Case Report

# Solitary plasmacytoma of the rib: A rare case

*Rikki Singal, Usha Dalal[1], Ashwani Kumar Dalal[1], Ashok Kumar Attri[1], Samita Gupta[2], Rachna Raina[3]*

*Department of Surgery, Maharishi Markandeshwer Institute of Medical Sciences and Research, Mullana (Distt-Ambala) Haryana, [1]Department of Surgery, Government Medical College and Hospital, Sector -32, Chandigarh, Punjab, [2]Department of Radiodiagnosis and Imaging, [3]Department of Gynaecology, Maharishi Markandeshwer Institute of Medical Sciences and Research, Mullana (Distt-Ambala) Haryana, India*

## ABSTRACT

Localized solitary plasmacytoma of the bone is a rare disease and is characterized by only one or two isolated bone lesions with no evidence of disease dissemination. We report a case of solitary plasmacytoma of the rib in a 43-year-old female. The patient underwent complete en-bloc resection of the chest wall including rib, muscle, and parietal pleura. Patient is asymptomatic without any recurrence after two and half years of follow up.

**KEY WORDS:** Chest wall, giant, plasmacytoma, rib, solitary, tumor

**Address for correspondence:** Dr. Rikki Singal, c/o Dr. Kundan Lal Hospital, Ahmedgarh, Sangrur-148 021, Punjab, India. E-mail: singalsurgery@yahoo.com

## INTRODUCTION

Solitary plasmacytoma of bone (SPB) is a rare localized lesion that accounts for only 4% of malignant plasma cell tumors.[1-3] It may present as the sole manifestation of plasma cell neoplasm, as a solitary plasmacytoma of the bone or as a consequence of multiple myeloma. A solitary plasmacytoma in a rib usually shows destruction of the bone cortex with extension into the surrounding soft tissues. Plasmacytoma may be primary or secondary to the disseminated multiple myeloma and may arise from the osseous (medullary) or nonosseous (extramedullary) sites. Primary extramedullary plasmacytoma can be solitary or multiple.[4] SPB has been considered a genetic abnormality that can often change to multiple myeloma.[5] Solitary plasmacytoma is rare as compared with multiple myeloma.

## CASE REPORT

A 43-old-nonsmoker female reported with pain in the chest on right side which was sudden in onset, mild-to-moderate in nature, nonradiating and increased on coughing since 2 months. Fever was present off and on since one year. On local examination of the chest, there were decreased breath sounds at the base of chest wall. No mass was felt or any abnormality. Rest of systemic examination was normal.

Chest X-ray showed a large extra pulmonary opacity with well defined medial margin and lateral margin merging with chest wall on right side. Pleural effusion was also present [Figure 1]. On contrast-enhanced computed tomography (CECT) of the chest revealed a well defined hypodense soft tissue mass of size about 8.5-7.6 cm on right side of the chest wall with invasion of the fifth rib with adjoining parietal wall [Figure 2a-b]. Pleural effusion is also seen on right side. CECT of the skeletal and head and neck was normal.

Serum electrophoresis for M band proteins showed prominent M band. Urine for Bence Jones proteins was negative. Pleural fluid tapping was negative for tuberculosis or malignancy. On bone marrow biopsy there were no excess of plasma cells (2%). CECT guided fine needle aspiration cytology revealed plasmacytoma of fifth rib.

Right posterolateral thoracotomy was done which revealed a well circumscribed tumor of 10 × 12 cm in size arising from the fifth rib anteriorly. En-bloc resection of fifth rib with involved parietal pleura and muscles was done with 5 cm, from the tumor margins. Lung tissue adherent to the tumor was also removed. Primary closure was done. Histopathology report came as plasmacytoma of the rib. Postoperative picture showing no recurrence [Figure 3].

Access this article online

Quick Response Code:

Website: www.lungindia.com

DOI: 10.4103/0970-2113.85699

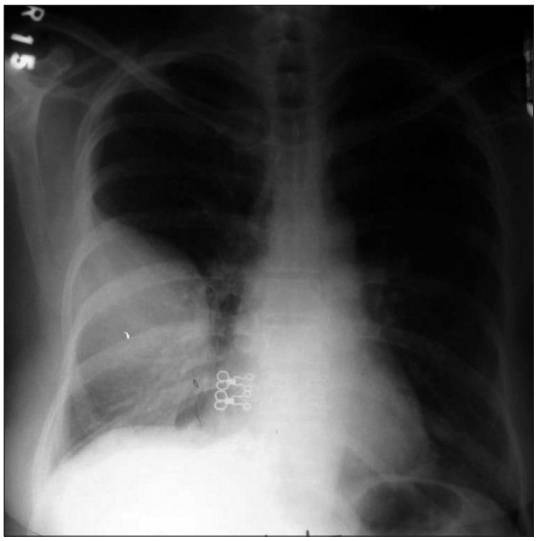

**Figure 1:** Chest X-ray showing a large extra pulmonary opacity with well-defined medial margin and lateral margin merging with chest wall on right side

