



# Clinical and sociodemographic characteristics of patients diagnosed with cutaneous leishmaniasis

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## Abstract

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**Aim:** Leishmaniasis is a disease complex caused by Leishmania protozoan microorganisms, transmitted through the bite of the vector female sandfly. Cutaneous leishmaniasis (CL) is the most common clinical type. The formation, clinical features, and healing process of CL are determined by the characteristics of the host and the parasite. Our study aims to examine the clinical and sociodemographic characteristics of patients diagnosed with CL at our clinic of dermatology and venereal diseases.

**Materials and Methods:** In this prospective study, the clinical and demographic characteristics such as age, gender, number of lesions, size of lesions, duration of lesions, localization of lesions, and treatments received for CL diagnosis were examined in 74 patients diagnosed with CL by microscopic examination at Şanlıurfa Training and Research Hospital's dermatology and venereal diseases clinic between October 2022 and March 2023.

**Results:** In our study, 40 (54%) patients were male, and 34 (46%) were female. The average age of the patients was  $16.4 \pm 9.31$  years. The number of lesions varied between 1 and 9, with a total of 158 lesions. Lesions were most frequently (64%) located on the face. The average duration of lesions was  $4.9 \pm 3.8$  months, and the average size was  $4.6 \pm 3.7$  cm. 7 patients had a family history of CL. The diagnosis of CL in all patients was made by cutaneous smear. Post-diagnosis, 14 patients (19%) received systemic meglumine antimonate treatment, and 60 (81%) received intralesional meglumine antimonate treatment.

**Conclusion:** The data from our study demonstrate similar clinical and sociodemographic characteristics to those found in other studies conducted in our country.



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## Introduction

Leishmaniasis is a disease complex caused by Leishmania protozoan parasites, transmitted through the bite of infected female sandflies, and presents in three main clinical forms: cutaneous, mucocutaneous, and visceral leishmaniasis [1-5]. CL is the most common type, characterized by persistent nodulo-ulcerative lesions on the skin, often healing with atrophic scarring [6-9]. The clinical course and healing of CL are determined by the host's immune response and the antigenic properties of the parasite [10-12]. Türkiye is among the countries where CL is endemic. Şanlıurfa has been reported to have the highest number of CL cases over a decade [5,13-17].

The purpose of this study is to examine and analyze the clinical and sociodemographic features of 74 patients diagnosed with CL in Şanlıurfa, an endemic region, and to compare the data with previous studies.

## Materials and Methods

In this prospective study, the clinical and demographic characteristics such as age, gender, number of lesions, size of lesions, duration of lesions, localization of lesions, and treatments received for CL diagnosis were examined in 74 patients diagnosed with CL by microscopic examination at Şanlıurfa Training and Research Hospital's dermatology and venereal diseases clinic between October 2022 and March 2023.

During the date of our study, 30,000 patients applied to our outpatient clinic. In the power analysis made with reference to the study conducted by Bayazit et al. [17] in Şanlıurfa province, where CL is endemic (CL prevalence is 9.38%); the sample size was determined as at least 56 patients with 80% power and an error of 0.05, and 74 CL patients who applied to our outpatient clinics during the study period were included in the study.

The diagnosis of CL was made with the observation of amastigotes in swabs taken from suspicious lesions. Patients diagnosed with cutaneous leishmaniasis (CL) were treated with either intralesional meglumine antimonate

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(IL MA) or systemic MA. IL MA treatment was administered as a total of 10 injections, twice a week for 5 weeks. Systemic MA treatment was given intramuscularly (IM) at a dose of 10-20 mg/kg/day for 21 days.

Ethical approval for this study was obtained from Harran University Faculty of Medicine (Number: 23.20.22/2022). Consent was obtained from adult patients and from the parents of patients under 18 years of age.

### Statistical analysis

Statistical analyses were conducted using SPSS 21.0 (SPSS Inc., Chicago, IL, USA). Continuous data were calculated as mean±standard deviation, and categorical data as frequency (%).

## Results

In our study, 40 (54%) patients were male, and 34 (46%) were female. The average age of the patients was 16.4±9.31 years. The number of lesions varied between 1 and 9, with a total of 158 lesions. The most common lesion site was the face (64% or 101 lesions). Other lesion locations included the upper extremities (33 lesions), neck (14 lesions), lower extremities (6 lesions), and trunk (4 lesions). The most common type of lesion was nodulo-ulcerative (31 patients), followed by plaque-type lesions (25 patients), nodular lesions (11 patients), and papular lesions (7 patients). Single lesions were observed in 52 patients, 2 lesions in 11 patients, 3 lesions in 6 patients, 4 lesions in 2 patients, 6 lesions in 2 patients, and 9 lesions in 1 patient. The average duration of lesions was 4.9±3.8 months, and the average size of lesions was 4.6±3.7 cm (Table 1). 7 patients had a family history of CL. The diagnosis of CL in all patients was made by cutaneous smear. Following diagnosis, 14 patients (19%) received systemic MA treatment, while 60 (81%) received IL MA treatment.

**Table 1.** Clinical and sociodemographic characteristics of patients diagnosed with cutaneous leishmaniasis.

Gender	
Male	40 (54%)
Female	34 (46%)
Age (mean±SD, year)	16.4±9.31
Average duration of lesions (mean±SD, months)	4.9±3.8
Average size of lesions (mean±SD, cm)	4.6±3.7
Lesion site	
Face	101 lesions
Upper extremities	33 lesions
Neck	14 lesions
Lower extremities	6 lesions
Trunk	4 lesions

SD: Standard Deviation.

