Spinal Neurosurgery

EXTRAOSSEOUS RETROVERTEBRAL TUMOR IN MULTIPLE MYELOMA:

A Rare Diagnostic Challenge

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ABSTRACT

Background: Multiple myeloma is a malignant plasma cell disorder that predominantly affects the axial skeleton, particularly the spine. Pure extraosseous paraspinal involvement without bone destruction is exceptionally rare.

Case Report: We report a 63-year-old woman with multiple myeloma receiving chemotherapy who was admitted for evaluation of a rapidly enlarging posterior dorsolumbar mass. Clinical examination revealed a firm, minimally tender subcutaneous mass extending from T12 to L3, fixed to deep planes and in contact with the spinous processes. Spinal MRI demonstrated a posterior retrovertebral paraspinal mass, isointense on T1-weighted images, hyperintense on T2-weighted images, with gadolinium enhancement, and no evidence of bone lysis or intraspinal extension. Complete surgical excision was performed for diagnostic and therapeutic purposes. Histopathology confirmed a plasmacytoid tumor proliferation consistent with extramedullary myeloma.

Conclusion: Extraosseous soft-tissue involvement of multiple myeloma in the posterior paraspinal/subcutaneous region without vertebral destruction is a rare diagnostic entity, for which MRI is pivotal, and surgery provides both diagnosis and local control. (1–5,7,8)

Keywords: *Multiple myeloma; Extramedullary disease; Paraspinal mass; Retrovertebral tumor; MRI; Plasmacytoma; Neurosurgery*

1. INTRODUCTION

Multiple myeloma is a malignant plasma cell proliferation accounting for approximately 1% of all cancers and about 15% of hematologic malignancies. (1,12) In classic disease, neoplastic plasma cells expand within the bone marrow, breach the cortical bone, and infiltrate adjacent soft tissues, frequently resulting in lytic vertebral lesions, vertebral collapse, and spinal canal compromise. (1,8,13)

Extramedullary involvement is less frequent and includes true extramedullary disease and paraskeletal disease, with variable incidence across published series. (3–5,7) Posterior paraspinal or subcutaneous extension in direct contact with spinous processes, without vertebral destruction, has been described only exceptionally. (4,5,7)

We report an atypical case of a posterior dorsolumbar retrovertebral subcutaneous mass (T12–L3) in a patient with multiple myeloma, emphasizing diagnostic pitfalls and the role of MRI and surgery in management.

2. CASE REPORT

A 63-year-old woman with multiple myeloma on chemotherapy and a history of arterial hypertension was admitted to our neurosurgery department for evaluation of a posterior dorsolumbar mass. The swelling had initially remained stable under treatment but rapidly increased in size after chemotherapy discontinuation. On admission, the mass measured approximately **20 × 16 cm**, was firm, minimally tender, and fixed to deep planes.

Neurological examination was strictly normal, with no motor or sensory deficit and no sphincter disturbance. Laboratory tests revealed hemoglobin **10.2 g/dL**, leukocytes **7,800/mm³**, and platelets **200,000/mm³**. The patient's general condition was preserved.

Imaging: Spinal MRI demonstrated a posterior retrovertebral mass extending from **T12 to L3**, in contact with the spinous processes and subcutaneous tissues, without intraspinal extension. The lesion was **isointense on T1**, **hyperintense on T2**, and showed **gadolinium enhancement**, measuring approximately **11.5 × 4.5 × 8.3 cm**. No vertebral bone lysis, vertebral collapse, or spinal cord compression was observed. In addition, a large **left retroperitoneal mass (10.9 × 4.4 cm)** displacing the kidney suggested another extraosseous localization **(Figure 1).**

