

Combined Cutaneous & Visceral Forms of Leishmaniasis; Case Report

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Abstract

This is a three years old child from Himreen rural areas the patient had fever, pallor, & hepatosplenomegaly and two ulcers on the face. The patient responded to Pentostam. While we used in Iraq to see leishmaniasis as either pure cutaneous or pure visceral forms of leishmaniasis, this is a case with combined cutaneous & visceral forms of leishmaniasis in a patient with normal immune system. Which may explained by the leishmaniae species that primarily cause cutaneous disease & rarely cause visceral disease or by primarily viscerotropic leishmania that primarily cause visceral disease which may also cause skin lesions or by mixed infections by two different species of leishmaniae, one of them is dermatotropic, & the other one is viscerotropic.

اجتماع ليشمانيا الجلد و ليشمانيا الأحشاء معا

عاشور رفعت سرحت

المستخلص

هذه الحالة لطفل يبلغ من العمر ثلاث سنوات من إحدى قرى حميرين كان يعاني من الحمى والشحوب وتضخم كلا من الكبد والطحال. بينما نحن معتادون في العراق على رؤية المرض إما على شكل ليشمانيا الجلد فقط أو ليشمانيا الأحشاء فقط، هذه الحالة فيها اجتماع الحالتين ليشمانيا الجلد و ليشمانيا الأحشاء معا عند مريض ذو جهاز مناعي طبيعي. الأمر الذي يمكن تفسيره إما بالإصابة بنوع من الليشمانيات الجلدية ابتداءً والتي نادراً ما تسبب معها ليشمانيا الأحشاء أو بالإصابة بنوع من الليشمانيات الاحشائية ابتداءً والتي قد تسبب معها ليشمانيا الجلد أو بالإصابة بنوعين مختلفين من الليشمانيات جلدية واحشائية وفي وقت واحد، إحداهما ليشمانيا جلدية والأخرى ليشمانيا أحشائية.

Introduction:

Leishmaniasis is a major health problem in many parts of the world (1). Leishmaniasis is a disease caused by protozoa, (number of species of protozoan parasites of the genus *Leishmania*) and it affects as many as 12 million people worldwide, with 1.5-2 million new cases each year. (2) It occurs in many parts of the world, including southern Europe and is particularly problematic in central and South America, the Middle East, South Asia, China and East Africa. Most forms of leishmaniasis are zoonoses, with rodent or canine reservoirs of infection; man and other vertebrate hosts become infected by the bite of sand flies (genera *Phlebotomus* and *Lutzomyia*)(3). Leishmaniasis may take the form of generalized visceral febrile infection, kala-azar or of a purely cutaneous infection known in the old world as oriental sore (Baghdad Boil). In the South America the Cutaneous Leishmaniasis may remain confined to the skin or metastasis to the nose or mouth & called (mucosal Leishmaniasis).(4)

Cutaneous Leishmaniasis:

This type of infection is traditionally divided into: Old World (Mediterranean Basin, Africa, India, China, Soviet Union, and Asia Minor) and New World (primarily Central and South America, excluding Chile and Uruguay). While the New World CL is caused by the *L. brasiliensis* and *L. mexicana* (2). The cutaneous leishmaniasis of old world is due to *L. tropica*, *L. major*, *L.aetheopica* & *L.infantum*. (5) *L.donovani* (6)

The two species that present in Iraq are: *L. tropica*, agent of anthroponotic cutaneous leishmaniasis (ACL), and *L. major*, agent of zoonotic cutaneous leishmaniasis (ZCL). Both ACL and ZCL occur in Iraq. ACL (*L. tropica*) has been known in Baghdad since ancient times (Baghdad boil). Nowadays ACL has become rarer, and

cases occur sporadically. ZCL (*L. major*) is the dominant form of CL in Iraq. Number of cases reported Burden (incidence rate per 100,000): in 2001: 625 cases (2.3)(7). While in the following years the (incidence rate per 100,000 increased(8). The most important endemic area is central Iraq and the Greater Baghdad area. Since 1991 the disease has extended to new areas rarely affected before, such as Missan, Thi-Qar, and Basrah governorates in south-eastern Iraq.

