

Research article - Human anatomy case report

Atypical insertion of the abductor pollicis longus muscle, an anatomical case report

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Abstract

During a routine dissection of upper limb in the Department of Anatomy, we came across an unusual attachment of the abductor pollicis longus muscle. Proximal fleshy belly of it originated from the dorsal surface of the shaft of the radius as usual. As it descended it split into two tendons (lateral and medial) proximal to the wrist. The medial tendon attached to the lateral side of base of the first metacarpal bone, whereas the lateral tendon again converted into a fleshy belly at its distal part and inserted into the proximal phalanx of the thumb overlapping the insertion of the abductor pollicis brevis. Double tendons of abductor pollicis longus, each inserting separately into different sites is a rare incidence and needs to be reported to enhance the success rate of any surgical procedures at this region.

Key words

Abductor pollicis longus, multiple tendons, insertion, variation.

Introduction

Abductor pollicis longus (APL) along with abductor pollicis brevis (APB) causes abduction of the thumb and assists in its extension and opposition (Celik et al., 1994). The APL originates normally from the dorsal surface of ulna and radius and gets inserted into the first metacarpal bone and sometimes may have additional attachment to the trapezium (Standring, 2005). Variability in the number of the tendinous slips of APL and its insertion has been reported by several authors (Paul and Das, 2006; Sarikcioglu and Yildirim, 2004). Variation in the anatomy of APL may be one of the reason for failure in surgery of De Quervain's disease (Giles, 1996). Uniqueness of present case is division of the distal part of APL into two tendons and one of them again transforming into fleshy belly at its insertion. Supernumerary tendons of APL may play a beneficial role also when one of the tendon of APL gets injured because its function can be compensated by the other tendons.

Case report

An unusual unilateral variation in the distal attachment of APL was noted on the dorsum of right hand of an adult male cadaver during routine dissection conducted

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for undergraduate medical students. The APL originated as a proximal fleshy belly from the dorsal surface of the shaft of radius and ulna, continued as a tendon passing beneath the extensor retinaculum, and then divided into two i.e medial and lateral tendons as shown in Fig. 1. The medial tendon displayed typical attachment to the radial side of the base of first metacarpal bone and the lateral tendon transformed into a fleshy belly and inserted to the lateral side of base of proximal phalanx of thumb.

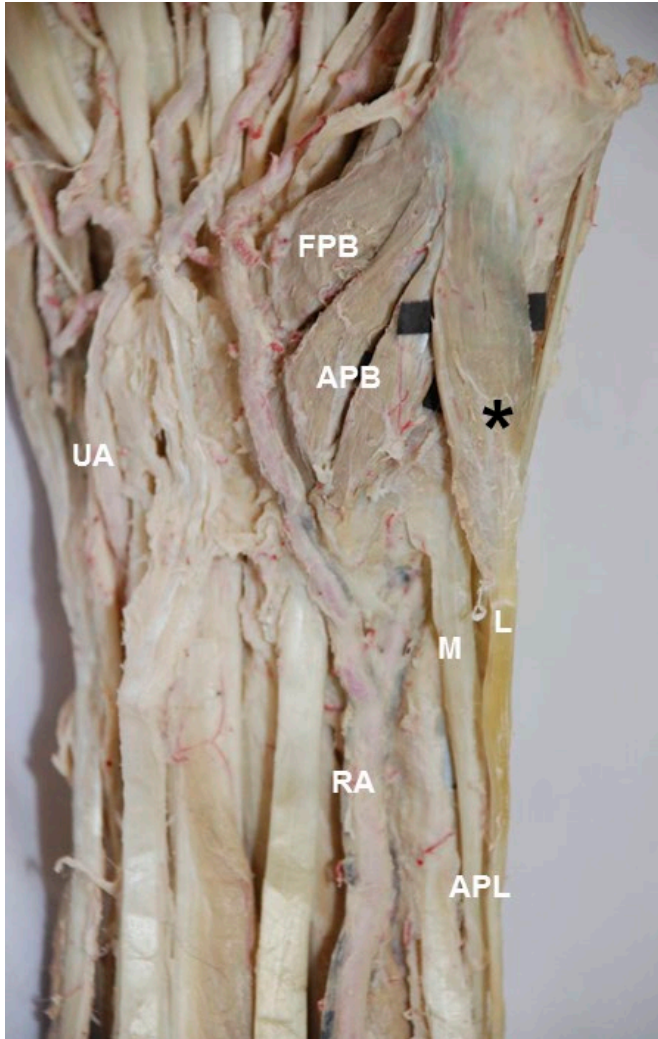


Figure 1 – Variant insertion of the abductor pollicis longus muscle (APB: abductor pollicis brevis; APL: abductor pollicis longus; L: lateral; M: medial; FPB: flexor pollicis brevis; UA: ulnar artery, RA: radial artery, *: fleshy belly of APL at insertion)

Discussion

Insertion of APL through multiple tendons has been reported time and again by several authors, in contrast to the classical description of its insertion through a single tendon. The tendon of APL merging with either with APB or opponens pollicis or carpometacarpal joint capsule was reported by Van Oudenaarde (1991). Attachment of APL tendon to scaphoid bone has been revealed by Celik (1994). The tendon may also join flexor pollicis brevis (FPB) muscle and other thenar muscles (Yuksel et al., 1992; Rayan and Mustafa, 1989). According to Maruyama et al, (2009) APL plays a crucial role in the causation of de Quervain's disease. Therefore reports of variations in the number of tendons, accessory bellies or length of APL become clinically relevant. Martinez and Omer (1985) opine that bilateral subluxation of first carpometacarpal joint is related to anomalous insertion of APL tendon. In their study though there were four tendinous slips, all were inserted into the fascia of APB, distal and ventral to the first carpometacarpal joint. Accessory slips or unusual attachment of APL may lead to insufficient surgical relief in de Quervain's disease (Giles, 1960). Paul and Das describe a case, wherein a single tendon of APL gets inserted into the base of proximal phalanx as a fleshy belly, similar to the present case (Paul and Das, 2007). However in the present case, double tendinous slips with different insertion was discovered. Awareness about the incidence of accessory tendon of APL and its site of insertion may augment the success of reconstructive or any other surgeries in the hand.

Conflict of interest

The authors declare that they have no conflict of interest.

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