

Epidemiological Aspects of Cutaneous Leishmaniasis in Logar Afghanistan

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Abstract

Leishmaniasis is a common zoonotic disease. Cutaneous leishmaniasis is an important health problem in many countries of the southern and eastern Mediterranean, with diversity of clinical manifestations from simple and single lesions to extensive lesions. Approximately, 90% of CL cases occur in Afghanistan, Algeria, Iran, Iraq, Saudi Arabia, Syria, Brazil, and Peru. The present study aimed to determine the epidemiological aspect of CL in Logar Afghanistan during the 21 months of 2019 and 2020. This was a cross sectional retrospective descriptive record-based study. All cases of CL reported to PMLCP by state health departments from March 2019 to December 2020 were enrolled. This study included all patients of all age groups and both sexes with a clinical diagnosis of leishmaniasis. The statistical analysis was performed by using the EPI INFO software package 6.04 version. The percentages were calculated for the various parameters which were under study. In 21 months study period 2085 were new cases and 42 were recurrent cases. Out of 2085 (100%) were males 1030(49.40%) and 1055(50.59%) were females. The majority cases (1789(85.80%)) were ≤ 5 years old ages. From all cases more (85.56%) were diagnosed clinically. Of the total 2085 patients, 1981 (95.01%) cured, 102(4.89%) not cured and (3.78%) had recurrence in spite treatment completion. Major (81.53%) treatment route was intra lesion or local in the site of lesion. However, the implementation of a program for controlling cutaneous leishmaniasis in Afghanistan since 2002 burden of the disease is still high in the country; it is seriously alarming for policy makers and managers of the health system in Afghanistan, indicating the presence of some problems in controlling the disease.

Keywords: Leishmaniasis, cutaneous, control, Logar

Introduction

Leishmaniasis is a common zoonotic disease. Leishmaniasis is an infection caused by various species of Leishmania protozoa, which are usually transmitted by

The bite of various species of phlebotomine sandflies. It occurs as a spectrum of clinical syndromes, which are usually divided into cutaneous leishmaniasis (CL), mucocutaneous leishmaniasis (MCL), and visceral leishmaniasis (VL). (7) Cutaneous leishmaniasis is endemic in 88 countries worldwide, with more than 350 million people at risk and incidence of 1.5 - 2 million new cases annually (3). Approximately, 90% of CL cases occur in Afghanistan, Algeria, Iran, Iraq, Saudi Arabia, Syria, Brazil, and Peru (4). Cutaneous leishmaniasis is an important health problem in many countries of the southern and eastern Mediterranean, with diversity of clinical manifestations from simple and single lesions to extensive lesions. Despite the spontaneous healing of these lesions, the facial scars can be a social stigma, especially for

women (5). Cutaneous leishmaniasis has been given various names in different civilizations such as "Delhi boil" in India, "Baghdad boil" in Iraq, and "saldana" in Afghanistan.(6) According to the WHO's report, about 1.3 million people are diagnosed with cutaneous leishmaniasis annually. In 2015, the highest incidence of cutaneous leishmaniasis was observed in Syria, Afghanistan, Brazil, Iraq, Iran, Pakistan, Colombia and Algeria (1). However Afghanistan, it is estimated to be between 5 and 10 times higher than the reported cases (2). Approximately 90% of all Leishmania infections are localized cutaneous forms (7). But even infection with dermatotropic forms of the Leishmania complex (e.g. *L. major*, *L. Mexicana*, *L. tropica*) can lead to recurrent, multilocular, chronic or mucocutaneous disease. Very often, healing is associated with the development of disfiguring scars at the exposed skin areas. Treatment options against Leishmania infections are limited to a few drugs with inconsistent efficacy and many side effects: pentavalent antimonials (sodium stibogluconate, meglumine antimoniate), second-line pentamidine, amphotericin B (also formulated as liposome), allupurinol and ketoconazole. In addition, oral miltefosine with fewer side effects has recently been introduced, which appears to be efficient against visceral and cutaneous leishmaniasis. Local treatment includes paromomycin-containing ointments. In a number of cases, failure of treatment, relapses or more severe side effects are seen. A vaccine against Leishmania infection is not available at present. (8)

