

Supranumerary muscle of the extensor indicis

Campos, D.^{1,2*}, Nazer, MB.^{1,2}, Vieira, FN.¹, Bartholdy, LM.¹ and Souza, PL.¹

¹Laboratory of Human Anatomy, Department of Biology and Pharmacy,
University de Santa Cruz do Sul – UNISC, Av. Independência 2293,
CEP 96815-900, Santa Cruz do Sul, RS, Brazil

²Post Graduate Program in Neuroscience, Institute of Basic Health Sciences,
Federal University of Rio Grande do Sul – UFRGS, Av. Sarmento Leite 500,
CEP 90050-170, Porto Alegre, RS, Brazil

*E-mail: dcampos@unisc.br

Abstract

It was found an unusual anatomical variation in a male cadaver that is consistent with the existence of an accessory muscle in the posterior area of the third distal of the forearm. Such structure arises in the posterior face of ulna and is fixed in the back of the proximal phalange of the middle finger. The described variation is also useful to the hand surgeon, as the anomalous muscle is an anatomical landmark for operations at this area. To our knowledge, this variation has not been cited in recent medical literature.

Keywords: forearm, hand, unusual extensor muscle.

1 Introduction

The Human Anatomy books for beginner students describe the structure of the body observed in most of the people (approximately 70%). Students are frequently frustrated because the bodies they are examining or dissecting don't correspond to the one of the atlas or the text they are using (BERGMAN, THOMPSON, AFIFI et al., 1988).

The students frequently ignore the variations or unaware they damage them, trying to produce agreement. Therefore, anatomical variations when you dissect or inspect dissected specimens are expected. In a random group of people, individuals differ from each other in the physical appearance. The bones of the skeleton not just vary in his basic form, but also in smaller details of the surface structure. A wide variation is found in the form, in the size and in the pattern of insert of the muscles (MOORE and DALLEY, 2001).

The muscles vary plenty as for his insert; they can be absentees, and many accessory muscles were described already (GARDNER, GRAY and O'RAHILLY, 1988), especially the musculature of the hand (AYDINLIOGLU, SAKUL and DIYARBAKIRLI, 1998; D'COSTA, JIJI, NAYAK et al., 2006; NATSIS, LEVVA, TOTLIS et al., 2007; NAKANO, WATANABE and MASUTANI, 2003; SOLDADO-CARRERA, VILAR-COROMINA and RODRIGUEZ-BAEZA, 2000; WINDISCH, 2000) and forearm (CIGALI, KUTOGLU and CIKMAZ, 2002; HONG, 2005).

2 Case report

During the routine dissection, the presence of a located muscle was verified in the forearm on the right side of a corpse settled in formol 10%. This anatomical variation was observed in a 40 year old corpse, male of medium stature and melanodermic. The whole posterior area of the third distal of the forearm was exposed with a dissection magnifying glass (ALLZWECK-LUPENLEUCHTE [1.75/2.25 magnification]); feeling matter attention for all morphologic organization of the muscle (Figure 1).

McMinn and Hutchings (1991), refer to this muscle as uncommon ribbon of the extending muscle of the indicator for the middle finger (see A₁, Figure 1). However, the authors don't describe the incidence of this variation. This has anatomical function of extending the third finger, being a muscle fusiform and present only in the right forearm of the corpse.

2.1 Observations

Muscle tendon, thickness and belly measurements were taken with the aid of a digital pachymeter (Digimess). The accessory muscle presents a muscular belly of 11 cm of length by 1.4 cm of width and 0.9 cm of thickness, presenting a tendon of 14.5 cm of length with a diameter of 0.4 cm (see arrows, Figure 1). When comparing the extending muscle of the indicator, with referred her anatomical variation, it is noticed that the found muscle has the parallel origin to the extending of the indicator, but his muscular belly is smaller, interfering in the back of the proximal phalange of the third right finger, medial to the main tendon (see fixation point *, Figure 1).

The uncommon ribbon crosses the retinaculum of the extending ones in an own tunnel, posterior to the tendon of the extending muscle of the fingers. His sanguine and nervous supply, as well as the extending of the index finger, refers to the artery ulnar and to the branch posterior interossius of the radial nerve. In our observations we didn't find any indication of associated pathology this anatomical variation.

