A Rare Etiology of Back Pain: Solitary Plasmacytoma of Bone Resulting in Pathologic Vertebral Fracture

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Introduction

Plasmacytoma is a rare hematological malignancy with incidence of 2-3 people per every 100,000 of the general population. Solitary plasmacytoma of bone (<5-10% plasma cell infiltration in the bone marrow) comprises 5% of the plasmacytoma cases. It usually results in a lytic lesion within the vertebral body and may cause spinal cord compression. They are responsive to radiation.

Case Description

A 73 years old man with history of monoclonal gammopathy of undetermined significance that had remained stable for the past 9 years presented with progressive back pain over the course of few months in the absence of neurologic symptoms or trauma. Pain was radiating along the thoraces and was unresponsive to conservative treatment.

MRI of the spine few weeks earlier was notable for hyperintensity in T1-T2 and T12 suggesting lipoma or hemangioma of no significance. Subsequently, skeletal survey was obtained which did not reveal any lytic lesions.

Upon presentation, neurologic exam was intact including lack of tenderness along the spine. CT scan of thoracolumbar spine was remarkable for a T8 lytic lesion and spinal canal narrowing with near total involvement of the affected vertebral body.

Magnetic resonance imaging (MRI) of the thoracic spine demonstrated T8 lesion in addition to revealing minimal mass effect on the ventral thecal sac without obvious dural or intrathecal extension.

Upon re-examination, the patient was found to have myelopathy due to the compression of the thecal sac by the T8 plasmacytoma. The lesion was encased by surrounding soft tissue and showed no enhancement on post-contrast images. The T8 lesion was found to be consistent with a T-cell lymphoma, as there was no evidence of plasma cell infiltration in the bone marrow biopsy.

Discussion

Primary spinal involvement in hematological diseases is rare. Plasmacytoma is a malignant proliferation of the plasma cells that is categorized into plasmacytoma of bone (either solitary or multiple) and extramedullary plasmacytoma. Among the various types of plasmacytoma, solitary plasmacytoma of bone is a unique entity comprising 5% of the burden of the disease.

It can occur in isolation or with underlying multiple myeloma. It usually affects the axial skeleton (25-60%) with predilection for the thoracic vertebrae. The clinical manifestation is usually radiating pain, therefore, it is easily misconceived as a degenerative spinal disease and radiotherapy. Plasmacytoma of bone usually transmigrates to multiple myeloma over the course of 5 to 10 years; however, it may remain dormant in some individuals for 10 to 20 years. They are responsive to radiotherapy but tend to disseminate, as opposed to extramedullary plasmacytoma that can potentially be cured by local resection of the tumor since it rarely disseminates. Early diagnosis is associated with better prognosis and less morbidities.

References