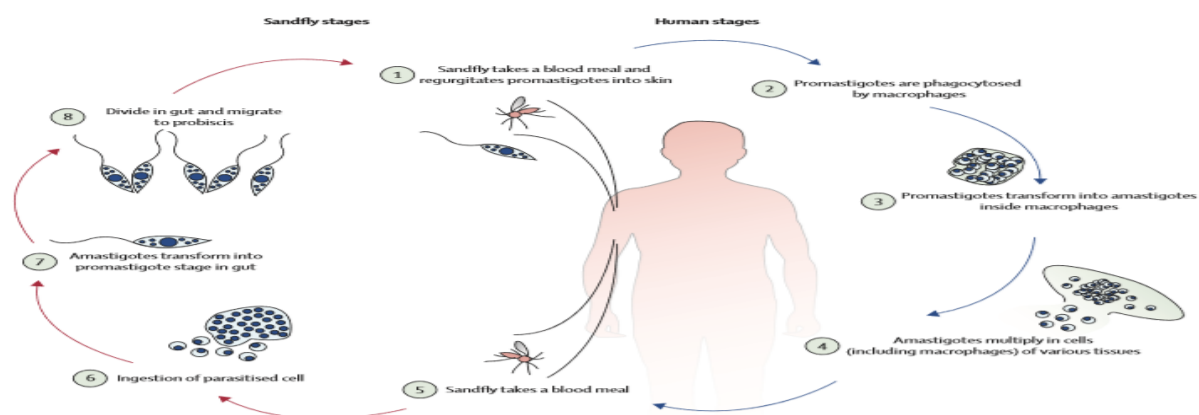


Figure 1: Life cycle of leishmania parasites

Methods

This was a cross sectional retrospective descriptive record based study. All cases of CL reported to PMLCP by state health departments from March 2019 to December 2020 were enrolled.

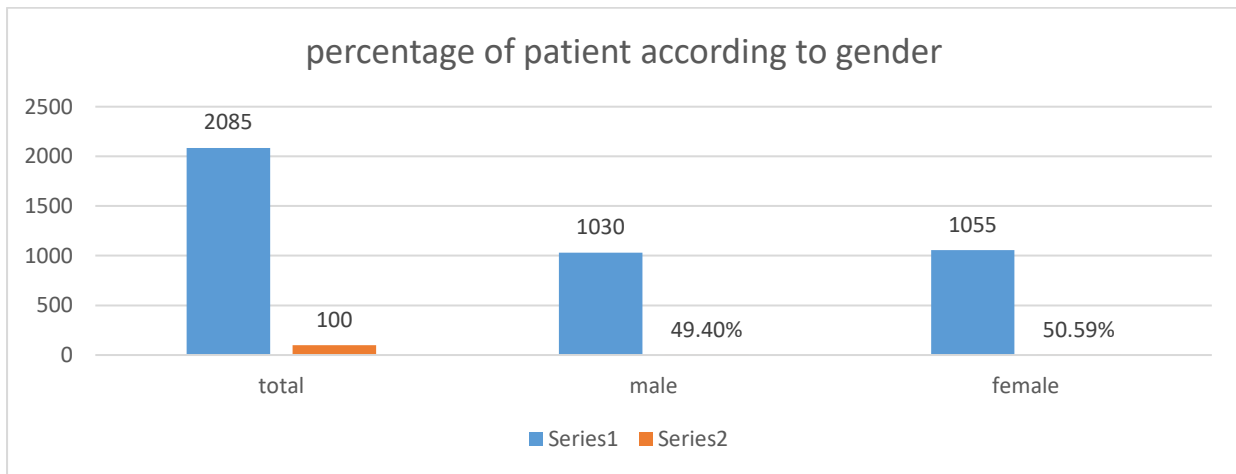
Cutaneous leishmaniasis is included in the list of mandatory notifiable diseases in Afghanistan. In other words public centers are committed to report all of diagnosed CL cases to the department of preventive diseases. A confirmed CL case is an individual with clinical manifestations, compatible with CL (appearance of skin lesions, nodular or ulcerative, usually on exposed areas of the body, which can be followed in some cases by the appearance of mucosal lesions), and laboratory confirmation via detection of the pathogen on clinical samples (if only mucosal lesions exist, laboratory confirmation will be performed via serology).

