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Intraoral Complications Associated with Multiple Myeloma: Case Report

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Abstract

Plasma cell neoplasms such as multiple myeloma (MM), solitary plasmacytoma of the bone and extra medullar plasmacytoma are characterized by a monoclonal neoplastic proliferation. Oral manifestations in the form of oral and maxillofacial lesions are often the first sign of the disease. Because the symptoms are various, it is very difficult to diagnose MM in the oral and maxillofacial region. In this study, two male patients presenting with complaint of a painful oral lesion are reported.

Key Words: Plasmacytoma, oral lesions, monoclonal immunoglobulin

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Introduction

A plasma cell neoplasm such as multiple myeloma (MM) is a primary malignancy of the bone marrow characterized by the clonal proliferation of plasma cells and production of monoclonal immunoglobulin. The disease occurs more frequently in males, with the average age at diagnosis being ~60 years. The lesion may be solitary or involve multiple sites as found in MM. Patients may present with bone pain, renal failure, recurrent infections, fatigue, and dysfunction of the nervous system. Maxillofacial presentations in patients with MM are not uncommon. Oral manifestations in the form of oral and maxillofacial lesions are often the first sign of the disease had been reported previously [1,2]. The symptoms include swelling, mass formation, paresthesia of the lower lip, pain, bleeding and fracture of the jawbone, tooth mobility and migration, macroglossia and radiolucent lesions. Since, the symptoms are various it is very difficult to diagnose MM in the oral and maxillofacial region [3].

The incidence of the oral lesions in MM varies from less than 2–70%. Oral manifestations may rarely occur as the first sign of the disease in approximately 14% of patients [4]. However, the dentist should address the oral manifestations as the first indications of MM. In this article, oral lesions in two male patients diagnosed with plasmacytoma are reported.

Case 1

A 55-year-old male patient, diagnosed as MM, referred from medical Oncology with complaints of pain in the upper alveolus with swelling and bleeding gums occasionally. Peripheral smear showed normal RBC and WBCs distribution, predominantly neutrohills. Platelets count was at the lower limit of normal. Free Kappa light chain elevated (28.136 mg/dl). The patient was under treatment of the medical Oncology team for more than two years. The tooth mobility and bleeding gums were noticed since last four months. Gingival hyperplasia caused discomfort to the patient (Fig 1A). Intra oral and periapical radiograph showed mobility of the tooth and it's extruded from the socket (Fig 2 A). Biopsy of the oral tissues suggested intraepithelial inflammation with reactive atypia. Sub-epithelium showed fibrous tissue mixed inflammation. The hyperplastic tissues suggested the pseudoepitheliomatous hyperplasia with focal ulceration and inflammation. Biopsy of bone marrow and imprint smear suggested the diagnosis, as MM (Fig 3). In this patient, the pain was due to mobility of the tooth and inflammation of the surrounding area. Tooth had been

extracted which alleviated the pain, but the soft tissue was not healed due to the impaired wound healing. The patient underwent medical management.

Case 2

A 70-year-old male patient was referred from medical Oncology with MM. He had no difficulty in chewing or swallowing for more than four years. Later, he developed orocutaneous fistula and frequent infection of soft tissues adjacent to the fistula tract (Fig1B). The patient also complaint of pain while swallowing. Mandible became necrotic and the skin infection was present below the lower border of the mandible. There was fistula with leaking saliva and pus. Antibiotics were given and the infection subsided, but fistula closure and debridement of bone were not done due to medical contraindication.