Clinical features

In Iraq two distinct patterns have been recognized: the first one the anthroponotic urban type causing dry ulcerating lesions, often single, leading to disfiguring scars, caused by the species *L. tropica*. This is mainly seen in children in endemic areas. The incubation period is usually 2-8 months. The dry ulcers usually heal spontaneously in about a year. The most important vector is *P. sargenti*. The second one zoonotic rural type causing moist ulcers which inflamed, often multiple, caused by *L. major*. The incubation period is usually less than 4 months). (7).The ulcer heal in several months. Papatasi is the most important vectors. (1)Laboratory criteria: Positive parasitology (stained smear or culture from the lesion).WHO operational definitions: A case of cutaneous leishmaniasis can be defined as a person showing clinical signs with parasitological confirmation of the diagnosis (positive smear or culture) (7).

Visceral Leishmaniasis (Kala Azar):

Visceral leishmaniasis (VL) is caused by leishmania of the *L. donovani* complex (*L. donovani*, *L. infantum* and *L. chagasi*). Infection is confined to man and no animal reservoirs have been identified. Children are predominantly affected. *L. infantum* is widely distributed through the Mediterranean littoral,

southern Europe, the Middle East, southern regions of the former USSR and China. In endemic areas, children under 5 are predominantly affected although infection may occur at any age in visitors and in the immunosuppressed. (3)

Clinical features:

The incubation period is usually about 1 or 2 months but may be 10 years. The onset is insidious with a low-grade fever, the patient remains ambulant or it may be abrupt with sweating & high intermittent fever, sometimes showing a double rise of temperature in 24 hours. The spleen soon become enlarged, often massively; hepatomegaly less marked. If not treated patient become wasted, frequently with increased pigmentation, especially on the face. (7). Laboratory criteria (Positive parasitology, stained smears from bone marrow, spleen, liver, lymph node, blood or culture of the organism from a biopsy or aspirated material, Positive serology [immunofluorescent assay, ELISA, Direct Agglutination Test]) (7) It is worth to mention that ELISA and DAT techniques are highly sensitive and specific. (3)

WHO operational definition

A case of visceral leishmaniasis (VL) is a person showing clinical signs of prolonged (>2 weeks) irregular fever, splenomegaly and weight loss with serological (at peripheral geographical level) and/or (when feasible at central level) parasitological confirmation of the diagnosis. (7). The yearly incidence of VL was less than 1000 cases before 1990, most of them in the central part of Iraq within a 100 km radius around Baghdad. After the Gulf war (1991), the annual incidence increased to over 3000 cases:

2001: 2,893 cases (7) , 2002: 3218 cases (8).

Case report

M. M. is a three years old child from Himreen rural areas was previously well admitted on 27/11/2005 to the Tikrit teaching hospital with high grade intermittent fever associated with rigor & sweating & progressive pallor of three weeks duration. The family also claims that their child had loss of weight, abdominal distention, poor activity tolerance, poor appetite & malaise. The child also had two skin lesions , one on the left maxillary area & the other on the right temporal area which appeared before two months which started as non-tender small papules surrounded by erythematous margin & then became ulcerated after few weeks Crust forms centrally leading to ulceration with raised margins.

On examination the child is well-nourished, febrile [39 C], pale but not jaundiced, no enlarged lymph nodes. The abdomen is distended, everted umbilicus but no ascites, with hepatosplenomegaly, liver 6 cm below costal margin, spleen 5 cm below costal margin. He is from a rural area with positive family history of Baghdad boil in all member of the family.

The investigations done: (negative widal, brucella tests & monospot test.. complete blood count: Hb-7, PCV-22, WBC, 2.9 platelets- 120, K39 positive, bone-marrow normal reveal LD bodies, HBV & HIV is negative) Treated with pentostam (Sodium stibogluconate) 20 mg/Kg IM for 30 days & received one pint of blood transfusion. The patient is improved; fever subsided after 6 days of treatment, the two skin lesion start to heal.



