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## Clinical Study of Cutaneous Leishmaniasis in A New Focus of Iran

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**Abstract:** Cutaneous leishmaniasis in Iran has imposed of great economic and society with respect to the lack of adequate information about the disease in Kashan. To our knowledge, this is the first study of outbreak of cutaneous leishmaniasis in this area. This study was conducted in 1995-2003 to determine the prevalence of cutaneous leishmaniasis in central regions of Iran. This study was carried out on 3028 patients in Iran during the 9 years period. Initial variables included age, sex, occupation, place of residence and number of lesions that all were recorded in an information data. With total number of 3028 infected persons, 50.8% were male and 49.2% were female. The highest prevalence rate was in 0-10 years old (37.9%). More than one active lesion was seen in 30.3% of individuals. The commonly affected site of the body were hands (45.6%). All patients were treated with Meglomite antimonate (Glucantime) successfully. In present study the *leishmania major* was identified in majority of cases. The clinical finding pattern belonged to different endemic regions, which indicates the possible transmission of infection from Isfahan to this area.

**Key words:** Cutaneous leishmaniasis, clinical study, prevalence, Iran

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### Introduction

Cutaneous leishmaniasis is a zoonosis disease in human and animals that is mainly caused by two species of *Leishmania tropica* and *L. major*. According to the reports of World Health Organization (WHO), leishmaniasis is endemic in 88 countries throughout the world such as Africa, Asia, Europe, North and South America. There is an estimated of 12 million cases worldwide, with 1.5 to 2 million newly cases each year (WHO, 1990, 1984).

Cutaneous Leishmaniasis (CL) is still considered as an important health problem in many parts of the world especially the Mediterranean regions Africa and almost all countries of the Middle East (William, 2004; Khoury *et al.*, 1996; Alimohammadian *et al.*, 1999). The prevalence of disease is high in some provinces of Iran, including Isfahan (Nadim and Faghih, 1968; Salimi, 2000), Shiraz (Moaddeb *et al.*, 1993), Khorasan (Javadian *et al.*, 1967), Khozestan and Kerman (Nadim and Seyedi Rashti, 1971). Although this disease dose not result in death, but because of long lasting lesions, cosmetic problems, great expenses of treatment, length of cycle and side effects of the available drugs, it has created many problems (Momeni, 1994).

This study was performed to determine the abundance and characteristics of cutaneous leishmaniasis in central of Iran.

### Materials and Methods

This study is a descriptive study performed during 9 years period from 1995 to 2003, in the central laboratory of Kashan which is located in the central of Iran. All the patients referred from clinics, villages and health centers, because of doubtful manifestations of leishmaniasis, were examined by Gimsa Stain method and microscopic by a parasitologist. Then, data were completed for the

infected cases including the information about age, sex, job, place of residence, number and the site of lesions. In this research every body with amastigote forms in smear were considered as an infected person. The data were gathered, classified and analyzed by  $\chi^2$  test to determine any statistically significant differences in the prevalence of disease and clinical finding between male and female.

**Results**

With the total number of 3028 infected persons, 50.8% were male and 49.2% female (p<0.5).

The highest rate of leishmaniasis were seen in the age group of less than 10 years old ( 37.9%) and the least rate were in the age group of 40 to 50 (1.5%). The distribution of the active lesions in relation to the age is shown in Fig. 1.

Forty five and six percent of the lesions were found on the hands, 23% on the face, 19% on the legs and 12.4% on the other site of the body. From the all infected patients, 2110 patients (69.7%) had only one lesion, 687 patients (22.7%) 2 lesions, 140 patients (4.6%) 3 lesions and 91 patients (3%) had 4 active lesions. 1604 persons (53%) who were affected by “oriental sore” lesion, had many ulcers. According to this findings, most infected (79%) had spent at least one night in the Holy Shrine of Agha Ali Abbas and only 15% had no any trip. While among all patients, (60.6%) were referred to other clinics and 30% of them were successfully treated.

