

## Unusual Location of Intermuscular Lipoma in the thenar eminence: Case Report and Review of the Literature

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### Abstract

### Case Report

**Introduction:** Lipomas are the most common benign mesenchymal tumors, typically located in subcutaneous tissue. They can also occur intramuscularly (1-5%) or intermuscularly (0.3-1.9%). Hand lipomas are rare. **Case Report:** A 53-year-old woman presented with a 2-year history of a painless, enlarging mass in her left hand's thenar region, impairing hand function and grip strength. Physical examination revealed a 5cm, well-defined, painless mass fixed to the deep plan. MRI indicated a benign lipoma. Surgical removal was performed under locoregional anesthesia, and histological analysis confirmed the lipoma diagnosis. Postoperative rehabilitation led to full recovery with no recurrence after 16 months. **Discussion:** Lipomas, though usually found in subcutaneous tissues of the neck, torso, and limbs, can also develop within muscles, with hand occurrences being particularly rare. Diagnosis is typically confirmed by ultrasound or MRI, which distinguishes lipomas from malignant tumors. Histologically, lipomas consist of mature adipocytes and are often encapsulated. Surgical removal is advised if symptomatic, with recurrence being rare. **Conclusion:** Hand lipomas, especially intramuscular, are uncommon and can significantly impair function. Accurate diagnosis and careful surgical excision are crucial for effective treatment and preventing recurrence.

**Keywords:** Adipose tissue, Intramuscular, Hand, Lipoma, thenar.

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## INTRODUCTION

Lipomas are most common benign mesenchymal tumors [1]. They are predominantly located in the subcutaneous tissue, but can also be intramuscular with an approximative frequency of 1 to 5% of all benign adipocytic tumors, or intermuscular with a frequency of 0.3 to 1.9% [2].

We report the case of a 53-years-old woman with a pathologically confirmed diagnosis of intermuscular lipoma of the thenar, treated with surgical removal due to impairment of hand function and reduction of grip strength.

## CASE REPORT

A 53-years-old female patient, right handed, housewife, without medical history, with a BMI of 32, was admitted at our orthopedic consultation for a non-traumatic tumefaction of her left hand. She reported a two years history of painless swelling on her left hand that was gradually enlarging and disturbing the hand function.

Physical examination showed a relatively large mass of approximately 5cm in diameter located in the left thenar, painless, well limited and fixed to the deep plan. Patient was unable to entirely flex her index and thumb, and the grip test was reduced compared to the opposite side. Vascular and nervous examination was normal.

Hand x-ray showed thickening of soft tissue without calcification or bone anomalies (Figure 1). MRI revealed a well-defined lobulated mass, measuring 34x16mm, hyperintense on both T1- and T2- sequences, suggesting a lipoma (Figure 2).

Given the absence of signs of malignancy (good general condition, slow-growing tumor, well defined mass), diagnosis of a benign tumor was highly suspected and a surgical removal was decided as the tumor was large and interfered with thumb motion.

Under locoregional anesthesia, the left upper limb in supine position on an arm table, a hand surgeon performed a marginal excision of the mass through palmar access, with a 3cm incision, at the level of the

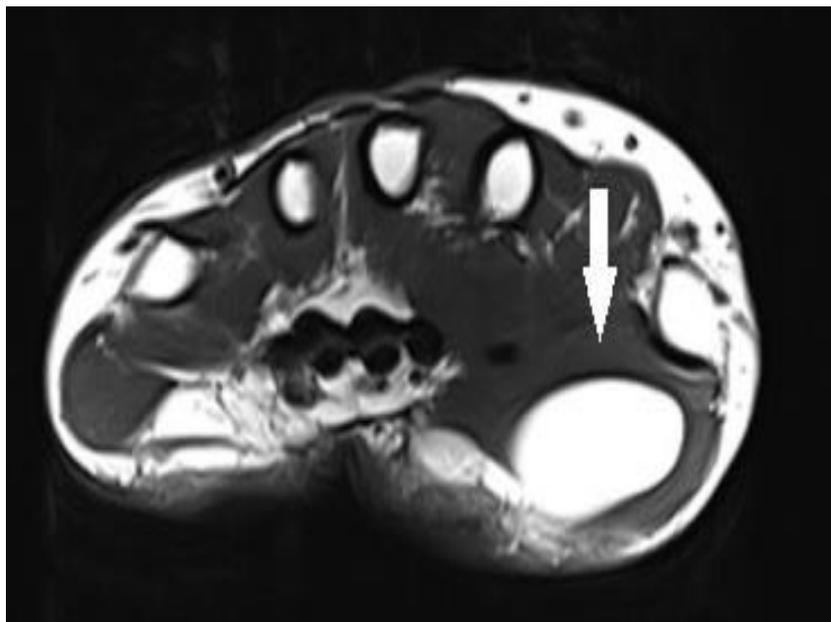
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“life line”. The mass was well-circumscribed, yellowish, located between thenar muscles (Figure 3) and was removed unimpaired, easily separated from the surrounding tissue without muscular damage (Figure 4). Histological examination revealed a tumor consisting of well circumscribed mature adipocytes suggestive of a lipoma.

