

## Association between HTLV-I Infection and Chronic Lupoid Leishmaniasis

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### ABSTRACT

**Objective(s):** One of the special types of cutaneous leishmaniasis is the Chronic Lupoid Leishmaniasis (CLL), which abnormal immune responses have been implicated in its pathogenesis. On the other hand, HTLV-I infection has been known to be associated with some infectious disease. Human T cell lymphotropic virus type I (HTLV-I) and cutaneous leishmaniasis are endemic in Mashhad, Iran. The objective of this study was to evaluate the frequency of HTLV-I in CLL patients.

**Materials and Methods:** This cross sectional study involved 51 CLL patients admitted to cutaneous leishmaniasis clinics of Ghaem and Imam Reza Hospitals in Mashhad, Iran. The blood samples were examined for HTLV-I by ELISA method.

**Results:** The results of the tests for HTLV-I in all cases were negative.

**Conclusion:** The results of this study showed that there was not significant association between HTLV-I and CLL.

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## Introduction

Leishmaniasis consists of chronic human infections, developed by types of parasites that are intracellular protozoan parasites (1). Cutaneous leishmaniasis is found endemically in different regions of Iran, including Mashhad (2). Chronic Lupoid Leishmaniasis (CLL) is a clinical form of cutaneous leishmaniasis and appears as recurrent papules around the scar of previous leishmaniasis (3). The exact etiology for the existence of such a leishmaniasis is still unknown. Despite the immune response against parasite, the body's immune system will not be able to remove the parasite completely and a chronic granulomatous response continues to exist for a long time (4-6). In Iran, Khorasan Razavi province, a pilgrimage area with a population around 6.2 million (census, 2006) is the most infected. The holy city of Mashhad, the main city of this province, with a population of around 2.2 million has a prevalence of 2.3% (7).

Due to the simultaneous spread of these two

diseases in Mashhad and also the role of immune system in both, and in order to have a better understanding of CLL pathogenesis, we decided to identify the frequency of HTLV1 infection in CLL patients.

## Materials and Methods

In this cross-sectional pilot study, conducted in 2010-2011, 51 CLL patients were included in this study at cutaneous leishmaniasis clinics of Ghaem and Imam Reza Hospitals in Mashhad, Iran. The project started soon after obtaining the permission from Ethical Committee. The evidence for the existence of CLL in these patients was based on the primary samples of leishmaniasis lesions and a present clinical form of leishmaniasis. In clinical cases, the lesions were the scars of the newly recovered leishmaniasis, along with the recurrent activation of papules or nodules around it. The primary diagnosis was mostly done by smear tests.

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The skin biopsies confirmed diagnosis in 8 patients. After obtaining informed consent forms, (in case of the children, the consent was obtained from their parents), for all patients a standard checklist was completed. The patients' blood samples were then taken and sent to the laboratory of Inflammation and Inflammatory Diseases Research Center, Mashhad University of Medical Sciences. The sera were stored frozen at -20°C until sample collection was complete.

The sera were then examined for the presence of specific anti HTLV-I antibody using serology tests, [including/and?]ELISA method (Diapro kit, Italy). In order to analyze the findings, and to consider demographic characteristics, t-test and chi-square nonparametric statistical tests were carried out using SPSS software version 11.

## Results

Fifty one patients were studied. The mean age of this population was 21.37±19.1 years (Min=3 years, Max=70 years).

Twenty-nine patients (56.9%) were female and 22 (43.1%) were male. Fifteen patients have more than 1 lesion. Location of lesions in the majority of cases was on the face. The mean duration of lesions was 2.08 years in females and 4.2 years in males.

Specific HTLV-I Ab was not detected in any of the subjects.

## Discussion

Cutaneous leishmaniasis is endemic in Mashhad. One of the special types of cutaneous leishmaniasis is the chronic lupoid leishmaniasis which may occur after infection with *leishmania tropica* (4). Chronic course is one the characteristics of this type of leishmaniasis and its treatment is also difficult (3).

Moreover, the frequency and association of HTLV-I infection with other disorders have been investigated in endemic areas. Many studies have demonstrated that the frequency of some infectious diseases such as strongyloides (8), scabies, leprosy and herpes simplex (9, 10) in HTLV-I infected subjects is more than in general population.

HTLV-I might be responsible for creating dysregulation of immune system through insinuating changes. Thus, it can reinforce the possibility of complications originating from the suppression of immune system (11).

In addition to the above-mentioned issues with the main basis for this study, is the fact that both HTLV1 and CLL are endemic in Mashhad. In a study carried out in 1999 in Columbia, the coexistence of HTLV1 with cutaneous leishmaniasis (in three groups of cases: acute, chronic and subclinical infections) was studied and was subsequently rejected (12). In the present study, too, serologic examination of HTLV1 by ELISA was negative in all patients.

In conclusion, it seems that the frequency of HTLV-I in CLL patients is not much higher than in general population.

It is obvious that focusing on the immune system factors is not enough for investigating the CLL pathogenesis and other factors such as parasite-related factors, environmental factors such as sunlight and also host-related factors such as genetic factors; age etc. should be taken in to account. So, CLL could be considered as a multifactorial disease (13).

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