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Giant Liposarcoma of the Thigh: A Rare Case of 20 Year Evolution

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Abstract: ***Introduction: Giant well-differentiated liposarcoma (WDL) is a rare soft tissue sarcoma subtype, often misdiagnosed due to its indolent behavior and resemblance to benign lipomas. Case Presentation: We report the case of a 46-year-old woman with a 20-year history of a slowly growing thigh mass that showed sudden enlargement over the preceding two months. MRI suggested a lipomatous tumor with malignant potential. Surgical excision was performed, and histopathology confirmed a well-differentiated liposarcoma. Outcome: The patient underwent wide local excision with primary closure and had an uneventful postoperative recovery. Conclusion: This case emphasizes the importance of considering malignancy in long-standing soft tissue masses, especially with recent changes, and the value of imaging and histopathology in guiding treatment.***

Keywords: well-differentiated liposarcoma, soft tissue sarcoma, diagnostic imaging, histopathology, surgical management

1. Introduction

Soft tissue sarcomas (STS) are a rare and diverse group of malignant tumors arising from mesenchymal tissues, including muscles, fat, fibrous tissue, and blood vessels. Among these, liposarcoma is one of the most frequently encountered histological subtypes, accounting for approximately 20% of all adult soft tissue sarcomas worldwide. These tumors originate from primitive mesenchymal cells that undergo adipocytic differentiation.

Liposarcomas are relatively rare, with an estimated global incidence of 2.5 cases per million population per year. They typically occur in adults between the ages of 40 and 60 years, with no significant gender predilection. The most common anatomical locations include the deep soft tissues of the extremities, especially the thigh (over 50% of cases), followed by the retroperitoneum and trunk. [1]

Among the subtypes, well-differentiated liposarcoma (WDLS), also referred to as an atypical lipomatous tumor when in superficial or resectable locations, is the most indolent and common variant. WDLS accounts for approximately 40–50% of all liposarcomas and is known for its low metastatic potential but high risk of local recurrence, especially in deep-seated lesions. [2]

Giant Liposarcoma, a term used for tumors exceeding 10 cm in diameter and weighing more than 1 kg, is even rarer. Though benign giant lipomas make up about 1% of all soft tissue tumors, the malignant transformation into giant liposarcomas is extremely uncommon. These tumors pose diagnostic and surgical challenges due to their size, deep anatomical location, and proximity to neurovascular structures. [3]

In India, the exact incidence of liposarcomas is underreported due to lack of centralized cancer registries in many regions and the rarity of the tumor itself. However, tertiary cancer centers and institutional studies suggest that liposarcoma constitutes around 15–20% of all soft tissue sarcomas diagnosed in Indian adults, with a distribution pattern similar to that seen globally. A retrospective study from the Tata Memorial Hospital reported that extremity sarcomas were the most common, and among them, liposarcoma was a predominant histological type. Cases of giant liposarcoma in India are limited to sporadic case reports, emphasizing the rarity and clinical significance of such presentations.

Long-standing soft tissue swellings, especially those exceeding 5 cm in size and exhibiting rapid recent growth, pain, or fixation, warrant evaluation for possible malignancy. Atypical lipomatous tumors, although well-differentiated, can mimic benign lipomas and may be overlooked unless thoroughly investigated using imaging and histopathological examination. Early recognition and complete surgical excision with wide margins are crucial in preventing recurrence and ensuring optimal functional outcomes, particularly in deep-seated tumors such as those in the thigh.

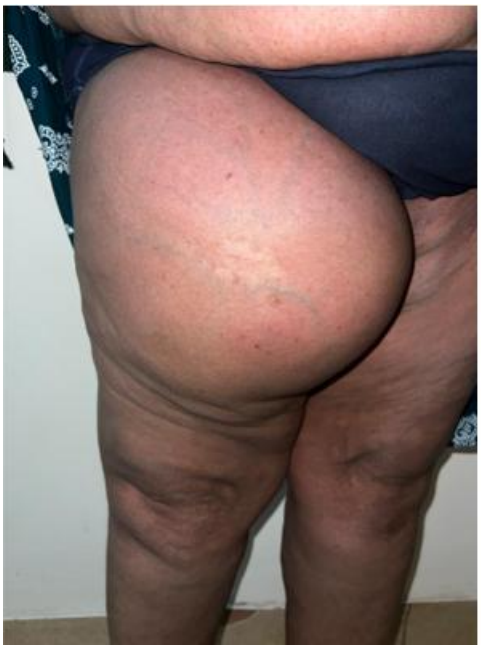
This case report presents a rare occurrence of a giant well-differentiated liposarcoma of the thigh in a middle-aged woman, emphasizing the need for awareness of malignant potential in long-standing lipomatous masses and the importance of timely intervention.

