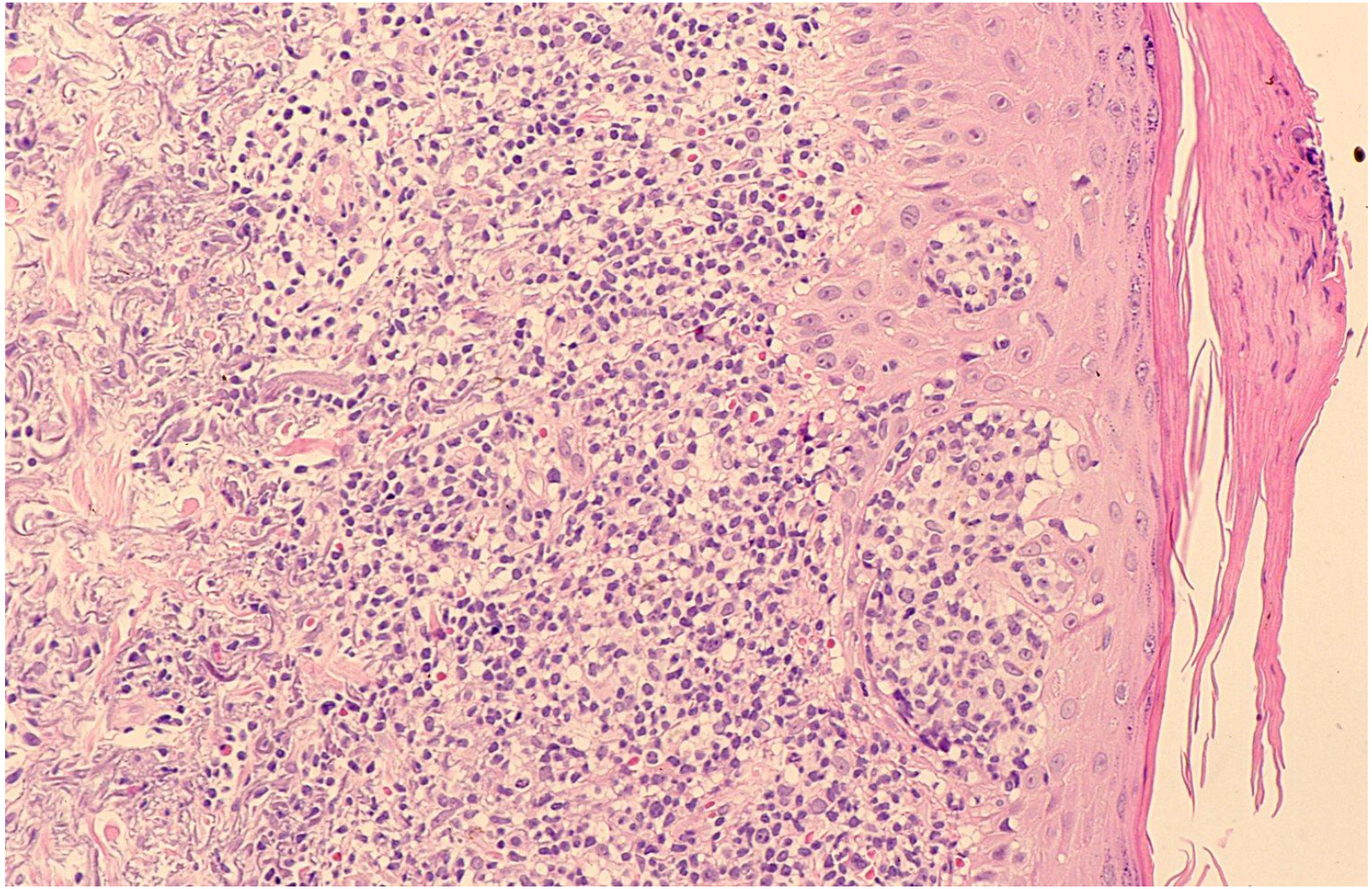
Adult T-cell leukemia/lymphoma, skin infiltration

Adult T-cell leukemia/lymphoma (ATLL) is caused by human T-cell leukemia virus type I. The endemic areas include Japan (especially in Kyushu island), the Caribbean, Papua New Guinea, South America and Africa. Approximately 50% of ATLL patients exhibit skin manifestations. The types of the skin lesions are: patch, plaque, multipapular, tumoral, erythrodermic and purpuric. Cytologically, ATLL cells express CD4+CD25+ regulatory T-cell phenotype, high expressions of CCR4, and programmed cell death (PD)-1 and PD-ligand 1. The overall survival of the eruption-bearing patients is poorer than that of the non-eruption-bearing patients in the leukemia form, but not in the lymphoma form.