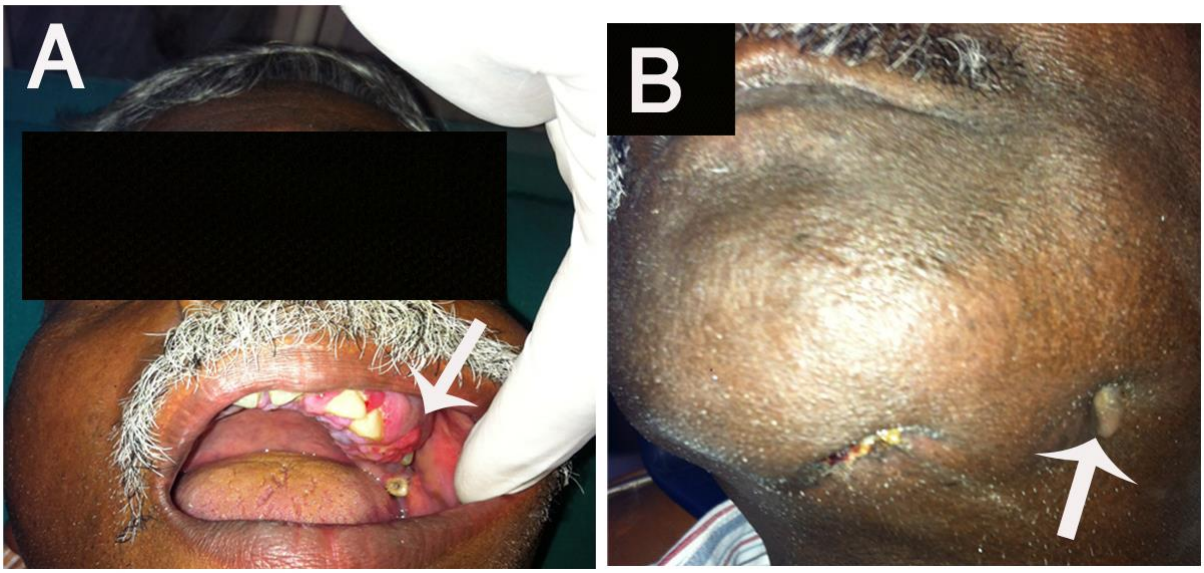

Figure 1. A) Hyperplastic tissues in upper alveolus B) Orocutaneous fistula and infection of soft tissues

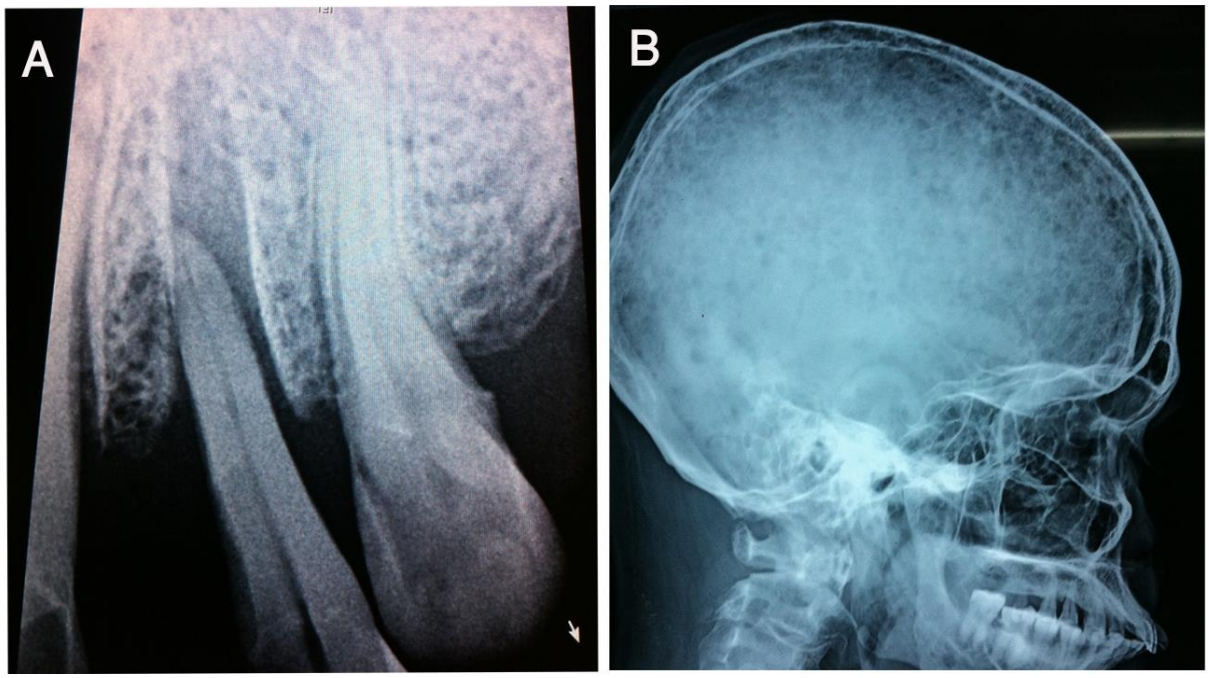

Figure 2. A) X-ray shows mobility of teeth; B) Pepper spotted appearance in skull

