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Adult T-cell leukemia/lymphoma and Glucose-6-phosphate dehydrogenase deficiency rapidly diagnosed through blood smear examination

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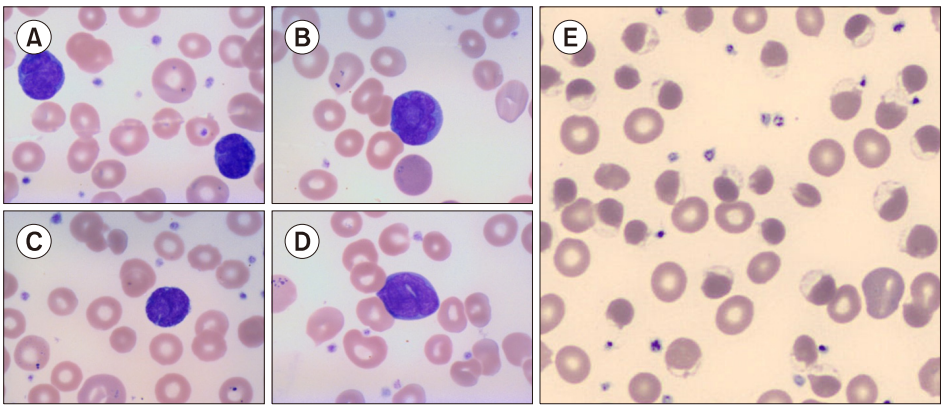

A 73-year-old Senegalese man presented with multiple compressive lymphadenopathy and hypercalcemia. Despite lymphopenia (0.8×10^9/L), a blood smear examination revealed atypical lymphocytes (4%) with irregular nuclei, sometimes with "flower-like" morphology and basophilic cytoplasm (**A–D**, Lymphoma cells; May-Grünwald-Giemsa, ×1,000). Immunophenotyping detected a circulating abnormal T-cell population (CD45+high/CD3+weak/CD4+/CD8-/CD5+/CD7-). The diffuse proliferation of CD3+CD5+CD2+CD4+CD8- in a cervical lymph node biopsy and positive human T-cell lymphotropic virus type 1 (HTLV-1) serology confirmed adult T-cell leukemia/lymphoma associated with HTLV-1 (ATLL). Positron emission tomography showed high burden tumoral syndrome on both sides of the diaphragm. The patient received one course of cyclophosphamide, doxorubicin hydrochloride (hydroxydaunorubicin), vincristine sulfate (Oncovin), and prednisone (CHOP) with alpha-interferon and Retrovir. After a few days, hemolytic and regenerative anemia (hemoglobin 5.6 g/dL, reticulocyte count 156×10^9/L, undosable haptoglobin, total bilirubin 54.4 μmol/L) appeared. The red blood cell morphology demonstrated many hemighosts (**E**, May-Grünwald-Giemsa, ×1,000), and 45% of Heinz bodies were observed with supravital staining. Glucose-6-phosphate dehydrogenase (G6PD) deficiency was detected (5.4 UI/g; N, 8–14 UI/g), and the incriminated rasburicase was discontinued, normalizing the hemoglobin level.

ATLL with G6PD deficiency is uncommon outside of HTLV-1 endemic areas that have a high prevalence of G6PD deficiency. Hence, careful examination of the blood smear is required.