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Case Report

RARE VARIATIONS OF EXTENSOR TENDONS IN THE DORSUM OF HAND

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ABSTRACT

Extensor digitorum muscle originates from the front of lateral epicondyle of humerus as common extensor origin, the adjacent intermuscular septa and the antebrachial fascia. It divides into four tendons in the distal third of forearm for the medial four fingers. During routine dissection of back of forearm and dorsum of hand for undergraduate students, we discovered that extensor digitorum muscle was unusually giving a common slip to the ring and little finger. Also, extensor digiti minimi(EDM) was found to be bifurcating into two separate slips for the little digit.

KEY WORD: Extensor digitorum, Dorsum, Extensor digiti minimi.

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INTRODUCTION

Extensor digitorum muscle originates from the anterior aspect of lateral epicondyle of humerus bone as common extensor origin, the adjacent intermuscular septa and the antebrachial fascia. During its course through posterior aspect of forearm it divides into four tendons in the distal third of forearm for the medial four fingers[1].

It is supplied by posterior interosseous branch of radial nerve and is responsible for extension at metacarpo-phalangeal as well as proximal and distal inter-phalangeal joints. Also, the arrangement of inter-tendinous connections on the dorsum of hand is unpredictable.

METHODS

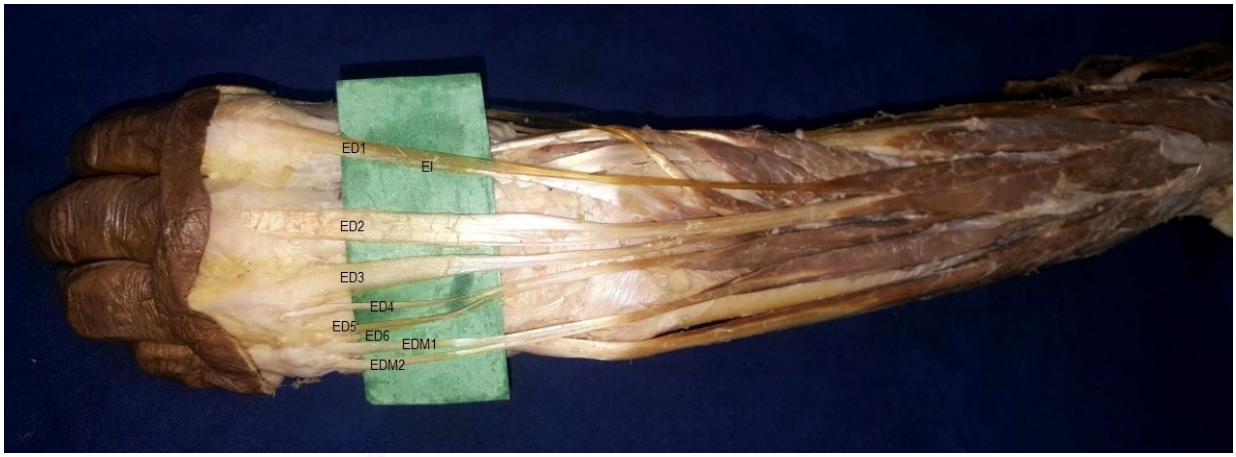
The study was conducted on the right upper limb of a cadaver used for routine dissection of teaching undergraduate medical students. During the routine dissection of an adult male cadaver in the department of anatomy, it was observed that in the middle of back of forearm, extensor digitorum tendon was bifurcating into four tendons for medial four digits. But the medial most tendon was again bifurcating into three and it was giving a slip to the ring and two separate slips to little finger which was bifurcating beyond the wrist joint in the dorsum of the right hand. Also, extensor digiti minimi was found to be bifurcating into two separate slips for the little digit.

RESULTS AND DISCUSSION

During routine dissection of back of forearm and dorsum of hand for undergraduate students, we observed following deviations from the usual:

i) Extensor indicis and slip of extensor digitorum to index finger present.

Fig. 1: Dissection of dorsum of hand to demonstrate the extensor tendons.



ED1-Extensor digirotumtendon 1, ED2- Extensor digirotumtendon 2, ED3- Extensor digirotum tendon 3, ED4-Extensor digirotum tendon 4, ED5- Extensor digirotum tendon 5, ED6- Extensor digirotum tendon 1, EI-Extensor indicis, EDM1-Extensor digitiminimi tendon 1, EDM2-Extensor digitiminimi tendon 2

ii) Extensor digitorum giving slip to middle finger.

iii) Extensor digitorum giving common slip to the ring and little finger which was again bifurcating into three and it was giving a slip to the ring and two separate slips to little finger which was bifurcating beyond the wrist joint.

iv) Extensor digiti minimi seen as separate muscle which was found to be bifurcating into two separate slips for the little digit (Fig. 1).

The tendons of extensor digitorum (ED) may show wavering in terms of number. The ED tendons may be absent in one digit and double or triple in another. This incidence of doubling and triple is more common in index or middle finger[1].

Many cases has been reported regarding double or triple tendons to the long fingers, single or double tendons to the little finger[2]. In our case we observed double tendons to the ring finger and triple tendons to the little finger.

Dass et al observed that when extensor digitorum to the little finger is absent or common tendon of ED is dividingfor both ring and little fingers, the extensor digiti minimi compensates by giving multiple tendons to the little finger[3]. Findings of Dass et al are in conformity of our finding of double tendons of extensor digiti minimi.

Palatty et al reported ED to ring finger had single tendon in 44%, double and triple together in 44% and multiple in 12%[4], which is also similar to our study.

Tanaka et al stated that 61%of ED to little finger had single slip and no slip in 24%. The ED contribution to little finger were found to be independent tendon in 42% while in 34% of specimen it was found to have a ED slip which branch to both ring and little finger[5]. Similarly, in our case we noticed single tendon of ED is dividing into two and going both to ring and little fingers as well as EDM tendon is dividing into two and both the slips are going to little finger only.

Palatty et al also reported that EDM was absent in 2%, single in 18%, double in 70% and triple in 10%[4]. Double tendons of EDM reported by Palatty is similar to our finding but we could not comment upon percentage as our findings report a single case report observed during routine dissection for teaching undergraduate medical students.

Celik S et al observed double EDM tendon in 88.9%[6], quite similar to our study.

The present case was consistent to Palatty et al[4] and Celik S et al[6] where we noticed doubling of EDM tendon.

CONCLUSION

The present study reported that extensor digitorum giving common slip to the ring and little finger. Also, extensor digiti minimi was bifurcating into two slips for the little digit. Multiple tendons to the little digit will compromise on its individual movements. Presence of such variable pattern of tendons is more prone to rupture in diseases like rheumatoid arthritis.

The knowledge of these variations may help surgeons to avoid complications in surgeries.

Conflicts of Interests: None

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