Extensor digitorum brevis manus – Report of a case and treatment planning

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LT Glickman, BW Brewer. Extensor digitorum brevis manus – Report of a case and treatment planning. Can J Plast Surg 1994;2(2):95-96. The extensor digitorum brevis manus muscle (EDBM) is an anomalous extrinsic extensor that may occur in up to 3% of the population and may produce symptoms and signs that are very similar to those of a dorsal ganglion. We report a case of EDBM in a male whose diagnosis was made intraoperatively. He remains symptom free following surgical resection.

Key Words: *Extensor digitorum brevis manus muscle (EDBM), treatment*

Muscle court extenseur de la main : rapport de cas et plan de traitement

RÉSUMÉ : Le muscle court extenseur de la main (MCEM) est un extenseur extrinsèque anormal qui peut s'observer chez jusqu'à 3 % de la population et peut occasionner des signes et symptômes très semblables à ceux d'un ganglion dorsal. Nous rapportons ici le cas d'un MCEM chez un homme pour qui le diagnostic a été posé durant l'opération. Il est asymptomatique depuis la résection chirurgicale.

The extensor digitorum brevis manus muscle (EDBM) is an uncommon anomalous muscle that lies on the dorsum of the hand. Its rare occurrence makes the preoperative diagnosis difficult. It is often misdiagnosed as a ganglion or tenosynovitis and, as a result, may be mistreated.

A case of EDBM in the dominant hand of a 23-year-old man whose diagnosis was made intraoperatively is described. The incidence, classification and anatomy of EDBM is presented, together with a review of the literature and recommendations for clinical evaluation and treatment.

PATIENT REPORT

A 23-year-old, right hand dominant male was seen in the office for an occasionally painful mass on the dorsum of his right hand. The mass was asymptomatic at rest, but caused an occasional aching pain during manual labour. There was no history of trauma to the area. The size of the mass was unchanged over the past two years. The patient was unaware of pain during flexion or extension. On physical examination, the mass was not tender and was centred over the mid-dorsum of the hand. It measured approximately 3 cm in size. It was soft with minimal mobility. A preoperative diagnosis of ganglion cyst was made.

At the time of exploration, a 2.5 cm x 1.5 cm muscle mass was found which ran along the axis of the third metacarpal. It travelled proximally, originating in the fourth extensor compartment. Distally, the muscle split into an ulnar and radial head. The radial head gave rise to a small tendinous slip which inserted into the ulnar aspect of the extensor indicis tendon of the index finger, just proximal to the sagittal bands. The ulnar slip of the muscle gave rise to a slightly larger tendon that inserted into the common extensor of the long finger (Figures 1 and 2). The muscle was carefully dissected off the underlying metacarpal and floor of the fourth extensor compartment. Its proximal and distal origins and insertions were carefully divided. All remaining extensors were intact and functional following resection of the EDBM. The patient has remained symptom-free with full range of motion following surgery.

DISCUSSION

Incidence

The EDBM is a rare anomalous muscle that may be unilateral or bilateral. It was first reported by Albinus in 1754 (1). Sporadic cases have been reported in the literature with the largest clinical series reported by Gama in 1983 (2). In this report, Gama describes 38 cases of EDBM found in 3404 adults (1.1%). In the largest cadaver series reported by Ogura et al, in 1987 (3), 3% of hands (17 of 559) had the anomalous muscle present. Male to female ratios have not been firmly established, but it appears that EDBM can present equally in

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Figure 1 Divided origin of extensor digitorum brevis manus (EDBM) muscle pulled proximally causing tenting of ulnar and radial slips

Figure 2 Incision at distal edge of extensor retinaculum

either sex (3). Most clinical case reports suggest that the dominant hand is more frequently involved (4). The added physical demands of the dominant hand may lead to muscle hypertrophy and then provoke the symptoms which lead the patient to seek medical attention.

Classification

Ogura et al (3) classified the EDBM into three types, based on the anatomic insertions of the muscle. In our patient, the EDBM arose from the fourth extensor compartment under the distal edge of the extensor retinaculum. It inserted via two tendinous slips into the index and the long finger. According to Ogura et al (3), this is a type IIC EDBM which accounts for 18% of cases.

Anatomy

In cadaver dissections, it has been shown that a fine branch of the posterior interosseous nerve enters the proximal and radial aspect of the EDBM before the nerve enters the ligaments of the wrist joint (2,3,5). The arterial supply of the muscle has been shown to be a terminal branch of the posterior branch of the anterior interosseous artery (3). The anatomic studies of Ogura et al (3) suggest: the origin of the EDBM is from an extrinsic muscle; variations of the insertions are similar to those of the EP; the EDBM and extensor indicis proprius (EIP) are often joined; and the EDBM and EIP are supplied by the same nerve and artery. All these findings suggest that the EDBM is in fact an extrinsic muscle and a variant of the EIP.

Diagnosis

Clinical symptoms, when present, are usually similar among patients. A mass is noted on the dorsum of the hand followed by discomfort and pain. These symptoms are aggra-

vated by manual labour, and are probably caused by synovitis of the extensor retinaculum. Examination may suggest a ganglion, tenosynovitis or exostosis. Contraction of the mass may be appreciated on full finger extension. Positive electromyographic findings during voluntary extension of the finger, or response to radial nerve stimulation, may aid diagnosis (4,6,7). Failure to transilluminate may also suggest the diagnosis (8). Radiology does little to suggest the anomaly.

Treatment

The indication for treatment is pain precluding work. Preoperative diagnosis should be made to direct surgical planning. The EDBM is an anomalous muscle, but it is an extensor, and in type I or type IIa cases (3), may compensate for the EIP and thus should be preserved. In these circumstances, division or partial resection of the retinaculum with preservation of the EDBM tendon is the preferred treatment. In types IIb, IIc or III, resection of the muscle belly and tendon may be indicated and has proved to be the only lasting source of relief for these patients.

REFERENCES

1. Albinus BS. Annotationes Academicarum, Book 4. 1734;4:28.
2. Gama C. Extensor digitorum brevis manus: A report on 38 cases and a review of the literature. *J Hand Surg* 1983;8:578-82.
3. Ogura T, Inoue H, Tanabe G. Anatomic and clinical studies of the extensor digitorum brevis manus. *J Hand Surg* 1987;12:100-7.
4. Reef TC, Brestin SG. The extensor digitorum brevis manus and its clinical significance. *J Bone Joint Surg* 1975;57A:704-6.
5. Smith JS, Browne PA. Extensor digitorum brevis manus: A case report and review. *The Hand* 1979;11:217-23.
6. Egawa T, Hashimoto K. An anomalous extensor indices muscle: A case report. *Bull Hosp Jnt Dis* 1966;27:116-9.
7. Hart JAL. Extensor digitorum brevis manus. *The Hand* 1972;4:265-7.
8. Dunn AW, Evarts CM. The extensor brevis muscle: A case report. *Clin Orthop Rel Res* 1963;23:210-2.