



CLINICAL AND EPIDEMIOLOGICAL CHARACTERISTICS OF CUTANEOUS LEISHMANIASIS CASES IN ISTANBUL

İstanbul'daki kutanöz layşmanyazis olgularının klinik ve epidemiyolojik özellikleri

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Abstract

Cutaneous leishmaniasis (CL) is a vector-borne disease characterized by skin lesions healing with an atrophic scar. Istanbul is a high risk province for CL due to internal and international immigrants. The aim of this study is to determine the clinical and epidemiological characteristics of CL cases in Istanbul. In this descriptive study, we evaluated the Cutaneous leishmaniasis cases in Istanbul between June 1st, 2014 and May 31st, 2015. The ethics committee and institutional permissions were received. Frequency analysis were used for data analysis. The study was carried out with 197 CL cases. Percentage of patients under 18 years old was 52%. Seventy seven percent of cases were Syrian and most of them had no passports. Household average number was six. Percentage of individuals with a CL lesion at household in the last year was 23%. Sixteen percent of cases reported a recent visit to Southeastern Anatolia and 55% of them reported that the lesions appeared after the visit. About half of cases had more than one lesion. Face (43.7%) was the most commonly affected. The lesions of 74 cases (38%) appeared before living in Istanbul. Health Directorates of the districts where Syrian immigrants live in Istanbul should screen Syrian immigrants in terms of CL periodically. Also improving living conditions, drying of stagnant water areas, use of mosquito nets, wearing long-sleeved clothes, diagnosis and effective treatment of CL are recommended methods for CL control.

Keywords: Cutaneous leishmaniasis, Syrian immigrants, epidemiology, Istanbul.

Özet

Kutanöz layşmanyazis (KL), atrofik skarlarla iyileşen cilt lezyonları ile karakterize vektörel bir hastalıktır. Türkiye ve Suriye KL'nin endemik olduğu 98 ülke arasında yer almaktadır. İstanbul ise hem dış hem de iç göç nedeniyle KL açısından yüksek riskli bir ilimizdir. Bu çalışmanın amacı İstanbul'daki KL olgularının klinik ve epidemiyolojik özelliklerini belirlemektir. Tanımlayıcı tipteki bu çalışmada, 1 Haziran 2014 - 31 Mayıs 2015 tarihleri arasında İstanbul'daki Kutanöz layşmanyazis olguları değerlendirilmiştir. Araştırma etik kurul ve kurum izni alınmıştır. Veri analizi için frekans analizi kullanılmıştır. Çalışma 197 KL olgusu ile gerçekleştirilmiştir. On sekiz yaşın altındaki hastaların yüzdesi %52'dir. Olguların %93'ü ortalama yedi aydır İstanbul'da ikamet etmektedir. Olguların %77'sinin Suriyelidir ve çoğunun pasaportu bulunmamaktadır. Hane halkı ortalama sayısı altıdır. Olguların %23'ünde son bir yılda hanesinde KL lezyonu olan birey olduğunu ifade etmiştir. Olguların %16'sı yakın zamanda Güneydoğu Anadolu Bölgesi'ne ziyareti olduğunu ve %55'i lezyonların bu ziyaretten sonra ortaya çıktığını bildirmiştir. Olguların yaklaşık yarısında birden fazla lezyon vardır ve lezyonların %44'ünün yüz bölgesindedir. Yetmiş dört olgunun lezyonları (%38) İstanbul'da yaşamaya başlamadan önce ortaya çıkmıştır. Suriyeli misafirler İstanbul'da yaşadığı ilçelerde İlçe Sağlık Müdürlükleri tarafından KL açısından düzenli olarak taramalıdır. Ayrıca yaşam koşullarının iyileştirilmesi, durgun su alanlarının kurutulması, cibinlik kullanılması, uzun kollu kıyafetler giyilmesi, KL'nin erken teşhis ve etkili tedavisi KL kontrolü için önerilmektedir.

Anahtar kelimeler: Kutanöz layşmanyazis, Suriyeli göçmenler, epidemiyoloji, İstanbul.

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Introduction

Leishmaniasis is a vector-borne disease transmitted by female sand flies (*Phlebotomus*) infected with *Leishmania* parasite especially in summer months. Leishmaniasis is evaluated in three groups as visceral, cutaneous and mucocutaneous and the most common form is Cutaneous leishmaniasis (CL). This form is characterized by skin lesions usually on uncovered parts of body such as face, hand, arm, leg and rarely on mucosal surfaces. These lesions heal by treatment or spontaneously leaving an atrophic scar and life-long immunity (1).

