Adult T Cell Leukemia Accompanied by Annular Elastolytic Giant Cell Granuloma

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We report a 74-year-old Japanese patient with adult T-cell leukemia who concurrently developed annular elastolytic giant cell granuloma. Initially, itchy granulomatous lesions developed on his face, nape of the neck and dorsa of the hands, but gradually erythematous plaques appeared on the back and lower limbs. The histology of the granulomatous lesions revealed coexistence of an epithelioid cell granuloma with giant cells that phagocytosed elastic fibres in the dermis and Pautrier's microabscesses in the overlying epidermis. Subsequent sequential histological studies of an erythematous plaque revealed the development of granulomatous changes in pre-existing lymphomatous lesions. Laboratory data revealed the presence of antibody to human T cell leukemia/lymphoma virus I and 14200 white cells/mm^3 in the peripheral blood with 2% atypical lymphocytes which eventually amounted to 30%, one month before his death. ***Key words: Etretinate; PUVA.***

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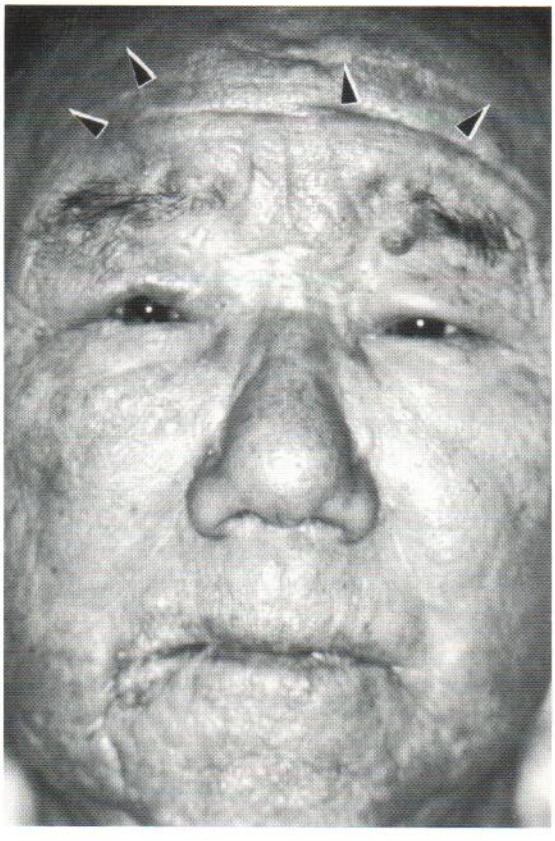

Fig. 1. Numerous papules and erythematous plaques on the face. They were arranged in an annular fashion on the forehead (*arrow*).

Cutaneous T cell lymphomas (CTCL) are neoplasms of mature T cells that constitue Sézary syndrome, mycosis fungoides (MF) and some cases of lymphomatoid papulosis. Wantzin et al. (1) reported that 36 of 315 patients (11.4%) with CTCL had specific antibodies reactive to human T cell leukemia virus type I (HTLV-I). Their findings might suggest that a retrovirus related to HTLV-I plays an important role in the pathogenesis of CTCL. Recently, however, cases of HTLV-I infection have been proposed to be separate from CTCL (2).

Annular elastolytic giant cell granuloma (AEGCG), which has a number of appellations, including actinic granuloma, is characterized by an annular erythema that shows a zone of consumption of elastic fibres by giant cells and histiocytes. Such granulomatous features have not been reported even in cases of granulomatous MF (3–8). Recently, we observed a patient who developed AEGCG in his skin lesions of adult T cell leukemia (ATL).

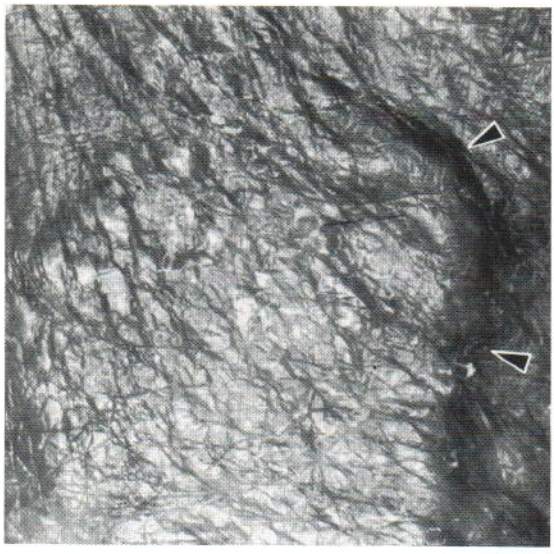

Fig. 2. Numerous papules on the back of the hand, arranged in the same annular fashion as those on the face (*arrow*).

CASE REPORT

A 74-year-old Japanese man visited our hospital with numerous pruritic red papules of 8 months' duration on the dorsa of both hands, face, nape of the neck and one thigh. He had been living in a Pacific coastal district near Ofunato where there are many ATL antibody carriers. Physical examination revealed numerous red papules that were arranged in an annular fashion in the above-mentioned areas and erythematous plaques on the back and thigh (Figs. 1, 2). Most of the laboratory data were within normal ranges except for an increased number of white blood cells (14 200/mm^3 with 2% atypical lymphoid cells) and the level of serum lactate dehydrogenase, 691 IU/l (normal range; 200–424). Antibody to HTLV-I was positive. During the following one month the granulomatous skin changes gradually involved the formerly erythematous plaques, with an increase in the number of atypical lymphocytes in the peripheral blood that increased, up to 30% of whole white cells.

