blood work
images in hematology

ALK$^+$ ALCL with erythroblast-like cytology diagnosed in ascites in a patient with history of B-cell lymphomas

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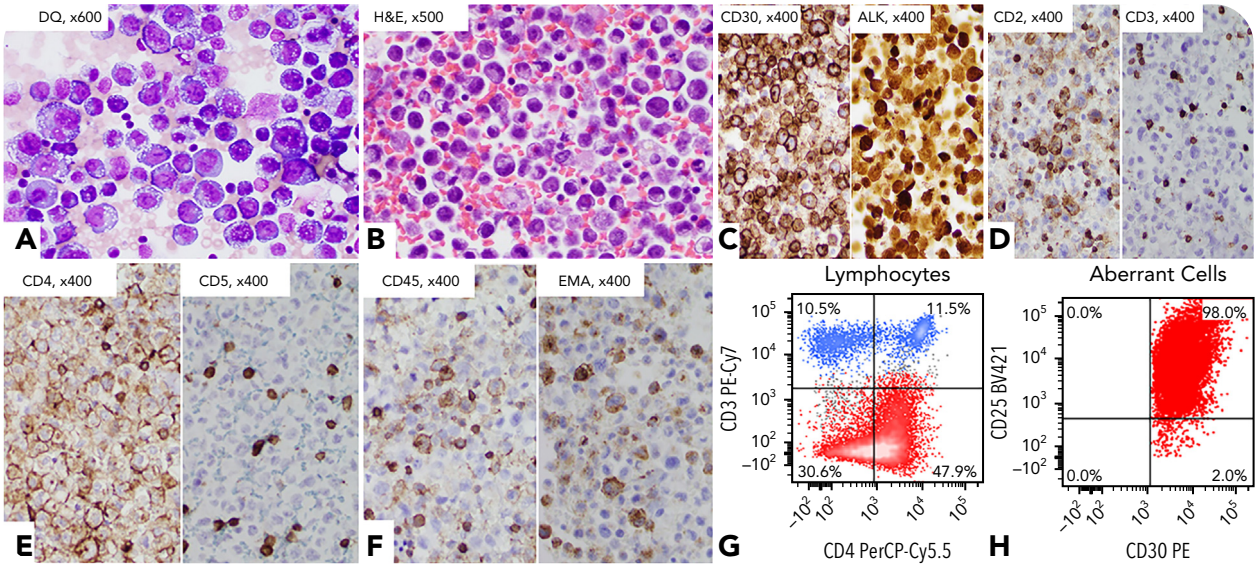

A 42-year-old woman with a history of marginal zone lymphoma (8 years ago) with diffuse large B-cell lymphoma transformation (4 years ago) was admitted with shortness of breath, bilateral pleural effusions, and ascites. A paracentesis of ascites was performed, and cytology smears showed many large-sized atypical cells with abundant basophilic cytoplasm and cytoplasmic vacuoles, resembling erythroblasts (panel A; objective 600×). Cell block hematoxylin and eosin staining showed numerous large atypical cells, some having horseshoe-like nuclei (panel B; objective 500×). By immunohistochemistry, the neoplastic cells were positive for CD30, anaplastic lymphoma kinase (ALK) (nuclear and cytoplasmic, indicating *ALK* rearrangement, likely *NPM1*::*ALK* translocation), CD2 (partial), CD4, CD45 (subset), and epithelial membrane antigen (subset), whereas they were negative for CD3, CD5, CD19, paired box 5, CD138, Epstein-Barr virus–encoded small RNA, and human herpesvirus 8 (panels C-F; objective 400×). Flow cytometric analysis showed no monotypic B cells; instead, a large population of aberrant T cells was detected: positive for CD4, CD25, and CD30, and negative for CD3, CD5, CD7, and CD8 (panels G-H). She was diagnosed with ALK-positive anaplastic large-cell lymphoma (ALK$^+$ ALCL), which was later confirmed with lymph node involvement.

ALK$^+$ ALCL with erythroblast-like cytology first diagnosed in body fluid is highly unusual, especially in a patient with a previous history of B-cell lymphomas. Lack of history of ALCL with such an unusual morphology is diagnostically challenging. Careful morphologic examination and extensive immunophenotypic workup are critical in reaching the correct diagnosis.

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