Case Report

Type 2 lepra reaction in an immunocompromised patient precipitated by filariasis

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Abstract

Though patients affected with both acquired immuno deficiency syndrome (AIDS) and leprosy commonly present with type 1 lepra reaction, there are few isolated reports of type 2 lepra reaction in retropositive patients affected with leprosy. We are presenting a case report of 35-year-old male affected with AIDS, tubercular lymphadenitis, and lepromatous leprosy with recurrent episodes of type 2 lepra reaction manifesting as erythema nodosum leprosum (ENL). Dipstick enzyme-linked immunosorbent assay (ELISA) for filarial antigen was also positive. The patient was treated with 100 mg thalidomide daily, 300 mg diethylcarbamazine, and modified multidrug therapy (MDT) for leprosy. He responded well and has not had any further reaction in the last 6 months.

Key words: Acquired immuno deficiency syndrome, erythema nodosum leprosum, filariasis, type 2 lepra reaction

INTRODUCTION

Leprosy also known as Hansen's disease is a chronic disease caused by *Mycobacterium leprae*. The propensity of the bacilli to affect peripheral nerves, produce characteristic deformities or debilitating type 1 or type 2 lepra reactions are the major causes of morbidity. Type 2 lepra reaction is an immunologically mediated Gell and Coomb's type III hypersensitivity reaction. It presents in patients with lepromatous and borderline lepromatous leprosy usually before, during and rarely after multidrug therapy (MDT) for leprosy.[1,2] Human immunodeficiency virus (HIV)-infected patients also having leprosy usually present with type 1 lepra reaction and there are many reports and review about this phenomenon. This presentation is considered to be a form of immune reconstitution inflammatory syndrome.[3,4] On the contrary, the occurrence of type 2 lepra reaction is very rare in these patients even in the lepromatous spectrum. There is no well-explained cause for this phenomenon till date.[3] In the last decade in spite of numerous reports of type 1 lepra reaction in HIV-coinfected leprosy patients, reports of type 2 lepra reaction in such patients has been scarce.

We present a case of acquired immunodeficiency virus (AIDS) with lepromatous leprosy with tubercular lymphadenitis with recurrent type 2 lepra reaction manifesting as erythema nodosum leprosum (ENL) probably precipitated by filariasis.[5] Due to relative rarity of the occurrence of this phenomenon, we are reporting this case.

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CASE REPORT

A 35-year-old male presented with recurrent episodes of high grade fever without diurnal variation with red, raised lesions for past 1 year. The lesions

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were mainly present on face, ears, upper trunk, and upper limbs and the present episode was for 1 week. He had had six such episodes in the past 1 year. He also complained of pain in bilateral knee joints for 1 week without any swelling or restricted movements.

Patient was on antiretroviral therapy (ART) for past 1 year with zidovudine, lamivudine, and efavirenz. He had inguinal lymphadenitis 7 months ago for which fine needle aspiration cytology was done which showed tubercular lymphadenitis, and antitubercular treatment (ATT) was instituted. He is now taking isoniazid 300 mg, rifampicin 450 mg, and ethambutol 825 mg. He had taken MDT twice in the past year for multibacillary leprosy and was a defaulter. On examination, patient was febrile on presentation and emaciated with body mass inde ×18.5 kg/m^2. Severe pallor with bilateral pitting pedal edema was noted. There was glove and stocking anesthesia on bilateral hands and feet with thickening of right superficial radial, bilateral ulnar, and common peroneal nerve. Patient had tender erythematous nodules on his face, upper limbs, upper trunk, and ears [Figures 1 and 2]. There was no associated nerve tenderness, testicular swelling, lymphadenopathy, ocular pain, or photophobia. His investigations showed severe anemia with hemoglobin (Hb) 4.4 g% and mean corpuscular volume (MCV) 77 fl, and total count was 3,700 cells/mm^3, but his differential count was normal. Absolute CD4 lymphocyte count was 90 cells/μl and dipstick enzyme-linked immunosorbent assay (ELISA) for filarial antigen was positive. His liver and renal function tests, chest X-ray, X-ray of bilateral knee joints, and urine routine were within normal limits. Blood and stool culture and streptococcal throat swab showed no growth of organisms and his Widal test for typhoid and microscopy for malarial parasite was negative. Skin-slit smear was 6+ for acid-fast bacilli (AFB) [Figure 3]. Biopsy from a nodule showed superficial and deep periadnexal granulomatous inflammation with neutrophils and nuclear debris around vessels [Figure 4]. Lepra stain showed fragmented AFB. Based on the above, a diagnosis of AIDS, lepromatous leprosy with type 2 lepra reaction manifesting as ENL, tubercular lymphadenitis, and filariasis was made. The patient was started on clofazimine 50 mg daily and monthly 300 mg supervised dose, rifampicin 150 mg monthly, ofloxacin 200 mg twice daily, thalidomide 100 mg daily, and diethylcarbamazine 100 mg thrice daily with iron supplements. Dapsone was stopped due to fear of further hemolysis and zidovudine was stopped for suspicion of bone marrow suppression. The patient improved dramatically and his lesions resolved within 1 week. The patient is on our follow-up and free from any reaction.

