Case Report

Accessory palmaris longus muscle: An unusual variation

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Abstract

The Palmaris longus muscle is the most variable muscle present in the body, phylogenetically degenerating muscle, present in the flexor compartment of the forearm. This muscle exhibit significant anatomical variations compare with other muscle of the upper extremity. The most frequent variation is a complete absence of the muscle, but number of other variations also exhibit, these include reversed, bifid, or hypertrophied Palmaris longus muscle. In this case study a variation of Palmaris longus i.e. double Palmaris longus was identified in the right forearm of 50 yrs male cadaver during the routine dissection. Duplication of Palmaris longus may cause the compression of median nerve (i. e. carpal tunnel syndrome) or ulnar nerve compression. Although palmaris longus is considered as ancillary forearm muscle its tendon is frequently harvested and used in the surgical repair of other structures. Therefore knowledge of anatomical variations of Palmaris longus is important to surgeon as well as anatomist.

Keywords: Palmaris longus muscle, Muscular variations, Tendon graft.

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INTRODUCTION

The Palmaris longus is often described as one of the most variable muscle present in the human body and is phylogenetically classified as a retrogressive muscle i.e. a muscle with short belly and long tendon[1]. It takes origin from medial epicondyle of the humerus along with the other superficial flexors. It lies between the flexor carpi radialis laterally and flexor carpi ulnaris medially. Median nerve lies between its tendon and flexors carpi radialis. The long slender tendon passes anterior to the flexor retinaculum. It is attached to the distal half of the flexor retinaculum and predominantly to the palmar aponeurosis[2]. Although the Palmaris longus muscle tendon is commonly in continuum with the palmar aponeurosis, histogical and developmental studies revealed that the two structures arise independently and do not share the same origin[3]. Palmaris longus assumes great surgical importance since it is the first option in tendon graft procedures, for it fulfills necessary criteria of length, breadth and easy surgical accessibility as well, which make harvesting much easier than its counterpart in lower limb[4]. Bilateral absence of Palmaris longus muscle found in 8-16% of the individual and unilateral absence in 4-14%[1]. In higher primates the Palmaris longus has been shown to be absent in higher apes such as chimpanzees and gorillas[5].

MATERIALS AND METHOD

During the routine dissection of the cadavers conducted for teaching the first MBBS students, it was observed that in a male cadaver double Palmaris longus muscle was present in the right forearm and on the left only single palmaris longus was present.

OBSERVATION

In the present study, it was observed that in the right forearm of a male cadaver extra Palmaris longus muscle was present. This muscle had short muscle belly present in the upper part that was arising from medial epicondyle i.e. common flexor origin. The long tendon was present and it was attached to the flexor retinaculum and the palmar aponeurosis. Some fibrous slip was also attached to fascia of thenar eminence. In the same cadaver the fellow muscle in the left forearm was normal.

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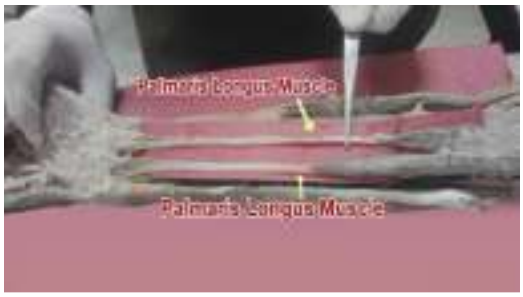

Figure 1: Photograph of right forearm showing the double Palmaris longus muscle

DISCUSSION

As Palmaris longus muscle is most variable muscle present in the human body. Absence of Palmaris longus is the most common variation. Its absence was recorded as early as 1559. Bilateral absence of Palmaris longus is present in 8-16% of individuals and unilateral in 4-14% [1]. In a study of 800 living person it was absent on both sides in 7.7% of cases, absent on right side in 4.5% and absent on left side in 5.2%. Palmaris longus muscle was absent more often in the female and on the left side[6]. Duplicated, bifid or bitendinous may be normal accompanied by/or referred to as accessory Palmaris longus muscle[7]. Duplicated Palmaris longus does not show common origin with the normal appearing Palmaris longus muscle. The accessory, bifid or bitendinousmuscle do, most commonly share the origin with with normal appearing palmaris longus. Since the muscle belly and the tendon can travel along the same sheath with the median nerve, the tendon is thought to contribute to median nerve compression (carpal tunnnel syndrome) symptoms, and the symptoms may be relieved by excising the muscle from its origin and distal insertion[8]. Duplicated Palmaris longus may be associated with the accumulation of connective tissue within the median nerve when it courses through the carpal tunnel.

The prevalence of duplication of palmaris longus muscle is reported as 0.5 to 5.9%, showing higher percentages in Caucasian population studies than the studies in other population[9]. In 1912, free flexor tendon grafts were apparently first used in the hand. In 1918, the surgeon preferred the Palmaris longus tendon as the donor graft for the repair of ruptured flexor and extensor tendon[10]. An anomalous reverse Palmaris longus has also been reported as a rare case of median and ulnar nerve compression by Regan in 1988[11]. Double Palmaris longus with tendinous cross slip is also reported by Saadeh in 1986[12].

CONCLUSION

Palmaris longus muscle though functionally not of much importance, is of great applied significance. This tendon is also utilized as an autograft for various emergency and elective reconstructive surgeries. Its study revealed that it is absent more often in female and more so on left side compare to the right side, therefore, a study of such variations including its presence or absence is emphasized not only to update the knowledge of anatomist but also to help the surgeons to keep in mind the variations, which may mimic other pathological condition at the wrist.

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