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CUTANEOUS LEISHMANIASIS IN BASRAH VILLAGES, SOUTH IRAQ

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Abstract

CL in Iraq is caused by both *Leishmania major* and *Leishmania tropica*. Marshes Villages of Basrah province south Iraq are regarded as a rural area. A total of 35 cutaneous leishmaniasis cases 12 (34.28%) females and 23(65.71%) males were clinically registered from April 2013 to March 2014 in Health Care Center of Basrah Marshes Villages, South of Iraq are reported and investigated. All patients were parasitologically confirmed by stained smears and culture, the main clinical features were ulcerations. Number of cutaneous lesions per patients ranged from 1 to 5 with different lesions' size from 3×3 mm to 25×25 mm in diameter. Amastigotes form were detected in all cases 35 (100%), while promastigotes from were found in culture sample of 29 (82.8%) cases. The results were analyzed and evaluated. Cutaneous leishmaniasis in Basrah marshes villages may differ from other regions because of the difference of the *Leishmania* strains, people life style, behaviors and difference in vectors and reservoir hosts.

Key words: Iraq, Basrah villages, Cutaneous leishmaniasis, Clinical survey.

Introduction

Leishmaniasis is a parasitic disease caused by various strains of *Leishmania* spp. with three clinical pictures, cutaneous, mucocutaneous and visceral (Herwaldt, 1999). Cutaneous leishmaniasis (CL) is an acute or chronic infection effecting tissues of mammals, including man. CL is divided into localized, generalized and diffuse types (Lazo, 1994). It is known as by numerous names as Baghdad boil, Aleppo button, Delhi Boil, Oriental sore, Damascus sore (Rahim and Tatar, 1966) as well as Okhet or sister, Nafra or rash, Domal or boil, and El-Mohtafura or digger (Morsy, 1996). CL shows various cutaneous manifestations such as papule, nodules, erythematous, plaques and ulcers on the entire body surface (Grevelink and Lerner 1996). CL is an endemic in Iraq (Pringle, 1957), where it could be diagnosed clinically (Arfan and Rahman, 2006).

The study objective was to determine and analyzed the incidence of CL in Basrah marshes villages. Most skin lesions spontaneously heal within weeks to months, or last for few years (Chin, 2000). Ulceration may leave large disfiguration permanent scars.

Materials and Methods

A total of 35 cutaneous leishmaniasis patients living in Basrah villages in marshes and rural regions were examined. Province of Basrah was located at the south part of Iraq. The study period was from April 2013 to March 2014. The cases were collected by help of members of public health care centers in villages, and by dermatologists. Each patient was examined clinically and parasitologically and sheets were filled out on personal, clinical and laboratory data. Skin lesions were examined for size, site and number. Microscopic examination of stained smear of aspirate materials were taken from lesions' margin, fixed in acetone free methanol and stained with Giemsa stain for amastigotes or by culture on NNN diphasic medium for promastigotes (WHO, 1998).

Results

In the present study, most popular types of lesions were nodule and ulcer, on hand and forearm more in males than females. One lesion was on 13 (37.14%) patients, 9 males and 5 females. Lesions duration ranged from 1 to 12 weeks at examination time. Lesions per patients ranged from 1 to 5 with different size from 3×3to 25×25 mm. Lesions on exposed parts (Tab. 1, Fig. 1). Amastigotes were in all stained; promastigotes were in cultures of 29 (82.8%) cases (Tab. 2, Fig.2).

Table 1: Clinical features of 35 patients with CL diagnosed by stained smear and culture.

