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An Accessory Flexor Of The Thumb

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ABSTRACT

The presence of accessory muscles, nerves and other tissues/organs in the upper limb and other parts of the body of some individuals have been previously reported. We report the case of a cadaver with an accessory flexor muscle of the left thumb. This muscle is located on the volar aspect of the left forearm. It originates from the lower fibres of flexor digitorum superficialis (sublimis) and inserts into the tendon of flexor pollicis longus. It is supplied by the median nerve and produced flexion of the thumb at the interphalangeal joint. It therefore facilitated flexion of the thumb and the grasp mechanism of the individual. We have named it *"Flexor Pollicis Accessorius"*

Awareness of this is important to Anatomists and surgeons especially plastic/hand surgeons.

Key words: Muscle, Thumb, Flexor, Anatomic variation.

Anatomical variations are well known and several of such have been documented (Thompson et al 1988). It is wrong to see anatomy as a rigid and fixed subject that never changes as many anomalies have been seen and incidental findings made that are of clinical importance (Philip 1985).

In the upper limb of man, the hand is designed for grasping (Last, 1984) with four fingers flexing against an opposed thumb. The anterior (volar) region of the forearm is composed of three groups or layers of muscles (Philip 1985, Keith1992) The superficial layer comprises of four muscles- pronator teres, flexor carpi radialis, palmaris longus and flexor carpi ulnaris. The intermediate layer comprises of the flexor digitorum sublimis (superficialis) which has an extensive origin from the humerus, ulna, radius and intermuscular septum. The muscle is supplied by the median nerve. The tendons pass beneath the flexor retinaculum and attaches to the sides of the middle phalanx of the medial four digits.

The deep layer (floor) consists of flexor policis longus, flexor digitorum profundus and pronator quadratus. The flexor pollicis longus muscle arises from the anterior surface of the radius between the oblique line above and the pronator below and insert at the base of the terminal phalanx of the thumb. It is supplied by the anterior interosseous branch of the median nerve. Variations may occur in this arrangement. The radial head of the flexor digitorum superficialis may be absent and a slip from the deep part may provide most or all the fibres acting on the index finger. The part for minimus may be absent and replaced by a separate slip from ulna, flexor retinaculum or palmar fascia. The flexor digitorum profundus may have accessory slips from radius (acting on index), from flexor superficialis, flexor pollicis longus, the medial epicondyle or coronoid process joining the muscle (William, et al 1989). An accessory flexor of the middle two digits of the hand had also been described (Asomugha et al 2004) as well as an accessory abductor of the thumb (Igbigbi et al 1995). In the course of our regular cadaver dissection at Nnewi, we found an unusual muscle in the upper limb, which did not fit into the already documented variations. The muscle we described here.

MATERIALS AND METHODS:

The cadaver in which this finding was made was a black male adult Nigerian. Dissection was done as outlined by *Cunnigham's Manual of Practical Anatomy* (Romanes G.J.1986). All the named muscles with their nerve supplies and functions were as described in both forearms and hands. An unusual muscle was seen on the anterior (volar) aspect of the left forearm-hand. Photograph of the unusual muscle and its related structures was taken (Fig. 1).

Fig. 1: The unusual muscle and its related structure

RESULTS

In addition to the muscles located on the anterior aspect of the forearm, we saw a muscle mass, which took origin from the lower fibres of flexor digitorum superficialis by fleshy fibres and inserted by a short tendon on the tendon of flexor policis longus. The muscle belly measured seven centimetres (7cm) and the tendon measured two centimetres (2cm)- Fig 1. Traction on the muscle tendon produced flexion of the thumb. The muscle received its nerve supply from the median nerve.Based on the location and action, we named it ***"Flexor Pollicis Accessorius"***

DISCUSSION

Flexion of the thumb is a movement usually carried out by the flexor pollicis longus muscle assisted by the flexor pollicis brevis muscle both of which aid in opposition of the thumb. The accessory muscle described here most likely facilitated these movements in the individual in which it was found. The muscle probably developed from mesenchymal tissues of the flexor digitorum sublimes, which failed to separate completely from the flexor pollicis longus.

Several forms of anatomic variations have been described (Thompson et al 1988) A some-what similar muscle an accessory abductor of the thumb had been described in Port Harcourt by Igbigbi et al (1995). There had been reported cases in which anomalous insertion of the flexor pollicis longus tendon into the carpal tunnel caused limited active flexion of the thumb (Kawai et al, Miura T.1981, Hagan H.T 1988). Akpuaka (2002) had emphasized the importance of the thumb to the human hand. We also know that loss of the thumb represents 40% disability especially of the dominant hand. The finding of an accessory flexor of the middle two digits of the hand in the flexor compartment of both forearms at Nnewi (Asomugha et al 2004) which has a similar origin as the present muscle but inserted into the tendons of the flexor digitorum profundus is also of immense benefit to our knowledge of muscle phylogeny. It is important that the existence of these accessory and unusual muscle and tendon insertions be noted which is of immense benefit to hand and plastic surgeons. This report will also rekindle the interest of Anatomists/Dissectors to muscle phylogeny and stimulate a search for other anomalies.

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