Crystal deposits within plasma cells in a patient with IgGκ monoclonal gammopathy

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A 80-year-old male presented with anaemia (Hb = 10.2 g/L) in a context of renal insufficiency (creatinin 160 Imol/L, no aminoaciduria). Electrophoresis of serum proteins revealed a monoclonal immunoglobulin IgGκ peak (15.8 g/L). Bone marrow aspirate showed 4 % plasma cells containing numerous azurophilic spindle-shaped inclusions mimicking bundles of Auer-rods (Figures 1 a & b). Due to spreading, cells containing the largest amount of inclusions were frequently destroyed (Figure 2 a & b); some macrophages also demonstrated phagocytosed crystals (Figure 3 a & b). A multiple myeloma was ruled out and the diagnosis of monoclonal gammopathy of unknown significance retained.

Crystalline or round (lucent after May-Grünwald-Giemsa staining) inclusions have been reported in lymphoproliferative disorders, including chronic lymphocytic leukaemia and low grade non-Hodgkin lymphomas. Outside the Gall bodies, inclusions are not infrequent in plasma cells, observed in reactive disorders as well as in plasma cell malignancy. If some inclusions may be located within the nucleus (Dutcher bodies due to invagination from cytoplasm), most are observed within the cytoplasm, corresponding in most instances to Ig. Beside the round Russell bodies and those from Mott cells, several crystalline inclusions, variable in number, shape, and colour, were reported. They correspond to a failure of the Ig component to leave the cell leading to accumulation within the cytoplasm. In some instances they were reported as the result of intralysosomal accumulation of proteolytic-resistant fragments of κ light chains. So far, no peculiar clinical or diagnostic value has been related to such plasma cell cytoplasmic inclusions. However, as they correspond to κ chains in nearly all instances, adult Fanconi disease might be ruled out, at least in patients demonstrating renal insufficiency.

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