Additional digastric muscle associated with abductor pollicis longus muscle

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Abstract

Introduction
Abductor pollicis longus (APL) muscle is one of the deep muscles of the back of the forearm. Knowledge of its variations is of importance in orthopaedic and plastic surgeries. The aim of this case report is to bring awareness among the orthopaedic and plastic surgeons about possibility of such a variation.

Case report
We observed an additional digastric muscle associated with the APL during our dissection classes. The proximal fleshy belly of the digastric muscle had common origin with APL. The distal fleshy belly took origin from the first metacarpal bone. The two bellies were connected to each other through an intermediate tendon.

Conclusion
The knowledge about this variation may help plastic surgeons in muscle grafts. It could also be useful to the orthopaedic surgeons to prevent inadvertent injuries of the additional muscle.

Introduction
Abductor pollicis longus (APL) muscle is one among the muscles of the posterior compartment of the forearm. It takes origin from the posterior surfaces of the radius, ulna and the interosseous membrane. It is inserted to the base of the first metacarpal bone. It derives its nerve supply from the posterior interosseous nerve. The proximal fleshy belly took a common origin with the APL and was supplied by the posterior interosseous nerve. The distal fleshy belly took its origin from the anterior and lateral aspects of the first metacarpal bone. Medially, the distal belly merged with the abductor pollicis brevis muscle. Distal belly was supplied by a branch from the median nerve. The intermediate tendon connecting the two fleshy bellies was about 8cm long.

Discussion
The point of origin of APL is very constant but it is very common to see variations in the number of its tendons and the pattern of their insertion. Though the textbooks mention a single tendon, it is exceptional to have a single tendon of APL. The number of its tendons varies from one to nine as reported by previous studies. Rayan and Mustafa have reported abnormal insertion of a slip of APL into an anomalous thenar muscle. In a study by Martinez and Omar, APL tendon had four slips, which inserted into the fascia of abductor pollicis brevis, distal and palmar to the trapezio-metacarpal joint. Rao et al. have reported the presence of an additional belly of APL arising from the lateral aspect of the muscle.

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APL and getting inserted to the thenar muscles. Patel and Desai have reported the incidence of pain in a patient who had abnormal extension of the APL into the first compartment under the extensor retinaculum. The APL is known to have split insertion in gibbons, gorillas and chimpanzees. The existence of such anomalies in human beings may be a result of atavism.

In our literature survey, we came across an earlier report of a bilateral digastric muscle associated with the APL and the case is somewhat similar to the present case. The additional muscle being reported here might cause De Quervain’s stenosing tenovaginitis as reported in earlier cases. Awareness of existence of this muscle might help the plastic surgeons use it for tendon grafts or whole muscle transplant.

A prior anatomical knowledge of such a muscle may be helpful in checking any inadvertent injury to it during orthopaedic surgeries at the distal forearm and the wrist. The additional digastric muscle or its tendon can be used in treating the osteoarthritis of the thumb or in tendinous or ligamentous injuries of the hand.

**Conclusion**
The thumb is the most important digit in the function of the hand. Losing the thumb is equivalent to losing function in the hand by 40-50%. Hence variations of the thumb have to be well documented and their functional aspects have to be studied. The knowledge about the additional digastric muscle in association with the APL might help plastic surgeons and orthopaedic surgeons in various procedures.

**References**
