

Chang et al.

Snapping Thumb and Superficial Radial Nerve Entrapment in De Quervain Disease: Ultrasound Imaging/Guidance Revisited

Dear Editor:

A 73-year-old female described right lateral wrist pain for the last 6 months which had not responded effectively to physical therapy. She also felt a snapping sensation when she intended to extend her affected thumb. Under the impression of recalcitrant de Quervain disease, she was referred for an ultrasound (US) examination. The US images disclosed accessory tendons and a vertical septum inside the first dorsal extensor compartment (Figure 1A). Compared with the asymptomatic side, the tendons at the painful side appeared swollen, wrapped by a hyper-vascular retinaculum (not shown). The dynamic US

images clearly identified a snapping phenomenon when the extensor pollicis brevis (EPB) tendon glided over the adjacent abductor pollicis longus (APL) tendon (Video). Corticosteroid injection was performed into each sub-compartment under US guidance (Figure 1B, Video). Two weeks after injection, she had remarkable relief in her thumb pain and absence of thumb snapping. Repeat US imaging showed significant decrease in the sizes of affected tendons (Figure 1C). However, she noticed a persistent sensation of tingling over her right radial wrist, which did not improve following corticosteroid injection. Based on the suspicion of superficial radial nerve entrapment due to long-standing de

