

Flexor Carpi Ulnaris Tendinopathy in the Agility Dog

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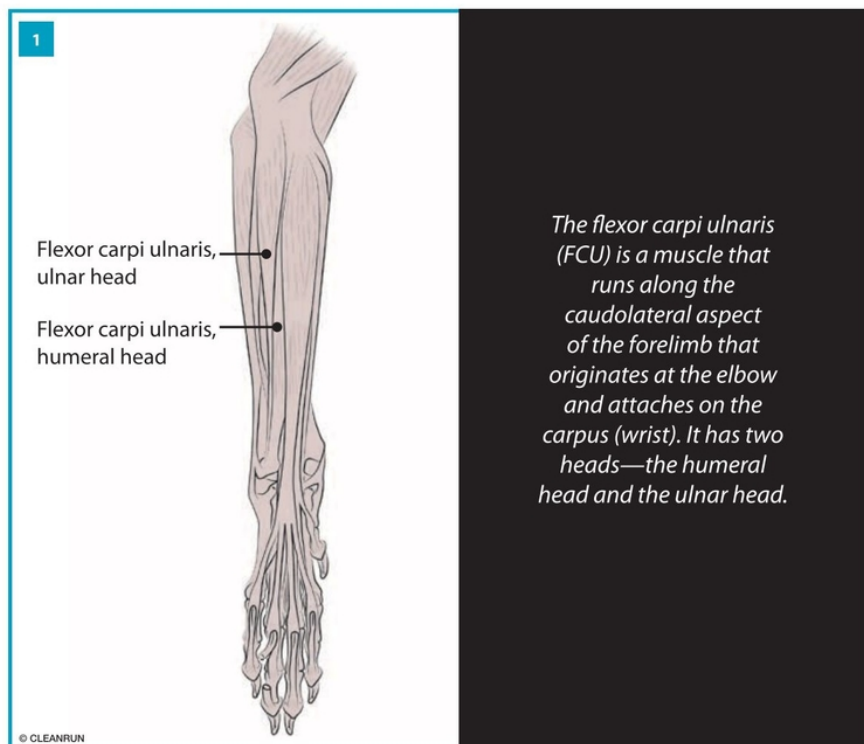
Case:

Shazam is a 3-year-old male Border Collie who presented to VOSM for a left forelimb lameness and history of bilateral carpus (wrist) discomfort. At presentation Shazam was wearing carpal support wraps bilaterally and had a mildly shortened stride in the left forelimb. Once the support wraps were removed, no signs of lameness or gait abnormality were noted. On palpation no discomfort was noted on flexion or extension of the left carpus. Very mild swelling and effusion was noted in the left carpus. There were no signs of collateral instability or complete breakdown in the palmar supporting structures. During the stance phase, Shazam showed no evidence of carpal hyperextension. The left elbow and shoulder palpated within normal limits. Radiographs of the right and left carpi were obtained and revealed no significant pathology. A diagnostic ultrasound of the carpi was performed and showed inflammation of the deep portion of the left flexor carpi ulnaris. Findings were consistent with a grade I-II/V left flexor carpi ulnaris strain.

Introduction

The flexor carpi ulnaris (FCU) is a muscle that runs along the caudolateral aspect of the forelimb. It originates at the elbow and attaches on the carpus (wrist).

See **Figure 1**. The FCU functions to flex the carpus with abduction. It is thought that repetitive stress and strains on the tissue lead to a weakened tendon. Injuries can then occur when excessive load is applied to the tendon and often occur at the FCU on the wrist.



