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A 5-Kg Giant Recurrent Lipoma of the Thigh with a 46-Year Clinical Course

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Abstract **Case Report**

Background: Lipomas are the most common benign soft-tissue tumors. However, giant deep-seated lipomatous tumors of the extremities are uncommon and may raise concern for atypical lipomatous tumor/well-differentiated liposarcoma (ALT/WDL), particularly when they are large and recurrent. We report a rare case of a giant recurrent lipomatous tumor of the thigh with a 46-year clinical course. ***Case Presentation:*** A 70-year-old man presented with a progressively enlarging mass of the right thigh causing heaviness and walking discomfort. He had previously undergone two surgical excisions at the same site in 1980 and 2000. Magnetic resonance imaging revealed a large deep-seated lipomatous lesion of the right thigh measuring 34 × 19 × 20 cm, with internal septa and heterogeneous post-contrast enhancement, displacing adjacent muscles without vascular or bony invasion. Complete surgical excision was performed through a curvilinear incision. The specimen measured 35 × 15 × 13 cm and weighed more than 5 kg. Histopathological examination showed a mature adipocytic proliferation with fibrous remodeling, dystrophic calcifications, and focal lipoblast-like cells with nuclear atypia. Immunohistochemistry was negative for MDM2 expression, supporting a benign lipomatous lesion rather than ALT/WDL. The postoperative course was uneventful. At 2-month follow-up, the patient had satisfactory healing and no clinical evidence of early local recurrence. ***Conclusion:*** This case highlights the diagnostic difficulty of giant recurrent deep-seated lipomatous tumors of the thigh. Magnetic resonance imaging is essential for preoperative assessment, while complete surgical excision and careful histopathological evaluation remain central to management. The prolonged interval between recurrences also supports long-term follow-up in recurrent deep lipomatous lesions.

Keywords: giant lipomatous tumor; thigh; recurrence; magnetic resonance imaging; surgical excision; case report.

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INTRODUCTION

Lipomas are the most common benign soft-tissue tumors in adults and arise from mature adipocytes [1]. They are usually slow-growing, painless lesions and are most often located in the trunk and extremities, especially in areas rich in adipose tissue [1,2]. Although most lipomas are superficial and small, deep-seated lesions may remain clinically silent for a long time and can reach considerable dimensions before diagnosis [3–5].

A lipomatous lesion is generally considered giant when it exceeds 10 cm in one dimension or weighs more than 1000 g [2,6]. Giant lipomatous tumors of the thigh are uncommon but represent an important diagnostic challenge because their size, depth, and imaging features may overlap with those of atypical lipomatous tumor/well-differentiated liposarcoma (ALT/WDL) [3,4,7]. In this setting, magnetic resonance imaging (MRI) plays a key role in characterizing the lesion, defining its anatomical extent, and assessing its relationship to adjacent muscular, vascular, and osseous structures [3,4,8].

Histopathological examination remains essential for final diagnosis. In some cases, the presence of fibrous septa, focal atypia, or lipoblast-like cells may complicate the distinction between a benign lipomatous lesion and ALT/WDL, making ancillary testing useful in selected cases [7,9–11].

We report the case of a giant recurrent deep-seated lipomatous tumor of the right thigh in a 70-year-

old man who had previously undergone two surgical excisions at the same site, with a clinical course spanning 46 years.

Case Presentation

A 70-year-old man presented with a progressively enlarging mass of the right thigh. He reported a history of two previous surgical excisions for a lipomatous tumor at the same site, performed in 1980 and 2000. Over the years, the mass had progressively increased in size. Although painless, it caused heaviness of the limb and functional discomfort during walking.

Physical examination revealed a large deforming mass of the right thigh, predominantly involving the anterolateral aspect. The lesion was deep-seated, well circumscribed on palpation, soft in consistency, and mobile with respect to the superficial planes. There were no signs of local inflammation. The mass-produced visible asymmetry of the limb and mechanical discomfort during ambulation (Figure 1).

MRI of the right thigh demonstrated a large deep-seated lipomatous lesion measuring approximately 34 × 19 × 20 cm. The mass showed high signal intensity on T1- and T2-weighted sequences, with signal suppression on fat-saturated images, consistent with a predominantly fatty composition. Internal septa were present, and heterogeneous enhancement was observed after gadolinium administration (Figures 2–4). The lesion displaced adjacent muscular structures, notably the vastus intermedius and vastus medialis, but no major vascular invasion or cortical bone involvement was identified.

