

# An accessory digastric abductor pollicis longus muscle: Report of a case

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## SUMMARY

During routine dissection, a variant muscle had a proximal fleshy belly arising from the upper part of the posterior surface of the radius, an intermediate tendon and a distal fleshy belly that joined the abductor pollicis brevis muscle. A branch from the posterior interosseous nerve innervated the proximal belly and the median nerve innervated the distal belly. It was adjacent to the abductor pollicis longus muscle. It was a digastric muscle that can be called the 'accessory digastric abductor pollicis longus muscle'. The tendon of the palmaris longus muscle divided into two. One tendon joined the flexor retinaculum and the other tendon attached to the abductor pollicis brevis muscle. This slip to which the abductor pollicis brevis attached crossed over the median nerve. The two bellies of the variant muscle, which were supplied by the nerves of the flexor and extensor compartments of the forearm, had developed from extensor and flexor muscles and were connected by an intermediate tendon. Although a similar muscle has been mentioned previously, here we report this variant muscle with a nerve supply and a new name for the first time in the Southern Indian population. This accessory muscle may be associated with joint and neural symptoms.

**Key words:** Abductor pollicis longus – Abductor pollicis brevis – Accessory – Digastric

## INTRODUCTION

The abductor pollicis longus is inserted into the base of the first metacarpal bone and the abductor pollicis brevis is inserted into the base of the proximal phalanx of the thumb. The extensor pollicis longus is inserted into the base of the distal phalanx and the extensor pollicis brevis is inserted into the base of the proximal phalanx of the thumb. The palmaris longus is inserted into the flexor retinaculum. Variations in the form and attachment of abductor pollicis longus and abductor pollicis brevis have been reported.

## MATERIAL AND METHODS

During routine dissection of the left upper limb of a male cadaver by preclinical medical students in this department, an extra muscle was noted in the lateral side of the forearm. The muscles in the region were carefully cleaned.

## OBSERVATIONS

Brachioradialis muscle was normal. The abductors and extensors of the thumb inserted into normal sites. A variant muscle was observed which had a proximal fleshy belly arising from the upper part of the posterior surface of the radius, an intermediate tendon, and a distal fleshy belly that joined the abductor pollicis brevis (Fig. 1). The proximal belly was innervated by a branch from the posterior interosseous nerve and the distal belly was innervated by a branch of the median nerve. The proximal belly of the variant muscle and the fleshy origin of the abductor pollicis longus were separated but appeared as a continuous muscle. The anatomical snuff-box was bounded laterally by the tendons of extensor pollicis brevis, abductor pollicis longus and of the variant muscle and medially by the tendons of extensor pollicis longus. The tendon of the palmaris longus was divided into two slips. One tendon joined the flexor retinaculum and the other tendon was attached to the abductor pollicis brevis muscle.



**Figure 1.** Lateral view of left forearm. MP – proximal belly of the variant muscle; T1 – tendon of the variant muscle; MD – distal belly of the variant muscle; R – superficial branch of the radial nerve; APL – Abductor pollicis longus muscle; EPB – Extensor pollicis brevis muscle; T2 – tendons of extensor pollicis brevis and abductor pollicis longus; T3 – tendon of extensor pollicis longus.

## DISCUSSION

Variations of the abductor pollicis longus and thenar muscles are known. A bilateral digastric muscle formed by abductor pollicis longus and abductor brevis was present (Saeed et al., 2002). The tendon of abductor pollicis longus had a thenar insertion, most frequently inserting on either the abductor pollicis brevis or opponens pollicis fascia or muscle belly. Rayan and Mustafa (1989) reported abnormal insertion of an abductor pollicis longus slip into an anomalous thenar muscle. The anomalous thenar muscle, most probably, represented duplication of abductor pollicis brevis. Bilateral subluxation of the trapezio-metacarpal joint was related to abnormal insertion of abductor pollicis tendon and an atrophic extensor pollicis brevis tendon (Martinez and Omar, 1985).

Splitting of the abductor pollicis longus has been reported earlier. In one case the abductor pollicis longus splitted into two bellies and gave off two tendons. One tendon inserted into the thenar muscles and the other inserted into the first metacarpal bone, which is considered a normal insertion site for abductor pollicis longus (Yuksel et al., 1992). In another case abductor pollicis longus tendon had four slips, which inserted into the fascia of abductor pollicis brevis, distal and palmar to the trapezio-metacarpal joint (Martinez and Omar, 1985). In one more case, the abductor pollicis longus tendon divided into seven sections in the first tunnel. The main tendon inserted at the base of the first metacarpal bone. The supernumerary tendons were attached to the fascia of the opponens pollicis, abductor pollicis brevis and dorsoradial third of the base of the first metacarpal bone. The number, thickness and length of the accessory tendons have a functional significance in the development of de Quervain's stenosing tendovaginitis (Melling et al., 1996).

Saadeh and Bergman (1986) reported doubling of the palmaris longus with a tendinous cross slip which was inserted into the hypothenar and thenar fasciae and carpal bones. One of the two tendons gave origin to an accessory ad flexorem minimi digiti muscle.

In the present study, the variant muscle had a proximal fleshy belly arising from the upper part of the posterior surface of the radius and innervated by a branch from the posterior interosseous nerve, an intermediate tendon, and a distal fleshy belly that joined the abduc-

tor pollicis brevis and innervated by a branch of the median nerve. It was adjacent to the abductor pollicis longus and joined abductor pollicis brevis. Therefore, it was a digastric muscle that can be called the 'accessory digastric abductor pollicis longus'. The slip to the abductor pollicis brevis from one of the tendons of palmaris longus can compress the median nerve. The two bellies of the variant muscle, which were supplied by the nerves of the flexor and extensor compartments of the forearm, had developed from extensor and flexor muscles and were connected by an intermediate tendon. Though similar muscle had been mentioned, we report this variant muscle with nerve supply and a new name, for the first time in the Southern Indian population. Such an accessory muscle can be associated with joint and neural symptoms.

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