No.	Age	Sex	Occupation	Duration time	Lesion No.	Lesion site	Lesion size (mm)
1	17	M	Student	3 w	3	Foot	4×4
2	10	M	Student	7 w	1	Arm	5×5
3	29	F	House wife	10 w	2	Foot	10×10
4	45	M	Farmer	2 w	1	Cheek	3×3
5	19	M	Other	6 w	2	Arm	20×15
6	61	M	Not work	11 w	1	Finger	10×10
7	21	F	House wife	4 w	1	Neck	3×3
8	33	F	Farmer	8 w	1	Cheek	5×7
9	41	M	Fisher	5 w	3	Leg	15×15
10	23	M	Farmer	12 w	3	Leg	25×25
11	10	F	student	12 w	1	hand	2×4
12	15	M	Other	10 w	1	arm	4×5
13	13	M	Student	5 w	1	Thigh	5×5
14	27	M	Other	9 w	1	Arm	10×5
15	55	M	Other	4 w	2	Face	4×3
16	25	F	House wife	12 w	2	Thigh	10×15
17	67	M	Not work	12 w	1	Arm	7×10
18	12	F	Student	7 w	1	Thigh	10×10
19	44	M	Other	4 w	1	Arm	5×6
20	37	M	Fisher	6 w	1	Neck	10×10
21	29	M	Other	5 w	3	leg	15×15
22	30	F	House wife	12 w	5	Hand	25×25
23	11	M	Student	10 w	3	Leg	20×25
24	28	M	Other	6 w	1	Leg	5×7
25	19	F	House wife	4 w	1	Chin	3×3
26	16	M	Student	3 w	2	Thigh	4×6
27	59	M	Fisher	6 w	1	Finger	5×5
28	30	M	Farmer	7 w	1	leg	3×5
29	46	M	Farmer	4 w	1	arm	7×7
30	22	F	Farmer	7 w	1	Hand	5×7
31	41	F	Farmer	5 w	4	leg	15×10
32	14	M	Student	3 w	1	Cheek	5×5
33	45	F	Farmer	6 w	2	thigh	5×5
34	37	M	Other	12 w	1	Arm	20×10
35	34	F	House wife	4 w	1	Cheek	2×3

