Thumbs down: testing anatomy in the ED

CLINICAL INTRODUCTION
A 58-year-old woman presented to the emergency department with inability to use her right thumb after attempting to tear open the packaging of a dishwasher tablet with her hands. There was no other history of trauma with the loss of function in her thumb occurring suddenly at the time described. She had a history of rheumatoid arthritis. On examination, her thumb was dropped as in the image below. She was able to abduct, adduct, oppose and flex but was unable to extend her thumb. Her hand was neurovascually intact. Figure 1 shows her hand appearance on thumb extension.

QUESTION
What is the most likely diagnosis?
A. De Quervain’s tenosynovitis.
B. Extensor pollicis longus (EPL) rupture.
C. Posterior interosseous nerve (PIN) injury.
D. Adductor pollicis longus (APL) rupture.

For answer see page 238
**IMAGE CHALLENGE**

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*For question see page 224*

**ANSWER:** B

Extensor pollicis longus (EPL) rupture

The "dropped" appearance of her thumb was suggestive of damage to the extensor mechanism of the thumb. Although APL is also involved in extension, there was no loss of ability to abduct, indicating this tendon to be intact. There was no pain or signs of inflammation, ruling out De Quervain's tenosynovitis. EPL rupture is seen with distal radial fractures, but spontaneous rupture is possible and associated with systemic lupus erythematosus or rheumatoid arthritis.1

This patient had ruptured her EPL tendon. Referral to plastic surgery was made and she awaits tendon transfer.

EPL rupture leads to a flexion deformity of the interphalangeal joint (IPJ) and inability to extend the distal phalynx. The intrinsic muscles of the thumb along with extensor pollicis brevis tendon may allow patients to extend IPJ despite EPL rupture. To isolate EPL, the patient should place their hand flat on a table and raise the thumb off the table (retropulsion).2 The EPL is at risk of rupture at Lister's tubercle where it is confined to a tight tunnel as seen in *figure 2.*3 4 It is innervated by posterior interosseous nerve (C7, C8). With PIN injury, the extensors of the forearm are also involved causing weakness in the wrist extension.

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**References**