

Multiple Myeloma with Biclonal Gammopathy of IgA Kappa Variant: A Case Report

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Abstract

Introduction: Multiple myeloma is a plasma cell cancer causing infiltration of bone marrow and presence of monoclonal proteins in plasma and/or the Urine causing mortality and morbidity. Multiple myeloma with Biclonal Gammopathy is rare and accounting about 1-2%.

Clinical case description: In this report, we encountered a patient presented with backache and weakness since a month, the lab investigation revealed reversal A/G ratio suspected towards para-protein and electrophoresis showed 2 distinct band in the gamma region, peripheral smear, bone marrow and X-ray reports supported findings, urine positive for Bence Jones Protein, Immunofixation showed 2 distinct bands in IgA and Kappa region. It is a rare Immunofixation pattern which is seen in any multiple myeloma cases. Conclusion: Hence with the clinical feature and the investigation the multiple myeloma was found to be positive, and 2 bands in IgA and kappa region pointing it to be a Biclonal Gammopathy.

Keywords: IgA; Kappa chain; Biclonal gammopathy; Bence Jones protein

Introduction

Multiple Myeloma (MM) is a primary malignancy of bone marrow characterized by clonal proliferation of plasma cells and production of monoclonal immunoglobulin, presence of monoclonal proteins in plasma and/or the Urine. Like other plasma cell dyscrasias, myeloma is associated with the expansion of a single clone of immunoglobulin secreting cell that results in the secretion of a unique homogenous Ig product (M component). Multiple myeloma with biclonal gammopathy is rare, accounting for 1-2%. The peak age of incidence of multiple myeloma is between 50 and 60 years [1,2]. The dominant presenting features are weakness, fatigue and loss of weight, anemia is caused by the infiltration of bone marrow is often presentation, and multiple fractures.

Clinical Case Description

A 60 years old female, housewife by occupation presented with the complaints of lower backache, loss of weight and appetite since six months. Generalized weakness since one month. On examination pallor was present with vitals within normal range, tenderness over the epigastric region was noted. Complete blood picture revealed Hb concentration of 7.4 g/dL, RBC count 2.91 million/cumm, MCH - 29 pg, MCV - 83 fl, MCHC - 35 g/dL, WBC - 9000/cumm, Platelet count - 268000/cumm, RC - 0.4%. Peripheral smear showed normocytic normochromic with scattered microcytes, Elliptocytes are noted, Rouleaux formation is noted. Serum levels of Protein total - 12.92 g/dL, albumin - 3.72 g/dL, Globulin - 9.2 g/dL (A:G - 0.4), Creatinine - 1.9 mg/dL, Alkaline phosphatase - 831 U/L, Calcium - 15.10 mg/dL, urine Bence Jones - positive. X-ray skull lateral showing multiple punched out lytic lesions noted involving the skull vault. Bone marrow

cytology smear showed prominence of plasma cells about 60-65%, few multinucleate and binucleate forms with blasts about 5% at focal areas, these features suggestive of the plasma cell dyscrasias. Serum Electrophoresis showed presence of two Bands. Band-1 (2.39 g%) seen in Beta 2 region, Band-2 (2.71 g%) seen in the gamma region (Figure 1).

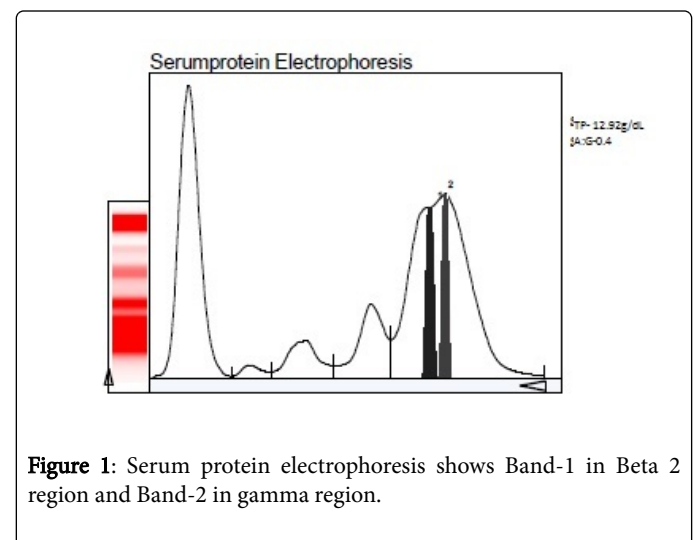


Figure 1: Serum protein electrophoresis shows Band-1 in Beta 2 region and Band-2 in gamma region.

