

**Full Length Research Paper****A Case of Missed Diagnosis of Solitary Plasmacytoma Mandibular Bone Involvement: A Case Report**

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**Abstract**

Neoplastic production of B-Lymphoid cells results in plasma cell malignancies. Solitary plasmacytoma of bone (SPB) tumor is infrequently seen in the jaws' bones and when it occurs often it affects the angle of mandible. EMP rises in tissues other than bone marrow occurs frequently compared to the SPB in the head and neck region. This condition is rare, containing around 5% of all plasma cell neoplasm. SPB is noted as centrally localized in bones and commonly occur in old age individuals, predominance in male than female. This case report describes a rare location of SPB.

**Key words:** Bone, Plasma cell neoplasm, mandible, solitary plasmacytoma

**Introduction**

Plasmacytomas or Plasma cell neoplasms are lymphoidneoplastic productions of B-cells. Plasmacytoma is divided clinically as a localized or a disseminated type, multiple myeloma (MM) representing the wide spread nature of this disease, while solitary plasmacytoma of bone (SPB) and extramedullary plasmacytoma (EMP) representing localized type(1-9). SPB is noted as centrally localized in bones and commonly occur in old age individuals, predominance in male than female (1-3,5).SPB tumor is infrequently seen in the jaws' bones and when it occurs often it affects the angle of mandible.EMP occurs in areas other than bone marrow and occurs in head and neck areas with overall occurrence of 5% of all plasma cell neoplasm (10). The majority (80%) occurring in the head and neck area (11), affects mostly between fifth to sixth decade of life, with a higher prevalence in men (12). The solitary plasmacytoma of bone has a poor prognosis compared to EMP and nearly 30%to 70% of cases of SPB will progress to MM (1,3-5,13-15).

This study report's a case of solitary Plasmacytoma of bone extending into left side of the angle of the mandible and ramus diagnose dhistopathologically which occurs rarely in the jaws.

**Case report**

A male patient aged 60, presented for dental treatment in the Department of Oral Health Sciences, College of Dentistry, Taiba University, with the primary complaint of replacing the missing teeth. The patient's medical history was significant for knee pain (of 10 years duration) for which he is using topical cream. Physical examination revealed no other abnormality and node formity of face was evident extra orally (figure 1).Clinical intraoral examination did not show any tissue change, tenderness or palpable lymph nodes noticed, there is no metastasis. Tongue, lips, buccal and alveolar mucosa were covered with healthy mucosa and appeared within normal limits. He was completely edentulous when he reported. The patient denied any history of anemia or kidney problems.



**Fig 1:** Preoperative clinical photographs showing normal facial appearance.

Examination of panoramic radiographic (OPG) revealed a solitary, asymptomatic well-defined unilocular radiolucent area (3 cm x 2 cm) on the left aspect of the mandible and extended to the angle of mandible. An earlier radiograph of the patient (6 months earlier) also showed the same lesion, but of smaller size (Figure 2) and (Figure 3) respectively.

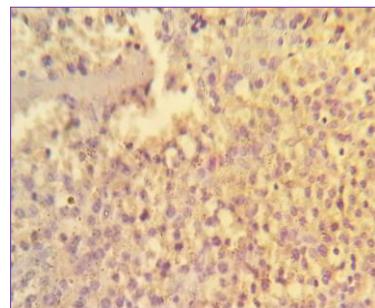
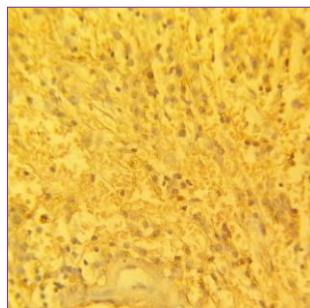


**Fig 2:** Orthopantomogram of the patient showing radiolucent lesion in angle of mandible of left side (1 cm X 1cm).



**Fig 3:** Orthopantomogram of the patient showing radiolucent lesion in angle of mandible of left side (3 cm X 2cm) after 6 months from previous POG.

The patient was referred to the surgical center for incisional biopsy of the lesion. The incisional biopsy was carried out under Local anesthesia and the sample was sent to be examined histopathologically. Photomicrographs showing sheets of plasma cells (Figure 3)and (Figure 4) shows plasma cells with homogeneous positive Immuno staining, numerous in number ,rich in cytoplasm and nuclei located eccentrically. Plasma cells also exhibited mild nucleomegali and the distribution of chromatin was irregular. Few cells were binucleated..



