A window into cutaneous adult T-cell leukemia/lymphoma

A 36-year-old Jamaican woman presented with flat erythematous and pruritic lesions on her thighs. Physical examination revealed well-demarcated hyperpigmented discoid lesions on her hands and inner thighs and nodular lesions on her lower legs, as shown in panel A. Skin biopsy demonstrated dermal and epidermal infiltration by atypical lymphoid cells forming Pautrier-like microabscesses. Panel B (sequential serial sections) illustrates positive staining for CD3, CD4, and CD25 (strong) in the neoplastic cells; CD8, CD20, and FOXP3 (not shown) were negative. Polymerase chain reaction studies were positive for clonal T-cell receptor \( \gamma \) gene rearrangement and human T-cell lymphotropic virus 1 (HTLV-1) viral DNA, with positive HTLV-1 serology. Bone marrow and peripheral blood were negative for abnormal cells. Baseline lactate dehydrogenase was mildly elevated (303 U/L), and serum calcium was normal. Staging was negative for visceral, nodal, or bony disease. The findings are diagnostic of adult T-cell leukemia/lymphoma (ATL) with cutaneous involvement.

Cutaneous involvement is seen in more than 50% of patients with ATL. The typical immunophenotype is CD3\(^+\)CD4\(^+\)CD25\(^+\). FOXP3 is expressed in a subset of patients. Strong expression for CD25 (\( \alpha \) chain of the interleukin-2 receptor) is helpful in the differential diagnosis with mycosis fungoides, as is the lack of an inflammatory background. Positive serology for HTLV-1 is supportive, but identification of HTLV-1 DNA is more specific.

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