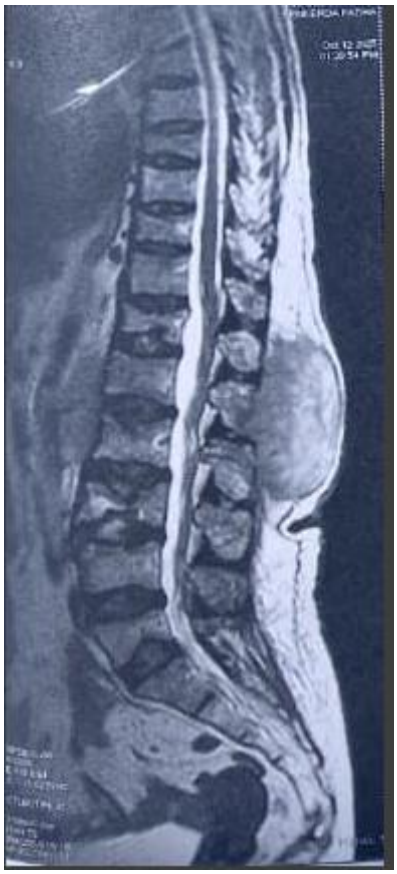

Figure 1: Spinal magnetic resonance imaging (MRI), T2-weighted sequence: posterior retrovertebral hyperintense mass extending from **T12 to L3**.

Surgery: A posterior approach was used, and complete excision of the mass was achieved while preserving surrounding anatomical structures.

Pathology:

- **Gross examination:** A roughly ovoid soft-tissue mass measuring **15 cm**. The external surface was lobulated and whitish, with sparse vascular arborization. The cut surface was homogeneous and fleshy, whitish-gray in color, soft, with focal translucent gelatinous areas. No obvious macroscopic necrosis or hemorrhage was identified **(Figure 2).**
- **Microscopic examination:** Histology revealed a diffuse and massive tumor proliferation arranged in broad monomorphic sheets infiltrating adjacent soft tissues. Tumor cells were intermediate in size with abundant dense eosinophilic cytoplasm and an eccentric nucleus, resulting in a characteristic plasmacytoid appearance.

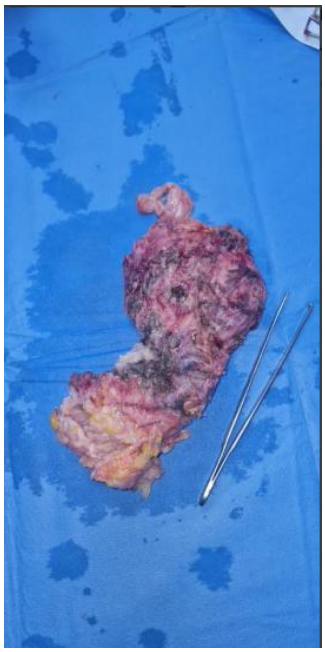

Figure 2: Surgical specimen: excised **subcutaneous lumbar mass** containing **necrotic and hemorrhagic areas**.

3. DISCUSSION

Multiple myeloma typically produces diffuse or multifocal osteolytic lesions and commonly involves the spine. (1,8,12) Spinal cord compression is most often caused by extension of a primary vertebral lesion into the spinal canal. (6,13) Conventional radiography and CT may show osteolysis or vertebral collapse, whereas MRI is more sensitive for detecting focal or diffuse marrow disease and for evaluating epidural or paraspinal extension. (8,11)

In the present case, imaging did not show destructive vertebral disease, and the lesion was purely extraosseous in the posterior paraspinal/subcutaneous tissues. Extramedullary myeloma without adjacent bone destruction or collapse is exceptionally reported. (3–5,7,10) Proposed mechanisms include spread from paravertebral lymph nodes or proliferation arising from lymphoid tissue in epidural/paraspinal spaces. (4,5,10)

The differential diagnosis of a large paraspinal or epidural mass includes lymphoma, leukemic infiltration, epidural metastases, solitary amyloidoma, and rare benign epidural proliferations; imaging is essential, but histology is often required for definitive diagnosis. (11)

Management of extramedullary myeloma may include surgical excision when feasible, with or without radiotherapy. (3–5,7) Chemotherapy may be less effective in extramedullary disease, and outcomes are generally poorer than in medullary disease. (3–5,7)

4. CONCLUSION

Pure extraosseous posterior paraspinal/subcutaneous involvement of multiple myeloma without vertebral destruction is a rare presentation. MRI is essential for characterization and surgical planning. When lesions are accessible, complete surgical excision provides definitive diagnosis and effective local control.

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