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Multiple Myeloma Presenting with Epidural Spinal Cord Compression at T12: A Case Report

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Abstract **Case Report**

Spinal cord compression is an uncommon initial presentation of multiple myeloma. A 78-year-old woman presented with six months of progressive thoracic back pain, difficulty walking, and bilateral extensor plantar responses. Magnetic resonance imaging showed T12 vertebral collapse with a compressive epidural lesion. Laboratory testing showed normocytic anemia (hemoglobin 8.9 g/dL) and a serum monoclonal peak of 12.4 g/L in the beta-2 globulin fraction, identified as IgA lambda by immunofixation. Bone marrow aspirate cytology showed 49% plasma cells, including morphologically atypical forms. Doppler ultrasonography confirmed extensive left femoropopliteal deep vein thrombosis. The clinical team diagnosed active IgA lambda multiple myeloma and began lenalidomide–dexamethasone and zoledronic acid. Surgery was deferred because of thromboembolic risk. The patient was discharged with weekly laboratory monitoring and a second cycle scheduled. This case illustrates the contribution of serum protein studies and bone marrow cytology to the diagnosis of myeloma in a patient presenting with spinal cord compression.

Keywords Multiple myeloma, spinal cord compression, epidural involvement, bone marrow aspirate, IgA lambda.

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INTRODUCTION

Multiple myeloma is a clonal plasma cell malignancy involving the bone marrow. It may be associated with lytic bone lesions, anemia, renal impairment, and hypercalcemia. Plasma cell lesions may also extend into adjacent soft tissue or arise at sites separate from bone [1]. We report a case in which epidural spinal cord compression led to the detection of an IgA lambda monoclonal protein and marked bone marrow plasmacytosis.

CASE REPORT

A 78-year-old woman with type 2 diabetes and hypertension had approximately six months of progressive thoracic back pain, spinal stiffness, and heaviness in the lower limbs. Initial imaging showed T12 vertebral collapse. She presented to the emergency department with painful swelling of the left lower limb. Doppler ultrasonography confirmed extensive left femoropopliteal deep vein thrombosis. After transfer to neurosurgery, examination showed that she needed assistance to walk, with lower-limb strength graded 4/5 and bilateral extensor plantar responses. Sensation was preserved. The recorded performance status was 3. Spinal magnetic resonance imaging showed T12 vertebral collapse with a compressive epidural lesion and other vertebral abnormalities interpreted as osseous involvement.

Complete blood count showed normocytic, normochromic anemia (hemoglobin 8.9 g/dL, mean corpuscular volume 82.9 fL), a leukocyte count of 6,500/µL, and a platelet count of 218,000/µL. Serum creatinine was 0.76 mg/dL (7.6 mg/L), lactate dehydrogenase was 163 U/L, and beta-2 microglobulin was 3.16 mg/L. Capillary serum protein electrophoresis showed a monoclonal peak of 12.4 g/L in the beta-2 globulin fraction (Figure 1). Serum immunofixation identified IgA lambda. Bone marrow aspirate cytology showed 49% plasma cells, including atypical forms (Figures 2 and 3). Fluorescence in situ hybridization was pending at the time of assessment.

The clinical team diagnosed active IgA lambda multiple myeloma in light of the monoclonal protein,

marked marrow plasmacytosis, anemia, and imaging findings. The case record reported International Staging System stage I. The serum albumin value was unavailable for independent verification of the stage.

The patient was considered ineligible for autologous stem cell transplantation because of her age and general condition. Following multidisciplinary review, the team started lenalidomide–dexamethasone and administered intravenous zoledronic acid (4 mg). An additional dexamethasone bolus was given during admission. Neurosurgery was deferred because of thromboembolic risk, and specialist monitoring continued.

At discharge, weekly laboratory monitoring was arranged and a second cycle of lenalidomide–dexamethasone with zoledronic acid was scheduled. The available record ends at discharge. Details of anticoagulation and post-discharge outcomes were unavailable.

