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CASE REPORT

GIANT LIPOMA OF THE DISTAL FOREARM INCLUDING THE MUSCLES OF THE FIRST EXTENSOR COMPARTMENT

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Abstract. *In the area of upper extremity lipomas larger than 5 centimeters are considered giant. In the current article, we describe a case of a giant lipoma, which included the muscles of the first extensor compartment before their passing through it, in a woman in her 40s. The patient was successfully treated by excision of this tumor. The diagnosis and treatment options of giant lipomas of the upper extremity are briefly discussed.*

Key words: *giant lipoma, forearm, imaging study, surgery*

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INTRODUCTION

Lipomas are the most common benign mesenchymal neoplasm [1]. This benign tumor most commonly occurs in adults, predominating in the fifth and sixth decades. The lipoma can be found anywhere in the human body – head, neck, trunk, upper and lower extremities [2]. When it involves the hand or forearm and its size exceeds 5 cm, it is considered as a giant lipoma [3]. The distal forearm is a very unusual location for the lipoma [4].

We aim at presenting an unusual case of a giant lipoma in the distal forearm, which included the muscles of the first extensor compartment and was treated successfully by a simple excision.

CASE PRESENTATION

A female patient in her 40s with no previous medical history of trauma was admitted to our institution due to complaints of swelling in the dorsal radial surface of the right distal forearm with duration of the symptoms for over five years. The formation gradually increased in size and provoked loss of the grasping function of the hand.

During the clinical examination, a soft, resilient, painless mass engaging the front and lateral surfaces of the radial forearm was observed (Fig. 1). The plain radiographs showed a prominent, well-delineated mass (Fig. 2a). On magnetic resonance imaging (MRI), the tumor presented as a homogenous, well-

circumscribed fatty mass over the dorsolateral surface of the distal radius, including the muscles and tendons of the first osteofibrous channel, suggestive of lipoma (Fig. 2b, c). The maximum length of the lipoma was measured to be 5.3 cm. The laboratory tests were within normal range. Surgery was performed through an S-shaped incision. The giant lipoma was found beneath the superficial branch of the radial nerve. It included the tendons of the abductor pollicis longus muscle and extensor pollicis brevis muscle before their passing through the first osteofibrous channel. The tumor was carefully extirpated, protecting the nerve and the tendons. The surgical wound was closed in the usual manner. Histological investigation confirmed a benign lipoma (Fig. 4). The postoperative period was uneventful, but postoperative paresthesia lasted for a month after the operation and entirely disappeared after completion of physiotherapy. No clinical recurrence was observed during the one-year follow-up.

Fig. 1. Photograph presenting a preoperative view of the right forearm and hand of the patient

Fig. 2. A) Anterior posterior roentgenography of the hand preoperatively presenting prominent, well-delineated mass (arrow). **B, C)** Preoperative MRI showed a homogeneous soft tissue mass (arrow) that did not infiltrate the surrounding structures, including the muscles of the first extensor compartment (asterisks)

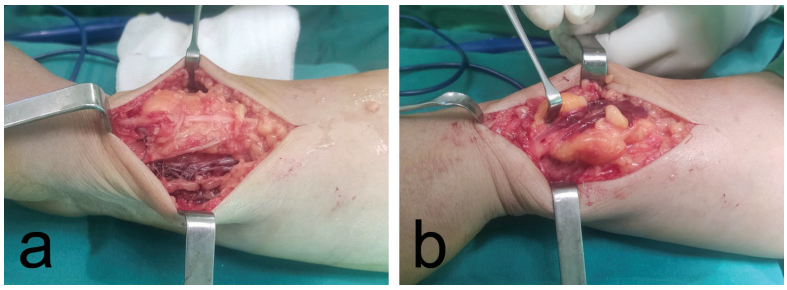

Fig. 3. A) Intraoperative photography presented the superficial branch of the radial nerve over the lipoma. **B)** Intraoperative photography presenting the muscles of the first extensor compartment included in the lipoma

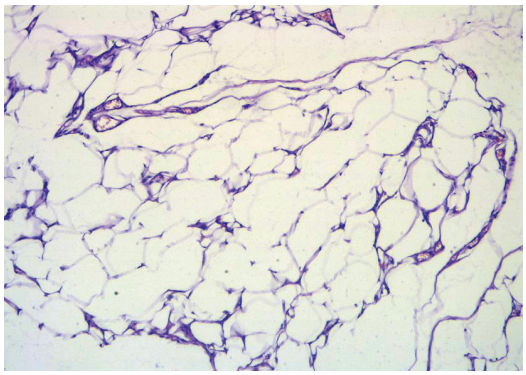

Fig. 4. Histological appearance of the lipoma presented by mature benign adipocytes with no evidence of cellular atypia. Hematoxylin and eosin stain, x 100

DISCUSSION

Lipomas are the most common benign mesenchymal tumor [5]. They are known as “innocent tumors” due to their slow growth, asymptomatic presence and lack of infiltration of the nearby structures [3].

Lipomas may appear on every part of the body or organ containing fat tissue. Depending on their localization, lipomas can be classified as interosseous, visceral, intramural, subfascial, or intramuscular. Generally, lipomas are painless and do not cause any complaints [4]. Rare cases are reported for carpal and Guyon’s channel lipoma, engaging the nerves and causing compression syndromes [6, 7, 8]. In the current report, we describe a giant lipoma that included the muscles of the first extensor compartment before they passing through it. The loss of the grasping function can be attributed to the compression of the tendons of the abductor pollicis longus and extensor pollicis brevis muscle.

The etiology of these benign tumor masses is still not fully understood. However, it is considered that multiple factors took a role in the formation of the lipoma, such as metabolic triggers, trauma, and genetic factors [9].

The diagnosis of tumor masses initially starts with a roentgenography as a first-line investigation. Plain radiographs present the lipoma as a well-delineated radio-negative tumor [10]. MRI is considered a gold standard when it comes to diagnosing soft-tissue masses. MRI can give us a reliable diagnosis with 94% accuracy [8]. The lipoma is presented as a non-invasive mass with homogenous fat signal intensity encircled by a pseudo capsule [11]. Ultrasound can also be used to diagnose lipoma and presented it as a homogenous and circumscribed hyperechoic/isoechoic area. Moreover, the use of Doppler ultrasound can give us information about the vascularity status of the tumor and differentiates a cystic formation from a solid mass [3, 12].

The main concern for surgical treatment of the so-called “giant lipoma” of the upper extremity is due to its sarcomatous transformation, although exclusively rare [1]. The histological diagnosis after a total extirpation or biopsy is essential for the correct diagnosis. The presence of mature adipose tissue with no cellular atypia or increased mitotic index shows the benign nature of the formation [6].

The treatment of this benign tumor includes surgical removal [2, 3, 5, 8, 9]. Complete excision is performed relatively easily due to the fact that lipomas are well-encapsulated. Other treatment options can be intralesional application of corticosteroids and phosphatidylcholine/sodium deoxycholate or intralesional removal through liposuction [13, 14]. However, these procedures have higher frequency of recurrence [1].

CONCLUSION

The current case aims to present a case of a giant lipoma of the distal forearm, including the tendons and muscle bodies of abductor pollicis longus and extensor pollicis brevis, before passing through the first osteofibrosus channel. Although “innocent” in nature, this tumor should not be neglected as it can cause different types of symptoms. Surgical extirpation and careful histological observation are crucial for minimizing the risk of recurrence and incorrect diagnosis.

Conflict of Interest Statement: *The authors declare that they have no competing interests.*

Disclosure summary: *Authors have nothing to disclose.*

Ethics: *Compliance with ethical standards*

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