eISSN 1308-4038

International Journal of Anatomical Variations (2012) 5: 68–69

Case Report

Variant muscle on the dorsum of hand – case report

Published online November 3rd, 2012 © http://www.ijav.org

Nitha NP ✦
Simi SKARIAH

Department of Anatomy, Malankara Orthodox Syrian Church Medical College, Kolenchery, Ernakulam, Kerala, INDIA.

✦ Nitha NP
Tutor
Department of Anatomy
Malankara Orthodox Syrian
Church Medical College
Kolenchery, Ernakulam
Kerala, INDIA.
☎ +91 960 5096025
✉ nithajijo1982@gmail.com

Received July 4th, 2011; accepted March 10th, 2012

Abstract

The awareness of the variant muscle present in the hand is of great interest to the hand surgeons while performing the hand surgeries and tendon transplants. This variant muscle may be misdiagnosed as a ganglion, a synovial nodule, cyst, etc. Out of the 24 cadavers allotted for the undergraduate medical students of the Malankara Orthodox Syrian Church Medical College, Kolenchery, we noted an extra muscle on the dorsum of the hand bilaterally. The variant muscle was inserted to the base of the proximal phalanx of the middle finger and it had a connection to the dorsal digital expansion of the same finger. This insertion is different from other reported cases, and is called extensor digiti medii minimi.

Key words [hand] [dorsum] [variant muscle]

Introduction

The dorsal surface of the hand is devoided of muscle bellies and it contains only the tendons of the extensor muscles of the forearm. Many variant muscles have been reported in the dorsum of the hand: they are the accessory abductor digiti minimi (present in 24% of cases), extensor medii proprius (present in 0.8–10.4% of cases) and extensor digitorum brevis manus (present in 1–3% of cases). These muscles were named according their origin and insertion. We found a variant muscle on the dorsum of the hand that inserted to the base of the proximal phalanx of the middle finger and had a connection to the dorsal digital expansion of the same finger, called extensor digiti medii minimi (EDMM). The morphology and clinical anatomy of this variant muscle is discussed along with the present case.

Case Report

During routine dissection of a 68-year-old male cadaver for the undergraduate medical students in Malankara Orthodox Syrian Church Medical College Kolenchery, Ernakulam, Kerala, India, a variant muscle was found on the dorsum of the hand bilaterally. The variant muscle originated from the dorsal wrist capsule and medial part of the dorsal aspect of distal end of radius deep to the extensor retinaculum (Figure 1). Its tendon was inserted to the base of the proximal phalanx of the middle finger and it had a connection to the dorsal digital expansion of the same finger. The belly of the muscle was about 5 cm and the tendon was about 8 cm long. The muscle lied on the dorsal aspect of the third metacarpal bone and was supplied by posterior interosseous nerve and artery (Figure 2).

Figure 1. *Extensor digiti medii minimi muscle (**EDMM**)* arising from fourth compartment of the extensor retinaculum.

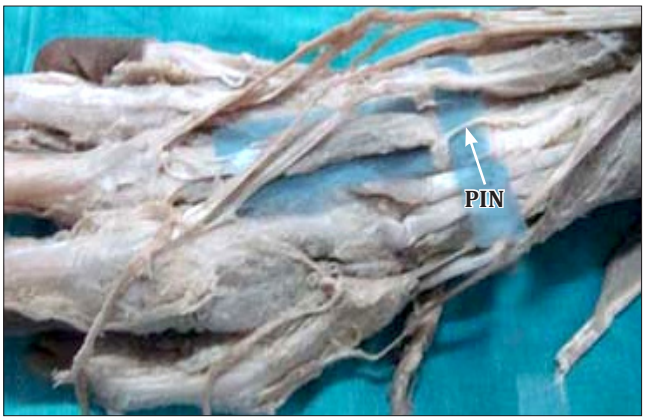

Figure 2. *Posterior interosseous nerve (**PIN**)* innervating the variant muscle.

Discussion

Many cases were reported the existence of many variant muscles. These variant muscles are the accessory abductor digiti minimi (present in 24% of cases), extensor medii proprius (present in 0.8-10.4% of cases) and extensor digitorum brevis manus (present in1-3% of cases) [1].

