

Primary Cutaneous Diffuse Large B-cell Lymphoma, Leg Type in an Elderly Man with Human Immunodeficiency Virus Encephalopathy

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Sir,

A new World Health Organization-European Organization for Research and Treatment of Cancer (WHO-EORTC) classification of cutaneous lymphomas was proposed recently (1), and has been widely accepted as an important consensual advance for the characterization and management of cutaneous lymphomas (2, 3). In this classification, primary cutaneous B-cell lymphomas (PCBCLs) were divided into the following three main groups: primary cutaneous follicular centre lymphoma, primary cutaneous diffuse large B-cell lymphoma, leg type (PCLBCL-LT) and primary cutaneous marginal zone B-cell lymphoma (4). PCLBCL-LT shows positive staining for the Bcl-2 protein. The expression of Bcl-2 characterizes not only PCLBCL-LT, as previously demonstrated, but also PCLBCL-LT defined on the basis of morphology (5–8). We report here a case of an elderly man who presented with human immunodeficiency virus (HIV) encephalopathy in association with PCLBCL-LT.

CASE REPORT

A 68-year-old man presented with a 2-week history of a cutaneous tumour on his left Achilles tendon. The patient continued to have fevers, night sweats, and worsening of his general status and decreased appetite with progressive mental status changes; symptoms which had developed within the previous 2 months. His motor strength was documented as 4/5 in all four extremities. Laboratory evaluation showed a white blood cell count of $1.9 \times 10^3/\mu\text{l}$ (normal range $4\text{--}9 \times 10^3/\mu\text{l}$), haematocrit 26.4% (normal 43–51%), platelet count $147 \times 10^3/\mu\text{l}$ (normal $180\text{--}370 \times 10^3/\mu\text{l}$), and C-reaction protein 6.7 mg/dl (normal >0.3 mg/dl). His serum enzyme-linked immunosorbent assay revealed the presence of HIV antibodies; confirmatory tests detected HIV1 gp160, gp110, gp41, p68, p52, p40, p34 and p25. His HIV1-RNA viral load was 1.6×10^3 copies/ml and the CD4 cell count was 8 cells/ μl (2.5%). Examination revealed a well-defined, solitary, red-to-violaceous, firm ulcerated tumour measuring 17 mm in diameter, surrounded by a region of erythematous induration with a thick hemorrhagic crust on his left Achilles tendon (Fig. 1). Histopathology showed a dense infiltration of the entire dermis by cohesive aggregates of large lymphoid cells and partial destruction of the epidermis. The atypical cell infiltration extended to the subcutaneous fat (Fig. 2a). The tumour cells were round or polygonal, with abundant cytoplasm and large, vesicular nuclei with irregularly shaped, large nucleoli. Immunohistochemical analysis revealed that the tumour cells were positive for CD20 (Fig. 2b), CD79a, and Bcl-2 (Fig. 2c). However, the cells were negative for CD3, CD10, CD30, CD31, and CD34. Brain magnetic resonance imaging (MRI) revealed bilaterally high signal-intensity lesions on fluid-attenuated inversion recovery in the periventricular white matter and centrum semiovale. This patient's clinical picture was consistent with HIV encephalopathy, and the diagnosis was based on exclusion of other possible causes of mental status change. There was no evidence of

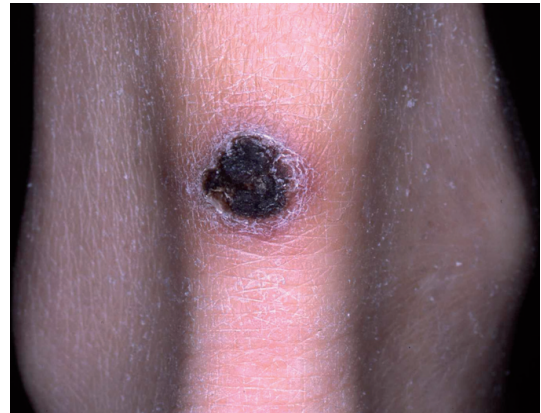


Fig. 1. A violaceous and slightly infiltrated cutaneous tumour with a thick hemorrhagic crust present on the patient's left Achilles tendon.

lymphadenopathy on computed tomography scans of the chest and abdomen. In addition, the results of ultrasound examination of the lymph nodes, bone marrow aspiration and biopsy were all normal. As the cutaneous lesion developed without any detectable lymph node involvement, the histological and immunohistochemical findings of his leg tumour corresponded with PCLBCL-LT.

