

CASE REPORT

Molluscum contagiosum-associated immune reconstitution inflammatory syndrome in human immunodeficiency virus infection



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ABSTRACT

Immune reconstitution inflammatory syndrome (IRIS) is an excessive immune reaction to a pre-existing infection following the initiation of highly active antiretroviral therapy (HAART) in human immunodeficiency virus (HIV)-infected patients. Molluscum contagiosum-associated IRIS is rare. We report a new case and review the five other reported cases. Our patient, a 40-year-old Taiwanese male with HIV infection, presented with inflamed papules and pustules over the neck and arms occurring 1 month into HAART with recovering of CD4 cell counts. Histopathology showed molluscum contagiosum with a dense diffuse mixed inflammatory infiltrate with abundant eosinophils. The skin lesions resolved spontaneously within 3 months under continuous HAART.

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Introduction

Immune reconstitution inflammatory syndrome (IRIS) is an excessive immune reaction to a pre-existing infection following the initiation of highly active antiretroviral therapy (HAART) in human immunodeficiency virus (HIV)-infected patients.¹ IRIS is characterized by systemic symptoms, including fever, malaise, and weight loss, or local inflammatory responses. IRIS is most commonly associated with mycobacterial infection, and other pathogens include *Cryptococcus* species, *Pneumocystis* species, cytomegalovirus, herpes simplex virus, hepatitis B virus, human herpes virus 8, and molluscum contagiosum virus.^{1,2}

Molluscum contagiosum usually manifests as asymptomatic, discrete, flesh-colored, and centrally umbilicated papules. It occurs in 5–18% of HIV-infected patients, and tends to be more extensive and persistent in these immunocompromised hosts.^{3–5} However, molluscum contagiosum-associated IRIS (MC-IRIS) was

rarely reported. Two studies revealed that 2.0% (4/199) and 3.4% (2/59) of HIV-infected patients developed molluscum contagiosum within 12 weeks and 6 months of HAART treatment, respectively.^{6,7} Here, we report an HIV-infected patient manifesting prominent inflammatory response to newly diagnosed molluscum contagiosum after starting HAART, and summarize the other five reported MC-IRIS cases with clinical details available in the English literature.

Case Report

A 40-year-old Taiwanese male presented to our dermatologic clinic with multiple itchy erythematous papules and pustules over the neck and arms for 2 months. Four months before his presentation to our dermatologic clinic, he was diagnosed to have HIV infection with acquired immunodeficiency syndrome, and HAART consisting of efavirenz, abacavir, and lamivudine was initiated 3 months before his presentation to our clinic (Figure 1A). The duration from the diagnosis of HIV infection to the onset of MC-IRIS was 2 months, and the duration from the initiation of HAART to the onset of MC-IRIS was 1 month (Figure 1A). He was afebrile at our clinic. On examination, there were multiple 3–5-mm crusted papules and pustules on an erythematous and edematous base over the neck and antecubital fossa (Figure 1B). At

