Research Article

A Clinicopathological spectrum of multifaceted myeloma with varied presentations

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Abstract

Introduction: To analyze the varied clinical presentation and laboratory findings of twenty eight cases of multiple myeloma received in NRI medical college over a period of two years. **Methods:** Based on Salmon-Durie criteria twenty eight patients diagnosed as multiple myeloma were selected for the study. The study includes clinical presentation along with routine hematological and biochemical investigations including bone marrow examination. The radiological investigations were also included in the spectrum. **Results:** Out of twenty eight patients, thirteen were males and fifteen were females with fifth decade as the common age group of presentation. A variety of clinical presentations were seen including asymptomatic indolent case diagnosed in routine checkup, young age of onset, presenting as intracranial space occupying lesion, generalized weakness, fever, anemia, congestive cardiac failure, ischemic heart disease, varicose veins, hepatosplenomegaly, acute renal failure, in addition to usual features like bone pains, fractures and osteolytic lesions. All patients had 'M band' on serum electrophoresis, whereas twenty percent patients had urinary Bence Jones proteins. Skull and pelvis were the common sites of osteolytic lesions. **Conclusions:** Our study highlights the younger age of involvement and varied presentations like acute renal failure, ischemic heart disease, congestive cardiac failure, varicose veins, organomegaly and intracranial space occupying lesion etc. The clinicians should emphasize on thorough investigation of cases suspicious of myeloma, but with atypical clinical presentation.
Key words: Bone pains, Bence jones protein, Myeloma, M band.

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INTRODUCTION

Multiple myeloma is a disorder caused by neoplastic proliferation of a clone of malignant plasma cells. The characteristic features include accumulation of monoclonal plasma cells in the bone marrow associated with monoclonal immunoglobulin (Ig) synthesis and osteolytic bone lesions. It comprises 13% of hematological malignancies. Multiple myeloma is a disease of elderly with peak age of 60-70 yrs at presentation. However, an aggressive clinical course has been reported in a very few young patients.[1] Complications such as renal failure, infections, anemia, lytic bone lesions and amyloidosis lead to morbidity as well as mortality.[2] Though the disease is uniformly fatal, newer advances in treatment like autologous hematopoietic stem cell transplantation and advances in chemotherapy have improved the quality of life and increased survival.[1] Hence this study was undertaken to evaluate the clinical profile of multiple myeloma.

MATERIALS AND METHODS

This was a cross-sectional study conducted over a period of two years in NRI medical college. Patients admitted in medical wards with features of bone pains, anemia and lytic bone lesions were included. Detailed history was taken and clinical examination was performed. Hematological investigations such as Hemoglobin (Hb) estimation, total and differential cell counts, erythrocyte

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sedimentation rate (ESR), platelet count, peripheral blood smear, bone marrow examination were done. Urine was examined for Bence jones protein. Serum protein electrophoresis to detect M band was done in all. Radiological investigations included skeletal survey: imaging studies like magnetic resonance imaging were performed where indicated. Diagnosis of multiple myeloma was based on Salmon- Durie criteria.[3,4]

RESULTS AND OBSERVATIONS

Table 1: Age wise distribution of Patients

Age Group (Years)	Sex		Total%
	Male %	Female %	
<40	-	-	-
41-50	4(36.3%)	7(63.6%)	11(39.28%)
51-60	3(33.3%)	6(66.6%)	9(32.14%)
61-70	6(85.7%)	1(14.28%)	7(25%)
>70	-	1(100%)	1(3.5%)

Table 2: Bone marrow examination (% plasma cells)

% Of plasma cells	No. of patients	Percentage
<30	3	11%
30-40	6	21%
41-50	2	7%
51-89	9	32%
90	5	18%
>90	3	11%

