

## Original Article

# Lymphedema: another aspect in cutaneous leishmaniasis

Syed Shamsuddin\*, Niaz Mohammad\*\*, Faria Asad†, Haroon Nabi††, Syed Bilal Ahmad

\*Department of Dermatology Bolan Medical College Quetta.

\*\* Department of Pathology Bolan Medical College Quetta.

†Department of Dermatology King Edward Medical college Lahore.

†† Department of Dermatology Lahore Medical College Lahore.

**Abstract** *Background* Cutaneous leishmaniasis (CL) is a common parasitic disease of the skin. Ugly scarring is a common sequel of CL. We report lymphedema, another disfiguring complication, in our patients in this chronic illness.

*Objective* The main objective of this study was to determine the incidence of secondary lymphedema in leishmaniasis of lower legs and feet.

*Patients and methods* This study was conducted at multiple centers in Balochistan province of Pakistan from 1<sup>st</sup> Feb, 2008 to 12<sup>th</sup> Sep, 2008. Out of 1920 patients with CL examined over this duration, 567 patients having the disease on the lower legs and feet were recruited in the study. All these patients were assessed for the presence of lymphedema of the involved limbs while edema observed was sorted into mild, moderate and severe categories. Follow up period was six weeks in order to observe the outcome of this complication.

*Results* Out of the total number of 1920 patients, 567 (29.5%) had leishmaniasis of the lower legs and feet and out of these 157(27.7%) patients developed lymphedema of the affected limbs. Among these 157 patients, 76(48.4%) had mild edema, 52 (33.1%) had moderate edema and 29 (18.5%) had severe edema. Over a six weeks follow up period edema persisted in 43% of the patients inspite of successful treatment of CL with injectable antimony therapy.

*Conclusion* Cutaneous leishmaniasis can lead to lymphedema of the lower legs and feet and has to be considered while enlisting the causes of secondary lymphedema.

### **Key words**

Cutaneous leishmaniasis, secondary lymphedema.

## **Introduction**

Cutaneous leishmaniasis (CL) is a chronic granulomatous disease of the skin caused by several species of an obligate intracellular parasite called Leishmania which is a protozoa of *Trypanosomidae* family. More than 20

pathogenic strains of this organism have been identified.<sup>1</sup> Depending on immune response of the host, 90% of all leishmania infections are limited to the skin.<sup>2</sup> It is a major global public health problem since 2-3 million people are affected by the disease and 350 million people in 80 countries are at risk.<sup>3</sup> Phlebotomine female sandfly acts as a vector for the transmission of organism in the old world. The incubation period extends from weeks to months while ninety percent of the lesions heal spontaneously in two to 6 months with a lifelong immunity.<sup>1,4,5</sup>

---

### **Address for correspondence**

Dr. Syed Shamsuddin,

Associate Professor Department of Dermatology

Bolan Medical College Quetta.

Tel. 00.92.3009381679

Email: shams\_dermatologist@yahoo.com

Rats, gerbils, dogs, jackals and human beings are the reservoirs of infection. Leishmaniasis is reported from all parts of the world except Australia, Pacific islands and Antarctica.<sup>6</sup>

It may act as a zoonotic disorder (transmitted from animals like rodents to human beings) where the organism involved is *L. major* and presents as wet/rural type of CL. The incubation period in this variety is relatively short and takes lesser time to heal.<sup>7</sup> The anthroponotic form (transmitted from human to human) occurs in the form of dry/urban variety of CL. Here the organism involved is *L. tropica* and it takes a longer time to heal. Both of these types of leishmaniasis are more prevalent in our region.<sup>8</sup>

Commonly it involves the exposed parts of the body in the form of a crusted papule, nodule or a volcano like ulcer having raised borders and a granulomatous base. It may also appear as a plaque of lupus vulgaris hence named as lupoid leishmaniasis. While in rare cases it may appear in the form of paronychia, cheilitis-like, annular, zosteriform, palmoplantar variety and crusted plaques on the scalp. All these rare clinical presentations are because of the distinctive host parasite interaction as these are the odd sites for the bite of sandfly also.<sup>9</sup> Although cutaneous leishmaniasis has no mortality but disfiguring scars are the outcome of the disease. An important complication which we have observed is lymphedema. The present study is to determine the incidence of this complication in leishmaniasis of the lower limb.

### Patients and methods

This descriptive study was conducted in the department of dermatology, Bolan Medical Complex Hospital, Quetta and two private clinics one in Quetta and the other in Pishin from 1<sup>st</sup> Feb 2008 to 12<sup>th</sup> Sep 2008. Out of a

total number of 1920 patients of cutaneous leishmaniasis registered over this period, 567 patients comprising of 348 males and 219 females with active lesions of CL on the legs and feet were included in the study and assessed for the presence of secondary lymphedema of the affected limb. Duration of the disease ranged from 2 to 13 months while the age of the patients ranged from 5-60 years. Patients with signs of active secondary infection, deep venous thrombosis, previous lymphedema, varicose veins, pregnancy and patients with a known history of cardiac, hepatic and renal disease were excluded from this study. Investigations performed were slit skin smear for L.D. bodies, fine needle aspiration cytology (FNAC), peripheral smear for microfilaria and Doppler ultrasound to exclude deep venous thromboses.

Patients with lymphedema were given three grades mild, moderate and severe. All patients after cure with a standard regimen of pentavalent antimony were followed up for six weeks to see the fate of this kind of edema.

