



Research Article

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Prevalence of Cutaneous Leishmaniasis Among Ulcerative Skin Lesions in Taif City



Mahmoud Khalifa Mahmoud¹, Howaida Mahmoud Hagag^{2,3}, Khadiga Ahmed Ismail^{2,4*}, Osama Mahmoud Khalifa⁴, Amal Fathy Gharib², Razan Alzhrani², Salma Alnafaie² and Sara Althubati²

¹Consultant of Dermatology King Faisal Complex, Saudi Arabia

²Clinical laboratory, Taif University, Saudi Arabia

³Department of Pathology, Al Azhar University, Saudi Arabia

⁴Ain Shams University Faculty of Medicine, Saudi Arabia

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***Corresponding author:** Khadiga Ahmed Ismail, Ain Shams University Faculty of Medicine, Clinical laboratory Taif University, Saudi Arabia

Abstract

Background: Cutaneous leishmaniasis is an annoying and disfiguring disease affecting around 1,500,000 individuals globally. There are endemic pockets of this disease in Taif region. Leishmaniasis is a disease caused by an intracellular protozoan parasite (genus *Leishmania*) transmitted by the bite of a female phlebotomine sand-fly. The clinical spectrum of leishmaniasis ranges from a self-resolving cutaneous ulcer to a mutilating mucocutaneous disease and even to a lethal systemic illness. Therapy has long been a challenge in the more severe forms of the disease, and it is made more difficult by the emergence of drug resistance.

Material & method: Cross section study was conducted on patients submitted to outpatient dermatology clinics at King Faisal Complex complaining of ulcerative skin lesion during the period from February 2016 to November 2018. Smears were prepared from Scraps taken from the exudate in the base of ulcerative skin lesion and stained by Geimsa and examined under microscope for leishmania bodies

Results: The study reveals a positivity rate of 31.4% of all examined cases of skin ulcer with predominance of positive cases in the face region and in male sex.

Conclusion: The results clearly indicate that the leishmania is endemic in Taif city and this is due to the establishment of sand flies in Taif region.

Keywords: Cutaneous leishmaniasis; Skin ulcer; Syphilis; Herpes; Blastomycosis

Introduction

Skin ulcers are superficial defects in the tissues of the epidermis and dermis with surrounding inflammation. Infection, collagen vascular diseases, and malignancy can cause cutaneous ulcerations. Information on host factors, exposure history, and the clinical course of the lesions is critical to narrowing the differential diagnosis. The lesion's anatomic location also may offer clues to the cause. Facial ulcers may be caused by syphilis, herpes, or blastomycosis, whereas ulcers of the arms or hands may be caused by sporotrichosis, nocardia, atypical mycobacteria, herpetic whitlow, or cutaneous anthrax. Ulcers on the chest wall from underlying pulmonary involvement or associated with intravenous catheters may be caused by aspergillosis. Ulcers in the groin or perineum may result from sexually transmitted diseases such as syphilis, chancroid and herpes, as well as from Behcet's disease or fixed drug eruption. Ulcers on the lower extremities

result from venous insufficiency in 70%-90% of cases and occur below the knee but never on the bottom of the foot. A history of unusual occupation, hobby, or exposure can suggest causes of skin ulcers such as tularemia in rabbit hunters, *Mycobacterium marinum* in aquarium enthusiasts, and leishmaniasis in travelers to endemic areas of the Middle East, North Africa, and Central and South America. Host factors also may predispose individuals to any of several types of ulcers[1].

Leishmaniasis is a disease caused by *Leishmania*, a protozoan transmitted to humans by the bite of the sand fly [2]. There are different forms and clinical manifestations of leishmaniasis depend on complex interactions between the virulence characteristics of the infecting *Leishmania* species and the immune response of its human host. The result is a spectrum of diseases ranging from localized skin lesions to diffuse involvement of the

reticuloendothelial system [3] and thus, leishmaniasis is classified into three major types, cutaneous (CL), muco-cutaneous (MCL) and visceral leishmaniasis (VL) [4].

The major tropical infection of public health importance is Cutaneous leishmaniasis. It is caused by a group of protozoan intracellular and causes skin lesions, mainly ulcers, on exposed parts of the body, leaving life-long scars and serious disability [5].

Patients with cutaneous leishmaniasis have one or more lesions on the skin, usually without fever and symptoms. L. major infection generally have superficial satellite papules in the periphery of lesion which heals within 4-6 months in about 50-70% cases whereas in L. tropical the ulcers on the skin are usually dry type which heal within a year or longer [6].

The World Health Organization (WHO) reports endemic leishmaniasis in 98 countries & 3 regions on 5 continents (Africa, Asia, Europe, North America, South America), with an official estimated annual incidence of 0.7-1.3 million cases of cutaneous disease and 0.4 million cases of visceral disease [7].

