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A Patient with Pure Erythroid Leukemia with Leukemic Cells Mimicking Myeloma Cells

Lösemi Hücrelerinin Myelom Hücrelerini Taklit Ettiği Saf Eritroid Lösemi Hastası

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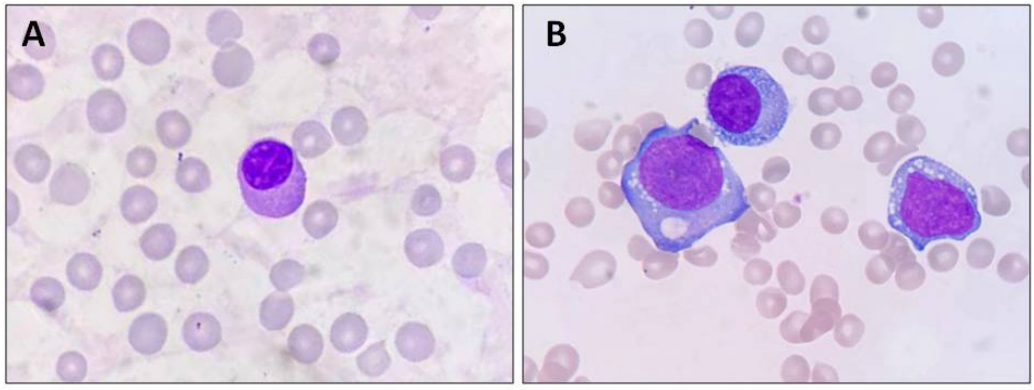

Figure 1. Patient with pure erythroid leukemia with leukemic cells mimicking myeloma cells: representative myeloma-like cells in the peripheral blood (A) and bone marrow (B) with large irregular nuclei, dispersed chromatin, basophilic cytoplasm with vacuoles, and high nuclear-to-cytoplasmic ratios (1000^{x}, Wright-Giemsa staining).

A 64-year-old male patient presented to the hospital complaining of dizziness, fatigue, and loss of appetite for more than 20 days. The patient had a 3-year history of coronary heart disease. Initial hematological results revealed a total leukocyte count of $3.51x10^{9}$/L, red blood cell count of $2.07x10^{12}$/L, hemoglobin of 63 g/L, and platelet count of $70x10^{9}$/L. Serum folate and vitamin B_{12} levels were normal. Other laboratory results showed lactate dehydrogenase of 2220 U/L, ferritin of 1878.97 ng/mL, and erythrocyte sedimentation rate of 120 mm/h. Peripheral blood smear revealed 5% large-sized myeloma-like cells (Figure 1A). The patient was suspected of having multiple myeloma. However, the immunoglobulin concentration, serum protein electrophoresis, and immunofixation results were within reference ranges or negative, which was inconsistent with the peripheral blood morphology. Other biochemical results were also within normal reference ranges. Bone marrow aspiration was then performed and myeloma-like cells were also observed on the smear, with 47% nucleated cells. These myeloma-like cells had large irregular nuclei, dispersed chromatin, deeply basophilic cytoplasm with vacuoles, and high nuclear-to-cytoplasmic ratios (Figure 1B). Myeloperoxidase staining for these blasts was negative on the bone marrow smear. Additionally, 1% basophilic erythroblasts, 6.5% polychromatic erythroblasts, and 11% orthochromatic erythroblasts were also

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observed in the bone marrow. Megakaryocytes were not found in the bone marrow smear.

Further bone marrow immunophenotyping by flow cytometry was positive for CD36 and CD71, but negative for CD2, CD3, CD5, CD7, CD8, CD10, CD11b, CD13, CD14, CD15, CD16, CD19, CD20, CD34, CD38, CD56, CD64, and HLA-DR for blast cells, excluding myeloid, lymphocyte, and plasma cell phenotypes. Thus, these findings were consistent with de novo pure erythroid leukemia with morphological features similar to myeloma cells, and the patient was diagnosed with pure erythroid leukemia. However, the patient refused further cytogenetic analysis, gene sequencing, and treatment for financial reasons. He died 1 year after initial admission.

Pure erythroid leukemia accounts for <1% of acute myeloid leukemia cases and develops de novo or evolves from a prior myelodysplastic syndrome [1]. Depending on the maturation of the erythroblasts, erythroid markers such as CD36, CD71, hemoglobin, glycophorin A, E-cadherin, spectrin, or ferritin and other molecules are commonly used to support the diagnosis of leukemic cells [1,2]. In this case, we have described pure erythroid leukemia with leukemic cells mimicking myeloma cells. Such cases should be promptly diagnosed with awareness of this morphological defect and proper application of ancillary flow cytometry studies.

Keywords: Pure erythroid leukemia, Myeloma, Leukemic cells

Anahtar Sözcükler: Saf eritroid lösemi, Myelom, Lösemi hücreleri

Ethics

Informed Consent: This study did not involve personal information; only laboratory data were reported. Patient consent was therefore waived by the Ethics Committee of Hongda Hospital of Jiamusi University.

Authorship Contributions

Data Collection or Processing: G.S., X.T., Y.W., Yi.W.; Writing: G.S., J.Z., J.L.

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