Reinfestation in cutaneous leishmaniasis

A new look at predisposing conditions

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ABSTRACT

Objective: A prospective study of cases of reinfestation with cutaneous leishmaniasis is carried out to try to identify if there is any associated condition which might predispose to reinfestation.

Methods: Over a 2 year period, cases of reinfestation with cutaneous leishmaniasis presenting in the Department of Dermatology, were collected.

Results: Thirteen cases showing a typical scar with a parasitologically proven new infection were included. The mean age of patients was 54.69+/-2.65 years. The time lapse between the two infections was 52.38+/-2.60 years. The scar of the primary infection was mainly on the face while the lesion was mostly on the limbs. Six patients had diabetes mellitus, one patient was pregnant and three received either oral corticosteriods or other immunosuppressive drug treatment.

Conclusion: It is concluded that in patients with reinfestation it is important to take a careful medical history and send for a fasting blood glucose, as there is a chance of one in two that the patient may be diabetic.

Keywords: Cutaneous leishmaniasis, reinfestation, diabetes mellitus.

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Cutaneous leishmaniasis (CL) was an endemic disease in Iraq. Among the long list of names for this condition is Baghdad boil.[1] Among the characteristics of the disease, which has been recognized for a very long time, is that it effects the individual usually once.[1] However, reinfestation can occur. There are several reports about reinfestation in CL.[2,3]

In Iraq, the disease was endemic up to the 1950s when there was a sharp decline in the incidence of the disease coinciding with the malaria control program.[3] However, beginning in the 1980s a sharp rise was observed[4] and the disease reached epidemic proportions in the early 1990s.[5] This meant that children who were affected by the disease when very young, were exposed again. This gave an opportunity to look again at reinfestation in CL concentrating on conditions predisposing to reinfestation since these conditions have received little attention.

Methods. Patients presenting at the Department of Dermatology, Baghdad Teaching Hospital with typical lesions of CL and carrying an old scar of CL, were included in the study. The patients were seen from October 1994 until May 1995 and from November 1995 until May 1996. A careful history was taken about the previous history of CL. The age of infection was noted, as well as the site of previous infection. In addition, the general medical history was taken and a medical examination was performed.

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Fasting blood glucose was also performed.

Parasitological diagnosis. To confirm the clinical diagnosis, parasitological proof of the diagnosis was sought for all cases. Thus for a case to be admitted to the study demonstration of the Leishmania organisms was a perquisite. The following were carried out either alone or in combination.

Smear. The lesion was cleaned with 70% alcohol. Then using a dental broach, a sample was taken from more than one site from the lesion and smeared on a clean glass slide which was stained with Leishman's stain. It was examined microscopically to demonstrate amastigotes inside or outside macrophages.

Culture. Material obtained from the lesion by dental broach was cultured on either a semi-solid medium or biphasic (NNN) medium. The culture was incubated at 26°C and examined after 5 days and subsequently at close intervals to demonstrate promastigotes of Leishmania. A negative culture was subpasseged at 10 day intervals and not discarded until after 30 days.[6]

Results. A total of 13 patients were included in this study. There were 11 females and 2 males. Patients came from different parts of the City of Baghdad, as well as other parts of the Governorate of Baghdad. Some came from surrounding Governorates. Their ages ranged from 34-70 years with a mean age of 54.69±2.65 years.

The time lapse between the primary infection and reinfestation ranged between 30-63 years with a mean time of 52.38 ±2.60 years. All patients had the primary infection when very young and reinfestation was usually after the lapse of 50 years. The sites of previous scars are shown in Table 1. Most of the cases had a scar on the face (10 cases), while a few cases had a scar on the arm or leg. Some had more than one scar.

The lesions of present infections were mostly on the upper and lower limbs with few lesions on the face (Table 1). Patients had an average of 4.77±1.51 with a range of 1-21 lesions (Figure 1).

Associated medical conditions are shown in Table 1. Six patients had diabetes mellitus. Five patients had non insulin dependent type while one was insulin dependent. Three patients had a history of use of systemic corticosteriods or other immunosupressant

Table 1 - The characteristics of patients included in the study.

