

Selective Platelet Phagocytosis in Adult Acute Lymphoblastic Leukemia with *ETV6::RUNX1*

ETV6::RUNX1 Füzyonlu Erişkin Akut Lenfoblastik Lösemide Seçici Trombosit Fagositozu

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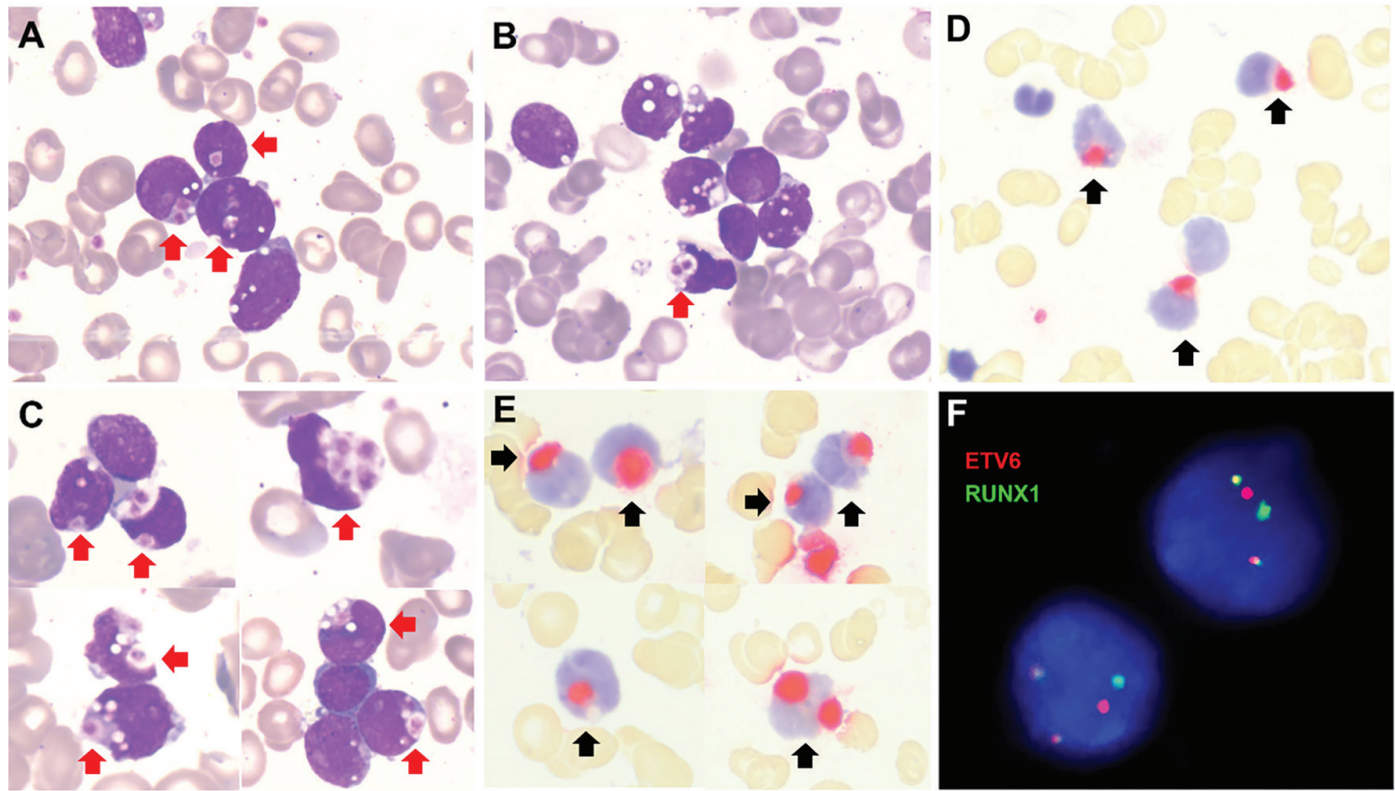


Figure 1. Selective platelet phagocytosis by lymphoblasts (A-C, red arrows, Wright-Giemsa staining; magnification 1000 \times). Immunohistochemistry for CD41 confirmed that lymphoblasts phagocytosed platelets (D and E, black arrows, anti-CD41 staining; magnification 1000 \times). Fluorescence in situ hybridization showed *ETV6::RUNX1* fusion (F).



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A 19-year-old man presented with fever and splenomegaly. Complete blood count revealed pancytopenia. Bone marrow aspiration showed an excess of middle-sized lymphoblasts, 12% of which (counting 500 lymphoblasts) exhibited selective platelet phagocytosis (Figures 1A-1C, red arrows, Wright-Giemsa staining; original magnification 1000 \times), and 72% displayed nuclear and cytoplasmic vacuoles. Immunohistochemistry for CD41 confirmed that lymphoblasts had phagocytosed platelets (Figures 1D and 1E, black arrows, anti-CD41 staining; original magnification 1000 \times). Immunophenotyping confirmed the diagnosis of common B-cell acute lymphoblastic leukemia (B-ALL) (HLA-DR⁺, CD19⁺, TdT⁺, cCD79a⁺, CD10^{partial}, CD22^{dim}). Cytogenetics demonstrated a normal karyotype: 46,XY[20]. Molecular studies identified the *ETV6::RUNX1* fusion gene. Fluorescence in situ hybridization also demonstrated *ETV6::RUNX1* fusion (Figure 1F; original magnification 1000 \times). The diagnosis of common B-ALL with *ETV6::RUNX1* was made. Induction therapy with the vincristine, daunorubicin, cyclophosphamide, pegaspargase, prednisone, and venetoclax regimen achieved complete remission and negative minimal residual disease state.

While phagocytosis by blasts occurs occasionally in acute myeloid leukemia (AML) [1], it is exceedingly rare in ALL. Phagocytosis of erythrocytes and cannibalism by lymphoblasts has been reported in *ETV6::RUNX1*-positive pediatric ALL [2,3]. To the best of our knowledge, selective platelet phagocytosis by blasts has not been previously reported in either AML or ALL. This case indicates that selective platelet phagocytosis can be a distinctive morphological clue, warranting investigation for the *ETV6::RUNX1* fusion gene, even in adult cases of ALL.

Keywords: Acute lymphoblastic leukemia, Phagocytosis, Platelets, *ETV6::RUNX1*

Anahtar Sözcükler: Akut lenfoblastik lösemi, Fagositoz, Trombositler, *ETV6::RUNX1*

Ethics

Informed Consent: Informed consent was obtained from the patient.

Footnotes

Authorship Contributions

Data Collection or Processing: S.C., W.C.; Analysis or Interpretation: Z.X.; Literature Search: N.L., J.X.; Writing: S.C., Y.Z.

Conflict of Interest: No conflict of interest was declared by the authors.

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