Histopathology

All three biopsy specimens obtained from the granulomatous lesions showed focal exocytosis of single or grouped atypical mononuclear cells into the epidermis, and various numbers of scattered or aggregated epithelioid histiocytes with foreign body type giant cells in the superficial and mid-dermis (Fig. 3). Atypical mononuclear cells with large hyperchromatic nuclei were also found in the dermis. Elastica-Masson stain revealed the absence of elastic fibres in the superficial and mid-dermis occupied by epithelioid histiocytes and giant cells which were found to phagocytose elastic fibres.

On the other hand, a biopsy specimen taken from the erythematous plaque on the back showed Pautrier's microabscesses in the epidermis and a slight dermal infiltrate of atypical mononuclear cells. Another biopsy specimen taken from this infiltrated erythema one month later, when it began to take on the clinical appearance of granuloma, showed

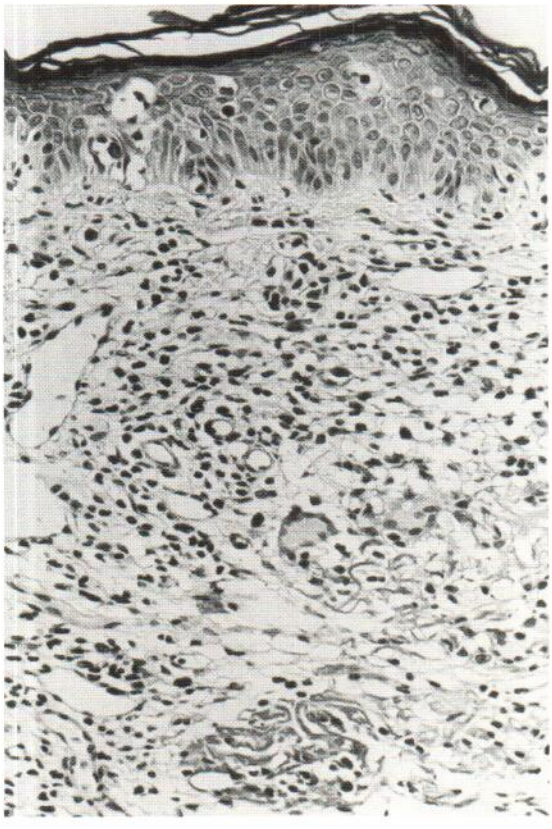

Fig. 3. Pautrier's microabscesses in the epidermis and epithelioid granuloma with giant cells in the dermis.

histopathologic features similar to those noted in other granulomatous lesions. Elastica-Masson stain also revealed phagocytosed elastic fibres in the multinucleated giant cells. However, there was no particular apposition of the granulomatous changes to pilosebaceous units as noted in some cases of ATL in any of the specimens.

Immunohistopathology

Immunohistopathologic studies of the infiltrating lymphocytes with commercial monoclonal antibodies revealed Leu3a$^+$ (CD4$^+$), IL2-R$^+$ (CD25$^+$) and HLA-DR$^+$ cells in the Pautrier's microabscess and in the dermal infiltrating cells which showed a mixture of a few OKT6$^+$ (CD1$^+$) cells.

Clinical course

Just after his admission, the patient developed herpes zoster in his left lower extremity, for which we prescribed acyclovir 750 mg/day for 2 weeks, also expecting a response in the lymphomatous lesions, because of a report (9) on the effectiveness of acyclovir for MF. However, it only proved effective against the herpetic lesions. Subsequently we tried topical psoralen and ultraviolet A irradiation (PUVA) therapy for 2 weeks, which produced only a pruritus-relieving effect. Then we switched to systemic PUVA with etretinate (10), which induced flattening of the granulomatous lesions with disappearance of pruritus after 4 weeks. Thereafter, because of the worsening of his general condition, we began chemotherapy consisting of mitoxantrone hydrochloride 5 mg/week, vindesine sulfate 0.7 mg/week, and prednisone 20 mg/day. However, after a remission of about one month, he died of pneumonia 4 months after hospitalization.

COMMENTS

Because the clinical appearances of ATL are so variable, some being similar to those of MF, and because the HTLV-I was only recently discovered, we cannot rule out the possibility that some of the past cases reported as MF with granuloma (3–8) might actually have been granulomatous ATL. However, even among those, clinical or histologic features of AEGCG as noted in this patient were not reported. Sequential histopathologic studies on the lesion on the back in this patient showed the formation of AEGCG in the pre-existing lymphomatous skin changes.

Ragaz & Ackerman (11) reported that actinic granuloma was found not only in MF but also in syphilis, leukemia and foreign body granuloma, which supports the view that actinic granuloma is not a specific disease entity but a specific form of granulomatous reaction. The lesions of AEGCG in our patient were found in sun-exposed skin as well as in non-exposed areas. MacGrae (12) speculated that AEGCG constitutes a cell-mediated immune response to weakly antigenic determinants on actinically altered elastic fibres. We do not deny the possible involvement of such immune-mediated reactions in ordinary AEGCG. In our case, however, because of the rapid formation of the granuloma, we rather think that even without such immune responses, HTLV-I-infected lymphocytes produced cytokines that might directly promote the phagocytosis of elastic fibres by giant cells as well as acceleration of granuloma formation.

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