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DEDIFFERENTIATED LIPOSARCOMA OF THE RIGHT AXILLA AND ONCOLOGIC MANAGEMENT WITH FOREQUARTER AMPUTATION

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ABSTRACT
Dedifferentiated liposarcoma is an aggressive soft tissue sarcoma that rarely arises in the axilla. An 84-year-old woman presented with a painless, progressively enlarging right axillary mass associated with upper limb weakness and numbness. Imaging demonstrated a large heterogeneous axillary tumor with chest wall extension, brachial plexus involvement, and axillary vessel encasement. Core biopsy suggested pleomorphic sarcoma. Due to extensive local involvement precluding limb-sparing resection, a right forequarter amputation was performed. Histopathology confirmed FNCLCC grade 3 dedifferentiated liposarcoma with positive anterior margins. The patient received adjuvant chemotherapy and remains disease-free at one-year follow-up.

KEYWORDS: Liposarcoma, Upper extremity, Surgical excision, Elderly patient

INTRODUCTION
Soft-tissue sarcomas of the chest wall are rare malignancies, with dedifferentiated liposarcoma (DDLPS) representing a distinctive subtype characterized by a well-differentiated lipogenic component juxtaposed with a non-lipogenic, high-grade sarcoma. Owing to its locally aggressive nature and high risk of recurrence, complete surgical excision with negative margins remains the cornerstone of management, while radiotherapy may be selectively employed to improve local control.

Case Summary
A 84-years old female with no significant comorbidity came with a complaints painless swelling in the right axilla for 6 months & numbness over the right upper limb, no constitutional symptoms .On examination a 15 × 15 cm mass over right axilla extending into anterior chest wall, irregular borders,firm-to-hard in consistency,fixed to pectoralis major muscle not fixed to chest wall, minimal upper limb edema present. On Neurological examination - motor weakness of the right upper limb(3/5) suggestive of brachial plexus involvement clinically, all right upper limb pulses present. MRI chest was done which showed Fairly well-defined heterointense lesion measuring 11.6 × 9.5 × 12.5 cm arising from the right anterior axilla with extension to right anterior chest wall,with brachial plexus involvement and axillary arterial encasement — suggestive of sarcoma, ?liposarcoma. Ultrasound-guided core biopsy reported pleomorphic sarcoma. Metastatic workup performed preoperatively with CT chest. No contraindication to major oncologic resection was identified. Given tumor bulk and involvement of the shoulder girdle/axilla with anticipated inability to achieve limb-sparing negative margins, a right forequarter amputation (en-bloc removal of upper limb with scapula and lateral one third of clavicle) was performed with primary closure. Post-op HPE reported as Dedifferentiated liposarcoma (DDLPS), FNCLCC grade 3, axilla/chest wall with anterior margin is involved by tumour & other margins tumour free.Adjuvant chemotherapy was given since anterior margin were positive and the patient is now on follow-up in out-patient basis for past 1 year and is disease-free.

Figure-1. Pre-op clinical picture of the swelling in the right axilla.

Figure-2. MRI chest showing mass in the right axilla.

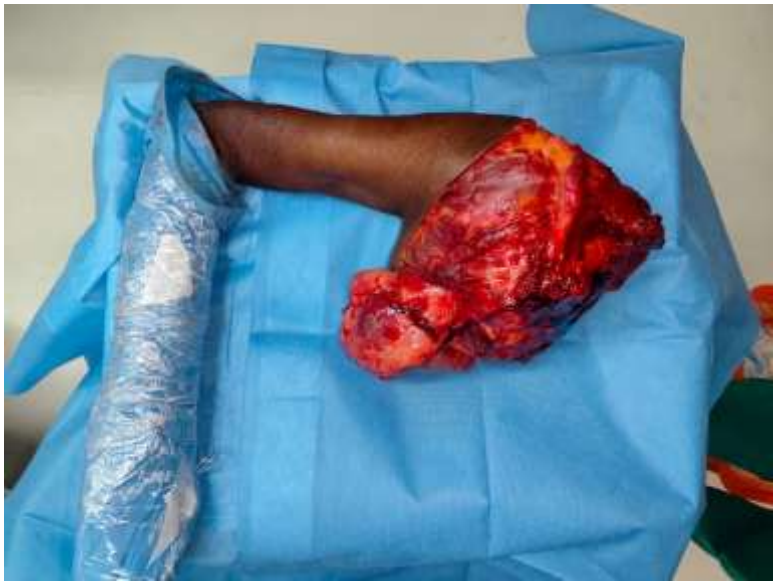

Figure-3. Resected forequarter specimen including upper limb and chest wall mass.