**Fig 3 and Fig 4:** Immuno-staining showing homogeneous positive staining of plasma cells.

Also, the patient was investigated for complete blood count test. Based on the clinical presentation no evidence of anemia neither kidney problems nor hypercalcemia radiological findings for skeletal survey were negative, and histopathology revealed plasma cells infiltration and absence of clonal plasma cells in bone marrow and the diagnosis for “*Solitary plasmacytoma of mandible*” was suggested. The patient classified as T2N0M0According to TNM classification (16). The extent of plasmacytosis was localized to left mandibular body which extended to the mandibular angle the patient was referred to Department of Oncology to start the treatment. The patient was recommended radiotherapy with a radiation dose of at least 40 Gy in four weeks. Then Patient will be reevaluated at 6-week intervals for two years.

## Discussion

Solitary plasmacytoma of bone type is a single osteolytic lesion and localized composed of clonal plasma cells. Incidence of SBP is between 50–70 years with a higher prevalence in male (male:female ratio of 3:1).The commonest sites of occurrence of SPB are long bones and vertebrae(18). Rarely does it include jaws with mandibular occurrence reported in 4.4% of cases, frequently at the bone marrow-rich regions of mandibular body, angle of the mandible and mandibular ramus. (19). It is also reported by Korolkowa et al that about 40% of SBP are related to nasal cavity and para nasal sinus, nearly 20% to nasopharynx, and 18% to the oropharyngeal region(1,2,17). Clinical signs and symptoms may not be abrupt. So mostly solitary plasmacytoma of jaws are not diagnosed early. Specific symptoms that can suggest diagnosis of solitary plasmacytoma localized to a particular segment of bone are: mobility and migration of the teeth, pain in jaws and paraesthesia/anesthesia in teeth, impairment in the function and movements of bone , presence of hard and soft tissue swelling and pathological fractures(20, 21).

Osteoclast activating factors are produced by plasma cells, and this which result in the production of osteoclasts which triggers bone resorption. The radiological appearance of plasmacytomas is multilocular radiolucent areas with no reactive formation of bone(19, 21). Microscopically and clinically it is not straightforward to differentiate plasmacytoma occurring in the oral cavity from other malignancies such as lympho proliferative disorders and carcinomas of poorly differentiated type. The diagnosis of SBP needs a lonely bone lesion, with confirmatory immune histochemical (IHC) analysis and histopathological with distinct support of investigation from the hematological aspect.

The immunological studies in patients with SBP has revealed immunoglobulin production, along with secretory component if monoclonal gammopathy in serum electrophoresis, either serum and urine analysis or both revealed light chains production, presence of cryoglobulinaemia, alterations in blood calcium levels, dysfunction of kidneys and altered serum level of  $\beta$ -2-microglobulin(20, 22). It has also been reported that both SPB and EMP can progress to MM, with more chance for

transformation in SPB than EMP. According to Clinical investigations nearly 35–85% of SPB cases undergo transformation to MM with over a range of few months to a couple of years. Regular monitoring for immunoglobulins and monoclonal antibodies in serum and Bence-John Proteins in urine after treatment is essential as is it unpredictable which case of SBP might transform(1-3).Treatment modalities that has been carried out include radiotherapy, chemotherapy, excising the diseased part surgically, and combination of all these. Plasmacytomas are extremely sensitive to radiation and has been reported to show regional control of more than 80%.

Universally accepted treatment for plasmacytomas of head and neck region is radiation therapy and surgical excision is limited to either biopsy or to manage recurrent lesions. The radiation dose recommended is 40-50 Gray/4-5 weeks/20-25 fractions. The reported control rate is 80% (23). The primary region of the tumor and regional lymph nodes should be included in the radiation field, if the lymphnodes are involved or there is clinical suspicion. SPB needs an accurate and thorough examination of the patient by an oncologist and reduction or complete control of manifestations of systemic diseases is a sign that indicates a positive response to the treatment and better prognosis of the patient. The treatment of choice for SBP is localized radiotherapy as these cases are extremely radiosensitive (24).

### Conclusion

Plasma cell malignancies like MM,SPB and EMP are distinguished by the presence ofmonoclonal neoplastic abundance of plasma cells. Solitary plasmacytoma of bone is a localized type and is highly radiosensitive.These cases require long-term follow up to identify any recurrence of the lesion or unaware manifestation of distributed malignancy.

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