Case Report

Case Report of Multiple Myeloma in a Young Age of 35 Year Old Male Patient

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Multiple myeloma is a neoplastic plasma cell disorder characterized by a clinical pentad, Anaemia, monoclonal protein in the serum or urine, bone lesion, hypercalcemia, renal insufficiency. Multiple myeloma, a disease of elderly, is extremely rare in those about 30 years of age. A patient with Multiple Myeloma diagnosed at age 35 is described. He presented with markedly reduced haemoglobin include systemic sequelae such as, anemia, fatigue, and weakness. He also complains of backache as there are early osteoporotic changes develops in the lumbosacral bone picture. On bone marrow examination hypercellularity is noted with Plenty of myeloma cells are diagnostic which includes plasmablast, mature plasma cells and intermediate differentiated cells. The Bence Jones proteinuria is not very commonly reported among young patients but in our patient the Bence Jones proteinuria was also present. As our patient profile with beta microglobulin is 4.2 with serum albumin 3 categorise in the second stage of multiple myeloma classification. In serum protein electrophoresis: M band detected in Gamma region. Despite the rarity of multiple myeloma among young patients, the clinical, radiological and laboratory features, among young patients, are similar to elderly patients and with early diagnosis and treatment a longer survival in noted in younger patients.

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Key words **: Multiple myeloma, Young person, Bone marrow, Plasma cells.**

Multiple myeloma is a neoplastic plasma cell disorder characterized by a clinical pentad, anaemia, monoclonal protein in both urine or serum, bone lesion/ bone pain, hypercalcemia, renal insufficiency.

With an exception of of monoclonal gammopathy (MGUS), it is the most common B cell disorder with an incidence of about 4.5 per 100,000 per year[1]. The median age at diagnosis is 65 years, extremely rare in those younger than 35 years while 2% are younger than 40 years of age. Multiple myeloma patients has risk of infections due to monoclonal gammapathy as well as reductions of CD4+T cells, natural killer cells and defects in complement system that leads to functional impairment and mortality of the patients.

There is no specific intervention in but there are many effective treatments that prolong and improve the quality of life in multiple myeloma patients.

Case Study

A 35 year patient name keno Ranjan, resident of West Bengal was admitted to the Department of medicine of Katihar Medical College, with a chief complains of weakness, backache, fatigue, myalgia, chest congestion for six months. He had been treated with oral analgesics, antibiotics without any improvements outside the hospital. There is a past history of pneumonia one year back.

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Editor's Comment :

- **This study represents a constellation of rare findings in patient with multiple myeloma.**
- **These cases showing unusual presentations,that shows the importance of good clinicopathological correlation to arrive at a correct diagnosis.**
- **Early diagnosis and management of such cases can decrease the morbidity and mortality.**

My patient is vegetarian by diet and there is no h/o of smoking or any addiction (Fig 1).

On admission, patient vitals are Heart Rate : regular 80 bpm, Respiratory Rate : 16 rpm, Temperature: 37°C, Oxygen Saturation : 98%, Weight: 45 Kg, Height: 5 ft 7 inches.

On examination, patient is alert.

Oriented and cooperative, Lean built, poorly nourished with severe pallor, mask facies of chronic disease with backache. On systemic examination chest is congested and spleen is mildly palpable and rest findings are normal. Patient is also giving h/o weight loss since last 6 months.

Laboratory Findings —

The complete hemogram showed sever anaemia - Hemoglobin 4.2 g/dl and high ESR 90 mm/hour, creatinine 1.4 mg/dl, normal electrolytes, LFT and CBG.

Imaging studies of Chest, Spine, Skull were normal.

Ultrasound abdomen showed bilateral renal cortical echoes increased but cortico-medullary relation is normal. Spleen : Measured 12.2cm enlarged in size with normal outline and echotexture.

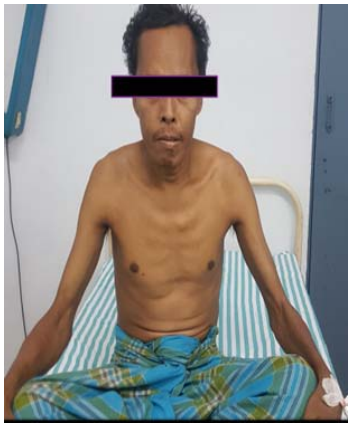

Fig 1

Bone marrow examination revealed plasma cell infiltration with hypercellular marrow with plenty of myeloma cells suggestive of multiple myeloma.

Serum protein electrophoresis : M band detected in Gamma region, Bence-Jones protein : in urine positive, β2 microglobulin : 4.2g/dl.

Discussion

Multiple myeloma is a condition of malignant plasma cell proliferation derived from a single B cell lineage[2,3]. These cells produce monoclonal immunoglobulins, most commonly either immunoglobulin G (IgG) or immunoglobulin A (IgA)[3].

