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Original Research Paper

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PLASMA CELL MYELOMA WITH MULTINUCLEATE FORMS, A MORPHOLOGICAL INDICATOR OF WORSE PROGNOSIS? – A CASE REPORT

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ABSTRACT Plasma cell myeloma accounts for approximately 1% of malignant tumors and 10-15% of hematological neoplasm. Apart from mature forms, other morphological variants include immature, plasmablastic and pleomorphic types. The plasmablastic and pleomorphic altogether has an aggressive clinical course. Here we present a case of 71 years old male complaining of back pain and anemia. On CT there were multiple lytic lesions in vertebral body and pelvic bones. Serum electrophoresis showed "M" spike seen in gamma globulin region. Beta-2-microglobulin was markedly raised. On bone marrow aspirate a diagnosis of plasma cell myeloma was made.

KEYWORDS : Plasma cell myeloma, multinucleate, morphology, worse prognosis.

INTRODUCTION

Plasma cell myeloma is a B-cell malignancy characterized by proliferation of neoplastic plasma cells. Plasma cell myeloma accounts for approximately 1% of malignant tumors and 10-15% of all hematological malignancies [1][2][3][4]. In plasma cell myeloma, progression of the disease has been associated with cytologic diversification of neoplastic cells. The extent of bone marrow infiltration however has been shown to correlate with disease progression [5]. The diagnosis mainly depends on bone marrow examination along with clinical, laboratory and radiological findings [2]; most confirmatory being flow-cytometry analysis. Majority of these cases show proliferation of mature appearing neoplastic plasma cells along with few binucleate, multinucleate or monocytoid forms [6]. We wish to discuss a case of plasma cell myeloma with multinucleate morphology in an elderly male as an indicator of worse prognosis.

MATERIALS AND METHODS

A 71-year-old male presented with back pain for the last 2 weeks. Complete hemogram, biochemical profile, Serum electrophoresis, Beta-2-microglobulin, CT scan and bone marrow aspirate was done to rule out the cause of persistent anemia in an elderly male. The related data were retrieved from patient's file and contracting medical oncologist. Bone marrow biopsy and immunofixation was not done due to patient's financial constraints.

RESULTS

Physical examination was normal except for pallor. Complete hemogram showed anemia (Hb-5.7gm%), total count and platelets were within normal limit. On CT scan there were multiple lytic lesions in vertebral body and pelvic bones. Serum electrophoresis showed "M" spike seen in gamma globulin region (Figure 1). Beta-2-microglobulin (18323 ng/ml) and Lambda light chain protein (5080 mg/L) were markedly elevated. Bone marrow aspiration was done, which was hypercellular and showed 62% plasma cells with binucleate and multinucleate morphology, hence a diagnosis of plasma cell myeloma was made (Figure 2) (Figure 3). The patient received combination therapy of inj. Dexamethasone, inj. Bortezomib and lenalidomide. Even after 3 cycles of chemotherapy and multiple blood transfusions, anemia was persistent. A peripheral destruction of RBCs or blood loss was ruled out.

DISCUSSION

PCM is a multifocal plasma cell neoplasm associated with monoclonal gammapathy. The current case had monoclonal gammapathy along with increased levels of Beta-2-microglobulin and free Lambda light chain proteins. BM aspirate showed many binucleated and multinucleated plasma cells. Multiple myeloma with multinucleated plasma cells is a rare morphological variant, which usually presents with light chain expression and is characterized by a belligerent course and impervious to conventional chemotherapy [2][3]. It has also been observed that certain morphological subtypes are associated with specific translocations and carry bad prognosis [6]. Also, beta-2-microglobulin was markedly raised which serve as a prognostic indicator of disease progression. It also aids in management of patients with renal dysfunction.

The limitation in our study was that we couldn't perform immunofixation due to limited resource and bone marrow examination with IHC as the patient was financially unsound. In our case the patient's anemia was persistent, though his KFT has improved a little. Till his last follow-up the patient was on 3 drug regime and on and off blood transfusions.

