CASE REPORT

Spontaneous recovery of extensor pollicis longus tendon rupture following intra-articular distal radius fracture

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Introduction

Extensor pollicis longus (EPL) tendon rupture is a well-documented complication of distal radial fractures. We report a case of conservative management and spontaneous recovery of a ruptured EPL tendon following intra-articular fracture of the distal radius. Recommended treatment for EPL tendon rupture is surgical tendon transfer and to our knowledge spontaneous recovery of the tendon ruptured with this aetiology has not been reported previously.

Case report

An 18-year-old man sustained a closed intra-articular fracture of the left distal radius on 15 May 2003 (Fig. 1). This was manipulated under anaesthesia and placed in a below elbow cast for 6 weeks (Fig. 2). The recovery was uneventful until he presented to his general practitioner on 27 August 2003 with the sudden inability to extend his left thumb interphalangeal joint since the 20 August 2003. There had been no history of further injury since his distal radius fracture. It was advised that he be placed in a mallet splint until his clinic appointment. The patient was subsequently seen in clinic on 15 October where it was observed that he still lacked 10° of full extension of his left thumb interphalangeal joint. Treatment in a mallet splint was continued and the patient was followed up once again on 26 November 2003 where it had been anticipated that he would require extensor indicis proprius to EPL tendon transfer surgery. However, the left EPL tendon had fully recovered with no extensor lag clinically and thus did not necessitate surgery or any further action (Fig. 3).

The patient was subsequently discharged. On all occasions he was seen and assessed by the senior author. A Disabilities Of The Arm, Shoulder And Hand Questionnaire (DASH) score was recorded both shortly after the EPL tendon rupture and then subsequently at the most recent follow up. The score immediately following rupture in August 2003 was 15 (out of 100), then at the latest follow up when the patient was asymptomatic in September 2005 was 1.7 (out of 100). This demonstrates quantitatively that the patient has achieved a very satisfactory outcome following conservative treatment of his EPL rupture, and that he has near normal upper limb function now, compared with mild disability immediately following rupture.

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Discussion

Rupture of the EPL tendon after distal radius fracture is an uncommon but well reported event, and has an incidence of 3%. The first reported case of rupture of the EPL was by Duplay in 1876. A Colles’ fracture of the radius is the most common single cause of EPL rupture, accounting for one in 300 cases. Other causes include laceration, direct trauma, rheumatoid arthritis, and rotational injuries of the forearm. Two main theories exist to explain the pathogenesis of posttraumatic rupture following Colles’ fracture: friction over sharp portions of the bone, and tearing of the mesotendon compromising the vascular supply to the tendon, resulting in avascular necrosis. There is usually an interval of 4–8 weeks between injury and rupture.

Primary end-to-end repair is not possible because of the attenuated and frayed consistency of the tendon in the zone of injury. Tendon transfer using the abductor pollicis brevis, the extensor carpi radialis longus, and, principally, the extensor indicis proprius has been advocated for early and late EPL tendon rupture.

Impending rupture has also been described whereby following distal radius fracture, a patient developed painful active and passive thumb retroflexion, indicating a prerupture extensor tenosynovitis. The treatment advocated for this was observation for 2 weeks followed by a third dorsal compartment release if still symptomatic.

Figure 1  X ray showing fracture distal radius.

Figure 2  X ray with plaster treatment.

Figure 3  Photograph showing full extension at thumb interphalangeal joint.
surgery, greater than 50% of the width of the EPL tendon has been attenuated, then a retinacular reinforcement patch is performed.\(^7\) Conservative treatment of mallet thumb has been described as an alternative to primary surgical repair in closed injuries.\(^9\) This consists usually of static splinting for 4–6 weeks.\(^3\)

**Conclusion**

As has been discussed, this is the first case reported of spontaneous recovery of the EPL tendon following distal radius fracture. The tendon usually retracts, necessitating surgery, but in this case, simple splinting for a period of 12 weeks enabled full tendon recovery. We do not advocate non-surgical treatment for all patients, but we do believe this is evidence that certainly in the younger population, conservative management of a proximal EPL tendon rupture with a static splint may prove curative, thus avoiding surgery.

**References**