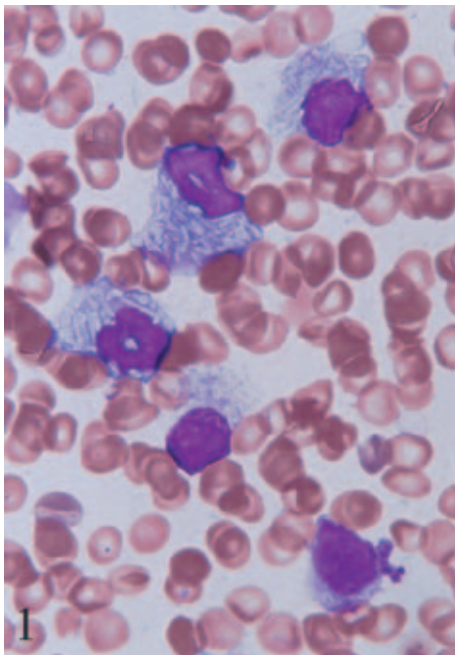


## Bence Jones Myeloma Cells with Crystalline Inclusions

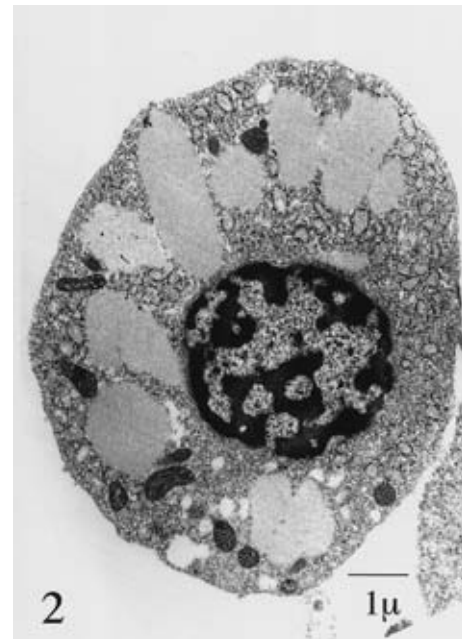
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**Key words:** crystalline inclusions, Bence Jones myeloma

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**Figure 1.** Bone marrow smear showing five myeloma cells with cytoplasmic inclusions (Wright's stain).



**Figure 2.** Electron micrograph showing crystalline inclusions to be composed of fibrillar meshworks of different densities (uranyl acetate and lead citrate stain).

A 40-year-old man was found to have proteinuria on a routine medical checkup in 1993. Further examination showed an erythrocyte sedimentation rate of 7 mm/h, hemoglobin 15.1 g/dL, white cell count 3,400/mm<sup>3</sup>, platelet count 175,000/mm<sup>3</sup>, IgG 366 mg/dL, IgA 11 mg/dL, IgM 10 mg/dL, blood urea nitrogen 25 mg/dL, and creatinine 1.2 mg/dL. Immunoelectrophoresis revealed Bence Jones protein ( $\kappa$  light chains) in the urine but no monoclonal protein was seen in the serum. A bone marrow aspirate showed 17% myeloma cells with multiple crystalline inclusions in the cytoplasm. The serum calcium was normal and no osteolytic lesions were seen. The patient was considered to have Bence Jones myeloma in the early stage and was followed-up without chemotherapy. The number of myeloma cells in the bone marrow was 11.2% in 1998 and 13.8% in 2002. However, the number of marrow myeloma cells was increased to 86.4% in April 2005 and most of them still contained the same cytoplasmic inclusions. These inclusions were unstained with Wright's stain and looked like rods or needles (Fig. 1). They did not stain immunohistochemically with anti- $\kappa$  antibody. Electron microscopy demonstrated that the crystalline inclusions were composed of irregular fibrillar meshworks and were partly surrounded by a single limiting membrane (Fig. 2). They may represent aberrant synthesis of immunoglobulin, probably derived from the rough-surfaced endoplasmic reticulum. The patient was treated with combination chemotherapy (vincristine, doxorubicin, dexamethasone) and obtained partial remission. Similar cytoplasmic inclusions have been reported in several cases of myeloma

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of the  $\kappa$  light chain type. It is interesting to note that these patients tended to have a prolonged benign phase before progression into overt myeloma; in the present case, it was 12 years.

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