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MRI-Based Diagnosis of Elbow Liposarcoma: A Case Report and Review of Imaging Features and Differential Diagnoses

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Abstract | **Case Report**

We report a case of a 73-year-old male with a 20-year history of a progressively enlarging mass on the anterior aspect of the right elbow. MRI findings suggest a voluminous fatty lesion with features compatible with a well-differentiated liposarcoma. This article discusses the imaging characteristics of liposarcoma at the elbow and outlines key differential diagnoses, integrating a review of the recent literature on soft tissue tumors of the elbow.

Keywords: Liposarcoma, Elbow, MRI, Soft Tissue Sarcoma, Fatty Tumor, Differential Diagnosis.

INTRODUCTION

Liposarcomas are among the most common malignant soft tissue tumors in adults, typically occurring in the thigh or retroperitoneum. Their presence in the elbow is extremely rare, making diagnosis challenging. Imaging, particularly MRI, plays a vital role in distinguishing liposarcomas from benign lipomas or other soft tissue masses.

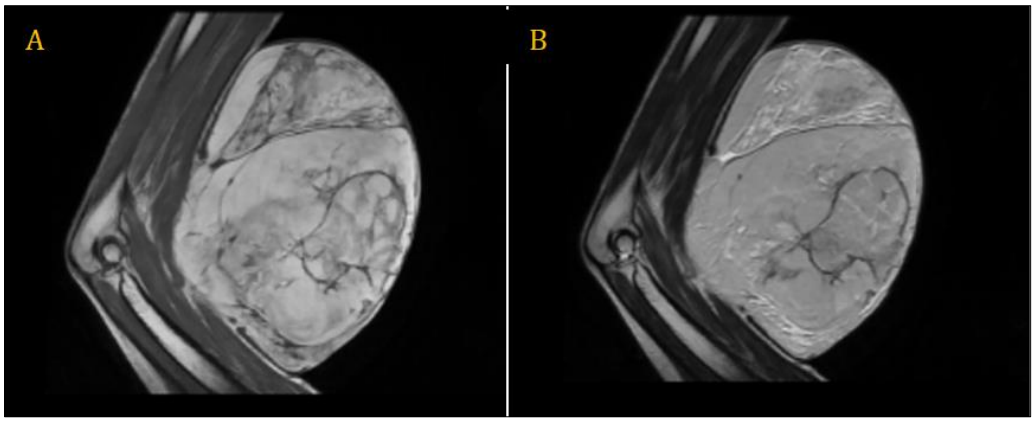
CASE PRESENTATION

A 73-year-old male presented with a voluminous mass over the anterior aspect of his right elbow, progressively increasing in size over two decades. Clinical examination showed no signs of systemic illness or neurovascular compromise.

Imaging Findings

MRI sequences included axial, coronal, and sagittal T2; sagittal and coronal T1; STIR coronal; 3D TRICKS and LAVA sequences; and post-contrast T1 FS in all planes.

- The lesion was located sub-aponeurotically in the anterior elbow, measuring 19x20.5x24.5 cm.
- It showed high T1 and T2 signal, with suppression on STIR and fat-sat sequences.
- Multiple thick internal septa and nodular components enhanced after contrast administration.
- No bone involvement or joint effusion.
- No signs of neurovascular encasement, though in close contact with the humeral pedicle and superficial veins. **Figure 1**



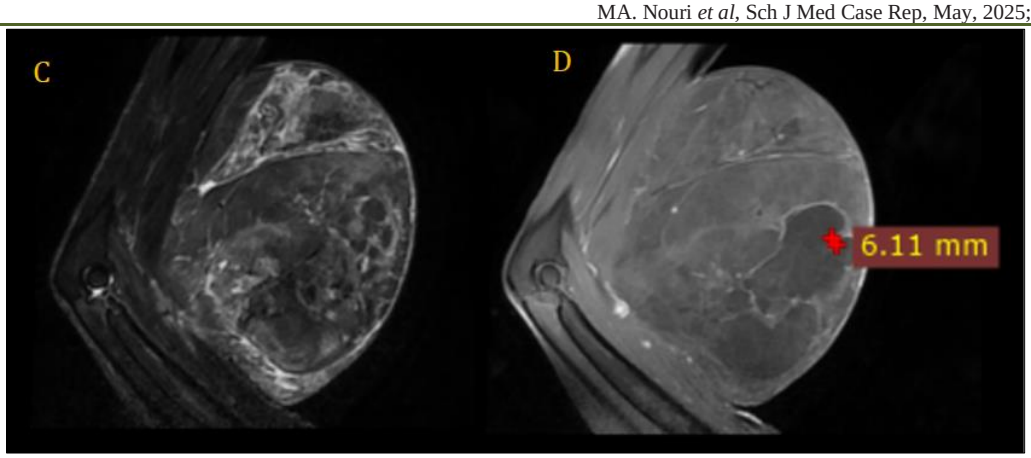


Figure 1: Coronal MRI sequences of the right elbow in a 73-year-old male presenting with a 20-year history of anterior elbow mass

(A) Coronal T1-weighted image: demonstrates a voluminous, well-circumscribed fatty lesion with high signal intensity and internal septations.
(B) Coronal T2-weighted image: confirms hyperintensity of the lesion and serpiginous thick septa within.
(C) Coronal STIR sequence: signal suppression of the fatty components with heterogeneously hyperintense septa and nodular areas.
(D) Coronal T1-weighted fat-suppressed post-contrast image: reveals enhancement of thick internal septa, the largest measuring 6.11 mm, indicative of a well-differentiated liposarcoma.

