



## SOLITARY BONE PLASMACYTOMA OF DORSAL SPINE WITH SERUM MYELOMA PROTEIN: A CASE REPORT

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**ABSTRACT** Solitary bone plasmacytoma (SBP) is a type of plasma cell dyscrasia without any evidence of systemic features of myeloma. Here reporting a case of SBP of dorsal spine in a young adult male who presented to a tertiary care hospital with features of cord compression. He was diagnosed using biochemical tests, imaging studies, and biopsy findings. He underwent surgical decompression with local radiotherapy. Early diagnosis and management of SBP is important to prevent progression to multiple myeloma.

**KEYWORDS :** Solitary bone plasmacytoma, Immunofixation electrophoresis, Monoclonal gammopathy

### INTRODUCTION

Solitary plasmacytoma (SP) is a rare plasma cell (PC) dyscrasia, characterized by localized proliferation of neoplastic monoclonal plasma cells, without evidence of systemic disease. It accounts for 5 % of all PC neoplasms with an annual incidence of 450 cases globally (1). Presentation can be either solitary bone plasmacytoma or solitary extraosseous plasmacytoma (SEP). SBP is usually seen in vertebrae and skull. SBP is more common than SEP. We report a case of SBP in a young adult male with serum myeloma protein (M protein), which is an unusual presentation.

### CASE STUDY

A 35-year-old young man, an office assistant, presented with complaints of upper back pain for past 11 months and sensory loss over both lower limbs for 3 months. Sensory loss started in thighs bilaterally, then progressed to abdomen, chest and finally to leg and foot. He had difficulty in walking. No history of trauma, fever, fatigue, weight loss, weakness of upper limbs & lower limbs, bowel, and bladder incontinence. He had no other comorbidities

(48mg/dl), A/G reversal (0.93) with normal peripheral smear. In view of cord compression MRI spine done, which showed D3 body lesion, D3, D4 collapse with findings suggestive of TB spine (fig1). No other abnormalities obtained in whole body imaging. Patient underwent D3 laminectomy with transpedicular fixation. Post operatively Anti tuberculous therapy (ATT) started. Laminectomy specimens send for histopathological examination showed plasmacytosis and no evidence of tuberculous granuloma (fig 2), hence ATT was stopped.

To rule out multiple myeloma or IgG4 disease, immunofixation electrophoresis (IFE) and immunoglobulin quantitation done, it showed IgG kappa elevation (fig3). On immunohistochemistry analysis tumor cells positive for CD 138 with kappa stain more than lambda. Bone marrow aspirate showed no significant elevation in plasma cells (table 1). From these findings a diagnosis of solitary plasmacytoma with minimal marrow involvement was made. Cytogenetic marker evaluation (table 1) for myeloma progression showed a better prognosis. Patient has been receiving 20 doses of radiotherapy of 40 gray. Now patient is symptomatically better with normal gait.

**TABLE 1-OTHER INVESTIGATIONS**

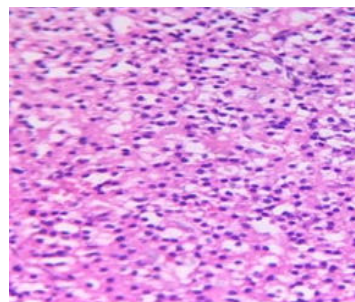
|                               |                                                                   |
|-------------------------------|-------------------------------------------------------------------|
| Hb                            | 12.9 g/dl                                                         |
| Urea                          | 33 mg/dl                                                          |
| Creatinine                    | 1.3mg/dl                                                          |
| Ca <sup>2+</sup>              | 8.8mg/dl                                                          |
| ALP                           | 45 IU/L                                                           |
| SPEP                          | Prominent beta2 fraction                                          |
| Serum Ig                      | IgG-15.46g/L<br>IgA- 3.31g/L IgM- 1.46g/L                         |
| SFLC                          | Free κ-41mg/L, Free λ- 26.6mg/dl,<br>Free κ/λ 1.54(within limits) |
| 24hr urine protein            | 232mg/dl                                                          |
| Urine electrophoresis and BJP | negative                                                          |
| BM biopsy                     | 2-8% plasma cells                                                 |
| Skeletal survey               | No lytic bone lesions                                             |
| S. β2 microglobulin           | 2499ng/ml                                                         |
| LDH                           | 449U/L                                                            |
| Cytogenetics                  | T(4:14),t(11:14),t(14:16),del 17p13,del 13q14.3 -negative         |

General examination was normal with stable vital signs. On central nervous system evaluation, he had a broad-based shuffling gait. His power of lower limb was grade 5 bilaterally. Knee and ankle jerks were brisk and extensor plantar on both limbs. Sensory deficit was present below D4 level. No significant findings noted in other system examination.

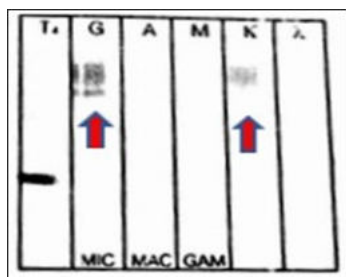
Routine investigations showed raised ESR (84mm/hr.), CRP



**Figure 1: MRI showing lesion at D3 body lesion& D3, D4 collapse with cord compression.**



**Figure 2: D3 vertebral body biopsy showing plasmacytosis.**



**Figure 3: IFE showing Ig G with kappa light chain.**

### DISCUSSION

Diagnosis of SBP is done by biopsy proven plasma cell proliferation, normal bone marrow, normal skeletal survey (except for primary lesion) and absence of end organ damage (2). It is important to distinguish between SBP with minimal bone marrow involvement (<10% clonal marrow cells) versus SBP with no bone marrow involvement (absent clonal marrow cells). SBP with minimal marrow involvement has a risk of 22-60% of developing myeloma within three years, whereas SBP with no marrow involvement has a risk of 10% (4). A small fraction of monoclonal protein can be present in 20% of SBP patients, local recurrence is observed in these patients having solitary plasmacytoma with M protein. Main aim of treatment is local control of tumor and re-establishment of spinal stability. As SBP is a highly radiosensitive tumor, radiotherapy is given for local control. Recommended dose is 30-60 Gy. Some cases need chemotherapy and surgical treatment for pain relief and spinal stability<sup>(3)</sup>.

About 50 % of SBP progresses to multiple myeloma within 2-3 years. Mean survival of patients with SP is 75% at 5 years follow up. For SBP poor prognostic factors are, age >40 years, tumor size  $\geq 5$  cm, spine lesions, neurological symptoms, existence of light chain, high serum M protein, persistence of M protein after treatment, bone marrow infiltration by plasma cells and osteopenia.<sup>(4)</sup>

### CONCLUSIONS

Patients presents with back pain and neurological deficit should be evaluated for SBP and differentiated from multiple myeloma which is essential for choosing an appropriate treatment. Re- evaluation with serum M protein is important for assessing progression and development of multiple myeloma as some cases are positive for the same.

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