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SUMMARY

Specificity and sensibility of an antigen isolated from *Leptomonas* forms of *L. tropica* were tested against a lot of sera from animals infected by *Leishmania* (*L. donovani*, *L. tropica*, *L. enrietti*), *Trypanosoma* (*T. gambiense*, *T. equiperdum*, *T. brucei*), *Plasmodium* (*P. berghei*), *Piroplasma* (*Nuttalia rodhaini*) and some helminthiasis.

The results show that this antigen is suitable for diagnosis of leishmaniasis since 8 days after infestation and reacts only with sera from *L. donovani* or *L. tropica* infestations.

EPIDEMIOLOGY OF CUTANEOUS LEISHMANIASIS IN IRAN B. KHORASSAN AREA (*)

Part I : The reservoirs (**)

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There are several foci of cutaneous leishmaniasis in the province of Khorassan, some of the rural type occurring in villages (ANSARI *and al.*, 1950) and some others found in towns and cities, having the characters of the urban type of the diseases. The present paper shows the results of studies undertaken from February to September 1965 to determine the reservoirs of cutaneous leishmaniasis in two areas, one, the city of Meshed and its suburbs, the other, Lotfabad area (see map).

Geography: The city of Meshed is situated between two chains

(*) Séance du 8 novembre 1967.

(**) These studies were supported in part by the Institute of Public Health Research, Tehran University, and the funds of the Ministry of Health and Plan Organization for Project. No. 631101.

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Province of Khorassan north-east of Iran.

of mountains, one, Hezar Masjed (peak 3,200 m.), in the North and the other, Binalood (peak 3,322 m.) in the South. The altitude of the city itself is 1,010 m. above sea level. The annual precipitation is 200-600 mm., the area has cold winters and rather warm summers.

Lotfabad is in the Northern frontier of Iran, situated beyond the hilly areas, continuing the plain of Turkmenistan having an altitude of about 400 m. above sea level. Its climate is not dependent to that of Persian plateau but resembles the climate of central Asian Deserts.

Methods: Studies were carried out in 8 localities in the suburb of Meshed and 5 villages in Lotfabad area. Household dogs, stray dogs, domestic rodents and wild rodents were examined for leishmanial lesions. Dogs were seen during house to house visits of the localities and when a lesion was seen, the dog was held using a muzzle and smears were prepared by scarping the edge of the lesion. Some of the stray dogs were killed and smears were prepared from their internal organs (liver, spleen, bone marrow, etc.). Rodents were captured by live traps, in Lotfabad, traps did not give good results, so, rodents were collected by filling their burrows with water making them come out from their nests. After capturing a rodents, smears were prepared from the edge of the ears without considering the presence of the lesion and also, if lesions were found on other parts of skin, smears were prepared from their edge. After killing the rodents, impression smears were prepared from liver and spleen. All the smears were stained by Giemsa by routine methods and examined under microscope. Due to lack of facilities for preparation of culture media, we were not able to culture the scrapings of the lesions or the viscera of these animals.

Results: A. Meshed area- 107 household dogs and 83 stray dogs were seen. The results of their examination was as follows:

	No. seen	No. with lesion	No. showing L. D. bodies in their lesions
Household dogs . . .	107	13	6
Stray dogs	83	6	3

As some of the lesions were old or with heavy bacterial infection, L. D. bodies were not found in all. Examination of viscera of the infected dogs yielded negative results.

Besides dogs, the following rodents were collected in Meshed:

<i>Mus musculus</i> : 29	<i>Cricetulus migratorius</i> : 24
<i>Nesokia indica</i> : 1	<i>Citellus fulvus</i> : 14

Two house mice and one hamster showed skin lesion on feet and nose but microscopic examination did not show leishmanias.

B. Lotfabad area- 92 dogs were inspected, none of them showed

lesion. 140 different rodents were captured and examined, the results are as follows:

Species of rodent	No. collected	No. with skin lesions	No. showing L. D. bodies	
			skin	liver
<i>Rhombomys opimus</i> .	25	10	11	2
<i>Meriones lybicus erythrorurus</i>	111	4	1	0
<i>Mus musculus</i> . . .	3	0	0	0
<i>Nesokia indica</i> . . .	1	0	0	0

Skin lesions were seen mostly on the edge of the ear, sometimes on nose, lips or feet.

COMMENTARY

Results of these studies indicate that in Meshed where the urban type of oriental sore is endemic, about 5 0/0 of the inspected dogs show leishmania in their skin lesions whereas the rodents were all negative. On the other hand, in Lotfabad where the rural type is prevalent, dogs are negative but the rodents of the family Gerbillidae are naturally infected with leishmanias. 44 0/0 of *Rhombomys opimus* examined showed leishmania in skin, one of them showing L. D. bodies in smears prepared from the edge of the ear without any apparent lesion. In previous studies (ANSARI *and al.*, 1953) it has been shown that lesions of gergils last for a considerable time.

Out of 111 *Meriones lybicus*, only one of them showed leishmanias, it may be said that the infection of this species, like that of man, is a consequence of the presence of infected *Rhombomys* in the area. In the smears prepared from the livers of *Rhombomys* two of them showed very scanty leishmanias, this shows the ability of the parasites to invade the viscera of *Rhombomys* and may have epidemiological importance. We may conclude that the reservoirs of cutaneous leishmaniasis in the endemic focus of the rural type in Lotfabad are rodents of the family Gerbillidae especially *Rhombomys opimus*, whereas in the focus of the urban type, besides man, dogs may be the reservoir and so far we have not found any reason to suspect rodents.

SUMMARY

In two areas in the province of Khorassan, North East of Iran studies were carried out to determine the reservoir of cutaneous leishmaniasis. In Meshed where the urban type of the disease is endemic 5 o/o of dogs were found with leishmanial lesions of skin without visceral involvement but no infection was found in rodents.

In Lotfabad where the rural type is endemic, 44 o/o of *Rhombomys* and less than 1 o/o of *Meriones libicus* examined were found infected but no infection was found in dogs.

ACKNOWLEDGEMENTS

We have to thank Prof. MOFIDI, Director of the Institute of Public Health Research, Prof. FAGHIH, and Prof. MESGHALI for their kind help in planning these studies. Also thanks are due to Mr. SHEGERFKAR and other staff of Meshed Research Station for their help in collection of animals and examination of smears.

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EPIDEMIOLOGY OF CUTANEOUS LEISHMANIASIS IN IRAN (*)

Part II. Natural Leptomonad Infection of Sandflies in the Meshed and Lotfabad Areas (**)

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One of the main aims in the studies of cutaneous leishmaniasis in Khorassan was the determination of vectors in different foci

(*) Séance du 5 juillet 1967.

(**) These studies were supported in part by the Institute of Public Health Research, Tehran University and funds of the Ministry of Health and Plan Organization for Project No 631101.

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