Clinical Case Report

Atypical mucocutaneous involvement with *Leishmania donovani*

S.A. PULIMOOD, P. RUPALI, S.S.R. AJJAMPUR, M. THOMAS, S. MEHROTRA, S. SUNDAR

ABSTRACT

Mucocutaneous leishmaniasis has rarely been reported from India. The usual causative organisms of this infection are *Leishmania braziliensis* and *L. tropica*. Another species, *L. donovani*, which usually causes visceral leishmaniasis, has recently been reported to cause mucocutaneous disease in a few patients from Sri Lanka. We report two patients who had undiagnosed chronic skin lesions for several years. Skin biopsies revealed *Leishmania* and the species was characterized as *L. donovani* in both patients. There was considerable improvement in the skin lesions following treatment with liposomal amphotericin B.


INTRODUCTION

Visceral leishmaniasis is caused by *Leishmania donovani* while mucocutaneous disease is usually caused by *L. braziliensis*. Recently, outbreaks of cutaneous leishmaniasis caused by *L. donovani* have been reported from Sri Lanka.1 There are sporadic reports of mucocutaneous leishmaniasis from India. The species of the parasite was not characterized and on the basis of morphology, it was presumed to be *L. tropica*.2,3 We report mucocutaneous involvement of *L. donovani* in two unusual and well-characterized cases from Bhutan.

CASE 1

A 51-year-old retired policeman from Bhutan presented with a 9-year history of skin lesions over the face. He had noticed an initial pustule on the lip which progressed to gradually involve the entire face including the lips, chin, cheeks, nose and forehead in a plaque-like distribution leading to intense disfigurement. There was crusting over the lesions but no ulceration or erosions. He also had involvement of the soft palate. There was no past history of any major illnesses. Multiple skin smears and biopsies had failed to reveal the diagnosis. He had been treated with antifungals, antihistamines, antibiotics and steroids with no relief. No specific treatment had been given for the past 7 years. He had noticed marked progression of his skin lesions over the past 3 months. He was not HIV-infected and had not taken any immunosuppressive drugs in the past.

On examination, he was moderately built with normal vital signs. There was no lymphadenopathy. There were erythematous skin lesions with plaques over the right eyelid causing ptosis, with involvement of the left orbital margin, chin and cheeks and rhinophyma of the nose. The lesions involved the palate but the tongue and the buccal mucosa were spared. Systemic examination was unremarkable. The differential diagnoses considered were orofacial granulomatosis, tumid lupus erythematosus, cutaneous lymphoma, leprosy, deep fungal infections and diffuse cutaneous and a mucocutaneous form of leishmaniasis. Skin smears for acid-fast bacilli (AFB) were negative. A skin biopsy revealed atrophic dermatitis with interstitial and perifollicular granulomatous inflammation and *L. donovani* (LD) bodies in the macrophages (Fig. 1a). Fungal and mycobacterial cultures of the tissue were negative. A bone marrow aspirate and trephine biopsy, a chest X-ray and an ultrasonad of the abdomen were normal.

As mucocutaneous leishmaniasis was considered a differential diagnosis, the tissue sample was cultured in triplicate using NNN medium and incubated at room temperature. A *L. donovani* species-specific polymerase chain reaction (PCR) was also done on DNA extracted from the tissue (Ambion tissue extraction kit). PCR was done using previously published LDL primers based on the minicircle kinetoplast DNA4 and amplified to a 600 bp product. The positive-control for both culture and PCR was an *L. donovani* strain obtained from the London School of Tropical Medicine and Hygiene (courtesy Dr Vanessa Yardley). Culture of the palatal tissue grew *promastigotes of Leishmania spp.* after 5 days of incubation (Fig. 1b) and the PCR was positive for *L. donovani* (Fig. 2a). This PCR finding was reconfirmed at Banaras Hindu University, Varanasi (courtesy Dr Shyam Sundar). The patient’s serum also tested positive with the rK39 dipstick test.

The patient was thus confirmed to have mucosal and cutaneous involvement due to *L. donovani* and initiated on treatment with

![Fig 1. (a) Giemsa-stained promastigotes of *Leishmania donovani* from NNN culture of tissue from the first patient. (b) H&E sections of the skin with no subcutis. The epidermis shows flattening of the rete pegs and focal ulceration. The dermis shows a pan-dermal infiltrate of lymphocytes, plasma cells, histiocytes and ill-formed granulomas. Inset shows occasional organisms resembling *L. donovani* (LD) bodies within foamy macrophages.](image)

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was positive for on the fourth day and the PCR done on DNA extracted from tissue were negative. Palatal tissue was positive for promastigote cultures.