Statistical analysis: The statistical analysis was performed by using the EPI INFO software package 6.04 version. The percentages were calculated for the various parameters which were under study.

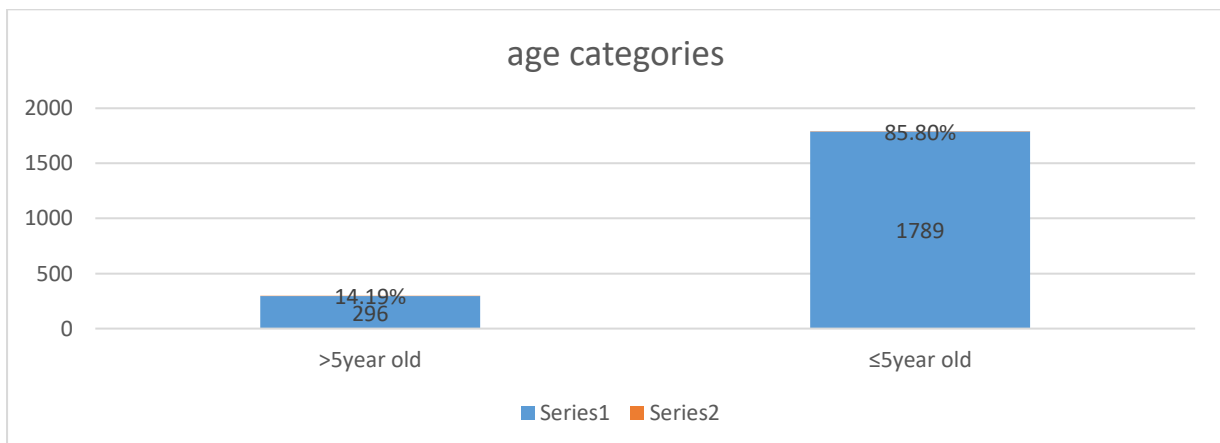
This study included all patients of all age groups and both sexes with a clinical diagnosis of leishmaniasis. The secondary data was obtained from the health department. And data were collected and were entering to previous prepared questioner to the start of the study.

