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Original Research

Multiple Myeloma: A Three Years Retrospective Study from a Tertiary Care Centre

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ABSTRACT

Aims & Objectives: To analyze the clinical findings and haematological profile of Multiple Myeloma patients. **Materials and Methods:** A retrospective study was conducted over a period of three years from January 2015 to December 2018 in the Dept. of Pathology ,Government Medical College Jammu. Detailed information available for 52 patients with Multiple Myeloma was enrolled in this study that included detailed history ,age, gender, general physical and systemic examination . All relevant blood and radiological investigations including peripheral smears ,bone marrow aspiration and biopsies were recorded. Diagnosis of Multiple Myeloma was done using WHO criteria. **Results:** 52 patients were diagnosed with Multiple Myeloma and comprised 20% of all Hematological malignancies. Out of these 36 (69%) were males and 16(31%) were females. Male to Female ratio was 2:1. Age ranged between 45 yrs. to 80 yrs. Mean age was 58.20 years. The commonest presenting complaint included fatigue in 40 (76%)patients ,backache 38(73%) and bone pains in 36 patients(69%). Commonest clinical findings were anemia, osteolytic lesions and renal insufficiency. M band was seen in 86% of serum protein electrophoresis. Anemia with Hb. Less than 10 gm /dl was detected in 33(63%) cases. Thrombocytopenia(platelet count less than 1lac) was detected in 12(23%),while severe thrombocytopenia was seen in 3 patients. Hypercalcemia was seen in 20 patients. Radiological survey showed different levels of skeletal involvement in 41 (78%).patients. On bone marrow examination majority of the patients had (54%) plasmablastic morphology while 40% patients showed plasmacytic features. On bone marrow biopsy 64% patients showed diffuse pattern of infiltration. **Conclusions:** Multiple Myeloma is a disease with variable clinical presentation and multiple system involvement .It is a disease of middle age and elderly with male predominance. The clinical presentation varies from fatigability and bone pain being the most common complaints. Morphologically plasmablastic morphology predominated on bone marrow aspiration while diffuse pattern of infiltration was observed on bone marrow biopsy. Thus multiple myeloma should be considered as a differential diagnosis in workup of patients with anemia /bone pain who are around middle age and above. We acknowledge limitations of our study including its retrospective nature and relatively small sample size. Another limitation was the unavailability of data concerning the stage of disease

Key words: Multiple myeloma, plasmablastic, osteolytic.

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INTRODUCTION

Multiple myeloma results from neoplastic proliferation of plasma cells .There is marked variability in clinical features seen in this patient population from the apparently healthy patients to debilitated ones with anemia and pathological fractures with or without nephropathy.[1]The disease represents approximately 1% of all malignancies and approximately 10% of haematological malignancies is typically diagnosed at an older age with a median age of 70 years.[2]The incidence of multiple myeloma has been increasing over time primarily due to population aging .The implementation of novel therapies and autologous stem cell transplantation has likely contributed in the observed improvement in survival rates .[3]

Multiple myeloma is slightly more common in men than in females.

Certain risk factors have been proposed as etiologically causative, including radiation, chemicals such as asbestos, benzene, arsenic, agricultural possibly related to exposure to pesticides ,recurrent infections leading to chronic antigenic stimulation in various illnesses and lastly genetic factors. [4]
Relationship of myeloma with their risk factors however has been still conflicting.
Myeloma tumour cells release certain factors which activate the osteoclastic activity resulting in bone resorption, hypercalcemia, bone lytic lesions ,bone pains and eventually pathological fractures.[5]
Renal involvement occurs frequently and is due to deleterious effects of light chains on renal tubular epithelium being associated with poor prognosis.
CRAB clinical manifestation includes:
Raised calcium
Renal impairment
Anemia and
Bone lytic lesions are other frequent findings in these symptomatic myeloma patients.

Clinical cause of multiple myeloma is regularly biphasic with an initially persistent stable chronic phase followed by accelerated terminal phase.

MATERIALS AND METHODS:
This is a retrospective study conducted over a period of 3 years from January 2015 to December 2018.
Detailed information available for 52 patients with multiple myeloma was enrolled in this study. Sociodemographic data including age and gender were recorded .All patients underwent detailed history, general physical and systemic examination.
Diagnosis of multiple myeloma was established by WHO criteria.
Diagnosis required meeting all three criteria

1. M protein in serum or urine.
2. Bone marrow clonal plasma cells.
3. Related organ or tissue impairment.

Patients with other lymphoid neoplasms (both B and T cell lineages) were exclude. Patients with another associated malignancy or having relapsed / refractory multiple myeloma were also excluded.
Peripheral venous blood samples were taken for CBC and hematological parameters were determined by automated cell analyzer. M proteins were determined by serum protein electrophoresis. Serum creatinine and calcium were measured .Bone marrow aspiration and trephine biopsy specimens were taken from posterior iliac spine and reviewed.