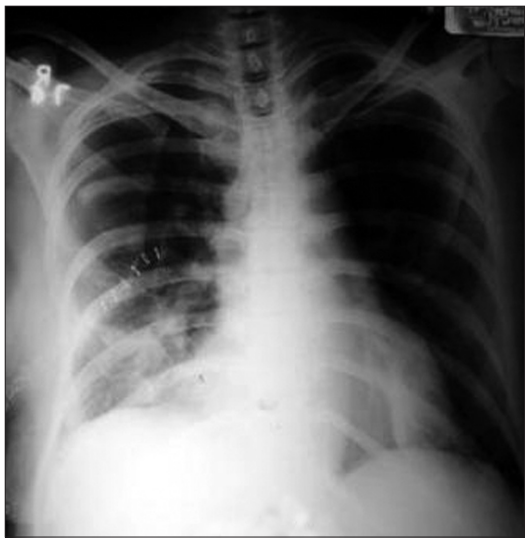

**Figure 3:** Postoperative picture showing resected part of the large tumor

In follow-up of two and half year, patient is doing well and asymptomatic.

## DISCUSSION

Solitary plasmacytomas of bone are defined as clonal proliferations of plasma cells identical to those of plasma cell myeloma, which manifest a localized osseous growth. Plasmacytomas can be divided into multiple, solitary osseous, and solitary extraosseous or extramedullary plasmacytomas and rare as compared with multiple myeloma.[6] Localized SPB is a rare disease and is characterized by one or two isolated bone lesions with no evidence of disease dissemination and has been considered to be curable with radiotherapy and surgical resection. This treatment is sufficient to achieve long term survival.[5,7] The incidence of SPB has been reported to be approximately

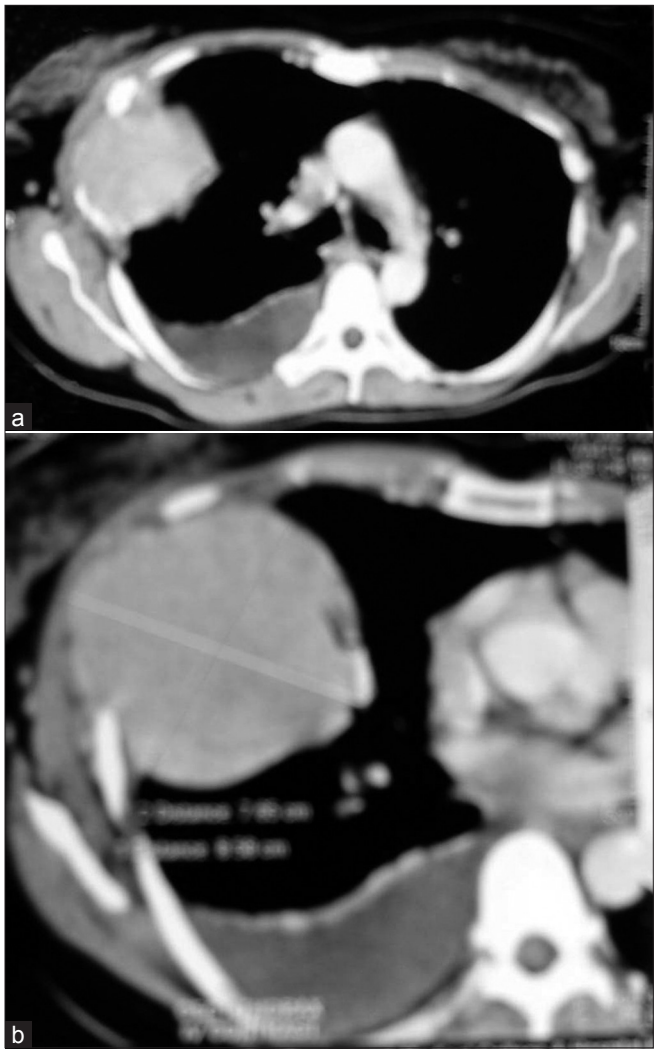


**Figure 2:** (a-b) Contrast -enhanced computed tomography of the chest revealed a well-defined hypodense soft tissue mass on right side abutting the chest wall with invasion of fifth rib and associated pleural effusion

3/10 00 000 annually.[8] SPB is an uncommon disease that accounts for only 5% of malignant plasma cell tumors and is less common in the chest wall than spine. The thoracic spine is most commonly involved followed by lumbar spine.[5]

In Japanese's literature, 14 cases of solitary plasmacytoma of rib origin have been described.[9,10] The ratio of male to female patient was approximately 1.3:1. The average age on presentation was 59.5 years with a range form 39 to 77 years.[5] In past, radiation therapy was used as the primary treatment for solitary plasmacytoma. Mendenhall *et al,* reported a 6% local failure rate in patients with solitary plasmacytoma treated with doses of 40 Gy or above in contrast to 31% for doses below 40 Gy.[8] Aviles *et al,* observed that most patients treated with adequate radiation therapy alone will develop multiple myeloma within the first 3 years after diagnosis and treatment.[11] In our case, we had referred the patient for radiotherapy and then common decision was taken to go first for radical surgery.