Patient No.	Sex	Age (Years)	Age at primary lesion	Site of scar of primary lesions			Site of lesions of reinfestation			Associated Medical Condition
				Head & neck	Upper limb	Lower limb	Head & neck	Upper limb	Lower limb	
1	Female	49	1	1				2	2	Diabetic on oral hypoglycemics
2	Female	60	2	1				3		Diabetic on oral hypoglycemics
3	Female	65	5	1				5	3	No associated condition
4	Female	50	8	1				1		No associated condition
5	Male	50	2	1			4	3		Diabetic on insulin
6	Female	56	2	1				21		Diabetic on oral hypoglycemics
7	Male	60	2	1					1	No associated condition
8	Female	45	5	1			1	1		Rheumatoid arthritis on massive corticosteroids therapy
9	Female	62	2	1				5	2	No associated condition
10	Female	34	30			1			1	Pregnant
11	Female	60	4		1			2		Diabetic & on immuno-suppressive therapy for renal transplant
12	Female	50	2	1	1	1	1			Diabetic & on immuno-suppressive therapy
13	Female	70	7		1			3	1	Diabetic on oral hypoglycemics

Figure 1 - A 50 year old diabetic patient showing a scar of CL on the face and a new lesion of reinfection with cutaneous leishmaniasis on the hand.

drugs. One patient had a history of both diabetes and immunosupressant drug treatment. One patient was pregnant at the time of reinfestation. While 4 patients had no associated medical conditions.

Discussion. The results of the present work indicates that reinfestation in CL is not an uncommon occurrence. The number of cases reported in this study was higher than those reported before in this country. Thus Rahim and Tatar[2] reported only 2 cases while Guirgis[3] reported 8 cases. Five cases were reported by El-Yazachi,[7] 2 by Sarhan[8] and only one by Sharquie et al.[9] This might be expected from the facts about the epidemology of the disease in Iraq. Thus before the 1950s, the disease was endemic and hardly anyone escaped the disease.[1] Most of our subjects had the disease while very young as was evident by the characteristic scar that remained, mostly on the face. This observation about the site of the scar agrees with the reported fact that children are usually infected on their face.[10] Fifty years later, our subjects were reexposed to infection when lesions were seen mostly of the limbs which also agrees with the previous observation that lesions in adults appear mostly on the limbs.[10]

Several causes for reinfestation have been put forward. Among these are disturbance in immunity acquired as a result of general infection, due to administration of immunosupressant drugs, general condition of the patient or old age. Other causes are waning of immunity after 8 years or more and early termination of infection by treatment, which interferes with the production of immunity. Transfer from one endemic area to another, which exposes the patient to a new species or even a subspecies of the parasite might be another cause.[3]

In our cases, no patients gave history of treatment for the primary infection which excludes the role of early treatment as a cause of reinfestation. Both species of old world CL have been reported from different parts of the country.[11,12] The role played by the change in species may be minor although the appearance of subspecies cannot be excluded. This leaves the other two factors. The fact that 3 patients had a history of administration of corticosteriods or other immunosuppressive therapy agrees with what has been mentioned about the role of immunosupression in reinfestation. But the novel finding in this study is the fact that almost half the patients had associated diabetes mellitus. This fact has not been reported before from this country or from the area in general. Thus in a report from Aleppo, another old center for CL, about the dermatological conditions prevalent in diabetics, no mention of reinfestation with CL was made.[13] However, a report from the Sudan gives a prevalence of 5% of diabetics among cases of primary CL. No mention of reinfestation was made.[14] This observation may be explained by the well-known fact that there is depression of both cellular and humoral immunity in diabetes.[15] A depression of immunity in pregnancy[16] could explain the occurrence of reinfestation in the young pregnant lady in our study.

In 4 patients, no associated medical condition was found. These cases can be attributed to waning of immunity after prolonged periods between the primary infection and reinfestation. All had a time lapse of 50 years or more between the two conditions.

With better health standards and increasing longevity in Third World countries, we expect that reinfestation with CL will be more common. A practical point which emerges from this report, is that while dealing with reinfestation, take a careful medical history and send for a fasting blood glucose, as there is a chance of one in two that the patient may be diabetic.

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