Case Report

Extensor Digitorum Brevis Manus presenting as a symptomatic lump on the dorsum of the hand ∗☆☆☆,★★

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A B S T R A C T

Lumps in the hand are a common presenting complaint in General Practice. We present the case of a 24-year-old male who presented to his General Practitioner with a painful lump in the dorsum of his right hand. He was referred to the sarcoma services where MRI and ultrasound examinations revealed an accessory Extensor Digitorum Brevis Manus muscle  as the cause of the patient's symptoms. When patients present with a painful or discomforting lump in the dorsum of the hand during or after repetitive use, typically on flexion, a diagnosis of Extensor Digitorum Brevis Manus should be considered.

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Introduction

We report the case of an accessory Extensor Digitorum Brevis Manus muscle presenting as a painful lump in the dorsum of the right hand in a young male patient.

Case report

A 24-year-old male presented to his General Practitioner with a lump in his right hand. He reported a recent onset of waking up regularly during the night with pain and numbness in the dorsal aspect of his right hand. He had noticed a lump at

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Fig. 1 – Selected MRI slices of the right hand and wrist in a 24-year-old male who presented to his General Practitioner with a lump. Sagittal (A) T1-weighted and (B) proton density (PD) fat-saturated (FS) images through the plane of the Extensor Digitorum Brevis Manus (EDBM) muscle. It is identified by its proximal and distal insertions in the dorsal aspect of the right wrist and hand, respectively (between the yellow arrow heads). Note the overlying skin markers (white arrows) used to indicate the proximal and distal extent of the lump. Axial (C) T1-weighted and (D) PD FS images through the EDBM muscle demonstrated the tendon (yellow arrow) within the muscle belly (white arrow) and an overlying superficial vessel (orange arrow).

the same location which seemed to become more pronounced and painful when clenching a fist, and when straightening and moving his fingers. He also reported that the back of his hand had become more painful after doing simple tasks such as writing or typing. There was no antecedent trauma. On clinical examination, there was a diffuse swelling of the dorsal aspect of the right hand but no discrete lump or local skin change. His left hand was asymptomatic. He was referred to the regional sarcoma service and magnetic resonance imaging (MRI) and ultrasound (US) examinations of the right hand and wrist were performed. No hand radiographers were obtained.

Magnetic resonance imaging (MRI) demonstrated an ellipsoid mass within the fourth extensor compartment extending from the carpus to the metacarpal head. The mass demonstrated homogenous low-to-intermediate T1- and T2-weighted signal intensity which was isointense to skeletal muscle (Fig. 1). US confirmed that the mass had a similar echotexture to muscle (Fig. 2) and demonstrated the typical morphological changes consistent with muscle during dynamic flexion-extension manoeuvres of the right index finger. Comparison was made to the same anatomical location in the asymptomatic left hand during the US examination (Fig. 2) confirming right hand unilaterality. The diagnosis of an accessory Extensor Digitorum Brevis Manus (EDBM) muscle, an anomalous extensor compartment muscle, was made. The patient underwent surgical excision for symptomatic relief. There was no reported complication or symptom recurrence on follow-up and he was subsequently discharged.

Discussion

The EDBM is an accessory muscle which often presents as a fusiform or ellipsoid soft tissue prominence on the dorsum of the hand. Patients may complain of pain or discomfort during or after repetitive use, typically on flexion.

The EDBM muscle is found in approximately 2% of the population with an equal sex distribution. No significant difference in laterality has been described but when present may be bilateral in approximately 1 in 4 patients [1]. Cadaveric studies have confirmed that the origin of the EDBM muscle lies either at: the distal end of the radius; the dorsal radiocarpal ligament; or the wrist joint capsule. The extensor hood of the index, middle, ring, or little finger have all been described as the EDBM insertion, and multiple insertions into more than one finger have also been reported [2–4].

Other anomalous extensor muscles of the hand are also recognized [5]. The accessory extensor indicis proprius often has a muscle belly that extends beyond the fourth extensor
compartment during full flexion which can lead to constriction of the muscle belly by the extensor retinaculum and result in pain [6–10]. The EDBM muscle has also been described as a variant of the extensor indicis proprius muscle [4]. The extensor medii proprius and extensor indicis et medii communis are accessory extensor muscles that do not typically give rise to symptoms due to their small calibre and position deep to the other extensor tendons [11].

When presented with a symptomatic palpable lump on the dorsum of the hand, a diagnosis of EDBM should be considered. Patients should be reassured that this is a benign, accessory finding. Surgical excision may be warranted for symptomatic relief as in the case of our patient.

in the clinical care of the patient; co-wrote and edited the manuscript text.

Declaration of Competing Interest

No funding was received. The authors declare that they have no conflict of interest.

REFERENCES

[1] Yammine K. The prevalence of extensor digitorum brevis manus and its variants in humans: a systematic review and meta-analysis. Surg Radiol Anat 2015;37:3–9.
[2] Ranade AV, Rai R, Prabhu LV, Rajanigandha V, Prakash, Janardhanan JP, et al. Incidence of extensor digitorum brevis manus muscle. Hand (N Y) 2008;3:320–3.
[3] Rodríguez-Niedenfűhr M, Vázquez T, Golanό P, Parkin I, Sañudo JR. Extensor digitorum brevis manus: anatomical, radiological and clinical relevance. A review. Clin Anat 2002;15:286–92.
[4] Ogura T, Inoue H, Tanabe G. Anatomic and clinical studies of the extensor digitorum brevis manus. J Hand Surg Am 1987;12:100–7.
[5] Tan ST, Smith PJ. Anomalous extensor muscles of the hand: a review. J Hand Surg Am 1999;24:449–55.
[6] Ritter MA, Inglis AE. The extensor indicis proprius syndrome. J Bone Joint Surg Am 1969;51:1645–8.
[7] Spinner M, Olshtansky K. The extensor indicis proprius syndrome. A clinical test. Plast Reconstr Surg 1973;51:134–8.
[8] Constantian MB, Zuelzer WA, Theogaraj SD. The dorsal ganglion with anomalous muscles. J Hand Surg Am 1979;4:84–5.
[9] Cheng JCY, Hung LK. An unusual cause of wrist pain. J Hand Surg Am 1986;11:221–2.
[10] Georgiev GP, Tubbs RS, Iliev A, Kotov G, Landzhov B. Extensor indicis proprius muscle and its variants together with the extensor digitorum brevis manus muscle: a common classification. Clinical significance in hand and reconstructive surgery. Surg Radiol Anat 2018;40:271–80.
[11] Leslie DR. The tendons on the dorsum of the hand. Aust N Z J Surg 1954;23:253–6.