Fortuitous Unveil of Multiple Myeloma of Jaws-A Case Report with Comparative Collation

Pooja Bohidar¹, Ekagrata Mishra², B. Krishnapriya³, Fakir Mohan Debta⁴

INTRODUCTION

“Multiple Myeloma (MM),” “Plasma-cell myeloma,” “Myelomatosis” or “Kahler's disease”⁵ is a clonal plasma cell neoplasm derived after lineage commitment of the post-germinal B-cells in the bone marrow. The disease affects the veteran population, with male predilection. Symptoms include fatigue, weakness, weight loss, bone pain, and recurrent infections. With 90% of patients presenting with osseous manifestations, 95% preference for mandibular molar-ramus region exists for jaw myelomas.

Case report: We report a case of multiple myeloma in a 56 year old Asian female whose initial finding was a soft tissue growth in mandibular alveololingual sulcus with a history of hip and lower back pain. Panoramic radiograph depicted punched out lytic lesions involving mandibular body, ramus, angle and condyle regions. PA Skull showed punched-out radiolucencies of entire skull. Contrast magnetic resonance imaging of lumbo-sacral spine showed vertebral body marrow oedema, osteoarthritic changes and compression of vertebral bodies, spinal compression and features of spondylosis. Abdominal ultrasonography was normal. Patient was anemic with raised serum protein level, with reversal of albumin globulin ratio and electrophoretic monoclonal spike.

Conclusion: The given case was categorized as International staging system Stage-1 and Stage-2 in accordance to Durie Salmon Staging.

Keywords: Multiple Myeloma, Fortuitous Unveil, Durie Salmon Staging

ABSTRACT

Introduction: Multiple Myeloma (MM), synonymously known as “Plasma cell myeloma”, “Myelomatosis” and “Kahler's disease”, is a clonal plasma cell neoplasm derived from post-germinal B-cells in the bone marrow. The disease affects the veteran population, with male predilection. Symptoms include fatigue, weakness, weight loss, bone pain, and recurrent infections. With 90% of patients presenting with osseous manifestations, 95% preference for mandibular molar-ramus region exists for jaw myelomas.

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INTRODUCTION

“Multiple Myeloma (MM),” “Plasma-cell myeloma,” “Myelomatosis” or “Kahler's disease”⁵ is a clonal plasma cell neoplasm derived after lineage commitment of the post-germinal B-cells of lymphoid lineage, in the bone marrow.² Samuel Solly, conceivably exemplified the first report of this plasma cell malignancy as “mollities ossium” in 1844. The term “Multiple Myeloma” (myelo- meaning "marrow" and oma -meaning "tumor") was coined by Rustizky in 1873. The term “solitary plasmacytoma” is reserved for cases where there is only one tumor contrary to many tumors in varied locations as in multiple myeloma.³

Multiple myeloma is the archetype of monoclonal malignancies and second most common hematologic malignancy. The median age at diagnosis is 70 years while gender and race predilections favor males and blacks respectively.¹

The inception of MM is a premalignant monoclonal gammopathy of unknown significance (MGUS), through a step wise oncogenesis to intramedullary early smoldering or evolving de novo myeloma owing to acquired genetic deregulations.

Symptoms include fatigue, weakness, weight loss, bone pain, and recurrent infections.³ With a penchant for the axial skeleton, commonly the vertebral column, ribs, skull, pelvis and femur bone illustrate diffuse osteopenia, with subsequent pathologic fractures. Soft tissue masses present as extramedullary plasmablastic tumors of the jaws. A jaw preference for mandible exists by 95% against maxilla, with the ramus, angle and molar region being favoured sites.¹

Marrow plasmacytosis (>10%), lytic bone lesions (punched out), and a serum and/or urine M component comprise classic triad of myeloma.¹ Suggestive hematological findings include normocytic normochromic anemia, serum hyperviscosity, hypercalcemia, hyperuricemia, elevated ESR and alkaline phosphatase. The presence of Bence Jones protein in urine is noted in 60-85% of myeloma patients.⁴ Survival with MM for longer than 10 years is 5-10% with most widespread immediate cause of death attributed to infection, anaemia and kidney failure.⁵

We report a case of multiple myeloma in a 56 year old Asian female whose initial findings were a soft tissue growth in mandibular alveololingual sulcus alongside a comparative collation of previous reports (Table-1).

