Laboratory investigation of Cutaneous Leishmaniasis in Karachi

Pages with reference to book, From 248 To 250

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Abstract

Forty Seven cases of cutaneous Leishmaniasis were studied. The disease was more frequent in males in the age group of 16-45 years. Thirty one patients had wet and 16 dry lesions. LD bodies were positive in 37, culture in 26 and both in 18 cases. Most of the patients stayed, visited or worked in Baluchistan with in 2-3 months prior to developing cutaneous lesions (JPMA 33:248, 1983).

Introduction

Cutaneous leishmaniasis or oriental sore is a orotozoal infection of skin. It is prevalent in couhtries of Eastern Mediterranean region, China, U.S.S.R., India, Afghanistan and Pakistan. The parasite is a flagellate named Leishmania tropica which is transmitted to human beings by the bite of sandfly, belonging to phiebotomus genus (Sagher, 1975). Two types of skin lesions are produced, i.e. an early nodule which ulcerates and tends to heal spontaneously, and chronic non-healing type which may persist for as long as upto 40 years in absence of treatment (Zukerman, 1975). The disease is prevalent in areas adjacent to the common borders with Iran and Afghanistan. Cases of Leishmaniasis have been reported from various districts of Baluchistan (Burney, 1962). Karachi being the largest city of Pakistan with tourists and labourers coming from the hinterland and adjacent areas, is likely to have cases of leishmaniasis. It was therefore decided to look for cases of cutaneous leishmaniasis in Karachi.

Material and Methods

A total of 47 cases of the cutaneous leishinaniasis were studied, thirty cases were from Jinnah Postgraduate Medical Centre, Karachi, 3 cases from PNS Shifa, Karachi, 7 each from Skin and Social Hygiene Centre, Karachi, and from Civil Hospital Las Bela (Uthal) in Baluchistan about 130 Kilometer from Karachi.

After taking a brief history, representative lesions were cleaned with 70% alcohol and material was collected. Laboratory investigations conformed to recommendations made by Gracia and Voge (1981). Exudate from ulcerating lesions was collected through a puncture with sterile needle, made at the raised margin. From non-ulcerating lesions, skin scrapings were taken after removing the outer crusts of the lesion. Smears were prepared on slides and staind with leishman stain. Slides were examined under oil immersion objective for Leishmania Donvan (L.D.) bodies. For culture studies, specimens were inoculated in 3-4 tubes of NNN medium and incubated at 26-28°C for up to one month with periodic examination for promastigotes.

Result

The age distribution is shown in Table I.

Table – 1

Lesions in Various Age Groups.

Age Groups (Years)	Number of Cases		
	Male	Female	Total
1- 15	5	1	6
16- 30	18	3	21
31- 45	12	2	14
46- 60	5	1	6
Total:	40	7	47

Maximum number of patients were in the age group of 16-30 years. Male to female ratio was 6:1. Thirty one patients had wet and 16 drylesions. Among 31 cases with wet lesions, 21 had multiple lesions of which 4 had spreading diffuse lesions. Among 16 cases with dry lesions 6 had isolated and 10 multiple lesions of which 2 had lesions in chain form. Duration of lesions in most of the cases was 1-2 months and in some upto 4 months. Most cases gave a history of visiting staying or working in Baluchistan 2-3 months prior to developing the lesions, 19 cases seemed to acquire infection in places outside Baluchistan(Table-II).

Table – II

General Information for Places Visited/Stayed.

Baluchistan Only			Other than Baluchistan		
Uthal	–	20	Multan	–	2
Quetta	–	2	Lahore	–	3
Las Bela	–	1	Bahawalpur	–	1
Pasni	–	2	Hazara	–	6.
Sonmiani	–	3	Bannu	–	1
			Jacobabad	–	1
			Karachi	–	2
			Shikarpur	–	1
			Baghdad	–	1
			Iran	–	1
		28			19

Laboratory diagnosis was made on the presence of L.D. bodies and a positive culture. The results of both investigations are shown in Table III.

Table – III

Microscopic and Culture Results.

Types of Lesion	Leishmania-Donovinia Bodies	Culture on NNN medium	Both
Wet lesions (31)	28	18	13
Dry lesions (16)	9	8	5
Total:–	37	26	18

L.D. bodies were more frequently positive than cultures in both types of lesions.

Discussion

This is a preliminary study on the direct microscopy and culture findings of the cases clinically diagnosed as cutaneous leishmaniasis. The majority of cases originated from Baluchistan where this disease is known to be endemic. Patients were mostly government servants posted at Uthal, such as coast guards, K.E.S.C. employees, textile mill workers and others were visitors. Very few (17) cases came from other provinces, such as. Punjab, NWFP and Sind. Both types of lesions were recorded but the majority had wet lesions, which are produced by leishmania-tropica major (Urban leishmaniasis). Leishmania-tropica minor produces dry type of lesions (Rural leishmaniasis). In this study the ratio of wet to dry lesion was 2:1. In both types isolated lesions were more frequent than chain or diffuse forms and were mostly on the extremities. Thirty five of the 47 cases were in between 16-45 years age group. Males were more often affected than females, presumably due to the out-door profession and exposure to the infected vectors. Incubation period of the disease was 1-4 months, but majority of cases reported 1-2 months as the incubation period and had lesions for 2-3 months before they came to the hospitals for treatment! advice. L.D. bodies were more frequently positive than cultures in both types of lesions. From this study it may be concluded that neither culture nor direct microscopy wifi reveal the parasite in all the cases clinically diagnosed as leishmaniasis, however, they will help in confirming the diagnosis of a case of oriental sore. The results of culture in NNN medium are quite encouraging, and it is hoped that in future the yield will improve further. Most of the cases originated from Baluchistan or had a history of visiting this province 2-3 months prior to the onset of symptoms. The insectvector (sandflies of genus phiebotomus) and infected rodents, such as sand rats or desert jird, antelope rats, bush rats and gerbils are present in Baluchistan (Robert, 1979). Gerbils are also present in Sind area

and it is quite possible that they act as reservoir of leishmania and adapt to the vector present in other provinces. Cases of Kalaazar have also been recorded in Jinnah Postgraduate Medical Centre, Karachi from patients belonging to Gilgit and Azad Kashmir areas (Kazi, 1980). The possibility of disease being present in other parts of Pakistan need be explored as it may penetrate and propagate in large areas of the countries in near future. It is, therefore, recommended that an epidemiological study on scientific basis, supple-mented by investigations on chemotherapy of the disease, is conducted to enable preventive steps against the transmission and spread of disease in Pakistan.

References

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