Given the size, deep location, recurrent nature, and radiologic appearance of the lesion, the main preoperative differential diagnosis included a benign deep-seated lipomatous tumor and ALT/WDL.

Surgical treatment consisted of complete excision of the mass. A curvilinear skin incision was designed according to the size and topography of the lesion. Careful dissection was performed along the anterior and posterior planes to isolate the tumor from the surrounding structures. The lesion was removed en bloc after control and ligation of its feeding pedicles (Figure 5). A closed-suction drain was placed before layered closure.

The resected specimen measured approximately 35 × 15 × 13 cm and weighed more than 5 kg (Figure 6).

Gross examination confirmed a large encapsulated lipomatous mass. Histopathological evaluation showed a mature adipocytic proliferation associated with fibrous remodeling and dystrophic calcifications. Focal lipoblast-like cells and nuclear atypia were identified on microscopic examination (Figure 7). Because of these atypical features, immunohistochemical analysis was performed. MDM2 immunostaining was negative, supporting the interpretation of a benign lipomatous lesion rather than ALT/WDL.

The postoperative course was uneventful. The drain was removed on postoperative day 5. At 2-month follow-up, wound healing was satisfactory, the contour deformity had resolved, and there was no clinical evidence of early local recurrence (Figure 8).



Figure 1. Clinical appearance of the right thigh showing a large deforming mass involving the anterolateral aspect

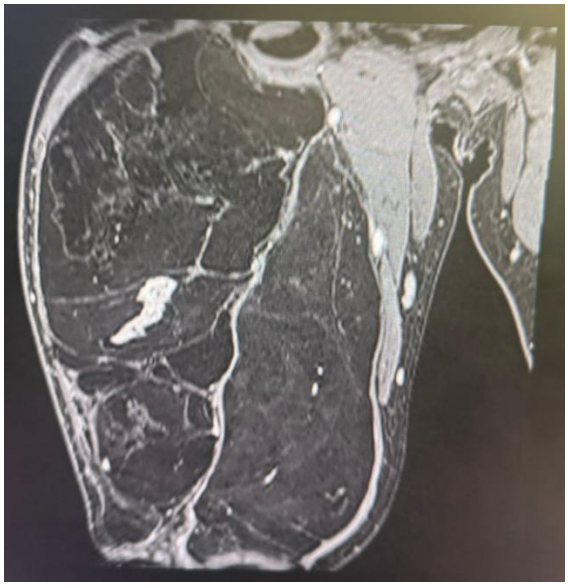


Figure 2. Coronal MRI of the right thigh demonstrating a large lipomatous mass occupying the deep compartment of the thigh and extending along the femoral shaft

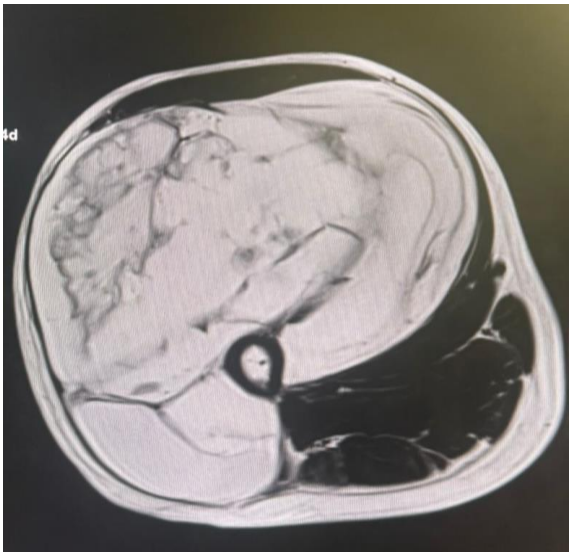


Figure 3. Axial MRI showing a large fatty tumor within the deep anterior compartment of the right thigh displacing surrounding muscle

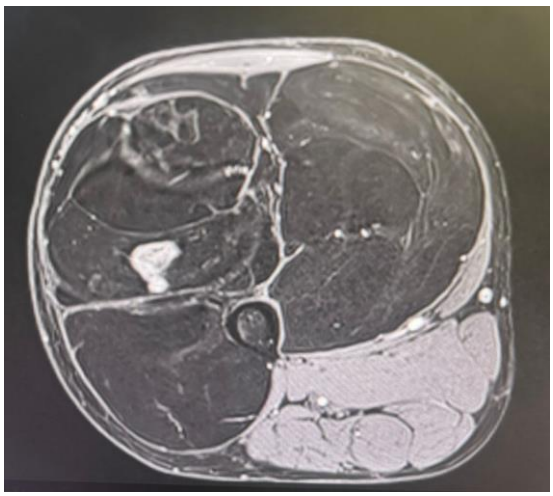


Figure 4. Axial contrast-enhanced MRI demonstrating internal septations within the lipomatous mass without evidence of vascular invasion.