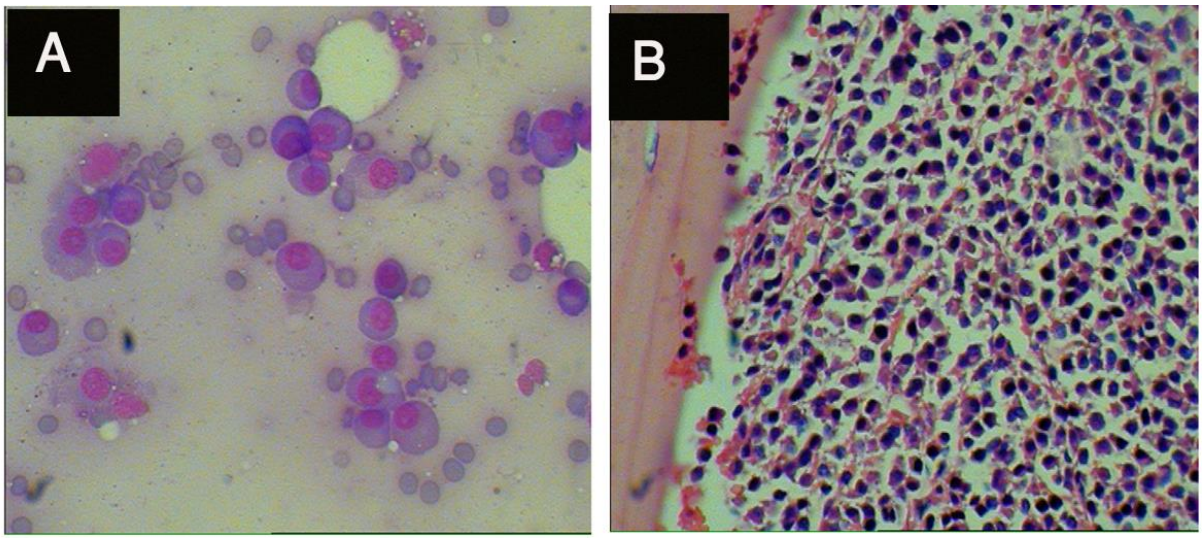

Figure 3. A) Bone marrow aspiration showing plasma cells B) BM biopsy showing ovoid cells with dark staining eccentric nuclei

Discussion

Plasma cell neoplasms are characterized by a monoclonal neoplastic proliferation of plasma cells. The lymphoid neoplastic proliferations of B cells can present as a different disease entity such as MM, solitary plasmacytoma of bone (SPB) and extra medullar plasmacytoma (EMP) [5]. SPB is a localized form among the others and is most frequently seen in vertebrae as well as secondarily in long bones, whereas EMP develops in soft tissues which are more frequently seen than SPB in the head and neck regions [6]. Plasmacytoma may be identified on the marrow biopsy. The criteria that are essential for the diagnosis of SPB are bone marrow biopsy and the skeletal survey in order to eliminate the presence of other foci. The findings in bone marrow biopsy should be negative and there should be no dysproteinemia or Bence-Jones proteinuria. It's presence in jaws is extremely rare, but when it is present the angle and ramus of mandible are most common sites of occurrence. Approximately, 4.4% of SPB occur in the mandible most commonly in the bone marrow-rich areas of the body, angle and ramus of the mandible. Prognosis of SPB is worse than EMP. Approximately, 50% of SPB will transform to MM in a period of couple of months to a few years and the survival had been noticed 16% at 10 years [7]. Since, it is not possible to predict which case may transform, the SPB cases must be followed-up with routine laboratory monitoring of immunoglobulin and monoclonal proteins in serum and the Bence-Jones proteins in urine [8]. MM is the disseminated type among the other plasma cell neoplasms. Hence, MM should be distinguished from SPB.