CASE REPORT

A 56 year old, Asian female reported to the department of Oral Medicine and Radiology, SCB Dental College and Hospital, Odisha with a chief complaint of pain in left lower back teeth region since 1 week. The tooth pain was described as spontaneous, sharp, lingering for minutes, with intermittent nocturnal episodes, and minimally responsive to

REFERENCE

¹Final year Post Graduate, Department of Oral Medicine and Radiology, SCB Dental College and Hospital.
²Post Graduate, Department of Oral Medicine and Radiology, SCB Dental College and Hospital.
³Second year Post Graduate, Department of Oral Medicine and Radiology, SCB Dental College and Hospital.
⁴Professor and HOD, Department of Oral Medicine and Radiology, SCB Dental College and Hospital.
⁵Corresponding author: Dr. Pooja Bohidar, C/O Ina Purohit, House no. 556/E, Malha Sahi, Mangalabag, Cuttack-753001, Odisha, India


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pain medications. She presented with an associated complaint of swelling over the inside of the lower gums on the same side, which had asymptotically persisted over a period of 2 weeks or so, but had become painful to touch over last few days. There was no palpable cervical lymphadenopathy. Medical history revealed pain in lower back and hips since 1 year which was described as intermittent dull ache, aggravated on movement and lifting weights. The patient also reported of fatigue and weight loss over the last few months.

A comprehensive clinical oral examination, revealed root stumps with respect to 38. A solitary exophytic sessile soft tissue growth was present over alveololingual sulcus adjacent to 36, 37, 38 region, roughly measuring 5cm antero-posteriorly and 2cm supero-inferiorly. The surface was reddish pink with a central traumatic ulceration (Figure-1). On palpation, the growth was mildly tender, with bleeding on provocation but with no fluctuation, pulsatility, compressibility, reducibility or emptiability. This was provisionally diagnosed as pyogenic-granuloma with traumatic ulceration due to 38 with endo-perio lesion of 38.

Panoramic radiograph (Figure-2) showed multiple, separate, welldefined non-corticated, punched out circular to oval radiolucencies of 0.2 to 0.5 cm through the mandibular body, angle, ramus and condyle region sparing the condylar head and coronoid process. There was gross destruction of coronal portion of 38 with furcal radiolucency. Periapical area of 38 was superimposed by left external oblique ridge. For further evaluation of the skull bones and the inferior cortex a postero-anterior view (Figure 3) was acquired, showing multiple punched-out radiolucencies involving the skull bones, facial bones and mandible with absence of sclerotic border.

Hematological investigations revealed normocytic hypochromic anemia, raised serum protein level, reversal of albumin globulin ratio, raised ESR, serum urea, creatinine and alkaline phosphatase and normocalcemia. Serum protein
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<td>Palakshappa SG et al.</td>
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<td>Unhealed extraction socket 38</td>
<td>lower lip numbness, buccal cortical expansion 36 to 38</td>
<td>Cellulitis, Anemia; raised ESR</td>
<td>Panoramic-radiograph, Lateral-skull-radiograph, Computed-tomography, H/E Sections</td>
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<td>Zhao XJ et al.</td>
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<td>Ulceration in left maxilla with restricted mouth-opening</td>
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<td>Elevated serum creatinine, β2-microglobulin, calcium, lactate dehydrogenase; negative Bence-Jones protein, Serum electrophoresis with M-protein secreting IgG as well as λ light chains</td>
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Table I: Comparative matrix of various documented cases of multiple myeloma depicting variability in herald clinical manifestations presenting as one or more oral findings or complications.
electrophoresis showed monoclonal spike in gamma region (Figure 4).

Contrast magnetic resonance imaging of lumbo-sacral spine (Figure 5) confirmed the following: T1wi hypointensity and STIR sequence hyperintensity involving D12 vertebral column with avid enhancement (marrow oedema), L1 and L3 central vertebral compression, osteoarthritic changes involving lumbar vertebral bodies, lumbar spondylisis, L4/L5 and L5/S1 disceccted discs with broad based posterior bulge moderatly compressing the thecal sac. Ultrasonogram of abdomen and pelvis showed no morphologic abnormality of visualized abdominal and pelvic organs.

Bone marrow biopsy from anterior superior iliac spine revealed hypercellularity, with reduced normoblastic erythropoiesis, reduced myelometamyelocytic granulopoiesis, M:E=5:1, reduced megakaryocytes, increased mitosis, with 70% of marrow cells having anisocytic features with double nucleus and flame cells, suggestive of plasma cell proliferative disorder giving impression of multiple myeloma.

DISCUSSION

Multiple myeloma is vicesious, age-dependent, multifocal proliferation of terminally differentiated B cells, exemplified by unrestrained, destructive growth of metamorphosed mutated monoclonal plasma cells within the bone marrow.

