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IP International Journal of Maxillofacial Imaging

Journal homepage: <https://www.ijmi.in/>

Case Report

Multiple punched out lesions: A case report of multiple myeloma

Mrunmayee Shrikant Durugkar^{1*}, Mahendra Patat², Kedar Saraf²,
Yogini Marathe³, Kartikee Vinit Bhoir²

¹Private Practitioner, Pune, Maharashtra, India

²Dept. of Oral Medicine & Maxillofacial Radiology, SMBT Dental College, Hospital & Research Institute, Sangamner, Maharashtra, India

³Private Practitioner, Mumbai, Maharashtra, India



ARTICLE INFO

Article history:

Received 08-03-2024

Accepted 29-03-2024

Available online 14-05-2024

Keywords:

Multiple myeloma

Punched out radiolucency

Plasma cell proliferation

ABSTRACT

Multiple myeloma (MM) is a relatively uncommon malignant neoplasm, characterized by abnormal proliferation of plasma cell. It usually has a multicentric origin within the bone. It constitutes about 1% of all malignancies and 15% of all hematologic malignancies. We present a case of a 25-year-old male patient who presented with a gingival enlargement in the maxilla and mandible with punched-out radiolucencies in the skull and mandible.

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1. Introduction

MM is a lymphoid malignancy, characterized by clonal proliferation of plasma cells.¹ MM is a rare malignant hematological disease having unknown etiology.² It is seen between 50 to 80 years of age and twice often in men. The common signs and symptoms are anemia, bone pain, fatigue, infections. Radiologically characterized by multiple punched-out radiolucent lesions.³ Maxillofacial manifestations of MM are an initial sign and present a primary manifestation of the advanced stages of the disease. The maxillofacial lesions seen in the posterior mandible showing symptoms like odontalgia, paresthesia, mobile teeth, gingival hemorrhage and ulcers.⁴

We present a case of multiple myeloma involving the mandible in a 25-year-old man with gingival enlargement in the maxilla and mandible with multiple punched out lesions. We consider this case to be different from others as the

patient involved here is younger than common age involved and well-defined osteolytic lesions were seen.

2. Case Report

Clinical findings: A 25 years old male patient reported to the department of Oral Medicine and Radiology with chief complaint of generalized mobile teeth in both jaws since past 3 to 4 months. Again on detail history taking patient gave history of weakness, backache, inability to sleep and vomiting on taking any food from last 1 to 2 months. On palpation in the neck and back region the spine was tender. On clinical examination generalized gingival enlargement was seen. The gingiva showed loss of stippling, loss of scalloping, inflammation and generalized recession. On palpation the gingiva was soft and there was spontaneous bleeding on probing. The multiple teeth were missing and patient gave history of exfoliation of those teeth in last 2 to 3 months. All the remaining teeth in the arch were grade 2 and grade 3 mobile. (Figure 1) After primary examination the provisional diagnosis of generalized periodontitis

* Corresponding author.

E-mail address: mrnmayeedurugkar@gmail.com (M. S. Durugkar).

was made. Differential diagnosis given are, aggressive periodontitis, osteomyelitis, mucormycosis.



Figure 1: Clinical presentation

Radiographic findings: For radiographic examination the OPG was advised. The OPG showed moderate bone loss in maxillary arch and severe bone loss in mandibular arch along with some osteolytic areas. The osteolytic areas were multiple and seen below inferior alveolar nerve canal. (Figure 2) This finding was suggestive of multiple myeloma.



Figure 2: Osteolytic lesions in jaw

Then CBCT scan was made to rule out any other osteolytic lesions in the skull. On CBCT, same osteolytic radiolucent lesions were seen in the mandible, frontal and temporal lobe of the skull bone. The lesions were radiolucent, corticated, multiple, round, well-defined having punched out appearance. (Figure 2 A,B) Hence the radiologic diagnosis of multiple myeloma was made for this case. The differential diagnosis of brown's tumor was given.

Diagnostic assessment: On hematologic examination the ESR was increased to 40 mm/hr the granulocytes and lymphocytes were decreased.