In Saudi Arabia, there are over 19,000 cases of Cutaneous leishmaniasis were reported in the past 7 years. Different species of the Leishmania parasite have been isolated and incriminated as the causative species [8].

The Saudi Arabia, which is a tropical country, has endemic pockets of cutaneous leishmaniasis in Al-Hassa, Al-Gaseem, Madina, Hail, Riyadh, Asir, Tabooq, Taif, Al-Baha, Jazan, Najran and Bisha. Lots of cases were detected in Asir, Al-Baha, Arar, El-Quassim and Riyadh provinces [9]. So, the aim of this study is the detection of prevalence of cutaneous leishmaniasis among ulcerative skin lesion in Taif city.

Subjects & Methods

Cross section study was conducted on patients submitted to outpatient dermatology clinics at King Faisal Complex complaining of ulcerative skin lesions during the period from February 2016 - November 2018, important patient data were collected as age, sex, site of skin ulcer.

Study samples

Scraps were taken from the exudate in the base of ulcerative skin lesions and spread as a smear on microscopic glass slides and stain with Geimsa, examination of the stained slide for the presence or absence of leishmania bodies .The slides were reported positive by detection of leishmania bodies inside macrophages or free scattered in the field.

Statistical analysis

Data were collected and analyzed statistically using SPSS version 19.0

Ethical concern

All patients included in the study were informed of the study objectives and a written signed consent was taken from each one of them.

Results

Table 1: Site distribution of all skin ulcers.

Site	No of Cases	%
Face	12	34.2
Arms	8	22.8
Legs	15	42.2
Total	35	100

Table 2: Distribution of positive lesions on different body parts of patients from Taif region.

Site	Positive Smear	Negative Smear	Total Number	Positivity %
Face	8	4	12	66.6
Arms	2	6	8	25
Legs	1	14	15	6.6
Total	11	24	35	31.4

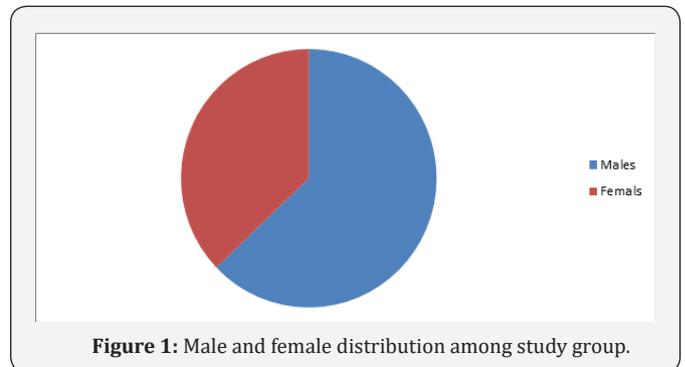


Figure 1: Male and female distribution among study group.

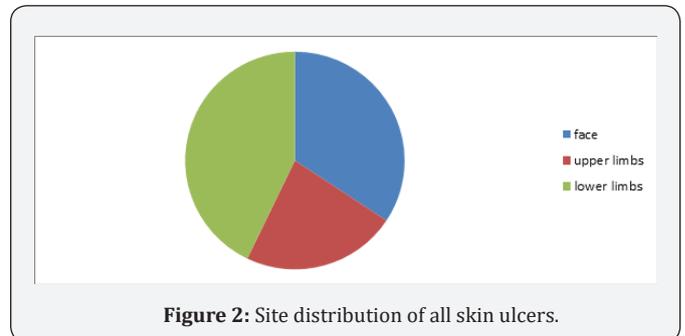


Figure 2: Site distribution of all skin ulcers.

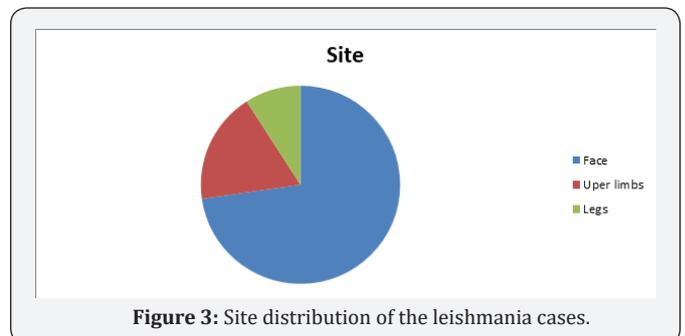


Figure 3: Site distribution of the leishmania cases.

The study was conducted on 35 patients with skin ulcer submitted to outpatient dermatology clinics at King Faisal Complex during the period from February 2016 - November 2018. The patients were 22 males and 13 females with an average age

of 20- 63 years. 12 patients have skin ulcer in the face, 8 patients have skin ulcer in their hands and forearms, while the rest of patients (15 cases) have the ulcer in their legs. Eleven cases out of 35 (31.4%) were positive for Leishmania. The positive leishmania cases were 7 (63.6%) male patient and 4(36.4%) female patients. The site distribution of positive cases for leishmania was 8 cases in the face (72.7%), 2 cases in the upper limbs (18%) and one case (9%) in the legs (Table 1 & 2) Figure 1-5. The microscopic pathological changes in cutaneous leishmaniasis caused by *L. major* and *L. tropica* in Taif region showed predominantly macrophages and lymphocytes in the inflammatory infiltrate, along with amastigotes in macrophages in the smear prepared from exudates of lesion and necrosis of parasitized macrophages.