Diagnosis

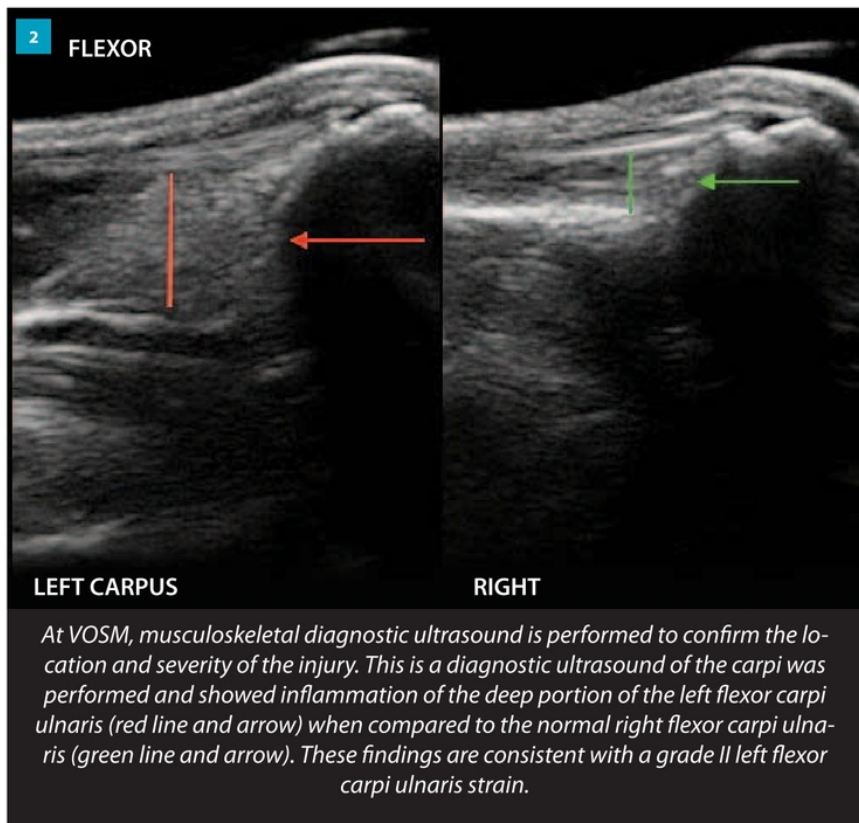
Common clinical signs include a mild to moderate weight-bearing lameness and swelling caudal and proximal to the carpus. Radiographs are often performed to rule out concurrent fractures, and often show soft tissue thickening on the

palmar aspect of the carpus. At VOSM, musculoskeletal diagnostic ultrasound is performed to confirm the location and severity of the injury. See **Figure 2**. Depending on the severity of the injury, treatment recommendations are made.

Treatment

For mild (Grade I) strains, rest, non-steroidal anti-inflammatory medications, and rehabilitation therapy with low-level laser therapy or therapeutic ultrasound for the FCU tendon with or without a support wrap is indicated. More moderate (Grade II) injuries require the aforementioned therapies and regenerative medicine therapy (often platelet rich plasma with or without stem cell therapy). In the case of full tears or avulsion (Grade III) injuries, surgical reconstruction is recommended.

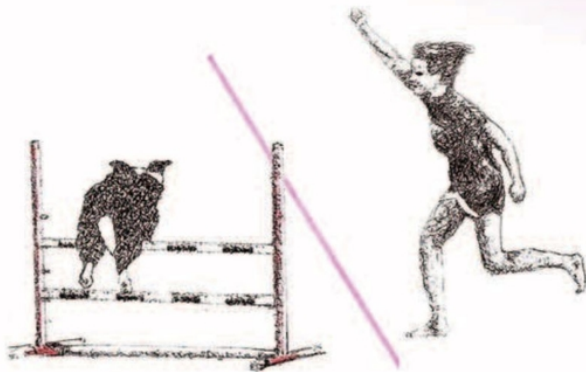
Multiple surgical repair techniques are available. The surgery performed is often dependent upon the degree of injury and structures injured, as seen on diagnostic ultrasound and in-



At VOSM, musculoskeletal diagnostic ultrasound is performed to confirm the location and severity of the injury. This is a diagnostic ultrasound of the carpi was performed and showed inflammation of the deep portion of the left flexor carpi ulnaris (red line and arrow) when compared to the normal right flexor carpi ulnaris (green line and arrow). These findings are consistent with a grade II left flexor carpi ulnaris strain.