Leishmaniasis, which is endemic in approximately 98 countries, has been reported as the second most important disease after malaria in the list of six important tropical diseases determined by World Health Organization (WHO). According to WHO data, it is estimated that there are two million new cases (0.5 million Visceral leishmaniasis, 1.5 million Cutaneous leishmaniasis) per year (2). Ninety four percent of leishmania cases in the world are observed in Brazil, Ethiopia, India, Kenya, Somalia, South Sudan and Sudan. More than 90% of CL cases are seen in Afghanistan, Pakistan and Syria (3). The number of CL cases in Syria was 50.000 in 2015 with an incidence rate of 32/10000. Incidence rate was higher especially in regions close to Turkey such as Halep and Hasici (4). According to Turkey data of WHO *Leishmania* Report 2016; CL is endemic in Turkey and cases are reported especially in Southeast Anatolia and Mediterranean Region. About half of CL cases in Turkey are reported from Sanliurfa province and the number of cases exhibit a varying trend year by year. The number of CL cases peaked in 2004, 2010 and increased 2.5 times (to

5000) in 2013 compared to the previous year. The number of cases was 2563 in 2016 with incidence rate of 0.62/10000 while 3000 case were reported in 2015. About 43% of cases were reported as imported cases in 2016 (5).

The Turkish Ministry of Health made a plan to combat CL in Turkey in 1996 with a title "Cutaneous Leishmaniasis Control Program". Since 2004, drugs have been given to patients free of charge. In addition, CL is a notifiable disease and if CL is diagnosed by any private or state health centers, treatment should be started and patient information must be reported to Provincial Health Directorate (6).

Population shift from rural to urban areas due to travel, migration, working etc. increased over the years, however inadequate infrastructure and unhealthy housing conditions lead to the spread of diseases in cities. It should be kept in mind that the Syrian citizens who migrated to Turkey as a result of the war that has been going on since 2011 in Syria might also be transporting and spreading some infectious diseases such as CL. The number of Syrians with temporary protected status, which was 300,000 in 2013, was 2.5 million in 2015 and approximately 3.7 million in 2019. High number of Syrian immigrants who came from CL-endemic areas for long years, local Turkish population migrated mostly from provinces with high CL incidence to Istanbul, which is a crossing point for Europe, can be considered among the factors increasing the number of CL cases in Istanbul.

The aim of this study is to determine the clinical and epidemiological characteristics of CL cases in Istanbul between the dates of June 1st, 2014 and May 31st, 2015.

Material-Method

"Cutaneous Leishmaniasis Notification Form" was developed by the researchers to evaluate CL surveillance in Istanbul by researchers. It was used to evaluate sociodemographic characteristics, disease

characteristics and epidemiological risk factors. For this descriptive study we evaluated all notification forms of Provincial Health Directorate between June 1st, 2014 and May 31st, 2015. Sample selection was

not used. The forms were completed by a staff of communicable diseases unit of Istanbul Provincial Health Directorate who could speak Arabic and Kurdish after the interviews with patients or their relatives. The ethics committee permission and institutional permission was received. The Ethical (2015/0123) permissions was received from Istanbul Medeniyet University Goztepe Training and Research Hospital Clinical

Research Ethics Committee at the date of 09.09.2015.

Statistical analysis

IBM SPSS Statistics Standart 22 Version program (Analytical Information Management Solutions (AIMS), Istanbul, Turkey) was used for data analysis. Frequency and percentage values were used as statistical analysis.

Results

The study was carried out with 197 CL cases in Istanbul between June 1st, 2014 and May 31st, 2015 in Istanbul. Forty seven percent of the cases were female and median age was 16 (min: 1 max: 74). Percentage of patients under 18 years old was 52%. Of the cases, 114 were single (58%) and 51 were married (26%). In sixty three cases (32%) the person who has the disease was interviewed. In others, fathers (20%), mothers (14%) and spouses (4%) were interviewed (Table 1).

One hundred and eighty three cases (93%) resided in Istanbul, while one case was

in Bulgaria, one case in Mardin and two cases in Mus. The median duration for residence in Istanbul was seven months (min: 1 max: 297 months). Most of the residents in Istanbul (90%) lived in the European side and the highest number of cases were observed in Bagcilar (15%), Esenyurt (8.1%), Bahcelievler (8.1%) and Zeytinburnu (7.6%) districts. One hundred fifty two cases (77%) were Syrian and 34 (17%) were Turkish. Only 28 (18%) of the Syrian cases had passports and 86 (57%) were without one (Table 1).

Table 1: Sociodemographic characteristics of cases.