The distribution of dermal leishmaniasis in this study indicated that, most of patients were living in hot climate villages and a few were lived in mountainous villages (p<0.005). Distribution of patients according to sex and place of residence is shown in the Table 1.

As it is shown, the most prevalence of cutaneous leishmaniasis was in children and students and the least prevalence was among the employers.

The greatest rate of cutaneous leishmaniasis (40%) was in 1997 and the least rate (4.2%) in 2003, Fig. 2.

In addition the highest rate of cutaneous leishmaniasis were in November and December (20 and 26%), respectively and the least rate were in March (2.5%), Fig. 3. These findings show that, Kashan is a new focus of zoonotic cutaneous leishmaniasis in central of Iran.

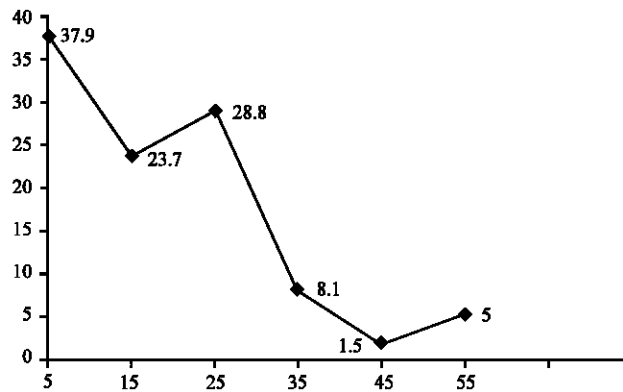


Fig. 1: The prevalence of cutaneous leishmaniasis according to the age

Table 1: The distribution of cutaneous leishmaniasis according to sex and place of residence

Place of residence	Male		Female		Total	
	No.	(%)	No.	(%)	No.	(%)
City	280	18.8	428	27.8	708	23.4
Hot villages	1048	70.2	956	62.1	2001	66.0
Mountainous villages	163	11.0	156	10.1	319	10.6
Total	1488	100.0	1540	100.0	3028	100.0

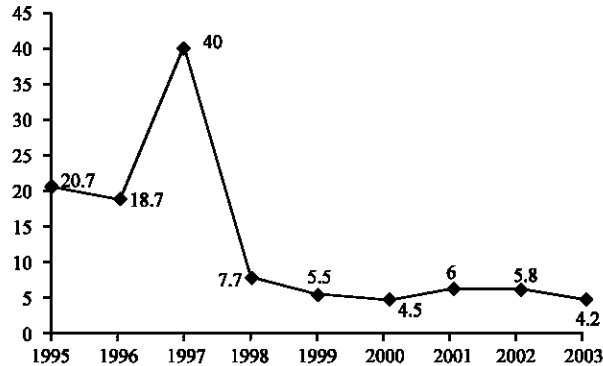


Fig. 2 : The prevalence of cutaneous leishmaniasis according to the year

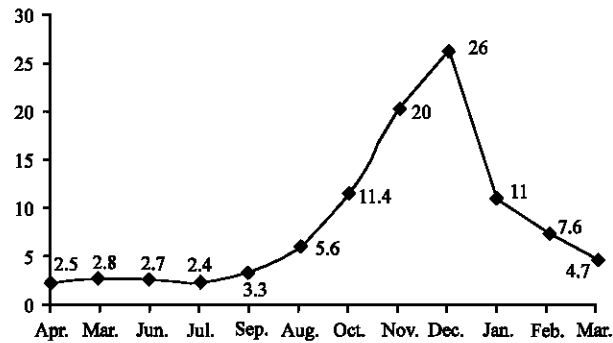


Fig. 3: The prevalence of cutaneous leishmaniasis according to the month

## Discussion

In this study, the prevalence of leishmaniasis was 50.8% among male and was 49.2% among female. Also, most of the cases were in the hot villages (96%) and the least were in the mountainous villages (4%) Table 1. This finding was almost similar as the another researchers that found the highest infection rates were in males (54.7%) compared to females (43.3%) in all age groups (Alimohammadia *et al.*, 1999).