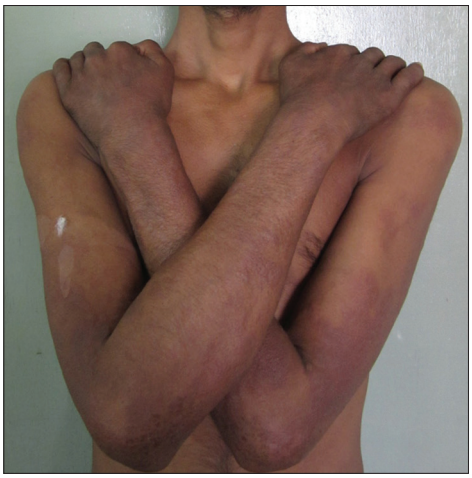

Figure 1: Clinical photograph showing erythematous papulonodular lesions on extensor aspect of forearms and arms

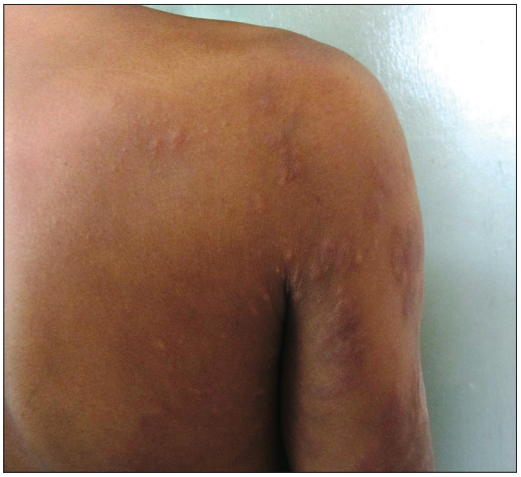

Figure 2: Erythematous plaques with ill-defined irregular borders on back of arms and shoulders

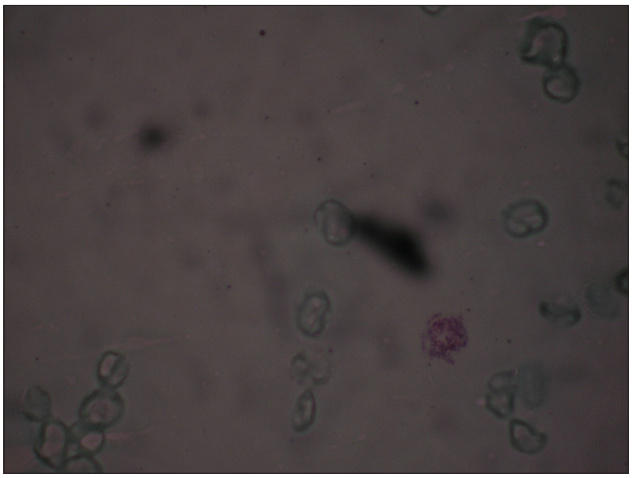

Figure 3: Skin-slit smear examination showing 6+ acid-fast bacilli

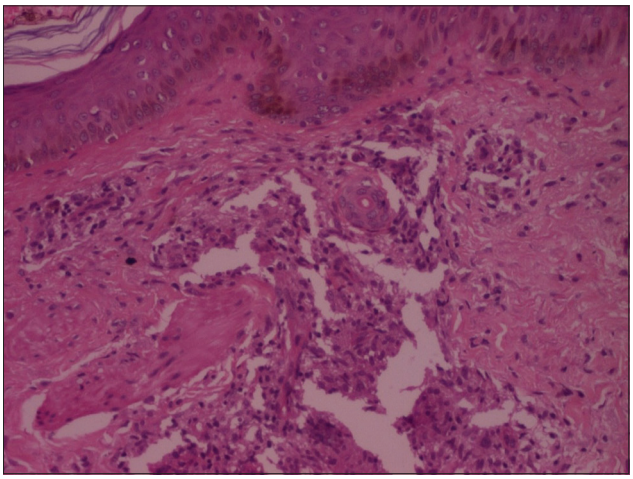

Figure 4: Histopathology showing superficial and deep periadnexal granulomatous inflammation with neutrophils around vessels. Few foci with fragmented acid fast bacilli (×100 magnification)

DISCUSSION

Leprosy is a chronic disease by infection of various tissues of the body by *Mycobacterium leprae*. Unfortunately, India is a leprosy endemic country. India is also endemic for AIDS and hence there is a relatively higher probability of the two occurring together. In a study by Vinay *et al.*, the incidence of leprosy in patients on ART was 5.22 per 1,000 person-years (95% confidence interval, 2.25-10.28).[6] Patients affected with both AIDS and leprosy commonly present with type 1 lepra reaction, usually on initiation of ART as a type of immune reconstitution disease (IRD).[3,4] Rarely such patients when affected with lepromatous or borderline lepromatous leprosy can present with type 2 lepra reaction. Type 2 lepra reaction is an inflammatory systemic reaction in which immune complexes can deposit in any organ or tissue and can have varied presentations.[2] Neuritis, orchitis, uveitis, periostitis, lymphadenitis, and glomerulonephritis can occur rarely.[1,2] Vinay *et al.*, reported a case series of eight patients in which three had type 2 lepra reaction.[6] Similarly Pai *et al.*, reported a case series of 11 patients coinfected with HIV and leprosy in which two patients had type 2 lepra reaction.[7] In our review of literature on the concerned topic, we found two more case reports of patients with HIV and leprosy coinfection.[8,9] It has been postulated that type 2 lepra reaction can be precipitated by intercurrent infections, stress, pregnancy, lactation, and various drugs. There have been case reports of filarial infection precipitating type 2 lepra reaction from our country.Our case was having AIDS with tubercular lymphadenitis with type 2 lepra reaction manifesting as ENL with filariasis. His filarial infection was diagnosed by dipstick ELISA for filariasis with 98% sensitivity for detection of both Brugian and Bancroftian filariasis.[10] The cause of precipitation of the present episode could have been both default of treatment and filarial infection. India being a country endemic to HIV, leprosy, and infections like filariasis and tuberculosis; concurrent occurrence of any of these can modify the course and presentation of each other and pose diagnostic and therapeutic challenges.

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