

“Extensor digitorum brevis manus : Case report”

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Abstract

Introduction: Extensor digitorum brevis manus (EDBM) is a muscle present in the dorsum of hand very rarely. The knowledge of presence of such anomalous muscles in the dorsum of hand is important clinically as they may mislead the diagnosis.

Material and methods: We report a case of EDBM in the dorsum of right hand of a female cadaver.

Conclusion: Knowledge of such anomalous muscles is important in the diagnosis of soft tissue swellings in the dorsum of hand and in tendon transfer.

Key words: Dorsum of hand, anomalous, muscle.

Introduction:

Extensor Digitorum Brevis Manus (EDBM) is an anomalous muscle rarely present in the dorsum of the hand. It was first described by Albinus in 1734 as “musculus extensor brevis digiti indicis vel medii” and later Macalister in 1886 named it as “extensor digitorum brevis manus”¹. It is found in approximately 2% to 3% of the population. It may be unilateral or bilateral with a slight male predominance. Presence of this variant muscle is usually asymptomatic but some times the patient may present with a painful dorsal wrist mass, particularly in individuals performing repetitive movements of the wrist and hand². Hence a detailed knowledge of EDBM is essential to avoid surgical complications during the hand surgeries. We report a case of this rare muscle in the dorsum of hand.

Case Report:

During routine dissection of upperlimb for first year medical students at NRI Medical College, Chinakakani, Guntur, in a 60 year old female cadaver, we observed an anomalous muscle in the dorsum of right hand. The muscle is arising from the capsule of the wrist beneath the extensor retinaculum. It is passing in the fourth

compartment beneath the extensor retinaculum along with extensor digitorum, extensor indicis tendons and posterior interosseous nerve. It is inserted into the extensor expansion of middle finger. The nerve supply is by posterior interosseous nerve.

Discussion:

EDBM is also called “m. extensor anomalous”³ and “le muscle manieux”⁴. Bunnel⁵ and Souter⁶ described that EDBM may represent a failure of proximal migration of ulnocarpal elements of the antebrachial muscle mass in humans, which is found normally in amphibians. In amphibians, EDBM is present in the dorsum of manus. In humans this muscle has disappeared as its function is taken over by forearm muscles.

EDBM generally consists of a single belly. But cases with two bellies with variable size has been reported^{7,8}. The muscle arises from dorsal carpal ligaments, the joint capsule, or the carpal bone⁹. It may also arise from distal end of radius, ulna or the metacarpals⁷. Its insertion is commonly into the dorsal digital expansion of index, middle, ring or little fingers¹⁰. Based on the insertion it is named as extensor indicis brevis¹¹, extensor digiti III brevis¹², extensor medii

brevis, extensor brevis digitii indicis vel medii, extensor medii and annularis brevis².

Ogura et al¹ classified EDBM into three types based on its insertion and relationship with extensor indicis proprius (EIP). Type I – EDBM inserted onto the dorsal aponeurosis of index finger with absence of EIP. Type II – both EIP and EDBM inserted on the index finger. Type III – EIP inserted on the index finger and EDBM inserted on the long finger.

The incidence of EDBM reported by various authors is as follows.

Author	Percentage
McGregor (1926) ¹³	3% (3/100)
Wagenseil (1937) ¹⁴	2.7% (2/75)
Moriya (1956) ¹⁵	2.4% (2/82)
Ogura et al (1987) ¹	3.8% (11/286)
Ranade et al (2008) ¹⁶	4.2% (4/72)
Surekha et al(2012) ¹⁷	4.1% (4/96)

In most of the cases reported, EDBM is inserted into the dorsal digital expansion of index finger. In the present case, the EDBM is inserted into the dorsal digital expansion of middle finger which can be described as extensor digitii III brevis. The incidence of this variation is rare compared to extensor indicis brevis. It can be classified as type III based on Ogura et al classification.

It was reported by Ogura et al¹ in 5/559 cases.

The presence of EDBM is usually asymptomatic. But sometimes it may present as a small painful swelling on the dorsum of the wrist, particularly in individuals involved in sports such as tennis, golf, cricket, weight lifting where repetitive movements are involved¹⁸. During clinical examination, it may be mistaken for a

a dorsal wrist ganglion or a soft tissue tumor. The fact that EDBM becomes more prominent with active extension of the wrist and fingers whereas the ganglion becomes more prominent with wrist flexion may help in diagnosis¹³. High resolution imaging techniques such as MRI may confirm the cause of the swelling¹⁹. As the EDBM commonly arises from the distal end of radius close to the fourth compartment beneath the extensor retinaculum, it may cause “fourth compartment syndrome”. It leads to pain in the dorsum of the wrist which is due to direct or indirect compression of the nerve⁷.

EDBM can be used as a graft for tendon transfer to restore the malfunctioning muscles like extensor pollicis longus¹. Extensor digitii III brevis is a better option than extensor indicis brevis, as extensor indicis brevis sometimes compensates for extensor indicis (type I) in which case resection should be avoided.

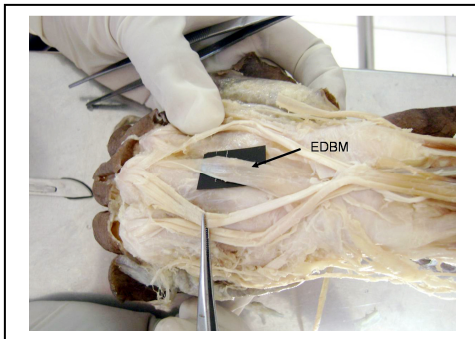
Conclusion:

Presence of EDBM (extensor digitii III brevis) is a rare variation in the dorsum of hand. Knowledge of this muscle is of great practical importance in diagnosing the cysts and soft tissue tumors in the dorsum of hand. Surgeon should be aware of such variants as it is useful in tendon transfer or graft surgeries.

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