone dies or doesn't develop, and a weak spot (a crater) results. The overlying hyaline cartilage is not supported physically or nutritionally; a "blister" results (The skin blister concept is the best analogy I have to explain to clients what is happening inside.) Depending on the size of the bone crater, the location and the activity of the dog, this blister may pop. Up until that moment, osteochondrosis was not painful, did not cause a limp, went undiagnosed (unless you happened to be radiographing these youngsters prophylactically or incidentally.)

Once the blister pops, you have osteochondritis dessicans. The "-itis" is the key...inflammation = pain.

Once the blister pops, there is a flap that bangs around on the crater site and doesn't let it go about its business of filling with fibrocartilage. The flap could get nuts and break loose and go looking for trouble up on the biceps tendon sheath.

The non-academic difference between osteochondrosis and osteochondritis dessicans is pain and surgical recommendation. The best technique I have found for diagnosing pain and thus recommending surgery, is forced shoulder flexion (this jacks the caudal humeral head up into the cup of the scapular glenoid cavity and makes the dog say "ouch".)

After good/careful/focal palpation of the humerus to rule out pain from panosteitis, move onto shoulder forced flexion. To do this maneuver, stand astride (best you can with giant breeds!), hold the mid-distal humerus firmly and pull the shoulder up into relaxed flexion (humerus will be parallel with ground), wait a moment to get everyone comfortable, rest your opposite hand on the spine/withers, then brief "force" flexion of shoulder and watch for a wince, squeak (or worse). Repeat 1-2 times after relaxing in between, just to get a sense of confidence; these are often squirrely pups. Always test both shoulders; this is a commonly bilateral condition and the radiographs are not the answer for planning surgery. The exam pain is the final decisive piece of data.

While degenerative joint disease/osteoarthritis is a literal outcome of OCD (surgically treated or not), the clinical impact long-term of DJD/OA in the shoulder is most commonly mild; the shoulder is a forgiving joint relative to historical cartilage defects. The "why" of this pathophysiology is likely unknowable, but there is enough data to support a strong genetic contribution and the owners of parent breeding stock should be made aware of a puppy's condition. Nutrition and activity probably have some contribution as well.

Surgical Overview:

The goal with surgery is to remove any free flap or fragments, and lightly debride the crater edges to encourage good "bandaid" fibrocartilage to fill in the crater. Ongoing surgical research is looking into re-surfacing the hyaline cartilage with cartilage-bone "plugs" stolen from elsewhere (like a hair transplant in humans). The usefulness of these techniques is not well developed yet, and the outcomes after flap removal and debridement are generally excellent.

The surgical approach can be "open" arthrotomy or laparoscopic arthroscopy. The open approaches vary depending on surgeon preference/experience, location of lesion, need for enhanced joint exploration (if a

wayward flap is suspected). The shoulder can be a challenge to scope and flaps are often large, so the theoretical benefit of minimally invasive arthroscopy is often whittled away with much longer anesthesia times and equivalent sized overall incisions compared to arthrotomy. In my hands, a caudal approach to the shoulder affords a good look and a small but large enough incision to handle flap removal. No tendons or bone insertions are transected, so functional recovery is rapid.

This condition is commonly bilateral; operating both shoulders in one stage is reasonable given the quick return to function. Aggressive pain management and a high level of owner preparedness are essential to successful bilateral treatment.

The **indications & rationale** for surgical treatment are:

- Confirmed shoulder pain on forced flexion
- Radiographic lesion in characteristic caudal humeral head location
- Appropriate age and breed (6-12mo, large/giant breed)
- Absence of exam and radiographic abnormalities supporting a different diagnosis (medial coronoid disease, ununited anconeal process, elbow incongruity, panosteitis)

Other options for treatment (besides surgery) are:

- Benign neglect and time (risk of flap migration or chronic shoulder pain)

Supportive/ancillary options with surgical treatment are:

- Postoperative physical therapy/rehabilitation
- Bilateral, single stage OCD surgery is possible, but requires a well-informed, dedicated owner and advanced planning for a forequarter sling/harness to assist with mobility x 4wks postop

The **perioperative experience** for pet and owner includes:

- Unilateral surgery is much easier for the owners to manage postoperatively than bilateral surgery. A forequarter sling/harness is essential to bilateral surgery.
- All patients are vigorous puppies; activity restrictions will be challenging and may benefit from medicinal assistance.
- A good 6-weeks is needed postop for the in-fill of fibrocartilage to happen smoothly; vigorous activity will continue the mechanical debridement of new fibrocartilage during the healing process.

Expectations for outcome are:

- Return to normal activity following 6wk restricted activities.
- No lifestyle limitations.

Complications that may arise with this procedure are:

- Seroma due to high motion site and challenging joint capsule seal during closure (minor-moderate, common; rarely requiring percutaneous drainage)
- Free flap not identified (minor-moderate, rare; theoretically suggests potential future flap-related problem)

Postoperative **outcomes may be poor** due to the above complications, and/or:

- Progressive development of shoulder DJD (uncommon and/or rarely clinically significant)
- Shoulder joint instability resulting from surgical disruption of support structures during more invasive surgical approaches and poor postop restriction compliance.

What a surgeon needs prior to surgery:

- Physical exam finding of shoulder pain on forced flexion (to confirm which or both leg treatment)
- Affected leg/body part “**marked**” by owner for confirmation (wax “costume makeup” works well)
- Skin near the surgery site **CLEAR of infection** (papules, pustules, crusts, collarettes, etc.)

General considerations and complications for all surgery/anesthesia procedures are:

- *Difficult and/or painful anesthetic recovery (variable; may require additional medications or re-hospitalization)*
- *Incisional infections (rare, minor; usually require oral antibiotics)*
- *Incisional dehiscence (rare, minor or major; may require surgical revision)*
- *Adverse anesthetic event (rare, major; may result in serious impairment or death)*

Proper owner expectations are important to a successful experience and patient outcomes. Please discuss this information with your clients while assisting them with decision-making for **Shoulder OCD**.

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