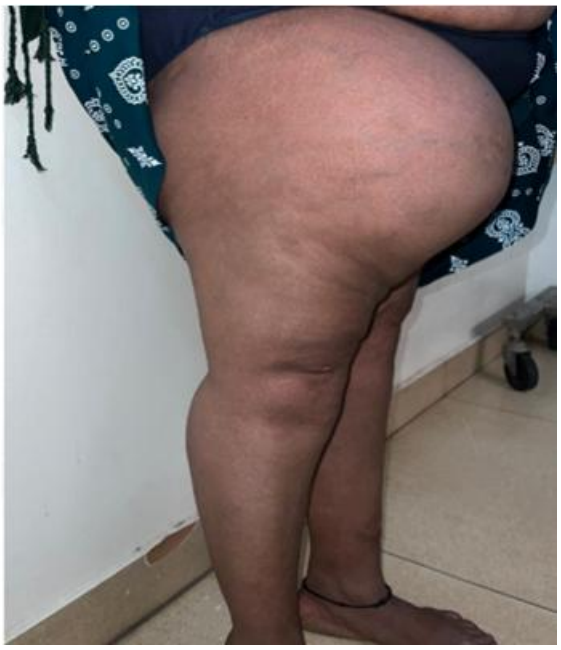
2. Detailed Case Review

A 46-year-old postmenopausal female presented to the surgical outpatient department with a complaint of a progressively enlarging swelling over the medial aspect of her right thigh. The swelling had been first noticed nearly two decades ago as a small, painless lump and had remained largely indolent for several years. However, over the preceding two months, she noted a sudden and rapid increase in the size of the mass, which was now associated with dull aching pain, discomfort while walking, and a noticeable alteration in her gait.

She denied any history of trauma, recent weight loss, fever, fatigue, or other constitutional symptoms. There was no history of similar swellings elsewhere in the body. Her past medical history was significant only for two lower segment cesarean sections (LSCS) and a tubectomy. She had no known

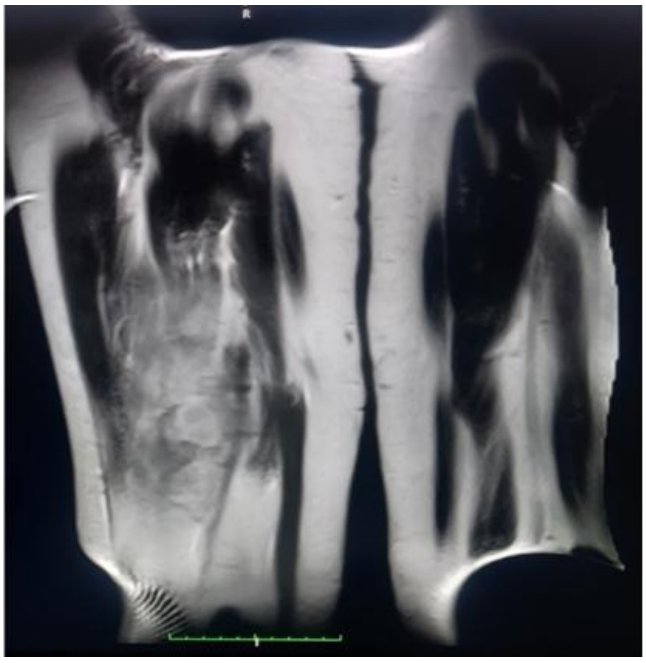
comorbidities such as diabetes, hypertension, or thyroid disease, and reported no drug allergies or significant family history of malignancies.

