

Bilateral extensor digitorum brevis manus

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ABSTRACT

Introduction. The extensor digitorum brevis manus (EDBM) is an accessory muscle of the dorsum of the hand that may appear as a painful mass. It is treated surgically, usually by excision of the muscle.

Clinical case. 14-year-old male with bilateral painful masses on the dorsal aspect of his hands. Ultrasound confirmed the diagnosis of EDBM. Due to the associated symptoms, decision was made to conduct surgical treatment with resection of both muscle masses.

Discussion. EDBM is an infrequent cause of wrist pain, especially in children and adolescents. Surgical treatment has proven to have a significant impact on the improvement of the symptoms suffered by these patients.

KEY WORDS: Extensor digitorum brevis manus; Muscle abnormalities; Wrist surgery.

EXTENSOR DIGITORUM BREVIS MANUS BILATERAL

RESUMEN

Introducción. El extensor *digitorum brevis manus* (EDBM) es un músculo accesorio del dorso de la mano que puede presentarse como una masa dolorosa. Su tratamiento es quirúrgico, generalmente consiste en la extirpación del mismo.

Caso clínico. Varón de 14 años que presenta tumoraciones dolorosas bilaterales en la cara dorsal de las manos. La ecografía confirma el diagnóstico de EDBM. Debido a la sintomatología asociada, se decide tratamiento quirúrgico, con resección de ambas masas musculares.

Comentarios. El EDBM constituye una causa poco frecuente de dolor a nivel de la muñeca, especialmente en población infanto-juvenil. El tratamiento quirúrgico ha demostrado un impacto significativo en la mejoría de la sintomatología que presentan estos pacientes.

PALABRAS CLAVE: Extensor *digitorum brevis manus*; Anomalías musculares; Cirugía de la muñeca.

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INTRODUCTION

The extensor digitorum brevis manus (EDBM) is a supernumerary muscle of the dorsum of the hand located in the fourth compartment of the extensor retinaculum. It is found in approximately 2% to 3% of the population, and it is diagnosed post mortem in most cases⁽¹⁾. This is due to the fact that EDBM does not usually cause symptoms in the patient, so it can often go unnoticed. If it does produce clinical symptoms, it usually appears as a painful mass on the dorsum of the hand, associated with functional impotence^(2,3).

Treatment is surgical. Treatment options include release of the extensor retinaculum or partial or complete resection of the muscle, the latter having shown the best results in published series⁽²⁾. We report the case of a child with bilateral EDBM treated by complete excision of both muscles.

CLINICAL CASE

A 14-year-old patient with no previous history of interest was referred to the pediatric plastic surgery department because of masses on the dorsum of both hands along the extensor tendons of the third finger. He reported having suffered pain on palpation and with extension movements, as well as loss of strength, over a 1-year period. There was no sensory alteration. Physical examination revealed two firm and painful dorsal masses (Fig. 1), which shifted with finger movements and had no associated trophic or color changes.

Ultrasound revealed the presence of bilateral EDBM of 5.5 cm in length, with the proximal end at the radiocarpal level and the distal end between the base of the second and third metacarpals. Magnetic resonance imaging confirmed the findings.

Due to the patient's clinical symptoms, decision was made to conduct surgical treatment. Intraoperative findings showed both muscle masses with proximal insertion in the

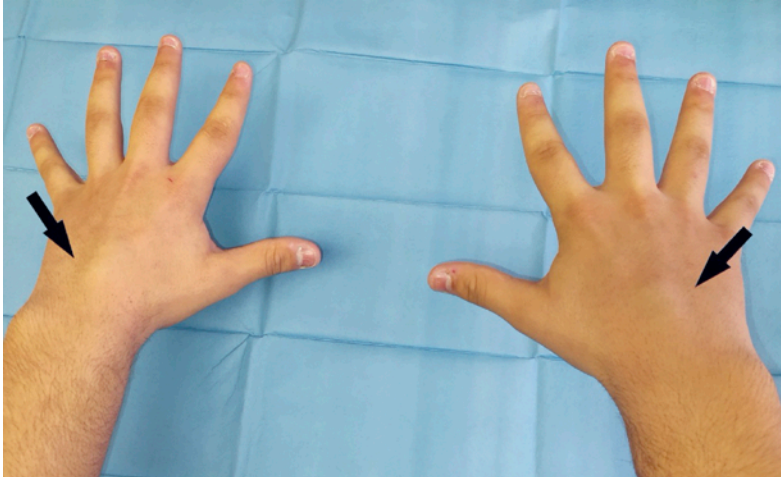


Figure 1. Bilateral masses can be seen on the dorsum of both hands, consistent with EDBM.