A functional rehabilitation protocol was started immediately including self-mobilization of the fingers. After a follow-up of 16 months, the patient had a full range of motion with good grip strength, and no recurrence was reported.



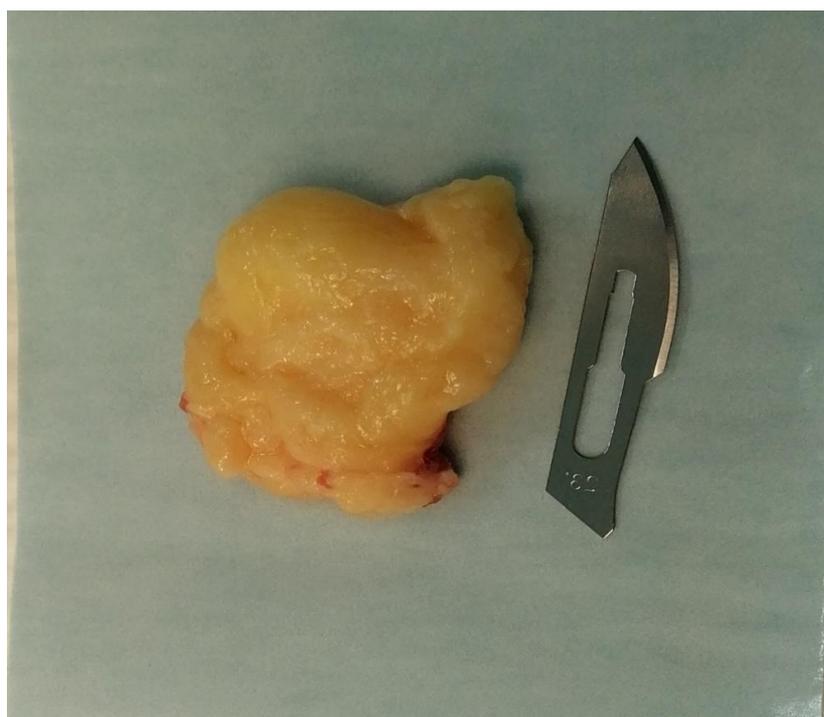
**Figure 1: Hand x-ray showing thickening of soft tissue**



**Figure 2: Axial T2-weighted image showing the thenar intermuscular mass**



**Figure 3: Peroperative view showing the intermuscular mass**



**Figure 4: Macroscopic aspect of the lipoma**

## DISCUSSION

Lipomas are benign tumors composed of fat tissue and are the most common type of soft tissue tumor [1]. Although lipomas can grow anywhere on the body, they are most commonly found on the neck, upper thighs, upper arms, armpits, and torso and typically develop just in the subcutaneous tissues [3]. Although they are normally found, they may be growing deeply between or within muscles. Reported frequency of intermuscular

lipomas among all benign adipocytic tumors is 0.3 to 1.9%, and that of intramuscular ones is 1 to 5% [2]. Hand location is very rare with a frequency of 5% of all cases [4]. Lipomas in the hand are relatively uncommon, and intramuscular lipomas in this location are even rarer.

Lipomas usually range from 1 to 3 centimeters in diameter but can grow larger. The consistant is soft and they are generally mobile under the skin. The hand contains numerous small muscles, tendons, and nerves,

making the presence of a lipoma potentially more symptomatic [5]: lipomas here may lead to pain, restricted movement, or compression of nerves, causing symptoms like numbness or tingling [6]. Patients also complain about the non-aesthetic appearance and impairment of hand functionality [7].

Diagnosis is typically confirmed through imaging studies such as ultrasound or MRI, which can differentiate lipomas from other soft tissue masses [8]. In ultrasound, lipomas are typically homogeneous in echostructure and slightly hyperechoic to subcutaneous fat [9]. MRI gives better anatomical details especially about nerves, vessels and tendons. On both T1- and T2 sequences, lipomas appear as high signal intensity, well-defined and encapsulated soft tissue masses. Fat SAT sequences after intravenous administration of Gadolinium help to differentiate malignant tumors from lipomas. Septa of lipomas are thin and slightly enhanced, while the septum-like structures of liposarcoma are thick and enhanced considerably [10].

Histologically, lipomas are benign tumors composed predominantly of mature adipocytes, often encapsulated and lobulated with interspersed fibrous septa [1]. Recognizing these features is essential for diagnosing lipomas and distinguishing them from other soft tissue tumors [11].

Surgical removal is often recommended, especially if the lipoma is causing significant symptoms or functional impairment. The procedure must be carefully planned to avoid damage to the intricate structures of the hand. Recurrence is extremely rare and is often caused by defective surgical excision [12].

## CONCLUSION

Lipomas are common benign tumors made of fat tissue, often found under the skin on the torso, neck, upper thighs, upper arms, and armpits. Intramuscular lipomas are rare, especially in the hand, where they can cause pain, restricted movement, and nerve compression.

Diagnosis is confirmed using ultrasound and MRI, which distinguish lipomas from malignant tumors. Histologically, lipomas consist of mature adipocytes and are encapsulated and lobulated. Surgical removal is recommended if symptoms are significant, with careful

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