



Cutaneous leishmaniasis due to *Leishmania major* in the area of Tamezmoute (Morocco): prospective study of 23 cases

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ABSTRACT

Cutaneous leishmaniasis (CL) is a human pathology caused by a flagellate protozoan of the genus *Leishmania*. It poses a public health problem in Morocco. The objective of this work is to illustrate the frequency of the CL in the rural town of Tamezmoute in the south east of Morocco through a prospective conducted between November 7 and December 19/2013. The number of cases diagnosed was 23 patients with a positive parasitological diagnosis. The average age of our patients was 7.5 years (range between ages 3.5 and 60 years). There was a female predominance with a sex ratio of 0.35 (6 men to 17 women). 3 patients have contracted the disease in March 2012 with a stop at the second treatment cure. The average number of lesions per patient was 2 (one to three). Facial affect represented 78.26 % of the observed locations. 65.21 % of the cases had a disease associated with facial affect the upper and / or lower. Positive cases were treated at the health center in Tamezmoute : N- methylglucamine antimoniate (Glucantime ®) administered intralesional at 0.1 ml per centimeter diameter of the lesion to repeat one or two times a week until has bleaching injury. The Zagora region still continues to be a rebel home of CL at *L. major*. The awareness associated with good management of patients can help eradicate cutaneous leishmaniasis.

Key words: Cutaneous leishmaniasis, *Leishmania major*, Morocco

INTRODUCTION

Cutaneous leishmaniasis (CL) is ananthropozoonosis caused by a flagellate protozoan of the genus *Leishmania* that affects many species of mammals. It results from the introduction of the flagellated form of the parasite (promastigote) in the skin following a bite of a sandfly. The infection continues to be a major public health problem in Morocco, particularly in the area extending from the south to the southeast of the atlas [1].

The objective of this work is to illustrate the CL frequency in the rural municipality of Tamezmoute in the south of Morocco, to show the importance of this infection in this epidemic outbreak, and to pay close attention to the tank of this infection and to modalities of anti-*Leishmania* fight and finally to adapt it to the lifestyle of the inhabitants of the region.

MATERIALS AND METHODS

Presentation of the study site

Situated at sixty kilometers south of Ouarzazate in the direction of Zagora. The total population of the municipality (2009) is estimated at 10,462 inhabitants that are predominantly rural. Agriculture is concentrated in the long Draa's valley and in the palm grove. The climate is arid with an often irregular and low rainfall.

Type of study

This is a prospective study realized during a medical campaign installed in the rural municipality of Tamezmoute, circle of Agdaz - Province of Zagora in the southern-east of Morocco, over a period of 40 days. We included all cases presenting CL from November 7 to December 19, 2013.

Materials and methods

The diagnosis was based on cytology smears made from samples of serous fluid collected from the lesions after scraping the edges. The samples were fixed with methanol and stained with May-Grünwald-Giemsa (MGG) in search of intramacrophagic or extracellular Leishman's body (shape amastigote).

For each patient, we noted: age, sex, geographical origin, consultation period and the number of lesions, their localization, clinical aspects, treatment and post treatment changes.

RESULTS AND DISCUSSION

The number of cases diagnosed was 23 patients with a positive parasitological diagnosis. The average age of our patients was 7.5 years (range 3.5 to age 60 years). There was a female predominance with a sex ratio of 0.35 (6 men to 17 women). All patients were from the region of Tamezmoute and all were rural residents. 87% of cases reported a recent contamination in summer (June and July 2012), while 3 patients contracted the disease in March 2012 with a treatment stop treatment at the second cure.

The average number of lesions per patient was 2 (between one and 3). The facial involvement represented 78.26% (18 cases) of the observed locations (Figure 1). 65.21% of cases (15 patients) had facial involvement associated with damage to the upper and / or lower limb. Two children had a unique dorsal lesion.

Positive cases were treated in the Tamezmoute's health center following the WHO recommendations (<http://apps.who.int/medicinedocs/en/d/Jh2922e/>): perilesional administration of N-methylglucamine antimoniate (Glucantime®) was done at 0.1 ml per centimeter diameter and it was repeated one or two times per week until bleaching injury [2].

The evolution was good for all patients after one year of the start of treatment.

The CL is a public health problem in Morocco. For years, the Public Health Ministry has instituted a program in the southeast of the country with the installation of a vector control strategy and awareness campaigns of the population. Despite these efforts, this infection persists at high rates.

In our country, this condition is due to three species: *Leishmania major*, *Leishmania tropica* and *Leishmania infantum* [1,2]. The CL of *L. major*, also called zoonotic CL (ZCL), is transmitted by *Phlebotomus papatasi*. Its reservoir is Gerbillidae: Shaw's jird. It occurs in rural areas of the south and southeast of the atlas at an endemic-epidemic mode, followed by calm periods. [1] All the patients of the study belonged to this region known endemic for the only species *L. major*.

In our study, 65% of cases of CL collected were children under fifteen years with no sex predominance. This result is in agreement with other studies [2,3,4]. This can be explained by the high sensitivity of children and travelers to infection in endemic areas compared to Aboriginal adults who are usually immune [2,5].

The majority of our patients (87%) reported a contamination in summer (June and July). This is consistent with the literature. Thus the study of the seasonal nature of *Phlebotomus papatasi* (vector of the parasite) in the Marrakesh region (southern Morocco), shows two annual periods at high risk of disease's transmission: October-November and May - June-July [6].

Clinically, CL L. major usually manifest with multiple lesions of "wet" type, that begins with erythema, then it transforms to papule and then to nodule that evolve into a wide ulceration that has burgeoning, papillomatous background, covered with a more or less purulent coating (Figure 2). These lesions are often secondarily infected and may be accompanied by lymphangitis and lymphadenopathy [1,7]. In our cases series, there was a predominance of multiple lesions, crusted and ulcerative, localized mostly on the face (18 cases). However, violations of the lower and / or upper limbs, were less frequent. Species identification and zymodemes by isozyme typing or molecular biology has not been achieved, given the context of our study (Field Hospital).

Several factors contribute to the persistence of this household of L. major in Tamezmoute area. Environmental and human factors such as the existence of poorly maintained stables inside the homes that are located near the banks of Daraa, the promiscuity of the villagers, optimal conditions for maintaining the sandfly larvae, and the presence of the intermediate host (*Meriones shawi*) in this region. The control program must focus on raising awareness of the rural population, on improving hygiene and on the use of mosquito nets, keeping vector control and treatment of carriers [1,2,8].

Therapeutically, 13% of cases reported a discontinuation of treatment due to adverse effects: meglumine antimoniate (Glucantime¹), and particularly muscle pain [1,9,10]. This can be remedied by the introduction of an individual therapeutic monitoring, especially in schools in endemic areas.

CONCLUSION

The Zagora region continues to be a rebel LC home to L. major, despite all efforts by the Moroccan health agencies. Diagnosis and treatment of infected patients remain insufficient to irradiate this infection. However, awareness of the population, especially children in schools, could improve the national fight against leishmaniasis program.



Figure 1 – Papular cupboard at the right cheek due to *Leishmania major*.



Figure 2- Erythematous squamous lesion at chin

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