Results

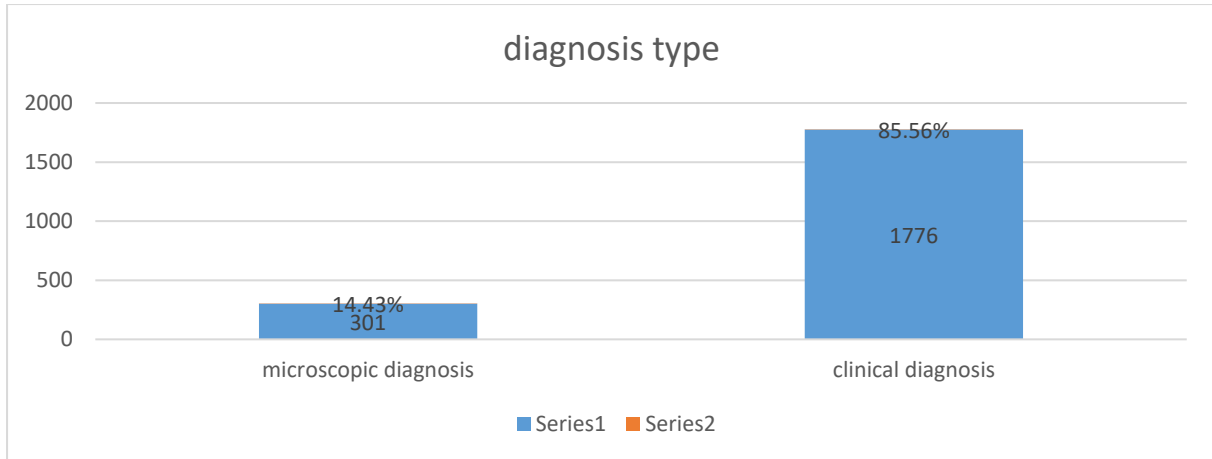
Overall, 2085 patients with CL were reported to PMLCP (Provincial Malaria and Leishmaniasis Control Program) of PPHD (Provincial Public Health Directorate) from March 2019 to December 2020 in Logar Afghanistan .in study period for 21monts 2085 were new cases and 42were recurrent cases. Out of 2085 (100%) were males 1030(49.40%) and 1055(50.59%) were females [Table/Fig-1]. From all cases 296(14.19%) were under five years old and 1789(85.80%) \leq 5years old ages. [Table/Fig-2]. The majority cases were clinical diagnosed and the remaining 301(14.43%) were diagnosed by microscopic study. [Table/Fig-3]. Outcome Of the total 2085 patients, 1981 (95.01%) cured, 102(4.89%) not cured [Table/Fig-2].1885 [Table/Fig-4]. Out of all patient only 89(4.07%) had not completed and 79(3.78%) had recurrence in spite treatment completion. [Table/Fig-5]. Major treatment rout was intra lesion or local in the site of lesion and the 388(18.46%) were treated systemically.



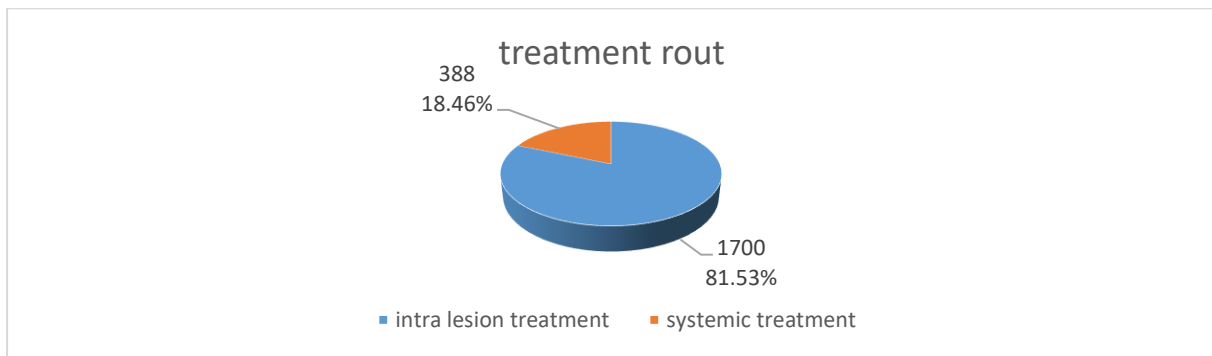
[Tab/Fig-1]: leishmaniasis cases regarding to their gender



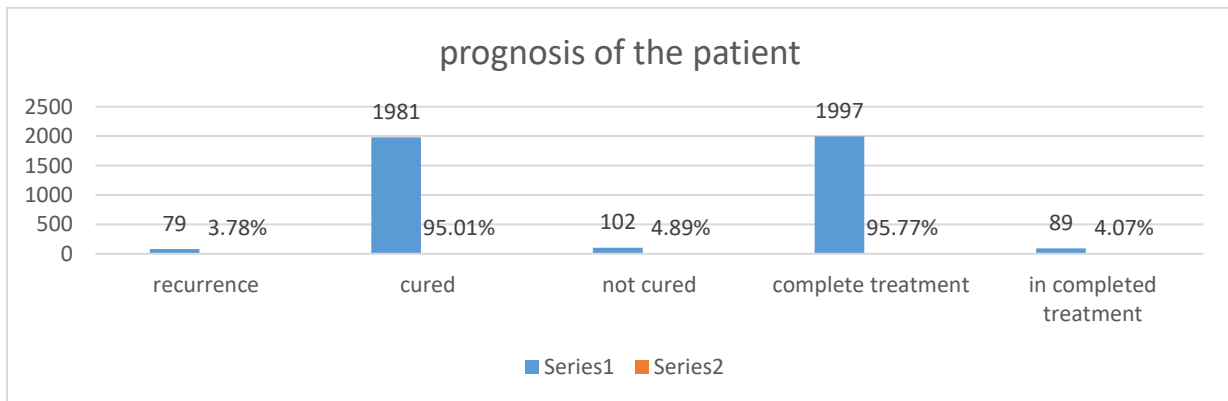
[Tab/Fig-2]: leishmaniasis cases regarding to their age group



