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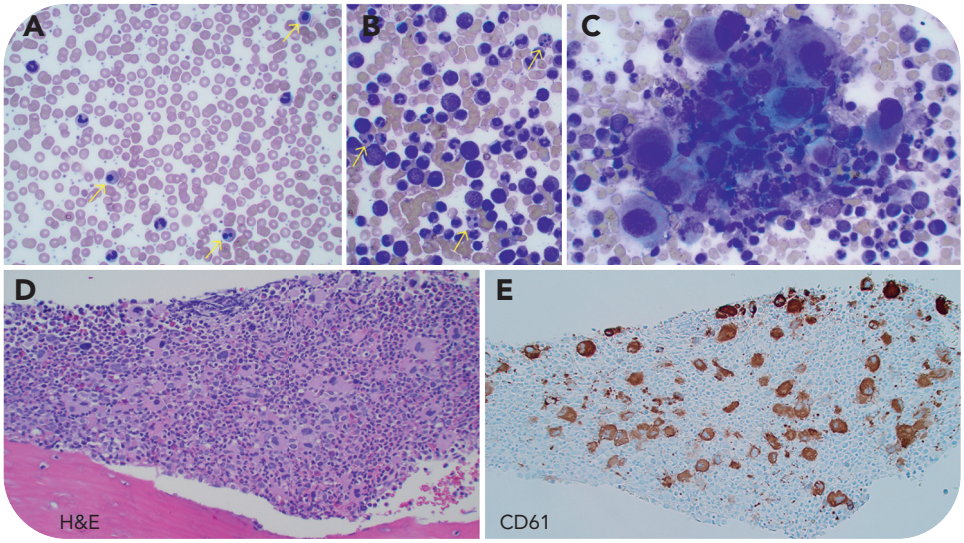
A 3-year-old with chronic myeloid leukemia

Zachary Coty-Fattal and Aida I. Richardson, Ann & Robert H. Lurie Children's Hospital of Chicago



A 3-year-old girl presented with 4 months of persistent thrombocytosis (range: 800-900 × 10^9/L). She had no splenomegaly or hepatomegaly, and white blood cell counts were within the reference range. The differential diagnosis included reactive thrombocytosis vs essential thrombocythemia. Three months later, thrombocytosis (1382 × 10^9/L), leukocytosis (53.7 × 10^9/L), neutrophilia (36.1 × 10^9/L) with left shift (3% myelocytes, 2% metamyelocytes), many necrobiotic neutrophils (panel A, 40× lens objective, Wright-Giemsa stain), basophilia (4.3 × 10^9/L), and eosinophilia (2.6 × 10^9/L) were observed. Eight months after her initial presentation, myeloid left shift, increased myeloid to erythroid ratio (~10:1), no increase in blasts (confirmed by flow cytometry), occasional necrobiotic neutrophils (panel B, 40× lens objective, Wright-Giemsa stain), and hypercellular marrow (>90%) with increased megakaryocytes (many small, unilobated, and clustering) were noted on bone marrow aspirate and biopsy (panel C, 40× lens objective, Wright-Giemsa stain; panel D, 20× lens objective, hematoxylin and eosin stain; panel E, 20× lens objective, CD61 stain). Cytogenetic studies showed an abnormal female karyotype, 46,XX,t(9;22)(q34;q11.2) [17]/46,XX [3], whereas next generation sequencing revealed a *BCR*::*ABL1* producing the p210, b3a2 (e14a2) fusion product, without additional abnormalities, consistent with a diagnosis of chronic myeloid leukemia (CML), chronic phase.

CML is rare in childhood, accounting for ~2% of all leukemias in children younger than 15 years and being extremely rare in infants and young children.

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