



## Neglected spontaneous rupture of extensor pollicis longus following occupation overuse: A case report

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### Abstract

Extensor pollicis longus rupture is rare but debilitating condition that has several etiologies. The injury and its aftermath causes serious disability affecting activities of daily living and vocational ones. Repetitive stress due to occupational work has been reported rarely as an associated condition with this injury. The history of neglect of the rupture often compounds the problem with a resultant gap between tendon ends not amenable to direct repair. A free tendon graft of ipsilateral palmaris longus tendon was used by us in our case with excellent regain of function. Presented case highlights a rarely reported occurrence of injury in a tailor following repetitive strain and managed herewith leading to a good functional outcome.

**Keywords:** tendon injury, treatment, tendon graft, extensor pollicis longus, palmaris longus, tendon surgery, spontaneous, occupational injury

### Introduction

Intricate anatomy and prehensile quality of the thumb along with overall highly evolved hand functions differentiate human beings from other non-primate species. Extensor pollicis longus (EPL) is key muscle for extension at proximal inter-phalangeal joint (PIPJ) and metacarpo-phalangeal joints (MCPJ). Rupture of EPL is uncommon entity with varied etiologies or associated conditions suggested in the literature. Steroid use, rheumatoid arthritis, adjacent inflammatory conditions and repetitive stress are common associations <sup>[1]</sup>. Attritional rupture at Lister's tubercle is another common anatomical site owing to turnabout of the tendon around it <sup>[2]</sup>. Profession requiring repetitive wrist moves thus have inherent risk for EPL rupture <sup>[3]</sup>. Spontaneous rupture have been reported, although rarely, and managed with reconstruction using various techniques. Fractures of distal radius managed with plate and screw construct have been also at times reported with complications of EPL rupture in the follow up <sup>[4]</sup>. We, hereby, describe a case of neglected spontaneous rupture of EPL in a tailor with successful surgical management and relevant literature review.

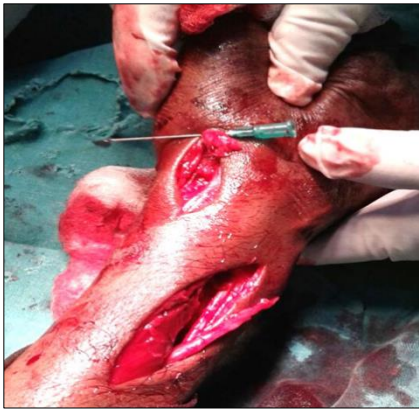
### Case report

A 60 years old tailor presented to us with complaints of inability to extend his right thumb leading to difficulty in his job. He suffered clumsiness in doing routine work and was unable to extend his right thumb fully since last five months. There was no history of relevant trauma leading to that problem and patient could not recall any snap or sound of injury to his wrist. The disability increased by passing days and he took no treatment from any non-medical or medical practitioners. He was referred to us by primary health centre after five months of neglect. There was no history of chronic disorder like diabetes, rheumatoid arthritis, thyroid problems or history of conditions requiring prolonged steroid use. No history of any local injection of steroid use was present. No previous history of trauma to wrist was

present. On clinical examination, there was normal local temperature and intact distal neurovascular status. The active movement of extension at PIPJ was not possible while that at MCPJ was compromised in right thumb. A bulbous palpable stump at the lower border of snuffbox was appreciated that corresponded clinically with ruptured distal end of EPL. The proximal end was not palpable and Lister's tubercle was normally palpable. The presence of ipsilateral PL was done by having the patient appose tips of the thumb and little finger while flexing the wrist. The patient was advised for operative intervention with informed consent for operation and future publication.

A short, curved incision was used to reach and prepare distal stump while a longer incision of approximately 5 cm, was made at dorsal distal forearm region to isolate the proximal stump through the third compartment. The proximal stump was degenerated and attenuated (Fig.1). The proximal attenuated part was removed to fashion fresh end thus further increasing the gap. Small stab transverse incisions distally at wrist flexion crease and proximal till appropriate length graft was chosen. The PL was retrieved and procured to match and reconstruct the rupture (Fig.2). The PL was sewn to either ends with pulvertaft weave and tightened in slight extension. The reconstructed tendon was checked for smooth gliding and non-adherent coverage by soft tissue apart from the passing through Lister tubercle like native tendon. The wound was sutured and a protection thumb spica splint in slight extension given for ten days. The wound healed well and early physiotherapy was initiated after suture removal at tenth postoperative day.

The final clinical results were excellent with patient actively extending thumb at interphalangeal and metacarpo-phalangeal joints (Fig.3). There was no movement lag and the motion was smooth. The patient was performing activities of daily living and involved in his pre- injury vocation without apparent disability.



**Fig 1:** Operative view of exposed tendon. The degenerated and attenuated proximal end with gap requiring reconstruction with tendon graft.



**Fig 2:** Harvesting of ipsilateral palmaris longus graft.



**Fig 3:** The clinical results with optimal thumb function in early follow up.

**Discussion**

The sharp turn of EPL tendon around the Lister’s tubercle is an anatomical disadvantage in causing rupture of tendon. Concept of zone of avascularity adjacent to region of tubercle further compounds the situation as per nutritional impairment theory of

Engkvist *et al.* [5]. Repetitive stress may cause thinning, ischemia and ultimate failure in certain cases. The author has cited the case to be first with relation to repetitive occupational trauma. The tendon transfer using extensor indicis proprius (EIP) or free palmaris longus (PL) graft has been widely described in the management of these injuries [4, 6]. We chose Palmaris longus as it has been used in various reports with satisfactory results [7, 9]. PL is an expendable donor with good track record of use in tendon related surgeries. It is, however, important that the presence of PL should be assessed preoperatively as the tendon is absent in certain patients. It is reported to be present in one arm in 85% and in both arms in 70% of individuals. There is paucity of cases with spontaneous rupture reported in literature. Kim reported one such case managed with EIP transfer [8]. A very similar case report to ours was previously reported by Choi *et al* as spontaneous rupture in a tailor managed by palmaris longus graft [9]. The results of each method has been good with near optimum functional recovery. We experienced an uncomplicated healing and return of function with our technique. The present report is a rare entity in a patient with no predisposing factors and repetitive stress might be the possible reason for the spontaneous injury. The delay in treatment renders a gap to be managed by free tendon graft. Adherence to basic principles of surgery and antisepsis along with early range of motion exercise helps to attain pre-injury functional status.

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**Conflict of Interest:** None.

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