M: male, F: female, w: week

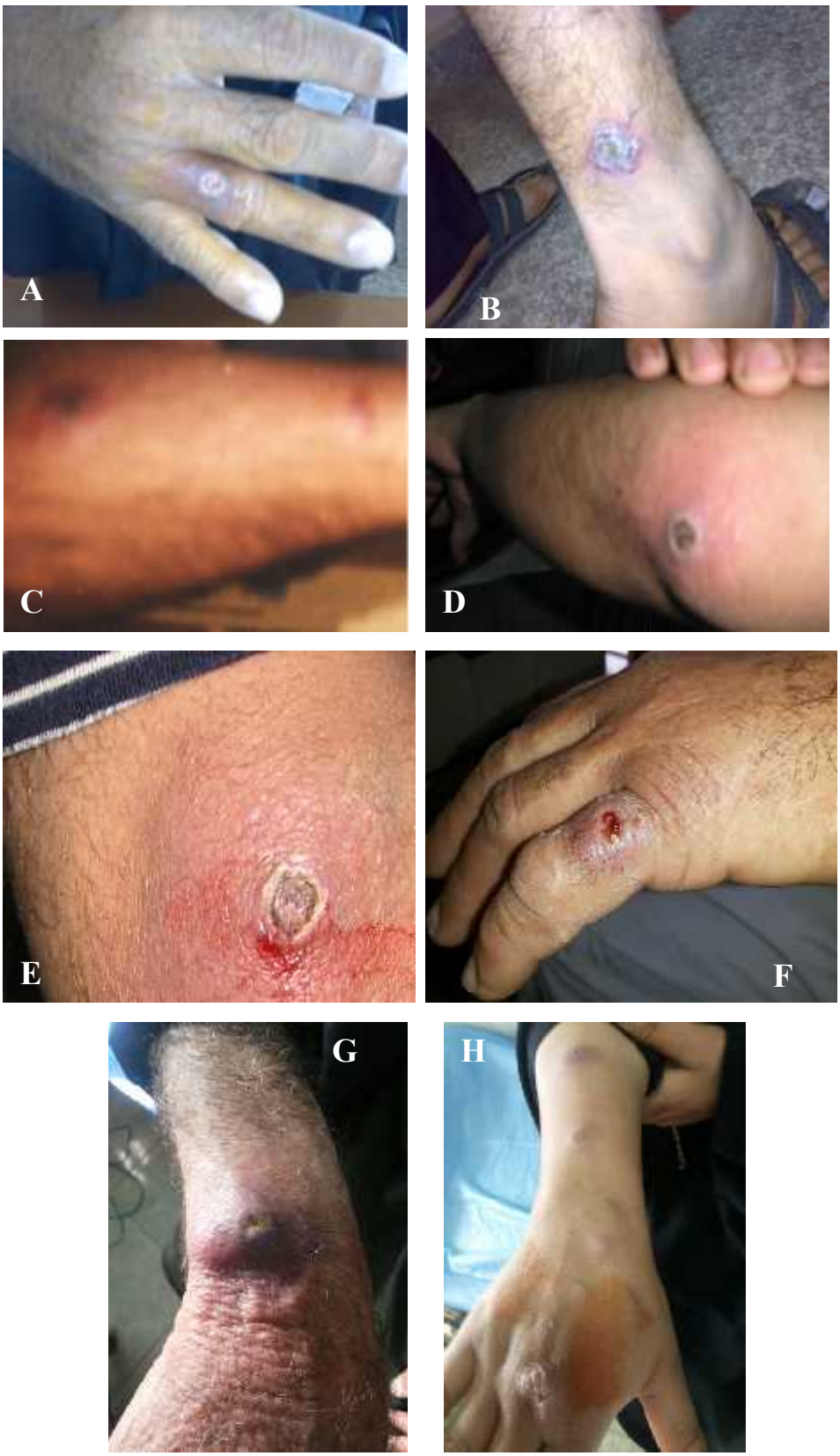

Fig.1: A clinical pictures of CL patients with ulcer on A: finger, B: right leg, C: right arm (2 ulcers), D: left arm, E: right arm, F: finger, G: hand, H: hand & forearm (5 ulcers)

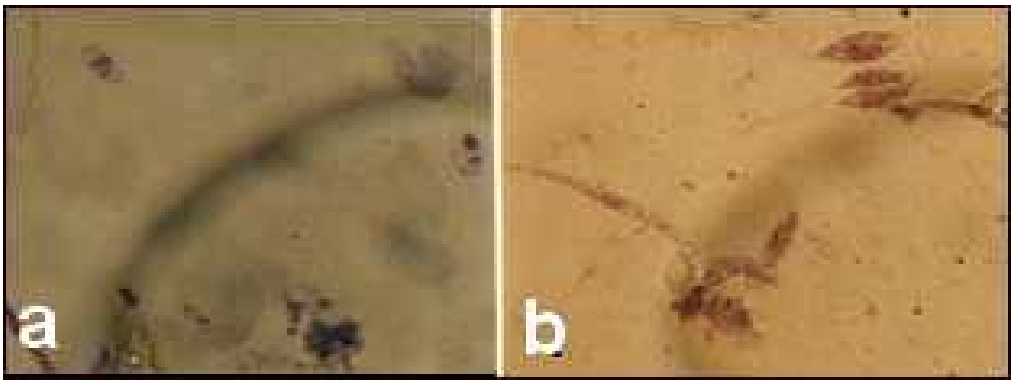

Fig. 2: a: ovoidal shape, amastigote. b: spindle shape, promastigote,

Table 2: Diagnosis of CL cases by microscopy stained smear

Sex	CL cases	Smear	Culture
		No. +ve (%)	No. +ve (%)
Male	23	23 (100 %)	19 (82.6 %)
Female	12	12 (100 %)	10 (83.3 %)
Total	35	35 (100 %)	29 (82.8 %)

Discussion

The cutaneous leishmaniasis in Iraq, similar to other parts of the Eastern Mediterranean Basin is known to be caused by both *L. major* and *L. tropica* (Al-Jeboori and Evans, 1980). The ZCL have been reported in Iraq are caused by *L. major* (WHO, 2003) where Basrah marshes villages are regarded as rural areas.

There are many factors that play an important role in the presence and distribution of CL in these regions including the presence of marshes such as animal, dogs and rodents. In addition the people usually live in the mud houses having cracked walls, which regarded as condition for attraction and hiding of sand flies (Davies *et al*, 2000; Desjeux, 2001). There are many epidemiological immunological and treatment studies concerning the cutaneous leishmaniasis that have been conducted in Iraq such as Al-Jeboori and Evans (1980), Al-Samarai and Al-Obaidi (2009).

