Original Article

Multiple Myeloma: Typical presentation in JLNMCH, Bhagalpur

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Abstract

Aim: To Study the Multiple Myeloma & Its Features, Diagnosed in JLNMCH, Bhagalpur

Methods & Materials: Blood, X-rays, Serum Electrophoresis, Urine Examination, Bone Marrow Examinations, & Others.

Conclusion: Plasma Cell Neoplasm of Intermediate to Immature Differentiation. Serum Beta-2 Microglobulin Level is Extremely High. Serum Protein Electrophoresis S/O “M Band” (2.40 gms %) Seen in Beta -1 Region. Immunofixation (Serum Nephelometry) S/O High Serum IgA Level (Free Kappa (Light Chain), Serum by Nephelometry is high. Monoclonal Gammapathy seen in IgA and Kappa Region with separate band seen in Kappa Region. Multiple Punched Out Lesions Seen On Lateral View of Skull X ray. Homogenous Opacity Located in Right Middle and Lower Zone S/O Consolidation on CXR.

Background

Multiple myeloma is a plasma cell disorder with malignant origin with a worldwide incidence of 6–7 cases per 100,000 persons per year. Multiple myeloma is characterized by proliferation of plasma cells in the bone marrow & accompanied by the secretion of monoclonal immunoglobulins in the serum or urine. Because of the advances and pathophysiological understanding of the disease it is possible to make certain drugs available for its treatment. Together with autologous stem cell transplantation and advances in supportive care, the use of novel drugs such as proteasome inhibitors and immunomodulatory drugs has increased response rates and survival substantially in the past several years. Multiple myeloma has many atypical presentations but the typical presentation and features are not so much rare as in this article too.

Case Details: 76 y old male XXY patient, residing at katauria, BAKA

Came with c/o

- Back pain since 1 yr
- Giddiness since 6 month
- Weakness since 6 month
- Breathlessness since 8 days

No h/o any other bone or joint pain
H/O Present Illness
Pt was suffering from back pain since one yr f/b giddiness & weakness since 6 month for which pt taken treatment from local doctors & got relief. Recently pt developed breathlessness since 8 days which was gradually increasing till the day of admission & relieved on treatment.
Past h/o &Family h/o & Drug & allergic h/o:nad
On general examination:
Pt vitals are stable, he is conscious co-operative w.o.t. time, place & person, afebrile, no e/oedema bone pain, pallor, icterus, clubbing & lymphadenopathy.
Systemic examination appers normal except the air entry abnormal on both sides of chest.

Investigations:
Blood:
Hb:6.71 gm/dl;CBC:4600 CELLS/Cumm, PLATELET COUNT:1.42 lakhs/cumm,
RBS:361.20 mg/dl
SR. SODIUM: 126.30mmol/L; SR. POTASSIUM:3.44 mmol/L.
SR. CREATININE: 2.67 mg/dl
TSH:1.15microIU/ml
SR.CALCIUM: 7.8 SR. ALBUMIN: 3.5

Blood examination positive points
Anemia
Dyselectrolytemia
Diabetes
Renal compromise

Urine Examination: Reveals normal findings except protein ++

USG W/A: Cholelithiasis, enlarged prostate and hepatomegaly

Bone Marrow Examination
Peripheral Blood Smear: DLC on PBS:
Polymorphs: 00%; lymphocytes:29%;
Eosinophils:01%; Monocytes:03%;
Red cells are normocytic normochromic with fair number of macrocytes. Red cells show rouleux formation, Platelets are low normal.
Bone Marrow Aspirate: DLC ONBMA
Promyelocytes: 00%; Myelocytes: 08%; Metamyelocytes: 04%; Polymorphs and band forms:11%
Lymphocytes: 02%; Plasma cells: 65%; Erythroid cells:10%
Bone marrow is hypercellular with M:E ratio of 2.3:1. Marrow is replaced by sheets of plasma cells which are of intermediate differentiation with few immature plasma cells. Cytoplasm is filled with crystalline inclusions. Few binucleated & occasional multi nucleated plasma cells are present. Myeloid & Erythroid precursors are diminished. Few functional megakaryocytes are present.


