Anomalous origin of the first lumbrical in the hand and its possible role in Carpal Tunnel Syndrome

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Citation

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Abstract

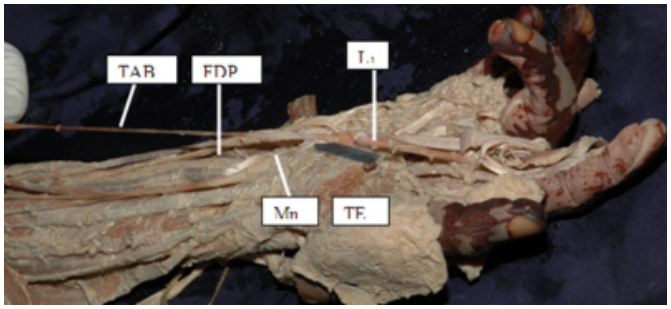
In the present paper we present a rare variation in the origin of the first lumbrical muscle of the hand. During the dissection classes in the Department of Anatomy at Kasturba Medical College, a 56 years old female cadaver showed the origin of first lumbrical muscle from the tendons of flexor digitorum profundus and its accessory belly. Its proximal extent was upto the proximal border of flexor retinaculum. Due to this unusual origin of lumbrical, median nerve may be compressed. The clinical significance of the variation is discussed.

CASE REPORT

During the gross anatomy dissection of a 56 year old female cadaver, we observed that the flexor digitorum profundus (FDP) tendon on the right side for the middle finger had an accessory belly arising from the undersurface of the flexor digitorum superficialis(FDS). The origin of the first lumbrical was seen arising both from the FDP tendon and the tendon of the accessory belly. Its proximal extent was up to the proximal border of the flexor retinaculum (figure -1).

Figure 1

Figure 1: Showing first lumbrical, taking origin from the tendons of Flexor digitorum profundus (FDP) and its accessory belly. Abbreviations: TE, Thenar eminence, TAB, tendon of accessory belly to FDP, L first lumbrical, Mn, Median nerve



DISCUSSION

Variations in the origin and insertion of the lumbricals are common. Any of them may be unipennate (usually innervated by the median nerve) or bipennate (innervated by the ulnar nerve). In the latter case, additional origins commonly arise from the tendons of the flexor pollicis longus (for the first lumbrical) and the flexor digitorum superficialis muscles. In a previous study of 75 cadaver (males and females) hands, Mehta and Gardner reported that only 16% have lumbrical attachments that correspond to the textbook pattern [1]. While the third lumbrical muscle shows the greatest variation in attachments (45.3%), in their study only the second lumbrical has an additional forearm originating from the FDP (2.7%). Eriksen has described a patient whose lumbrical muscle to the third finger arose more proximally than usual from the FDP tendon [2].

The Carpal Tunnel Syndrome (CTS) is caused by compression of the median nerve as it passes through the carpal tunnel. Causes of Carpal tunnel syndrome with respect to the lumbricals include incursion of the lumbrical muscles within the tunnel during finger movements [3], hypertrophy of the lumbricals [4], anatomic variants such as abnormally long lumbrical muscles [2], and aberrant tendinous origin of the first lumbrical [5]. An anomalous origin of the lumbrical from the FDP, such as that described in the present study, has the potential to cause compression of the median nerve in the carpal tunnel.

In any case, the clinician must be aware constantly of such possibilities, although preoperative diagnosis may be difficult. Treatment depends on the intraoperative findings and may include incision of the flexor retinaculum, release of the origin of the respective muscle involved, and resection of the involved muscle [4].

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