



Medial Shoulder Instability (MSI)

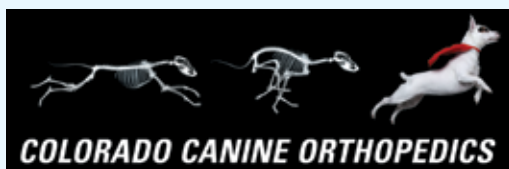
Drs. Scot Swainson and Michael Bauer • Diplomates, American College of Veterinary Surgeons

Canine foreleg lameness is often a surprisingly frustrating diagnostic challenge even amongst board certified veterinary surgeons such as the doctors at Colorado Canine Orthopedics (CCO). In years past, unless the lameness etiology was something obvious, (e.g., trauma or neoplasia), common diagnoses included carpal arthritis, elbow arthritis/dysplasia, and some form of soft tissue injury. If the shoulder was thought to be the lameness origin, bicipital tenosynovitis was a typical diagnosis given. But overall, the shoulder has not been pursued as aggressively as other aspects of the front limb for the cause of lameness. Compared to our human counterparts, veterinary surgeons are behind the curve regarding shoulder disorders due to the commonality of rotator cuff problems. Dogs do not have a rotator cuff as we think of in people, but they do have active and passive stabilizers of the shoulder. Of these, the medial collateral ligament (MCL) and the subscapularis muscle are critical components for medial stability of the shoulder joint.

Most cases of medial shoulder instability (MSI) involve outdoorsy, active, medium to large breed dogs. Interestingly, it is not uncommon for owners to describe episodes of severe lameness with later periods of mild lameness. Rest and NSAIDs may improve the lameness somewhat, but usually once the dog becomes active again the lameness returns and progresses.

Reviewing the history and watching the patient walk and trot is very important during the initial work-up. Owners will often recognize the more normal leg as the “bad” leg given that it is often easier to visualize the head drop when the good foreleg is weighted. Therefore, we recommend to always have the owner walk/trot the dog so as to confirm the forelimb in question. The next step is to palpate for muscle symmetry while the dog is still standing and compare the front limbs. Dogs with MSI will commonly have shoulder regional atrophy, causing the scapula and the scapular spine/acromium process to become more prominent on the affected side. While standing it is also good to evaluate for cervical pain, forelimb conscious proprioceptive deficits, and brachial plexus pain in order to rule-out possible neurologic/root signature causes for forelimb lameness.

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Continued... **Medial Shoulder Instability (MSI)**

A thorough orthopedic exam, starting from the paw and progressing proximally should be performed. Once the shoulder is reached, there are a few important points to evaluate for MSI. Dogs with MSI exhibit discomfort and/or pain during shoulder hyperextension (not all dogs but most).

In dogs with MSI, pain can also be elicited during abduction of the shoulder joint. In addition to evaluating for pain during abduction, this “stress test” is critical to identify medial instability. By performing this test to both front limbs and obtaining a comparison, it is easier to make a tentative diagnosis of MSI.

Radiographs are commonly non-diagnostic or may only confirm shoulder arthritis in most cases of MSI. Shoulder radiographs are important to rule out other problems such as trauma and neoplasia. Shoulder MRI and /or CT scan is useful for evaluating the shoulder region, especially if there is ever concern for other causes of lameness such as a brachial plexus tumor. That being said, the shoulder joint can be difficult to scan and the scan interpretation can be highly dependent on the radiologists’ experience and comfort level with the shoulder joint. Thus, a shoulder scan can have false negatives.

Shoulder arthroscopy has become not just a surgical repair tool, but an important diagnostic tool for dogs with MSI. Arthroscopy allows visualization and evaluation of the important shoulder joint stabilizers (fig. 1). Arthroscopy is critical in obtaining the information needed for the surgeon and owner to develop an appropriate treatment plan.

Treatment of MSI in dogs and certainly rotator cuff injuries in people has been quite controversial and is constantly evolving. However, there is general agreement that cases with partially torn ligaments are best treated with conservative, non-surgical management while cases with complete tears probably benefit from surgical reconstruction.

Following a thorough arthroscopic evaluation, conservative management includes intra-articular steroid injections, use of extracorporeal shock wave therapy (ESWT) (fig. 2) and shoulder immobilization. A shock wave is a very strong pressure wave in any elastic medium (such as air, water, or a solid), produced by supersonic craft, explosions, lightning, or other extreme phenomena that create sudden, huge changes in pressure. Shock waves are characterized by an extremely rapid rise time and a slight negative pressure dip causing cavitation. The mechanical stresses on the cells cause a biological response involving the upregulation of specific proteins associated with a localized healing response, a reduction in inflammation, neovascularization and tissue proliferation. Following shock wave therapy, elbow hobbles (fig. 3) should be used during recovery. Ultimately, dogs undergoing conservative treatment should be rested for at least 2 months before slowly returning to normal.

Surgical treatment is indicated in complete tears of the MCL (fig. 4). Treatment involves arthroscopically assisted synthetic ligament replacement using similar materials and techniques employed in human rotator cuff injury and repair. The material currently used at CCO is fibertape also known as tightrope manufactured by Arthrex®. At CCO we have performed numerous surgical stabilizations including bilateral stabilization in a Colorado Springs Police dog. Shock wave therapy and elbow hobbles are used concurrently with surgical stabilization in most cases.

Overall, the prognosis in most cases of MSI is good. The critical issue in ensuring a good recovery is having a committed owner that understands the importance of strict rest and rehabilitation for as long as 3 to 4 months. If you have any questions about shoulder lameness or shoulder arthroscopy don’t hesitate to call Drs. Bauer, Riecks, or Swainson at Colorado Canine Orthopedics.

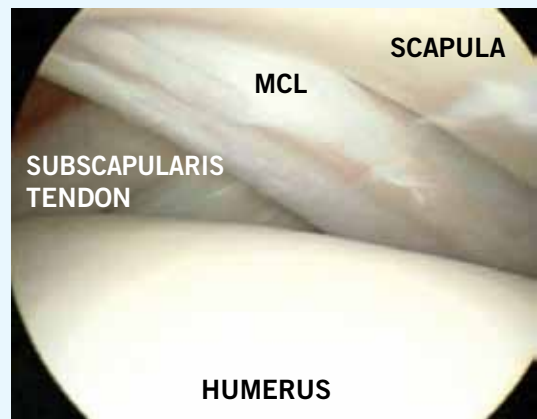


Figure 1 • Normal Shoulder



Figure 2 • Shockwave Device



Figure 3 • Medial Shoulder Hobble Support

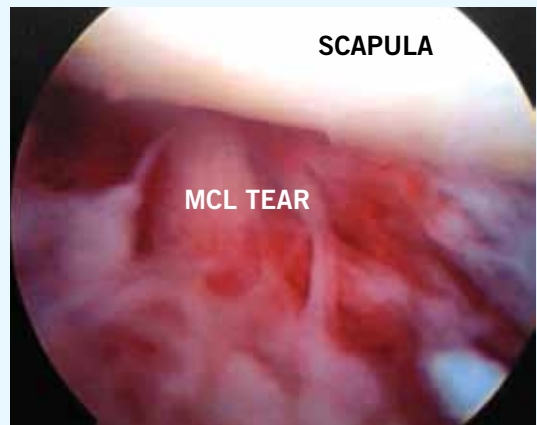


Figure 4 • Ruptured Medial Collateral Ligament