He was started on a highly active antiretroviral therapy (HAART) regimen containing zidovudine, lamivudine and zalcitabine, and the leg tumour was completely removed by local surgical excision. At a follow-up examination performed 7 years after hospital discharge, cranial MRI showed almost complete resolution. The patient was found to have complete neurological recovery and there was no evidence of any cutaneous lymphomas. The HIV1-RNA viral load was undetectable and the CD4 cell count was 1386 cells/ μl at the last visit to our hospital.

DISCUSSION

Malignant lymphoproliferations are complications of the immunosuppression induced by HIV. It is documented that patients with HIV infection have a higher incidence of non-Hodgkin's lymphoma compared with the general population (9). Approximately 3–10% (10) of patients with acquired immunodeficiency syndrome develop non-Hodgkin's lymphoma at some stage of the disease and most are B-cell lymphomas. Among those patients that develop non-Hodgkin's lymphoma, there is rarely cutaneous presentation of symptoms (11). PCBCLs are defined as non-Hodgkin's B-cell lymphomas that are manifested on the skin without evidence of extracutaneous disease (1). The present patient is a rare case of the subtype of PCBCLs seen in an HIV-infected individual. In the 2008 WHO lymphoma classification, HIV-associated lymphomas were discussed in a sepa-

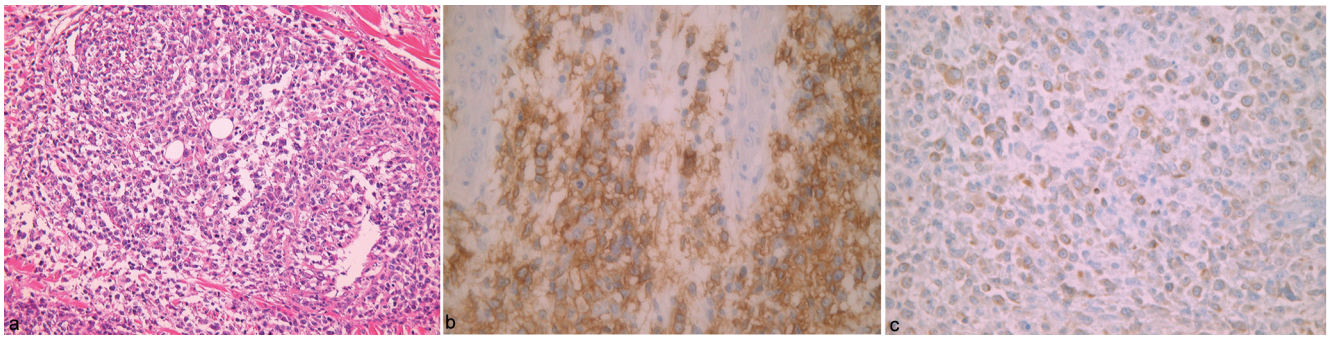


Fig. 2. (a) Histopathology showed a dense infiltration by cohesive aggregates of large lymphoid cells in the dermis (haematoxylin and eosin stain; original magnification $\times 200$). (b) Immunohistochemical staining showed most of the infiltrating cells were positive for CD20 (original magnification $\times 400$). (c) Bcl-2 was highly expressed by atypical cells (original magnification $\times 400$).

rate chapter (12). We also suggest that the patient may be primarily a HIV-associated B-cell lymphoma with clinicopathological features of a PCLBCL-LT rather than a genuine PCLBCL-LT.

It is remarkable that HIV encephalopathy in our patient has shown an optimal clinical and immunological evolution after the initiation of HAART, with undetectable viral loads and normal CD4 cell counts at 7 years post-treatment. Numerous studies have documented that HAART successfully prevents HIV encephalopathy (13). In addition, our patient showed no evidence of further manifestations or relapse of PCLBCL-LT after surgical excision of the tumour. PCLBCL-LT is characterized by rapidly growing tumour masses on the lower leg, with a poor prognosis due to frequent spread of the disease to lymph nodes and internal organs (14, 15). PCLBCL-LT with Bcl-2 positive is characterized by a poor prognosis and requires effective therapies (4). The cutaneous lesion in our case completely healed after therapy, with no evidence of recurrence during the following 7 years. This is the first report that PCLBCL-LT is healed after excision. The exact pathogenesis of HIV-related lymphomas is not known, but the continued HIV viral burden on B cells is believed to play a role (16). The apparent improvement of HIV encephalopathy following treatment of PCLBCL-LT with HAART suggests that this is not simply an isolated coincidental development of HIV and PCLBCL-LT. We believe that the effect of HIV on B cells could induce the development of HIV encephalopathy in direct association, and not coincidentally, with PCLBCL-LT.

The authors declare no conflict of interest.

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