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CASE REPORT

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Non Secretory Myeloma with Acute Renal Failure- A Case Report

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Abstract

Multiple myeloma, a cancer of plasma cell. They are usually two types; most common one is secretory type which is accounting to 95-97% & second one is non secretory type making up to 1-5%. Peripheral smear and Immunoglobulin levels will aid in diagnosis of multiple myeloma. Non secretory myeloma is a rare type, and all the definitive diagnostic features will be negative and poses diagnostic challenge. Non secretory myeloma has plasma cells that does not secrete immunoglobulins which is evaluated with immunofluorescence or immunoperoxide studies hence the symptoms like anemia, neutropenia, thrombocytopenia, infection recurrence, end organ damage fails to exhibit, which makes the diagnosis difficult.

Keywords: Multiple Myeloma; Non secretory myeloma; Immunoglobulin

1 Introduction

Multiple myeloma, a malignancy of plasma cells, which accounts for 1% of all tumors and 13% of hematological malignancy cases. Among them secretory type for 95-97% of all cases, whereas non secretory types making upto 1-5%.[1]

Non secretory myeloma (NSM) has plasma cells synthesize but do not secrete immunoglobulin (Ig). Monoclonal cytoplasmic Ig is evaluated with immunoflourescence or immunoperoxide studies, indicating a failure to secrete Ig, to diagnosis can be missed.[2] These cases often fail to exhibit classical symptoms of anemia, netropenia, thrombocytopenia, infection recurrence and end organ damage, which makes diagnosis difficult. Here we report a case of NSM with renal failure and anemia.

2 Case report

A 60 yrs old female presented with history of generalized weakness and lower limb pain since 6 months. She was known hypertensive patient on treatment since 1 year. Recently diagnosed with hypertensive nephropathy - Chronic kidney disease stage 4. She had taken treatment for megaloblastic anemia since her vitamin B12 levels were low, 3 years back.

Nondiabetic and had attained menopause 10 yrs back. On examination pallor present, no lymphadenopathy, icterus, and cyanosis. Systemic examination no abnormality. Proteinuria was present and complete blood test indicated mild increase in total leucocyte count $11.9*10^9$/L and neutrophil count. Moderate degree of normocytic normochromic anemia 8.8gm% and normal platelet count were and no rouleaux formation seen in our case. (Figure 1) Increased in ESR - 110mm/hr and ferritin levels 675mg/ml. Increased creatinine of 5.6mg/dl which indicated renal damage. Ultrasonographic findings should grade I renal parenchymal disease. Serum albumin and total globulin were within normal range but levels of IgA, IgG, IgM were significantly decreased. On Free light chain assays showed that Kappa and Lambda were both in normal limits. Paraprotein I 0.5gm/dl. Serum electrophorsesis didn't show any monoclonal protein band and gamma globulin levels were normal. (Figure 2) Urine Bence-Jones protein was undetectable. Bone marrow aspiration was performed from posterior iliac spine of the patient, and the aspirates showed numerous plasmablastic cells of 69% with reduced myeloblastic maturation. Binucleated, multinucleated forms and occasional mitotic figures were also observed in these plasma cells. (Figure 3) The patient was diagnosed as non secretory myeloma and took 6 cycles of chemotherapy weekly twice.

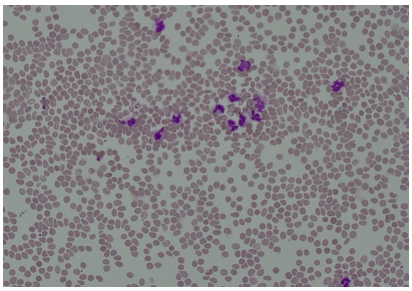

Fig 1. Peripheral Smear showing no rouleaux formation, Leishman stain 10X magnification

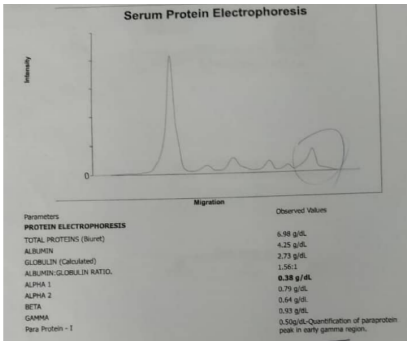

Fig 2. Serum Protein Electrophoresis showing quantification of paraprotein peak in early gamma region

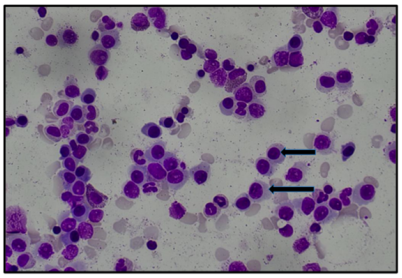

Fig 3. Bone marrow aspiration showing Plasmablast cells. Giemsa stain, 40X magnification

