EPICONDYLO HAMARIS TRANSVERSALIS MUSCLE

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ABSTRACT

During routine dissection, an accessory superficial muscle was detected in the right forearm of a female adult cadaver. The accessory muscle attached to medial epicondyle, flexor retinaculum and hook of hamate was medial to Palmaris longus. This variant muscle resembled a reverse Palmaris longus with distal attachment not extending to the palm. Variant muscles are usually overlooked and form incidental findings during surgery or dissection. Variant muscles with long tendons can be used for tendon grafts and tendon transfer without producing any functional deformity.

KEY WORDS: Accessory Muscle, Hook of Hamate, Transversalis Muscle, Medial Epicondyle

INTRODUCTION

Different variations of flexor muscles of forearm have been reported in literature. The muscles that vary most are muscles that are either appearing in the species and muscles that are disappearing in evolution [1]. Reports on supernumerary and accessory muscles in forearm dates back to 1813 by Gantzer [2]. A variant muscle that arise as a tendon from common flexor origin and inserted into the flexor retinaculum was discovered in the right forearm of an adult female cadaver. The long tendon and small muscle belly resembled that of Palmaris longus but differed from it in the case of insertion at the carpal bone.

CASE REPORT

During routine dissection of an embalmed adult female cadaver in the department of Anatomy, Government Medical College, Thrissur, Kerala State, India, we came across a superficial muscle having fleshy fibers in the distal one third of right forearm. The variant muscle was anterior to all the other forearm flexor muscles. The superficial muscles namely brachioradialis, pronator teres, flexor carpi radialis, palmaris longus and flexor carpi ulnaris showed usual topography. In addition to the usual flexor muscles a spindle shaped muscle with tendino – musculo – tendinous attachment from medial epicondyle to the flexor retinaculum was observed (figure 1).

Figure 1: Illustration Shows the Variant Muscle Attached to Medial Epicondyle of Humerus and Hook of Hamate. Palmaris Longus is Seen Lateral to the Variant Muscle.
The muscle had its origin from medial epicondyle as a long tendon that changed into a spindle shaped muscle belly in the middle of forearm and inserted into the proximal part of flexor retinaculum at the ulnar end by a slender tendon encroaching onto the hook of hamate. The muscular portion was flattened antero-posteriorly and was superficial to ulnar artery. The muscle was lying medial to the tendon of palmaris longus and lateral to flexor carpi ulnaris with ulnar nerve and artery between them at distal end of forearm. The ulnar artery was tortuous near the wrist. The hypothenar muscles were cut and removed to expose the flexor retinaculum where the distal attachment was (figure 2).

Figure 2: Illustration Shows the Variant Muscle with Distal Attachment to Hook of Hamate. The Hypothenar Muscles Were Removed to Expose Flexor Retinaculum and the Variant Muscle Is Picked up to Show its Insertion.

Ulnar artery and nerve were seen medial to the variant muscle and median nerve lateral to it. Nervous and arterial supply to the variant muscle could not be traced.

DISCUSSIONS

Palmaris longus is a fusiform muscle attached to medial epicondyle and inserted through flexor retinaculum and palmar aponeurosis into skin and fascia of palm. Palmaris longus is one of the most variable muscles of human body. Common variations being, complete absence, duplication, triplication, variable location and accessory slips [3]. In addition variations listed by Phillip E Wright include double Palmaris longus tendon, multiple insertions and associated aberrant muscle[4]. Jeffery described anomalous muscle in the lower forearm in the absence of Palmaris longus[5]. A variant of Palmaris longus with tendinous origin and thick muscle belly towards insertion was reported in a male cadaver by Oommen [6].

The variant muscle reported here is not a substitute for any flexors of forearm. This variant muscle may appear similar to variations published earlier but it differs from the rest due to shape of the muscle being spindle, antero- posteriorly flattened and present in addition to Palmaris longus. Muscles derive their names from situation, direction of fibers, points of attachment, shape , uses and number of their division. This variant muscle mimicking a reversed Palmaris longus with long tendon and not entering palm may be better named “epicondylo hamaris transversalis ” to denote the relationship to medial epicondyle of humerus and hamate bone and the muscle fiber orientation.

The functional role of this muscle is at doubt as the fibers are oriented transversely. Accessory muscles and tendons are surgically noteworthy. Since distally placed and superficial to other structures, where usually only tendons exist, over use of this muscle can lead to muscle hypertrophy, median nerve compression may cause apparent carpal tunnel syndrome,
compression of ulnar artery causes sluggish flow leading to thrombosis and Guyon’s syndrome. Three cases of distal belly of Palmaris longus muscle compressing median nerve between itself and the underlying tendons was reported by KM Backhouse and D Churchill Davidson where the usual pattern of Palmaris longus was absent [7]. Median nerve compression in the wrist by anomalous Palmaris profundus muscle was reported by M F Fatah [8]. Careful evaluation of fibro osseous tunnels for an accessory muscle may help to identify such a muscle as a causative factor in compression neuropathies in relation to carpal tunnel and Guyon canal [9].

In primates and other mammals (pigs, foxes and marmots) the accessory heads of the flexor muscles are described as a muscle belly that connects the origin of the flexor digitorum superficialis with the deep flexor muscles [2]. The accessory muscle of forearm described in the present case arise from medial epicondyle as a long tendon and inserted to carpal bone again by a tendon with intermediary muscle belly. Limb myogenesis occurs by migration, proliferation and differentiation of mesenchymal muscle precursor cells into the limb anlagen where they form individual muscles [10]. The embryological basis for this variant muscle could be due to persistence of ventral muscle mass that are disappearing in evolution or could be due to an unusual migration of myoblast during morphogenesis.

CONCLUSIONS

Majority of variant muscles are asymptomatic and form incidental findings during surgery, imaging or dissection. However variant muscles may result in compression neuropathies or present as a palpable mass. We would like to state that, the observations made by us in the present case will supplement our knowledge of muscular variations of use in forearm and hand surgery.

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REFERENCES

