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Research

Cutaneous Leishmaniasis in Hatay

Cenk Akçalı,[1]* MD, Gülnaz Çulha,[2] MD, H. Serhat İnalöz,[1] MD, Nazan Savaş,[3] MD, Yusuf Önlen,[4] MD, Lütfü Savaş,[4] MD, Necmettin Kırtak,[1] MD

Address:
[1]Department of Dermatology, School of Medicine, Gaziantep University, Gaziantep, Turkey; [2]Department of Parasitology, School of Medicine, Mustafa Kemal University, Hatay, Turkey; [3]Public Health Specialist: Health Directorate of Hatay province, Turkey; [4]Department of Infection diseases, School of Medicine, Mustafa Kemal University, Hatay, Turkey.

E-mail: cenkakcali@yahoo.com

* *Corresponding author*: Ass. Prof. Cenk Akçalı, MD, Üniversite Bulvarı 23 Nisan Mah. Özkaya Apt. No: 285/7 Gaziantep, Turkey

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Abstract

Objectives: Cutaneous leishmaniasis (CL) has been known to be endemic in south-east Anatolia (mainly the city of Şanlıurfa) and Çukurova region (mainly the city of Adana). So far, no epidemiological data has been reported concerning the prevalence of cutaneous leishmaniasis in the province of Hatay, one of the most important endemic areas in Turkey. The aim of this study was to investigate the extent of CL and to evaluate demographic, clinical and epidemiological features in Hatay province from January 1998 to January 2005.

Methods: The demographic data of 1079 patients that are referred in this study have been collected from the Health Directorate of Hatay province.

Results: Among 1079 patients with 1661 lesions 498 were males (46.16%) and 581 (53.84 %) were females. The majority of the patients (70.2%) were under 20 years with the highest percentage (23.6%) occurring in 11-15 years' age group. The yearly highest incidence of CL was 1.62 per 10 000 in 1999**.** The highest incidence of CL cases in Iskenderun district was 4.61 per 10 000 in 1999. The distribution of CL cases with respect to districts was as follows: Iskenderun 705 (65.34%), Antakya 98 (9.08%), Yayladağı 86 (7.97%), Kırıkhan 85 (7.88%), Dörtyol 31 (2.87%), Altınözü 30 (2.80%), Hassa 18 (1.67%), Samandağ 13 (1.2%), Erzin 10 (0.93%), Reyhanlı 2 (0.19%) and Belen 1 (0.09%).

Conclusion: In this study, we report that CL has been an important health problem in Hatay province especially in Iskenderun district.

Introduction

The leishmaniases are widespread parasitic diseases that may cause serious health problems in communities throughout the Mediterranean basin, including Turkey. Visceral leishmaniasis is sporadically seen mainly in the Aegean, Mediterranean, and Central Anatolia regions, but the incidence of cutaneous leishmaniasis (CL) is high in some places of the South-Eastern and Mediterranean regions of Turkey [**1, 2**]. Before 1950, CL was endemic in South-Eastern region (mainly in the city of Şanlıurfa) and was characterized by anthropotic epidemics. In 1950's, although the disease incidence was decreased in the South-Eastern region after a campaign against mosquitoes, it dramatically increased with an epidemic of 1741 cases in Şanlıurfa in 1980's. The Çukurova region (mainly the city of Adana) in the Southern part of Turkey has become a new endemic region since 1985 [**3, 4, 5**]. Although CL cases have

been reported in Hatay province, the epidemiological and clinical characteristics regarding this region have not been well-documented.

The objective of this study was to investigate the extent of CL and to evaluate demographic, clinical and epidemiological features in Hatay region.

Materials and Methods

The data from the patients who are included in this retrospective study are collected from the Health Directorate of Hatay province. A total of 1079 patients with CL were recorded from January 1998 to January 2005. Demographic and clinical features including name, age, gender, residence, duration, body site of infection, and number of lesions were recorded. The yearly incidence of CL was calculated according to the number of the recorded data of Health Directorate of Hatay province. We used t-test and SPSS 11.5 statistical software program for the statistical analyzes [**6**].