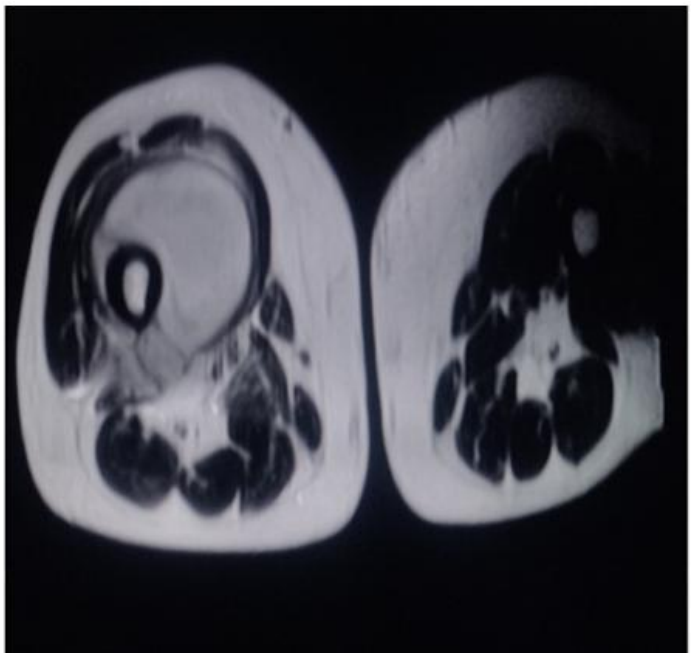




On physical examination, the patient appeared clinically stable and was afebrile. Local examination of the right thigh revealed a large, well-defined, lobulated, firm, and non-tender mass measuring approximately 15 × 15 cm. It was located on the anterior-medial aspect of the thigh. The overlying skin was stretched and thinned out, with visibly dilated superficial veins. No erythema, local rise of temperature, ulceration, or discharge was noted. The mass was mobile in the transverse plane but exhibited restricted movement during muscle contraction, raising suspicion of deep fascial or muscular involvement.

There were no signs of neurovascular compromise or regional lymphadenopathy. Systemic examination, including respiratory, cardiovascular, abdominal, and neurological systems, was unremarkable.





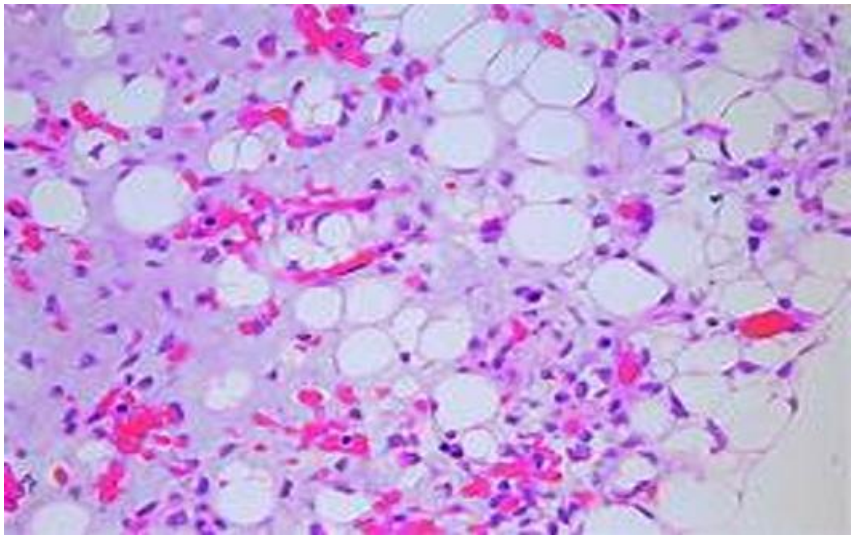
Magnetic Resonance Imaging (MRI) of the right thigh was performed to evaluate the extent and nature of the lesion. The imaging revealed a large, encapsulated, and well-demarcated soft tissue mass measuring 12.6 × 14.3 × 23 cm.

The lesion exhibited hyperintensity on both T1-weighted and T2-weighted images, and suppression on fat-saturated sequences, indicating a fat-containing tumor. The mass was seen involving the sartorius muscle, and closely abutting the quadriceps muscle on the medial aspect of the thigh.

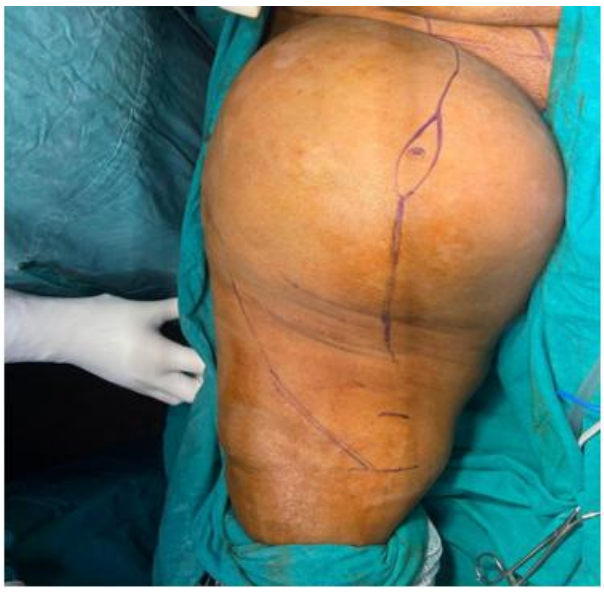
One of the locules within the tumor showed STIR hyper intensity, suggestive of internal edema or fluid accumulation. The radiological features were consistent with a lipomatous tumor with malignant potential, most likely a well-differentiated liposarcoma.

