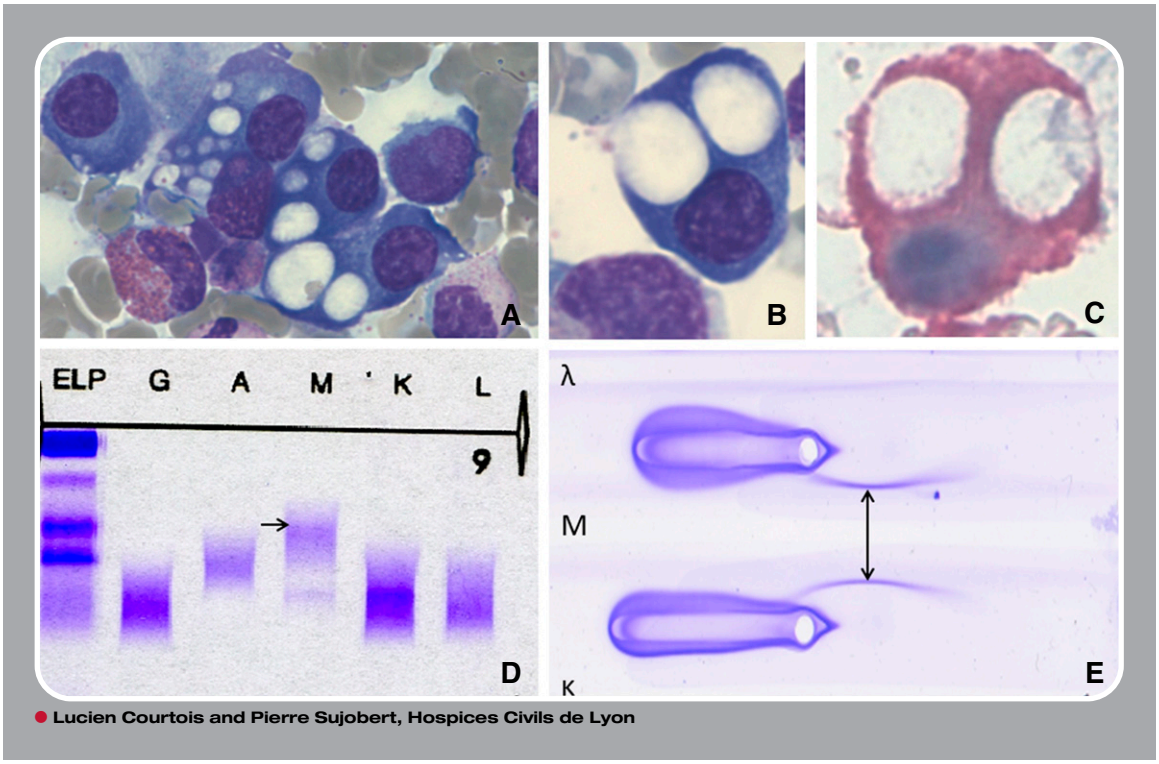
bloodwork
IMAGES IN HEMATOLOGY

Morphologic features of μ-heavy-chain disease



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A 64-year-old patient presented with lymph node swelling and altered performance status. A diagnosis of diffuse large B-cell lymphoma (DLBCL; activated B-cell subtype) was made on histological examination of a lymph node biopsy. Examination of bone marrow smears showed no involvement by DLBCL, but around 8% of abnormal plasma cells with characteristic intracytoplasmic vacuoles (panels A-B; May-Grünwald Giemsa stain, original magnifications ×60 [panel A] and ×100 [panel B]) and κ-light-chain expression as assessed by immunocytochemistry (panel C; alkaline phosphatase anti–alkaline phosphatase technique; original magnification ×100) and immunophenotyping. As these atypical features have already been described in μ-heavy-chain disease (μ-HCD), we performed an electrophoresis and an immunofixation of the serum proteins, which revealed a monoclonal μ-heavy chain without associated light chain (panel D arrow; acid violet stain). Immunoselection confirmed a μ-HCD (panel E; acid violet stain) because precipitin arcs were only seen with the anti-μ antiserum (panel E arrow).

Heavy-chain diseases are defined by the presence of a monoclonal heavy chain (α, γ, or μ) without associated light chain. In this case, the light chain seems to be produced (panel C), but failed to assemble to the heavy chain. The atypical features of plasma cells observed in this case are characteristic of μ-HCD, but the mechanism explaining the vacuolization of plasma cells in this context is not explained.

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