

# Epidemiological Survey on Cutaneous Leishmaniasis in a Rural Area at Baghdad-Iraq 2020

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## Abstract:-

**Background:** Leishmaniasis is a vector borne tropical and subtropical diseases caused by protozoa and transmitted by Phlebotomus Lutzomyia sandfly vectors-human. The severity of manifestation depends on the species involved and how an immune response to infection. Iraq is one of the most significant endemic regions, in which cutaneous leishmaniasis is seen in 2 forms: zoonotic and anthroponotic caused by leishmania major and leishmania tropica.

**Objectives:** To assess the epidemiological features of this disease in Qaryat al Hamidat in Baghdad, 2020

**Materials and methods:** A cross-sectional study was conducted (included cases of Cutaneous Leishmaniasis) in Qaryat al Hamidat in Al-Mada'in District (located in Iraq north-east of Baghdad) in 2020; by using a surveillance database for the disease from the Iraqi Communicable Diseases and Control Center; Al Rusafa-Baghdad health directorate. Chi square test (fisher's exact test) was done.  $P < 0.05$  was considered significant.

**Results:** A total of 16 patients were included in this study; 87.5% of them were children (<18 years) and 12.5% were adults ( $\geq 18$  years). Out of the total, there were 9 males and 7 females; 2 of the total had a history of traveling, and 12 had another family member infected with cutaneous leishmaniasis. According to the lesion Site, 31.3% in the face, 18.8% in the scalp, and 50% in the limbs (upper &/or lower). 43.8% of lesions were nodules, and 56.3% were ulcer type. 62.5% of patients had one lesion while 37.5% had two lesions.

**Conclusions:** In this study, we concluded that high prevalence of CL was among children (<18 years). In addition, 100% of cases were lived in a region without Mosquito nets/ insecticide.

**Keywords:-** Cutaneous Leishmaniasis, Children, Rural Area, Lesions, Epidemiological Survey.

## I. INTRODUCTION

Leishmaniasis (a parasitic disease) has three subtypes: cutaneous, muco-cutaneous, or visceral type. Previously, it was of two subdivision; Old World Leishmaniasis and New World Leishmaniasis.<sup>1</sup>

Leishmaniasis is a vector borne tropical and subtropical diseases caused by protozoa and transmitted by Phlebotomus Lutzomyia sandfly vectors-human. The severity of manifestation depends on the species involved and how an immune response to infection.<sup>2</sup> Leishmaniasis is among the eight most important central tropical diseases globally, with an incidence of about 2 million cases annually.<sup>3,4</sup> About 0.7-1.2 million new cases of cutaneous leishmaniasis (CL) was estimated annually, 75% of all patients have been reported from 10 countries, Iraq being one of them.<sup>1,5,6</sup>

Iraq is one of the most significant endemic regions, in which CL is seen in 2 forms: zoonotic CL (ZCL) and anthroponotic CL (ACL) caused by *L. major* and *L. tropica*.<sup>7</sup>

This study was carried out to assess the epidemiological features of this disease in Qaryat al Hamidat in 2020 by discussing some affected factors that influence infection events.

## ➤ Objectives:

This study was carried out to assess the Epidemiological features of Cutaneous Leishmaniasis.

## II. MATERIALS AND METHODS:

A cross-sectional study was conducted (included cases of Cutaneous Leishmaniasis) in Qaryat al Hamid in Al-Mada'in District (located in Iraq north-east of Baghdad) in 2020; by using a surveillance database for the disease from the Iraqi Communicable Diseases and Control Center; Al Rusafa-Baghdad health directorate. The study included 16 cases; all of them were living with (poultry, poultry shelters, livestock, dogs, and rodent burrows) inside the house or in the area about 100 m far from them. They complain about the presence of sand fly. The area hasn't been previously fogged or controlled. Mosquito nets doesn't distributed in the area before. The required ethical approval was obtained. Different statistical analysis of excel and SPSS 24 were used for data entry and analysis.  $Chi^2$  test or fishers' exact test was used, and  $P < 0.05$  was used to describe significances.

## III. RESULTS

A total of 16 patients were included in this study; 87.5% of them were children (<18 years) and 12.5% were adults ( $\geq 18$  years). Out of the total, there were 9 males and 7 females; 2 of the total had a history of traveling, and 12 had another family member infected with Cutaneous Leishmaniasis. Table 1.