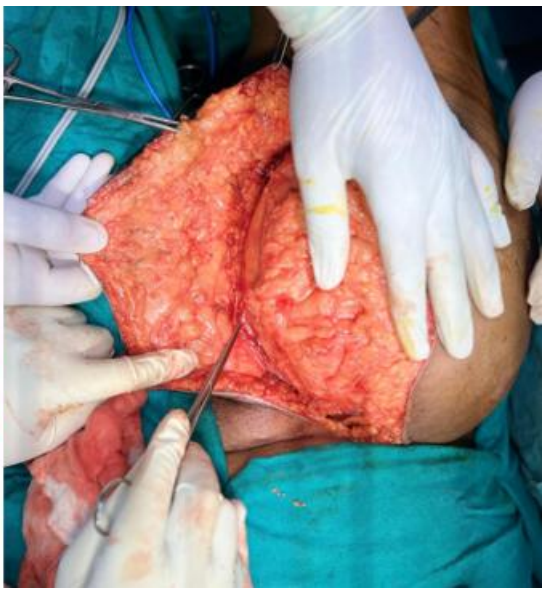
A tru-cut needle biopsy was advised for definitive histopathological diagnosis.

The biopsy specimen revealed mature adipocytes separated by fibrous septae, occasional stromal myxoid changes, and scattered lymphocytic aggregates. However, characteristic malignant features such as lipoblasts and floret-type giant cells were not observed. While no definitive malignant histological markers were present in the sample, the findings remained suspicious for an atypical lipomatous tumor or pleomorphic lipoma. Given the lesion's size, location, and imaging characteristics, surgical excision was planned.

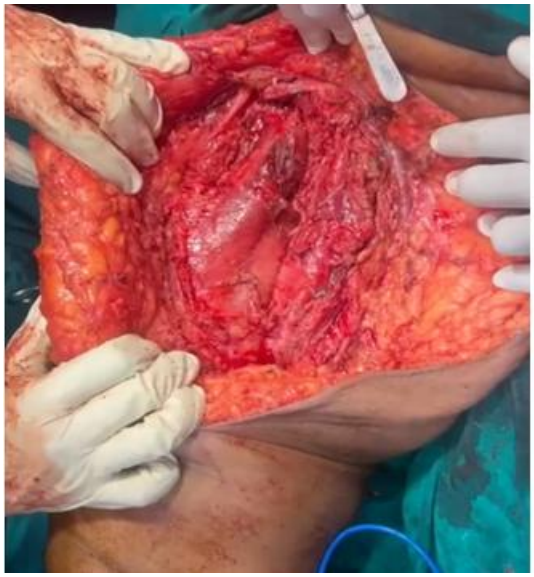


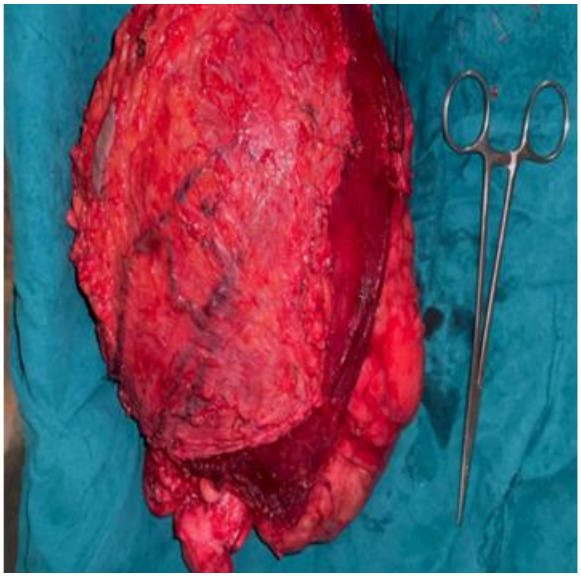
The patient underwent wide local excision of the tumor under spinal anesthesia. Intraoperatively, a large, encapsulated mass was identified involving the sartorius muscle and extending proximally toward the groin crease. The tumor was dissected meticulously in the subcutaneous and muscular planes.





