IgA Myeloma with Quadrangular Crystalline Inclusions

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A 68 year old man presented with bone pain and anemia. Physical examination was unremarkable. Clinical workup showed a hemoglobin of 8 mg/dL (80 g/L)[13.5-18.0 g/dL], ESR of 110 mm/h (<20 mm/h) with roulex formation in peripheral smear. Skull X-ray showed multiple lytic lesions and serum electrophoresis revealed a monoclonal band in region. Immunoelectrophoresis showed a monoclonal IgA-k in serum and k light chains in urine. Total protein in serum was 0.81 g/dL (81 g/L) [6.0-7.8 g/dL], the IgA part accounted for 4500 mg/dL (45 g/L). With the impression of plasma cell gammapathy bone marrow examination was done, more than 40% plasma cells with many plasmablasts and mutinucleated plasma cells were detected. Plasma cells were loaded by needle-like crystalline inclusions (Figure 1). This type of crystalline inclusions were well described in Myeloma.[1,2] Interestingly the plasma cells in this IgA Myeloma also showed single or multiple small and large quadrangular crystalline inclusions (Figure 2, 3 A,B,C). This type of peculiar intracellular and extracellular quadrangular crystalline inclusions have not been reported so far. The nature of all these crystals were proved to be immunoglobulin by immunologic and electron microscopic study.[1,3] Plasma cells can have different shapes of inclusions both intracytoplasmicaly and intranuclearly, as grape like (mott cell), Auer rod like, Russell bodies and crystalline rods.[1,2,3] Crystallization of the protein takes place in cisternae of rough endoplasmic reticulum and is likely to be associated with mutation as well as an excess of light chain.[3] There is only one recent report shownig needle-like crystalline inclusions extracellularly besides within intracellular myeloma cells.[2] However, this case is unique in both the shape and location. It remains to be determined what the significance of these findings are in the evolution of malignant disorder.

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Figure 1, 2, 3.

References

1- Gruszecki AC, Reddy VV. Plasma cell crystalline inclusions. Arch Pathol Lab Med 2002;126:755.

2- Casciaro S, Clavio M, Boccaccio P: Unusual intracellular and extracellular crystal inclusions in light chain multiple myeloma. Haemataologica 1999;84:1046-1047.

3- Hsu SM, Hsu PL, McMillan PN, Fanger H. Russell bodies: a light and electron microscopic immunoperoxidase study. Am J Clin Pathol 1982; 77: 26-31.