As a gammopathy, multiple myeloma generally presents with recurrent infections secondary to humoral immune deficiencies, or with bone pain as a result of osteolytic lesions.

• There is B cell mutation which leads to bone marrow plasmacytosis, mostly 13q deletion and sometimes 17p deletion. Translocation of chromosome 11 and 14 responsible for interleukin 6 secretion that causes increase osteoclastic activity results in pathological fractures, backache, hypercalcemia, headache and punched out lesions.

The peak incidence of MM is in the seventh decade, whereas, it is a rare entity in young patients, with less than 2% cases occurring in patients under the age of 40 years and it is still rarer in patients who are younger than 30 years[4].

Here in our case report the patients age is 35 years and we were able to find all the classical features of MM.

Our patient presented with markedly reduced haemoglobin include systemic sequelae such as, anemia, fatigue, and weakness. He also complains of backache as there are early osteoporotic changes develops in the lumbosacral bone picture.

As the ESR of the patient is raised , Hematological analysis in Multiple Myeloma patients reveals rouleaux formation because of increased globulins.

Hyperviscosity symptoms appeared like generealised malaise, infection, somnolence and sluggish mentation typically experience by the patient because of high monoclonal protein in the blood.

Reviewing our case, the MCV is markedly raised on peripheral smear, we first consider megaloblastic anaemia in differential and start the line of treatment. After primary management, like blood transfusion, broad spectrum antibiotic therapy still the patient Hb level drops again and the patient symptoms did not shows signs of improvement. The patient again re-evaluated further approach for bone marrow had been done. On bone marrow examination hypercellularity is noted with Plenty of myeloma cells which are diagnostic of multiple myeloma which includes plasmablast, mature plasma cells and intermediate differentiated cells.

The Bence Jones proteinuria is not very commonly reported among young patients[7] but in our patient the Bence Jones proteinuria was also present. Total leukocyte count is with in normal limit .

Serum β2 microglobulin level is increased in MM and higher levels are also associated with poor prognosis.

The latest criteria to diagnose symptomatic Multiple Myeloma defined by the[5]

(A) : Bone marrow plasma cells 10% plus one of the myeloma defining events :

• Anemia with below a lower limit in hemoglobin of at least 20g/l below the normal limit or Hb less than 10g/dl.

• Hypercalcemia greater than 11 mg/d.

• Renal insufficiency with creatinine of more than 2 mg/dl

Bone lesion: one or more osteolytic lesion on skeletal radiography

(B) Any one or more of the following biomarker of malignancy bone marrow plasma cells > 60%

Serum involved: serum free light chain ratio (SFLC) >100

More than 1 focal lesion on MRI Studies.

For prognosis and management the

The stratification system divides Multiple Myeloma in three stages according to the level of serum protein and β2 level[5,6].

• STAGE I: serum β2 - microglobulin <3.5 mg/liter, serum albumin ≥3.5 g/dL

• STAGE II: serum β2 – macroglobulin 3.5 mg/liter, plus serum albumin 3.5 g/dl; or β2 microglobulin of 3.5 to <5.5 mg/l, irrespective of serum level of serum albumin

• Stage III: serum β2 - microglobulin ≥5.5 mg/liter.

As our patient profile with beta microglobulin is 4.2 with serum albumin 3 categorise in the second stage of this classification.

Serum protein electrophoresis: M band detected in Gamma region.

Avereage survival of patients with MM ranges between 2-3 years. In the study from Mayo clinic, the avereage survival of the patients was 87 months.

The life expectancy of the younger patients was considerably longer than that of patients of all ages with MM[7,8]. These results support the beneficial effect of a very young age on survival in patient with myeloma.

As initial therapy for the introduction of several newer induction regimens[8]. The most common induction regimens used today are thalidomide–dexamethasone, bortezomib based regimens, lenalidomide dexamethasone, three to four courses recommended before proceeding to stem cell collection[8]. As the patients in the kosi region is of very poor socio-economic status, bortezomib is not prescribed to the patient, dexamethasone and lenalidomide were used as we get a very good response and tolerance.

Dexamethasone of 40 mg PO daily on 1-4 days then on 9-12, then on 17-20th day of month plus 25 mg of lenalidomide on days 1-21 was advised in the first month. After the first month of treatment, patient profile is improved with beta2 microglobulin level comes down to 3.7 and Hb also improves to 7.0gm/dl, with the improvement we transfer the patient to the hametology centre for further workup.

Conclusion

Despite the rarity of multiple myeloma among young patients, the clinical, radiological and laboratory features, among young patients, are similar to elderly patients. Thus, multiple myeloma should be evoked even in young patients. It appears that there is no difference between younger and elderly patients on the presentation of the disease, although a longer survival has been reported among younger patients.

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