

2.2.6

Multiple Myeloma

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Multiple myeloma is a cancer that originates in the plasma cells (which are differentiated B-cells). In multiple myeloma, cancer cells that accumulate in the bone marrow crowd out healthy cells and also produce abnormal cytokines that can cause impaired production of white blood cells, red blood cells and platelets.

Multiple myeloma patients generally present with this classic triad of manifestations:

1. **Plasmacytosis:** Greater than 10% of cells in the bone marrow are plasma cells.
2. **Osteolytic bone lesions:** The aberrant plasma cells impair the carefully balanced bone remodeling processes and areas of bone loss can be observed. This has sometimes been described as “moth eaten” or “punched out” bone loss.
3. Presence of **M-protein** and **Bence Jones Proteins:** M-protein refers to a spike in the number of monoclonal gamma globulins found in the blood plasma. M stands for monoclonal, but if it helps you remember you can also associate it with the M in myeloma. Gamma globulins are the immunoglobulins or antibodies made by plasma cells. Electrophoresis of plasma proteins can produce several categorical spikes that represent albumin, alpha globulins, beta globulins and gamma globulins. Cancerous plasma cells produce an excessive amount of monoclonal gamma globulins which show up as large spikes on an electrophoresis called the M-spike or M-protein. Another indicator of multiple myeloma is Bence Jones proteins, which are partially formed gamma globulins made by plasma cells that are small enough to be filtered even in the urine. Bence Jones proteins can therefore be detected in urinalysis.

Common symptoms of multiple myeloma are bone pain, nausea, constipation, loss of appetite, fatigue, frequent infections, and excessive thirst. Common risk factors associated with multiple myeloma are increasing age, the male gender, being of African descent, and a family history of the issue.



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