RESULTS
The data was obtained retrospectively from the case notes of 52 patients diagnosed with multiple myelomafrom the tertiary care hospital in Jammu.
Out of 52 patients 36 (69%)were males and 16 (31%) were females.
Male to female ratio was 2:1.
Age ranged from 45 to 80 years.

CLINICAL FINDINGS
The commonest presenting complaint included fatigue in 40(76%) patients, backache in 38(73%) patients and bone pain in 36(69%) patients. None of the patient presented with thrombotic manifestations, however 14(27%) patients presented with signs and symptoms of hyper viscosity and vision blurring .physical examination revealed pallor as the predominant finding detected in 22(44%0 patients followed by purpeural and petechial rashes in 8(16.3% patients .

Laboratory findings
The mean hemoglobin levels were 9+/- 1.5 g/dl.(3.5 – 13.2gm/dl)with meanMCV of 85.2+/- 11.0fl(69 -105 fl).
The mean TLC of 8.9+/- 8.2x10 /l(0.3 x31.3x10^9/L
Absolute neutrophil count of 5+/-3.1 x 10^9/ L
(0.2 – 12.2 x 10^9 /L and the mean platelet count were 188.4 +/-150.6 x 10^9/l (9 – 85 x 10 9/L)
Anemia (Hb. <10 gms) was detected in 33(63%) patients.
Thrombocytopenia (platelet count < 100 x 10^9/l) was detected in 12 (23%) patients while severe thrombocytopenia (platelet count < 20 K) was seen in 3 patients .
20 patients had hypercalcemia.
Radiological survey showed different levels of skeletal involvement in 41(78%) patients.

DISCUSSION
Multiple Myeloma is a plasma cell dyscrasia characterized by bone marrow infiltration with clonal plasma cells production of monoclonal immunoglobulin(Para protein) and associated with end organ damage including lytic lesions in the bone, renal impairment ,hypercalcemia and anemia .
Multiple Myeloma is a disease with median patient survival of 3 – 4 yrs. This hematological disorder is not uncommon worldwide.
Multiple myeloma usually develops insidiously and is mainly observed in people over the age of 60 years with male predominance.
The ages of the patients included in the study ranged from 45 to 80 yrs and most of the patients presented in sixth decade of life with mean age of 62 years. It was noted that the mean age and gender distribution in our patients were more or less similar with that reported by Basit et al.[7]
Similar study conducted by Kaur et al , showed mean age of 58.8 years in multiple myeloma patients. [8]
A recent Nigerian study by O Moti C E et al , reported median age of 58 years, in concurrence to our findings.[9]
In a study conducted by Mohammadi et al reported median age of 47 years in western myeloma patients.[10]

The plausible elucidations are varied genetic composition and more accountable is the higher mean age in western countries compared with south Asian vicinity.

In our study patients presented with more advanced disease with frequent complications .majority of patients presented with complaints of fatigue (76%), and backaches (73%).

Comparable presenting complaints were reported in studies conducted by Shaheen et al and Kyle et al. [11,12] Disease manifestations are primarily due to the infiltration by plasma cells and secretion of M protein by malignant clones. The most frequent clinical characteristic of malignant melanoma is anemia. Anemia with Hb<10 gm /dl was a common finding feature .63.9% of cases in the study conducted by Sadia Sultan et al .[13]

In our study 63.4% patients presented with symptomatic anemia as the principal laboratory finding. Similar findings were observed in study conducted by Inamullah et al and Yassin et al.[14,15]Approximately 75% of multiple myeloma patients had reported bone lytic punched out lesions, osteoporosis or fractures on conventional radiography.[8] Similar findings were observed by Sadia Sultan et al 78.6%.[13] In our study we observed similar findings .punched out lesions were observed in 78% cases.

Raised serum creatinine and hypercalcemia were found in 40.9% and 47.5% respectively in the study conducted by Sadia Sultan et al.[13] Results were compared with study conducted by Mansoor et al which showed 51.2% of patients with hypercalcemia.[16] In our study we observed hypercalcemia in 20 patients (38%) of cases which is comparable with study conducted by Shaheen et al 23%.[11]

We acknowledge limitations of our study including its retrospective nature and relatively small sample size. Another limitation was the unavailability of data concerning the stage of disease.

CONCLUSION- Multiple myeloma is a disease with a variable clinical presentation with multiple system involvement.

Clinicopathological features are appearing comparable to published data. Fatigueability associated with bone pains is the commonest presentation. Multiple Myeloma should be considered as a differential diagnosis in workup of anemia in patients above 60 years of age.

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