Sociodemographic characteristics	n	%
Age (n=188)		
18>	98	52.0
18≤	90	48.0
Sex (n=190)		
Female	90	47.0
Male	100	53.0
Interviewed person (n=197)		
Mother-father	66	34.0
Itself	63	32.0
Others	68	34.0
Residence in Istanbul (n=197)		
Yes	183	93.0
No	9	5.0
Unspecified	5	2.0
Residence in Istanbul (n=183)		
Anatolia	17	10.0
Europe	164	90.0
Citizenship status (n=197)		
Unspecified	10	5.1
Cyprus	1	0.5
Syria	152	77.2
Turkey	34	17.2
Passport status of Syrians (n=152)		
Present	28	18.0
Non-present	86	57.0
Unspecified	38	25.0

One hundred thirteen cases (57%) resided in apartments and six cases (3%) lived in the slums. Wetlands existed around residential areas in 2.4% of the cases and in 3% of them there were animal shelters around the residential areas (Table 2). The median value of the number of people living at the same household with a patient was 6 (min: 1 max: 30). Percentage of individuals with a CL lesion at same household in the last year was 23% (45) and the ratio of being living in the same household with a CL scar was 4.6% (9). Thirty-one cases (16%) reported a recent visit to one or more provinces in Southeastern Anatolia Region (Table 2) including Mersin, Batman, Bitlis, Çorum, Diyarbakir, Elazığ, Amasya, Muş, Hatay, Iraq, Kilis, Kahramanmaraş, Mardin, Osmaniye, Gaziantep, Sanlıurfa, Siirt, Tokat and Van. One hundred and fifty cases (76%)

had first CL treatment. While 67 cases (53%) had one lesion, 60 cases (47%) had more than one lesion. Face (43.7%), arm (12.7%), hand (11.7%) were the most common body parts where lesions appeared (Table 2).

The lesions of 74 cases (38%) appeared before they started to live in Istanbul, whereas 71 cases (36%) appeared after they started to live in Istanbul (Table 2). The average time between starting to live in Istanbul and appearing of lesions was six months (min: 0,03 max: 293). Seventeen (55%) of the 31 cases with a recent visit to Southeastern Anatolia Region reported that the lesions appeared at a later date of the visit (Table 2). The median time between lesions appeared and diagnosis were 181 days (min: 0 max:2583). The percentage of chronic CL (lesion duration of more than 24 months) was 3.6%.

Tablo 2: Clinical and epidemiological factors of cases.

Factors	n	%
Body part of lesion appeared (n=197)		
Foot	9	4.6
Leg	4	2.0
Neck	4	2.0
Hand	23	11.7
Arm	25	12.7
Face	86	43.7
Unspecified	46	23.4
Lesion number (n=127)		
1	67	53.0
2 or more	60	47.0
Resident type (n=197)		
Slum	6	3.0
Apartment	113	57.0
Others	5	2.5
Unspecified	73	37.5
Animal shelters around residential area (n=121)		
Present	3	3.0
Non-present	87	72.0
Unspecified	31	25.0
Wetlands around residential area (n=124)		
Present	3	2.4
Non-present	91	73.6
Unspecified	30	24.0
People having CL lesion at the same household in the last year (n=197)		
Yes	45	23.0
No	125	63.0
Unspecified	27	14.0

People having CL scar at same household in the last year (n=197)		
Yes	9	4.6
No	104	53.0
Unspecified	84	42.4
Visit to Southeastern Anatolia region (n=197)		
No	95	48.0
Yes	31	16.0
Unspecified	71	36.0
Visited Southeastern Anatolia city (n=31)		
Mus	5	16.0
Sanliurfa	3	10.0
Mardin	3	10.0
Gaziantep	2	6.0
Mersin	2	6.0
Other*	16	52.0
The relationship between lesion onset and time to start living in Istanbul (n=197)		
Lesion appeared before coming Istanbul	74	38.0
Lesion appeared after coming Istanbul	71	36.0
Unspecified	52	26.0
The relationship between lesion onset and Southeastern Anatolia visit (n=31)		
Lesion appeared after Southeastern Anatolia visit	17	55.0
Lesion appeared before Southeastern Anatolia visit	6	19.0
Unspecified	8	26.0

*Batman, Bitlis, Corum, Diyarbakır, Elazığ, Amasya, Hatay, Irak, Kilis, Kahramanmaraş, Osmaniye, Siirt, Tokat, Van

Discussion

For many years, CL has been endemic in many Turkey provinces, especially hyperendemic in Sanliurfa. Increase in the number of immigrants and travels also has increased the number of CL. According to the data of the General Directorate of Migration Management, Istanbul is the province where most Syrians live and under risk in terms of infectious diseases due to high population mobility (7).

