Adult T cell leukemia-lymphoma

Sir,

Approximately 20 to 30 million people worldwide are infected with human T-lymphotropic virus type I (HTLV 1).[1] Previous reports of adult T-cell leukemia from India lacked confirmation by Western blot test for the presence of HTLV-1 antibodies which is mandatory for the diagnosis.[2] We report a patient with adult T-cell leukemia who presented with pruritic papules and plaques affecting the entire body.

A 70-year-old male presented to the dermatology

Table 1: Clinical types of adult T-cell leukemia/lymphoma

Clinical type	Acute	Lymphoma	Chronic	Smoldering
Clinical picture	Fever, cough, lymphadenopathy, skin lesions, hepato-splenomegaly	Prominent lymph node enlargement	Mild clinical symptoms, Lymphadenopathy present, Other organomegaly usually not seen	Skin lesions: papules, nodules, erythema etc. Minimal lymphadenopathy and splenomegaly
Laboratory findings	Marked leukocytosis, hypercalcemia, high serum LDH, atypical lymphocytes in peripheral smear and bone marrow. Lytic bone lesions	No absolute lymphocytosis. In peripheral smear, leukemia cells are <1%, Hypercalcemia absent	Normal serum calcium. >10% circulating leukemia cells that are not as atypical as in leukemia type	Hypercalcemia rare, serum LDH slightly elevated
Median survival time	6 months	10 months	24 months	Longer survival
4-year survival rate (%)	5	5.7	26.9	62.8

LDH: Lactate dehydrogenase

out-patient department of our hospital with red, raised skin lesions all over the body and scalp with intractable itching. He had these lesions for the past six years, with exacerbations and remissions. His medical history was otherwise non- contributory.

General examination of the patient revealed firm, mobile, non-tender lymphadenopathy involving cervical, axillary and inguinal nodes. Dermatological examination showed erythematous, infiltrated papules and plaques affecting face, trunk [Figure 1] and limbs with relative sparing of distal extremities. There was no organomegaly.

Complete hemogram showed an elevated total count of 18,600/mm^3 and a high erythrocyte sedimentation rate (ESR) of 70 mm/hour. Liver and renal function tests, serum electrolytes, serum calcium, radiography of chest, skull and long bones and ultrasound of abdomen and pelvis were within normal limits. Serology for syphilis, human immunodeficiency virus (HIV) I and II antibodies and antinuclear antibodies were negative. His serum lactate dehydrogenase level was elevated at 560 IU/L. Peripheral smear analysis revealed 42% atypical lymphocytes with large, convoluted nuclei and scanty basophilic cytoplasm [Figure 2a]. Bone marrow aspirate confirmed these findings [Figure 2b]. Skin biopsy from an infiltrated papule revealed a dermal infiltrate composed of atypical lymphocytes showing large convoluted hyperchromatic nuclei, scanty cytoplasm and increased mitotic figures and Pautrier's microabscesses in the epidermis [Figure 3]. Lymph node biopsy showed atypical lymphocytes with effacement of nodal architecture. Immunohistochemistry of the skin biopsy specimen demonstrated the inflammatory cells to be CD8 and CD20 negative and CD4 [Figure 4a] and CD25 positive [Figure 4b]. Flow cytometry analysis of blood confirmed the atypical cells to be CD5, CD3 and CD25 positive and negative for CD10, CD17, CD20 and CD22.

With these immunohistochemistry and flow cytometry results, we considered the possibility of adult T cell leukemia/lymphoma (ATLL). The enzyme-linked immunosorbent assay for anti-HTLV-1 antibodies was found to be positive which was subsequently confirmed by Western blot testing. Thus, a final diagnosis of ATLL was made and the patient was referred to the hemato-oncology department where he is now undergoing chemotherapy with a regimen comprising cyclophosphamide, vincristine and prednisolone.

Adult T cell leukemia/lymphoma is a rare and aggressive form of leukemia caused by a retrovirus known as HTLV-1.[3] A higher incidence of the malignancy is documented in areas endemic for HTLV-1 viz. Japan, Africa, South America, Caribbean basin, southern parts of North America and Eastern Europe.[1]

The virus gains entry (a) from mother to child through prolonged breast feeding and less commonly through transplacental transmission; (b) through sexual contact; and (c) through the intravenous route mainly via blood transfusion.[1]

More than 95% of infected individuals remain asymptomatic carriers whereas 1-5% undergo malignant lymphoid proliferation. Environmental factors including other viral infections prevalent in the area play a role in precipitating malignant transformation.[1]