MM remains an incurable cancer of the bone marrow plasma cells. The incidence in males is three times higher than that of females. The most affected age group is found to be 50–70 years. The predominant clinical symptoms of MM are associated with pain in bone and renal dysfunction. In addition to oral manifestations, involvement in the parotid gland as first evidence of the disease was also reported [9]. In our cases, swelling was the major symptom and pain was also present but paraesthesia was not reported. Oral manifestations of MM include loosening of teeth, hyperplasic gingiva and occasional bleeding. The diagnosis of the disease can be done through skeleton involvement and of hip and other bones like skulls (Pepper spotted) in X ray. (Fig. 2B). Bone marrow aspirate showed plasma cells–with basophilic cytoplasm, eccentric nuclei, and cart-wheel chromatin. Perinuclear halo/hof and binucleate cell also was also noted (Fig.3A), whereas ovoid cells with dark staining eccentric nuclei found in the BM biopsy (Fig. 3B). The disease can also be diagnosed from the lesion

present in oral tissues. Most of the cases, the debridement of bone cannot be done due to pathological fractures results from the osteoclastic activity of the bone and vascular necrosis. Hence, such condition has to be treated medically. In the second case of the present study, the mandible became necrotic and the skin infection was present below the lower border of the mandible, probably due to adverse effect of chemotherapeutic regimen that he had under gone. Hence, the debridement of bone was not done in this case.

Treatment of these neoplastic tumors varies depending on the type of proliferation and may involve surgery, radiotherapy and chemotherapy, alone or combination. The overall survival of patients with MM has increased dramatically within the past decade. This is ascribed, in part, to the development of newer agents such as immunomodulatory drugs like lenalidomide, thalidomide, and pomalidomide and proteasome inhibitors such as bortezomib, carfilzomib, and MLN9708 [10]. Furthermore, the benefits of the monoclonal antibodies (MoAb) have been well described in lymphomas and other cancers. These drugs have multiple mechanisms of action ranges from cellular and complement toxicity as well as targeting of proteins, growth factors, and their receptors. Research efforts attempting to gain insight into effective MoAb therapy in MM are continuing. The MoAb used in this case ie. denosumab works most notably as a inhibitor of receptor activator of nuclear factor kB ligand that results in the inhibition of osteoclast activity that leads to decreased bone breakdown [10]. Since, the ultimate goal in this incurable disease setting is to reduce the impact of cancer- or chemotherapy-related side effects nurses and advanced practitioners should be as integral to the treatment team. Further, suggests that the dentist should address oral manifestations as the first indications of MM.

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Conflict of interests

The authors have no conflicts of interest or funding to disclose.

References

1. Zhao XJ, Sun J, Wang YD, Wang L. Maxillary pain is the first indication of the presence of multiple myeloma: A case report. Mol Clin Oncol. 2014;2(1):59-64.
2. Pinto LS, Campagnoli EB, Leon JE, Lopes MA, Jorge J. Maxillary lesion presenting as a first sign of multiple myeloma: case report. Med Oral Patol Oral Cir Bucal. 2007;12(5):E344-7.
3. Shah A, Ali A, Latoo S, Ahmad I. Multiple Myeloma presenting as Gingival mass. J Maxillofac Oral Surg. 2010;9(2):209-12.
4. Epstein JB, Emerton S, Guglietta A, Le N. Assessment of epidermal growth factor in oral secretions of patients receiving radiation therapy for cancer. Oral Oncol. 1997;33(5):359-63.
5. Seoane J, Aguirre-Urizar JM, Esparza-Gómez G, Suárez-Cunqueiro M, Campos-Trapero J, Pomareda M. The spectrum of plasma cell neoplasia in oral pathology. Med Oral. 2003;8(4):269-80.
6. Pisano JJ, Coupland R, Chen SY, Miller AS. Plasmacytoma of the oral cavity and jaws. A linopathological study of 13 cases. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 1997;83(2):265-71.
7. Canger EM, Celenk P, Alkan A, Günhan O. Mandibular involvement of solitary plasmacytoma: a case report. Med Oral Patol Oral Cir Bucal. 2007;12(1):E7-9.
8. Seoane J, Aguirre-Urizar JM, Esparza-Gomez G, Suarez-Cunqueiro M, Campos-Trapero J, Pomareda M. The spectrum of plasma cell neoplasia in oral pathology. Med Oral. 2003;8(4):269-80.
9. Obuekwe ON, Nwizu NN, Ojo MA, Ugbodaga PI. Extramedullary presentation of multiple myeloma in the parotid gland as first evidence of the disease - a review with case report. Niger Postgrad Med J. 2005;12(1):45-8.
10. Faiman B, Richards T. Innovative agents in multiple myeloma. J Adv Pract Oncol. 2014;5(3):193-202.