CONCLUSION

In this case report, we want to highlight the importance of plasma cell morphology in plasma cell myeloma, especially multinucleate forms and serum biomarkers including raised Beta-2-microglobulin levels as indicators of poor prognosis and this has been previously reported in literature. The morphological indicators are helpful in resource limited setup without the facility for molecular diagnostics.

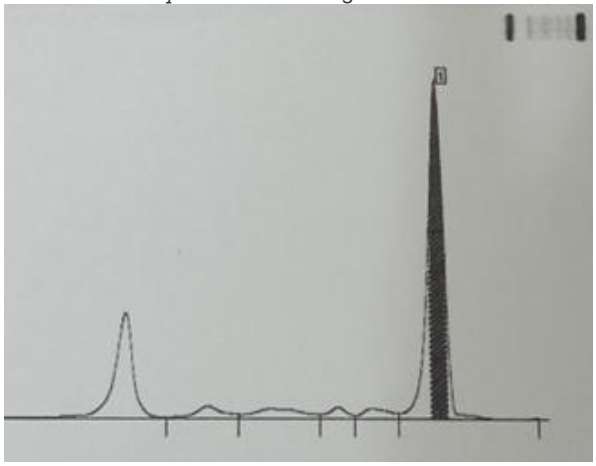

Figure 1: Serum electrophoresis showing "M" spike seen in gamma globulin region.

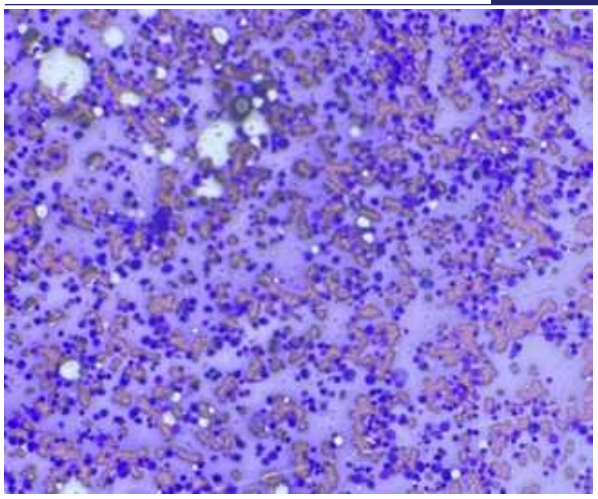

Figure 2: Increased cellularity of plasma cells in bone marrow aspirate (10X view).

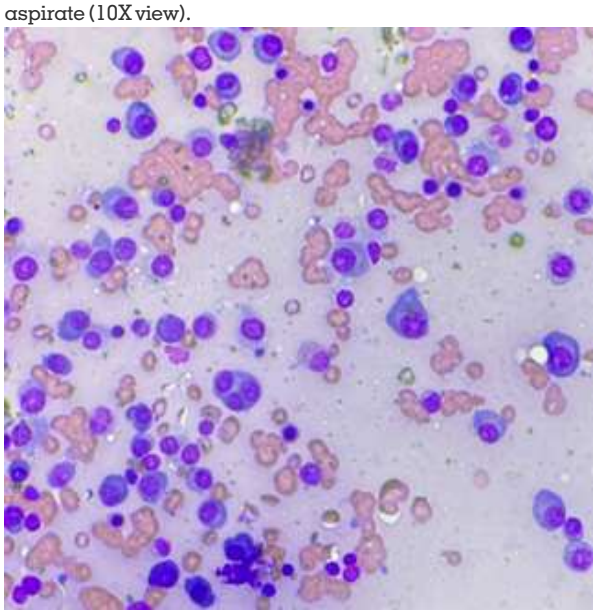

Figure 3: Binucleate and multinucleate forms of plasma cells in bone marrow aspirate (40X view)

Conflict Of Interest – None declared

Acknowledgements: None

Abbreviations:
1. BM- Bone marrow
2. CT- Computed tomography
3. IHC- Immunohistochemistry
4. Inj. – Injection
5. KFT- Kidney function test

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