Adult T cell leukemia/lymphoma is diagnosed when

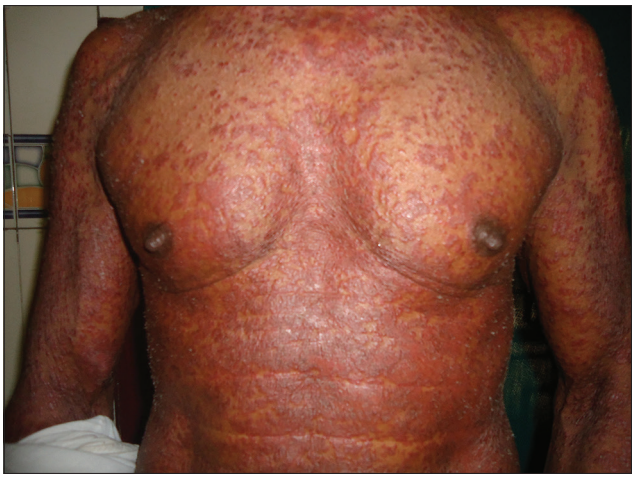

Figure 1: Multiple erythematous papules and plaques on the trunk

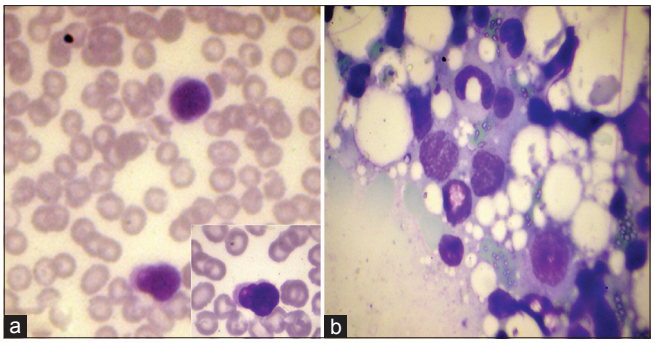

Figure 2: (a) Peripheral smear showing atypical lymphocytes with large, convoluted nuclei and scanty basophilic cytoplasm (Leishman, ×1000). Inset: High power view of the same (Leishman, ×1000) (b) Bone marrow aspirate showing atypical lymphocytes with large, convoluted nuclei and scanty basophilic cytoplasm (Leishman, ×1000)

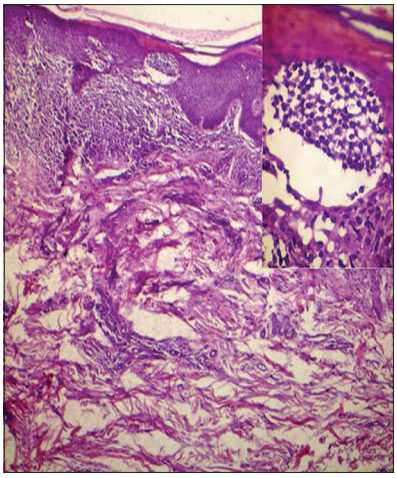

Figure 3: There is a dermal infiltrate of atypical lymphocytes along with a Pautrier's microabscess in the stratum corneum. (H and E, ×40). Inset: High power view of the Pautrier's microabscess. (H and E, ×400)

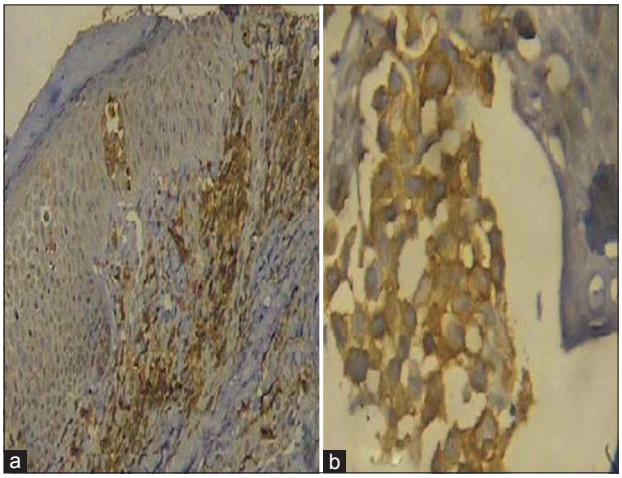

Figure 4: (a) CD4 positive cells in the dermal infiltrate (Immunohistochemistry, DAB Chromogen, ×100) (b) CD25 positive cells in the dermal infiltrate (Immunohistochemistry, DAB Chromogen, ×400)

a patient with seropositivity for HTLV-1 antibodies develops histologically and/or cytologically proven peripheral T cell malignancy.[3] The characteristic neoplastic cells on cytology are cerebriform or flower cells (activated lymphocytes with convoluted nuclei and basophilic cytoplasm). The most common immunophenotypic profile observed is CD4+/CD8 - lymphocytes as observed in our patient.[4]

The disease can be of four types: acute, lymphoma, chronic and smoldering variants [Table 1].[2] Our patient belonged to the category of chronic adult T cell leukemia/lymphoma.

The treatment options range from watchful waiting (in chronic and smoldering types) to chemotherapy, antiviral therapy including zidovudine, allogenic hematopoetic stem cell transplantation and interferon α_2.[3,5,6]

Chronic adult T cell leukemia/lymphoma with low serum albumin, or high lactate dehydrogenase (as in our patient) or high blood urea nitrogen concentration is suggested to have an unfavorable prognosis similar to the acute and lymphoma types.[3,5]

The positive Western blot report in our patient suggests that HTLV-1 is present in our population as well. Screening for the virus in blood donors may help us to assess the prevalence of infection in our area.

We report this case to highlight the possibility of HTLV-1 infection in this region and to stress the

importance of surveillance measures. We need to raise awareness regarding this infection which has a potential for malignant transformation.

ACKNOWLEDGMENT

We express our sincere gratitude to Dr Sathi P, Professor and Head, Dept of Pathology, Govt Medical College, Kozhikode and Dr Neena Mampilli, Consultant Pathologist, Baby Memorial Hospital, Kozhikode for their invaluable help in analyzing the histopathology and immunohistochemistry specimens.

Najeeba Riyaz, Ettappurath N. Abdul Latheef, Sarita Sasidharanpillai, Saleem Rahima, Valiaveetil Bindu, Ahmedali Nermin

Departments of Dermatology and Venereology, Government Medical College, Kozhikode, Kerala, India

Address for correspondence: Dr. Najeeba Riyaz, Departments of Dermatology and Venereology, Government Medical College, Kozhikode - 673 008, Kerala, India.
E-mail: najeeba_riyaz@gmail.com

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Quick Response Code:	Website: www.ijdvl.com
	DOI: 10.4103/0378-6323.136930