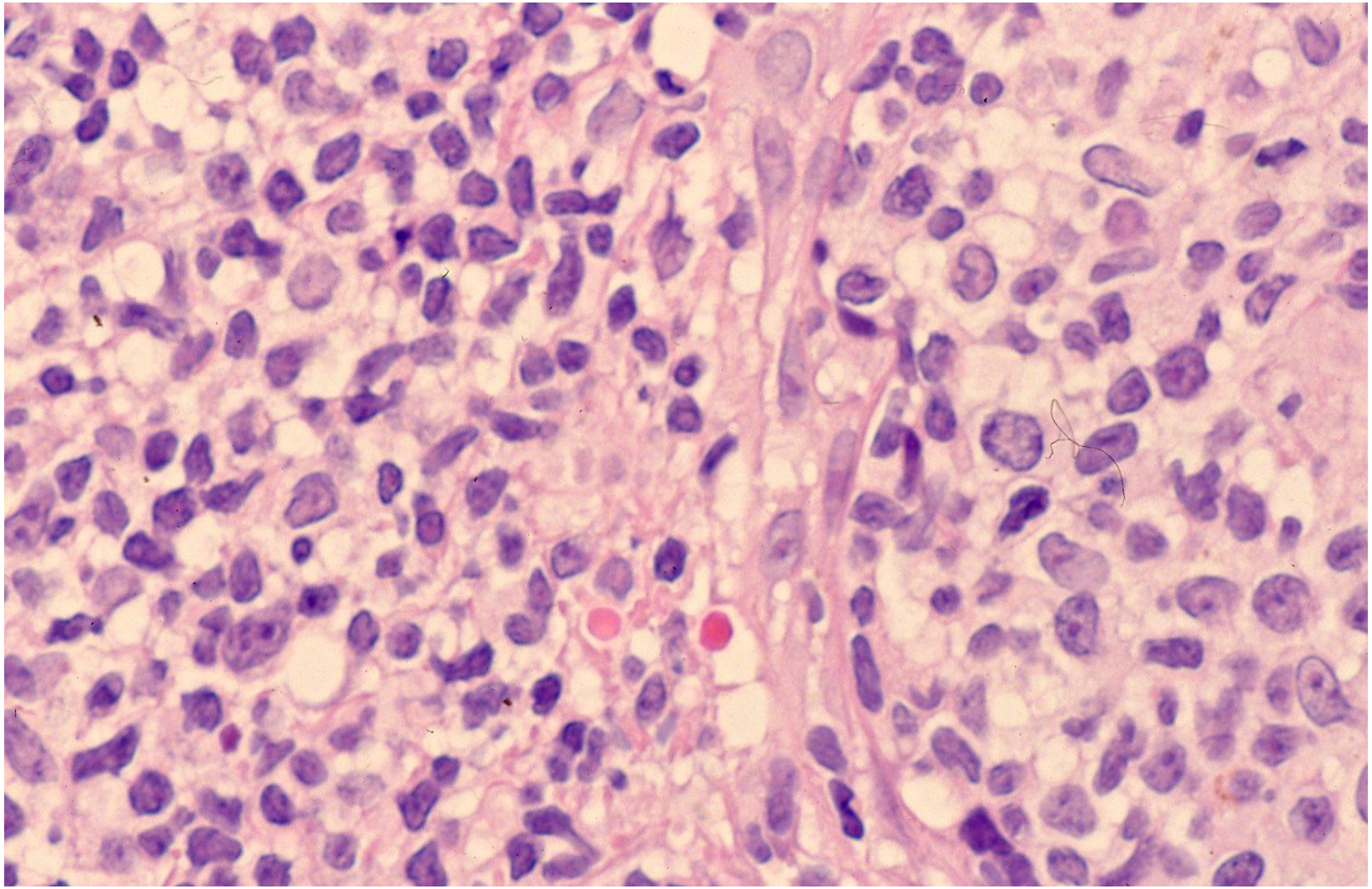
Ref.: Tokura Y, et al. Skin manifestations of adult T-cell leukemia/lymphoma: clinical, cytological and immunological features. J Dermatol 2014; 41(1): 19-25. doi: 10.1111/1346-8138.12328

Adult T-cell leukemia/lymphoma (ATLL) involving the skin of a 63 y-o Japanese male patient born in Kyushu island. Grossly, a tumorous nodule is seen on the skin of the hand.