## Discussion

In endemic areas, CL is more commonly seen in females [18-20]. In Şanlıurfa, a study by Yemisen et al. found that 54% of 7172 patients were female [4]. In contrast, a study

by Nezhad et al. in Iran found that 52.2% of 7555 patients were male [11]., suggesting a lower incidence of CL in females in Iran, possibly due to differences in women's clothing styles between the two countries. Our study, in contrast to other studies conducted in Türkiye, found a male predominance, which may be attributed to women's clothing styles similar to those in Iran and restrictions on women being outdoors at night when bites occur.

CL is typically seen in childhood and young adulthood [4,21-23]. Uzun et al. reported that 41% of patients diagnosed with CL were aged 10-19 years [13]. Yemisen et al. found that 59.5% of CL patients were in the 0-19 age group [4]. Our study is consistent with the literature, with children and young adults comprising the majority of patients. The average age of our patients was 16.4±9.31 years. The lesser prevalence of cases in adult years may be attributed to the acquisition of immunity to the disease during childhood in endemic areas.

CL often appears on uncovered areas of the body such as the head, neck, arms, wrists, and hands [5,9,13,24]. A study by Akçalı et al. found that 58.5% of lesions were located on the face, followed by the upper extremities and neck (29.8%) and lower extremities (10.7%) [6]. Gürel et al. reported that 57.5% of lesions were located on the head and neck [15]. Our study aligns with other studies conducted in Türkiye, showing the face as the most common location for lesions. This distribution can be explained by sandflies biting exposed areas of the body such as the face.

In the study conducted by Gürel et al., the most frequently observed lesion type was nodulo-ulcerative, accounting for 39.2% of cases [15]. In another study by Akman et al., involving 20 patients, 50% of the lesions identified were of the papulonodular type, while the other 50% were nodulo-ulcerative [25]. Consistent with the findings of Gürel et al., our study also primarily encountered nodulo-ulcerative type lesions.

In a study by Çulha et al., 32.5% of patients had a single lesion, while 35% had between 2 to 8 lesions [16]. Farahmand and colleagues found that 58% of patients had a single lesion, 22% had 2 lesions, and 20% had 3 or more ulcers. Farahmand attributed the 42% incidence of multiple lesions to the habit of sandflies to bite multiple times [12]. In line with previous studies, our study also predominantly observed single lesions, and the incidence of single lesions was similar to that of other studies.

In their study, Uzun et al. examined 3074 patients and found an average lesion diameter of 13.2±11.3 mm [13]. Mosbeh et al.'s study indicated lesion diameters ranging from 1 cm to 6 cm [18]. In our study, the average lesion diameter was 4.6±3.7 cm, which is consistent with previous studies.

Çulha et al. noted that lesion onset times ranged from 1 month to 3 years [16]. Akçalı et al. found the average onset duration of lesions to be 8.2±6.1 weeks, with onset durations varying between 4 weeks and 36 months [6]. In our study, the average duration of lesions was 3.8±4.9 months, aligning with other studies conducted in our country.

In Yemisen et al.'s study, 9.6% of patients had family members with a similar condition, predominantly siblings [4]. This result is associated with higher chances of being bit-

ten by infected sandflies for those living in the same environment. In our study, 7 patients had family members diagnosed with CL. This result is associated with the fact that people living in the same environment are more likely to be bitten by infected midges than other people.

In the study by Uzun et al., amastigotes were observed in the smears of 90% of patients [14]. Khatri and colleagues, in a study involving 265 patients, reported a smear positivity rate of 96.2% [21]. In our study, diagnosis was made by smear in all patients, and amastigotes were observed in all smears. As seen in previous studies, microscopic examination of smears, a simple, easily applicable, and inexpensive diagnostic tool, was preferred. Based on this data, microscopic examination of material taken from the lesion can be considered the first method to confirm the clinical diagnosis of CL.

Patients diagnosed with CL should be treated to prevent them from serving as a reservoir for the disease. CL treatment can be performed with 5 to 15 intralesional pentavalent antimony applications, once to three times a week, or systemic antimony treatment [23,24]. In a study of 1030 patients by Uzun et al., 86.4% received IL pentavalent antimony treatment, and 2% received systemic antimony treatment [14]. In our study, the majority of patients received IL MA treatment, likely due to most patients having a single lesion, typically located in areas that did not cause functional impairment.

## Conclusion

In our study, CL was seen more frequently in children, consistent with existing literature data. The lesions were frequently seen on the face and as single lesions. The most common diagnostic method was direct microscopic examination of the lesioned skin and the most frequently used treatment method was ILMA treatment. Early diagnosis and treatment of CL is of great clinical importance in terms of preventing possible scars. For this reason, direct microscopic examination should be performed on the lesion skin of every patient who is considered to be diagnosed with CL, and patients with confirmed CL diagnosis should be treated as soon as possible. We think that prospective studies with a large number of patients are needed to better understand the clinical and sociodemographic characteristics of CL.

## Conflicts of interest

There are no conflicts of interest

## Financial support

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## Ethical approval

Ethical approval for this study was obtained from Harran University Faculty of Medicine (Number: 23.20.22/2022).

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