

## Multiple Myeloma in Younger Age

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### ABSTRACT

A Multiple Myeloma (MM) is rare in younger age group. We report MM in a 30-year-old female, who presented with multiple lytic areas upon skeletal survey, but with negative Bence Jones protein. Bone marrow biopsy confirmed it to be a case of multiple myeloma. Patient was put on chemotherapy and radiography to which she responded and now is ambulatory.

**Key words:** Multiple myeloma. Metastases. Bence Jones protein. Bone marrow biopsy.

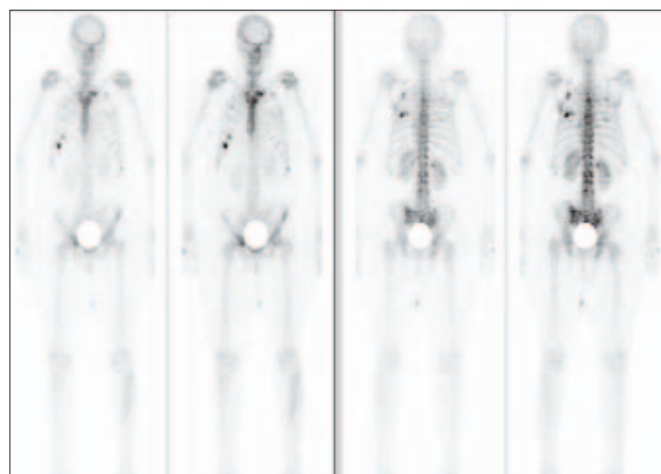
### INTRODUCTION

Myeloma is a debilitating disease, which has gained interest of physicians and scientists for decades. Multiple Myeloma (MM) is associated with a constellation of disease manifestations, including osteolytic lesions due to uncoupled bone metabolism, anemia, immunosuppression due to loss of normal hematopoietic stem cell function, and end-organ damage due to monoclonal immunoglobulin secretion.<sup>1</sup> Multiple myeloma is rare in younger age. Most patients with MM are diagnosed after the age of 65 years. The risk increases with increasing age. The estimated frequency of MM is 5-7 new cases per 100,000 persons per year. It is a treatable disease. The etiology of myeloma remains essentially unknown, although recent studies suggest links to agricultural exposures and lifestyle factors, such as low socioeconomic status and obesity.<sup>2</sup> Herein, we report a case of MM in a young female.

### CASE REPORT

A 30-year-old female presented with gradual weakness of whole body more marked in lower limb, associated with intractable pain and paraparesis. There was no history of fever, fatigue, trauma, fecal or urinary incontinence and bleeding diathesis. There was no family history of any significant disease. On examination, pallor was present and power in lower limbs was of grade III with disuse atrophy of feet. Patient

was unable to walk (ECOG IV). Sensory system was intact. Her X-rays of skull and pelvis showed punched out lesions (Figure 1), while X-ray chest was normal.



**Figure 1:** Nuclear bone scan showing increased tracer uptake in multiple ribs and lumbar spine.

Ultrasound abdomen and pelvis were reported as normal. Urine was negative for Bence Jones proteins. Her MRI lumbosacral spine showed diffuse fatty replacement with edema and multilevel compression fractures, which were highly suspicious of marrow infiltrative or marrow proliferative disorder like metastasis, leukemia or lymphoma. The differential possibility of metabolic bone disease like hyperparathyroidism and osteoporosis were also considered. Whole body bone scan was performed with <sup>99m</sup>Tc-MDP revealed uptake in multiple ribs, anteriorly and posteriorly and in homogeneous tracer uptake in thoracic vertebrae. The picture was suggestive of skeletal metastasis (Figure 2). To rule out metabolic bone disease, other tests like serum alkaline phosphatase, calcium, phosphorous levels and renal profiles were done, which were within normal range. Parathormone level was < 3 pg/ml. Her scan with <sup>99m</sup>Tc MIBI for parathyroid adenoma was negative. Bone

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Received June 26, 2008; accepted October 8, 2008.

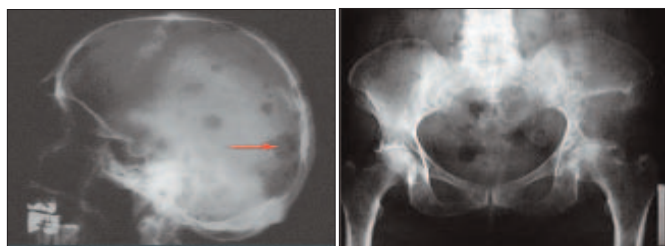


Figure 2: X-ray skull and pelvis showing punched out lesions.

marrow biopsy showed numerous myeloma cells in clumps and significant number of binucleated plasma cells. Various developmental forms of plasma cells were also present. Picture was suggestive of multiple myeloma. Chemo-therapy with melphalan and dexamethasone along with bisphosphonate was given along with external beam radiotherapy to dorsal and lumbosacral spine upto 30 grays in 10 fractions. Patient showed gradual improvement, after 6 cycles of chemotherapy and radiation therapy, as she could walk and able to perform routine work.

### DISCUSSION

Multiple myeloma is a malignancy of plasma cells in the bone marrow. It accounts for 1% of all cancers and 2% of all cancer deaths. The median age at diagnosis of multiple myeloma is 62 years. Only 2-3% of cases are reported in patients younger than 30 years.<sup>3</sup> Myeloma can be asymptomatic or insidious. The disease can cause systemic ailments, including infections, renal failure and local catastrophes, i.e. pathologic fractures and spinal cord compression. The common manifestation at presentation are fatigue, bone pain and recurrent infections.<sup>4</sup> New diagnostic criteria require the presence of at least 10% plasma cells on bone marrow examination (or biopsy of a tissue with monoclonal plasma cells), monoclonal protein in the serum or urine, and evidence of end-organ damage.<sup>5,6</sup> The end-organ damage that meets the criterion for the diagnosis consists of hypercalcemia, renal insufficiency, anemia, or bone lesions.<sup>5</sup>

Myeloma should be considered in patients with unusual soft-tissue or skeletal lesions, especially when an immunosuppressive condition is present. Bone marrow biopsy offer the most direct approach to diagnosis. Our case also highlights the contribution of nuclear bone scanning for the assessment of osseous metastasis of multiple myeloma. The presence of multiple lytic lesions on bone scan can mimic metabolic bone disease and bone biopsy remains the mainstay for final diagnosis.

In the past, no effective therapy was available for bone disease, but now all patients with myeloma receive

chemotherapy and are also being treated with bisphosphonates to reduce the number of skeletal events, such as vertebral collapse and pathological fracture of long bones, and reduce bone pain.<sup>7</sup> Despite the increasing recognition of the uncommon side-effect of osteonecrosis of the jaw, bisphosphonate therapy continues to be a standard intervention for all patients with myeloma who are receiving active chemotherapy.<sup>8,9</sup> Although myeloma remains incurable, recent advances in its treatment, including the use of thalidomide and drugs such as bortezomib and CC-5013, are promising.<sup>10</sup> The median length of survival after diagnosis is approximately three years. Current investigations are assessing the value of these new drugs at initial diagnosis and as maintenance therapy after stem cell transplantation.<sup>11</sup> Our patient has improved following chemotherapy and radiotherapy and we hope, she will improve further.

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