

Case Report

Solitary plasmacytoma: a rare entity

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ABSTRACT

Plasmacytoma is a plasma cell disorder characterized by localized accumulation of neoplastic monoclonal plasma cells in bone, or in soft tissues with no skeletal component, without any evidence of systemic involvement as demonstrated by the lack of clonal plasma cells in the bone marrow and absence of features of end organ damage. Spine plasmacytoma is a rather common entity, but solitary occurrence is not. It is usually described as a single lytic lesion without signs of myeloma cells, which is later diagnosed on radiological investigations and confirmed on bone marrow examination and histopathology examination. Imaging diagnosis is extremely helpful in early diagnosis and planning appropriate treatment. We present a case of a 55 year old female with pain bilaterally in lower limbs. A routine MRI shows focal lesion in the right pedicle of L4 vertebrae with bulging discs.

Keywords: Plasmacytoma, MRI, Solitary bone plasmacytoma

INTRODUCTION

Occurrence of a solitary plasmacytoma of the spine accounts for 5% of plasmacytomas and is a rare entity.¹ It is currently estimated that solitary plasmacytoma accounts for only approximately 5% of all plasma cell neoplasms diagnosed annually.² A recent Swedish study showed similar distribution of patients with a global incidence of 0.191/100.000 for male and 0.090/100.000 for female patients.³ Patients presenting with solitary bone plasmacytoma, especially those cases with minimal bone marrow plasmacytosis, have a higher risk of developing symptomatic multiple myeloma, approximately 50% of patients with solitary bone plasmacytoma and 30% of patients with extra medullary plasmacytoma develop multiple myeloma within 10 years after the initial diagnosis.⁴ When all the criteria are satisfied except for the presence of small clone of plasma cells in the bone marrow, qualified at <10% involvement, the condition can be defined as solitary plasmacytoma with minimal bone involvement. The diagnosis of solitary

plasmacytomas is based on the exclusion of systemic plasma cell disorders.

CASE REPORT

A 55 year old female presented with chief complaints of bilateral lower limb pain followed by weakness in the last 3 months. She was apparently alright 3 months ago when she started experiencing pain which was insidious, gradually progressive in nature. She could walk on her own but in the last 1 month has not been able to walk without support. She also has a history of on and off fever episodes and patient is a known case of type 2 DM. On examination, she had imbalance on standing or attempting to walk with a power of 4/5 in bilateral lower limbs with severely hampered gait co-ordination. Hematological studies revealed mild rouleaux formation on peripheral blood smear and normal concentrations were noted on serological investigations of electrolytes, urea and creatinine. Urine analysis revealed absence of Bence-Jones proteins. Since the investigations were

inconclusive, CSF examination and bone marrow biopsy were carried out; which revealed predominantly lymphocytes and hypercellular marrow with mild increase in plasma cells respectively.

Imaging findings

Magnetic resonance imaging (MRI); focal lesion in right pedicle of L4 vertebrae, inferior endplate of L3 and sacrum on right side. Pathological fracture of right sacrum seen in right S3 foramen. Disc prolapse of L4-L5 and L5-S1 causing compression of right L3 and left S1 nerve root compression.

Computed tomography (CT); irregular lytic lesion is noted in body, right pedicle and posterior element of L4 vertebrae, body of L3 and D12 vertebrae. Cortical break noted in right transverse process of L4 vertebrae.

PET scan; solitary metabolically active lesion seen in L4 vertebrae and right sacrum.

Intra-operative findings and further investigations

Laminectomy revealed a soft, bluish, non-vascular, fleshy lesion in the L4 right pedicle and body of the vertebrae causing severe cord compression. L4-L5, L5-S1 discectomy along with L3-4-5 pedicle screw fixation and L4 transpedicular decompression. Patient was discharged on day 10 and is ambulating well. She was advised subsequent radiotherapy.

Histopathology

Pedicle biopsy of pathological lesion was sent for histopathological examination which revealed high suspicion of malignancy most likely plasmacytoma. IHC CD 138 confirmed the diagnosis with focal positivity of >30%.



Figure 1: CT reveals irregular lytic lesion in body, right pedicle and posterior element of L4 vertebrae.

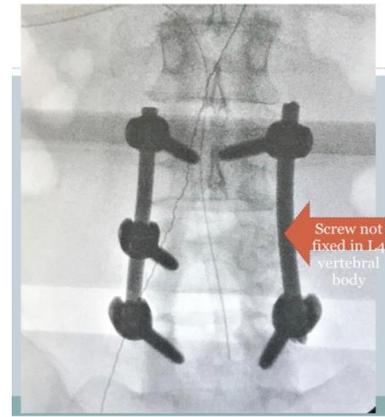


Figure 2: Post operative scan showing pedicle screw fixation.

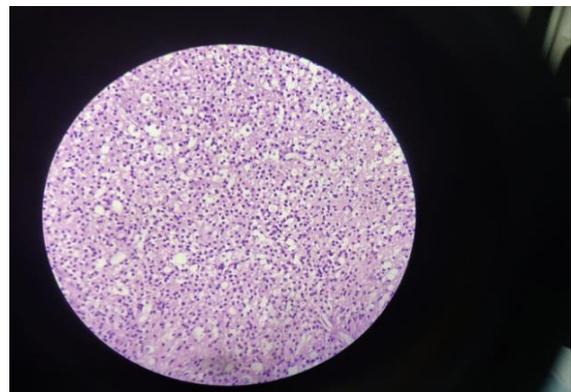


Figure 3: Histopathology slide.

DISCUSSION

Solitary plasmacytoma (SP) is a plasma cell disorder characterized by localized accumulation of neoplastic monoclonal plasma cells in bone, or in soft tissues with (no skeletal component), without any evidence of systemic involvement as demonstrated by the lack of clonal plasma cells in the bone marrow and absence of features of end-organ damage.⁴ Symptoms like pain due to bone destruction and evidence of spinal cord or nerve root compression are most commonly seen in spinal plasmacytoma.⁵ Complications of plasmacytoma include pathological fracture, skeletal pain, anemia, hypercalcemia, or impairment of renal function.⁶ Treatment of choice for solitary plasmacytoma is local radiotherapy, however surgery is performed in presence of structural instability or neurological compromise. The choice of surgery and approach needs to be tailored to the specific situation of each patient, depending on site and extent of tumor.⁷ Loss of structural integrity requires some form of stabilization which is most frequently performed by pedicle screw instrumentation.

CONCLUSION

In presence of solitary spinal lesions, despite the location, solitary plasmacytoma of the bone should be considered

as one of the differential diagnosis. Abnormal proteinemia or proteinuria may often be absent, yet this entity is commonly encountered in clinical practice. Patients show clinical and neurological improvement with surgical decompression with/without stabilization. Postoperatively, radiotherapy is advocated since it reduces the recurrence rates. Solitary spinal lesion is often confused with spinal tuberculosis, starting ATT can be detrimental to patient as it delays the standard line of treatment and often progresses into multiple myeloma.

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