Results

One thousand seventy-nine patients with 1661 lesions were verified from January 1998 to January 2005. Four hundred and ninety eight patients were male (46.16%) with a mean age of 19.26±14.41 whereas 581 patients were female (53.84 %) with a mean age of 19.25±15.10. There were no significant differences between the mean ages with respect to the gender (p>0.05).

The majority of the patients (70.2%) were under 20 years with the highest percentage (23.6%) occurring in the 11-15 years age group (**Table 1**). The youngest patient was 6 months of age and the oldest was 81 years.

Table 1. Age and Gender Distribution of CL Patients

Age Group	Male (%)	Female (%)	Total
0-5	41 (42.26)	56 (57.74)	97
6-10	113 (47.08)	127 (52.92)	240
11-15	117 (45.88)	138 (54.12)	255
16-20	71 (43.03)	94 (59.97)	165
21-25	35 (51.47)	33 (48.53)	68
26-30	33 (57.90)	24 (42.10)	57
31-40	30 (45.45)	36 (54.55)	66
41-50	34 (44.16)	43 (55.84)	77
50<	24 (44.44)	30 (55.56)	54
Total	498 (46.15)	581 (53.85)	1079

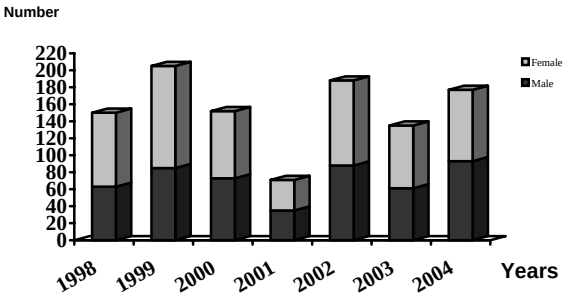

Figure 1. Annual CL cases from January 1998 to January 2005

The mean age was found to be 19.26 years (s.d.=14.78).

The annual dispersion of the cases showed that the highest rate was in 1999 with 205 cases and the lowest rate was in 2001 with 71 cases. The reported cases per year are shown in **Figure 1**. The highest yearly incidence of CL was 1.62 per 10 000 in 1999 and the lowest was 0.55 per 10 000 in 2001 (**Figure 2**). The highest incidence of CL in Iskenderun was 4.61 per 10 000 in 1999 and the lowest was 1.53 per 10 000 in 2001.

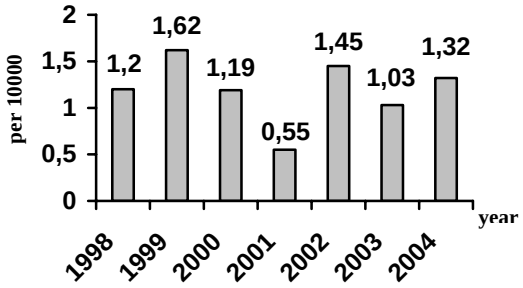

Figure 2. Annual incidences of CL cases from January 1998 to January 2005 (Incidence rate per 10000)

CL cases showed seasonal variations. The incidence steadily began to increase in December, made peak in February, and decreased to minimum in October-November (**Figure 3**).

The number of lesions per case ranged from 1 to 24, with an average of 1.57 lesions per patient. Seven hundred sixty six patients (71.0%) had one lesion and 313 patients

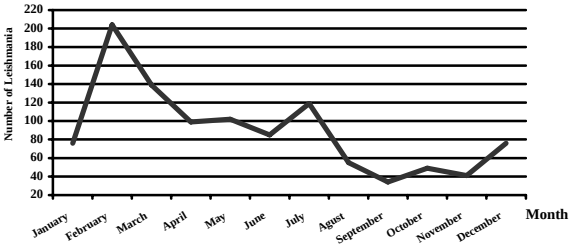

Figure 3. The monthly number of CL cases in Hatay

Table 2. Number of Lesions per Patient of Affected Cases

	Patient Number (%)	Lesion Number
1 lesion	766 (71.0)	766
2 lesions	203 (18.8)	406
3 lesions	64 (5.9)	192
4 lesions	14 (1.3)	56
5 lesions	17 (1.6)	85
6 ≤ lesions	15 (1.4)	156
Total	1079 (100.0)	1661

(29%) had multiple lesions. The number of lesions per case is listed in **Table 2**. CL were mostly located on the exposed parts of the body such as face (58.52%), upper extremities (29.85%) and lower extremities (10.73%) (**Table 3**). The duration of the disease ranged between 4 weeks and 36 months. The median duration of all lesions was 8.20 ± 6.15 weeks.