### Results

This study showed that 567 (29.5%) patients from the total of 1920 patients had CL of the lower legs and feet. Among these 567 patients, 157 (27.68%) had lymphedema of the affected limbs. In these 157 patients, 76 (48.41%) had mild edema (**Figure 1**), 52 patients (33.12%) had moderate edema (**Figure 2**) and 29 (18.47%) had edema of severe category (**Figure 3**). On follow-up over a duration of six weeks, 43% of the patients still had edema of various grades (**Figure 4**) although clinically free of the disease after getting a three week treatment of pentavalent antimony.



**Figure 1** Mild lymphedema on the left foot in a patient of leishmaniasis.



**Figure 2** Moderate lymphedema on the right foot in a patient of leishmaniasis.



**Figure 3** Severe lymphedema on the left foot in a patient of leishmaniasis.



**Figure 4** Persistent lymphedema in a patient showing healed lesions of leishmaniasis.

## Discussion

Cutaneous leishmaniasis is a challenge for the health care workers particularly in Balochistan province of Pakistan. Here the disease is so common as thousands of cases are registered yearly coming from all parts of the province even from the adjacent parts of neighboring country of Afghanistan.<sup>10</sup> It has many variants like wet or rural, dry or urban, chronic lupoid, diffuse cutaneous and mucocutaneous.

The most important complication of the disease is the disfiguring scars when it affects a cosmetically important site like face. Poor healing nature of the lesions, chronicity of the sores and chances of secondary infection are the other complications. We noted that the morbidity of CL is no more limited to these complications. 27.68% of the patients in our series presented with secondary lymphedema of the lower limbs. This is quite a high percentage but has never been mentioned in the previous medical literature. In our opinion occurrence of edema of feet and leg could be due to dependency as such complication was less common on other sites of the body. Such edema was not seen in children. The reason was not clear. No difference was noted in the severity

and frequency of lymphedema between males and females.

Secondary lymphedema of legs is more common than primary and filariasis is a common cause especially in the tropics. However, filariasis is not seen in Pakistan. Although any chronic inflammatory process or recurrent infection may lead to persistent edema of the lower limb but the history, clinical examination and laboratory work up will differentiate leishmaniasis from these conditions. Morbidity of the persistent edema cannot be ignored as symptoms include aching discomfort and a sensation of heaviness, while the long-term complications like recurrent infection, lymphangitis and rarely lymphangiosarcoma are the other sequelae of this condition.<sup>11</sup> We conclude that CL is no more a rare cause of secondary lymphedema and should be included in the list of disorders leading to such complication.

## References

1. Stark CG. Leishmaniasis. *eMedicine* (Last updated March 27, 2008) Available at: <http://www.medscape.com/article/220298-overview> (Accessed on October 10, 2008).
2. Stebut EV. Immunology of cutaneous leishmaniasis: the role of mast cells, phagocytes and dendritic cells for protective immunity. *Europ J Dermatol* 2007; **17**: 115-22.
3. Zakai HA, Zimmo Sameer KH, Mahmoud FAH *et al.* Effect of itraconazole and terbinafine on Leishmania promastigotes. *J Egypt Soc Parasitol* 2003; **33**: 97-107.
4. Momeni AZ, Aminjavaeri M. Successful treatment of non-healing cases of cutaneous leishmaniasis, using a combination of meglumine antimoniate plus allopurinol. *Europ J Dermatol* 2003; **13**: 40-3.
5. Al-Wakeel M, Kiehl P, Kapp A *et al.* Cutaneous leishmaniasis (Aleppo boil) successful treatment with topical paromomycin (Humatin®). *Europ J Dermatol* 1997; **7**: 47-8.
6. Hsia RY. Leishmaniasis. *eMedicine* (Last updated march 31, 2008) Available at: <http://emedicine.medscape.com/article/783750-overview> (Accessed on October 14, 2008).
7. Vega-Lopez F, Hay RJ. Leishmaniasis. In: Burns T, Breathnach S, Cox N, Griffiths C, eds. *Rook's Textbook of Dermatology*, 7<sup>th</sup> edn. London: Blackwell Science; 2004. p. 32.35-47.
8. Myint C K, Asato Y, Yamamoto Y *et al.* Molucular Parasitology. In: Hashiguchi H, ed. *Studies on New and Old World Leishmaniasis and their Transmission, with Particular reference to Ecuador, Peru, Argentina and Pakistan. Research Report Series* 2007; **8**: 11-27.
9. Gardener PJ, Shchory L. Chance ML. Species differentiation in the genus leishmania by morphometric studies with the electron microscope: Part 1. *Ann Trop Med Parasitol* 1977; **71**: 147-56.
10. Shamsuddin S, Mengal JA, Gazozai S *et al.* Atypical presentation of cutaneous leishmaniasis in the native population of Balochistan. *J Pak Assoc Dermatol* 2006; **16**: 196-200.
11. Turpie AG. Lymphedema. The Merck Manual of Patient Symptoms (last updated March 2008) Available at: <http://www.merck.com/mmpe/sec07/ch081h.html> (Accessed on Oct 13, 2008).

## Manuscript Submission

Manuscripts may be emailed to the Editor,

Prof. Ijaz Hussain,

E mail: [drijazhussain@gmail.com](mailto:drijazhussain@gmail.com).