In this study, high rate of 23 (65.71%) was in males patients than females 12 (34.28%). This agreed with Rahi *et al.* (2013) who reported more infection in males (54.5%) than females (45.5%). This difference in infection rate between males and females may be due to the fact that males stay outdoors with uncovered arms while females stay indoors and when sick rarely visit a hospital or care center since majority of CL is a self-healing ulcer (Bailey and Lockwood, 2007). CL is a cutaneous disease skin characterized by one to numerous lesions up to 75 lesions were reported in Saudi Arabia (Morsy, 1975).

Depending on the species of *Leishmania*, ulcers, nodules, flat plaques may be seen. The lesions on skin that exposed to sandflies are usually papules. It is clear that the highest incidence is seen in those person with some kind of field activates, which exposure them to the bite of sand flies in the rural villages.

In this study, most patients had a short duration time (between 1 and 10 weeks). There were 13(37.14%) cases with more than one cutaneous lesion out of 35 patients. The results could be due to high population density of sand flies vector in this area and to long of exposure time of sand fly vector. Ulcerative wet type ZCL lesions were present in rural area. This agreed with Mollalo *et al*. (2014). The high distribution of ZCL may be due to presence of reservoir animals in large numbers, especially rodent and gerbils' reservoir host for *L. major* (WHO, 1992; Klaus and Frankenburg, 1999). Both dogs and rats are reservoir to ZCL (Morsy *et al*, 1994). Dogs have reported as reservoir to the ACL, although, it was thought to be an incidental host and that only host is human (Postigo, 2010). About clinical information, age and sex of patients does not have any role as transmission aseptic, but these factors many represent the social or family problems in the disease transmission.

Epidemiology of CL in Iraq and neighboring countries underwent a transition. Several factors, both environmental and ecological, may have contributed to the increase in CL prevalence in rural villages of Basrah. The increase of incidence in recent years may be explained by advance in development and animal production activities as well as for better diagnosis also, Marshes Rehabilitation after 2003 in Iraq. Microscopy is considered the golden standard for diagnosis, although the method is relatively simple and cheap, it suffers from low sensitivity (Osman, *et al*, 1997). In this study, microscopic examination of stained smear and culture depended on the CL activity. It was found the culture methods have the most sensitive when compared to smear methods. The present results agreed with Navin *et al.* (1990) Sharquie *et al.* (2002) as 29 (82.8%) out of 35 CL cases were positive by culture, while 6 cases were failed due to either low parasite level or to contamination (Singh, 2006; Brustoloni *et al*, 2007). The successful culture of *Leishmania* isolation depended on culture media with risk of microbial contamination (Escobar *et al*, 1992). Ahmed (2014) reported that parasite cultivation techniques constitute a substantial segment of present-day study of parasites, especially of protozoa, and continued to be a challenging diagnostic option, while Mahdi (2014) reported no growth in 45 samples out of 114 VL cases when cultured in semi-solid medium and PBSS.

Majority of patients had limited knowledge of their disease such as mode of transmission, methods of prevention, or treatment. The patient did not have background knowledge about this disease. Many patients had rat holes near their homes. These results are agreement and do not differ from other studies done in Iraq and other countries (Talari *et al*, 2006; Arfan and Rahman, 2006; Al-Samarai and Al-Obaidi, 2009).

In this study, all cases were from rural villages in Basrah marshes regions because of many people of in this regions avoiding visited the hospital, for that reason registered cases are few in the hospital but we have found these Cases in these villages. In generally, in Iraq the CL infection is found in rural area more than urban area (Al-Jeboori and Evans, 1980). This fact belong to most important factors in the spread of disease which related to villages region such as high distribution of sand fly vectors that feed on many hosts, including both mammals and

birds. Life conditions and habitat of the people, presence of reservoir rodents, gerbils and dogs which used as gird for those people in this villages and to protect their farm animals, in addition the mud made houses which play an important role in breed of sand flies and moisture (Jarallah, 2009).

Conclusion

The CL risk factors increased of biting activity and presence of reservoir host. Cutaneous leishmaniasis is still an endemic disease in Basrah Province, rural villages.

Undoubtedly, the rapid diagnosis and the proper treatment of patients as well as the control of the sand-fly-vector and the animal reservoir(s) will minimize the zoonotic disease transmission to man.

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