Letter to Editor

Encountering Amyloid in Bone Marrow Touch Imprints

Leena Gupta, Anita Chopra*

Laboratory Oncology, Dr. B.R.A.I.R.C.H, All India Institute of Medical Sciences, New Delhi, India

DOI: 10.21276/APALM.3372

***Corresponding Author**:
DrAnita Chopra
chopraanita2005@gmail.com

Submitted: 12-May-2024
Final Revision: 05-Jul-2024
Acceptance: 19-Sep-2024
Publication: 14-Nov-2024

Dear Sir,

Amyloid Light-chain (AL) amyloidosis, also known as primary amyloidosis, is the predominant form of systemic amyloidosis and is associated with an abundance of plasma cells in the bone marrow [1]. The degree of plasma cell proliferation ranges from overt Multiple Myeloma (MM) with over 10% plasma cells to less than 10%, termed plasma cell dyscrasia or monoclonal gammopathy of unknown significance (MGUS) [2].

Our patient, a 71-year-old female, presented with bone pain, weight loss, and fatigue. Laboratory analysis showed elevated levels of serum creatinine at 2.2 mg/dL, increased urea levels at 73 mg/dL, and a raised level of β2-macroglobulin at 10,755 ng/mL, while calcium levels were within the normal range. A complete hemogram showed hemoglobin at 9.8 g/dL, a platelet count of 229 × 10^9/L, and a total leukocyte count of 7.1 × 10^9/L. The peripheral blood smear showed rouleaux formation. Bone marrow aspirate smears were particulate and normocellular for age, with a normal M:E ratio (3.6:1) and 16% plasma cells, including abnormal forms with large nuclei having irregular contours, fine chromatin, conspicuous nucleoli, and abundant basophilic cytoplasm (Figure 1A; 60X, Jenner-Giemsa stain [marked by black arrows]). Additionally, the bone marrow touch preparation showed deposition of homogeneous pale eosinophilic, acellular, amorphous material, suggestive of amyloid (Figure 2B-C; 10X and 20X, respectively, Jenner-Giemsa stain). This led to a diagnosis of MM with amyloidosis.

Serum and urine electrophoresis and immunofixation did not show a monoclonal M spike. However, a serum-free light chain assay revealed serum-free kappa and lambda levels of 82.8 mg/L and 1530 mg/L, respectively, with a deranged κ to λ ratio of 0.054 (normal: 0.26-1.65). The patient was started on a chemotherapy regimen consisting of Bortezomib, Cyclophosphamide, and

Dexamethasone (VCD). She received four cycles of this regimen; however, she ultimately succumbed to her illness.

In bone marrow, amyloid is usually detected in biopsy. However, in our case, amyloid deposits were discovered on bone marrow touch imprints, which is highly unusual and therefore very likely to be missed [3]. Meanwhile, the bone marrow biopsy showed only a few subcortical marrow fragments with washed-out marrow spaces. This discovery is not only intriguing but also offers a rapid method for diagnosing amyloidosis and initiating early treatment without the need to wait for or solely rely on bone marrow biopsy sections, particularly in cases where biopsy results are inconclusive or suboptimal, as illustrated in this scenario.

Acknowledgements: I would like to acknowledge Dr. Abhinav Jain, who assisted in writing.
Funding: This study was not supported by any funding.
Competing Interests: The authors declare that they have no conflicts of interest.

References

1. Bahlis NJ, Lazarus HM. Multiple myeloma-associated AL amyloidosis: is a distinctive therapeutic approach warranted? Bone Marrow Transplant. 2006;38(1):7–15.
2. Ahuja A, Prabhat P, Rastogi A, et al. Extensive amyloid deposit in bone marrow aspirate. Indian J Hematol Blood Transfus. 2013;29(3):187–8.
3. Anand M, Kumar R, Kalita D, et al. Unusual sighting: amyloid deposits in bone marrow aspirate in multiple myeloma. Indian J Pathol Microbiol. 2008;51(4):562.