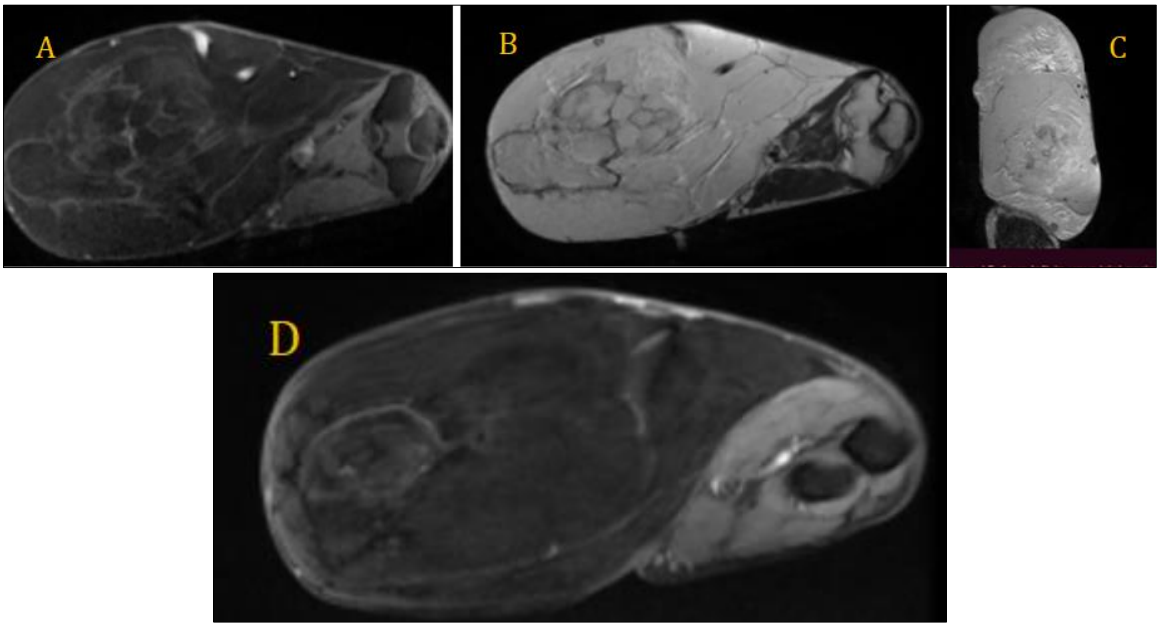


Figure 2: Axial and coronal MRI sequences of a voluminous anterior elbow mass in a 73-year-old patient

(A) Axial T1-weighted fat-suppressed post-contrast image: reveals heterogeneous enhancement of internal septa and nodules.
(B) Axial T2-weighted image: shows high signal intensity of the fatty mass with serpiginous septa.
(C) Coronal T2-weighted image: confirms the multilobulated architecture and hyperintensity of the lesion.
(D) Axial LAVA post-contrast sequence: highlights thick, enhancing internal septations, characteristic of a well-differentiated liposarcoma.

Diagnosis

Imaging features were highly suggestive of a well-differentiated liposarcoma, pending histopathological confirmation.

Differential Diagnoses

1. **Benign Lipoma**: Typically homogenous, non-enhancing fat signal on all sequences; absence of thick septa or nodules.
2. **Synovial Sarcoma**: Often perijoint; heterogeneous with fluid levels, calcifications, and may involve adjacent bone.

3. **Myxofibrosarcoma**: Infiltrative with myxoid matrix; 'tail sign' on MRI.
4. **Elastofibroma or Fibromatosis**: Hypointense on T1; more fibrous appearance.

DISCUSSION

Liposarcomas at the elbow are rare, accounting for less than 1% of extremity sarcomas. The presence of thick septa (>2 mm), nodular foci, and contrast enhancement distinguish them from lipomas (Gaskin & Helms, 2004; Thway *et al*., 2015). MRI remains the modality of choice, offering superior soft tissue contrast and evaluation of neurovascular involvement (Savvidou *et al*., 2019). Surgical excision with histopathological analysis remains the cornerstone for definitive diagnosis and treatment. In this case, the lesion's long evolution, imaging characteristics, and absence of invasion suggest a well-differentiated subtype.

CONCLUSION

This case highlights the pivotal role of MRI in identifying and characterizing liposarcomas of the elbow. Distinction from benign lipomatous tumors is critical for management planning. Histological confirmation remains mandatory.

REFERENCES

- Gaskin CM, Helms CA. Lipomas, lipoma variants, and well-differentiated liposarcomas: MRI evaluation of 126 fatty masses. AJR Am J Roentgenol. 2004;182:733-739. https://doi.org/10.2214/ajr.182.3.1820733
- Kransdorf MJ. Imaging of soft tissue tumors. Radiology. 1995; 195:297-315. https://doi.org/10.1148/radiology.195.2.7724771.
- Savvidou OD, *et al.*, Soft tissue tumours of the elbow: current concepts. EFORT Open Rev. 2019; 4:668-677. https://doi.org/10.1302/2058-5241.4.190002
- Thway K, *et al.*, Fluorescence in situ hybridization for MDM2 amplification in suspected liposarcomas. Sarcoma. 2015; 2015:812089. https://doi.org/10.1155/2015/812089