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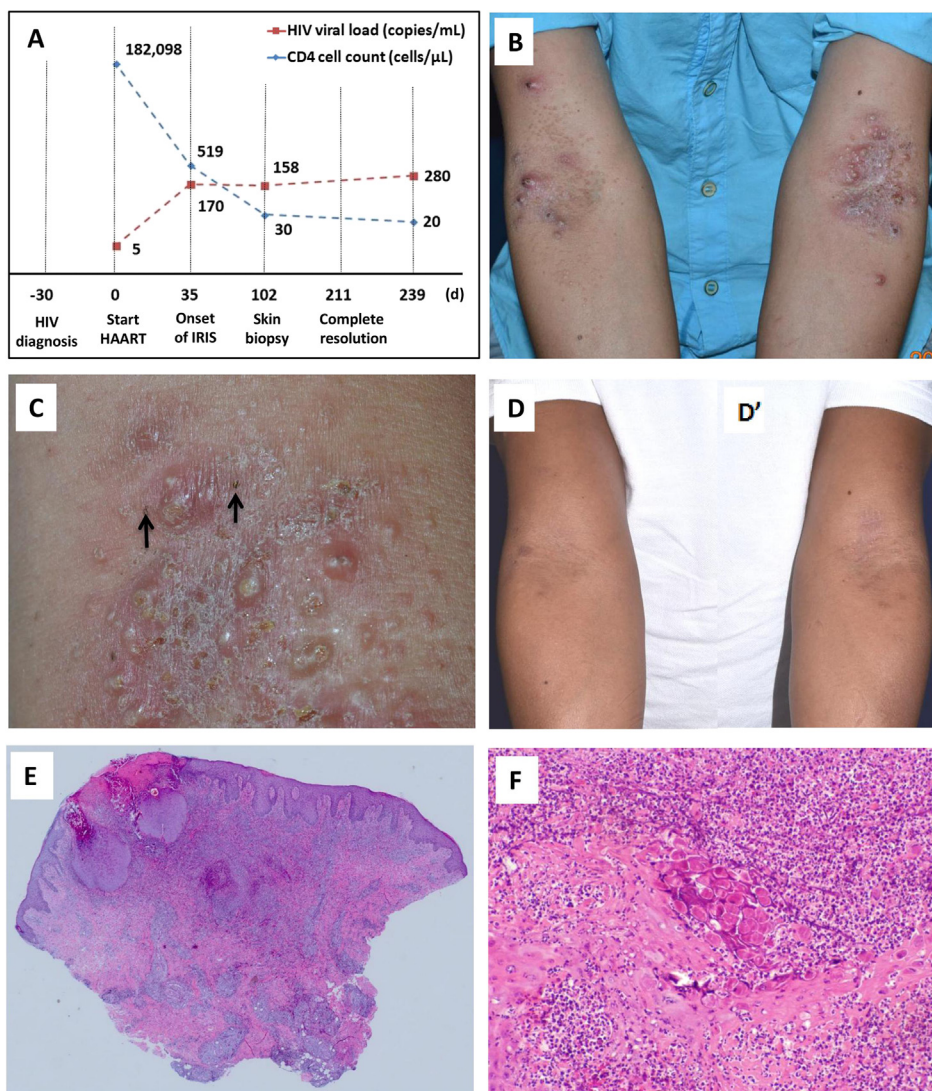


Figure 1 (A) Clinical course and serial change of CD4 count and viral load. (B and C) The skin lesion over the antecubital fossa was initially presented with crusted papules and pustules on an inflammatory base (arrows indicate the site of skin biopsy). (D and D') Complete resolution of skin lesions at the 6th month after the onset of MC-IRIS. (E) Histopathological findings revealed lobulated epidermal hyperplasia with a dense infiltrate in the dermis (H&E, 4 \times). (F) Disrupted epithelium with molluscum bodies surrounded by a dense inflammatory infiltrate in the upper dermis (H&E, 20 \times). HAART = highly active antiretroviral therapy; H&E = haematoxylin and eosin; HIV = human immunodeficiency virus; MC-IRIS = molluscum contagiosum-associated immune reconstitution inflammatory syndrome.

the periphery of the inflamed lesions, some smaller flesh-colored and dome-shaped papules were present. A skin biopsy was performed on one pustule on the left arm (Figure 1C), which revealed molluscum contagiosum with intense inflammation, characterized by endophytic epidermal hyperplasia with molluscum bodies, surrounded by a dense diffuse lymphoplasmacytic infiltrate with abundant neutrophils and eosinophils in the dermis and nodular aggregates of lymphocytes in the lower dermis (Figure 1E). A fragment of the molluscum body-containing epithelium was found to be partially destroyed by the inflammatory infiltrate in the upper dermis (Figure 1F). Laboratory evaluations at the time of skin biopsy showed normal eosinophil percentage (4%) in the blood, and a CD4 lymphocyte count of 157 cells/ μ L and HIV viral load of 30 RNA copies/mL, compared with the CD4 lymphocyte count of 5 cells/ μ L and HIV viral load of 182,098 RNA copies/mL when HAART was initiated (Figure 1A). MC-IRIS was diagnosed based on the unusually intense inflammatory response to molluscum contagiosum infection and an increased CD4 count as well as decreased HIV viral load after initiating HAART. With the

diagnosis of IRIS, HAART was continued. Then the skin lesions were improved spontaneously and simultaneously without any treatment directed to molluscum contagiosum. The itch was tolerable to the patient, and therefore no itch-relieving agent was prescribed. At the 6th month after onset of MC-IRIS, the lesions were completely resolved with faint residual hyperpigmentation (Figure 1A, 1D, and 1D').

Discussion

The incidence of IRIS is 10–25% in HAART-treated HIV patients.^{1,7} To establish the diagnosis of IRIS, first, the individual must be HIV positive and have received antiretroviral therapy, with a decreased HIV RNA level and an increased CD4+ T-lymphocyte count from baseline. Second, the clinical deterioration is related to HAART initiation, and cannot be explained by the side effects or toxicity of medication, treatment failure, or nonadherence to antiretroviral therapy.⁸ The patient had been taking efavirenz, abacavir, and lamivudine for 35 days when MC-IRIS occurred. None of these

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