Introduction

Palmaris longus is a slender superficial flexor muscle of the forearm. The muscle belly is fusiform in shape, which takes origin from the anterior surface of medical epicondyle in common with the other superficial flexor muscles of forearm. It converges to form a long tendon, which passes superficial to flexor retinaculum and then attached to the apex of palmar aponeurosis. Palmaris longus is innervated by median nerve (C7-8). It is a phylogenetically degenerate metacarpophalangeal joint flexor. During routine dissection study and teaching to undergraduate students, we found variation in the palmaris longus muscle in the right forearm in an adult male cadaver aged 60–70 years. Duplication of the palmaris longus muscle was noted. Morphological and clinical implications of the variation are discussed.

Case Report

During routine dissection study and teaching of upper limb region to undergraduate students in Anatomy department, Dr. B. R. Ambedkar Medical College, Bangalore, we found variation in the palmaris longus muscle in an adult male cadaver aged 60–70 years. The palmaris longus muscle was noted. Morphological and clinical implications of the variation are discussed.

Abstract

The palmaris longus is a slender superficial flexor muscle of the forearm. It takes origin from the anterior surface of medical epicondyle in common with the other superficial flexor muscles. It converges to form a long tendon, which passes superficial to flexor retinaculum and then attached to the apex of palmar aponeurosis. Palmaris longus is innervated by median nerve (C7-8). It is a phylogenetically degenerate metacarpophalangeal joint flexor. During routine dissection study and teaching to undergraduate students, we found variation in the palmaris longus muscle in the right forearm in an adult male cadaver aged 60–70 years. Duplication of the palmaris longus muscle was noted. Morphological and clinical implications of the variation are discussed.

Key words: [metacarpophalangeal] [palmar] [median nerve] [flexor] [duplication]
group of variations. The muscles which tend to undergo degeneration with subsequent loss of its function represent retrogressive type, example for this type are palmaris longus and plantaris muscles. Atavistic muscles are the muscular elements which have been lost completely during the course of evolution and they make an abrupt appearance again. Axillary arch muscle, a remnant of panniculus carnosus is an example for atavistic type [2].

Variations of the palmaris longus can be a) complete agenesis of the muscle; b) variation in location and form of the muscle belly; c) aberrancy of attachment at its origin or its insertion; d) duplication or triplication; e) accessory slips [3].

The present case report belongs to (d)-group of variation.

Absence of palmaris longus has been reported in the literature in 11.2% of arms [3].

Chimpanzees and apes shows maximum degeneration, only 25% of Gorillas have this muscle. Palmaris longus is more degenerate in apes and monkeys than in man [5].

**Embryological significance**

The flexor muscles of the forearm develop from the flexor mass, which subsequently divides into 2 layers, superficial and deep. The deep layer gives rise to the flexor digitorum superficialis, flexor digitorum profundus and flexor pollicis longus. The superficial layer of flexor mass gives rise to the pronator teres, flexor carpi radialis, palmaris longus and flexor carpi ulnaris [6]. The embryological basis of the present variation can be explained due to the additional cleavage of the superficial layer of forearm flexor mass during development.

**Clinical significance**

This variable muscle are usually asymptomatic, but of academic interest. A variation in the anatomy at the wrist is often associated with carpal tunnel syndrome [7] or can result in ulnar neuropathy [8].

Palmaris longus muscle is an important graft material for various cosmetic and reconstructive surgeries like lip augmentation, repair of tendo calcanei, collapsed lunate replacement, congenital ptosis, auto graft for ruptured extensor tendons, acutethenar injury–Camitz opponensplasty [9].

Ultrasound or MRI studies can be used to assess for palmaris longus variations in patients who are to undergo tendon transfer procedures, carpal tunnel release or Guyon's canal release, or who have had previous failed nerve releases [7]. At rest it may be asymptomatic but repetitive contractions may cause median nerve palsy. Hence the knowledge of this variation is important for clinicians, radiologists and therapists.

<table>
<thead>
<tr>
<th></th>
<th>Usual palmaris longus</th>
<th>Accessory palmaris longus</th>
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<tbody>
<tr>
<td>Muscle belly length (cm)</td>
<td>09</td>
<td>14</td>
</tr>
<tr>
<td>Tendon length (cm)</td>
<td>17</td>
<td>11</td>
</tr>
<tr>
<td>Total length of muscle (cm)</td>
<td>26</td>
<td>25</td>
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</table>
Conclusion

Palmaris longus muscle is a degenerate metacarpophalangeal joint flexor shows a varied variation in its form. Such variations have to be kept in mind by surgeons, clinicians, radiologists, therapists and anatomists. The present variation may be helpful for surgeons during tendon graft surgeries.

References