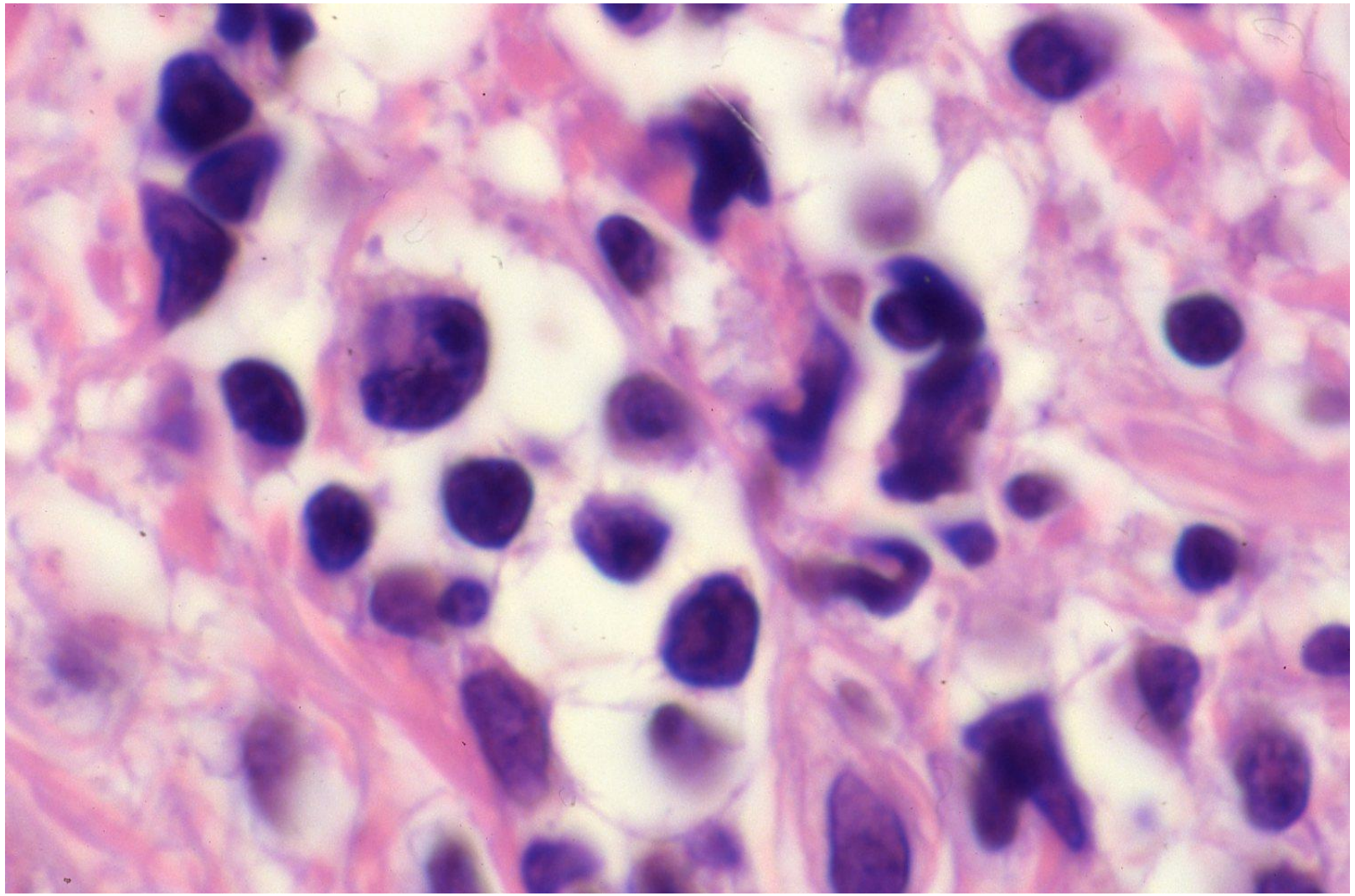
Adult T-cell leukemia/lymphoma (ATLL) involving the skin of a 63 y-o Japanese male patient born in Kyushu island. Grossly, a red-colored tumorous nodule is seen on the skin of the lower leg.



