

An Unusual Case of Proximal Humeral Fracture Due To Solitary Plasma Cell Myeloma –A Rare Case Report

Dr. Bellad¹, * Dr. Raghavendra MS¹, Dr. Neelanagowda v p patil¹

1.Department of orthopaedics, Mysore medical collage and research institute, Mysore

Correspondence address:

**Dr raghavendra,#208 Pg hostel for men, old exhibition building, mysore*

I. Introduction

Plasma cell dyscrasias are neoplastic proliferation of B-cells, and classified as multiple myeloma (MM, generalized medullary type) and plasmacytoma (localized extramedullary type). When the plasmacytoma occurs only in bone, it is known as solitary bone plasmacytoma (SBP) and when involving the soft tissue, it is named as extramedullary plasmacytoma (EMP); however, both the lesions are characterized by absence of systemic involvement attributing to myeloma.^[1] SBP arises from plasma cells of bone marrow (BM), whereas EMP arises from those in the mucosal surfaces. SBP is infrequent, representing 3-7% of all plasmacytoma.^[2] The median age for SBP is 55 years and involves bones of the axial skeleton (vertebra, skull); involvement of the distal appendicular skeleton is rare. SBP has a significantly high risk of progression to MM (65-84% in 10 years).^[3]

The present case of SBP is being reported for its unusual clinical presentation and in our case locking plate fixation before local radiotherapy and chemotherapy has been shown to be effective in controlling pain and allow the patient an acceptable function, despite systemic disease progression.

II. Case Report

50 years old male patient Mr. Mahadevappa presented to the casualty with a history of trivial fall wherein he was slipped while walking and sustained injury to left shoulder. On examination patient had pain, swelling, deformity and tenderness over left shoulder. Plain radiograph[fig1] showed 4 part fracture of left proximal humerus with lytic lesions. He was initially stabilized with U slab and waited for 5 days for the swelling to subside with limb elevation and antiedema measures. Plain radiographs of opposite sholder, skull, spine, pelvis were taken[fig 2] but they didn't show any lesions. He was planned for internal fixation and hence fracture was fixed with locking plate[fig3] and tissue biopsy was taken. Post operatively pendulum exercises were started on 3rd day. Retrospectively urine benz jones protein test and plasma electrophoresis was done.electrophoresis showed M band. Benz jones proteins were absent in urine.on 10th day sutures were removed and patient was referred to an oncologist for further management

III. Conclusion

Solitary bone plasmacytoma is rare in extremity bones. Detailed evaluation of these lesions is important to differentiate them from multiple myeloma .Early detection and fixation with chemo radiotherapy will improve quality of life in such patients.

IV. Discussion

Solitary bone plasmacytoma is a rare immunoproliferative monoclonal disease with localized proliferation of plasma cells. It occurs more commonly in men than in women (M:F-2:1) and presents a decade younger than MM.^[4] It mostly involves the axial skeleton, that is, vertebra and skull; involvement of the bones of extremities is rare.^[4] In contrast to MM, both SBP and EMP show absence of CRAB (increased serum calcium, renal insufficiency, anemia, and multiple bone lesions). The diagnostic criteria for SBP includes a solitary bone lesion confirmed by skeletal survey, biopsy proven clonal plasma cell infiltration, lack of myeloma-related organ damage, plasma cell constituting <10% of BM nucleated cells and absence of urine/serum "M" protein.^{[3],[4]} Histopathological analyses alone are not sufficient for making a diagnosis; all the above investigations are mandatory to exclude MM. Higher risk of progression has been detected in lesion >5 cm of size, age ≥40 years, spine lesions, high 'M' protein levels and persistence of 'M' protein after treatment.^{[3],[5]} Treatment for SBP is RT to eradicate the local lesion. In some cases, surgical intervention is required for stabilizing fractured ends or for nerve decompression. RT alone is curative in many cases; however, adjuvant CT is recommended for tumor with poor prognostic factors.^[3] Since our patient also had a tumor with poor prognostic factors in terms of significantly large swelling and progression to another bone, combined RT and CT were given. SBP has a benign clinical behavior but has a poor prognosis in comparison to EMP. Local

control is achieved by RT in most cases, but up two-thirds of patients eventually evolve to generalized myeloma or additional solitary or multiple plasmacytomas.^[6] In spite of curative treatment, the median time of progression to MM is 2-3 years and the rate is 65-84% in 10 years.^[3]

References

- [1]. Rao KS, Priya NS, Umadevi HS, Smitha T, Reshma V, Shebha G. Solitary bone plasmacytoma of the maxilla - A rare case report. *Int J Clin Dent Sci* 2011;2:37-40. [Back to cited text no. 1](#)
- [2]. Kanthan R, Torkian B. Solitary Plasmacytoma of the parotid gland with crystalline inclusions: A case report. *World J Surg Oncol* 2003;1:12. [Back to cited text no. 2](#)
- [3]. Kilciksiz S, Karakoyun-Celik O, Agaoglu FY, Haydaroglu A. A review for solitary plasmacytoma of bone and extramedullary plasmacytoma. *ScientificWorldJournal* 2012;2012:895765. [Back to cited text no. 3](#)
- [4]. International Myeloma Working Group. Criteria for the classification of monoclonal gammopathies, multiple myeloma and related disorders: A report of the International Myeloma Working Group. *Br J Haematol* 2003;121:749-57. [Back to cited text no. 4](#)
- [5]. Siddaraju N, Basu D, Soundararaghavan J. Use of fine needle aspiration cytology in the diagnosis of extraosseous plasmacytoma presenting with monoclonal gammopathy: A case report. *Case Rep Clin Pract Rev* 2007;8:90-3. [Back to cited text no. 9](#)
- [6]. Swerdlow SH, Campo E, Harris NL, Jaffe ES, Pileri SA, Stein H, et al. *WHO Classification of Tumours of Haematopoietic and Lymphoid Tissues*. 4th ed. Switzerland: IARC Press Lyon; 2008. [Back to cited text no. 11](#)
- [7]. Shipra Agarwal, Shyama Jain, Nidhi Mahajan, Annapurna Saksena. Solitary bone plasmacytoma: An interesting case report with unusual clinico-cytological features: *Journal of Cytology*, Vol. 31, No. 3, July-September, 2014, pp. 158-160.



Figure 1, Preop x ray



Figure 2, skull, vertebra, pelvis negative for other lesions



Figure 3, post op x ray



Figure 4, 6 month follow up



Figure 5, Clinical result at 6 month.