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Promyelocytic leukemia with basophil-like granules

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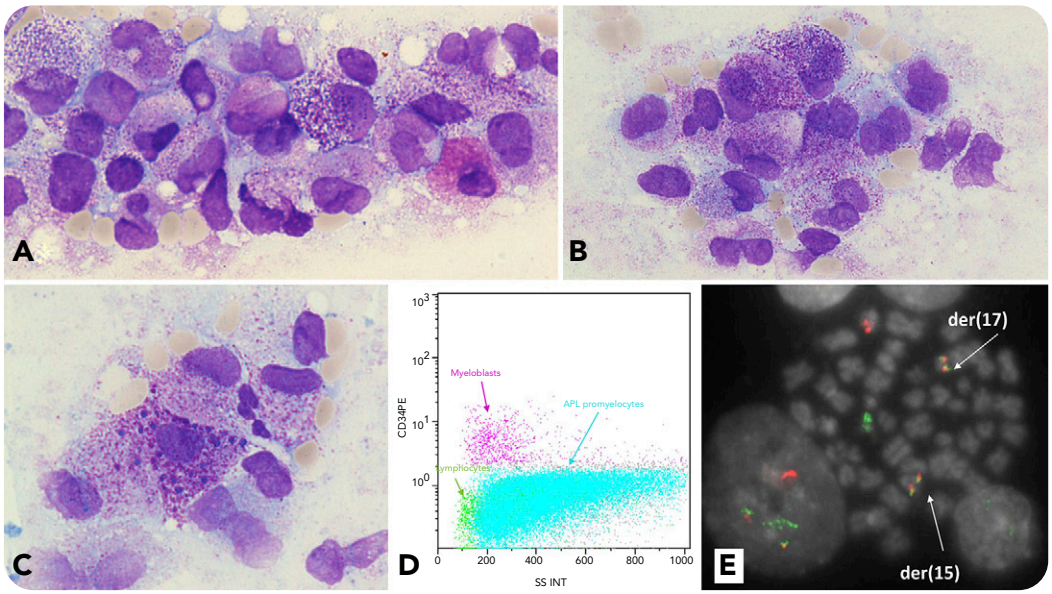

A 66-year-old woman with asthenia and no signs of coagulation disorders presented with anemia (hemoglobin, 8 g/dL), along with leukopenia (1.5 × 10^9/L), neutropenia (0.7 × 10^9/L), and thrombocytopenia (55 × 10^9/L). The peripheral blood smear was negative for abnormalities. Bone marrow (BM) evaluation showed a hypercellular marrow with granulocytic precursors and several abnormal promyelocytes with basophil-like granules, sometimes with Chediak-like coarse blue granules (panels A-C; original magnifications ×600 [A-B] and ×1000 [C]; May-Grünwald-Giemsa stain [A-C]). No Auer rods were seen. Immunophenotyping of BM revealed a large population (91%) showing an elevated side scatter (SS); no expression of CD34 (panel D; APL, acute promyelocytic leukemia; SS INT, SS intensity) and HLA-DR; positivity for myeloperoxidase, CD33 (bright), CD117, CD38, and CD45 (dim); and heterogeneous expression of CD13 and CD4. Cells were negative for CD11b, CD14, CD15, CD16, CD64, CD66b, CD56, CD123, and T- and B-lineage markers. A small percentage of cells were $CD34^+CD33^+CD117^+$. Molecular analysis demonstrated a bcr3 transcript of *PML/RARA* fusion genes, confirmed by in situ fluorescence hybridization (panel E; original magnification ×1000; arrows indicate the fusion signals orange/green on derivative chromosomes involved in the t(15;17)(q24;q21) translocation). Cytogenetics detected an additional 8 trisomy.

Given the classical translocation and the unusual features of the promyelocyte granules, diagnosis of a variant APL with basophil-like granules was made. In BM, if Auer rods are not present and cells show no expression of CD34 and HLA-DR, then a variant APL should be considered.

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