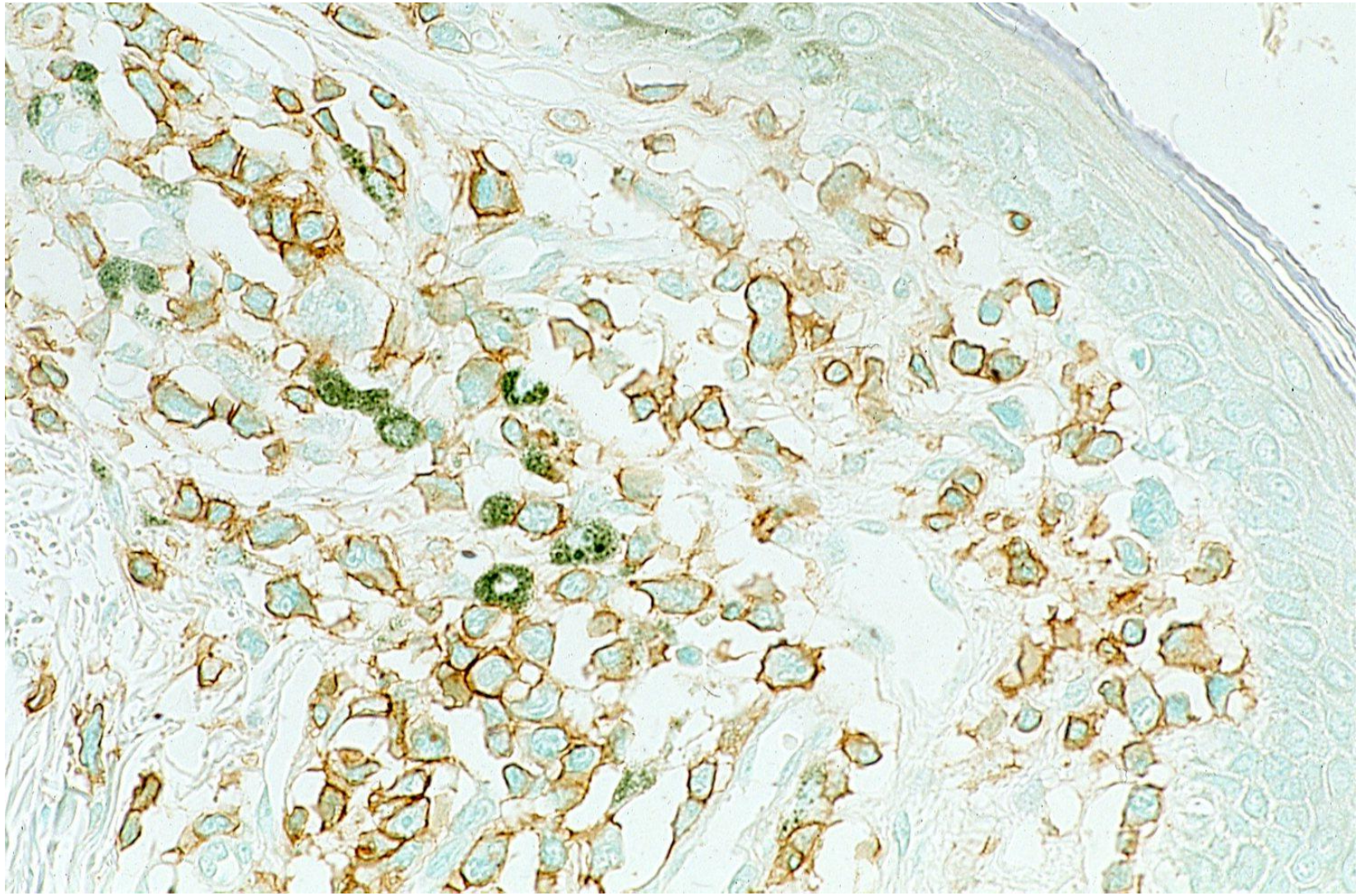
Adult T-cell leukemia/lymphoma (ATLL) involving the leg skin of a 63 y-o Japanese male patient born in Kyushu island. The entire dermis is infiltrated by atypical lymphoid cells. Parakeratotic hyperkeratosis is associated (H&E-1).



