CASE REPORT

Prophylactic decompression of extensor pollicis longus to prevent rupture

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SUMMARY

We present a case of a patient with spontaneous rupture of right extensor pollicis longus (EPL) tendon, who had also developed left wrist pain and weakness in his left EPL that MRI studies confirmed to be caused by tendinosis. Subsequently, decompression of left EPL and reconstruction of right EPL with palmaris longus tendon graft was undertaken. In this case, decompression of the left EPL tendon led to resolution of the patient's symptoms as well as preventing tendon rupture. We advocate the use of ultrasound imaging to evaluate EPL in these cases and prophylactic decompression of EPL tendon to avoid rupture in those patients found to have tendinosis.

BACKGROUND

Extensor pollicis longus (EPL) tendon ruptures are well-recognised complications of distal radius fractures usually presenting 4–8 weeks after injury.¹ Repetitive friction from radial plates and volar pins used in distal radius fracture fixation has also been reported as a causative factor.

Less commonly, inflammatory conditions such as rheumatoid arthritis and infiltrative diseases such as tophaceous gout have been cited as aetiological factors for EPL rupture. Prolonged administration of corticosteroid therapy can also be attributed to tendon rupture as well as re-rupture after repair.²

We present a case of a patient presenting with spontaneous rupture of EPL tendon, who had also developed left wrist pain and weakness in his left EPL that MRI studies confirmed to be caused by tendinosis.

CASE PRESENTATION

A 33-year-old right-hand dominant man who works in information technology presented to our clinic with an 8-month history of right-sided radial wrist pain and weakness of right thumb extension. He had received a corticosteroid injection into the right wrist to alleviate the pain 5 months prior to this presentation. In addition, the patient had completed a course of amoxicillin and erythromycin for an upper respiratory tract infection 1 month ago. He had no history of trauma or rheumatoid arthritis.

Physical examination revealed moderate swelling and tenderness over the radial side of the right wrist. The patient had no active retropulsion of the thumb or extension at the interphalangeal joint but he did have full passive range of motion. EPL rupture was confirmed on ultrasound scan (USS). The patient was reviewed by a rheumatologist who

felt that the spontaneous EPL rupture was secondary to chronic tendonitis.

The patient was booked for EPL reconstruction. In the preoperative assessment clinic the patient reported pain in left wrist, which was identical to the pain experienced in the right prior to rupture. On examination of the left wrist, there was mild tenderness on palpation of EPL but full active range of movement of the left thumb.

INVESTIGATIONS

MRI of the left wrist showed evidence of significant tendinosis of the left EPL tendon (figure 1).

TREATMENT

In light of the MRI findings, urgent decompression of the left EPL was undertaken in the theatre in order to prevent rupture. Intraoperatively, the EPL tendon appeared macroscopically normal and a small amount of fluid was visualised adjacent to Lister's tubercle. One month after decompression of the left EPL, the patient underwent a right EPL reconstruction using an ipsilateral palmaris longus interposition graft. He then followed standard rehabilitation protocol.

OUTCOME AND FOLLOW-UP

At 2 months after the second operation, the left wrist symptoms had resolved and he was progressing well with the hand therapists with regard to the right thumb but will require further rehabilitation.

Figure 1 Axial T1-weighted MRI of the left wrist at the level of Lister's tubercle (white arrow): Signal change within the extensor pollicis longus (EPL) tendon (red arrow) giving an appearance suggestive of tendinosis. R=radius, U=ulna.

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DISCUSSION

Spontaneous EPL tendon ruptures are associated with distal radius fractures as well as inflammatory and infiltrative diseases. In this case the cause of spontaneous rupture of the right EPL tendon was uncertain. Factors that may have contributed include previous administration of a corticosteroid injection and a course of antibiotics that the patient had taken.

Although most patients will present to clinic after tendon rupture has taken place, a proportion of patients will present with radial-sided wrist pain and signs of EPL tendinosis. This group of patients is at risk of EPL tendon rupture. At the wrist, unlike the other extensor tendons EPL tendon hooks around Lister's tubercle found on the dorsal aspect of the distal radius. Therefore, once tendinosis is present, EPL tendon is at higher risk of rupture in comparison with other extensor tendons owing to this anatomical difference.

Interestingly, after rupturing the right EPL tendon the patient in our case reported of pain in the left wrist, which MRI demonstrated was caused by tendinosis. Inflammation and attrition of the left EPL tendon at the level of Lister's tubercle may have led to rupture as it did in the right EPL.

Operations to reconstruct the EPL tendon after rupture are complex and require an extended rehabilitation time of up to 6 months. Reconstruction options include tendon transfer procedures such as extensor indicis proprius to EPL tendon transfer or interposition tendon grafts that utilise palmaris longus. Both tendon transfer and interposition graft procedures have comparable outcomes but each method only restores approximately 60% of normal thumb retropulsion.³

Decompression of EPL is a simple, low-risk operation that should be considered in patients with EPL tendinosis owing to the risk of tendon rupture with chronic attrition. There are several case reports in the literature that describe the successful application of decompression techniques in the management of EPL tendinosis.⁴ EPL tendon decompression has a considerably shorter rehabilitation time, 6 weeks, in comparison with the EPL tendon reconstruction operations. Our case highlights the difference in recovery between reconstruction and decompression procedures.

Confirmation of the diagnosis of EPL tendinosis using imaging is required before a decision to operatively decompress can be made. Although MRI was utilised in diagnosing left EPL tendinosis in this case, USS is a sensitive method for detecting EPL tendinosis that has several advantages over MRI. It is a dynamic study and can be used to assess the vascularity of the tendon. In addition, MRI has limitations in assessing tendinopathy at the level of the wrist owing to the magic angle artefact that occurs as a result of the oblique orientation of EPL relative to the scan plane in routine MRI.⁵

We therefore advocate the use of ultrasound imaging to evaluate the EPL tendon in patients with radial-sided wrist tenderness and pain on active thumb retropulsion. Those patients with radiological evidence of EPL tendinosis may benefit from prophylactic decompression of EPL tendon to avoid chronic attrition of the tendon and prevent tendon rupture. Patients with distal radius fractures or those who have had fixation for these injuries are at risk of EPL tendon ruptures. Hence, this proposed assessment and management is especially important in this group of patients who then go on to have pain on active thumb retropulsion.

Learning points

- ▶ Patients with extensor pollicis longus (EPL) tendinosis are at risk of tendon rupture.
- ▶ Ultrasound scan is a sensitive and versatile method for detecting EPL tendinosis.
- ▶ Prophylactic decompression of the EPL tendon in patients with tendinosis may prevent rupture and therefore avoid the requirement for EPL reconstruction.
- ▶ EPL tendon reconstruction is a complex procedure with an extensive rehabilitation period.

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