3 Discussion

Hematological malignancy, Multiple myeloma comprised by proliferation of monoclonal plasmocytic cells which will be invading the hematopoietic bone marrow. In the protein electrophoresis using serum method, which usually shows in the gamma globulin zone the presence of narrow peak which is for secreting myelomas or Bence Jones proteinuria associated with hypogammaglobulinemia which is for light chain myeloma.[1]

Non-secretory myeloma comprising only 2 to 4% of multiple myeloma and accounts to rare presenting entity which shows proliferation of monoclonal plasmocytic cells in the bone marrow.[1] It presents with same clinico- radiological characteristics as of multiple myeloma. Since immunogloblin cannot be secreted by the plasma cells in this NSM, electrophoresis using both serum and urine method will be negative and unquantifiable of the free light chains.[2]

Oligosecretory myeloma is one the differential diagnosis for NSM rare entity. In Oligosecretory myeloma proteins are secreted but at very negligible levels which makes quantifying more challenging and measurement more difficult. Oligosecretory myeloma is usually characterized by quantifying of protein in serum <10 mg/dL and in urine <200 mg/24 hrs, along with free light chain values <100 mg/L (or 10 mg/dL).[2] NSM can be classified by two entities in the literature. The first entity comprised of who are "non-producers", since in such patients there might be difficulty in synthesis of immunoglobulin. Even though they have features of plasma cell dyscrasias, tumors unable to secrete nor synthesize enough quantity of protein. Thus, in this entity, we include who have undetectable or unmeasurable protein in the urine or blood, yet still who have a significant burden of plasma cells in the marrow and presents with clinical evidence of end organ damage. Hence measurement of free light chain will not be able to project the current disease status, making diagnosis more challenging.[3]

The next entity of non-secretory myeloma patients consists of those whose tumors mainly having defect in synthesis of protein but can produce some amount of proteins. Mutation

of the immunoglobulin gene might be one of the possibilities which explains the absence of secretion in a patient with non-secretory myeloma.[4]

Thus considering these rare entities of myeloma, the International Myeloma Workshop, recommended guidelines for all newly diagnosed multiple myeloma patients to have detailed workups which includes: routine chemistry including Beta-2-microglobulin and LDH, routine blood cell count with differential counts, quantitative immunoglobulins (including IgE or IgD if suspected), 24hr urine test with quantification of protein, serum protein electrophoresis and immunofixation, assay of serum free light chain, skeletal defect analysis and positron emission tomography (PET) scan.[5]

Majority of patients with myeloma have anaemia at presentation and the causes are multifactorial, but anaemia in NSM cases was reported to be less frequently than that in secretory myeloma cases. In 2013, there described a case of megaloblastic anaemia in NSM, which suspected that increased cobalamin uptake and consumption and paraprotein synthesis was due to megaloblastic anaemia. However, treatment with cobalamin and folic acid significantly accelerated disease progression, and some postulations were raised as cobalamin acted as a paracrine growth factor to increase plasma cell growth and osteolytic activity.[3,4]

The bone marrow aspiration confirmed the erythroid hypoplasia. And that, we thought, was due to the occupation of neoplastic plasma cells into bone marrow and causing replacement of marrow hematopoietic cell population.

In multiple myeloma patients, renal damage commonly occurs due to increased serum free light chain and/or hypercalcemia. In our patient there was no increased serum light chain nor hypercalcemia detected but still he presented with a progressed renal damage to renal failure. In very few case reports have concluded that the NSM might be associated with acute renal failure due to massive renal infiltration by neoplastic plasma cells, and increased renal size was observed in the few cases.[5,6]

In ultrosonographic examination for our patient did show only grade 1 changes in kidney, there was no ongoing renal infection and hypotensive episodes were presented. Renal biopsy was not performed in our patient, so we here can't provide solid evidence to figure out the association between NSM and renal failure and the actual cause of renal failure in our patient.[3] Bone marrow aspiration showed numerous plasmablastic cells of 69% with reduced myeloblastic maturation. Non secretory myeloma is a rare type because of which treatment efficacy not studied yet. Treatment as MM is currently followed.

4 Conclusion

Multiple myeloma diagnosis not only requires absences of a monoclonal protein in serum and/or urine, necessary to have other modalities findings. Nonsecreting myeloma should be considered in the patients where clinico-radiological characteristics are those of MM along with a Kappa/Lambda free light chain ratio normal. Absence of paraprotein, does not exclude the diagnosis of MM, always rare entities should be kept in differential diagnosis especially NSM. Hence, the histologic, serologic and radiogaphic features should be carefully addressed and evaluated for definitive diagnosis for Multiple myeloma and its variants.

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