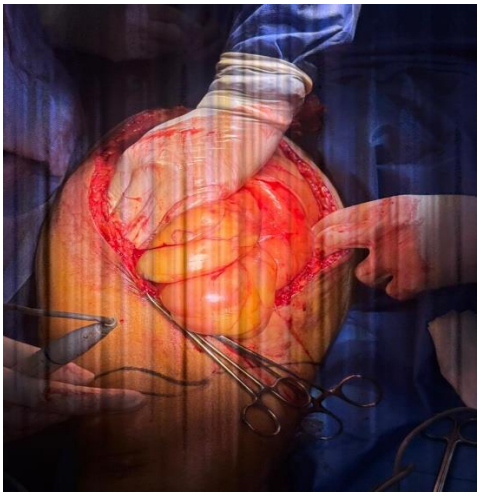


Figure 5. Intraoperative view showing the giant lipomatous tumor after arciform incision and dissection.

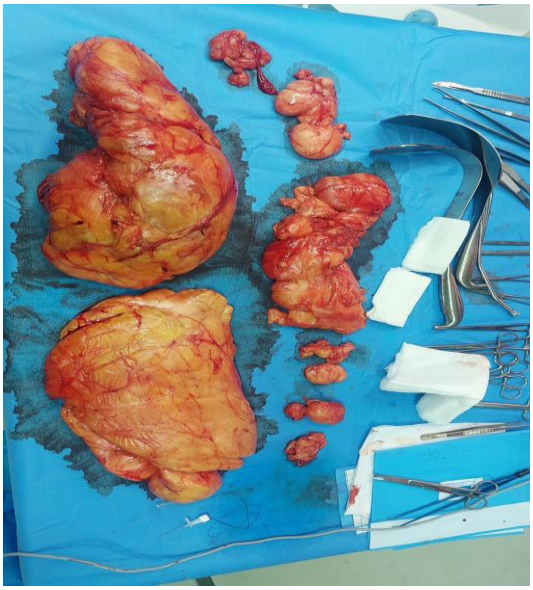
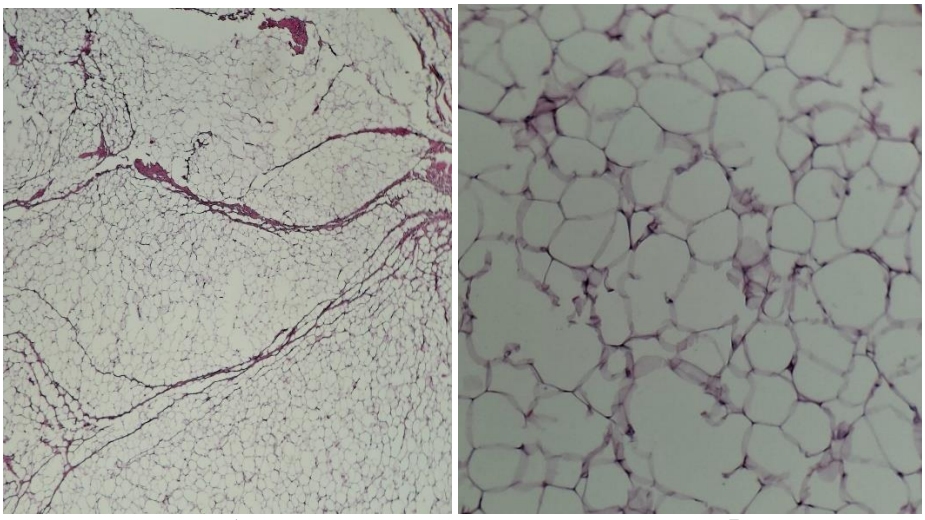


Figure 6. Surgical specimen measuring approximately 35 cm and weighing more than 5 kg.



A **B**

Figure 7. Histopathological examination of the tumor (Hematoxylin–Eosin stain).
(A) Low-power view (×10) showing a well-circumscribed adipocytic lesion composed of mature adipose tissue with fibrous septa.
(B) High-power view (×40) demonstrating mature adipocytes with occasional lipoblast-like cells and mild nuclear atypia



Figure 8. Postoperative result at two months showing satisfactory healing without evidence of local recurrence.

