Tenosynovitis Caused by Texting: An Emerging Disease

John V. Ashurst, OMS IV
Domenic A. Turco, OMS IV
Brian E. Lieb, DO

De Quervain tenosynovitis is characterized by pain that overlies the radial aspect of the wrist and that is aggravated by ulnar deviation of the hand. The most common cause of de Quervain tenosynovitis is overuse of the thumb musculature. The authors report a case of bilateral de Quervain tenosynovitis observed in a woman aged 48 years at a rural outpatient primary care office. The condition was induced by the patient’s excessive use of the text messaging feature on her cellular telephone. Treatment, including naproxen, cock-up wrist splints, and limitation of texting, resulted in complete recovery of the patient. The authors urge physicians to be aware of the potential association between a patient’s tenosynovitis symptoms and excessive texting.


Since 1895, painful stenosing of the tendon sheath of the abductor pollicis longus and extensor pollicis brevis tendons at the radial styloid process, beneath the flexor retinaculum, has been described by the name de Quervain disease, or de Quervain tenosynovitis.

1-4 Patients with this condition typically report painful abduction of the thumb, as well as a decrease in grip strength. 1-4 Characteristics of de Quervain tenosynovitis are shown in Figure 1.

Figure 1

De Quervain tenosynovitis is often associated with rheumatoid arthritis and pregnancy (extending to several months postpartum). It is also an overuse injury associated with fly fishing, golfing, piano playing, and carrying a child in the arms for prolonged periods. 1-5

We report a case of bilateral de Quervain tenosynovitis in which diagnosis associated the patient’s condition with excessive use of the text messaging feature on a cellular telephone. Prompt treatment after diagnosis led to complete recovery of the patient.

From Lake Erie College of Osteopathic Medicine in Erie, Pennsylvania (Student Doctors Ashurst and Turco) and the Department of Family Medicine at Cone-

Financial Disclosures: None reported.

Address correspondence to John V. Ashurst, OMS IV, 721 Oak St, Northern Cambria, PA 15714-1438.

E-mail: john.ashurst@fecom.edu.

Submitted August 26, 2009; revision received November 11, 2009; accepted December 3, 2009.

Report of Case

A woman aged 48 years presented to her primary care physician’s office in August 2009 with a several-day history of weakness, paresthesia, and pain bilaterally in her hands. She reported that the pain seemed to develop over a period of a few days and was currently a dull ache that could not be localized to any particular area. She stated that the pain seemed to worsen while handling objects but was not otherwise related to activity. She noted that the paresthesia appeared to be diffuse in nature and not localized to any one finger. She reported no trauma to the affected area, either recently or in her distant past, and she noted no chronic repetitive motions.

The patient’s medical history and family history were both significant for hypothyroidism and hypercholesterolemia. Medications used by the patient at the time of presentation were Synthroid (levothyroxine sodium) and simvastatin.

Physical examination revealed the patient to be well-nourished with no signs of physical deformity, trauma, or acute distress. Her vital signs included a body temperature of 97.3°F (36.3°C), a blood pressure of 120/84 mm Hg, a pulse of 64 beats per minute, and a respiratory rate of 20 breaths per minute. Results of cardiovascular and pulmonary examinations were within normal limits and without any pertinent findings. Musculoskeletal examination revealed diffusely tender forearms, bilaterally, with 5/5 muscle strength in flexion and extension of the wrist, in grip, in adduction and abduction of the digits, and in opposition of the digits. Radial pulses were measured at 2/4 bilaterally with normal character, rhythm, and rate.

No paresthesia was noted in any dermatome. Ranges of motion were within normal limits in the wrist, elbow, and digits. De Quervain test yielded positive results bilaterally. Both Phalen test and Tinel test had negative results bilaterally.

Physical examination and medical history findings for the patient are shown in Figure 2.

Laboratory tests at a hospital several days before presentation revealed a thyroid-stimulating hormone level of 1.07 mIU per milliliter (normal, 0.5-3 mIU/mL) and a fasting plasma glucose level of 85 mg per deciliter (normal, <110 mg/dL). Previous chemistry panel results showed the following levels: chloride, 109 mEq per liter (normal, 98-107 mEq/L); sodium, 143 mEq/L (normal, 136-145 mEq/L); and potassium, 4.4 mEq/L (normal, 3.5-5.3 mEq/L).

Further history of the patient was obtained from her husband, who revealed that the patient had received a new cellular
A diagnosis of de Quervain tenosynovitis caused by excessive texting was made. The patient was given a prescription for naproxen, a nonsteroidal anti-inflammatory drug, to be taken with food at a dosage of 500 mg twice daily. She was also advised to wear cock-up wrist splints at night and to perform only minimal texting with her cell phone during the next month. Finally, she was told that if the pain persisted, a referral for corticosteroid injections in the wrist would be required.