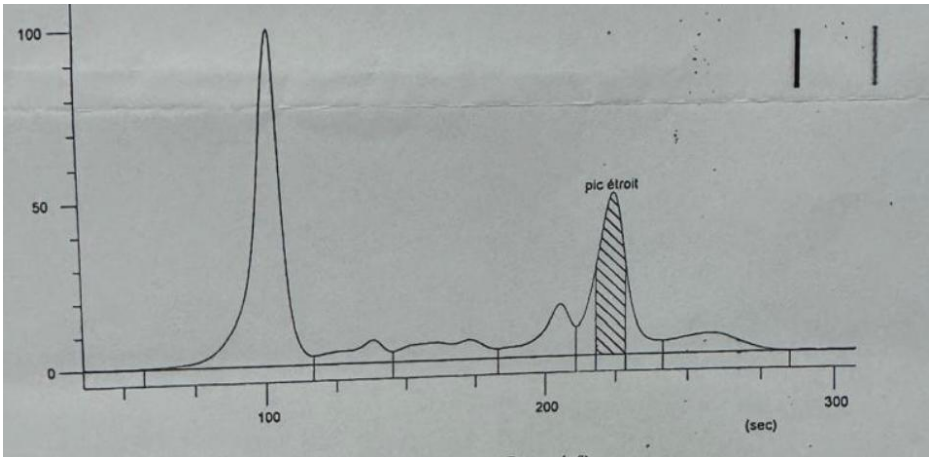


Figure 1: Capillary serum protein electrophoresis showing a monoclonal peak in the beta-2 globulin fraction

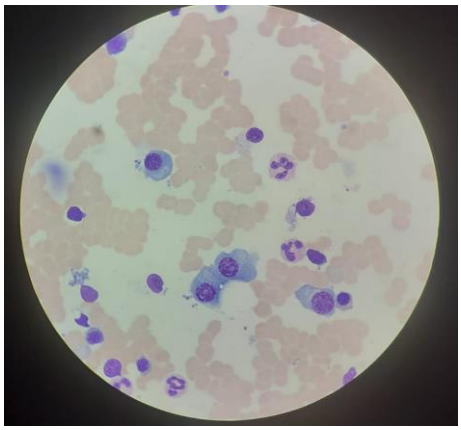


Figure 2: Bone marrow aspirate showing increased plasma cells (May–Grünwald–Giemsa stain)

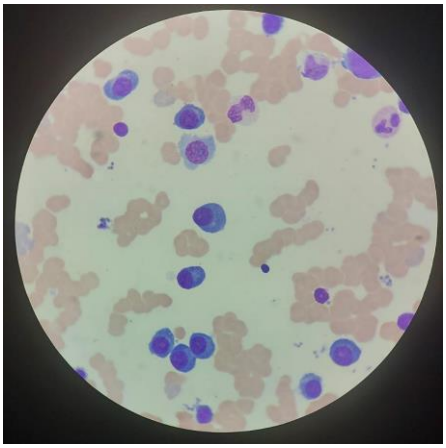


Figure 3: Bone marrow aspirate showing morphologically atypical plasma cells (May–Grünwald–Giemsa stain)

DISCUSSION

The distinction between true extramedullary disease and paraskeletal extension matters in classifying soft-tissue involvement in multiple myeloma. True extramedullary disease describes soft-tissue plasma cell involvement separate from bone, whereas paraskeletal disease reflects direct extension from a skeletal lesion through the cortex [1]. In this patient, T12 collapse adjacent to the compressive epidural lesion raised the possibility of paraskeletal extension. The available imaging description does not establish whether the two findings were contiguous, and epidural histology was not available in the source material. The anatomical subtype therefore remains uncertain.

True extramedullary involvement has been associated with shorter survival in retrospective cohorts [2]. That finding provides context for the classification of soft-tissue lesions. Its relevance to this patient remains uncertain because the epidural lesion was not definitively classified.

Neurological outcomes after radiotherapy for severe myeloma-related spinal cord compression vary, and some patients require further local intervention [3]. The severity of the neurological deficit and spinal stability inform multidisciplinary decisions about local treatment, including whether surgical decompression or stabilization should be considered [4].

CONCLUSION

Epidural spinal cord compression can be the presenting manifestation of multiple myeloma. In this case, the combination of serum immunofixation and marrow cytology helped identify a plasma cell disorder. Detailed imaging review is important when distinguishing direct vertebral extension from true extramedullary involvement.

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