DISCUSSION

Lipomatous tumors constitute a broad spectrum of adipocytic neoplasms ranging from common benign lipomas to locally aggressive atypical lipomatous tumors and liposarcomas [7,9–11]. Among benign lesions, deep-seated and giant forms are much less frequent than superficial lipomas and are therefore more likely to raise diagnostic uncertainty [3–6]. The thigh is a recognized location for large lipomatous tumors because of its abundant soft tissue and relatively permissive anatomical space, allowing slow-growing lesions to become massive before consultation [1,2,6].

The present case is notable for several reasons: the exceptional size of the lesion, its deep location, its recurrent presentation, and the very long interval over which recurrence occurred. The tumor weighed more than 5 kg, which clearly exceeds the usual threshold used to define a giant lipomatous lesion [2,6]. In addition, the patient had undergone two previous excisions at the same site, in 1980 and 2000, making the current presentation the third surgical episode in a clinical course spanning 46 years.

From a diagnostic perspective, the principal challenge in this case was to distinguish a benign recurrent lipomatous lesion from ALT/WDL. Large size, deep location, recurrence, and the presence of internal septa or heterogeneous enhancement on MRI may all be seen in ALT/WDL and should prompt careful evaluation [3,4,7,8]. MRI remains the imaging modality of choice in this setting because it can confirm the predominantly fatty nature of the mass, identify nonadipose components, evaluate septations, and assess the lesion's anatomical relationships before surgery [3,4,8].

Nevertheless, imaging alone is not sufficient for definitive diagnosis. Histopathological assessment remains the cornerstone of classification of adipocytic tumors [9–11]. Typical lipomas are composed of mature adipocytes with minimal variation and delicate fibrous septa. In contrast, ALT/WDL may show variation in adipocyte size, atypical stromal cells, fibrous septa, and lipoblasts [9–11]. In the present case, pathological examination revealed mature adipocytic proliferation with fibrous remodeling, dystrophic calcifications, and focal lipoblast-like cells associated with nuclear atypia. These features justified additional immunohistochemical assessment. The absence of MDM2 expression argued against ALT/WDL and supported a benign lipomatous lesion [7,10,11].

The recurrent nature of the lesion is also of particular interest. Recurrence after excision of an ordinary superficial lipoma is uncommon, whereas recurrence is more frequently reported in deep-seated lesions, particularly when excision is incomplete or technically difficult because of anatomical constraints [5,6,12]. In longstanding tumors of the thigh, progressive enlargement and distortion of surrounding structures may further complicate surgical management. In the present case, the prolonged intervals between procedures suggest extremely slow regrowth rather than aggressive biological behavior. This observation reinforces the importance of complete resection whenever feasible and of prolonged clinical surveillance in recurrent deep lipomatous lesions.

Surgical excision remains the treatment of choice for giant symptomatic lipomatous tumors [4,7,13]. Beyond symptom relief, surgery provides the specimen required for definitive pathological analysis. In our patient, complete excision resulted in a favorable

functional and local outcome in the early postoperative period. The large size of the tumor, however, underscores the importance of adequate preoperative planning and meticulous intraoperative dissection in order to preserve adjacent muscular and neurovascular structures.

This report has some limitations. The currently available postoperative follow-up remains short, and longer surveillance is necessary before drawing conclusions regarding long-term local control. In addition, adipocytic lesions with focal atypical features should always be interpreted cautiously, especially when they are recurrent and deep-seated. Despite these limitations, this case remains clinically instructive because it illustrates the diagnostic and therapeutic issues raised by giant recurrent lipomatous tumors of the thigh.

CONCLUSION

Giant recurrent deep-seated lipomatous tumors of the thigh are uncommon lesions that may mimic ALT/WDL, especially when they are voluminous and longstanding. MRI is essential for preoperative assessment and surgical planning, while complete excision and careful histopathological evaluation remain central to diagnosis and treatment. This case also emphasizes the need for prolonged follow-up in recurrent deep lipomatous lesions because regrowth may occur after long symptom-free intervals.

Patient Consent: Written informed consent was obtained from the patient for publication of this case report and the accompanying clinical, radiological, intraoperative, and pathological images.

Ethical Approval: According to local institutional practice, formal ethical committee approval was not required for the publication of this single anonymized case report. This work was conducted in accordance with the ethical standards of the institution and with the principles of the Declaration of Helsinki.

Conflict of Interest: The authors declare no conflicts of interest.

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Availability of Data: All relevant data supporting the findings of this case report are included in the article. Additional information may be made available by the corresponding author upon reasonable request, while respecting patient confidentiality.

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