Case Report
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Multiple myeloma in the mandible of a 30-year old female: A Case Report

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Multiple myeloma (MM) is a relatively rare malignant hematological disease, which is characterized by multicentric proliferation of plasma cells in the bone marrow. It is typically a disease of adults, with men being affected slightly more often than women. The median age at diagnosis is between 60 and 70 years, and it is rarely diagnosed before the age of 40. Although any bone may be affected, the jaws have been reported to be involved in about 30% of cases while its occurrence in the maxilla is very common. We present a case of MM in the mandible of a 30- year-old female patient.
Keyword multiple myeloma, bone marrow, plasma cells

Introduction

Multiple myeloma (MM) is a relatively rare malignant hematological disease, which is characterized by the multicentric proliferation of plasma cells in the bone marrow.[1] Multiple myeloma is typically a disease of adults, with men being affected slightly more often than women. The median age at diagnosis is between 60 and 70 years, and it is rarely diagnosed before the age if 40.[2] The jaws have been reported to be involved in about 30% of the cases and occurrence of the maxilla is very common.[3] Gingival hemorrhage, odontalgia, paresthesia, dental mobility and ulcerations may also be present as manifestations of MM; however, oral lesions rarely appear as the primary manifestation of the disease.[4] Bone pain is the most characteristic presenting symptom. Some patients experience pathologic fractures caused by tumor destruction of bone. Petechia, hemorrhage, neutropenia, anemia, fever or fatigue may be seen.[5] Radiographically, MM shows a multiple well-defined "punched out" radiolucent lesions.[6]

Case Report

A 30-year-old woman was referred to the Department of Oral and Maxillofacial Surgery with the chief complaint of painless swelling of the left mandibular molar region. The patient noticed the swelling for the previous two months.

Clinical examination revealed a well circumscribed enlargement in the mandibular vestibule in the left mandibular molar region with no painful symptomatology. The swelling was firm on palpation. The overlying mucosa was normal. There was a prior history of fracture of the arm without previous history of trauma and there was a painless mass on the back that was associated with no previous history of trauma. Panoramic radiographs revealed multiple smaller round-shaped lesions in the left mandibular molar region (Figure 1). An incisional biopsy was performed and the specimen was fixed in 10% formalin solution and subjected to histopathological evaluation. Histopathological examination of specimen showed diffuse sheets of plasma cells with round, eccentric nuclei with fine granular chromatin showing varying degrees of differentiation (Fig. 2). Based on the clinical, radiographic and histopathological findings, initial diagnosis of plasmocytoma was made. Lateral radiography of the skull showed several lytic lesions. Laboratory examination revealed anemia (hemoglobin 7.1/dL), white blood cells 7.3 ($\times 10^3/mm^3$). Erythrocyte sedimentation rate was 115 mm/hr. Serum proteins was 8.2 g%. Bence Jones protein in the urine was positive. Bone marrow aspiration revealed 70% plasma cells. Immunohistochemical examination showed a strong reaction for the kappa light chain in all tumorcells.

Based on the clinical, microscopic, laboratory and radiographic findings, a diagnosis of MM was made. Therefore, she was referred to the oncology department of hospital for chemotherapy. The patient is under regular follow-up.

Discussion

MM or plasmacytoma is a malignant tumor, which is characterized by the proliferation of monoclonal plasma cells of the bone marrow.[7] MM is typically a disease of older age groups and it is rarely diagnosed before the age of 40 years. Men are affected more often than women.[8] Our patient was a 30 year-old woman. MM patients younger than 30 years have been reported in 0.3% of cases. Hwell et al.[9] reported this rate to be 1%. The jaws are often affected in the advanced stage of the disease and involvement of the maxilla is very common.[9] In the present case, the lesions had damaged the mandible and the skull. Some patients experience pathologic fractures caused by tumor destruction of bone.[10] In this case, our young patient had a typical clinical presentation and fracture of humerus bone about 2 months ago. Diagnosis of MM is confirmed by laboratory tests.[11] The ESR in our patient was 115 mm/hr and she was positive for the Bence Jones protein in the urine. Immunohistochemical examination demonstrated a strong reaction for kappa light chain in all tumor cells.[3] Radiographically, the most common radiographic characteristics in MM are osteolytic lesions with a soap bubble and punched out appearance as can be observed in our presented case.[5] Fatigue, myelophthisic anemia, petechial hemorrhage of the skin and oral mucosa, fever as a

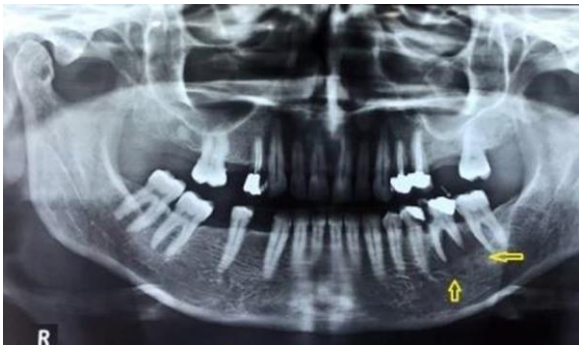

Fig 1. **Panoramic radiograph – several radiolucent lesions in the left mandibular molar region.**

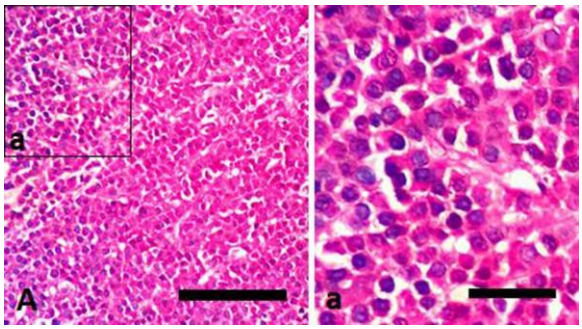

Fig 2. **Histopathologic analysis (A): Diffuse sheets of plasma cells (H&E stain scale bar = 200 µm). (a) high magnification of plasma cells with eccentric nuclei (H&E stain, scale bar = 50.0 µm).**

result of neutropenia, hypercalcemia and renal failure may be the presenting signs in these patients.[1] Some cases of multiple myeloma show deposition of amyloid in the soft tissues such as oral mucosa, particularly the tongue appearing waxy and firm with plaque-like lesions.[4] Deposition of amyloid appears homogeneous, eosinophilic, and relatively acellular and may be observed in association with the neoplastic cells. It stains metachromatically with crystal violet and shows an affinity for Congo red, demonstrating apple-green birefringence on viewing with polarized light.[10] Literature review suggests that factors such as aging, male sex, race, thrombocytopenia, plasma cell leukemia and Bence Jones proteinuria may indicate a worse prognosis for the patient.[8] The median duration of survival of patients with MM ranges between 2–3 years. Survival of younger patients is longer.[9]

Conclusion

This report showed that MM can occurs in young patients as well. Thus, knowledge about the characteristics of MM is important for early diagnosis of the disease.

Acknowledgment

None.

Conflict of Interest

None.

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