Comprehensive Myeloma Protein Panel
Serum Beta-2 microglobulin level (serum by CLIA):----12569.00 ng/ml
[Ref:670 to 2143]

<table>
<thead>
<tr>
<th>Serum Protein Electrophoresis:</th>
<th>[Biological Ref. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serum Total proteins: 8.27 g/dl</td>
<td>6.2 – 8.1</td>
</tr>
<tr>
<td>Serum Albumin: 3.23g/dl</td>
<td>3.57 -5.42</td>
</tr>
<tr>
<td>Alpha 1 Globulin: 0.38 g/dl</td>
<td>0.19 – 0.40</td>
</tr>
<tr>
<td>Alpha 2 Globulin: 0.87 g/dl</td>
<td>0.45 – 0.96</td>
</tr>
<tr>
<td>Beta 1 Globulin: 3.29 g/dl</td>
<td>0.30 – 0.59</td>
</tr>
<tr>
<td>Beta 2 Globulin: 0.22 g/dl</td>
<td>0.20 – 0.53</td>
</tr>
<tr>
<td>Gamma Globulin: 0.28g/dl</td>
<td>0.71 – 1.54</td>
</tr>
<tr>
<td>Albumin: Globulin Ratio: 0.64 g/dl</td>
<td>1.1 – 2.2</td>
</tr>
<tr>
<td>M BAND: PRESENT</td>
<td></td>
</tr>
</tbody>
</table>

Comment: M Band (2.40 GMS%) Seen In Beta -1 Region
Immunofixation: (Serum Nephelometry)  
[Quantitative Serum Immunoglobulin Profile]: [ Biological Ref. Interval]

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>Reference Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serum IgG Level By Nephelometry</td>
<td>419.00 mg/dl</td>
<td>700 - 1600</td>
</tr>
<tr>
<td>Serum IgA Level By Nephelometry</td>
<td>3100.00 mg/dl</td>
<td>70 - 400</td>
</tr>
<tr>
<td>Serum IgM Level By Nephelometry</td>
<td>13.70 mg/dl</td>
<td>40 - 230</td>
</tr>
</tbody>
</table>

Kappa and Lambda – Free Light Chain (Serum): [Biological Ref. Interval]

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>Reference Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Kappa (Light Chain), Serum by Nephelometry</td>
<td>&gt;16100.00 mg/L</td>
<td>3.3 – 19.4</td>
</tr>
<tr>
<td>Free Lambda (Light Chain), Serum By Nephelometry</td>
<td>11.40 mg/L</td>
<td>5.71 - 26.3</td>
</tr>
<tr>
<td>Free Kappa/Lambda Ratio</td>
<td>0.26 – 1.65</td>
<td></td>
</tr>
</tbody>
</table>

(In Renal Impairment, Suggested Reference Interval: 0.37-3.1)

Electrophoretic Zone

<table>
<thead>
<tr>
<th>Electrophoretic Zone</th>
<th>Observed Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IgG</td>
<td>Absent</td>
</tr>
<tr>
<td>IgM</td>
<td>Absent</td>
</tr>
<tr>
<td>IgA</td>
<td>Present</td>
</tr>
<tr>
<td>Kappa present (Wo Bands Present)</td>
<td></td>
</tr>
<tr>
<td>Lambda</td>
<td>Absent</td>
</tr>
<tr>
<td>M-Band</td>
<td>Present</td>
</tr>
</tbody>
</table>

Impression: Monoclonal Gammopathy Seen In IgA and Kappa Region with Separate Band Seen in Kappa Region
X Ray Imaging

**Skull X-Ray**

![Skull X-ray](image)

**Comment**
Multiple punched out lesions seen on lateral view of skull x ray

**Spinal & Pelvis X Rays**
Cervical, dorsal, lumbar& pelvis x-rays are normal (No lytic lesion seen).

**CXR**

**Comment**
Homogenous opacity located in right middle and lower zone s/o consolidation

![CXR](image)

**Treatment**
Immunosuppresive drugs like thalidomide 200mg/d, prednisolone 40 mg/wk, bortezomib 2mg/fort night. Iron & calcium supplantation & antibiotic for infection.

**Conclusion**
1) Bone Marrow Examination Picture S/O Plasma Cell Neoplasm of Intermediate to Immature Differentiation.
2) Serum Beta-2 Microglobulin Level (Serum by Clia) is Extremely High.
3) Serum Protein Electrophoresis S/O “M Band” (2.40 Gms%) Seen in Beta -1 Region
4) Immunofixation (Serum Nephelometry) S/O High Serum Iga Level
5) Free Kappa (Light Chain), Serum By Nephelometry Is High.
6) Electrophoretic Zone: Monoclonal Gammopathy Seen in IgA and Kappa Region with Separate Band Seen In Kappa Region.
7) Multiple Punched Out Lesions Seen on Lateral view of Skull X Ray
8) Homogenous Opacity Located in Right Middle and Lower Zone S/O Consolidation on CXR.

**No Grants**
No Conflict of Interest

**References**
4. Facon T, Mary JY, Hulin C, et al.: Melphalan and prednisone plus thalidomide versus melphalan and prednisone alone or reduced intensity...


