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A Case Report on Differentiating Lipoma from Liposarcoma in a Complex Surgical Presentation

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Abstract: ***This case report highlights the diagnostic challenges in distinguishing between lipoma and well-differentiated liposarcoma due to their overlapping clinical, histological, and imaging features. A 54-year-old male presented with a large, firm mass in the right thigh, raising suspicion of malignancy. Imaging studies suggested a neoplastic etiology, necessitating a biopsy. The final diagnosis was confirmed as lipoma through histopathological examination. This report underscores the importance of comprehensive diagnostic approaches in similar clinical scenarios.***

Keywords: lipoma, liposarcoma, biopsy, differential diagnosis, case report

1. Purpose of the Article

The article aims to present a case that demonstrates the diagnostic challenges in differentiating between benign lipomas and well-differentiated liposarcomas.

2. Significance

This case study emphasizes the need for accurate diagnostic tools to avoid misdiagnosis and inappropriate treatment in similar cases.

3. Background

Lipomas are the most prevalent type of benign mesenchymal tumors. The clinical, histological, and imaging characteristics of well-differentiated liposarcoma can closely resemble those of a lipoma, presenting diagnostic challenges. The treatment and prognosis for benign lipomas differ significantly from those for well-differentiated liposarcoma.

Liposarcoma is divided into four histological subtypes: well-differentiated (also referred to as atypical lipomatous tumor), dedifferentiated, myxoid, and pleomorphic liposarcoma. Well-differentiated liposarcoma (WDLS) is the most common subtype and is known for its indolent nature, often mimicking lipoma. Both simple lipomas and WDLS present as well-circumscribed fatty masses. WDLS typically manifests as a slow-growing mass in the retroperitoneum and proximal extremities.

The most frequent subtypes are well-differentiated and dedifferentiated liposarcomas, which share similar genetic mutations. Well-differentiated liposarcomas resemble lipomas but are distinguished by enlarged nuclei and mild atypia. These may evolve into dedifferentiated liposarcomas, which carry higher potential for metastasis, recurrence, and increased mortality risk within five years.
Well-differentiated liposarcomas have a higher incidence of regional recurrence and a well-established tendency to undergo delayed dedifferentiation into more aggressive, higher-grade sarcomas with metastatic potential. Because of these features, well-differentiated liposarcomas require wide local excision as an initial treatment and long-term monitoring.

Due to the close resemblance of clinical, histological, and imaging characteristics of well-differentiated liposarcoma to that of a lipoma, a diagnostic challenge arises. This is a case report presenting a large solid lesion with firm consistency rather than soft and rubbery involving the intramuscular plane of the medial aspect of the right thigh with a dilemma of it being Lipoma or liposarcoma.

4. Case Report

A 54-year-old male presented with a large, firm mass in the right thigh, raising suspicion of malignancy. Imaging studies suggested a neoplastic etiology, necessitating a biopsy. The final diagnosis was confirmed as lipoma through histopathological examination. This report underscores the importance of comprehensive diagnostic approaches in similar case scenarios.

USG Impression: Large well-defined solid lesion involving the intramuscular plane of the medial aspect of the upper and lower right thigh region in the adductor compartment suggestive of neoplastic etiology possibility of sarcoma needs to be ruled out.

MRI Impression: Well defined lobulated subcutaneous lesion superficial to medial upper thigh muscles of 71(ml) × 147 (cc) × 65.5 (ap) mm is seen extending cranially up to the pubic bone inferior ramus. Multiple thin irregular septae are seen within. This is compressing the adjacent muscles.

A biopsy was required to differentiate between Lipoma and Liposarcoma, as the lesion's consistency and size were concerning

Study methods used:
USG and MRI were used due to them being non-invasive, cost-effective while providing no radiation.

MRI provides detailed soft tissue structures, making it ideal for detecting tumors and inflammation.

USG provides real time imaging while being portable, cost-effective and safe to use frequently.

A biopsy provides definitive diagnosis, especially in cases where imaging suggests presence of tumor or abnormal tissue.