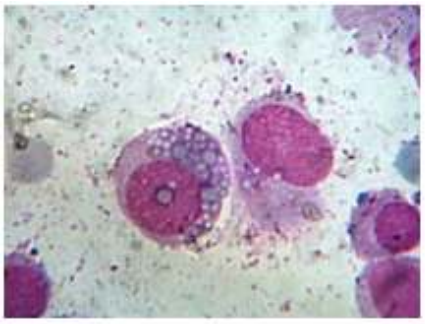

Figure 1

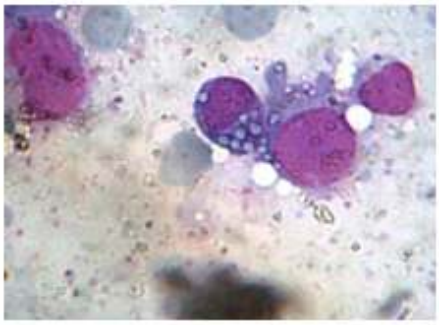

Figure 2

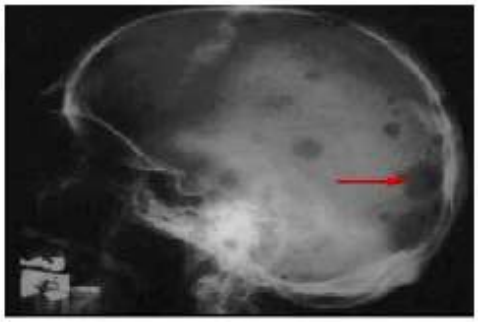

Figure 3

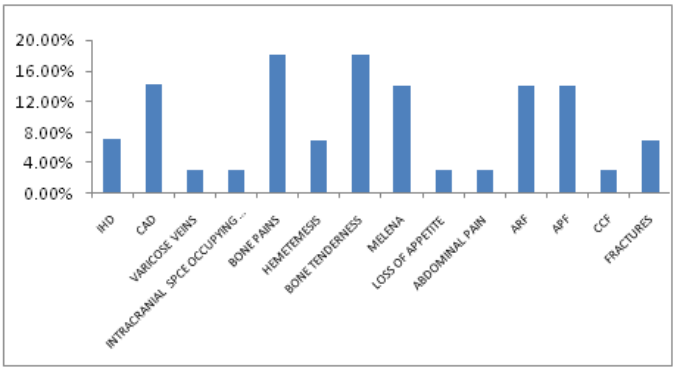

Figure 4

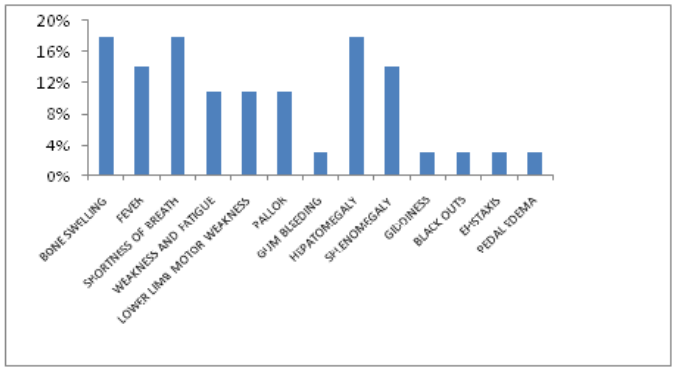

Figure 5

Legend:
Figure 1 and Figure 2: HPE (100X) Mott cells, plasmablasts
Figure 3: X Ray skull shows multiple punched out lesions.
Figure 3 and Figure 4: Clinical presentations of myeloma

