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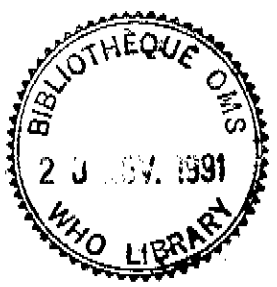
P. Desjeux



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INFORMATION ON THE EPIDEMIOLOGY AND CONTROL OF THE LEISHMANIASES BY COUNTRY OR TERRITORY

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P. Desjeux[1]

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ABBREVIATIONS

The following abbreviations are used in this document:

ACL	anthroponotic cutaneous leishmaniasis
AVL	anthroponotic visceral leishmaniasis
CL	cutaneous leishmaniasis
DCL	diffuse cutaneous leishmaniasis
ELISA	enzyme-linked immunosorbent assay
LR	leishmaniasis recidivans
MCL	mucocutaneous leishmaniasis
PKDL	post-kala-azar dermal leishmaniasis
VL	visceral leishmaniasis
ZCL	zoonotic cutaneous leishmaniasis
ZVL	zoonotic visceral leishmaniasis

INTRODUCTION

This document presents a country by country tabulation of data available on the epidemiology and control of the leishmaniases. The main aspects covered include: the parasites, the proven or suspected vectors, the proven or suspected reservoirs, the geographical distribution with indication of the main foci, the severity of the disease with indication of prevalence and incidence, the public health implications with particular reference to morbidity and mortality, the socio-cultural and economic factors involved in transmission of the different forms of leishmaniasis found in the 82 countries or territories dealt with in this document, and finally the main past or ongoing control activities, when known, are briefly reviewed. No bibliographical references are given since these will be the object of a companion document to be issued later, in which some 800 references on the epidemiology of the leishmaniases will be listed by country or territory and by author.

OLD WORLD

AFGHANISTAN

No epidemiological studies were carried out before 1962.

1. **Visceral leishmaniasis.** The first case was reported in 1980. 21 cases have been diagnosed to date; the prevalence is low. Visceral leishmaniasis (VL) has a widespread distribution (Kábul, Badakhshtan, Ghazni, Kandahár and Badghis provinces). The parasite has not yet been identified. Reservoir(s) and vector(s) are unknown.

2. **Zoonotic cutaneous leishmaniasis.** This form of leishmaniasis is endemic in the north of the country (Fariab, Jozjan, Balkh, Samangan, Kunduz, Baghlan and Takhar provinces), in the plain areas and possibly also in the south-western lowlands. The vector is probably *Phlebotomus papatasi* and the reservoir, the great gerbil *Rhombomys opimus*. The causative organism is *Leishmania major*. Sometimes outbreaks occur as in 1979 in a military camp at Mazár-i-Sharif. In 1979, a study of prevalence among 591 inhabitants showed a rate of 35% for scars and 1.5% for active lesions. Another survey of 270 000 people revealed a 9.7% global rate of scars and active lesions.

3. **Anthroponotic cutaneous leishmaniasis.** One of the major public health problems in Afghanistan. Anthroponotic cutaneous leishmaniasis (ACL) is an urban disease and occurs in most of the towns and cities in seven provinces, Kábul, Parwan, Herát, Kapisa, Ghazni, Kandahár and Badakhshtan. Each year approximately 6000 cases are reported from the provinces and 4000 from Kábul, all by passive detection. ACL is usually endemic, but during the last years, frequent outbreaks were reported and spread of the disease seems more important than before. In some towns, transmission occurs every year at a high intensity and people become infected very young; in other towns, such as Kábul, and in the Panjshir valley, transmission is not so frequent, but, when it occurs, there are large numbers of nonimmune people and an epidemic may erupt. Humans are considered to be the main reservoir, but in foci of ACL (Herát, Kapisa, Kábul and villages of Parwan province), 37 dogs with skin lesions have been found parasitologically infected; however, dogs seem to be more the victims than the reservoirs. The parasite has not yet been identified. The strongly suspected vector, *P. sergenti*, abundant in the hilly areas of the dense suburbs of the cities, has been found infected by promastigotes but cultures and biochemical identification have not been done. The causative agent of ACL in Afghanistan is *L. tropica*.

4. **Control.** Control measures include the following:

- active detection of patients and their treatment (4618 patients were treated in the first 6 months of 1982);
- insecticide application in infected areas (31 tons of DDT were used during the same period) and 369 000 people covered by insecticiding in 1982;
- programme of health education using leaflets, posters, broadcasting media;
- network of leishmaniasis control units associated with malaria control units.

Currently, indoor resting densities of *P. sergenti* are evaluated weekly in two indicator areas of Kábul city, using sticky papers. Vector control is undertaken by indoor residual spraying with DDT and, if DDT is not available, with malathion; the use of pyrethroid impregnated curtains is planned for 1991.

Leishmaniasis is a notifiable disease.

ALBANIA

1. **Visceral and cutaneous leishmaniasis.** 133 cases were reported from Albania between 1947 and 1962; in 1990, 100 cases of leishmaniasis were registered, including 30 from the Institute of Paediatrics in Tirana, but it is not specified if these were cutaneous or visceral cases.