Figure 1

Figure 2

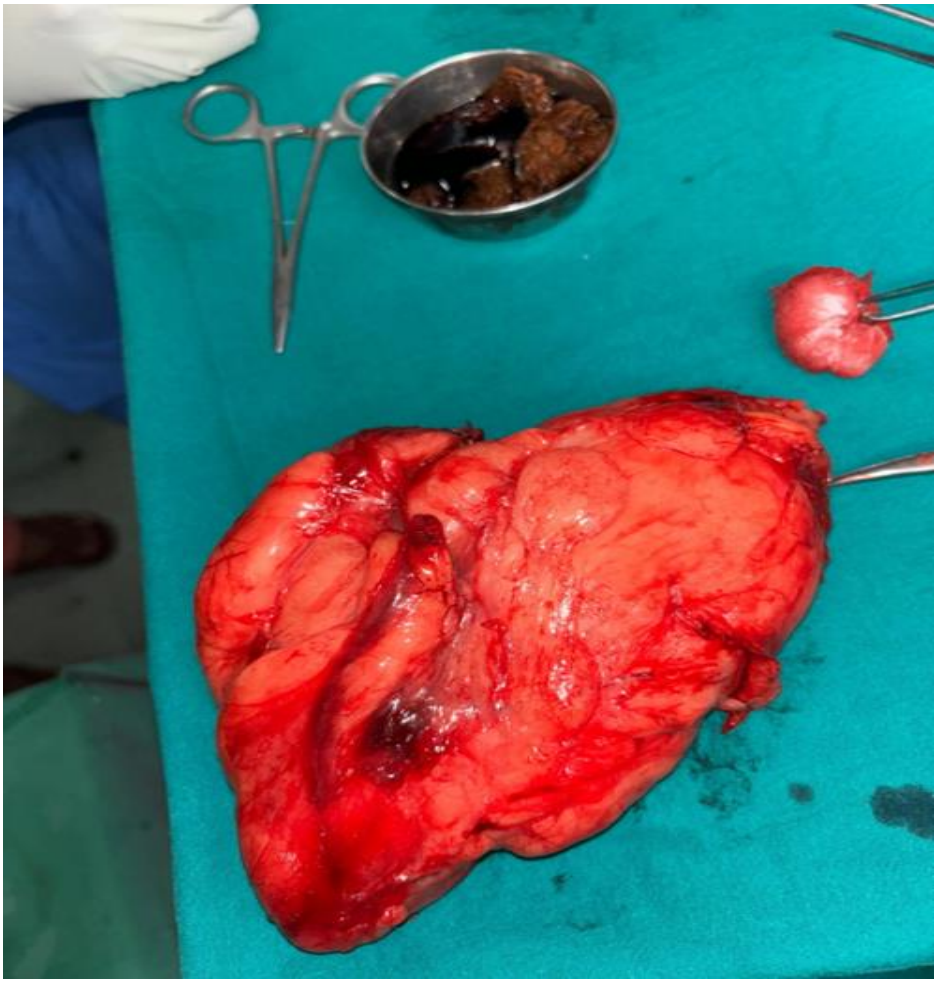

Figure 3

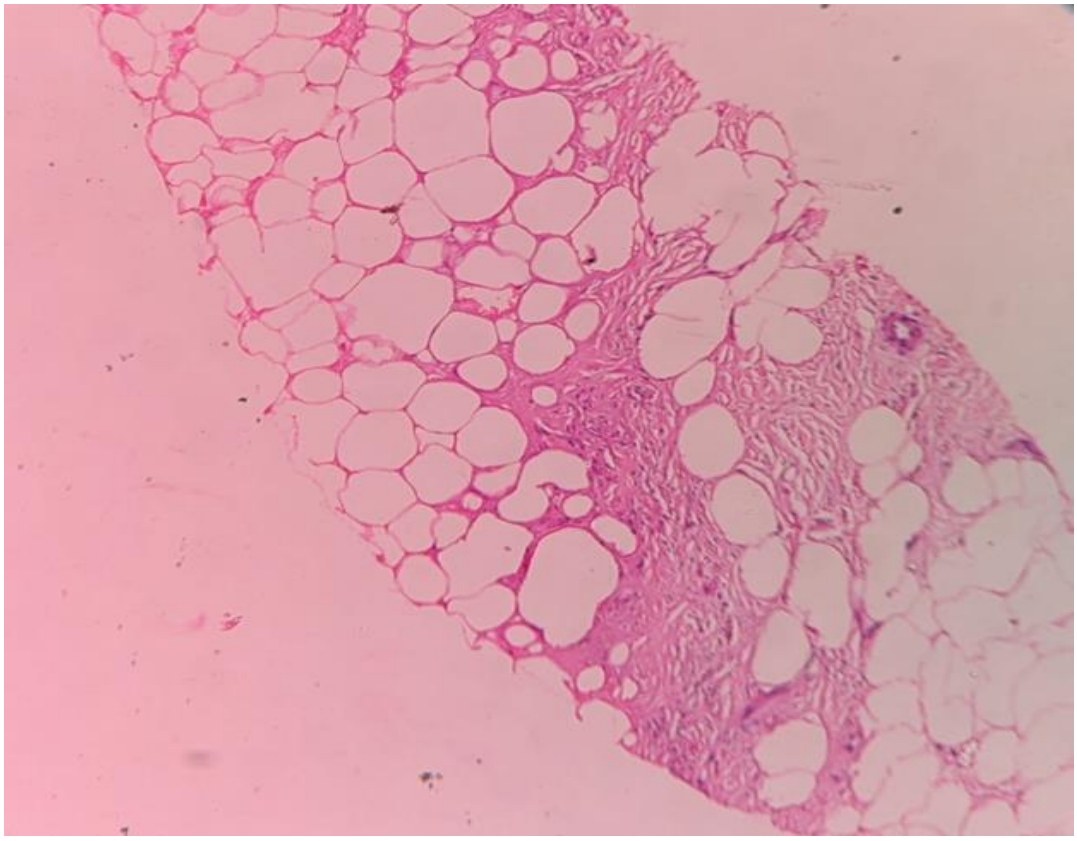

Figure 4

5. Conclusion

This case highlights the importance of distinguishing between lipoma and liposarcoma due to overlapping clinical features. Advanced diagnostic tools, including imaging and histopathological examination, are critical in ensuring accurate diagnosis and appropriate treatment. Early diagnosis can significantly improve patient outcomes.

Figure 4 shows the histopath image.

Final diagnosis: The true-cut biopsy of the right thigh confirmed the diagnosis of lipoma.

Due to the size, location and consistency of lesion, the dilemma arose of lesion being malignant and only after true cut biopsy we were able to rule out malignancy.

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