Case Report: A Patient Presenting with Diffuse Cutaneous Leishmaniasis (DCL) as a First Indicator of HIV Infection in India

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Abstract. Opportunistic parasitic infections such as leishmaniasis are common in human immunodeficiency virus (HIV)-infected patients and are usually acquired several days after initial diagnosis of HIV infection. Here, we report on a patient who presented with diffuse cutaneous leishmaniasis (DCL) caused by *Leishmania tropica* as the first and only clinical manifestation of HIV infection. To the best of our knowledge, this is the first case that illustrates that DCL could be the first clinical indicator of HIV infection. Cutaneous leishmaniasis (CL) and DCL are becoming frequent opportunistic infections in HIV-infected individuals throughout the world. To date, all documented cases of CL and HIV coinfections have been reported in patients who were known cases of HIV and who subsequently developed CL. In this report, we present a case that illustrates that DCL could be the first clinical indicator of HIV infection.

CASE REPORT

A 32-year-old housewife, resident of Bikaner, Rajasthan, India, presented to the dermatology outpatient department of Sardar Patel Medical College with multiple intensely itchy oval to round papulo-nodular lesions of variable size scattered over her limbs (Figure 1), face, and trunk for the last 7 months. History revealed that the lesions first appeared over her limbs and then, gradually spread to her whole body without affecting mucous membranes. New lesions kept on appearing, whereas older lesions gradually increased in size; none of the lesions ulcerated. She never traveled to endemic areas of *Kala azar* and leprosy. General and systemic examination of the patient did not reveal any abnormality. The laboratory investigations showed anemia (Hb = 8.5%) and lymphopenia (18%). All other investigations, including liver and renal function tests, chest X-ray, and ultrasonography (USG) of the abdomen, were found to be normal. Histopathology of the skin lesions revealed heavy infiltrate of macrophages infected with *Leishmania*, which was identified as *L. tropica* by restriction fragment-length polymorphism (RFLP) polymerase chain reaction (PCR)¹ (Figure 2). Montenegro test for leishmaniasis was not available, but Mantoux test for tuberculosis (TB) was negative. Human immunodeficiency virus (HIV) infection was suspected, because the patient presented with atypical, generalized, intensely pruritic lesions of cutaneous leishmaniasis (CL); this was confirmed using three different enzyme-linked immunosorbent assay (ELISA) test kits (Tridot, TMB Micro-ELISA, and Combs AIDS; J Mitra & Co., New Delhi, India). Further investigations showed that the CD4 + T cells count was 44 cells/mm³ and that the viral load was 165,400 copies/mL. Highly active antiretroviral therapy (HAART; Zidovudine, Lamivudine, and Efaviranz, Ranbaxy, India) was instituted immediately, and systemic antileishmanial treatment was started simultaneously with intramuscular injections of 20 mg/kg per day of sodium stibogluconate (SSG; Albert David, Kolkotta, India) for 21 days. The patient did not improve clinically, and new lesions containing parasites continued to appear 12 weeks after completion of SSG treatment. The patient refused a second course of intra-

muscular SSG and hence, was started on Rifampicin (1,200 mg/day) along with HAART. Unfortunately, patient was lost for further follow-up.

DISCUSSION

Infections caused by protozoan *Leishmania* represent a wide range of diseases, including CL, mucocutaneous leishmaniasis (ML), and visceral leishmaniasis (VL). Incidence of infections caused by *Leishmania* in HIV-infected patients is increasing throughout the world. Although VL is the most frequent form of *Leishmania* infection seen in HIV-infected patients, CL and HIV coinfections are also becoming frequent in these individuals.

FIGURE 1. Papulo-nodular lesions on the upper (A) and lower extremities (B) in an HIV-infected patient suffering from DCL.

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FIGURE 2. The restriction analysis pattern of 1 PCR product digested with *HaeIII*. Lane M = DNA ladder (50 bp). Lane 1 = DNA from skin biopsy of the patient. Lane 2 = DNA from *L. tropica* WR664 (MHOM/SU/74/K27; positive control). Lane 3 = DNA from a skin biopsy of a healthy person (negative control).

Diffuse cutaneous leishmaniasis (DCL) is a rare form of *Leishmania* infection that has been reported in patients infected with *L. aethiopica* and *L. mexicana amazonensis*.² In immune-suppressed patients, lesions of CL may become diffuse to involve extensive areas of skin, resulting in a condition known as DCL. DCL clinically manifests as multiple widespread non-tender papulo-nodular skin lesions full of parasites, which seldom ulcerate, respond poorly to standard antimonial treatment, and show frequent relapses.³ Weinstock and others⁴ have also reported a single case of DCL caused by *L. tropica* in an immunocompetent patient, and this case was associated with impaired production of cytokines.⁴ DCL is becoming increasingly frequent in HIV-infected patients worldwide.^{5–8} Several *Leishmania* species, including *L. major*, *L. braziliensis braziliensis*, and *L. infantum*, have been identified as causative agents of DCL in HIV-infected patients.^{9–12} Almost all patients with DCL and HIV coinfection are individuals who develop DCL as a secondary opportunistic infection after diagnosis of HIV infection. Our case was unusual for several reasons. First, our patient presented with progressive DCL of 7-months duration without typical clinical signs of HIV infection. Second, to best of our knowledge, this is the first case of DCL caused by *L. tropica* in an HIV-infected patient. Third, in this patient, there was no visceralization or mucosal spread of *L. tropica* infection, despite low CD4 + T cell counts. This is surprising given that *L. tropica* has been shown to visceralize even in immunocompetent individuals. Fourth, this patient did not respond to SSG, which may be because of drug resistance or very low CD4 + counts.¹³ Finally, our patient presented with

intensely pruritic skin lesions, which have never been reported in DCL caused by other species of *Leishmania*. Collectively, our case illustrates that *L. tropica* can cause intensely pruritic, diffuse CL without involvement of mucous membranes and systemic organs in HIV-infected patients and that DCL could be the first clinical indicator of HIV infection. Therefore, we propose that all patients presenting with DCL should be screened for HIV infection.

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