ALGERIA

1. **Visceral leishmaniasis.** The endemicity of visceral leishmaniasis (VL) is increasing and new areas are affected (Algiers, Blida, Medea and Tlemcen). Only northern Algeria is endemic, especially Great Kabylia a mountainous area with a sub-humid bioclimatic influence; however some cases were reported from the arid area of Biskra, the usual focus of cutaneous leishmaniasis (CL). In Algeria, 721 cases were notified between 1975 and 1984. 84% of them were children from 6 months to 4 years old. Now, approximately 200 cases occur each year. Five cases have been diagnosed and confirmed parasitologically in the Hoggar (south Algeria). The parasite has been isolated from humans and dogs and identified as *L. infantum* ss. At present, the dog is still the only proven reservoir (11.4% of dogs infected out of 385 examined in Great Kabylia in 1977). There is strong evidence that *P. perniciosus* is the vector; it bites humans and dogs both inside and outside the home. *P. perfiliewi* and *P. longicuspis* are also present. The breeding sites are still unknown.

2. **Zoonotic cutaneous leishmaniasis.** This very old disease, also called "Biskra boil", is mainly endemic in the sub-Saharan steppes where the most important foci are located. A new resurgence and geographical spread towards the north and west (M'sila, Batna, Ksar Chellala, Djelfa and Bou-Saâda) are taking place and occasionally outbreaks occur. Thousands of cases are reported each year. In 1984-1985 fewer cases were registered probably because of the application of DDT in 1983; but again in 1986 the number of cases increased rapidly. The parasite identified by biochemical characterization is *L. major*. The vector is *P. papatasi* and two reservoirs, *Psammomys obesus* and *Meriones shawi*, have been identified. These two gerbillidae live in semi-desert areas but have different nutritional requirements (important data for any control measure).

In the VL focus of northern Algeria, human cutaneous leishmaniasis has been more recently reported. The parasite is *L. infantum* (one enzyme variant of the *L. infantum* reference strain). The epidemiology is not known. Vectors and reservoirs have not yet been identified.

3. **Control.** Since 1986 a national committee is in charge of the leishmaniasis control programme.

Leishmaniasis is a notifiable disease.

BANGLADESH

1. **Visceral leishmaniasis.** In the past, kala-azar has been endemic; epidemics used to occur almost regularly every 15-20 years. Between 1950 and 1960, some districts noted 1500-4000 cases of VL per year, but later on visceral leishmaniasis was thought to have been eradicated from Bangladesh as a secondary effect of the malaria eradication programme on the sandfly vector. Since the 1980s, there have been reports of a resurgence of kala-azar following suppression of insecticide spraying in India and in Bangladesh. The number of visceral and post-kala-azar dermal leishmaniasis (PKDL) cases increased sharply and reached a level which could provide a reservoir of sufficient magnitude to spark off a major outbreak. Kala-azar and PKDL are prevalent in many areas of Bangladesh. Between 1980 and 1985, 447 cases were reported from only 5 districts, but since 1985 and up to today, cases have been registered from 61 "upazillas" of 27 districts. During a house-to-house survey from July 1987 to June 1988 in Mymensingh district covering 3 upazillas (427 villages), 1273 cases of VL including 45 cases of PKDL were diagnosed parasitologically or serologically, and treated. The highest incidence was in the 11-15 year age group. The highest death rate was 6.4%. Cases occur mainly

within families, especially PKDL cases. In 1988, 2577 cases were reported from 31 out of 64 districts, and, in 1989, 2303 cases from 38 districts. Recently an alarming increase of cases in the northern districts has been reported; morbidity data are obtained by passive surveillance at the upazilla health complex level; the number of reported cases is largely underestimated and it is now believed that at least 10 000 to 15 000 new cases occurred in 1990. *Phlebotomus argentipes* is the suspected vector in Bangladesh. Humans seem to be the only reservoir.

2. **Cutaneous leishmaniasis.** No data are available.

3. **Control.** DDT spraying was conducted for malaria eradication, but the spraying campaign has been discontinued. From 1985 to 1990 an intercountry visceral leishmaniasis control programme was carried out in Bangladesh, India, and Nepal; it included passive case detection, sometimes house-to-house surveys, early diagnosis, treatment and vector control by DDT spraying. The National Institute of Preventive and Social Medicine (NIPSOM) and the Institute of Epidemiology, Disease Control and Research (IEDCR), are involved in visceral leishmaniasis research programmes. Recently a national kala-azar control programme has been implemented including passive and active case detection, vector control activities and free treatment.

Leishmaniasis is a notifiable disease since July 1987.

BURKINA FASO

1. **Visceral leishmaniasis.** Only a few cases have been reported. The first case was described in 1971.

2. **Cutaneous leishmaniasis.** From 1960 to 1961, 13 cases of CL were reported and, in 1969, one case of diffuse cutaneous leishmaniasis (DCL) in a newborn. *P. duboscqi* is present. The foci are in the north-west and in the south and have a low endemicity; in the eastern areas, only a few cases were diagnosed. In 1987, in a focus near Aribinda, Soum province, 2 out of 6 patients were parasitologically confirmed.

3. **Control.** Only passive case detection.

CAMEROON

1. **Visceral leishmaniasis.** One suspected case was reported in 1979 in the western region (Gawar). In 1983, a human case from the north (Kousseri) was diagnosed and parasitologically confirmed.

2. **Cutaneous leishmaniasis.** CL is endemic in northern Cameroon where the Mokolo region is an important focus. Cases reported include: 326 cases in 1936-1946 and 108 cases in 1950-1958 (both in eastern