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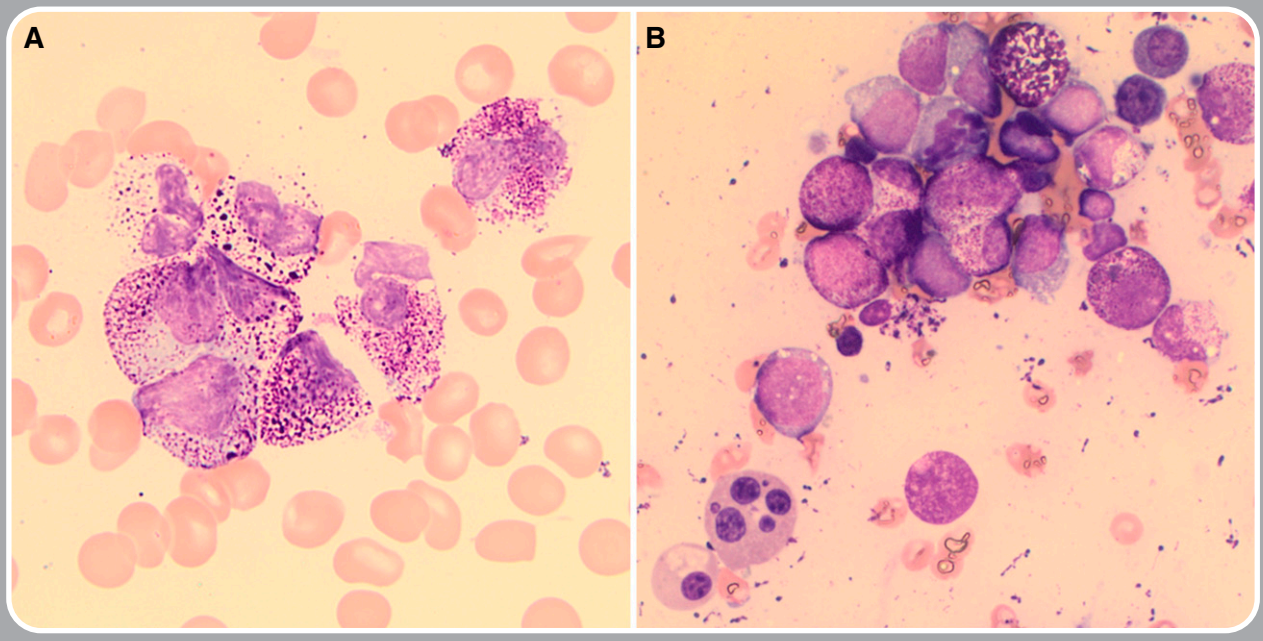
bloodwork
IMAGES IN HEMATOLOGY

Acute myeloid leukemia with myelodysplasia-related changes demonstrating prominent basophilic differentiation



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A 64-year-old previously healthy male presented to clinic with increased shortness of breath. Blood work showed pancytopenia, bone marrow (BM) aspiration showed dysplasia in erythroid, granulocytic and megakaryocytic lineage cells, and less than 5% blasts. Cytogenetic study revealed a complex karyotype [45, XY, t(1;6)(p13;q15),del(5)(q13;q33),−7,del(17)(p11.2)]. He was diagnosed as having refractory cytopenia with multilineage dysplasia and received blood transfusion. Two months later, his complete blood count showed hemoglobin 77 g/L, white blood cells 3.0 × 10^9/L, and platelets 40 × 10^9/L. The differential count showed 8% blasts, 35% basophils and basophilic precursors (panel A), 0% neutrophils, and 56% lymphocytes. BM aspiration showed hypercellularity with 40% blasts (some containing coarse azurophilic granules), and numerous basophilic precursors such as basophilic metamyelocytes and myelocytes (panel B). Erythropoiesis was dysplastic in more than 50% of cells showing nuclear irregularity and multinucleation. Granulopoiesis and megakaryocytes were markedly reduced. Flow cytometry analysis demonstrated blasts positive for CD34, HLA-DR, CD13, CD33, and CD9; and negative for myeloperoxidase, CD117, CD3, or CD19. Molecular study showed blasts negative for *BCR-ABL* rearrangement. Cytogenetic analysis revealed the same abnormalities as previously identified.

Taken together, these findings support the diagnosis of acute myeloid leukemia (AML) with myelodysplasia-related changes and prominent basophilic differentiation, a very rare manifestation of AML rapidly transformed from previous myelodysplastic syndrome.

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