Depending on the findings of this study, the greatest rate of prevalence of cutaneous leishmaniasis was among the children of 10 years and below (37.9%) and the least rate was among the persons between the ages of 40-50 (1.5%).

Javadian and his colleagues, found that the prevalence of this disease in the city of Bam was 2.03% (Javadian *et al.*, 1967), Yaghoobi (2004) reported in the students of schools of Barkhar Isfahan 2.5% (Yaghoobi, 2004) and according to the study of Talari and his colleagues this rate was 1.2% in the students schools of Kashan (Yaghoobi, 2001).

The result of previous studies (Yaghoobi, 2001, 2004) with present findings, shows the high rate of cutaneous leishmaniasis in the villages area. The higher rate of cutaneous leishmaniasis among the age group of 10 and below (37.9%) indicates that this disease is endemic in this area. This finding is the same as study of Hanafi *et al.* (2002) that reported the prevalence of the leishmaniasis was equal in countryside of Kashan and Aran-Bidgol and the rate of disease is being increase in both area, especially childhood leishmaniasis was frequent and affects mostly school-age children with a history of stay in this area. Even infants can be affected. Most of our patients were living the southeast of Kashan, which may be associated with the geographical situation of Isfahan (Hanafi *et al.*, 2002).

Studies have shown that outbreaks of cutaneous leishmaniasis in Isfahan are up to 2.5%. Isfahan is a well known endemic area of Zoonotic Cutaneous Leishmaniasis (ZCL) (Nadim and Faghieh, 1968; Salimi, 2000).

In north east of Isfahan such as Kashan, especially in rural areas the incidence of disease is very high (Nadim and Faghieh, 1968; Salimi, 2000). Regard in this fact that, Kashan district is an area region, the prevalence of the oriental sore disease is related to such factors as; the expansion of city, creation of residential units in the farmlands, planting trees, the traverse of susceptible persons in contaminated areas, plant coating and the kind of soil which can infect the human and vectors. Other researchers have shown that culture, customs and geographic location of Kashan, presence of contaminated centers in Badrood and Ardestan and traverse of susceptible hosts especially the migration of Afghans to this areas are most important factors in expanding the disease (Nadim and Seyedi Rashti, 1971; Yaghoobi, 2001).

In Isfahan, the acute phase disease was among the children under the 5 age, the prevalence of disease in male and female was equal among children and the adults (Momeni, 1994).

In this study the most lesions were seen in the hands (45.6%), face (23%), legs (19%) and other parts of the body (12.4%).

Because the *Phlebotomus* attack the exposed area of the body to suck the blood, the lesions mostly appears in the hands, face and legs (Yaghoobi, 2003).

Considering the fact that about 30.3% of patients had more than one skin lesions, we concluded that the sandfly bites the host more than one time and the most increase in the prevalence of disease in the next years was due to that the parasite enters the bloodstream from every area of the bite (Ahmadiyazdi *et al.*, 2004, Kharfi *et al.*, 2005; Yaghoobi, 2002; Ajdary *et al.*, 2000).

The increase occurrence the disease in November and December is due to the existence of dominant species of *L. major*, in this area (Fig. 3).

The highest rate of prevalence was in 1997 (Fig. 2) but had a great drop in 1998 and the next years. However, in 2001 we observed a mild increase in the prevalence and this may be due to acquired natural immunity against the dominant species of *Leishmania*.

Recent observations suggest that, only 60.6% have referred to the therapeutic centers and only 30% of them have treated. All together we suppose that, in the cases of lesions on the unexposed areas of the body, if with good health care to prevent secondary bacterial contamination, spontaneous resolution of lesions and natural immunity is possible (Yaghoobi, 2003). It should be mentioned that anti-leishmaniasis drugs are very expensive and carry with them different side effects (Talari and Sadn, 2005; Talari *et al.*, 1999; Vakili *et al.*, 1997; Sadr and Talari, 1998; Hanafi *et al.*, 2002).

## **Conclusions**

We recommended the authorities to take serious actions against the leishmaniasis to maintain the health and safety of the community.

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