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Peripheral T-cell lymphoma with blastoid morphology and aberrant expression of multiple B-cell antigens

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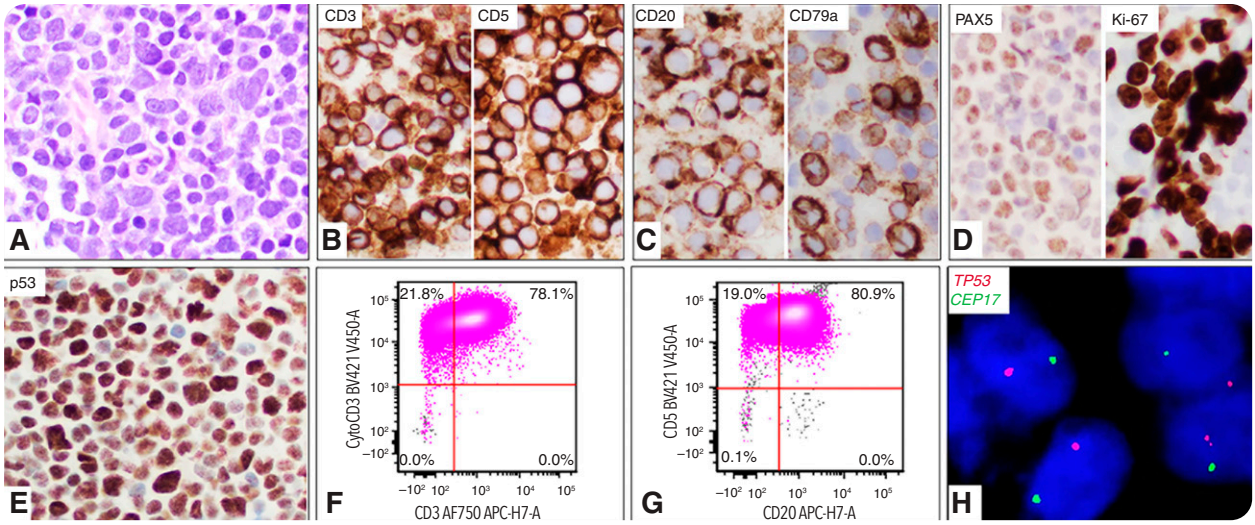

A 59-year-old woman presented with lymphadenopathies. A lymph node biopsy revealed intermediate- to large-sized blastoid cells with round to irregular nuclei, fine chromatin, and small inconspicuous nucleoli (panel A; original magnification: ×40 objective; ×400 total magnification). By immunohistochemistry, the neoplastic cells were positive for CD3, CD5, CD20, CD79a, PAX5, Ki67, and p53 (panels B-E; original magnification: ×40 objective; ×400 total magnification). Flow cytometric analysis showed aberrant T cells: positive for CD2, CD3 (panel F; surface and cytoplasmic), CD4, CD5, CD20 (panel G), TCRα/β, and negative for CD34, TDT, CD1a, CD7, CD8, CD10, CD30, TCRγ/δ, CD19, and CD22. Molecular studies detected monoclonal *TCR* β and γ gene rearrangements but no *IGH* rearrangement. Fluorescence in situ hybridization using dual-color *TP53/CEP17* probes detected monosomy 17 in 88% of cells (panel H; original magnification: ×60 objective; ×600 total magnification). A 162-gene lymphoma mutation assay by next-generation sequencing revealed *TP53* mutation (variant allele frequency = 80%). She was diagnosed with peripheral T-cell lymphoma (PTCL), not otherwise specified, and was treated with chemotherapy with poor response. She died of disease in 5 months.

PTCL with blastoid morphology and multiple B-cell markers is highly unusual. The blastoid morphology raises concern for a lymphoblastic lymphoma, and extensive workup is critical in reaching the correct diagnosis. Biallelic *TP53* loss of function mostly likely contributed to the patient's lymphomagenesis and dismal outcome.

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