[Tab/Fig-3]: leishmaniasis cases regarding to their diagnosis



[Tab/Fig-4]: percentage of the patient regarding to treatment rout.



[Tab/Fig-5]: percentage of the patient regarding to treatment rout.

Discussion

In our study, the greater involvement of patients was in the age ≤ 5 years old. Although a small percentage of patients (3.78%) in the study had relapsed after treatment or discontinued treatment, given that leishmaniasis is endemic in Afghanistan, relapses and treatment failures should be considered. (11) In this study, the incidence of the disease was a little higher in female than male which was supported by study carried in Iran (13) and this difference cause was both male and female were equally exposed to leishmaniasis. In our study there may also exist differences in attitudes toward seeking and providing treatment. Majority patient

(81.53%) were treated with systemic route. Our this finding was supported by study which was done in Khyber province of Pakistan (12)

The location of wound in various regions is also a function of type of mosquito's activity, culture of wearing clothing, and exposure to carrier. In the present study, majority of the wounds on exposed surface of the body in both gender like hands, face, and neck because of sleeping in the outdoor, without the use of linen and lace, and lack of proper body cover in summer. Therefore, protection and prevention actions should be more aggressively pursued near homes, especially in endemic areas. Open parts of the body, such as the head and face, had more lesion involvement. As a result, more training is requested especially in tropical regions and the use of topical ointment to protect open organs. According to the epidemiological features of CL in Afghanistan, providing a uniform mechanism for control and prevention of this disease is not possible. Finally, the main limitation of this study is the uncomprehensive data. It is suggested for finding the trend of the disease further studies with a longer period of time. It is also advisable to conduct more analytical studies to determine the role of other factors like socioeconomic factors, human behavior, population dynamics and cause of recurrence of this disease.

