blood work
images in hematology

Simultaneous acute myeloid leukemia, multiple myeloma, and amyloidosis

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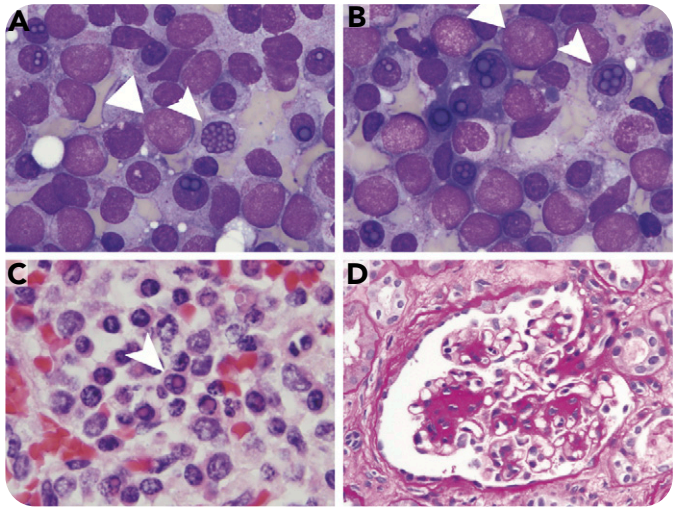

A 75-year-old man with history of hypertension presented with worsening renal function (creatinine, 3 mg/dL; proteinuria, 146 mg/dL [1.46 g/L], and microscopic hematuria). He was asymptomatic. Physical examination was unremarkable. Extensive laboratory evaluation revealed mild pancytopenia (leukocytes, 2 × 10^9/L; hemoglobin, 9 g/dL [90 g/L]; and platelets, 100 × 10^9/L) with normal peripheral smear morphology. Serum immunoglobulins were normal whereas λ light chain was elevated with a κ-to-λ ratio of 0.18. Serum and urine immunofixation showed monoclonal λ light-chain protein. Computed tomography imaging and skeletal survey were normal. Bone marrow aspirate (panels A-B; Wright stain, 100× objective) and core biopsy (panel C; hematoxylin and eosin stain, 60× objective) demonstrated acute myeloid leukemia (AML) with minimal differentiation and 42% myeloblasts (arrowhead), and multiple myeloma (MM) with 15% to 20% monoclonal plasma cells containing prominent Dutcher bodies (arrow). Karyotype was 45,X,−Y and AML/MM fluorescence in situ hybridization panel was unremarkable. Renal biopsy showed extensive basement membrane mesangial protein deposition (panel D; periodic acid–Schiff stain, 40× objective) and λ light chain on immunofluorescence. Congo red stain was positive for amyloid.

To our knowledge, simultaneous de novo AML, MM, and light-chain amyloidosis has not been previously reported. The patient developed end-stage renal failure despite bortezomib-dexamethasone therapy. He decided to pursue comfort-focused care and died within 2 months of diagnosis.

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