Out of 28 patients, 13 were males (46%) and 15 were females (54%). Fifth decade was the common age group at presentation in both genders. Mean age of the patients in our study population was 56 years. One of the patient was 70 years and one was 72 years of age. Common clinical presentations were bone pains (18%), fever (14%), generalized weakness and fatigue (11%), motor weakness of lower limbs in patients(11%), shortness of breath(18%), hematemesis (7%), fractures (7%),benign prostatic hyperplasia with acute renal failure(14%), acute on chronic pyelonephritis (7%), congestive cardiac failure (3%),coronary artery disease (3%), osteolytic lesions (28%), back pain (3%), abdomen pain (3%),intracranial space occupying lesion(3%), varicose veins (3%), giddiness (3%), blackouts (3%), epistaxis (3%) whereas 4 patients had malena (14%). Clinical examination revealed pallor in 3 patients (11%), bony tenderness (18%), 5 cases had bony swelling (18%), hepatomegaly(18%), splenomegaly (14%), 1 patient presented with pedaledema (3%), gum bleeding was observed in one patient (3%). Hematological features were anemia in most of the (27) cases (96%), median Hemoglobin concentration was 6.7 g/dl and elevated ESR was present in almost all (27)(96%) cases. Rouleaux formation was observed in 14 patients (50%), white blood cell count was less than 5,000 /cmm in 4 patients (14%) and platelet count was less than 1.0 lakh/mm3 in six patients (21 %) and greater than 4 lakhs /mm3 in 1 patients(3%). Serum creatinine of more than 1.3 mg/dl was seen in 13 patients (46%) at presentation and hypercalcemia was observed in 9 patients (32%). All patients (100%) had presence of M band on serum electrophoresis and gamma region was the most frequent location of the monoclonal band.Twenty percent of the patients had urinary Bence jones protein positive.Among skeletal involvement, 8 patients (28 %) had osteolytic lesions, 4 patients (14.2%) had pathological fractures. Skull and pelvis were the common sites of involvement in 14 % and 10 % of cases respectively. Bone marrow examination revealed the presence of more than 90 % plasma cells in 3 cases (11 %), 5 patients (18%) had 90 %, 6 patients (21%) had plasma cells in the range of 30-40%, 1 patient (3%) had 45% and 1 (3%) had 15% of plasma cells. According to Durie-Salmon staging, Stage III was most common stage at presentation. In our study 22 patients (78%) presented in stage III, 5 patients (18%) presented in stage II.

DISCUSSION

Multiple myeloma is a hematological malignancy usually presenting in the elderly, with a median age in India of 55-60 years. In the present study, 20 patients were 60 and below 60 years of age and maximum number of cases were between 45 and 60 years, which is similar to other studies.[5] Blade *et al.* reported a series of 72 patients with Multiple myeloma younger than 40 and 30 years respectively.[7] Two cases in our study were 43 and 42 years females. It has been mentioned that approximately 2% of cases of MM are younger than 40 years and it is still rare in patients younger than 30 years.[6] We did not have any cases below 30 years of age. Our study showed slight female preponderance. The most common symptoms observed were bony pains (18%), which are higher compared to other studies, which include backache, hip, joint, shoulder, neck pain. In some patients, (18%) pain was associated with bony swelling at various sites such as sternum, clavicle, skull and left foot. Generalised weakness and fatigue were other presenting symptoms (11%) which are comparable to other studies.[8] Majority of the (96%) patients were anemic. Normocytic anemia was observed in 11 cases (39%), 10 patients had hemoglobin below 6.7 g/dl, which is comparable to other studies.[5,8] The mechanism of anemia in most is inadequate red blood cells production due to either erythropoietin deficiency from the accompanying renal failure or replacement of the marrow by myeloma cells. In some patients, anemia is disproportionate to renal failure or marrow involvement and is thought to be related to cytokine mediated marrow suppression. The incidence of renal failure in our study was high (14.2%), in contrast to other studies.[8] Renal function impairment is a common phenomenon in Multiple myeloma: the major causes being myeloma kidney, hypercalcemia and dehydration. In our study all cases demonstrated monoclonal protein. Our further categorization of myeloma there was M band on serum electrophoresis in gamma region similar to Kyle study. Serum electrophoresis study revealed M band in 100% of patients. In our study, we did not find M band in other regions.[8] Like Kyle *et al.* study two spikes (biclonal) were not found in any patients.

CONCLUSION

Our study highlights the younger age of involvement and varied presentations like acute renal failure, ischemic heart disease, congestive cardiac failure, varicose veins, organomegaly and intracranial space occupying lesion etc. The clinicians should emphasize on thorough investigation of cases suspicious of myeloma, but with atypical clinical presentation.

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