Of 1079 patients, 77.66% (838) were living in rural areas, and 22.34% (241) were residents of urban regions. The distribution of CL cases according to districts was as follows: In Iskenderun 705 (65.34%), Antakya 98 (9.08%), Yayladağı 86 (7.97%), Kırıkhan 85 (7.88%), Dörtyol 31 (2.87%), Altınözü 30 (2.80%), Hassa 18 (1.67%), Samandağ 13

Table 3. Body Site Distribution of Affected Cases

Localization		No. of lesions (%)
Face (%58.52)		
	Cheek	607 (36.54)
	Forehead	119 (7.16)
	Ear	77 (4.63)
	Nose	72 (4.33)
	Chin	53 (3.20)
	Eyelid	17 (1.02)
	Lip	10 (0.60)
	Periorbital area	9 (0.54)
	Oral commissure	8 (0.50)
Neck		**15 (0.90)**
Upper extremities (%29.85)		
	Arm	298 (17.94)
	Hand	170 (10.23)
	Elbow	22 (1.32)
	Finger	6 (0.36)
Lower extremities (%10.73)		
	Leg	88 (5.30)
	Foot	67 (4.03)
	Knee	15 (0.90)
Trunk		**8 (0.50)**
Total		1661 (100.00)

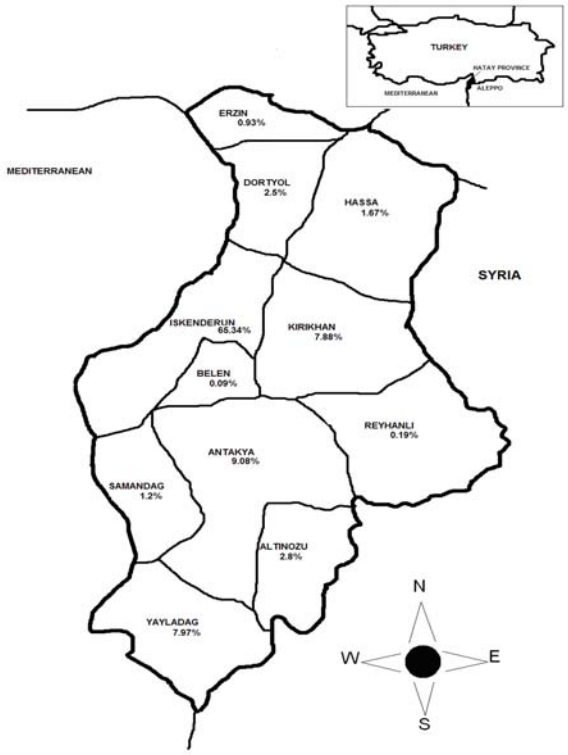

Figure 4. The map of Hatay indicating areas of study. Most of the cases were encountered in Iskenderun.

(1.2%), Erzin 10 (0.93%), Reyhanlı 2 (0.19%) and Belen 1 (0.09%) (**Figure 4**).

Discussion

CL is a parasitic disease, which is caused by the protozoa of the genus *Leishmania; L. tropica, L. major, L. aethiopica,* and sometimes *L. donovani, L. infantum*. The infection is transmitted through the small phlebotomine sandflies via the biting of infected human or animal hosts. The clinical characteristics of leishmaniases depend on interactions of *Leishmania* parasite's invasiveness, tropism, patogenicity, and hosts' immune responses [**7, 8, 9**].