Three weeks after initiation of treatment, the patient returned to the office with no symptoms. She reported that she had minimized her texting since the previous visit. Repeat physical examination revealed no paresthesia in any dermatome—nor any decreased ranges of motion. De Quervain test results were negative. It was determined at this time that the patient had recovered from her episode of tenosynovitis.

**Comment**

A survey published in 2004 of more than 6000 adults in England found that about 52% of survey respondents had some type of upper extremity pain. When that percentage was broken down into specific disorders of the upper extremity, de Quervain tenosynovitis was found to be uncommon among survey participants, appearing in only 0.5% of men and 1.3% of women.

In de Quervain tenosynovitis, there is inflammation of the fibrous sheath surrounding the tendons of the abductor pollicis longus and extensor pollicis brevis (Figure 1). Although the entire tendon sheath is usually thickened, the greatest thickness is typically found overlying the radial styloid process. At that point, the tendon sheath may be 3 to 4 times the normal size. Microscopically, features of chronic inflammation and fibrous and vascular tissue degeneration can be seen to vary with the degree of pain and the duration and severity of symptoms.

Tenosynovitis can be mistaken for tendonosis, a condition characterized by the degeneration of collagen fibers, the presence of dense populations of fibroblasts, and vascular hyperplasia with no inflammatory response. This constellation of findings, which has been coined angiofibroblastic tendonosis, is pathognomonic for tendonosis. The diagnosis of tendonosis is usually made postmortem.

**Diagnosis**

By contrast, the diagnosis of de Quervain tenosynovitis is typically based on both the medical history obtained from the patient and the results of the patient’s physical examination. Most patients with de Quervain tenosynovitis will report pain in the wrist when using the thumb, dropping objects because of pain, a weak hand grip, or a combination of these symptoms. Physical examination typically reveals pain radiating from the radial styloid process into the thumb and forearm. Erythema and edema are typically present in the region of the tendon sheath, with pain during both active and passive motion of the thumb and wrist. Results of the Finkelstein test and de Quervain test are positive and pathognomonic for de Quervain tenosynovitis.

Although a thorough medical history and physical examination are key to diagnosing de Quervain tenosynovitis, recent
Corticosteroid injections have been shown to be effective in treating de Quervain tenosynovitis. A longitudinal ultrasound scan of the symptomatic tendon will show dislocation within the tendon sheath and a surrounding diffuse fluid causing circumferential hypoechochogenicity. A transverse ultrasonographic scan will show a double-target pattern of the affected tendon.

Other research indicates that magnetic resonance imaging of patients with de Quervain tenosynovitis will reveal soft-tissue enlargement in the region of the first compartment of the wrist, thickening of the tendon sheath, and decreased signal intensity on both T1-weighted and T2-weighted scans.

Treatment

Traditionally, most authors have recommended that surgery be considered the treatment of choice for patients with de Quervain tenosynovitis, and they have viewed conservative management as capable of lessening symptoms for only a brief time. However, recent research has shown that conservative management with corticosteroid injection can lead to symptom improvement in as little as 2 weeks. According to several studies, more than 80% of patients injected with corticosteroids showed symptom improvement within 2 weeks. In such cases, 0.5 cc of each corticosteroid and 1% plain lidocaine hydrochloride were injected directly into the first proximal compartment. Another conservative treatment option, involving both corticosteroid injection and splinting of the affected wrist, has shown a success rate of greater than 70%.

Additional research has indicated that success of corticosteroid injection in patients with de Quervain tenosynovitis may be enhanced with the use of ultrasonographic imaging to guide accurate placement of the injection. Zingas et al reported that 63% of patients with de Quervain tenosynovitis who had intralesional injection of steroids showed symptom improvement, compared with 0% of patients who had extraseheath injection. Although the study by Zingas et al suggested an association between injection accuracy and treatment outcome, the results—because of a relatively small sample size—did not provide definitive proof of a causal relationship.

Although most research has been focused on corticosteroid injections, simpler treatment measures, such as the use of nonsteroidal anti-inflammatory drugs and splinting, should not be overlooked. In our present case, the patient was experiencing minor symptoms, and the least invasive treatment method was tried first. If the first round of treatment had not been effective, however, corticosteroid injection was planned at follow up because of its high success rate.

Conclusion

In the present case, bilateral de Quervain tenosynovitis was caused by excessive text messaging by the patient on her cellular telephone. To our knowledge, no cases of tenosynovitis have been previously attributed to the overuse of texting.

Based on our experience, we believe that it is important for physicians to remain alert to the potential association between text messaging and de Quervain tenosynovitis when treating patients with a history of wrist pain. For patients in whom treatment with nonsteroidal anti-inflammatory drugs, wrist splinting, or corticosteroid injection fails, surgery can be considered as a reasonable and safe treatment option.

References