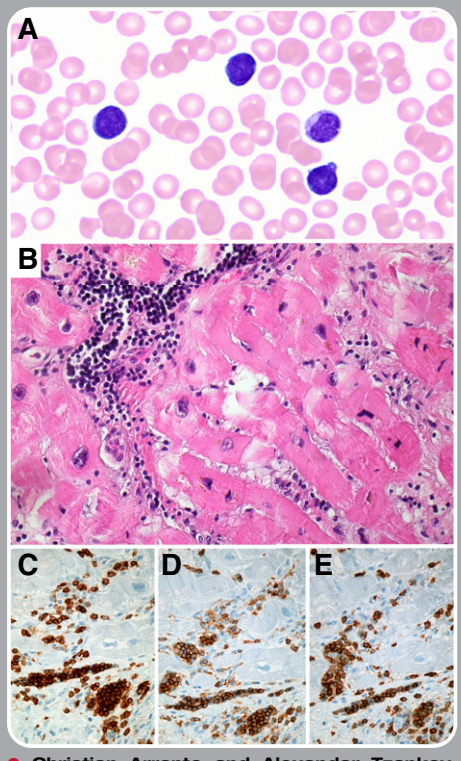
bloodwork
IMAGES IN HEMATOLOGY

Broken heart by T-prolymphocytic leukemia



Christian Arranto and Alexandar Tzankov, University Hospital Basel

A 68-year-old man presented with rapidly progressive dyspnea due to newly diagnosed heart failure. Cardiac magnetic resonance imaging was compatible with myocarditis. Coronary angiography showed no relevant stenosis. The endomyocardial biopsy showed a multifocal, partially active lymphocytic myocarditis. Four years later, a bone marrow biopsy was performed due to lymphocytosis (panel A [original magnification ×1000, May-Grünwald–Giemsa stain]) and thrombopenia, and demonstrated a $CD4^+/CD8^+$ double-positive T lymphocytosis with a biclonal T-cell receptor rearrangement. Cytogenetics revealed a complex karyotype including an inversion of chromosome 14 and isodicentric chromosome 8. The diagnosis of T-prolymphocytic leukemia (T-PLL) was established. The patient received a left ventricular assist device due to progressive heart failure. The apical myocardial biopsy showed destructive lymphocytic infiltration by the T-PLL (panels B [original magnification ×400, hematoxylin and eosin stain], C [CD3], D [CD4], and E [CD8] [C-E; original magnification ×200, immunohistochemistry]), which was proven to be of the same clonal T-cell origin as in the bone marrow. Reanalysis of the myocardial biopsy taken 4 years earlier revealed a clonal T-cell population matching with 1 of the current T-cell gene rearrangement products. The patient was treated with alemtuzumab, followed by a cytokine storm. He refused further treatment and died soon after.

This case illustrates a destructive cardiac infiltration by T-PLL causing severe heart failure.

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