

Liposarcoma: Clinical Presentation and Surgical Approach. Case Report

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ABSTRACT

Liposarcoma is a rare malignant soft tissue neoplasm characterized by a nonspecific clinical presentation and variable biological behavior, which may lead to diagnostic delays, particularly in uncommon anatomical locations. We report the case of a 55-year-old female patient presenting with a progressively enlarging mass in the gluteal region, with a prolonged course and minimal initial symptoms. Imaging studies suggested a soft tissue neoplasm, and the diagnosis of liposarcoma was confirmed by histopathological examination. The patient underwent wide oncologic surgical resection with negative margins, which constituted the definitive treatment. The procedure was performed without intraoperative complications, with a favorable postoperative course and adequate functional preservation. This case report highlights the importance of including liposarcoma in the differential diagnosis of progressively growing gluteal masses, as well as the fundamental role of adequate surgical resection as the cornerstone of treatment, emphasizing the need for a timely and multidisciplinary approach to optimize oncologic and functional outcomes.

KEYWORDS: Liposarcoma; Soft tissue sarcomas; Gluteal region; Surgical resection; Case report; Surgical oncology.

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INTRODUCTION

Liposarcoma is a malignant neoplasm originating from adipose tissue and represents one of the most common subtypes of soft tissue sarcomas. Despite its relatively low incidence in the general population, it poses a diagnostic and therapeutic challenge due to its heterogeneous clinical behavior, which is closely related to histological subtype, tumor grade, and anatomical location. The main histological subtypes include well-differentiated, dedifferentiated, myxoid, and pleomorphic liposarcoma, each exhibiting significant differences in biological aggressiveness, risk of local recurrence, and metastatic potential.

From a clinical perspective, liposarcoma typically presents as a progressively enlarging mass that is usually painless,

leading to delayed diagnosis, particularly when located in deep or anatomically complex regions. In adult patients, the clinical presentation may go unnoticed for months or even years, allowing tumors to reach a considerable size at the time of detection. Comprehensive diagnostic evaluation requires appropriate clinical, imaging, and histopathological correlation, with magnetic resonance imaging and computed tomography being essential tools for assessing tumor extent, involvement of adjacent structures, and surgical planning.

The treatment of choice for liposarcoma remains wide surgical resection with negative oncologic margins, which constitutes the main prognostic factor for local disease control. Depending on histological subtype, tumor size, and degree of differentiation, management may be complemented

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with radiotherapy and/or chemotherapy, particularly in high-grade tumors or locally advanced disease. Nevertheless, the surgical approach often represents a significant challenge due to large tumor size, involvement of adjacent structures, and the need for reconstructive strategies to ensure adequate soft tissue coverage.

In this context, we present the case of a 55-year-old female patient who sought medical evaluation for a progressively enlarging mass with a prolonged course, initially asymptomatic. Following clinical assessment and imaging studies, a diagnostic suspicion of liposarcoma was established and subsequently confirmed by histopathological examination. The patient underwent oncologic surgical resection as definitive treatment, with an approach focused on achieving adequate margins and functional preservation. The aim of this case report is to describe the clinical presentation, surgical approach, and outcome of a patient with liposarcoma, highlighting the diagnostic and therapeutic challenges associated with this entity, as well as the importance of timely and multidisciplinary management to optimize oncologic and functional results.

