Diffuse Osteolytic Metastases of Unclear Malignancy: A Case of Non-Secretory Multiple Myeloma

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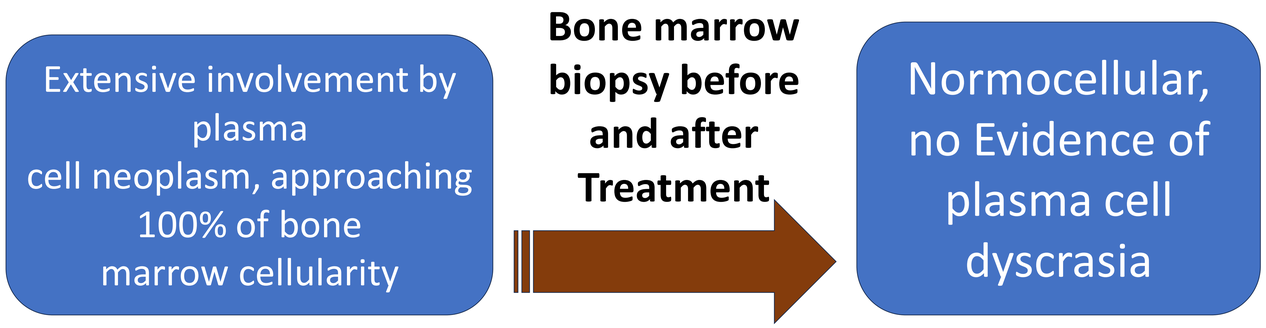
Introduction

Multiple Myeloma (MM) is a hematologic malignancy defined by clonal proliferation of plasma cells within the bone marrow. In addition, MM is typically characterized by the presence of monoclonal immunoglobulins or nephrotoxic light chains, which lead to end-organ damage caused by malignant plasma cells or the secreted proteins. Rarely, patients are diagnosed with non-secretory myeloma (NSMM) as they lack any evidence of immunoglobulin in serum or urine as malignant cells are unable to produce or secrete those proteins. We present the rare case of a patient with diffuse osteolytic metastases that were ultimately attributed to non-secretory multiple myeloma.

Case Presentation

- A 60-year-old male with no significant past medical history presented with a gradual onset of worsening left sided chest pain. His exam was significant for point tenderness over the left anterior lower ribs and was managed with analgesia and a referral to an Osteopathic Medicine specialist without significant relief of symptoms.
- A chest X-ray 2 months later and was significant for a 2cm lytic lesion in the left 7th rib with a small left sided pleural effusion. CT imaging revealed lytic lesions throughout the spine, on the left 7th rib, and a lytic lesion within the upper sternum. A bone survey revealed osseous disease in the proximal left humorous.
- Differentials included multiple myeloma, hyperparathyroidism, metastasis, fibrous dysplasia, and infection. Given suspicion for MM, free light chains, SPEP and UPEP with immunofixation were obtained which showed no evidence of monoclonal protein. 24-hour urine electrophoresis and immunofixation were negative as well. Chemistry panel, renal and liver function tests were all within normal limits. Complete blood counts showed mild anemia with a hemoglobin of 13.1 g/dL.
- Bone marrow biopsy revealed 100% involvement by non-light chain restricted plasma cells. Flow cytometry revealed a population of aberrant plasma cells expressing characteristic plasma cell markers but did not express either surface or cytoplasmic light chains, supporting a diagnosis of NSMM. He was referred to Heme-Onc and started on Myeloma directed therapy with RVd and Daratumumab and autologous stem cell transplant.

Notable labs	Pre-treatment	Post-treatment
Creatinine	1.0	0.9
Calcium	9.1	8.9
T. Protein	7.3	7.6
Albumin	4.5	4.7
Hemoglobin	13.7	14



Discussion/Conclusion

- Non-secretory myeloma is a rare subtype of multiple myeloma characterized by absence of monoclonal immunoglobins or light chains in the serum and urine and accounts for 1–5% of all myelomas.
- This makes the diagnosis of NSMM difficult, and clinicians need to keep a wide differential for lytic lesions including NSMM. It can also present without kidney dysfunction due to the absence of nephrotoxic light chains, making this presentation more unusual.
- Patients suspected of having NSMM will have normal SPEP, UPEP and immunofixation and should get a bone marrow biopsy.
- Evaluation of treatment response is more difficult as paraprotein levels cannot be followed. Alternatives include serial bone marrow biopsies which can be expensive and invasive, or serial PET/CT scans.

References

1. Dupuis MM, Tuchman SA. Non-secretory multiple myeloma: from biology to clinical management. Onco Targets Ther. 2016 Dec 15;9:7583-7590. doi: 10.2147/OTT.S122241. PMID: 28008276; PMCID: PMC5171196.