A robust flexor digiti minimi brevis muscle

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Introduction
The hypothenar muscle flexor digiti minimi brevis (FDMB) typically attaches from the hook of the hamate and anteromedial aspect of the flexor retinaculum to the ulnar side of the proximal phalanx of digit V (Figure 1). The FDMB is innervated by the ulnar nerve and acts as a flexor of digit V at the metacarpophalangeal joint. Multiple variations of hypothenar musculature are documented in the literature, including fusion [1], duplication [2], absence [3], and alternate attachment sites [4–7].

Case Report
In this case study the researchers report a variation of the FDMB as related to size (length and breadth), as well as the proximal and distal attachment sites. While dissecting the left volar wrist and hand of a 70-year-old female donor the researchers noted a variation of the FDMB with connections to both the abductor digiti minimi (ABDM) and palmaris longus (PL) (Figure 2). The left FDMB was dissected away from the surrounding structures, exposing its distal attachment at the anteromedial surface of the proximal phalanx of digit V and its proximal attachments on the hamate and flexor retinaculum. The muscle was 118 mm in total length and had an atypically robust muscular attachment of 53 mm to the medial aspect of the tendon of PL (Figure 2). In addition, ABDM had two distal slips of attachment to the medial aspect of the musculotendinous segment of FDMB (Figure 2). The median and ulnar nerves were assessed for signs of compression or attenuation from the proximal wrist and into the hand. No signs of compression were observed in this donor.

Discussion
In this donor, the FDMB muscle had variations in the proximal and distal attachments and the muscle belly was quite robust, coursing from digit V through to its most proximal attachments along the tendon of PL and the flexor retinaculum. As it travelled obliquely from digit V to PL, it passed just superficial to the ulnar nerve and artery at Guyon's canal (lateral to the pisiform and medial to the hook of hamate). Additionally, the FDMB crossed the median nerve just distal to the carpal tunnel, thus creating a potential for compression of each of these neurovascular structures [4, 5, 7]. Because of its robusticity and its path crossing both the ulnar and median nerves, this particular variation of FDMB may cause a patient to have effort-related pain during prehension.
Flexor digiti minimi brevis variation

activities. The same patient may exhibit false negatives with classic peripheral nerve testing (Tinel, Phalen’s, EMG studies). It is clinically important to be aware of anatomical variations in the hand when evaluating and treating patients, particularly when such variations can lead to otherwise unexplained peripheral neuropathy.

References