Although CL is widely scattered throughout the world it is endemic in tropical and subtropical regions. In our country, CL has been endemic and epidemic in South-Eastern Anatolia (mainly the city of Şanlıurfa) for many years and it has been endemic in Çukurova region (mainly the city of Adana) in the last two decades. For this reason, CL has been termed as "Beauty Scar", "Oriental Sore", Allepo Sore" or "Annual Sore" by the people residing in endemic areas [**2, 4, 5**]. Several CL cases have been reported from other cities such as Ay-

din, Kahramanmaraş, İçel, Antalya, Kayseri and Diyarbakır [**10, 11, 12**].

Hatay province, where we studied CL, covers an area of 5403 km^2, with a population of 1,254,000 at the time of the last census in 2000. Different geographical formations such as plains, rivers, high mountains, and streams are characteristics of the province which shares a long border with Syria in the south and east and has coastal plain on the Mediterranean Sea in the west [**13**].

There is one province capital and 10 districts in Hatay. Most of the CL cases were encountered in Iskenderun 705 (65.34%), Antakya 98 (9.08%) (provincial capital), Yayladağı 86 (7.97%), and Kırıkhan 85 (7.88%) (**Figure 4**).

Geographic and climatic conditions in Hatay show differences from one district to another. Iskenderun, where the most cases are encountered, lies on the Mediterranean coastal plain with an altitude of 18 m above sea level, the summers are hot (20-33°C) with high humidity and the winters are wet and mild (5-14°C) [**13**]. There is lack of infrastructure in the countryside and there is large number of seasonal farm workers migrating from south-eastern parts of Turkey. Such factors provide a suitable niche for the development and dispersal of CL in Iskenderun.

Apart from Iskenderun, districts of Yayladağı, Kırıkhan and Antakya have drier climate that lies between Mediterranean and semi-arid terrains. Although temperatures and humidity were not as high as in Iskenderun, these districts form suitable environment for phlebotom sandflies [**13**].

Antakya, Yayladağı, and Kırıkhan are very close to Aleppo (80 km, 102 km, 75 km respectively) which is a Syrian city, where CL has apparently been endemic for at least 2-3 human generations. The incidence of CL in Aleppo has been increasing over the past decade [**14, 15**]. Many people have relatives in Aleppo so they visit them and stay for a few days. Also there are touristic and commercial relations with Aleppo. Some of these individuals carry Syrian parasites to Hatay. In addition to this situation, lack of infrastructure and seasonal workers may be the promoting factors for CL in this district.

In our study, from 1998 to 2005 the total of CL cases was recorded as 1079. In Hatay province, many people prefer to go to other cities for their health problems and elder people avoid to admit to any medical center since they have got used to the disease and its complications for many years. Therefore, we assume that impact of the disease and its incidence has been underestimated.

Diagnosis and treatment of CL patients are provided for free of charge by the state government. In 2001, there was a considerable decrease in the number of cases in Hatay province, because there were insufficient leishmanial drugs at the Health Department of Hatay. Therefore, many people looked for the leishmanial drugs in neighboring provinces. Another reason for the decline of the CL cases may be due to environmental conditions in 2001.

CL may be seen throughout the year, but it shows seasonal differences. Rainy seasons followed by increasing temperatures are available conditions for transmission. In our study, CL made a peak in February. In other studies conducted in Turkey, the peak was reported in winter time in Urfa, and the disease occurred most frequently in October-December period in Çukurova [**4, 5**).

Although all age groups are affected by CL, the majority of them were between 11-15 years old. The reason for low rate of elderly patients may be related to the fact that they were infected during early ages and they acquired long term immunity during childhood. Another factor is that older people do not admit to a health center for the treatment of CL while they know this disease and disfiguring scars are not as important for them as for youngsters. Additionally, the outdoor activities of the young people are more than the other age groups in which youngsters are exposed to the disease more often. In our study, the lesions were found most frequently on face, being consistent with the other reports concerning Şanlıurfa and Adana [**4, 5**].

In conclusion, CL has been known to be endemic in south-east Anatolia (mainly in the city of Şanlıurfa) and Çukurova regions (mainly the city of Adana). In this study, we report that CL has been an important health problem in Hatay province, especially in Iskenderun district.

Well-organized conduction of screening and education programs targeting the public and medical workers will enable to under-

stand the impact of CL and control the dispersion of the vector and its reservoirs.

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