

A rare anomaly of insertion of the extensor pollicis et indicis communis muscle

Abstract

Bellies and muscular tendons anatomical variations are usually found in cadaver dissections and surgeries. Among those, it is worth highlighting the existence of the extensor pollicis et indicis communis muscle (EPIC), which has a global incidence from 0,5 to 4%. Report the finding of an extensor pollicis et indicis communis muscle found during a dissection of a cadaver on an anatomy laboratory. The extensor pollicis et indicis communis muscle was located on the posterior surface of the right forearm, between the extensor indicis and the extensor pollicis longus muscles. Its proximal insertion was on the distal third of the ulna, and the distal insertion on the proximal phalanx of the index finger and extensor pollicis longus tendon. The knowledge of the existence of the extensor pollicis et indicis communis muscle is of great importance not only for anatomists, but especially for hand surgeons, in the prevention of injuries during surgical procedures.

Keywords: anatomy; variation; tendons, extensor, of fingers, anomalous insertion of [supplementary concept]; hand; reconstructive surgical procedures

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Introduction

Bellies and tendons variations of the muscles on the posterior region of the forearm are very common¹ and, in most times, are found after dissections of corpses or in medical procedures, such as the repair of traumatic injuries or tendons transplants.^{2,3} One of those variations is the presence of an accessory muscle, named extensor pollicis et indicis communis (EPIC), which is located lateral and parallel to the extensor indicis muscle and it sends a single tendon close to the wrist joint.⁴ Its incidence is from 0,5% to 4% on the world population.⁴⁻⁷

The EPIC usually presents its proximal insertion on the lateral region of the posterior surface of the ulna in its distal third, as well as in the interosseous membrane between the extensor muscles of the thumb and index finger.⁴ The EPIC tendon forks in two on the level of the fourth dorsal wrist compartment: a radial one, which attaches to the medial side of the thumb or it fuses with the extensor pollicis longus muscle, and an ulnar one, which attaches to the lateral side of the index finger and it rarely fuses with the extensor indicis tendo.^{8,9} The present study had the objective to report the occurrence of a extensor pollicis et indicis communis muscle found during a dissection on the anatomy laboratory of the Federal University of Sergipe.

Case report

During routine dissection of a cadaver about 54 years old, male, on the laboratory of human anatomy of the Morphology Department of the Federal University of Sergipe, it was found, on the posterior surface of the right forearm, a muscle with proximal insertion on the distal third of the ulna, and distal insertion on the proximal phalanx of the index finger and extensor pollicis longus tendon (Figure 1). Its muscular belly was located between the extensor indicis muscle and the extensor pollicis longus muscle. Whereas its tendon, which had a length of 5cm, immediately forked in two portions: a longer one towards the index finger, with a length of 5cm, and a shorter one with 2,5cm of length, which treaded a path towards the extensor pollicis longus tendon.



Figure 1 View of the distal third of the posterior surface of the right forearm and hand, showing the extensor muscles and tendons.

1. Abductor pollicis longus muscle
2. Extensor pollicis brevis muscle
3. Extensor carpi radialis longus tendon
4. Extensor carpi radialis brevis tendon
5. Extensor pollicis longus tendon
6. Extensor pollicis et indicis communis muscle
7. Extensor indicis muscle
8. Extensor digitorum muscle

Discussion

The occurrence of anatomical variations on the forearm muscles has been reported, by several authors, through case reports, systematic reviews and other types of studies.^{1-6,10} Authors report as a frequent anatomical variation the existence and the location of the extensor pollicis et indicis communis muscle.⁴⁻⁹ There are authors descriptions that the muscle originates in the distal third of the posterior surface

of the ulna and the interosseous membrane.⁷⁻⁹ On the present study, the EPIC was found in the same region described by other studies, positioned between the extensor muscles of the thumb and extensor indicis muscle.⁴⁻⁹

In the present finding, the extensor pollicis et indicis communis muscle presented a tendon that forked in two on the level of the fourth dorsal wrist compartment: one towards the thumb, which fused with the extensor pollicis longus tendon, and the other towards the index finger, inserting itself on the proximal phalanx. This finding is similar to the descriptions of Godwin & Ellis,⁵ and Martinez et al.⁹ These authors, in their findings, described that the deviation of the muscle's tendon was due to the facial connection between the radial and ulnar portions of the accessory tendon, and emphasized the importance of the fascia on the stabilization and proper muscular functioning. However, this finding is not anatomically consistent with the one described by Yoshida⁷ which showed the EPIC with two well defined tendons, fusing or not with the extensor indicis tendon. Whereas, Casanova-Martínez et al.⁸ reported the presence of three tendons after the ramification, two towards the index finger and one towards the thumb.

Conclusion

The knowledge of the existence of the extensor pollicis et indicis communis muscle is of great importance for anatomists, and also for hand surgeons, aiming prevention, diagnosis and treatment of EPIC injuries during surgical procedures, especially in tendons transplants, as also in the diagnosis of tenosynovitis.

Ethical statement

Law n° 8.501, from the 30th of November of 1992. Provides for the use of unclaimed cadavers for the purposes of scientific studies or research and other aspects.

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Conflicts of interest

Author declares there are no conflicts of interest.

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