Even according, to Bataille and Sany the primary methods for treating solitary plasmacytoma were surgery with radiation therapy in 95 cases and surgery alone in 15 cases.[1,5] They showed the lowest incidence of progressive diseases in patients with peripheral solitary plasmacytoma who were treated with surgery plus an adequate dose of radiation therapy. The criteria for diagnosis of SPB are variable. Plasmacytoma almost always destroys bone. CECT scan and percutaneous needle biopsy are best investigations to diagnose chest lesions. The diagnosis is based on identification of the localized tumor composed of monoclonal plasma cells identical to those observed in multiple myeloma, and absence of the signs in favor of a disseminated form.[3] According to the current recommendations, the detection of a monoclonal component in the serum or urine does not exclude a diagnosis of solitary plasmacytoma.[1,5] Urine electrophoresis is an important test, because it may show abnormalities in a few patients even when the serum electrophoresis is normal. SPB is characterized by only one or two isolated bone lesions with no evidence of disease dissemination and has been considered to be curable with radiotherapy and surgical resection and such treatment is sufficient to achieve long-term survival.[12]

On the contrary, SPB has been considered to be a genetic abnormality which could lead to the development of multiple myelomas.[11] In our case, a patient with a chest wall tumor is reported in whom solitary plasmacytoma originating in the rib was surgically treated with radiation therapy followed by adjuvant chemotherapy. Aviles *et al*. showed that the use of low doses of melphalan and prednisolone contributed to an improvement in disease-free survival and overall survival in patients with SPB, compared with patients who were treated with radiotherapy alone.[11] Their results suggest that the use of adjuvant chemotherapy will improve the outcome and prolong the duration of remission and survival. In our case, patient responded very well to preoperative radiotherapy followed by surgery and chemotherapy. We conclude that preoperative radiotherapy with complete en-block resection, followed by adjuvant chemotherapy, aided the long-term survival and disease-free of patient. In our case also, patient was free from disease for long term, by using same pattern of treatment as suggested by author Kadokura *et al*.[5]

## CONCLUSION

Patients with solitary plasmacytoma originating in the rib have a feasibility of operative indication and radical treatment is expected to be by adequate surgical resection followed by chemotherapy.

## REFERENCES


1. Bataille R, Sany J. Solitary myeloma: clinical and prognostic features of a review of 114 cases. Cancer 1981;48:845-51.
2. Goel G, Rai S, Naik R, Gupta A, Baliga P, Sinha R. Cytodiagnosis of extramedullary plasmacytomas. Acta Cytol 2010;54:255-8.
3. Bousnina S, Zendah I, Marniche K, Yalaoui S, El Mezni F, Megdiche ML, Chabbou A. Solitary plasmocytoma of the rib: A rare tumor not to miss. Rev Pneumol Clin 2006;62:243-6.
4. Kadokura M, Tanio N, Nonka M, Yamamoto S, Kataoka D, Kushima M, *et al*. A Surgical case of solitary plasmacytoma of rib origin with biclonal gammopathy. Jpn J Clin Oncol 2000;30:191-5.
5. Ooi GC, Chim JC, Au WY, Khong PL. Radiologic Manifestations of Primary Solitary Extramedullary and Multiple Solitary Plasmacytomas. AJR Am J Roentgenol 2006;186:821-7.
6. Ashiq Masood, Kanan H Hudhud, AZ Hegazi and Gaffar Syed. Mediastinal plasmacytoma with multiple myeloma presenting as a diagnostic dilemma. Cases J 2008;1:116.
7. Fanning SR, Hussain MA, Perez-Zincer F: Plasmacytoma, extramedullary. E medicine 2006.
8. Mendenhall CM, Thar TL, Million RR. Solitary Plasmacytoma of bone and soft tissue. Int J Radiat Oncol Biol Phys 1980;6:1497-501.
9. Hirai T, Hamada Y, Kanou T, Kobayashi J, Endo K, Morishita Y, *et al*. Solitary Plasmacytoma of the rib: A case report and review of the Japanese literature. Nippon Kyobu Geka Gakkai Zasshi 1995;43:205-9.
10. Hanawa T, Sawai S, Matsui T, Chiba W, Watanabe S , Matsubara Y, *et al*. A case of solitary plasmacytoma of the chest wall. Nippon Kyobu Shikkan Gakkai Zasshi 1994;32:616-20.
11. Aviles A, Huerta GJ, Delgado S, Fernandez A, Diaz-Maqueo JC. Improved outcome in solitary bone plasmacytoma with combined therapy. Haematol oncol 1996;14:111-7.
12. Jackson A, Scarfee JH. Prognostic significance of osteopenia and immunoparesis at presentation in patients with solitary myeloma of bone. Eur J Cancer 1990;26:363-71.


**How to cite this article:** Singal R, Dalal U, Dalal AK, Attri AK, Gupta S, Raina R. Solitary plasmacytoma of the rib: A rare case. Lung India 2011;28:309-11.
**Source of Support:** Nil, **Conflict of Interest:** None declared.