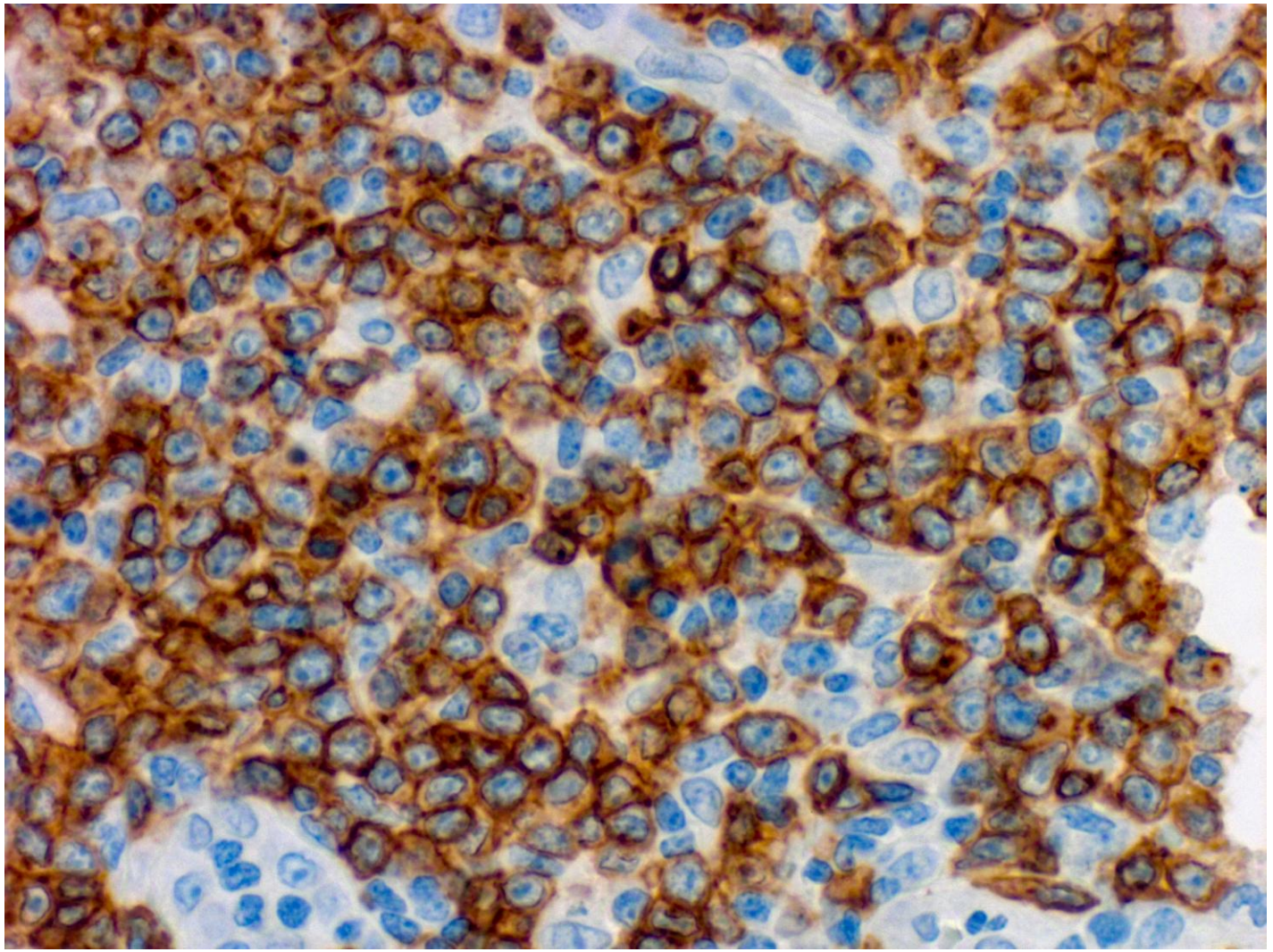
Adult T-cell leukemia/lymphoma (ATLL) involving the leg skin of a 63 y-o Japanese male patient born in Kyushu island. The entire dermis is infiltrated by atypical lymphoid cells. The nuclei are often convoluted (H&E-2).



