

Case Report

Auer Rod-like Inclusions in Multiple Myeloma: First Case Report from the Kashmir Valley

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ABSTRACT

Plasma cells are known to have various nuclear and cytoplasmic inclusions. However, Auer rod-like inclusions are rarely found in these types of cells. Here, we report a case of multiple myeloma with Auer rod-like, needle-shaped intracytoplasmic inclusions in plasma cells. To the best of our knowledge, this is the first time to report such a case from Kashmir valley.

Keywords: Myeloma, Auer rod like inclusions

INTRODUCTION

Auer rods are usually seen in acute myeloid leukaemia. They are composed of fused lysosomes and contain peroxidase, lysosomal enzymes, and large crystalline inclusions.

Plasma cells in multiple myeloma may contain various intranuclear and intracytoplasmic inclusions. They include intracytoplasmic inclusions called Russells bodies. These inclusions mainly contain immunoglobulins. These inclusions can be seen in the nucleus called Dutchers bodies. Apart from these established intracytoplasmic and intranuclear inclusions, there are other needle-shaped inclusions without any immunocytological or cytochemical reaction against immunoglobulins or amyloid, These so-called Auer rod-like inclusions in plasma cells are rare observations. Here we present a case of multiple myeloma with plasma cells having Auer rod like inclusions. To the best of our knowledge, its the first case from

the Kashmir valley.

CASE REPORT

60 year old male presented with low back ache with left leg radiculopathy. Baseline investigations showed haemoglobin of 12.3 g/dl, WBC $5 \times 10^3/\text{mm}^3$ and platelet $179 \times 10^3/\text{mm}^3$. Differential count of WBCs was within normal range. Serum calcium levels were elevated 15.2 mg/dl. Total proteins were increased with value of 10.63 g/dl. Albumin globulin ratio was reversed with albumin level 3.61mg/dl .Urine protein was 7.2 g/24hrs. X ray of spine/pelvis showed diffuse osteopenic changes with lytic lesions. Kidney functions tests showed urea level of 105 mg/dl with increased creatinine of 3.03 mg/dl. . A bone marrow aspirate and bilateral marrow trephine biopsies were performed from the posterior superior iliac spine. Bone marrow aspirate was characterized by marked increase of plasma cells accounting for 81% of total cells counted. These plasma

cells were of uneven size exhibiting numerous azurophilic spindle shape inclusions in the cytoplasm mimicking the occurrence of Auer rods (Figure 1). Many binucleate and multinucleate plasma cells were also seen (Figure 2). BMA were stained with myeloperoxidase stain and these inclusions were negative for Myeloperoxidase stain (MPO). Polyacrylamide agarose gel electrophoresis of serum proteins showed a monoclonal band that corresponded to the gamma region. The monoclonal band was found to be immunoglobulin (Ig) A by the immunofixation method. The urine immunoelectrophoretic profile demonstrated a k light chain restriction of the Bence-Jones protein.

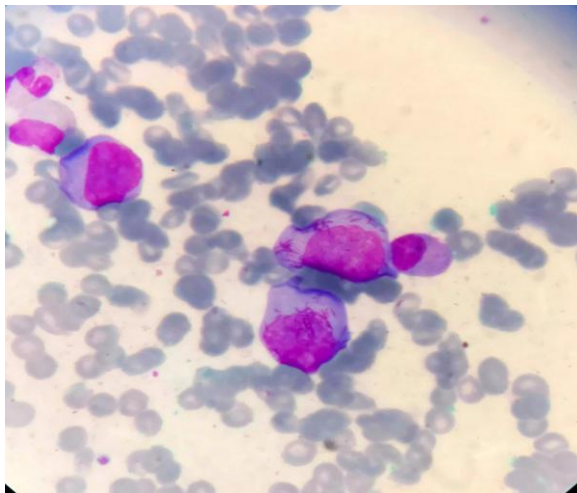


Figure 1: Photomicrograph showing plasma cells with Auer rod like inclusions. (Leishman stain 100X)

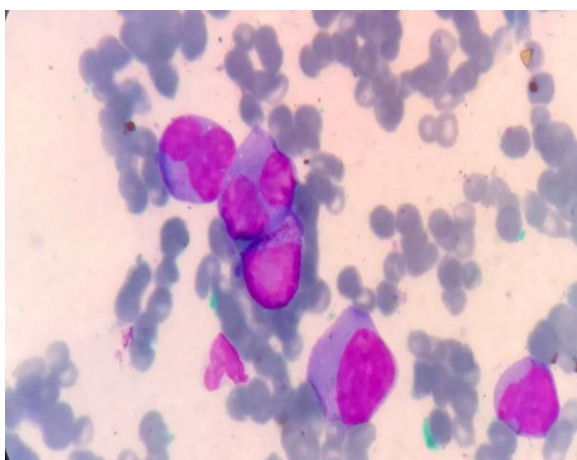


Figure2: Photomicrograph showing binucleate plasma cells (Leishman stain:100X)

DISCUSSION

Rare instances of Auer-like inclusions within plasma cells have been previously reported. The mechanism by which they occur and their pathophysiologic significance is not completely understood. Besides, other forms include needle-like, coarse, azurophilic granules, prismatic, spindle shaped, spherical, cylindrical shape and so on have also been reported. [1] The first description of such inclusions in myeloma is commonly attributed to Steinmann who described it in a case of a 51-year-old woman with a parasternal tumor. [2] Also, Steinmann was the first to report that these inclusions were not composed of immunoglobulin depositions. In the literature, few other myeloma cases have also been described containing these Auer rod like inclusions. [3-8] These studies have been summarised by Hutter et al. Majority of these cases summarised by Hutter et al have k chain restriction. Zhang J et al in his case also reported k chain restriction. [9] These inclusion bodies were initially thought to be depositions of excessive immunoglobulins, but have been more recently confirmed to be of lysosomal origin, given their strong a-N-esterase activity and negativity with antibodies against immunoglobulin or light chain. [1,10,11]

CONCLUSION

To the best of our knowledge, this is the first time to report a case of multiple myeloma presenting with Auer rod-like inclusions from Kashmir valley. However, prognostic significance of these rods in multiple myeloma and its relation to any particular genetics is currently not known. Only with the description of more cases in the future we may then be able to draw some conclusions in this regard.

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