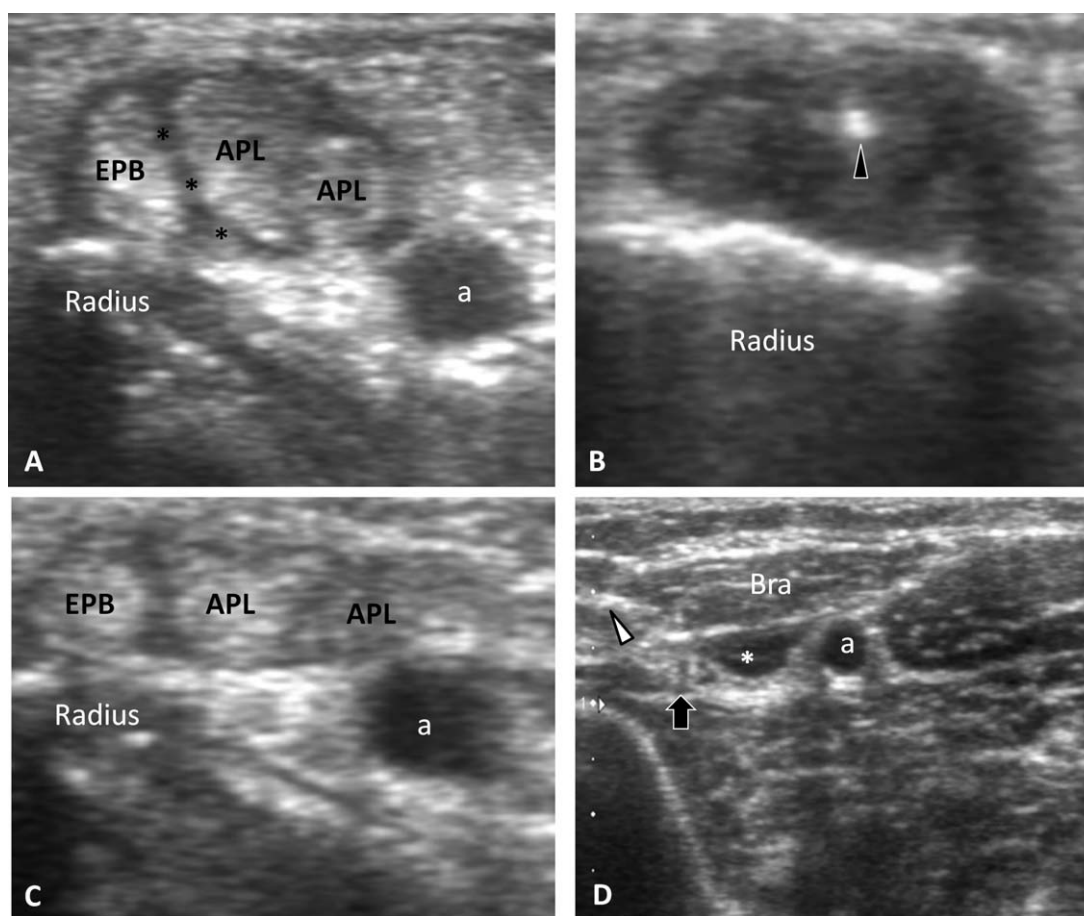


Figure 1 (A) Multiple tendons with a vertical septum (black asterisks) were noticed in the first dorsal extensor compartment. (B) US-guided corticosteroid injection (black arrowhead, needle) was introduced into the subcompartment containing two APL tendons. (C) Corticosteroid injection successfully reduced the tendon swelling. (D) US-guided hydrodissection (white arrowhead, needle) with 5% dextrose (white asterisk) was performed for the superficial radial nerve (arrow). APL = abductor pollicis longus; EPB = Extensor pollicis brevis; a = radial artery; Bra = brachioradialis.

Quervain disease, US-guided hydrodissection with 2 mL of dextrose 5% in saline was performed near the distal superficial radial nerve (Figure 1D, Video). The paresthesia was diminished after two sessions of treatment.

Anatomic variations such as intracompartmental septum and multiple tendons in the first compartment, leading to increased friction between tendons, are predisposing factors for de Quervain disease [1]. The presence of more than one APL tendon is the most common condition in case of accessory tendons. Dynamic movements (e.g., extension and abduction of the thumb) help to differentiate between APL and EPB tendons. Precise injection of corticosteroid into each subcompartment under US guidance was proven to successfully reduce tendon swelling and relieve the snapping phenomenon.

The superficial radial nerve branches off from the radial nerve at the proximal forearm and runs beneath the brachioradialis muscle. The nerve pierces through the antebrachial fascia at the distal forearm and then courses above the APL and EPB tendons [2]. In our case, long-lasting de Quervain disease caused distention of the first dorsal extensor compartment and probably led to overstretching of the nerve. Perineural hydrodissection with 5% dextrose is a safe and presumptively effective approach for peripheral nerve entrapment syndrome [3]. Under US guidance, the injectate is able to circulate around the target nerve and to relieve adhesion or compression from the surrounding tissues. The present case highlights that superficial radial nerve entrapment may accompany chronic de Quervain disease, which can be resolved by US-guided corticosteroid injection into the affected compartment followed by perineural dextrose hydrodissection.

KE-Vin Chang, MD, PhD,*
Chen-Yu Hung, MD[†] and
Levent Özçakar, MD[‡]

*Department of Physical Medicine and Rehabilitation,
National Taiwan University Hospital, BeiHu Branch,
Taipei, Taiwan

[†]Department of Physical Medicine and Rehabilitation,
National Taiwan University Hospital, Chu-Tung Branch,
Hsinchu, Taiwan

[‡]Department of Physical and Rehabilitation Medicine,
Hacettepe University Medical School, Ankara, Turkey

Disclosure statement: The authors have no funding, financial benefits, or previous presentation of this manuscript to disclose.

References

- 1 Chang KV, Hung CY, Ozcakar L. Ultrasound imaging for precise diagnosis and injection of isolated extensor pollicis brevis tenosynovitis: It is not always a simple de Quervain disease. *Am J Phys Med Rehabil* 2015;94:255.
- 2 Wu CH, Chang KV, Ozcakar L, et al. Sonographic tracking of the upper limb peripheral nerves: A pictorial essay and video demonstration. *Am J Phys Med Rehabil* 2015.
- 3 Dufour E, Donat N, Jaziri S, et al. Ultrasound-guided perineural circumferential median nerve block with and without prior dextrose 5% hydrodissection: A prospective randomized double-blinded noninferiority trial. *Anesth Analg* 2012;115:728–33.