On subjecting to the Immunofixation, it is found that the both bands are of IgA-Kappa type (Figure 2). Nephelometric measurement of the immunoglobulins showed IgA levels - 4790 mg/dL (Ref range: 70-400 mg/dL), IgG levels - 558 mg/dL (Ref range: 700-1600 mg/dL), IgM level - 21 mg/dL (Ref range - 40-230 mg/dL), Free Kappa levels - 737 mg/L (Ref range - 3.3-19.4 mg/L), Free Lambda level - 11.30 mg/L (Ref range - 5.71-26.3 mg/L), Free Kappa/Lambda Ratio - 65.22 (Ref range - 0.26-1.65).

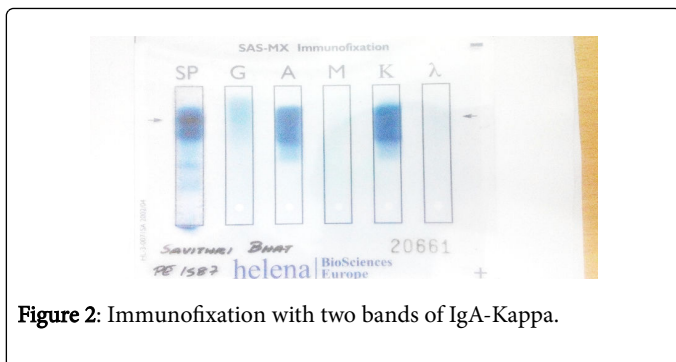


Figure 2: Immunofixation with two bands of IgA-Kappa.

Discussion

Multiple myeloma is a malignant disease of plasma cells that manifests as disease in the bone marrow, monoclonal protein in the blood and/or urine, Evidence of end organ damage that can be attributed to the underlying plasma cell proliferative disorder. It is the second most common type of hematological cancers after Non-Hodgkin lymphomas [2].

Monoclonal gammopathy is group of plasma cell disorders which results in production of a specific, unique type of monoclonal M-component (immunoglobulin). Biclonal gammopathy is characterized by presence of simultaneous two different M-components or same type. The presence of two monoclonal proteins -proliferation of two clones of plasma cells, each producing an unrelated monoclonal immunoglobulin, or it may result from the production of two monoclonal proteins by a single clone of plasma cells. Complete class switching in a single plasma cell clone resulted in the production of two M proteins, but in others the M proteins arose from two separate plasma cell clones [3-7].

IgA found selectively in the seromucous secretion, tears, saliva and GI secretions. IgA has two subclasses which are differentiated immunochemically as IgA1 and IgA2. Normally the serum contains approximately 90% of IgA1 molecules. Kumar ML, et al reported a case of biclonal gammopathy of IgA-kappa variant in a 50 y old male [4].

Mohammad Younas et al reported a case of biclonal gammopathy of IgA-lambda in a 53 y old male [5]. To diagnose a band seen on serum protein electrophoresis definitely as a M component, confirmation by the Immunofixation is usually necessary [6]. The quantification of the Ig and free light and heavy chain is done by the Nephelometric methods.

Conclusion

Biclonal gammopathy accounts for only 1-2% of all myelomas. In the case presented above, we have reported biclonal gammopathy with IgA-kappa variant detected by the appearance of two bands on electrophoresis. The classes IgA-Kappa were further confirmed by the Immunofixation. It is important because of its rare incidence and the lack of clinical data in the literature once the electrophoresis is positive with para-protein band in Gamma region, next can be done with Immunofixation, and further suggested for the quantification of the chain.

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