CASE REPORT

A Case of Leishmania Infantum Mimicking Lymphoma

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Abstract

Leishmaniasis is a parasitic infection caused by an obligate intracellular protozoon transmitted by infected sand flies. Cutaneous leishmaniasis (CL) is a skin disease known in our country as oriental sore, which heals, leaving a scar in place, mainly on the skin and sometimes in the mucous membrane. Demonstration of the parasite in chronic CL is difficult. Moreover, differential diagnosis from other granulomatous dermatitides such as lupus vulgaris, sarcoidosis and deep mycosis is growing difficult. A case of CL was presented in an 84-year-old female patient who had a pre-diagnosis of lymphoma and a nodule lesion on her forehead for 2.5 months. In the smear of the sample taken from the lesion, amastigote forms of the parasite were diagnosed and typed as *L.infantum* by the Real-Time Polymerase Chain Reaction (RT-PCR) method.

Key Words: *Cutaneous leishmaniasis, differential diagnosis, Hatay, lymphoma*

Introduction

Leishmaniasis is a zoonotic/anthroponotic parasitic infectious disease transmitted through its vector Phlebotomus spp. Cutaneous leishmaniasis (CL) is also seen in the Middle East, Central Asia, India, Pakistan and Southwest Africa, especially in countries bordering the Mediterranean. It is reported that there are between 600,000 and 1 million new cases of CL worldwide each year.[1] The number of CL cases per year in our country is around 5000 and most cases are reported from Sanliurfa, Diyarbakir, Mardin, Osmaniye, Adana, Hatay, Kahramanmaras, Icel and Antalya.[2] In our country, the causative agents of CL are *Leishmania tropica* and *Leishmania major*, but *Leishmania infantum* also causes CL.[3]

CL can be seen in different clinical forms. It mimics many skin diseases such as pseudolymphoma, eczema, skin tuberculosis, anthrax, myiasis, syphilis, bacterial skin infections, malign ulcers and squamous cell carcinoma. Especially in endemic regions, CL should be considered in the differential diagnosis. The low number of parasites in chronic CL cases makes diagnosing it challenging [Table 1].[2]

This study was presented to draw attention to a CL case living in the Samandagi district of Hatay, who has been suffering from a nodule lesion on the forehead for 2.5 months at the age of 84 with no history abroad and whose pre-diagnosis is lymphoma.

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Case History

An 84-year-old female patient with a large nodular lesion in the forehead, with a pre-diagnosis of lymphoma, in a private hospital in Hatay applied to the Dermatology Outpatient Clinic of Hatay Mustafa Kemal University Faculty of Medicine. In the previous punch biopsy report, basal cell carcinoma, sarcoidosis, lupus vulgaris and pseudolymphoma were stated in the clinical pre-diagnosis, and the punch biopsy material was sent to the Department of Pathology for consultation. Microscopic examination revealed dense nodular and diffuse lymphohistiocytic cell infiltration within the dermis. In the cytoplasm of histiocytes, small, round structures similar to Leishmania amastigotes were noted. In the immunohistochemical study, reactive T lymphocytes were stained with a cluster of differentiation (CD) 3 and CD5, and reactive B lymphocytes were stained with CD20. Large clusters of histiocytes were stained with CD68. No staining was observed with CD30. In the report submitted, it was recommended to investigate the aetiology of granulomatous dermatitis, especially CL [Figures 1 and 2].

Dermal scraping from the lesion and diagnosis has been directed to the parasitology department.

Dermal scraping was performed with scalpel number 15 in the parasitology department with a depth of 1–2 mm

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Table 1: Clinical differential diagnosis of CL[2]

Bacterial Skin Infections	Skin Tuberculosis
Malignant ulcers	Infected insect bite
Granulomas (foreign body or insect bite)	Mycotic infections
Myiasis	Tropical ulcer
Sarcoidosis	Traumatic ulcers
Anthrax	Pseudolymphoma
Sporotrichosis	Erysipelas, or
Eczema	Lupus vulgaris
Psoriasis	Malignancies (especially basal and squamous cell carcinomas)

to reach the upper dermis 0.5 cm long from the edge of the lesion. Smears were prepared. Leishmania amastigote forms were seen in the Giemsa-stained preparations in × 100 immersion lens, and the diagnosis of CL was made [Figure 3].