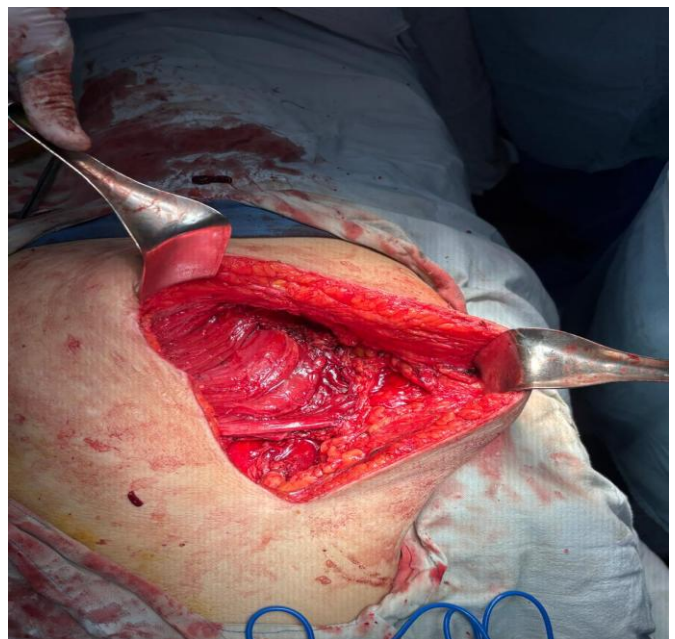
CASE REPORT

We report the case of a 55-year-old female patient with no relevant past medical history, who presented for medical evaluation due to a progressively enlarging mass in the gluteal region, with an evolution of several months. The patient reported a gradual increase in volume, initially asymptomatic, which later caused a sensation of heaviness and mild local discomfort, without intense pain, paresthesia, neurological deficit, or constitutional symptoms such as fever, weight loss, or asthenia. Physical examination revealed a firm, poorly defined, non-tender mass located in the gluteal region, with no associated skin changes, ulceration, or clinical signs of infection.

As part of the diagnostic workup, magnetic resonance imaging was performed, revealing a large tumor lesion in the gluteal region with heterogeneous characteristics, predominantly adipose signal intensity and areas of increased density, suggestive of a soft tissue neoplasm. The lesion displaced the adjacent gluteal musculature, without conclusive evidence of bone infiltration or obvious involvement of major neurovascular structures. Based on the clinical and imaging findings, a strong diagnostic suspicion of liposarcoma was established, which was corroborated by histopathological examination obtained through preoperative biopsy.

Considering the tumor size, anatomical location, and biological behavior of this type of neoplasm, surgical treatment was chosen as definitive management. The procedure was performed under general anesthesia, with the patient placed in the prone position to ensure adequate exposure of the surgical field and protection of pressure points. Careful preoperative marking was performed, delineating the lesion and the planned oncologic margins. A wide elliptical incision was made over the affected gluteal region, followed by dissection through anatomical planes until identification of the tumor, which was closely related to the gluteal musculature, without macroscopic evidence of invasion into bone or neurovascular structures.

Resection was carried out meticulously, aiming for en bloc excision of the tumor along with surrounding healthy tissue to obtain adequate surgical margins. During dissection, a firm, partially encapsulated mass with relatively preserved cleavage planes was identified, allowing complete resection without intraoperative complications. Rigorous hemostasis was achieved, and the surgical specimen was sent for definitive histopathological analysis, which confirmed the diagnosis of liposarcoma and reported tumor-free surgical margins.



Figures 1 and 2: Intraoperative images.



Figure 3: Surgical specimen (liposarcoma resection).



Figure 4: Immediate postoperative image.

Following resection, management of the surgical defect was performed, considering the functional and aesthetic importance of the gluteal region. Layered closure was carried out with appropriate approximation of deep and superficial tissues, ensuring adequate coverage and minimizing the risk of postoperative complications. A closed-suction drain was placed to control dead space and was removed as scheduled after minimal output and satisfactory clinical evolution were observed.

The postoperative course was favorable, with no early complications such as infection, wound dehiscence, hematoma, or seroma. The patient demonstrated adequate wound healing, preservation of gluteal function, and progressive return to daily activities. During subsequent oncologic follow-up, close clinical and imaging surveillance was established, with no evidence of local recurrence or disease progression on initial follow-up evaluations.

This case highlights the importance of including liposarcoma in the differential diagnosis of progressively enlarging masses in the gluteal region, as well as the relevance of a

comprehensive diagnostic approach and timely, adequate surgical treatment, with wide resection and negative oncologic margins as the cornerstone for local disease control and prognosis.

DISCUSSION

Liposarcoma is one of the most common soft tissue sarcomas in adults and is characterized by marked clinical and biological heterogeneity that directly influences its presentation, treatment, and prognosis. While the most common locations include the extremities and retroperitoneum, the gluteal region represents an uncommon site, which may contribute to diagnostic delays and allow significant tumor growth prior to detection. The present case is consistent with reports in the literature describing an insidious course and minimal initial symptoms.

Clinically, liposarcoma usually presents as a progressively enlarging, painless mass, making differentiation from benign lesions particularly challenging, especially in deep regions with abundant adipose tissue. In this setting, imaging studies

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play a fundamental role in tumor characterization and surgical planning, with magnetic resonance imaging being the modality of choice for evaluating lesion extent and its relationship to adjacent anatomical structures.