The variant muscle reported here is different from reported cases. The EDMM that we found was present in both hand and was prominent in the right hand. Commonly the variant muscles are asymptomatic throughout the life of the individual. During hand surgery like the removal of the ganglion one can incidentally find this muscle. It may cause dorsal wrist pain because of various reasons:

- Compression of the posterior interosseous nerve [1–3],
- Resistive extension of the finger [1–3],
- Muscle hypertrophy [1–3],
- Impingement of the muscle against the extensor retinaculum [1–3],
- Heavy manual works [1–3].

Pre-operatively the EDMM is often confused with a ganglion, tenosynovitis, synovial tumor, tendon sheath cyst, carpal bossing and soft tissue tumors [1, 2, 4].

The variant muscle assists in extension of wrist joint and extension of the metacarpophalangeal joint. It also carries the function of the dorsal digital expansion of the middle finger. The presence of the EDMM is assign of atavism, anomaly, use and disuse atrophy phenomenon. In human, the function of the muscle becomes redundant as a result of proximal migration of the distal group and the distal migration of the proximal group, thus this muscle is lost [5].

EDMM may be diagnosed preoperatively using electrophysiological study using surface electrodes and non-invasive MRI scans.

MRI scans have been found to be helpful in distinguishing EDMM from tumors, thereby avoiding surgery. MRI scans usually display EDMM as an intermediate to low-density signal with extreme homogeneity on both T1 and T2-weighted images, an appearance similar to that of normal skeletal muscle [2, 6, 7].

Conclusion

Though the occurrence of the EDMM is asymptomatic, it is still essential for the surgeons to be aware of the possible variations of this extensor muscle and it should be included in the differential diagnosis of soft tissue masses of the dorsal aspect of the wrist and hand. The presence of such muscle may cause the wrist pain. The treatment depends on the severity of the symptoms. Shortwave diathermy, paraffin path, immobilization and inflammatory drugs have been routinely used. In severe cases muscle excision or extensor retinacular release have been proposed.

A detailed knowledge of the anatomy and prevalence of this muscle can help to prevent diagnostic errors, influence surgical and interventional procedures and avoid surgical complications during hand surgeries, especially in person who are involved in sports such as golf, cricket, tennis, and weightlifting.

Acknowledgement

I (Nitha NP) express my sincere thanks to Dr. G. M. Sidhiqui (HOD), Dr.

Sandhya Kurup, Dr. Nirmala Devi, Dr. Mini Kariappa, Mrs. Simi Skariah from the Department of Anatomy, MOSC Medical College Kolenchery, Kerala, India for their valuable support and inspiration for the successful completion of my thesis study.

References

[1] Singh K, Dennie D, Rao SR. Variant extensor muscles on the dorsum of the hand. Int J Anat Var (IJAV). 2009; 2: 80–82.

[2] Patel MR, Desai SS, Bassini-Lipson L, Namba T, Sahoo J. Painful extensor digitorum brevis manus muscle. J Hand Surg Am. 1989; 14: 674–678.

[3] Padmavathy G, Rajeswary, Niranjana Murthy KV. Accessory muscle on the dorsum of the hand. Anatomica Karnataka. 2010; 4; 38–41.

[4] Ogura T, Inoue H, Tanabe G. Anatomic and clinical studies of the extensor digitorum brevis manus. J Hand Surg Am. 1987; 12: 100–107.

[5] Hayashi H, Kojima T, Fukumoto K. The fourth compartment syndrome: its anatomical basis and clinical cases. Handchir Mikrochir Plast Chir. 1999; 31: 61–65.

[6] Bolla SR, Vollala VR, Bovindala B, Madabhshi C. Extensor digitorum brevis manus: Its clinical significance and morphology. Int J Anat Var (IJAV). 2008; 1: 32–34.

[7] Rodríguez-Niedenführ M, Vázquez T, Golanó P, Parkin I, Sañudo JR. Extensor digitorum brevis manus: anatomical, radiological and clinical relevance. A review. Clin Anat. 2002; 15: 286–292.