3. Discussion

MM is the most common primary malignant tumor of the bones, characterized by the proliferation of a single clone

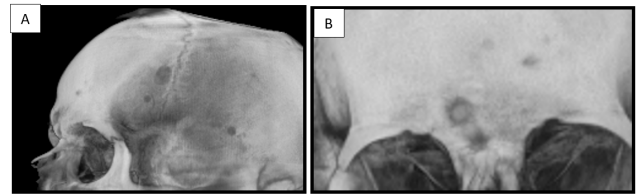


Figure 3: A, B: Osteolytic lesions in skull

of abnormal plasma cells.⁵ It constitute for 1% of all malignancies and 10-15% of hematologic malignancies.⁶ It characteristically affects the elderly people and have a slight tendency to affect men more.⁷ The Samuel Solly documented first case in 1844 and the term “Multiple Myeloma” was introduced by J von Rustizky in 1873.⁸ It is also known as Kahler’s disease (after Otto Kahler).⁹ The etiology of MM remains unknown, but few factors are exposure to certain chemicals, radiation overdose, certain occupations, viruses and genetic factors.¹⁰

The bones which are affected mostly are the skull, clavicle, vertebrae, ribs, pelvis, femurs, and jaws. All these bone play an important role in hematopoiesis. But, any part of the skeleton can get involved. The mandible is affected more frequently than maxilla and the incidence of involvement is 5% to 14%, most common regions are premolar region, angle and ascending ramus as these areas exhibit intense hematopoietic activity. Maxillary lesions are frequent in the posterior regions.⁶ Some cases seen affecting condyles, parasymphiseal area, tuberosity, pterygoid apophysis, palate and zygoma.¹¹ MM has also been reported in paranasal sinuses, parotid gland, cranial base, cerebral and frontal regions with varying degrees of neurological deficits.

The swelling has been considered as most common sign along with pain, expansion of the jaw, numbness of lip, mobility of the teeth, epulis formation, development of macroglossia because of amyloid deposition and pathologic fracture of the jawbones also being seen.¹¹ The common systemic symptoms include bone pain, renal failure, hypercalcemia, weight loss, fatigue, weakness, shortening of spine, fever, thrombocytopenia, neutropenia, orthostatic hypotension and infections.¹⁰

Radiographically the lesions are radiolucent with well-defined periphery, but are not corticated and this appearance has been called punched out. There is lack of cortication or any response of the adjacent bone. Mandibular lesions may produce a localized area of osteolysis involving the endosteal surface of the inferior cortex of the mandible, which has been referred to as a “cookie bite” or scallop of the cortex.

There is increased risk of pathologic fracture, renal insufficiency, anemia, infection and bleeding due to the accumulation of malignant plasma cells in the bone marrow.⁶ The kidney failure is the second most common

cause of death and is caused in part by the hypercalcemia, amyloidosis, and blockage of the renal tubules with casts of Bence Jones protein in it.⁵

Durie and Salmon proposed a staging system and divided into three types (stage I, II and III) by assessing four measurements: 1) hemoglobin value 2) M-protein value 3) number of osteolytic lesions 4) serum calcium level. Stages are further sub- divided into two types (A, B) based on renal function (creatinine value).¹⁰

Langerhan's cell disease, basal cell nevus syndrome and metastatic carcinoma are considered in differential diagnosis as all of these entities shows multiple punched out lesions radiographically.⁵

Administration of Dexamethasone or Prednisone, alone or in combination with Thalidomide, is considered as a corner stone for treatment. This can be combined with autologous stem cell transplantation as part of the standard initial treatment. Single infusion of Melphalan at a dose of 200 mg/m² of body surface area has emerged as a common regimen for treatment. Bortezomib is considered to cause apoptosis through decreased NF-KB signaling or accumulation of cellular debris. It inhibits proteasome, an intracellular complex that degrades ubiquitinated proteins.⁶

4. Conclusion

As various signs, symptoms and radiographic findings seen in maxillofacial region during initial stages of MM, it is important that dental practitioners should be aware of all oral manifestations for the better prognosis.

5. Source of Funding

None.

6. Conflict of Interest

None.


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Author biography

Mrunmayee Shrikant Durugkar, Oral Diagnostitian and Maxollifacial Radiologist

Mahendra Patait, Professor and HOD  <https://orcid.org/0000-0002-9046-9587>

Kedar Saraf, Associate Professor

Yogini Marathe, Oral Diagnostician and Maxillofacial Radiologist

Kartikee Vinit Bhoir, MDS 3rd year

Cite this article: Durugkar MS, Patait M, Saraf K, Marathe Y, Bhoir KV. Multiple punched out lesions: A case report of multiple myeloma. *IP Int J Maxillofac Imaging* 2024;10(1):35-37.