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Epidemiological Pattern of Cutaneous Leishmaniasis In Bikaner, Northwest Rajasthan

[1]Kaushlya Swami, PG Resident, Department of Dermatology, Venereology and Leprosy, SP Medical College and PBM Group of Hospitals, Bikaner, Rajasthan, India.

[2]BC Ghiya, Associate Professor, Department of Dermatology, Venereology and Leprosy, SP Medical College and PBM Group of Hospitals, Bikaner, Rajasthan, India.

[3]RD Mehta, Senior Professor and Head, Department of Dermatology, Venereology and Leprosy, SP Medical College and PBM Group of Hospitals, Bikaner, Rajasthan, India.

Corresponding Author: BC Ghiya, Associate Professor, Department of Dermatology, Venereology and Leprosy, SP Medical College and PBM Group of Hospitals, Bikaner, Rajasthan, India.

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Abstract

Background: To study the current epidemiology of cutaneous leishmaniasis in north-western Rajasthan.

Methods: Hospital based cross sectional study conducted at Department of Dermatology, Venereology and Leprosy, S.P.Medical College and Associated Group of Hospitals, Bikaner, Rajasthan.

Results: Cutaneous Leishmaniasis involved all age groups in both male and female. Most common age group was 21-30 years (07) in 2018-19and(09) in 2019-20of participants. There were 16 males and 12 females in 2018-19, 11 males and 14 females in 2019-20, with almost equal in sex distribution of patients in two year. Most of the sufferes were students (42.86%)in 2018-19and House wives (20%) in 2019-20.

Conclusion: Most of Most of the suffers were students and House wives.

Keywords: Cutaneous leishmaniasis, Age, Sex.

Introduction

Leishmaniasisisa vector-borne parasitic disease that is endemic in around 88 countries. Global prevalence is around 12 million cases, with 1–2 million newly cases found each year mainly in continents ofAfrica, Asia, Europe, and North and South America. Leishmania is presented by various clinical manifestations ranging from cutaneous leishmaniasis and mucosal leishmaniasis to more dangerous fatal visceral leishmaniasis[1,2]. The World Health Organization states, that the yearly incidence of cutaneous and visceral leishmaniasis is 1–1.5 million and 500,000 cases, respectively[3,4].

Cutaneous leishmaniasis in theancientWorld is caused by species Leishmania Tropica, L. major, and L. aethiopica. The Modern World leishmaniasis is caused by L. Mexicana, L. amazonensis, and L. braziliensis. Clinical symptoms ranges from spontaneously healing nodulo-ulcerative lesions to mutilating cutaneous or

mucosal ulcers[1].Rarely, diffuse cutaneous leishmaniasis occurs, particularly in immunocompromised patients[5].

Materials and Methods

Study design: Hospital based cross sectional study.

Study duration:-24 months

Study place: Department of Dermatology, Venereology and Leprosy, S.P.Medical College and Associated Group of Hospitals, Bikaner, Rajasthan.

A written consent were obtain from all patients who were interested to participate in the study.Individual demographic data was recorded on printed proforma sheets that include age, sex, occupation, religion, habitat, area of residence, family history, history of keeping domestic animals and socioeconomic status.

Sample size: All the confirmed cases that came to hospital during this period.

In 2018 total no of the cases 28 and in 2019 total no of cases 25.

Sampling Method: Hospital based non probability conventional sampling.

Diagnostic Criteria of cutaneous leishmaniasis

1.Patients with typical clinical manifestation of cutaneous leishmaniasis including papulo-nodular-ulcerative lesions and crusted ulcerative plaques or

2. Typical histopathological finding with presence of LT Bodies or

3. Slit Skin smears positive for L.T bodiesor

4. Clinicallycured lesion with standard anti-leishmanial treatment.

Inclusion Criteria

1. Patient that have typical clinical features of CL with one laboratory or therapeutic criteria.

Exclusion Criteria

1. Patients negative for LT bodies in slit skin smears and histopathological examination and non responsive to standard anti leishmaniasis treatment.

Data Collection: A detailed clinical history regarding onset, duration and associated symptoms will be asked. A complete systemic and dermatological examination will be conducted and all details will be recorded on a printed proforma. Routine investigations like complete haematogram, urine complete examination, hepatic and renal profile will be carried out for any associated Disease.

Data Analysis

Data was recorded as per Performa. The data analysis was computer based; SPSS-22 was used for analysis. For categoric variables chi-square test was used. For continuous variables independent samples's *t*-test was used. *p*-value <0.05 was considered as significant.