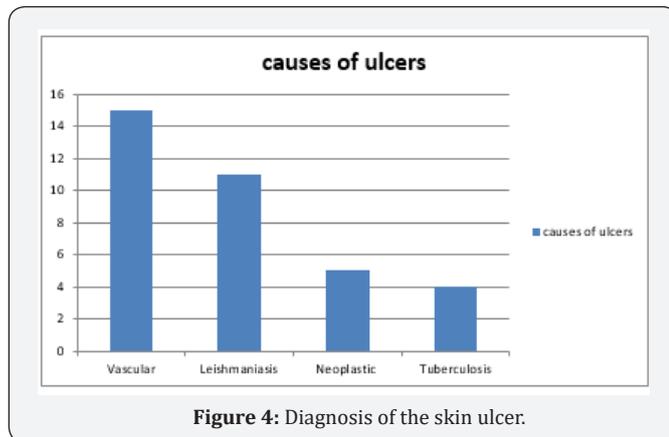


Figure 4: Diagnosis of the skin ulcer.

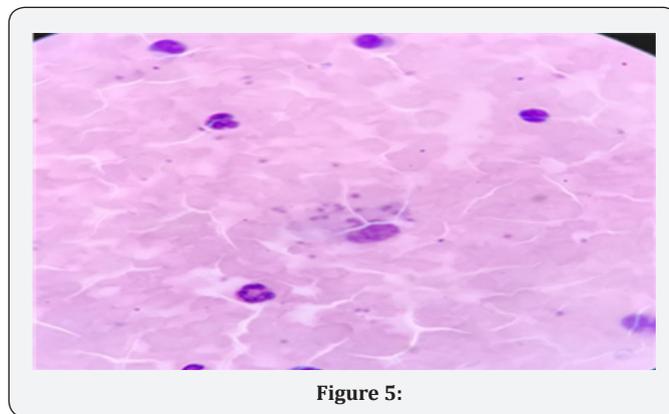


Figure 5:

Discussion

Leishmaniasis is a disease caused by an intracellular protozoan parasite (genus *Leishmania*) transmitted by the bite of a female phlebotomine sand-fly. The clinical spectrum of leishmaniasis ranges from a self-resolving cutaneous ulcer to a mutilating mucocutaneous disease and even to a lethal systemic illness. Therapy has long been a challenge in the more severe forms of the disease, and it is made more difficult by the emergence of drug resistance. Leishmaniasis is a potential threat to human population in 88 countries affecting around 12 million people globally [10]. Around 1,500,000 cases of cutaneous leishmaniasis (CL) has been reported from tropical, subtropical and temperate regions of many countries each year. It is more widely distributed in three epidemiological regions, the Americas, the Mediterranean

basin, and western Asia from the Middle East to Central Asia. Saudi Arabia which is a tropical country has endemic pockets of cutaneous leishmaniasis in Al-Hassa, Al-Gaseem, Madina, Hail, Riyadh, Asir, Tabooq, Taif, Al-Baha, Jazan, Najran and Bisha. Lots of cases were detected in Asir, Al-Baha, Arar, El-Quassim and Riyadh provinces [11].

Our study included 35 cases complaining of skin ulcers, 11 cases were revealed positive for leishmania bodies in smear taken as scrapings from exudate in the bases of skin ulcers, our positivity rate was 31.4%. As regard sex distribution of positive cases, the majority were male patient (63.6%) while the rest cases were females (36.4%). As regard site distribution of positive leishmania cases, our study reveals that the majority of positive cases were in the face (66.6%). Our positivity rate was lower than that reported by Health statistical year books of ministry of health, Saudi Arabia for 2007-2009 that showed 45 cases of cutaneous leishmaniasis in Taif region [12]. And during 2013, 27 cases of cutaneous leishmaniasis were recorded from this region which is little less than what was reported in 2009. But this lower rate of positivity in our study is due to small number of cases collected and also our cases were collected from one hospital in Taif city.

Conclusion and Recommendation

These data clearly indicate that the leishmania is endemic in Taif city and this is due to the establishment of sand flies in Taif region. It is probably because of varied type of breeding and hiding places which are difficult to approach. Like spaces under the big rocks which are numerous. Besides, there are many abandoned houses and garbage pits near the animal sheds which falls in the flight range of sand flies and recommended that the control program is taking care of destroying *Leishmania* vector to prevent and control leishmania infection in Taif city.

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