Table 1. Clinical characteristics of liposarcoma

Characteristic	Description
Age at presentation	Fifth to seventh decade
Sex	Slight male predominance
Main manifestation	Painless, progressively enlarging mass
Time to diagnosis	Prolonged
Common locations	Extremities and retroperitoneum

Definitive diagnosis of liposarcoma requires histopathological confirmation, allowing identification of the histological subtype and appropriate therapeutic planning. Biological differences among subtypes significantly influence the risk of local recurrence and metastasis, reinforcing the need for detailed histological analysis as part of comprehensive management.

Table 2. Histological subtypes of liposarcoma and biological behavior

Subtype	Grade	Local recurrence	Metastatic potential
Well-differentiated	Low	High	Low
Dedifferentiated	High	High	Moderate
Myxoid	Intermediate	Moderate	Variable
Pleomorphic	High	High	High

Wide surgical resection with negative oncologic margins remains the cornerstone of liposarcoma treatment. Adequate margin achievement is directly associated with improved local control and survival. In locations such as the gluteal region, surgical management may pose a significant technical challenge due to proximity to muscular and neurovascular structures and the need to preserve function.

Table 3. Therapeutic modalities in liposarcoma

Treatment	Indications
Surgery	First-line treatment
Radiotherapy	High-grade tumors or close margins
Chemotherapy	Selected cases
Surveillance	Post-resection with negative margins

Reconstructive management following oncologic resection is particularly important in functional anatomical areas such as the gluteal region, where the goal is to achieve adequate soft tissue coverage, minimize dead space, and preserve function. In the present case, layered closure resulted in a favorable postoperative outcome without local complications or functional impairment.

Table 4. Surgical considerations in gluteal liposarcoma

Aspect	Consideration
Surgical margins	Wide and negative
Functional preservation	Gluteal musculature
Bleeding risk	Moderate
Reconstructive needs	Variable

Long-term follow-up is essential due to the risk of local recurrence, even in patients with negative surgical margins. Periodic clinical and imaging surveillance allows early detection of recurrence and improves overall prognosis.

Table 5. Prognostic factors in liposarcoma

Factor	Impact
Histological subtype	High
Surgical margins	Very high

Tumor size	Moderate
Location	Variable
Timely treatment	High

Overall, this case report provides clinical evidence of an uncommon presentation of liposarcoma and underscores the importance of timely and adequate surgical management as the primary determinant of local control and favorable patient outcome.

CONCLUSION

Liposarcoma is a soft tissue sarcoma with variable and potentially aggressive clinical behavior, whose presentation largely depends on histological subtype, anatomical location, and tumor size at diagnosis. Although extremities and the retroperitoneum are the most frequent sites, the gluteal region represents an uncommon location, which may contribute to diagnostic delay due to insidious growth and lack of specific early symptoms.

This case report highlights the importance of including liposarcoma in the differential diagnosis of progressively enlarging soft tissue masses in the gluteal region, particularly in adult patients. Careful clinical evaluation supported by appropriate imaging studies is essential for accurate diagnostic suspicion and precise surgical planning. In this context, magnetic resonance imaging plays a key role in tumor characterization and assessment of its relationship with adjacent anatomical structures.

Wide surgical resection with negative oncologic margins remains the cornerstone of liposarcoma treatment and the main determinant of local disease control and long-term prognosis. The present case demonstrates that even in anatomically complex locations such as the gluteal region, adequate oncologic resection can be achieved through meticulous surgical technique, respecting anatomical planes and preserving function, resulting in a favorable postoperative outcome.

Furthermore, this case emphasizes the relevance of multidisciplinary management in liposarcoma treatment, integrating clinical, radiological, surgical, and pathological evaluation to optimize therapeutic decision-making. Accurate identification of histological subtype and assessment of surgical margins allow appropriate follow-up strategies and, in selected cases, consideration of adjuvant therapies to reduce recurrence risk.

Long-term close follow-up is essential, as liposarcoma carries a significant risk of local recurrence, even in patients with negative surgical margins. Periodic clinical and imaging surveillance enables early detection of recurrence and timely intervention, positively impacting patient survival and quality of life.

In conclusion, timely and appropriate management of gluteal liposarcoma, based on accurate diagnostic suspicion and oncologic surgical resection with adequate margins, represents the most effective therapeutic strategy to achieve

satisfactory local control and favorable clinical outcomes. This case contributes to the literature by describing an uncommon location and reinforces the need to maintain a high index of suspicion for progressively enlarging soft tissue lesions to improve oncologic and functional results.

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