Infectio. 2016;xxx(xx):xxx–xxx

Infectio
Asociación Colombiana de Infectología

www.elsevier.es/infectio

CASE REPORT

# Lepromatous leprosy and human immunodeficiency virus co-infection associated with phenomenon of Lucio versus immune reconstitution inflammatory syndrome

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Received 19 August 2015; accepted 27 October 2015

**KEYWORDS**
Leprosy;
Lucio's phenomenon;
Immune reconstitution inflammatory syndrome (IRIS);
Human immunodeficiency virus (HIV);
Highly active antiretroviral therapy (HAART);
*Mycobacterium leprae*;
*Mycobacterium lepromatosis*

**Abstract** Diffuse lepromatous leprosy (DLL) is a severe clinical outcome of lepromatous leprosy (LL). The aetiologic cause is believed to be different from *Mycobacterium leprae*. A new species, *Mycobacterium lepromatosis*, was identified from a group of Mexican patients with DLL, and severe leprosy reactional state type 3 (Lucio's phenomenon). However, a total sequencing of its genome is necessary to prove the existence of this new species. This is a report on a non-typical Colombian case of leprosy – HIV coinfection, associated with an immune reconstitution inflammatory syndrome clinically compatible with a leprosy reaction type 3 or Lucio's phenomenon.


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http://dx.doi.org/10.1016/j.infect.2015.10.011


Please cite this article in press as: Serrano-Coll HA, et al. Lepromatous leprosy and human immunodeficiency virus co-infection associated with phenomenon of Lucio versus immune reconstitution inflammatory syndrome. Infectio. 2016. http://dx.doi.org/10.1016/j.infect.2015.10.011

**PALABRAS CLAVE**
Lepra;
Fenómeno de Lucio;
Síndrome de reconstitución inmunológica (SRI);
Virus de Inmunodeficiencia Humana (VIH);
Terapia antirretroviral de gran actividad (HAART);
*Mycobacterium leprae*;
*Mycobacterium lepromatosis*

**Lepra lepromatosa y coinfección con el virus de la inmunodeficiencia humana asociada a fenómeno de Lucio versus síndrome inflamatorio de reconstitución inmune**

**Resumen** La lepra difusa (LLD) es una variedad de la lepra lepromatosa (LL), frecuente en México. El agente etiológico se cree que es diferente a *Mycobacterium leprae* y se considera una especie nueva denominada *Mycobacterium lepromatosis*, hecho que no se ha comprobado. El reporte de este caso se realiza para dar a conocer el cuadro clínico atípico que presentó una paciente colombiana con coinfección VIH−LL variedad difusa (LLD), asociado a síndrome de reconstitución inmunológica, compatible clínicamente con una leprorreacción tipo 3 o fenómeno de Lucio.


## Introduction

Diffuse lepromatous leprosy (DLL) is a severe clinical outcome of lepromatous leprosy. A new species, *Mycobacterium lepromatosis*, was identified from a group of Mexican patients with DLL, and severe leprosy reactional state type 3 (phenomenon of Lucio), however total sequence of its genome is necessary to probe the existence of this new species.[1]

The phenomenon of Lucio was described for Lucio and Alvarado in 1852 and it was redefined by Latapí in 1948, until now this reactional outcome is object of debate for clinicians and scientists due to its confuse pathogenesis. Clinically, the immune hypersensitivity triggered by bacterial antigens is associated with constitutional symptoms, necrotizing vasculitis, sepsis, and in some cases death.[2–4]

In addition, the advent of human immunodeficiency virus (HIV) and routine use of highly effective antiretroviral therapy (HAART) in patients with Hansen's disease may relate to other events as immune reconstitution inflammatory syndrome (IRIS), which may occur in 40% of patients with HIV and HAART.[5,6] This syndrome characterizes by a paradoxical inflammatory condition because of immune restoration generated by antiretrovirals. In patients with HIV-leprosy, IRIS has been generally associated with inflammatory processes such leprosy-reactions type1, in contrast current clinical case shows a leprosy reaction type 3 or phenomenon of Lucio.[3,4,7,8]

## Case description

Colombian female patient, 37 years old, on July 2013 consulted by one month of recurrent febrile episodes and multiple skin ulcers in lower limbs since one year ago. On physical examination patient has signs as pinna oedema, loss of the bilateral external third of eyebrows, chronic indurated lesions in abdomen, pigmented scarring lesions in lower limbs that patient refers as an episode of ulcers during the pregnancy in 2006. Patient relates that since 3 years ago, her skin began to become smooth and shiny, associated with occasional nosebleeds, headache and tenderness infiltration in hands and feet. In addition, patient has skin ulcers with burning pain associated with local oedema and serous-hematic and purulent discharge. Patient refers weight loss of 4 kg in 6 months. She relates that seven days ago her spouse died by AIDS. Patient was hospitalized with study diagnosis of ecthyma gangrenosum, vasculitis by HIV, anaemia, sepsis, and leprosy.

Laboratory exams: haemoglobin 6,9; red cells morphology microcytic hypochromic, leukocytes 3.300, 70% neutrophils, platelets 230.000. Functional hepatic tests in normal ranges. Skin biopsy reported bacillary index (BI) = 3 plus. Patient diagnosed as DLL and Lucio's phenomenon. Multidrug therapy (MDT-MB) initiated with dapsone + rifampicin + clofazimine. HIV viral load was 480.474 copies/ml; CD4/CD8 = 0.8%, total CD4T lymphocytes (helper): 170 cells/μl, total CD8T cells (cytotoxic suppressor): 202 cells/μl; CD3T lymphocyte subpopulations: 377 cells/μl). Besides MDT, patient received abacavir/lamivudine plus lopinavir/ritonavir.

After three weeks of treatment for HIV and leprosy, the patient consulted for fever associated with multiple bullous lesions with reticular pattern in upper limbs and proximal third of the lower extremities. In addition, lesions ulcerated are evident with erythematous, dirty background, serum-hematic secretion, some with necrotic aspect, and signs of inflammation and infection. Also, refers numbness and paresthesias in the hands and feet (Figs. 1 and 2).

Physical examination reported a malnourished patient, in poor general conditions, bilateral infiltration in auricular lobes, thinning of the nasal septum, and some skin oedematous lesions in abdomen. Simplified neurological examination showed thickening and pain on palpation of the auricular, ulnar, median, radial, posterior tibial, and common fibular nerves, with anaesthesia in glove and sock pattern (hands and feet), also mild resorption of the distal phalanx of the fifth finger of left hand. The rest of the physical exam described a patient with well cardiopulmonary

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