

SHOULDER LUXATION:**A whopping trauma or a tricky little joint****Synopsis-- Anatomy and the Disease**

The shoulder is the up and coming star of veterinary orthopedics of late. More and more we are seeing sub-catastrophic injuries that I label “Shoulder Instability Complex”; the veritable black box of joint injury! But sitting in the back row is the relatively uncommon shoulder luxation, both traumatic and congenital/developmental. All of these shoulder joint issues stem from soft tissue injuries to the support structures we breezed over in freshman anatomy thinking the shoulder takes care of itself—joint capsule, glenohumeral ligaments (medial and lateral), glenoid labrum and several tendons (biceps, supraspinatus, infraspinatus, teres minor and subscapularis.) Prior to the diagnostic benefits of arthroscopy, the biceps tendon was our chief culprit; data developed over the past decade implicates the glenohumeral ligaments and joint capsule just as frequently, if not more so.

In the case of shoulder luxation, trauma can send the humeral head laterally or medially (rarely cranially and caudally). Congenital/developmental luxations tend to be medial in toy and small breed dogs, notably the poodle and sheltie, but lhasa and shih tzu are in there too. The boney anatomy of the early age onset cases may be quite under developed on radiographs.

These congenital/developmental patients can be challenging in their diagnosis with very intermittent signs highlighting their presentation. “Jumped down, cried out, then insto-presto all better” and nothing on exam. It requires a bit of shoulder manipulation (put your squeamishness aside) and “break open” the medial shoulder to appreciate the laxity. Many dogs don’t even mind the subluxation on exam!

Surgical Overview:

Tying these complete shoulder luxations back down is a tricky business; the shoulder joint is well hidden from the outside world! A bilateral approach to the joint is needed, so incisions are either double or large. Tunnels are drilled in the glenoid and the proximal humeral for passage of a weave of braided ligament prosthesis mimicking the glenohumeral ligaments. Thereafter, the medial shoulder correction patient is immobilized in a Velpau (bandage materials or off-the-shelf product) for two weeks. Lateral luxations are immobilized with a spica splint. An additional six weeks is spent in an off-the-shelf shoulder brace until we can expect maturing fibrosis to be present.

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

- Acute traumatic shoulder luxation w/ marked instability following closed reduction attempts. ***Earlier surgical intervention is more likely to restore normal structures and prevent joint damage predisposing to DJD.*
- Repeated episodes of non-traumatic medial shoulder luxation, non-responsive to conservative therapy, support and lifestyle modifications. ***Chronic medial luxation is a challenging condition that requires multimodal therapy for resolution; aggressive conservative therapies should be employed prior to surgery, but lengthy delay of surgery is not ideal.*

Other options for treatment (besides surgery) are:

- *Acute traumatic luxations* with enough inherent stability post-reduction can be maintained in a Velpau sling (medial lux) or spica splint (lateral lux) for two weeks, and then transition to weight bearing support with off-the-shelf products for six weeks.

- *Chronic medial luxations* can be accommodated with external support and lifestyle modifications-- strict weight loss to lean-ideal; removal of jumping and stair opportunities; shoulder brace; and professional PT.

Supportive/ancillary options with surgical treatment are:

- *Professional physical therapy* is strongly recommended during the convalescent period for optimal progress.

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

- Preoperatively, the shoulder can be supported or protected with a Velpeau, if the injury is traumatic and acute.
- Preplanning the postoperative gear can be helpful; meeting with a professional physical therapist for shoulder brace fitting and treatment plan might be more comfortable preop.
- Postoperatively, the patient and client should expect a non-weight bearing recovery for 2wks minimum. Thereafter, the brace must be worn 24-7 to protect the surgical repair.
- Physical therapy visits can start when the owner feels they need assistance with postoperative treatment plan. Passive ROM out of the Velpeau can begin as tolerated in the first week after surgery.
- The course of treatment will be 2-4months, depending on patient response and needs.

Expectations for outcome are:

- A stable shoulder w/ varying degrees of loss of ROM based on chronicity, tissue injury and physical therapy plan.
- Improvements in function and comfort over 6 month period.

Complications that may arise with this procedure are:

- Superficial or deep **surgical infection** (rare, requiring long course Abx),
- **Reluxation** (rare and serious, requiring additional surgery)
- **Implant infection** (rare and significant, requiring long course Abx and surgical implant removal),

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

- Small/toy breed dogs with learned 3-legged function may be resistant to re-learning the use of the injured limb.

What a surgeon needs prior to surgery:

- 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.) If urgent surgery, owner must be alerted to *increased risk* of incisional, deep and/or implant infections.

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 Luxation**.

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