In a study conducted by Culha et al. with 273 CL patients in Hatay in 2014, female and male distribution was equal. Most cases were in 0-24 age group (59%) (8). In the study conducted by Karaosmanoglu et al. with 117 Syrian CL patients in Ankara in 2019, percentage of female patients was 53% and the mean age was 16 years (9). In the study conducted by Korkmaz et al. with 635 patients in Gaziantep in 2015, 47% of the patients were women and 66% were under 20 years of age (10). Similar to the literature, 47% of the cases in the present study were women and half were children under the age of 18 and the median age was

16. Children are vulnerable to this disease since they have not encountered parasites and not yet developed immunity against them compared to adults.

CL lesions can be seen on either one or more region of body, mostly on the uncovered parts. In the study by Culha et al., more than one lesion was found in 14% of cases. The lesions were most commonly (56%) found in head and neck region (8). In the study of Karaosmanoglu et al., 38% of the patients had two or three lesions (9). In 2016, Doni et al. screened 123 primary schools for two years in Sanliurfa. The number of lesions in CL cases varied between one and 15, and the average number of lesions was 1.78 ± 0.70 . It was determined that 38% of the cases had more than one lesion, 61.5% of the lesions were on face (11). In the present study, 53% of the cases had more than one lesion and 46% of lesions were on head and neck. Due to head and neck regions are mostly uncovered, the possibility of contact with the vector is high. The healing of CL lesion leaving an atrophic

scar makes it important that CL lesions are seen most frequently on face. With the increasing number of Syrian immigrants in Turkey, the disease has gained an important impetus especially in Southeast Anatolia Region. Turkish immigrants from Southeast Anatolia and Syrian immigrants are an important source of CL in Istanbul. Southeast Anatolia visit was present in 16% of cases, and half of those who traveled to Southeast Anatolia had the lesion after this visit. In the study of Korkmaz et al., 89% of the cases were Syrian citizens and new infection centers were detected especially in villages close to the Syrian border (10). In the study of Salman et al. in Gaziantep/Nizip in 2014, 62 (80%) of 77 patients diagnosed with CL were Syrian (12). A similar study was conducted by Inci et al. in Kahramanmaraş with 110 patients and 69% of the patients were Syrian (13). In the present study, 77% of cases was Syrian. This rate, which is similar to the studies conducted in the border provinces, suggests that migration from Syria where the incidence of CL increased after the civil war, plays a part in the etiology of CL in Istanbul. Such massive human movements can be important for not only the contamination of an infection agent and the spread of the disease but also the type of the this agent. It has been shown that in a study conducted by Zeyrek et al. with 14 patients in Sanliurfa in 2016; while the causative agent of CL was known as *Leishmania Tropica* for many years in the region, *Leishmania Infantum* was isolated from five cases and these cases were reported as the first *L. infantum* cases reported in the Sanliurfa province after Syrian immigrants were increased (14).

Living with a person infected with CL at same household is a risk factor for individuals since exposure to similar risk

Conclusions

The disease affects children as well as adults and the most frequently affected body area is the face. Most of the patients are Syrian immigrants. Household numbers are high and recent visits to areas where the disease is endemic was are dramatically standing out. Health Directorates of the

factors and circulating parasites due to untreated cases. Inci et al. reported that approximately 10% of patients' relatives were newly diagnosed with CL. In the present study, the ratio of individuals living with an individual diagnosed with CL at the same household in the last year for 26% of the patients. This rate might be higher from the values in the literature because median number of people living at the same home was 6 six and we used a longer time definition as 'last year'. Animal shelters close to residential home is also a negative environmental factor for CL. Study of Korkmaz et al. in Gaziantep resulted that 36% of the patients had barns and animals close to their homes (10). In the present study, this rate was 3%. Due to Istanbul's urban structure comparing with other regions, this etiologic factor might not come to fore.

CL is classified as acute, chronic and residual CL. Cases that have not healed over two years are classified as chronic CL and are observed in 5-10% of the cases. The lesions usually heal with 1-1.5 years with or without treatment, usually leaving a scar (14). In the present study, the median time first lesion to diagnosis was six months. The rate of chronic CL was 3.6%. The availability of treatment services in Istanbul might cause lower rate of chronic CL and lesser time from first lesion to diagnosis.

Limitations

There are some limitations of the study. Due to language problems, there may be difficulties in transferring information from Syrian immigrants. Due to the two-thirds of the interviews were conducted with a person other than the patient, accurate information about the disease and affecting conditions may not be achieved.

districts where Syrian immigrants live in Istanbul should screen all Syrian immigrants considering the majority of CL cases were Syrian. Improving living conditions of risky groups, especially Syrian citizens during summer months is essential. Drying of stagnant water areas, use of mosquito nets,

wearing long-sleeved and closed clothes, eliminating the source of infection by

diagnosis and effective treatment of CL are recommended control methods for CL.

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