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Erythrophagocytosis by Blasts and Numerous Cytoplasmic Granules in a Child with De Novo T-lymphoblastic Leukemia

De Novo T-lenfoblastik Lösemili bir Çocukta Blastlar Tarafından Eritrofagositoz ve Çok Sayıda Sitoplazmik Granüller

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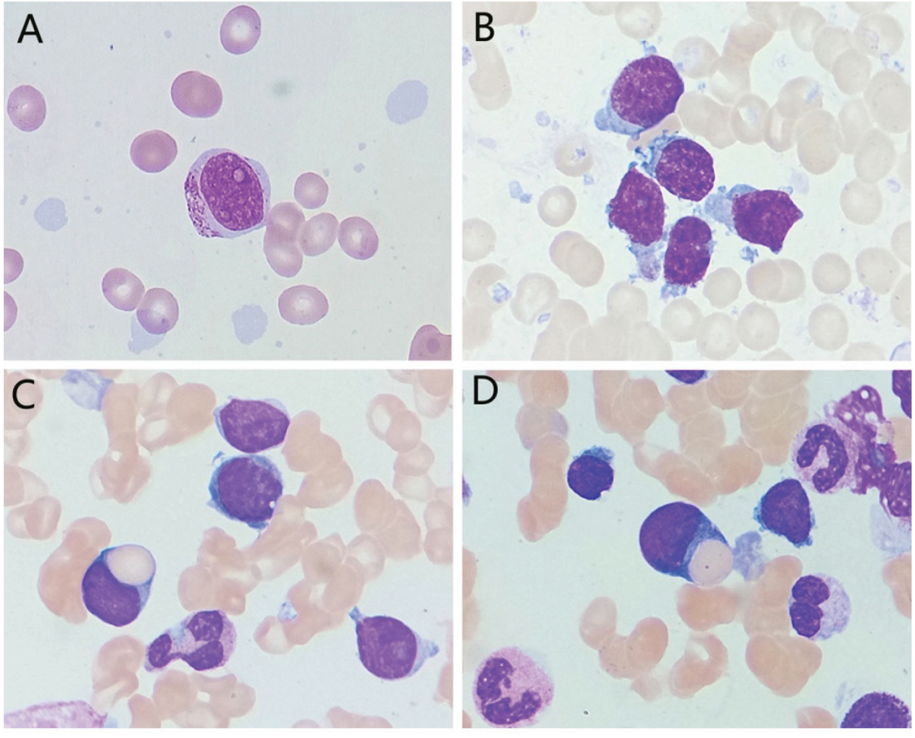

Figure 1. Peripheral blood smear showed some promyelocyte-like blasts with numerous cytoplasmic granules (A), accompanied by abundant blast cell fragments (B). Bone marrow aspiration showed 62% blasts with dispersed nuclear chromatin, multiple inconspicuous nucleoli, and occasional vacuolated cytoplasm and cytoplasmic fragments. Erythrophagocytosis by leukemic cells was also noted (C, D).

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A 7-year-old boy was admitted with the complaint of cough for 4 days. Physical examination revealed dense needle-sized bleeding spots on the face. A complete blood count revealed white blood cell count of $39.58x10^9$/L, mild anemia, and platelet count of $85x10^9$/L. A peripheral blood smear showed some promyelocyte-like blasts with numerous cytoplasmic granules (Figure 1A), accompanied by abundant blast cell fragments (Figure 1B). Bone marrow aspiration showed 62% blasts with dispersed nuclear chromatin, multiple inconspicuous nucleoli, and occasional vacuolated cytoplasm and cytoplasmic fragments. Of interest, erythrophagocytosis by leukemic cells was also noted (Figures 1C and 1D). Immunophenotyping showed that the blasts were positive for CD34, CD2, CD5, CD7, cTdT, CD38, cCD3, and CD99 and partially positive for CD4, CD8, CD1a, and CD10. Cytogenetic analysis showed a normal male karyotype. Reverse transcription polymerase chain reaction revealed the *SIL-TAL1* fusion gene.

In addition, biopsy of the anterior superior mediastinal lymph node was performed, and the immunohistochemical findings were basically consistent with the immunophenotype of the bone marrow samples. All these findings confirmed the diagnosis of T-lymphoblastic leukemia (T-ALL) with *SIL-TAL1* rearrangement. After diagnosis, the patient underwent VDLD chemotherapy (vindesine + idarubicin + dexamethasone + pegaspargase) and regimens of cyclophosphamide, cytarabine, 6-mercaptopurine, and pegaspargase (CAML). He failed to obtain complete remission and is currently in a state of myelosuppression following chemotherapy.

Erythrophagocytosis by leukemic cells is a very rare phenomenon and is mostly seen in cases of acute myeloid leukemia with t(8;16) [1] or t(16;21)(p11;q22) [2] and, less commonly, in B-lymphoblastic leukemia [3,4].

Abundant cytoplasmic granules can occasionally occur in B-lymphoblastic leukemia, but they are rarely seen in T-ALL. Concurrent erythrophagocytosis and cytoplasmic granules in a child with de novo T-ALL with *SIL-TAL1* is extremely uncommon. This case exemplifies the diagnostic value of flow cytometry and molecular techniques in the identification of some leukemias with deceptive morphology, such as promyelocyte-like blasts with abundant cytoplasmic granules.

Keywords: Erythrophagocytosis, T-lymphoblastic leukemia, *SIL-TAL1* fusion gene, Cytoplasmic granules, Flow cytometry

Anahtar Sözcükler: Eritrofagositoz, T-lenfoblastik lösemi, *SIL-TAL1* füzyon geni, Sitoplazmik granüller, Akan hücre ölçer

Ethics

Informed Consent: Informed consent was obtained from this patient's family.

Authorship Contributions

Concept: F.L., W.S., X.L., L.L., T.L., Y.Z.; Design: F.L., W.S., X.L., Y.Z.; Data Collection or Processing: X.L., L.L., T.L., Y.Z.; Analysis or Interpretation: F.L., T.L.; Literature Search: F.L., X.L., Y.Z.; Writing: F.L., T.L.

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