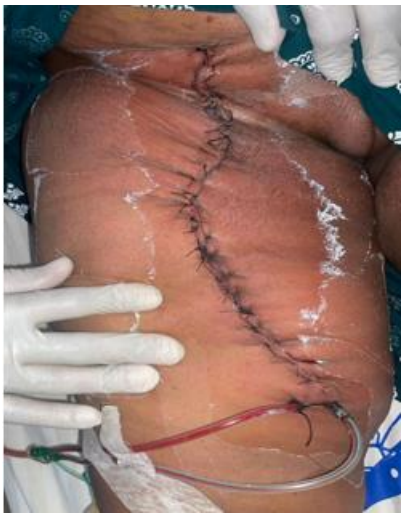
The sartorius muscle was resected en bloc with the tumor to ensure complete clearance of involved tissue. Major neurovascular structures in proximity were carefully preserved. The tumor, weighing approximately 3.5 kilograms, was removed in toto without capsular rupture. The resulting dead space was addressed with local flap mobilization. A surgical drain was placed, and the wound was closed primarily in layers. The patient tolerated the procedure well and was shifted to the postoperative recovery unit in stable condition





Histopathological examination of the resected specimen confirmed the diagnosis of an atypical lipomatous tumor/well-differentiated liposarcoma (WDL) of mixed type, comprising both sclerosing and inflammatory components. The tumor was graded as **Grade I** based on the French Federation of Cancer Centers Sarcoma Group (FNCLCC) grading system. No significant mitotic activity or necrosis was observed. Surgical margins were clear, with the anterior margin entirely free of tumor and other margins—superior, inferior, lateral, and medial—lying within 2 cm of the capsule but not breached. No lymphovascular or perineural invasion was noted. An isolated regional lymph node excised during the procedure was also found to be free from tumor infiltration. The final pathological staging was reported as **pT4N0Mx**.

Postoperatively, the patient had an uneventful recovery. She was managed with intravenous fluids, antibiotics (ceftriaxone), analgesics (tramadol, paracetamol), and antiemetics. Deep vein thrombosis (DVT) prophylaxis was initiated using compression stockings and limb elevation. The surgical drain was monitored regularly, and sterile dressing was applied daily.



The patient remained afebrile with stable vital signs throughout her hospital stay. She was discharged on postoperative day seven in a stable condition. At her first postoperative follow-up visit one week later, the surgical site showed good healing with no evidence of seroma, infection, or recurrence.

This case highlights an uncommon presentation of a **giant well-differentiated liposarcoma** with a long-standing history, sudden symptomatic progression, and deep soft tissue involvement. It underscores the diagnostic complexity such cases can pose, given their deceptively benign appearance and slow growth over years. This case reiterates the importance of **clinical suspicion**, **appropriate imaging**, and **timely surgical intervention** in managing deep-seated, large soft tissue tumors. Complete surgical excision with clear margins remains the cornerstone of treatment, with regular follow-up essential to monitor for recurrence in such patients.

3. Discussion

Well-differentiated liposarcomas (WDLs) are malignant adipocytic tumors that predominantly occur in the deep soft tissues of the extremities, particularly the thigh. While benign lipomas are common, their transformation into liposarcomas is rare. This case of a giant WDL in a 46-year-old female with a 20-year history of a thigh mass aligns with similar reports in the literature.

For instance, a case reported by Suleiman et al. described a 46-year-old female with a 4-year history of a progressively enlarging mass on the lateral aspect of her left thigh. The mass was excised, and histopathological analysis confirmed a WDL. The patient had an uneventful recovery with no recurrence at an 8-month follow-up. [4]

Similarly, Kamble et al. presented a 62-year-old male with a recurrent large left thigh liposarcoma. The patient underwent embolization followed by debulking surgery, and histopathology confirmed liposarcoma. The patient recovered well postoperatively. [5]

These cases, along with the present report, underscore the importance of considering malignancy in long-standing, large soft tissue masses, especially those exhibiting recent rapid growth or causing functional impairment. Imaging modalities

like MRI play a crucial role in preoperative planning by delineating the extent of the tumor and its relationship with adjacent structures. Complete surgical excision with clear margins remains the cornerstone of treatment for WDLs, aiming to reduce local recurrence rates. In cases where complete resection is achieved, adjuvant therapy is generally not indicated due to the low metastatic potential of WDLs. Click or tap here to enter text.Regular follow-up is essential to monitor for any signs of recurrence.

4. Conclusion

This case highlights the importance of considering malignancy in long-standing soft tissue swellings. Timely imaging and biopsy followed by surgical management lead to favorable outcomes even in **giant tumors.**

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