**Table 1: Demographic features of the patients**

		N	%
Age Groups	Child	14	87.5
	Adult	2	12.5
Gender	Male	9	56.3
	Female	7	43.8
History of traveling	Yes	2	12.5
	No	14	87.5
Family member infected with CL	Yes	12	75.0
	No	4	25.0
Total		16	100.0

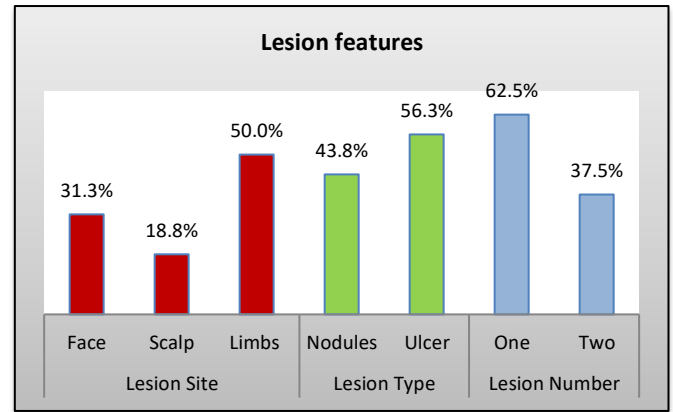


Fig 1:- Clinical features of the lesions.

Figure 1 shows the clinical features of the lesion. According to the lesion site, 31.3% presented in the face, 18.8% presented in the scalp, and 50.0% presented in the limbs (upper &/or lower). 43.8% of lesions were nodules, and 56.3% were ulcer type. 62.5% of patients had one lesion, while 37.5% had two lesions.

According to the age group, no significant association was found with other variables;  $P > 0.05$ , as shown in table 2.

**Table 2: Distribution of demographic and clinical features of the patients according to the age group**

		Age groups				P-value
		Children (<18 years)		Adults (≥18 years)		
		N	%	N	%	
Gender	Male	7	77.8	2	22.2	0.47
	Female	7	100.0	0	0.0	
Lesion Site	Face	5	100.0	0	0.0	0.39
	Scalp	2	66.7	1	33.3	
	Upper/lower limbs	7	87.5	1	12.5	
Lesion Type	Nodules	5	71.4	2	28.6	0.17
	Ulcer	9	100.0	0	0.0	
Lesion Number	1	9	90.0	1	10.0	1
	2	5	83.3	1	16.7	
History of traveling	Yes	2	100.0	0	0.0	1
	No	12	85.7	2	14.3	
Family member infected with CL	Yes	11	91.7	1	8.3	0.47
	No	3	75.0	1	25.0	

**IV. DISCUSSION**

As described in the method section, all patients lived in houses with (poultry, poultry shelters, livestock, dogs, and rodent burrows) inside the house or in an area about 100 m far from them. They complain about the presence of sand fly; the area hasn't been previously fogged or controlled. Mosquito nets doesn't distributed in the area before.

In this study, we found that high prevalence of CL was among children (<18 years).

Similarly, the incidence has been found to decrease with age in a study done in Iraq.<sup>8</sup> 37.5% showed multiple lesions, whereas 62.5% showed singular lesions. Although the lesions occur anywhere on the body, the limbs were the site of predominance lesions. Opposite of the study done in Tikrit reported that face was the site of predominance lesions.<sup>8</sup>

This study assessed the role of insecticide and mosquito nets in controlling the transmission of CL; and we found that 100% of patients were living in an area where there was neither insecticide nor mosquito nets were used.

The cause of the occurrence of CL cases in Iraq is due to the spread of sand flies, its distribution depend on many factors (such as environment, physical, and/or biotic). Rainfall, temperature, and/or wind considered to be critical climatic factors for sandfly distribution.<sup>9,10</sup>

Additionally, future studies on vectors, population dynamics, and other variables will be essential in determining the epidemiology of CL. Low socioeconomic status, large families, and human behavior in outdoor habits are other difficulties in applying appropriate personal protective measures. Health education, vector control, and notification of the disease will be an essential starting point to prevent the increase of the disease in Iraq.<sup>9-11</sup>

Establishing a system for monitoring the disease and further researches about the effective control of leishmaniasis is essential.

## V. CONCLUSION

The highest prevalence was among children under the age of 18 years. Limbs were the most common site. We found that 100% of cases lived in an area where there was neither insecticide nor mosquito nets were used..

## ACKNOWLEDGMENTS

There is nothing to be declared

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