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Bookshelver's Tendinopathy in the Time of COVID-19 – Flexor Carpi Ulnaris Tendinopathy in a Librarian: A Case report

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Abstract

A 55-year-old female librarian presented with flexor carpi ulnaris (FCU) tendinopathy, possibly due to increased book shelving during the pandemic. Eccentric exercises helped somewhat, and a saline and anesthetic injection along the length of the (FCU) completely resolved her symptoms in the short term. FCU tendinopathy is rarely reported in the literature, with occupationally related FCU tendinopathy and cases of normal radiographs being even rarer. Furthermore, to our knowledge, this is the first published case of FCU tendinopathy treated with normal saline injection.

Keywords: flexor carpi ulnaris tendinopathy, tendinitis, tendinosis, normal saline injection, eccentric exercises

Case History

A 55-year-old woman presented with pain along the volar aspect of the right ulna of many months duration. A librarian, she attributed this to a change in her work during the COVID-19 pandemic, where she was suddenly extensively shelving and picking up books. She was initially treated by physical therapy with eccentric exercises for lateral epicondylitis, which had failed. On our examination, there was tenderness along the volar border of the ulna with pain on resisted flexion of the flexor carpi ulnaris and no other forearm muscles **(Figure 1)**. An X-ray was ordered which showed no ulnar lesions. The patient was given an injection of bupivacaine 0.25 % with normal saline along the length of the flexor carpi ulnaris muscle and prescribed isometric and eccentric exercises along with ergonomic advice. At 1 month's follow-up, the patient was completely free of symptoms.

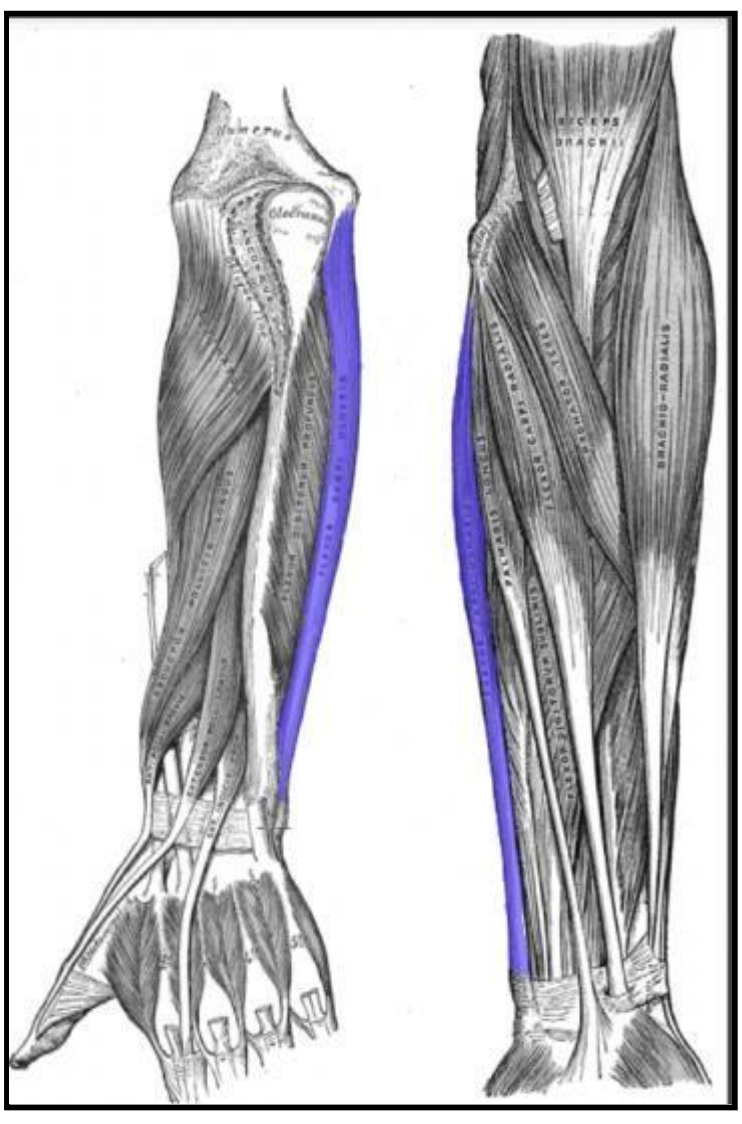

Figure 1: Diagram of FCU**.** In: Gray, H. *Anatomy of the Human Body*. 20th ed. Lea & Febiger; 1918: plates 414 and 419. Derived from Wikimedia Commons.

