Progressive lower extremity weakness as the initial presentation of isolated large thoracic plasmacytoma

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Abstract

Plasmacytoma is a tumor of monoclonal plasma cells of bone or soft tissue that can occur anywhere in the body without evidence of systemic multiple myeloma. It may present as solitary or multiple masses and is classified as osseous if arising from bone or extraosseous if arising from soft tissue. Osseous plasmacytoma is the most common form of plasmacytoma with predominance in active hematopoietic bones, including vertebrae, femur, pelvis, and ribs. The diagnosis is made with a tissue biopsy. Different imaging modalities allow for tumor localization, and magnetic resonance imaging (MRI) is the gold standard to detect spinal cord compression. Corticosteroids provide analgesia, reduce vasogenic edema, and have anti-myeloma activity which may result in better neurological outcomes in cases of acute spinal cord compression. Corticosteroids should be started promptly once cord compression is suspected. We report a case of progressive lower extremity weakness as the initial presentation of a thoracic plasmacytoma. The patient was started on a high-dose corticosteroid after acute cord compression was suspected. Magnetic resonance imaging confirmed cord compression. T1–T2 corpectomy with C5–T5 posterior spinal fusion for decompression and stabilization was done. He was successfully discharged to an inpatient rehabilitation facility with plans for definitive radiotherapy. Worsening back pain and lower extremity weakness in elderly patients should raise concerns for acute cord compression. Early intervention to relieve compression is crucial to preserve neurological functions.

Keywords: plasmacytoma, weakness, steroids, multiple myeloma

Introduction

Solitary plasmacytoma is a rare solitary tumor of monoclonal plasma cells without evidence of systemic multiple myeloma (hypercalcemia, renal failure, anemia, or bone disease). It can be classified based on the location of invasion as extramedullary or osseous plasmacytoma.[1] Osseous plasmacytoma is the most common form of plasmacytoma with frequent involvement of active hematopoietic bones, including vertebrae, femur, pelvis, and ribs.[2] Tissue biopsy can establish the diagnosis. Different imaging modalities can establish tumor localization. A skeletal survey can detect lytic bone lesions, while a CT scan aids in the evaluation of soft tissue lesions. Magnetic resonance imaging (MRI) is the gold standard to detect spinal cord compression.[3] Corticosteroids provide analgesia, reduce vasogenic edema, and have anti-myeloma activity, which may result in better neurological outcomes in cases of acute spinal cord compression. Corticosteroid therapy should be started promptly once cord compression is suspected.[4] We present a case of progressive lower extremity weakness as the initial presentation of a thoracic plasmacytoma.

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DOI: 10.12746/swrccc.v10i45.1109

Case

An 89-year-old African American man with hypertension, type II diabetes mellitus, and coronary artery

disease status post percutaneous coronary intervention presented with a 2-week history of worsening back pain and progressive bilateral lower extremity weakness. Physical examination revealed weakness on plantar flexion and dorsiflexion and decreased deep tendon reflexes in both bilateral lower extremities with no saddle anesthesia, bowel, or bladder dysfunction. His initial complete blood count was unremarkable except for macrocytic anemia. Metabolic panel showed serum creatinine of 1.2 mg/dL with glomerular filtration rate of 52 mL/min appropriate for his age. His corrected calcium was 9.6 mg/dL. Computed tomography (CT) of the spine demonstrated destruction of T1, T2, and T3 vertebral bodies, a large soft tissue mass invading the upper thoracic spine canal, and an osteolytic lesion on the left second rib (Figure 1). High-dose corticosteroids were started after acute cord compression was suspected. Magnetic resonance imaging of the complete spine confirmed T1–T2 enhancing lesion with epidural extension and associated spinal cord edema (Figures 2, 3). Full body CT did not show any metastatic lesion. Hematologic studies showed abnormal free light chain assay and no serum or urinary M-spike. Fluorescence *in-situ* hybridization test for multiple myeloma was normal. A biopsy of the soft tissue mass showed sheets of plasma cells positive for CD138 stain consistent with a diagnosis of plasmacytoma (Figure 4). Bone marrow biopsy revealed