A high-resolution CT scan of the thorax confirmed these findings. The rest of the examination was normal. Crepitations with bronchial breathing in the right supraclavicular region. Examination of the respiratory system revealed bilateral and lips with patchy involvement of the palate and a few scattered

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A 41-year-old businessman from Bhutan presented with gradually progressing erythematous infiltration of the face and the palate over the past 3 years. This was painless but itchy without any associated systemic symptoms. He had noticed a small ulcer below the lower lip which had healed spontaneously after numerous biopsies were taken. He was diagnosed to have tuberculosis about 13 years ago and was given antituberculosis treatment for 8 months. He was not on immunosuppressive drugs and was not HIV-infected.

On examination, the vital signs were normal and there was no lymphadenopathy. There was erythematous infiltration of the face and lips with patchy involvement of the palate and a few scattered erythematous tumid plaques on the chest, back and arms. Examination of the respiratory system revealed bilateral crepitations with bronchial breathing in the right supraclavicular region. The rest of the examination was normal.

Routine laboratory tests were within normal limits. A chest X-ray was suggestive of right upper lobe collapse with bronchiectasis. A high-resolution CT scan of the thorax confirmed these findings. Repeated sputum and bronchoalveolar lavage smears for AFB were negative. Palatal tissue was positive for promastigote cultures on the fourth day and the PCR done on DNA extracted from tissue was positive for L. donovani (Fig. 2b).

This patient was also treated with liposomal amphotericin B at a dose of 1 mg/kg which was subsequently increased to 3 mg/kg. He was given a total of 2.6 g of the drug over a period of 3 weeks. There were no major adverse effects. His lesions showed remarkable resolution.

3 mg/kg liposomal amphotericin B for 3 weeks till a dose of 40 mg/kg was reached. He developed chills and occasional febrile episodes which were controlled with symptomatic treatment. There was marked resolution of the skin lesions. On discharge, the patient was advised to take 200 mg of itraconazole twice daily for the next 6 weeks.

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DISCUSSION

Owing to climatic changes and deforestation, new foci of leishmaniasis such as Sri Lanka and Bhutan are constantly being reported. A new endemic focus of cutaneous leishmaniasis was reported from Sri Lanka in 1992.7 Munocutaneous leishmaniasis is usually caused by L. braziliensis. However, other species such as L. amazonensis, L. guyanensis and L. panamensis have also been reported to cause this disease, predominantly in South America. Mucosal leishmaniasis has been reported from the Indian subcontinent in only three instances—a report of three cases from Sri Lanka,8 two from Kerala9,10 and two from northern India.8,11 However, the cases from Kerala were caused by L. tropica while the cases from northern India and Sri Lanka have been molecularly characterized as being caused by L. donovani.

Our patients came from Bhutan, one of India’s neighbouring countries. In 2006, a few cases of kala-azar were reported from Bhutan and this was investigated by the Ministry of Health, Government of Bhutan and the Indian Council of Medical Research (ICMR). However, no cutaneous or mucosal leishmaniasis has previously been reported from Bhutan.9 The other unusual feature in our patients is that their mucocutaneous lesions were caused by L. donovani. Neither of our patients had overt, visceral or cutaneous leishmaniasis in the past.

In recent years, mucosal and cutaneous forms of leishmaniasis due to L. donovani with atypical presentations are increasingly being reported from the Indian subcontinent especially from Sri Lanka and India. Interestingly, the causative agent of this cutaneous leishmaniasis from Sri Lanka has been L. donovani zymodeme MON-37 similar to zymodeme MON-2 associated with visceral leishmaniasis in India.8

Both our patients had mucosal and cutaneous involvement, with tissue-growing L. donovani suggesting either primary mucocutaneous leishmaniasis or a possible post kala-azar dermal leishmaniasis (PKDL) with mucosal involvement.10 Primary, long-standing mucocutaneous leishmaniasis is usually very destructive. However, our patients did not have any destructive lesions of the palate or the nasal cartilages. It is possible that the mucocutaneous involvement in our patients was due to PKDL.

In our patients, the skin involvement was limited to the face, neck and upper trunk. The morphology of the skin lesions was atypical and did not fit into the typical papular, nodular or macular rashes described in Indian PKDL. The skin lesions in our patients resembled lupoid-like erythematous infiltrated plaques. This type of atypical cutaneous leishmaniasis has been described with L. braziliensis11 but reports of atypical forms of mucocutaneous leishmaniasis due to L. donovani are rare. We also considered the possibility that this could be post kala-azar mucosal leishmaniasis (PKML) similar to post kala-azar anterior uveitis as described in Sudan.12

We chose to treat our patients with liposomal amphotericin B since L. donovani from the Indian subcontinent is likely to be resistant to antimony compounds.13 Moreover, mucosal leishmaniasis has been reported to respond well to liposomal amphotericin B.14 Although both our patients had been symptomatic for several years, correct identification of the causative agent and its appropriate treatment led to marked improvement in skin lesions.

REFERENCES