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Acute promyelocytic leukemia with Chediak-Higashi like giant granules

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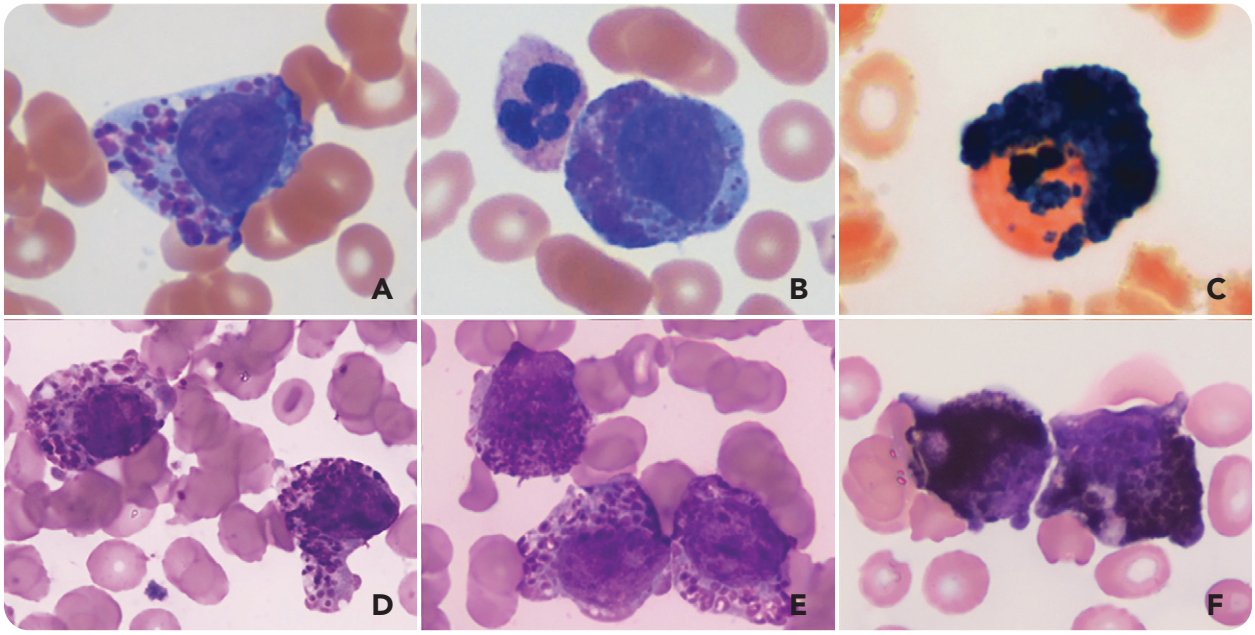

A 76-year-old woman presented generalized weakness and easy bruising. Her laboratory values showed a white blood cell count of 15.1 × 10^9/L, hemoglobin 90 g/L, and platelets 19 × 10^9/L with 85% circulating abnormal promyelocytes, many of which with Chediak-Higashi like giant granules (panels A,B: Wright stain, original magnification ×1000 for both panels). The promyelocytes were uniformly and strongly positive for cytochemical myeloperoxidase stain (panel C: original magnification ×1000). No Auer rods were seen. Other laboratory values were fibrinogen 1.58 g/L and D-dimer >20 mg/L. Bone marrow revealed 71% promyelocytes with similar morphological features (panels D,E: Giemsa-Wright stain, original magnification ×1000 for both panels; panel F: myeloperoxidase with counterstain, original magnification ×1000). Flow cytometry study demonstrated a population of aberrant myeloid precursors, positive for CD13, CD33, CD34 (subset), CD38, CD64, CD117 (subset), and CD123, and negative for HLA-DR, and T- and B-lineage markers. Fluorescence in situ hybridization study revealed a clone with *PML/RARA* rearrangement, whereas molecular analysis detected the *PML-RARA* bcr3/short fusion transcript, establishing the diagnosis of acute promyelocytic leukemia with *PML-RARA*. Cytogenetics detected 46, XX; t(15;17)(q22;q21)[18]. Patient was treated with all trans retinoid acid, arsenic trioxide, and idarubicin, and a morphological remission was achieved in the bone marrow.

Awareness of this rare morphological variant of acute promyelocytic leukemia will help promptly establish the diagnosis.

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DOI 10.1182/blood.2021013975