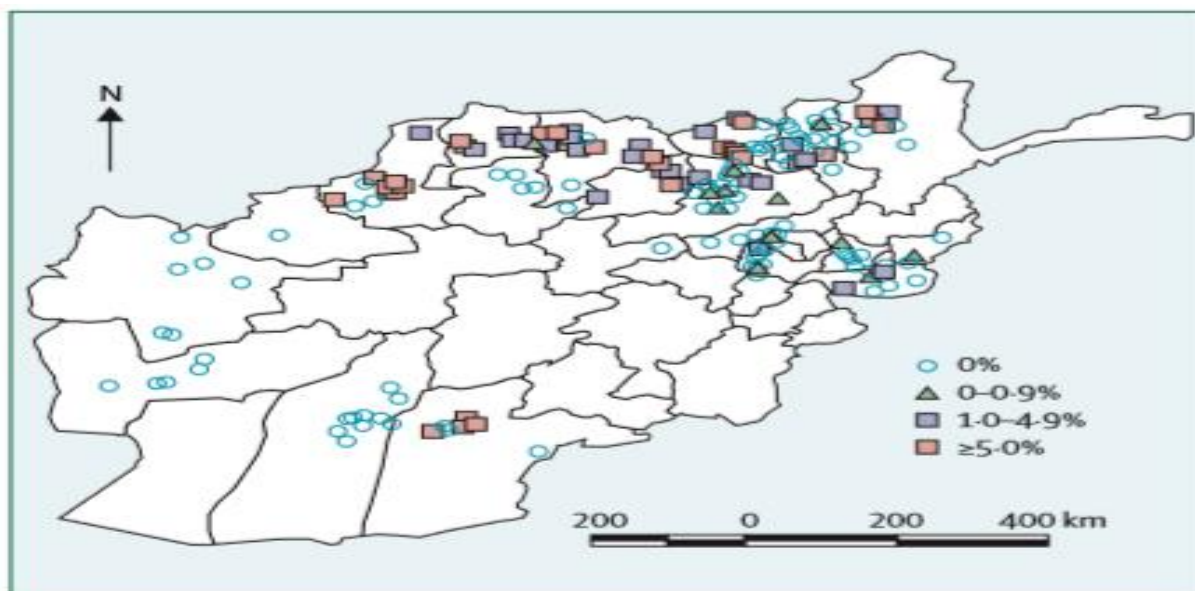


Fig-2: Spatial epidemiology of cutaneous leishmaniasis in Afghanistan.

Conclusions

According to the epidemiological features of CL in Afghanistan. Providing a uniform mechanism for control and prevention of this disease is not possible. Thus, initial actions such as staff training, screening in endemic areas, and treatment of patients with urban leishmaniasis as a reservoir for the disease can be beneficial, according to the geographical position and carrier.

However the implementation of a program for controlling cutaneous leishmaniasis in Afghanistan since 2002burden of the disease is still high in the country; it is seriously alarming for policy makers and managers of the health system in Afghanistan, indicating the presence of some problems in controlling the disease.

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References

1. World Health Organization (2018). Leishmaniasis. Media Centre. World Health Organization. <http://www.who.int/mediacentre/factsheets/fs375/en/>.
2. World Health Organization (2017). Global Health Observatory data repository. Leishmaniasis. World Health Organization. <http://apps.who.int/gho/data/node.main.NTDLEISH?lang=en%5d%20Accessed> .
3. World Health Organization.. Urbanization: an increasing risk factor for leishmaniasis. *Wkly Epidemiol Rec.* 2002;**77**(44):365–70.
4. Desjeux P. Leishmaniasis: current situation and new perspectives. *Comp Immunol Microbiol Infect Dis.* 2004;**27**(5):305–18.
5. Salah AB, Kamarianakis Y, Chlif S, Alaya NB, Prastacos P. Zoonotic cutaneous leishmaniasis in central Tunisia: spatio temporal dynamics. *Int J Epidemiol.* 2007;**36**(5):991–1000.
6. Manzoor A. Cutaneous leishmaniasis. *J Pak Assoc Dermatol* 2005; 15: 161-71.
7. World Health Organisation, 2006. http://www.who.int/leishmaniasis/leishmaniasis_maps/en/index2.html.
8. Murray H W, Berman J D, Davies C R, Saravia N G. Advances in leishmaniasis. *Lancet* 2005: 366: 1561–1577.
9. Coler R N, Reed S G. Second-generation vaccines against leishmaniasis. *Trends Parasitol* 2005: 21: 244–249.
10. Soto J, Toledo J T. Oral miltefosine to treat new world cutaneous leishmaniasis. *Lancet Infect Dis* 2007: 7: 7.
- 11- K. A. Weigle, C. Santrich, F. Martinez et al., “Epidemiology of cutaneous leishmaniasis in Colombia: a longitudinal study of the natural history, prevalence, and incidence of infection and clinical manifestations,” *The Journal of Infectious Diseases*, vol. 168,no.3,pp.699–708,1993.
12. Kassi M, Afghan AK, Rehman R, Kasi PM, 2008. Marring leishmaniasis: the stigmatization and the impact of cutaneous leishmaniasis in Pakistan and Afghanistan. *PLoS Negl Trop Dis* 2: e259.
- 13- Alavinia, S., Arzamani, K., Reihani, M., Jafari, J., 2009. Some epidemiological aspects of cutaneous leishmaniasis in Northern Khorasan Province, Iran. *Iran. J. Arthropod.Borne Dis.* 3 (2), 50.