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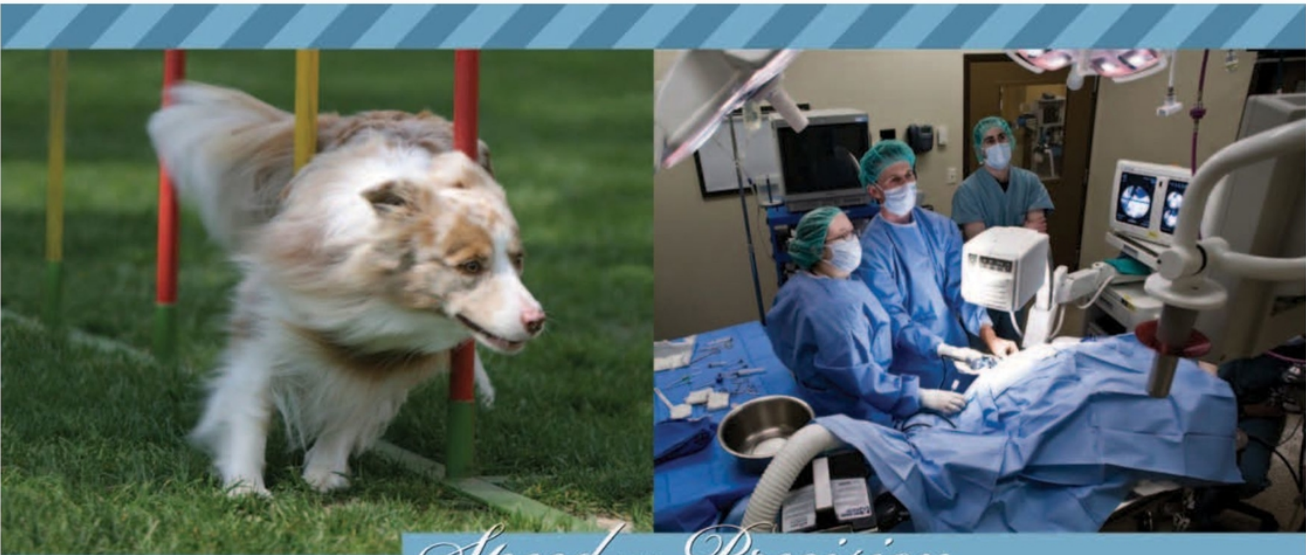


This is an example of a custom hinged carpal brace that can be dynamized over the recovery period to gradually allow for more range of motion at the carpus and engagement of the FCU tendon.

tra-operatively. Following surgery, healing time is approximately 16 weeks. During this time, patients are placed in a splinted bandage for the first six weeks, and then transitioned to a custom hinged brace that can be dynamized over the recovery period to gradually allow for more range of motion at the carpus and engagement of the FCU tendon. See **Figure 3**. Rehabilitation therapy and augmentation with stem cell and PRP therapy is strongly encouraged to further support healing and regeneration of injured tissues.

Regenerative medicine therapy has been used to help treat a number of soft tissue injuries in both human and veterinary medicine. Regenerative medicine therapy at VOSM often consists of platelet rich plasma (PRP) and stem cell combination therapy, as when combined, PRP and stem cells have been shown to regenerate tissues, increase blood supply, and break down scar tissue formation, replacing it with regenerated tissue. With FCU tendon injuries, regenerative medicine is often used either in conjunction with a dedicated rehabilitation therapy program and/or to augment surgical repair of the FCU tendon. Ultrasound guidance is used to ensure accuracy of the injection since both PRP and stem cells are most effective when administered directly into the site of injury. The most common side effect is mild discomfort associated with the injection, which typically resolves within 12 to 24 hours of the injection.

Typically, a dedicated 16-week rehabilitation therapy program has been used to either treat mild FCU tendon injuries, or in conjunction with surgical repair and/or regenerative medicine therapy for the more severe FCU tendon injuries. Rehabilitation therapy helps to speed healing by decreasing inflammation and swelling, building muscle mass, increasing range of motion, and improving overall comfort. Therapy sessions often include manual rehabilitation therapy, standard isometric exercises, gentle



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