Figure 4. Post-operative wound site picture.

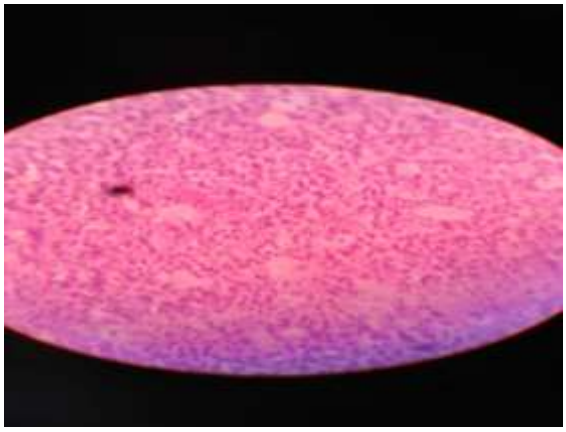

Figure 5. Histo-micrograph picture.

DISCUSSION

Dedifferentiated liposarcoma (DDLPS) is a high-grade malignant adipocytic tumor defined by the presence of a well-differentiated liposarcoma component with abrupt transition to a non-lipogenic sarcoma[1-3]. Although liposarcoma is one of the most common adult soft-tissue sarcomas, DDLPS most frequently arises in the retroperitoneum, and primary involvement of the axilla is exceedingly rare, with only isolated cases reported[14].

DDLPS usually affects elderly patients and commonly presents as a slow-growing, painless mass that may attain a large size before diagnosis[4-6]. Neurological symptoms such as numbness and motor weakness indicate brachial plexus involvement and reflect advanced local disease, as observed in the present case. Constitutional symptoms are uncommon and are more often associated with metastatic disease[5].

Magnetic resonance imaging is essential for evaluation and surgical planning. Typical findings include a heterogeneous mass containing both fatty and solid non-lipomatous components, corresponding to areas of dedifferentiation[7-10]. In this patient, MRI demonstrated a large axillary mass with anterior chest wall extension, brachial plexus involvement, and axillary vessel encasement, features highly suggestive of a high-grade sarcoma. Core needle biopsy may be misleading when the dedifferentiated component predominates, explaining the initial diagnosis of pleomorphic sarcoma in this case[6-8].

Wide surgical excision with negative margins is the cornerstone of treatment for extremity soft tissue sarcomas[11-13]. Limb-sparing surgery is preferred whenever feasible; however, extensive neurovascular involvement and inability to achieve oncologically safe margins necessitate radical procedures. In the present case, tumor bulk, fixation to the shoulder girdle, brachial plexus involvement, and axillary vessel encasement precluded limb salvage, justifying forequarter amputation to achieve maximal local disease control.

Margin status is a key prognostic factor in DDLPS. Positive surgical margins are associated with increased local recurrence, particularly in high-grade tumors[4-6]. In this patient, anterior margin involvement was likely related to anatomical constraints of the chest wall. Given the FNCLCC grade 3 histology and positive margin status, adjuvant chemotherapy was administered, consistent with current sarcoma management recommendations[11-13].

DDLPS carries a higher risk of local recurrence and distant metastasis compared with well-differentiated liposarcoma, with the lungs being the most common metastatic site[5-6]. However, extremity-based DDLPS generally demonstrates better outcomes than retroperitoneal disease due to improved resectability and surveillance. At one year of follow-up, the patient remains disease-free, highlighting that aggressive surgical management combined with appropriate adjuvant therapy can provide satisfactory oncologic outcomes, even in elderly patients.

CONCLUSION

Dedifferentiated liposarcoma of the axilla is an exceptionally rare and aggressive soft tissue sarcoma that poses significant diagnostic and therapeutic challenges due to its proximity to critical neurovascular structures. This case highlights the importance of maintaining a high index of suspicion for malignancy in elderly patients presenting with large axillary masses. When limb-sparing resection is oncologically unsafe because of extensive local involvement, radical procedures such as forequarter amputation remain justified to achieve optimal local disease control. Multimodal management, including adjuvant therapy in high-risk cases, can result in favorable short-term outcomes even in advanced presentations. Long-term surveillance remains essential due to the risk of late recurrence.

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