With base in the measures accomplished in our study, we can act in a schematic way the muscle supranumerary in the subsequent compartment of the forearm and hand that it probably contributes with the extending muscles of the hand and fingers; such structure arises in the posterior face of ulna, in the third distal; and is fixed in the back of the proximal phalange (area proximal) of the middle finger (Figure 2).

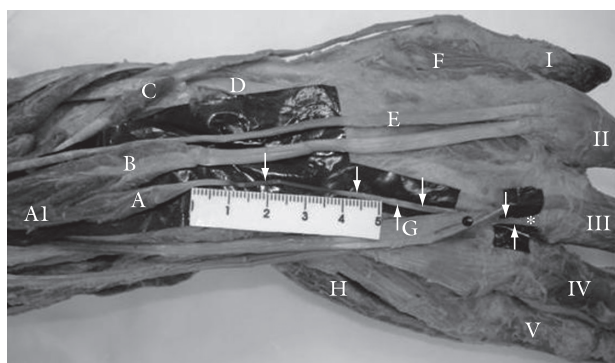


Figure 1. Dissection of dorsal aspect of right wrist demonstrating the accessory muscle of the extending of the indicator for the middle finger. A, accessory muscle; A₁, proximal portion; B, extensor indicis muscle; C, extensor pollicis longus muscle; D, extensor carpi radialis brevis muscle; E, extensor digitorum muscle; F, 1st interossei dorsal muscle; G, extensor digitorum muscle was rebutted; H, abductor muscle of the minimum finger. Arrows (↑↓) indicate the itinerary of the tendon of the accessory muscle. Fixation point (*) of accessory muscle. (I, II, III, IV, V) Phalanx proximalis. Scale in centimeter.



Figure 2. Schematic drawing of the dorsal surface of the forearm and hand showing the position of the accessory muscle (*).

3 Discussion

Fontaine, Wavreille, Chantelot et al. (2005), comments that the extensor apparatus shows many anatomic variations, often asymptomatic. Anatomic variations of the extrinsic extensor tendons are frequent and knowledge is important when assessing the traumatized or diseased in the hand (VON SCHROEDER and BOTTE, 2001). According to Soldado-Carrera, Vilar-Coromina and Rodriguez-Baeza (2000), accessory fasciculi of the hypothenar muscles have been involved in vascular and nerve compressions.

Cigali, Kutoglu and Cikmaz (2002) reported the case that during the routine dissection of a White male cadaver a musculus extensor digiti medii proprius was seen on both hands and a musculus extensor digitorum brevis manus was seen on the left hand. The extensor medii proprius has a belly originating from the distal third of the ulna near the extensor indicis proprius and its tendon is inserted into the dorsal aponeurosis of the middle finger on both hands. On the left hand there was another anomalous muscle (musculus extensor digitorum brevis manus) which originated from the distal end of the radius, carpal ligaments and carpal joint capsule and inserted on the tendon of the extensor digiti medii proprius.

Hong (2005), describes two accessory muscles that were found in the lateral compartment of the forearm while dissecting a 92 year old female cadaver. One of

these originated from the extensor carpi radialis brevis, became tendinous and travelled between the two radial extensor tendons. It inserted independently into the second metacarpal bone, and may be regarded as an extensor carpi radialis intermedius. The other accessory muscle originated from the extensor carpi radialis longus, passed superficially over the parent tendon and inserted into the abductor pollicis brevis.

Abu-Hijleh (1993) reported that a supernumerary extensor muscle to the middle finger was found to be present bilaterally in a male cadaver. It originated from the distal end of the ulna and its tendon inserted into the proximal phalanx of the middle finger.

It is already evident that in spite of the countless accessories muscles existent, in matter the one of the forearm; they are rarely mentioned in the texts of human anatomy. However, they provoke alteration in the mechanics to articulate or neurological disorders that could limit the mobilization of the joints carpus (D'COSTA, JIJI, NAYAK et al., 2006), leading to pain and impeding the execution of professional activity to need the continuous use of the member superior.

In conclusion, we told ourselves the occurrence of a relatively little known muscle in the medical literature. However, the understanding of its morphology is of extreme importance for the diagnosis of carpal tunnel syndromes. Finally, this variation should be bared in mind by clinicians, surgeons and academicians who manipulate this particular anatomical site.

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