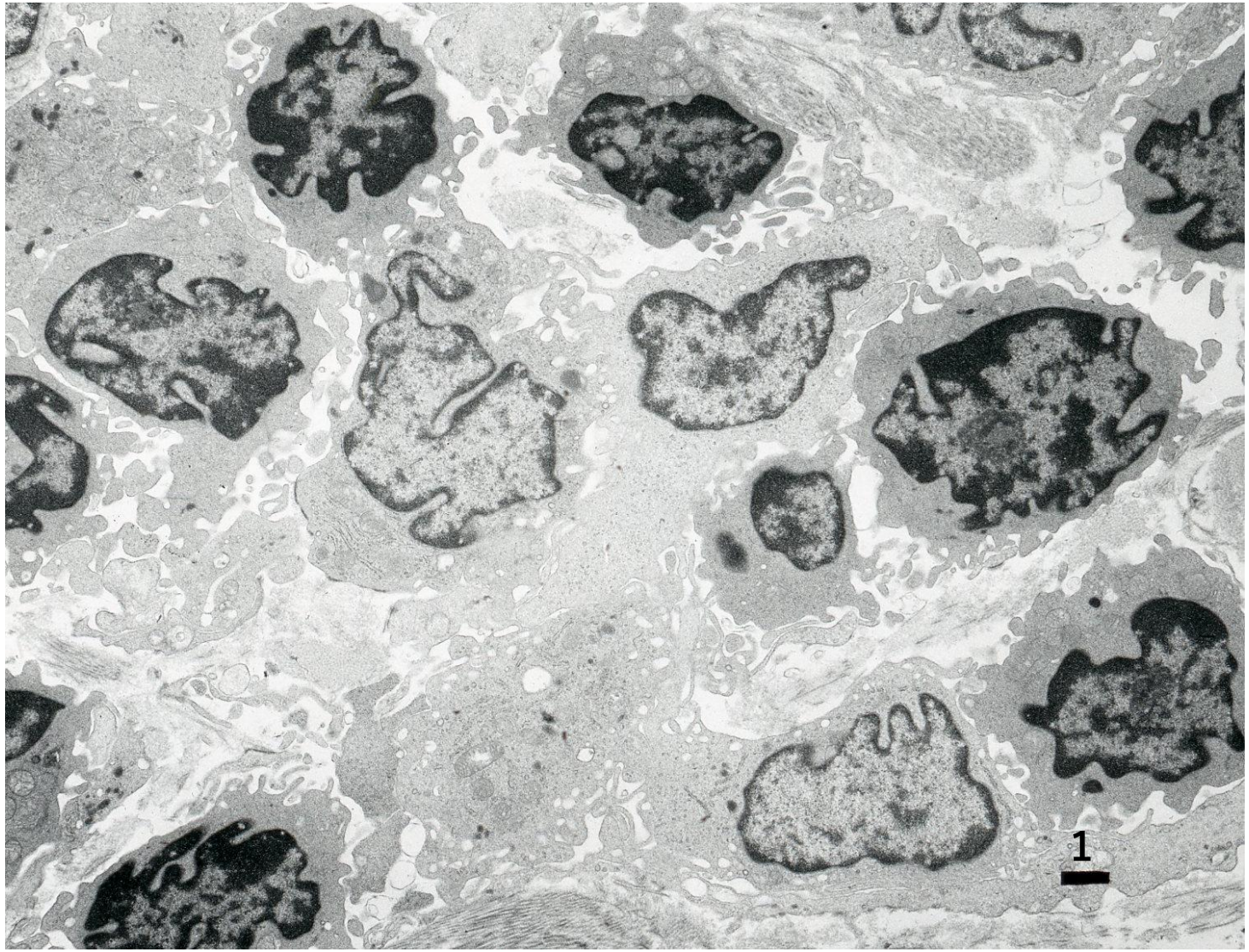
Adult T-cell leukemia/lymphoma (ATLL) involving the leg skin of a 63 y-o Japanese male patient born in Kyushu island. The entire dermis is infiltrated by atypical lymphoid cells. The hyperchromatic nuclei are often convoluted (H&E-3).



