

“Rod-Like” Cytoplasmic Crystals of Peripheral Lymphocytes in Chronic Lymphocytic Leukemia

Kronik Lenfositik Lösemide Periferik Lenfositlerin “Rod Like” Sitoplazmik Kristalleri

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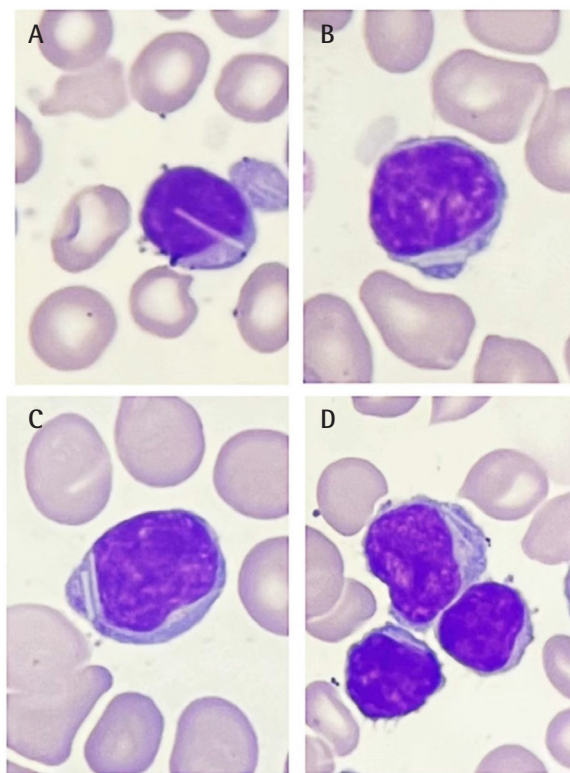


Figure 1. Rod-like crystals present in mature lymphocytes in the patient's peripheral blood smear (Wright-Giemsa, 1000 \times). A) A crystal covers the nucleus and another crystal is seen in the cytoplasm of a lymphocyte. B-D) Inclusion bodies are located in the cytoplasm of lymphocytes, near the nuclei.

A 72-year-old man with B-cell chronic lymphocytic leukemia (CLL) of Rai stage IV was referred to our hospital for further treatment. In a physical examination, the patient showed signs of anemia. Routine blood examination showed white blood

cell count of $31.8 \times 10^9/L$ (normal: 4 to $10 \times 10^9/L$) with 82% lymphocytes, hemoglobin of 100 g/L (normal: 120 to 160 g/L), and platelet count of $86 \times 10^9/L$ (normal: 100 to $300 \times 10^9/L$). Significantly, different sizes of rod-like cytoplasmic crystals



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could be observed in the cytoplasm or covering the nuclei in lymphocytes (Figures 1A-1D). Abdominal computed tomography showed multiple enlarged lymph nodes in the abdomen and groin. Flow cytometry analysis revealed the expression of CD19, CD20, CD5, CD22, CD23, CD24, CD38, lambda, FCM7 (dim, 38.6%), and CD200 (high). Previous studies have suggested that the formation of crystals may be related to dysfunctional immunoglobulin (Ig) synthesis [1,2,3,4]. In our case, the levels of IgG, IgA, and IgM were all reduced, with the most significant reduction seen for IgG at 4.96 g/L. While some observations of similar rod-like structures have been reported in cases of B-cell lymphoproliferative diseases, intracellular rod-like crystals in mature lymphocytes in CLL are extremely rare in peripheral blood [5,6,7]. Here, the crystals in the lymphocytes were present after anti-leukemia therapy. Whether the formation of these crystals may be related to chemotherapy drugs needs to be confirmed.

Keywords: Cytoplasmic crystals, Chronic lymphocytic leukemia, Lymphoproliferative diseases, Flow cytometry

Anahtar Sözcükler: Sitoplazmik kristaller, Kronik lenfositik lösemi, Lenfoproliferatif hastalıklar, Akış sitometrisi

Ethics

Informed Consent: Informed consent was obtained from the patient.

Authorship Contributions

Concept- J.H.; Design: X.L.; Data Collection or Processing- Y.Y.; Analysis or Interpretation- Z.A.; Writing- J.G.

Conflict of Interest: No conflict of interests to disclose.

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