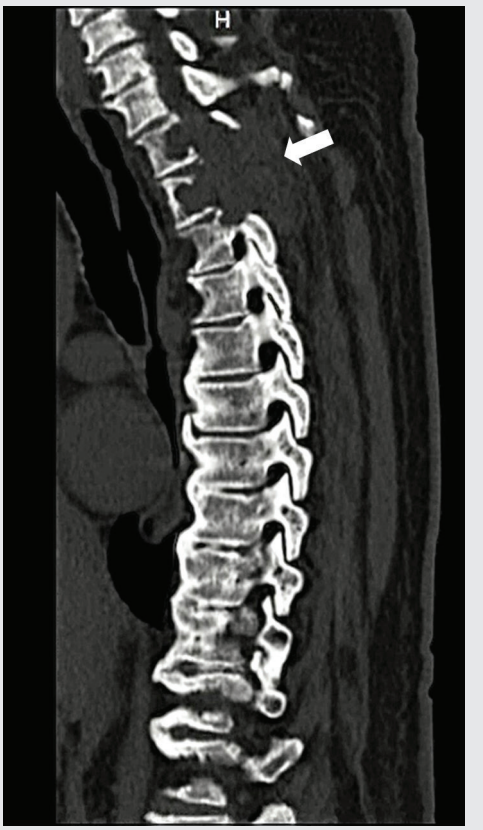
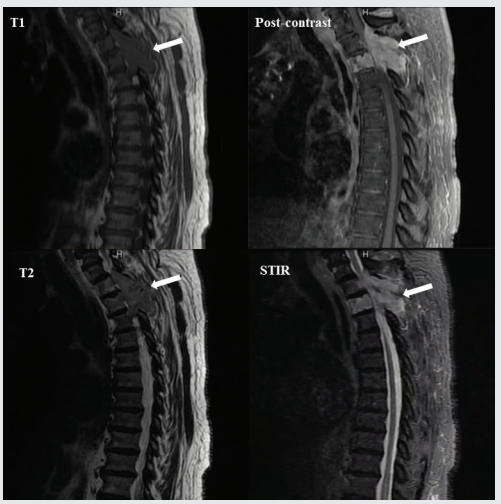
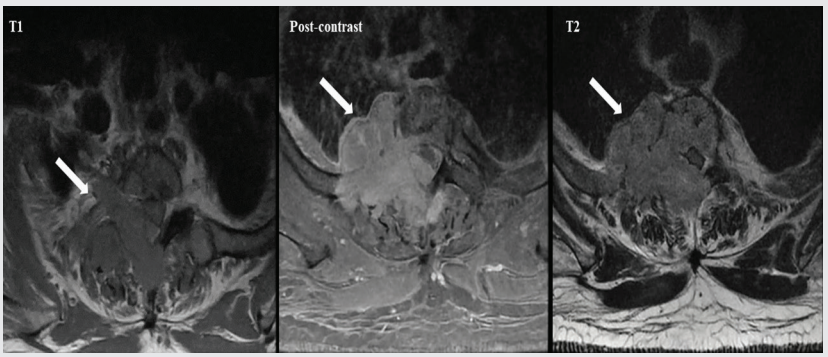


Figure 1. CT spine showing an osteolytic 6 × 4 cm soft tissue mass involving the T1, T2 and T3 vertebral bodies and invading the spinal canal.





Figures 2 and 3. MRI spine (T1, T2, STIR, and T1 post-contrast) showing T1-T2 enhancing lesion with epidural extension and severe mass effect on the spinal cord with associated edema.

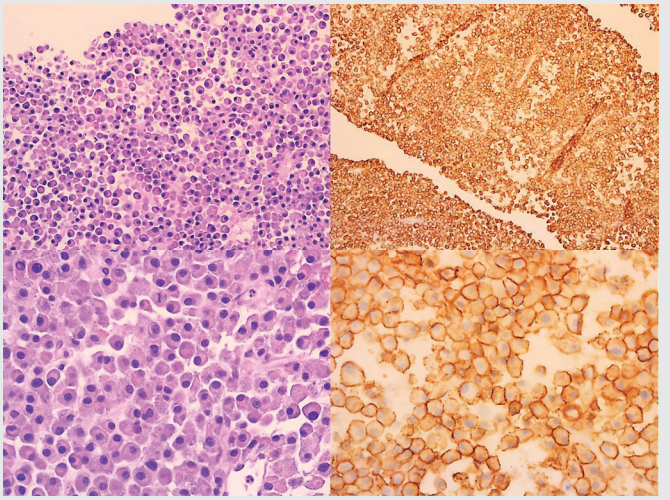


Figure 4. Soft tissue biopsy showed sheets of plasma cells (H&E, ×20, ×40), immunohistochemistry for CD138 was positive for plasma cells. (×20, ×40).

normocellular marrow with no expression of clonal plasma cells. Neurosurgery performed a T1–T2 corpectomy with C5–T5 posterior spinal fusion for decompression and stabilization. A bone survey revealed an additional 2 cm lytic lesion over the proximal left humerus. The patient was successfully discharged to an inpatient rehabilitation facility with partial improvement of his neurological function. He was scheduled to have definitive radiotherapy for plasmacytoma on lytic lesions with plans to start treatment with thalidomide, dexamethasone, and biphosphate afterwards.

Verbal and written permission was obtained from the patient to publish his case.

Discussion

Our case exemplifies a common presentation of an osseous plasmacytoma as it presented in an elderly individual of male gender, African American race, and arising from a vertebrate. Knowing whether a solitary plasmacytoma is associated with multiple myeloma (MM) is crucial for proper treatment and prognosis. Treatment for osseous plasmacytoma includes high-dose radiation therapy for local residual disease after surgery or observation for a completely resected mass.[5] Treatment for MM includes immune modulators, proteasome inhibitors, corticosteroids, CD38 antibodies, and autologous stem cell transplant.[6] Depending on the type, plasmacytomas can progress to MM. Osseous plasmacytoma has a 65–84% risk of progression to MM in 10 years with a median onset of transformation at about 2–5 years.[7] In comparison, extramedullary plasmacytoma has a 25–35% risk of progression at 10 years.[8] Work up did not reveal any evidence of systemic MM (hypercalcemia, renal insufficiency, anemia, or bone disease).

Worsening back pain and weakness in elderly patients should raise concerns for acute cord compression. Early diagnosis and intervention to relieve compression are crucial to preserve neurological functions.

Article citation: Abdelnabi M, Morataya C, Mittal N. Progressive lower extremity weakness as the initial presentation of isolated large thoracic plasmacytoma. The Southwest Respiratory and Critical Care Chronicles 2022;10(45):75–78
From: Department of Internal Medicine, Texas Tech University Health Sciences Center, Lubbock, Texas
Submitted: 8/3/2022
Accepted: 10/14/2022
Conflicts of interest: none
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