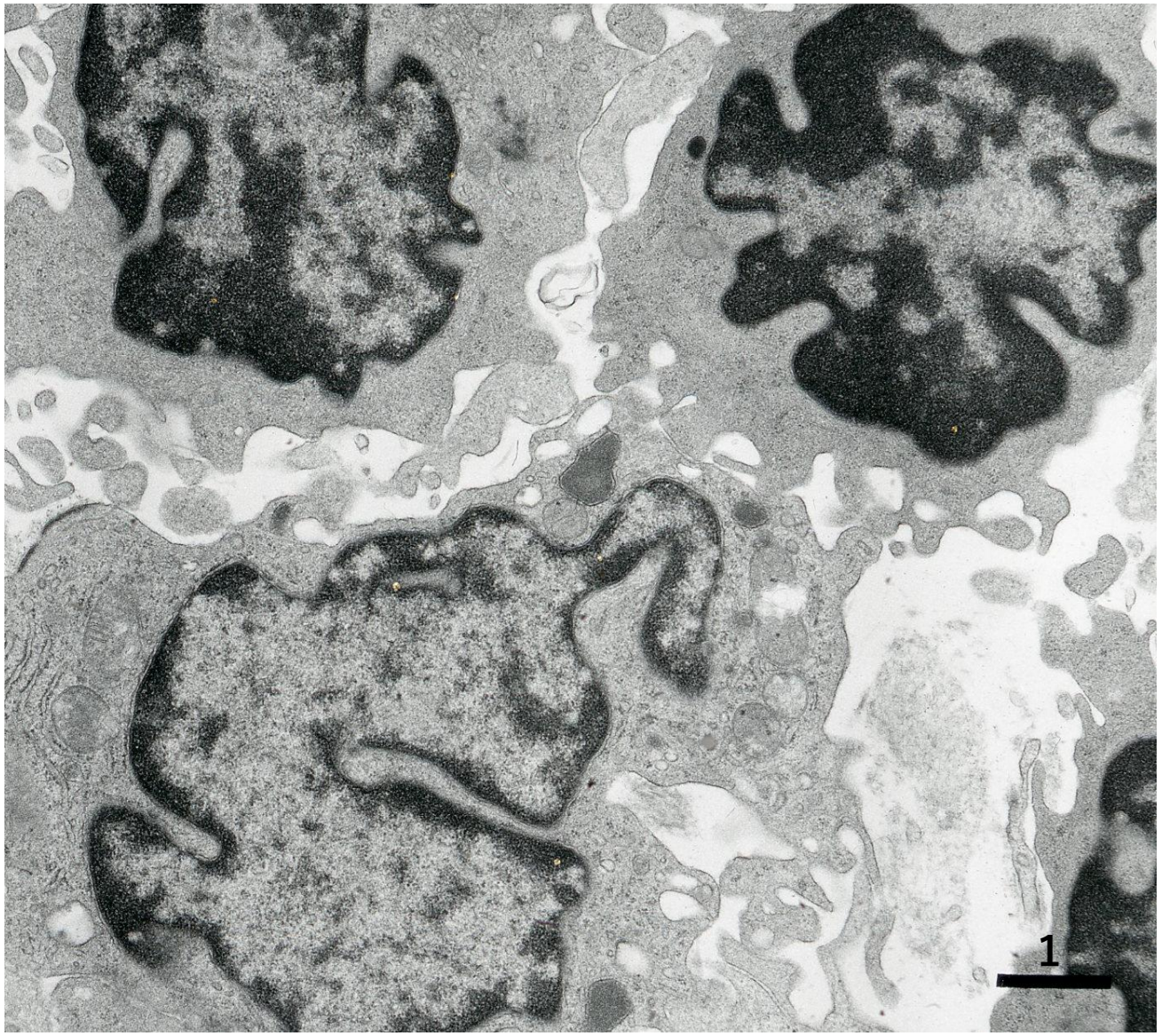
Adult T-cell leukemia/lymphoma (ATLL) involving the leg skin of a 63 y-o Japanese male patient born in Kyushu island. The atypical lymphoid cells in the dermis express CD3. CD4 is also expressed, while CD8 is negative (immunostaining for CD3).



Adult T-cell leukemia/lymphoma (ATLL) involving the leg skin of a 63 y-o Japanese male patient born in Kyushu island. The atypical lymphoid cells in the dermis strongly express C-C chemokine receptor type 4 (CCR4).



Ultrastructure of adult T-cell leukemia/lymphoma (ATLL) involving the leg skin of a 63 y-o Japanese male patient born in Kyushu island. The atypical lymphoid cells in the dermis possess convoluted or cerebriform nuclei (TEM-1).



Ultrastructure of adult T-cell leukemia/lymphoma (ATLL) involving the leg skin of a 63 y-o Japanese male patient born in Kyushu island. The atypical lymphoid cells in the dermis possess convoluted or cerebriform nuclei (TEM-2).