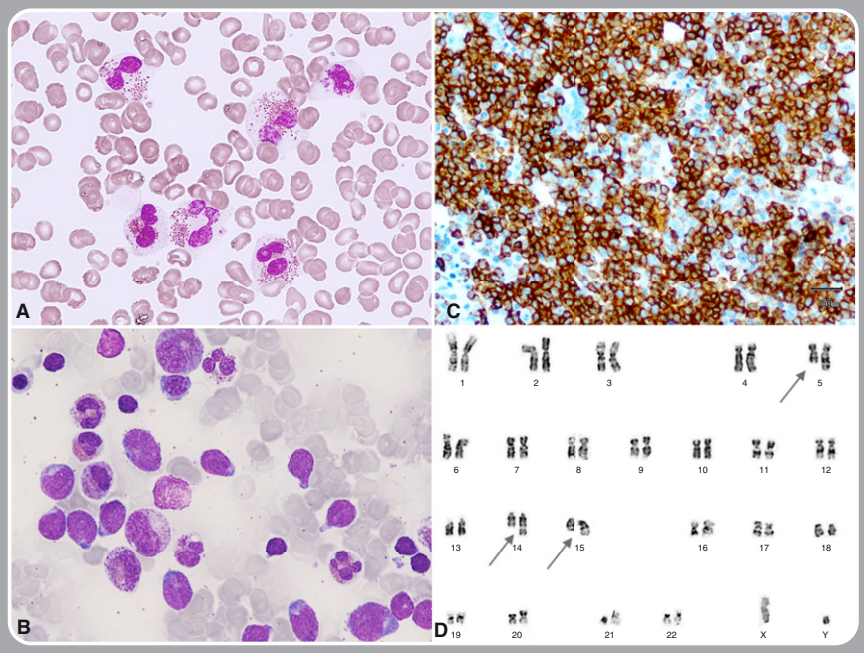
bloodwork
IMAGES IN HEMATOLOGY

Peripheral eosinophilia as the first manifestation of B-cell acute lymphoblastic leukemia with t(5;14)(q31;q32)



Dolores Gómez Toboso and Carmen Benet Campos, Hospital Arnau de Vilanova de Valencia

A 60-year-old man was admitted because of fever and dyspnea. He was diagnosed with deep vein thrombosis (DVT) and pulmonary embolism. His blood count showed leukocytosis (47.4×10^9/L) and eosinophilia (33.2×10^9/L) without other cytopenias. A blood smear revealed atypical eosinophils; these had large and degranulated cytoplasms with hyperlobulated nuclei. There were no blasts (panel A; original magnification ×100; May-Grünwald–Giemsa stain). Bone marrow aspirate showed 44% immature lymphoid cells with atypical eosinophils (panel B; original magnification ×60; May-Grünwald–Giemsa stain). Immunophenotyping (panel C; original magnification ×20; CD34 immunohistochemistry) showed $CD34^+$ blasts with immature lymphoid markers (terminal deoxynucleotidyltransferase–positive, $CD38^+$, $CD10^{++}$) and B antigens ($CD19^+$, $CD79^+$, $CD22^+$) without CD20. Fluorescence in situ hybridization for BCR-ABL, MLL-AF4, and platelet-derived growth factor receptor α/β was negative. Cytogenetics demonstrated t(5;14)(q31;q32) and del(15)(q23q26) (panel D). He received chemotherapy and then underwent an unrelated allogeneic hematopoietic stem cell transplantation. Ten months later, he relapsed and died of septic shock.

The patient was diagnosed with a B-lymphoblastic leukemia with t(5;14)(q31;q32) (interleukin-3 [IL3]–IGH), an uncommon form of acute leukemia with recurrent genetic abnormalities. There is an overexpression of the *IL3* gene which leads to overproduction of cytokines, increasing eosinophilic maturation. Therefore, eosinophilia is reactive and not a clonal population. The morphology of these cells is rare. Whether this translocation increases thromboembolic risk is unknown. Nevertheless, DVT is described in the hypereosinophilic syndrome, where eosinophils play an important role in thrombosis.

DOI 10.1182/blood-2016-12-754812