Discussion

FCU tendinopathy is rare and this case due to overuse with noimaging finding is even rarer in the literature. A PubMed search wasperformed with ((flexor carpi ulnaris[tiab]) AND ((tendinitis[MeSH Terms]) OR (tendonitis[MeSH Terms]) OR (tendinosis[MeSH Terms]) OR (tendonosis[MeSH Terms]) OR (tendinopathy[MeSH Terms]) OR (tendonopathy[MeSH Terms])) to evaluate for other cases reports of FCU tendinopathy. A Google scholar search was alsoperformed with "flexor carpi ulnaris (tendinopathy OR tendonopathyOR tendinitis OR tendonitis OR tendinosis OR tendinosis)." We found 31 articles, with only 8 case reports presenting a total of 12 totalcases dating back to 1951.

The initial presentation of FCU tendinopathy is variable. The patient will usually have discomfort with wrist flexion and tenderness of the medial forearm worse along the volar aspect of the ulnar styloid or pisiform bone, where the FCU inserts. Patients may also have edema, erythema, and warmth, which can lead to misdiagnosis as an ulnar fracture, arthritis, gout, or infection. **[1-5]** The cause of FCU tendinopathy is believed to be related to major trauma, repetitive microtrauma, or excessive use **[1,2,4,5]** We found only one other case report in the literature on FCU tendinopathy that was occupationally related. Edmondson and Skyrme 2005 report bilateral FCU tendonitis in a porter whose symptoms resolved only after a career change. Interestingly, that patient had a tenderness that was proximal to the pisiform and ulnar styloid – where most cases present – just like our patient.

While most cases of FCU tendinopathy reported in the literature have calcification on x-rays – usually near the pisiform where the FCU tendon inserts **[1-3]** – this woman did not. Interestingly, our anecdotal observations suggest that most tendinopathies are not calcific in nature. These studies may thus represent a publication bias; that is, cases of tendinopathy with calcification are more likely to be reported than those without calcification. Ultrasound, MRI, and CT scans have all been used in the diagnosis of tendinopathy of the wrist and hand, **[3,6]** but a literature review by Docking et al 2015 concluded that imaging of tendinopathy does not correlate directly to patient symptoms.**[7]** Patients with symptoms can have normal imaging findings, and asymptomatic patients can have abnormal images. Relating this to FCU tendinopathy, the case report of bilateral FCU tendonitis in the porter reported that there continued to be calcifications of the patient's right FCU tendon on radiographs 2 years after initial presentation, despite resolution of his symptoms. **[5]** On the other hand, Budoff et al 2005 describe five patients with FCU tendinopathy severe enough to undergo surgical debridement after conservative treatment failed, all of whom initially had normal radiographs. **[4]** This highlights the importance of the physical exam rather than imaging in diagnosing FCU tendinopathy. Much like the standard for diagnosis of lateral epicondylitis is not the presence of calcification on imagining but the examination, **[8]** so too should that be the standard for FCU tendinopathy and other tendinopathies of the forearm.

FCU tendinopathy is usually treated conservatively – with rest, NSAIDs, activity modification, use of splints, eccentric exercises, and steroid injections. **[1-4]** This is the first reported case – to our knowledge – of injection of normal saline rather than corticosteroids for the treatment of FCU tendinopathy. Normal saline injections have been shown to work in the treatment of other tendinopathies, such as Achilles or patellar tendinopathies. The pathophysiology of this is not fully understood, but proposed mechanisms include breaking up of fibrous scar tissue, flushing out of inflammatory chemicals, and occlusion or blockage of neo-vessels and their accompanying nerve supply, thereby decreasing pain. **[9-10]** In our patient, administration of normal saline resolved her symptoms completely at a 1-month follow-up. We cannot exclude the possibility that the resolution of her symptoms is due to placebo effect. More research is needed to determine the efficacy and duration of relief from normal saline injections for FCU tendinopathy.

Conclusion

This rare case of FCU tendinopathy is even more uncommon as we found only one other case due to overuse, and almost all other cases had radiological findings. Pandemic-driven change in work activity created undue overuse of this uncommonly injured muscle. Our findings also highlight the importance of the physical exam in the diagnosis of FCU tendinopathy and suggest that normal saline injections may be of benefit in the short term, although more research is needed to exclude a placebo effect and determine the duration of its effects.

Abbreviations: FCU (flexor carpi ulnaris)

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