DNA extraction was performed from smear preparations prepared from the lesion. DNA extraction was carried out according to the protocol recommended in the kit (QIAamp DNA Mini Kit, QIAGEN, Hilden, Germany). The resulting DNA, Real-Time Polymerase Chain Reaction (RT-PCR), was studied using primary probes specific to the ribosomal internal transcribed spacer 1 (ITS-1) gene region that separates genes that encode small subunit ribosomal ribonucleic acid (ssu rRNA) and 5.8S rRNA of the Leishmania parasite.[4] In the rotor-gene device, melting analysis was performed. The sample was typed as *L. infantum* by comparing it to reference strains [Figure 4].

The informed consent form was obtained from the patient. The patient was referred to the Provincial Health Directorate and received twice doses of intralesional meglumine antimonate treatment a week [Figure 5].

Discussion

Dry-type CL, whose causative agent in our country is *L. tropica* and *L. infantum*, is frequently seen in our country and appears in different forms clinically.[2] In Hatay, CL is endemic. However, imported cases are frequently seen. Studies have shown that *L.infantum* is the most common CL agent in Hatay, but *L.tropica* tends to increase after migration.[5]

It is easy to diagnose CL in typical cases with papules, nodules and papules-ulcerative lesions in endemic regions.[6] However, in atypical forms, diagnosis can be difficult. CL can mimic skin diseases such as anthrax, mycotic infections, psoriasis, sarcoidosis, lupus vulgaris and basal and squamous cell carcinoma.[2]

In granulomatous diseases and basal cell carcinomas, especially in areas where CL is considered endemic, CL should not be overlooked in the differential diagnosis.

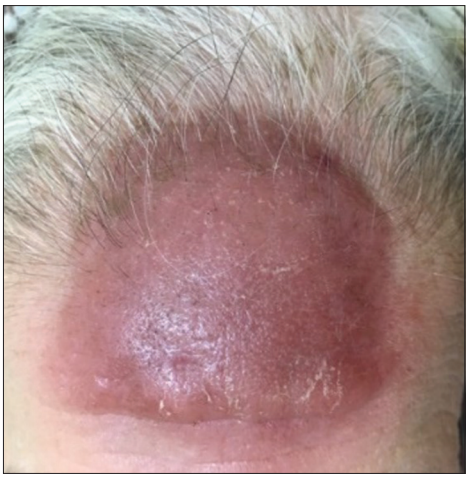

Figure 1: Patient's pre-treatment status

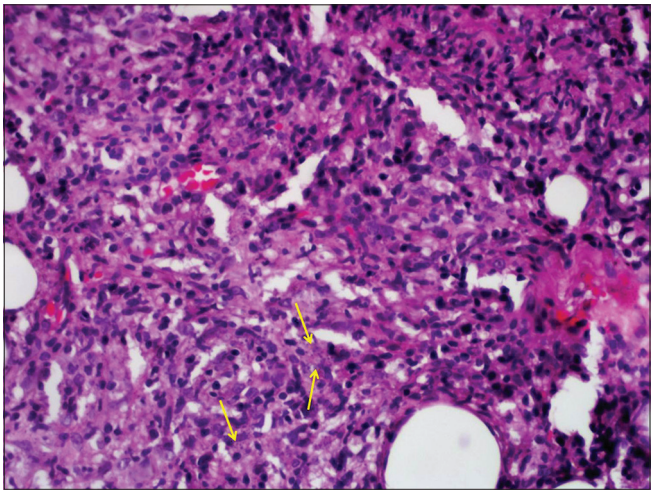

Figure 2: Histopathologically, dense lymphoplasmocytic inflammatory cell infiltration, granuloma formation consisting of epithelioid histiocytes and Leishmania amastigote-like structures (yellow arrow marks) in the cytoplasm of histocytes (Haematoxylin and Eosin dye ×400)

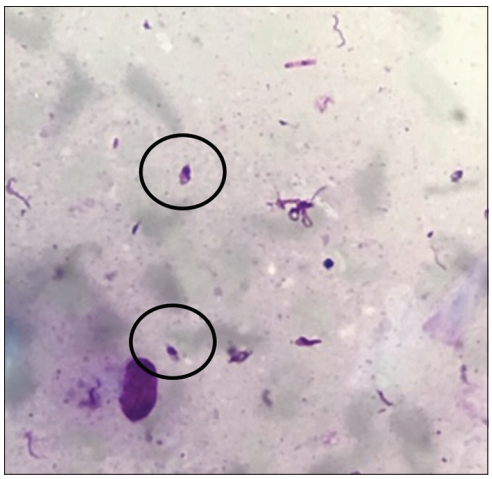

Figure 3: Leishmania amastigote forms in smear (Giemsa stain ×100)

Ten of the 107 parafilm-embedded tissue biopsy samples reported as granulomatosis dermatitis were positive with