Observations

Table 1: Distribution of cases according to age group (years)

AGE GROUP (YEARS)	2018-19		2019-20	
	NO.	%	NO.	%
0-10	4	14.29	1	4
11-20	5	17.86	4	16
21-30	7	25	9	36
31-40	7	25	5	20
>40	5	17.85	6	24
TOTAL	28	100	25	100

Table 2: Distribution of cases according to Sex

SEX	2018-19		2019-20	
	NO.	%	NO.	%
MALE	16	57.14	11	44
FEMALE	12	42.86	14	56
TOTAL	28	100	25	100

Table 3: Distribution of cases according to Residence

RESIDENCE	2018-19		2019-20	
	NO.	%	NO.	%
RURAL	22	78.57	15	60
URBAN	6	21.43	10	40
TOTAL	28	100	25	100

Table 4: Distribution of cases according to Religion

RELIGION	2018-19		2019-20	
	NO.	%	NO.	%
HINDU	26	92.86	22	88
MUSLIM	2	7.14	3	12
TOTAL	28	100	25	100

Table 5: Distribution of cases according to Housing condition

Economic Status	2018-19		2019-20	
	NO.	%	NO.	%
Poor	18	64.29	18	72
Middle	10	35.71	7	28
TOTAL	28	100	25	100

Table 6: Distribution of cases according to history of domestic animals

Domestic animals	2018-19		2019-20	
	NO.	%	NO.	%
Absent	7	25	9	36
Present	21	75	16	64
TOTAL	28	100	25	100

Table 7: Distribution of cases according to occupation

OCCUPATION	2018-19		2019-20	
	NO.	%	NO.	%
STUDENT	12	42.86	5	20
LABOURES	1	3.57	3	12
HOUSE WIFE	9	32.14	11	44
GOVT./PRIVATE SERVICE	5	17.86	2	8
FARMER	1	3.57	4	16
TOTAL	28	100	25	100

Discussion

Cutaneous Leishmaniasis is a protozoal zoonotic disease widespread in Tropical and Temperate countries with variable presentation. In India,it is endemic in Bikaner city of Rajasthanbecause of dry and hot environment, which is favorable for sand fly breeding.It mimics lupus vulgaris, deep mycosis and sarcoidosis. Because of epidemiological Prevalance, Cutaneous Leishmaniasis become the first diagnosis in chronic, painless, asymptomatic erythematous ulcerated or crusted plaque over exposed parts of body .

The present study was conducted over a period of 24 months from May 2018 to April 2020, to find out clinico-epidemiological trend in these two years and makeattempt to compareepidemiological trend of Cutaneous Leishmaniasispatients, Assesing by past ten years data available in Department of Dermatology retrospectively.

In this study,Cutaneous Leishmaniasisalmost involved all age patients in both male and female, most commonly affected age group was 21 to 30 years (25% in 2018-19 and 36% in 2019-20) of age in both maleand female.Similar observationhas been reported by Joshi et al[6] (2003). The number of patientsdecreased

as the age of patients increases, this findingsuggests acquired immunity.

In our study, M:F ratio were1.33:1 and in 2018-19 and 1:1.27 in 2019-20,which is comparableto earlier study conducted by Pooja et al[7](2018) M:F ratio was 1.2:1. In this study Students(42.86%) were most commonly affected in 2018-19 and House wives(44%) in 2019-20,these observation has been similar as Van der Meide et al[8.]

Present study also showed that a positive history of pet animals in 75% in 2018-19 and 64% in 2019-20. Their findings suggest that Cutaneous Leishmaniasis has great zoonotic importance and all previous study also supporthistory ofanimal present in surrounding at home.

Family history was positive in8.6% in 2018-19 and 9.2% in 2019-20in our study.Yemisen et al[9], reported family history in 9.6% as well .

In present study rural populationand overcrowded areas were affected more than other urban population, because of poor socioeconomic status,poor sanitary conditions, animal surrounding, lack of proper housing conditions and outdoor sleeping. Other studies also suggest similar results[5].

In rural areas, prevalence was highest (21.43% Cases in 2018-19 and 20% in 2019-20) in Bidasar area of Churu district but in accordance of in urban areas, maximum number (10.71% in 2018-19 and 16% in 2019-20) of cases were seen near Jasusar gate in Bikaner that is one of the most crowded population of the city. Targeted intervention may require in these particular areas to control and prevent the Disease.

In our study, most of cases(78.57% in 2018-19 and 96% in 2019-20) duration of lesion was less than 6 months at the time of diagnosis. Kumar et al[13]also observe that 73% of cases have less than 6 months duration of disease.

As far as distribution of lesion is concerned, most of the lesions (73.33 % in 2018-19 and 72.73% in 2019-20) were present over exposed part of body. These findings were also met with study of Sharma et al[10], who reported that forearm and hand were the most common site. Because sand flies can easily bite exposed parts during sleep.

In the present study, we found that an increased incidence of cutaneous leishmaniasis during winter. This finding could be due to people in this region sleep in open area during the summer season which exposes them to the bites of infected sand flies, which are most abundant during May to September. Lesions might develop in these persons after 2-3 months of incubation period. These lesions enlarged and ulcerate in approximately six months.

Conclusion

Most of Most of the suffers were students and House wives.

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