As concerns multiple myeloma of jaws, a myriad of clinical heralds include rather familiar manifestations like jaw swellings, jaw swelling with tooth mobility4 or they may present as reasonably unordinary presentations like isolated jaw pain and numbness5, gingival masses6,7, tongue amyloidosis8, nonhealing-extraction sockets9 or ulcerative lesions8. On the contrary, the disease may not masquerade as any of the above and instead be entirely asymptomatic, leading to their “fortuitous unveil” on radiographs taken for unrelated circumstances as was true for our report. The age predilection befits our case but contradicts gender and ethnic prevalence.

This case presented with solitary soft-tissue growth adjacent to 36-38 which was provisionally diagnosed as pyogenic granuloma. When a screening panoramic radiograph was acquired, presence of multiple punched out lesions warranted a skull radiograph which presented similar findings. Supported by the radiological, hematological, serum-electrophoresis findings, the given case was categorized as International staging system Stage-1 and Stage-2 in accordance with Durie Salmon Staging.4 The above deliberations were carried out under supervision of an oncologist and medical radiologist. The designed roentgenographic protocol included MRI of lumbo-sacral spine with bone scintigraphy to rule out presence of other areas of skeletal osteolysis, and renal ultrasonogram. However, patient did not consent to bone scintigraphy.

As was initially intended, the extraction of implicated root stumps followed by “wait and watch” for regression of the growth was halted, and an incisional biopsy to rule out plasmacytoma or consequent plasma cell tumor of gingiva was planned. The histopathology concordant with clinical diagnosis, suggestive of pyogenic granuloma, was a respite.

The comparison matrix illustrates 2 cases of gingival growth, with one depicting overgrowth of soft tissue of alveolar ridge, similar to our case. Conformant with systemic presentations of this case, 2 cases presented with body ache of some form, with one case, similar to the said, presenting as hip pain. Two rare cases of deteriorating vision and tongue amyloidosis have also been documented. Most cases presented with anaemia and positive serum electrophoretic findings, with confirmation on immunoreactions.

Roentgenographic trademark of MM includes osteolytic lesions which occur in the bone marrow microenvironment due to stromal-tumor interaction attributed to mainly discrepancies between osteoclasts, osteoblasts and soluble factors such as cytokines and lymphokines (e.g. interleukin 6, osteoclast activating factor), the receptor activator of NF-Bligand (RANKL) and its antagonist osteoprotegerin (OPG). There are four different radiological types of bone destruction caused by myeloma: Type 1: solitary type (similar to bone cyst); Type 2: multiple osteolytic lesions without marginal sclerosis ((a) central type, and (b) peripheral type); Type 3: diffuse osteoporosis with generalized involvement; and Type 4: diffuse osteosclerosis. Additionally, as cited in this collation, skeletal lysis can encompass well-defined punched-out lesions without circumscribing sclerosis, multilocular illdefined radiolucency, multilocular radiolucency with root resorption, irregular well defined osteolysis, large sharply defined hypodensity, illdefined osteolysis, combination of illdefined osteolysis with punched out lesions, combination of well defined osteolysis with punched out lesions, multiple lytic lesions to innocuous radiographic depictions. In this report multiple punched out lesions of calvaria and mandible were appreciated.

A few acknowledged spinal MRI presentations include spinal cord compression and vertebral body pathologic fracture. A pentad of appearances of the vertebral bone marrow in the setting of MM was elucidated by Stäbler et al., namely normal, diffuse infiltration, focal lesion(s), combined focal and diffuse infiltration and a salt-and-pepper appearance.

This case presented with lumbosacral spine affliction paralleling findings in cases reviewed by Bhuyan MH.5

Bone-marrow biopsy and aspiration revealed sheets of >70% malignant plasma cells and plasmablasts, thereby, confirming the diagnosis of multiple myeloma.4

Patient is currently under pharmacotherapeutic management with Thalidomide, 200mg/day, showing encouraging results with no interim deterioration in hematological or radiological findings. The oral growth was treated as any of the above and instead be entirely asymptomatic, leading to their “fortuitous unveil” on radiographs taken for unrelated circumstances as was true for our report. The age predilection befits our case but contradicts gender and ethnic prevalence.

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(2014), the diagnosis of MM mandates that all three of the following be satisfied: ≥10% monoclonal plasma cells in the bone marrow and/or a biopsy-proven plasmacytoma; monoclonal protein in the serum and/or urine; and at least one feature of myeloma-related organ dysfunction as per the ‘CRAB’ criteria, namely hypercalcemia, renal insufficiency, anemia and lytic bone lesions (≥5 mm). This scientific dialogue highlights the vigilant role of astute oral physicians in expediting diagnosis of this lethality, buying a window period for the oncologist for early and prompt treatment of the patient, improving prognosis and survival.

REFERENCES


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