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Case report

BILATERAL VARIATIONS OF ABDUCTOR POLLICIS LONGUS AND EXTENSOR POLLICIS BREVIS: SURGICAL SIGNIFICANCE

*Gurude PV, Bahetee BH

Department of Anatomy, BJGMC, Pune, Maharashtra, India.

* Corresponding author email: chinmaydev@yahoo.co.in

ABSTRACT

Background: Abductor pollicis longus (APL) and extensor pollicis brevis (EPB) muscles are known to exhibit numerous variations. **Aims:** We would like to put across an accidental unusual finding of APL and EPB muscles. **Materials and Methods:** During routine cadaveric dissection of a 52 year old female cadaver, we found an unusual APL and EPB muscles variations bilaterally. **Results:** Duplication of APL tendon was noted, one showing normal attachment and the additional one on trapezium. EPB muscle had an unusual insertion with one of the tendons of APL muscle going onto the base of the first metacarpal. **Conclusion:** Such variations are important for clinicians and surgeons while performing surgical decompression of De Quervain's syndrome.

Keywords: abductor pollicis longus, extensor pollicis brevis, variations, de Quervain's syndrome.

INTRODUCTION

Variations in the anatomy of the first extensor compartment have been associated with the development of de Quervain's syndrome.^{1,2} This syndrome involves stenosing tenosynovitis of abductor pollicis longus (APL) and extensor pollicis brevis (EPB) tendons which comprise the first extensor compartment of the wrist. So, their variations have always been an area of anatomical interest.

The APL muscle takes origin from the posterior surface of radius, ulna and the interosseous membrane. It is inserted into the first metacarpal and may have an additional attachment to trapezium bone.³ EPB muscle takes origin from the posterior surface of radius and interosseous

membrane and is inserted into the base of proximal phalynx.³

Anatomical knowledge of such variations may be clinically important for surgeons performing surgeries in the dorsolateral region of the hand.

MATERIALS AND METHODS

During routine cadaveric dissection in the department of anatomy, we found variations in APL and EPB muscles in a 52 year old female cadaver bilaterally. The APL and EPB muscles were studied in detail with regard to its origin, insertion, and innervations.

RESULTS

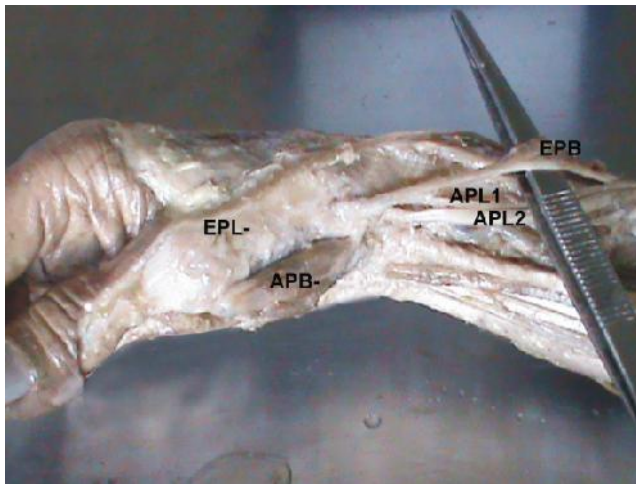


Fig.1:Dorsolateral view of hand showing anomalous abductor pollicis longus and extensor pollicis brevis

EPB-Extensor pollicis brevis

APL1-Abductor pollicis longus inserted into base of first metacarpal

APL2-Abductor pollicis longus inserted into trapezium

EPL-Extensor pollicis longus

APB-Abductor pollicis brevis

The origin of APL and EPB muscle was found to be normal. But near wrist APL muscle splits into two tendons, out of which one was found to be inserted into the base of the first metacarpal and other on trapezium. EPB muscle had a single tendon and was found to be unusually inserted along with one of the tendons of APL muscle into the base of the first metacarpal. The innervation of both muscles was found to be by posterior interosseous nerve.

DISCUSSION

Way back in 1951, Stein AH⁴ observed that variations in the first extensor compartment of the wrist were involved in the etiology of the Quervain's syndrome. An incomplete knowledge of such variations can lead to inadequate surgical decompression of de Quervain's syndrome.⁵ Okazaki Katsushi⁶ found that APL muscle had two to four tendons and interestingly EPB

muscle had an additional insertion mainly into the distal phalanx of thumb. Whereas in present case report, we noted two tendons of APL muscle and for the first time, unusual insertion site of EPB muscle onto the base of the first metacarpal. Teerawat Kulthanan⁷ studied wrists of the cadavers and wrists of patients with de Quervain's syndrome and found that number of fibroosseous tunnels and multiple compartments in the first extensor compartment may be associated with a predisposition to De Quervain's syndrome.

It may be stated that it is exceptional to find a single tendon or the insertion of APL muscle.⁸ In accordance to this fact great variability was observed in the arrangement of tendons and their insertions by many workers. Duplication and triplication of APL has been frequently reported^{9,10} and maximum 9 tendons have been reported by Dil Islam Mansur.¹¹ The presence of multiple tendons of APL muscle may be important for surgeons performing reconstructive surgeries in a dorsolateral compartment of hand.

CONCLUSION

The prior knowledge of anatomical variations of APL and EPB muscles may be helpful for surgeons while treating de Quervain's syndrome and also during reconstructive surgeries of traumatized hand.

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