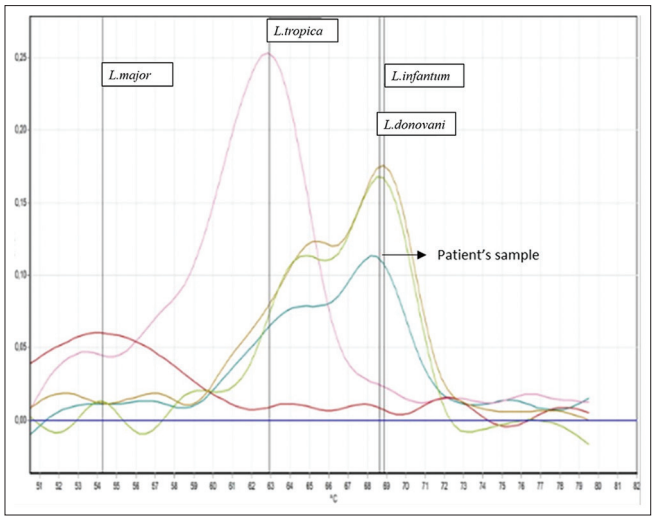

Figure 4: Reference strains and the patient's sample of melting analysis in RT-PCR

kinetoplastid DNA (kDNA)-PCR in Hatay. Two of the ten were typed *L. infantum/donovani* with ITS-1 restriction fragment length polymorphism (RFLP). The nine clinical pre-diagnoses included lupus vulgaris, sarcoidosis, Bowen, *Tinea incognita*, discoid lesion, erythematous, skin lymphoma and Leishmania cutis.[7]

The 8-year-old Syrian patient, who has had swelling and deformity in his lips for four years, was diagnosed with Leishmaniasis recidiva cutis by showing amastigotes in his smear and histopathology. They reported a case of CL mimicking granulomatous cheilitis in their study.[8] A 52-year-old Syrian male patient with vitiligo for 20 years was diagnosed with mucocutaneous leishmaniasis according to history, clinical and histopathological findings and skin smear results of the patient who had been admitted with the complaints of facial lesions and purulent rhinitis for three months, and had massive crusted granulomatous plaques on the middle and lower face.[9] In another study, they reported seeing amastigotes in skin biopsy and smears from a patient with a history of nodular lesions in his nose for a year and a lesion that clinically mimics squamous cell carcinoma and supported diagnosis with PCR.[6,10] A 31-year-old male patient with pruritic, erythematous, oedematous, exudative and partially lichenized plaques with a diameter of 15–20 cm on the dorsal surface of the left hand and foot was clinically diagnosed with allergic contact dermatitis. However, they presented a case of diagnosed CL by detecting amastigotes in the smear of the dermal scraping sample and promastigotes due to cultivation in the Novy-McNeal-Nicolle (NNN) medium. Yaghoobi *et al.*[11] presented cases diagnosed as leishmania by seeing amastigotes in the stained smears of nine patients with different clinical features of lid lesions.

In this case, a CL diagnosis was made by seeing amastigotes in the direct examination of the smear preparations prepared from the lesion of the patient who had a sizeable nodular lesion and was pre-diagnosed with lymphoma. It was typed as *L. infantum/donovani* by ITS-1 RT-PCR.

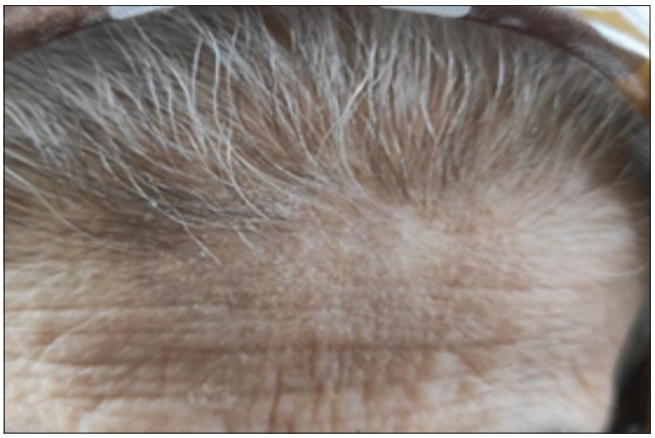

Figure 5: Patient's condition after treatment

The correct diagnosis in CL helps to apply the proper treatment. CL should be remembered in those who live in the endemic region, and it should be remembered that it can mimic many skin diseases. In this case, the causative agent was identified as *L. infantum/donovani*. Determining the type and diagnosing it also supports treatment.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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