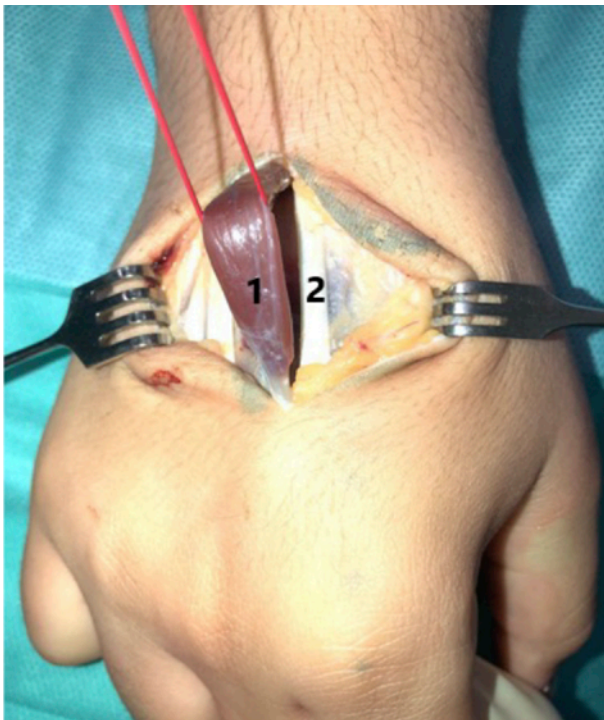


Figure 2. Images of the surgery in which a supernumerary muscle consistent with EDBM can be seen (No. 1), which is being dissected for removal purposes. Also, the common extensor digitorum (No. 2).



Figure 3. Excised EDBMs.

radiocarpal joint and distal tendon insertion at the level of the metacarpophalangeal joint in the extensor indicis proprius, which was consistent with type IIC EDBM.

Approximately one month after surgery, the patient reported clear improvement of the preoperative symptoms, but continued showing moderate functional impotence in his right hand. No signs of reflex sympathetic dystrophy were observed, but there was limitation to flexion and full extension of the wrist and flexion of the second finger.

Rehabilitation treatment was started, which was associated with a significant improvement of residual symptoms. One year after surgery, the patient is asymptomatic.

DISCUSSION

EDBM is a variant of the extensor muscles of the wrist that can cause chronic wrist pain. It can be unilateral, with no difference in incidence between the right or left hand, or bilateral, as in this case, which occurs in approximately one third of instances^(1,2,4,5).

It is located in the fourth compartment of the extensor retinaculum^(6,7). Although there are variants, it usually arises from the posterior radiocarpal ligaments and is commonly attached distally to the extensor indicis proprius (EIP)^(1,2,5). In the presence of EDBM, it is not uncommon for the EIP to be absent, with the EDBM being the sole

Table 1. Classification of the main anatomical variants^(2,4).

<i>EDBM classification</i>			
Group I	The EIP is absent and the EDBM is inserted into the dorsal aponeurosis of the index finger.		
Group II	The EDBM is attached together with the EIP in the index finger.	Group IIA →	This is a shortened or vestigial EIP.
		Group IIB →	The EDBM is inserted on the ulnar aspect of the EIP.
		Group IIC →	The EDBM is inserted at the distal end of the EIP.
Group III	The EIP is inserted in the index finger but the EDBM is attached to the middle finger, assisting in its extension.		

extensor of the index finger and thus compensating for the lack of the EIP⁽²⁾. It has been classified into three groups according to its insertion in relation to the EIP (described in Table 1).

As regards symptoms, given the relatively high incidence of this anatomical variant and the limited reporting of case series of symptomatic patients, it is assumed that the majority of EDBM must occur without associated symptoms⁽³⁻⁵⁾. The clinical symptoms of painful mass, present in our patient, are related to the so-called “fourth compartment syndrome.” They are caused by an increase in pressure due to an additional muscle in this compartment or due to inflammation and hypertrophy of the compartment, which can directly or indirectly compress the posterior interosseous nerve^(1-3,5,8). Therefore, symptoms are more frequent in people who perform repetitive wrist movements and in the dominant hand, as this increases blood flow and causes muscle edema, which raises pressure^(2,4,8).

Differential diagnosis includes ganglions, cysts, synovial pathology, and soft tissue tumors, although they may also coexist^(1,4,5). When the condition is suspected, it is diagnosed by clinical examination and confirmed by ultrasound and/or magnetic resonance imaging. However, resonance imaging is not always helpful if the radiologist does not consider EDBM as a potential diagnosis, so this should be taken into consideration. In case of doubt, electrophysiological studies can distinguish it from cysts or tumors. Despite all this, it is not uncommon for it to be incidentally found at the time of surgery^(2,4,5).

It should be noted that treatment is only necessary in symptomatic cases^(2,5). Conservative treatment, using shortwave diathermy, kerosene baths, immobilization, or anti-inflammatory drugs, has limited effectiveness, so there is consensus that treatment should be surgical. However, there is a debate between retinacular decompression vs. muscle removal (partial or complete). In general, retinacular decompression is recommended if the EIP is absent and the EDBM is the sole extensor of the index, as this

offers benefits in that it is a simpler approach with fewer complications. On the other hand, in all other cases, muscle removal is usually the procedure of choice, as in this clinical case, since it yields better results and allows for full symptom remission^(2,5).

Therefore, the EDBM should be considered as a cause of chronic wrist pain. In addition, anatomical knowledge of the muscle variants present in the extensor compartment is helpful in identifying and planning tendon grafting and tendon transfer surgeries⁽¹⁾.

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