

Ulnar collateral ligament injuries of the thumb

Dislocation caused by stress radiography in 2 cases

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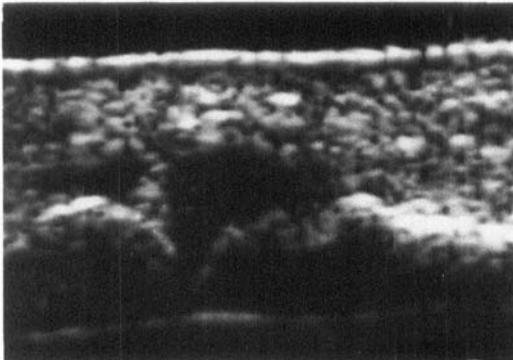
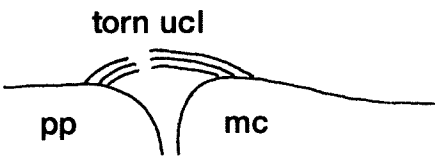
Case reports

We compared physical examination and sonography, followed by stress radiography for evaluation of suspected ruptures of the ulnar collateral ligament of the first metacarpophalangeal joint (Noszian et al. 1994). 45 patients were examined within 4-48 hours of injury. In 14 patients, after injection of a local anesthetic, stress radiographs were obtained. In 2 of them, we observed a discrepancy between the sonographic and radiographic findings.

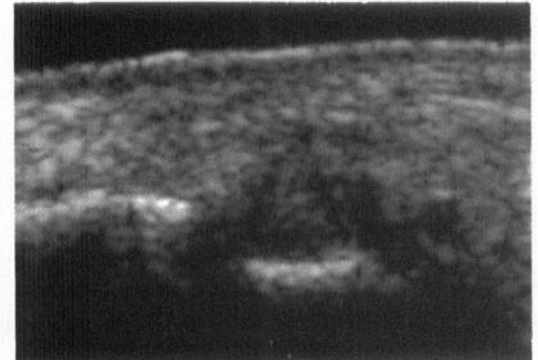
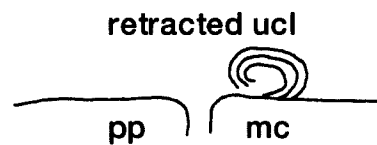
Sonography identified the thickened hypoechoogenic ligament, indicating a nondisplaced rupture

(Figure). However, stress radiography showed a joint separation exceeding that of the contralateral side by 20 and 25 degrees. This indicated a displaced ligament rupture and repeat sonography showed in both cases a rounded hypoechoogenic structure medial to the metacarpal head, with no connection to the proximal phalanx any more. This is the typical sonographic sign of a retracted rupture which was confirmed at surgery in both cases. Most probably the stress radiographic examination caused a displacement of the previously torn but nondisplaced ligament.

A 35-year-old woman suffered an abduction trauma when her deck-chair collapsed. At examination on the following day, the ulnar side of her thumb was tender without a palpable mass.



Sonography showed a hypoechoogenic bell-shaped structure, extending from the ulnar aspect of the metacarpal head (mc) to the proximal phalanx (pp), representing the ruptured but nondisplaced UCL.



After radiographic stress examination, the ligament is retracted, forming a ball-shaped structure next to the metacarpal head.

Discussion

With flexion and abduction of the thumb, the position of the adductor aponeurosis shifts distally with respect to the ulnar collateral ligament. Thus, the torn ligament can become trapped by the aponeurosis and folded over to point proximally, when the abduction force is released (Stener 1962).

Closed treatment is adequate for nondisplaced ruptures (Newland 1992, Spaeth et al. 1993) whereas for ruptures with displacement superficial to the adductor aponeurosis, surgical treatment is advocated (Louis et al. 1986, Wilhelm et al. 1989). Physical examination can hardly distinguish between a non-displaced tear and a retracted ligament but stress radiography has been suggested to be of value (ref.) (Abrahamsson et al. 1990). However, Louis et al. (1986) and Spaeth et al. (1993) have proposed that displacement of a ruptured but nondisplaced ligament may occur during stability testing. Bronstein et al. (1994) examined cadaveric thumbs, using sonography, and observed at dissection iatrogenic displacement in 2 of 10 specimens. The radial deviation force that can be applied during stability testing is limited by pain which is suppressed by local anesthesia. This may lead to further disruption of a partially torn ligament or displacement of a ruptured ligament.

Since a stress radiographic examination can lead to iatrogenic ligament dislocation, we propose that it should be replaced by sonography (Noszian et al. 1994).

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