Fig. 1: On admission 27/11/2005. Two active cutaneous lesions with hepatosplenomegaly

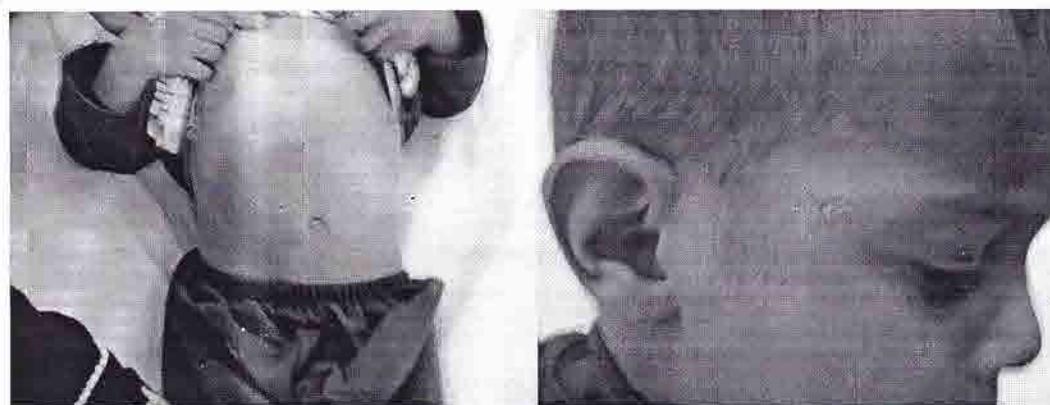


Fig. 2: On 27/12/2005 after 30 days of treatment with pentostam fully recovered He is afebrile, not pale, no organomegaly

DISCUSSION

As we know that in Leishmaniasis the clinical syndromes are determined by the infecting species [3, 9], & the degree of host immune response to the parasites (10). In other word the resulting patterns of illness arise from the tissue tropism of the leishmanial species and the host's immune response, principally the cell-mediated component of immunity [10]. These range from self-limiting cutaneous lesions to potentially fatal visceral leishmaniasis. [3,9]. It is also important to note that usually the

mucocutaneous[mucosal] forms are not seen when there is the presence of visceral leishmaniasis.[10] Now we are dealing with a immunocompetent patient having both, visceral & cutaneous leishmaniasis.

So the combined presentation of visceral and cutaneous forms of leishmaniasis may be explained by the leishmaniae species that primarily cause cutaneous disease & rarely cause visceral disease or by primarily viscerotropic leishmania that primarily cause visceral disease which may also cause skin lesions or by mixed infections by two different species of

leishmaniae (one causing visceral disease, & the other one causing cutaneous disease).

The first possibility is the infection with leishmaniae species that primarily cause cutaneous disease (*L. tropica*, *L. Major*) & rarely cause visceral disease is mentioned by Behrman, who mentioned that (with only rare exceptions, the leishmaniae species that primarily cause cutaneous disease do not cause visceral disease), & mention in the same page that *L. tropica* also has been recognized as an uncommon cause of visceral disease in the Middle East & India. (It has been recognized recently that *L. tropica*, a traditionally dermatotropic species, can occasionally cause kala-azar). [2, 7, 9]

Also Maha F.M. Soliman demonstrate a possible visceralization tendency for *L. major* previously recorded for *L. tropica* and *L. mexicana* in Syrian hamsters. (9) The second possibility is the primarily viscerotropic leishmania that primarily cause visceral disease which may also cause skin lesions. The *L. Donovan* complex (*L. donovani*, *L. infantum* and *L. chagasi*) by contrast with other species of leishmania that infect man, normally viscerotropic, & cause a severe systemic infection, which may be accompanied by cutaneous manifestation, In Iran visceral leishmaniasis accompanies by numerous skin lesions (5).

The other possibility is that of mixed infection based on B Bastrenta et al demonstrate that the Concurrent infection with two species of *Leishmania* parasites occurs in a good percentage of patients (11), and Ibrahim ME described mixed infections with *Leishmania donovani* and *Leishmania major* from Sudanese patients with visceral leishmaniasis (VL).(12) Lamy J. et al described a case of kala-azar with cutaneous leishmaniasis, the patient had fever, hepatosplenomegaly and an ulcer on

her cheek. The patient responded to Pentostam. Iso-enzyme studies of parasite isolates from the bone marrow and from the cutaneous lesion revealed that these were *L. donovani* and *L. major*, respectively. This was the first report in Iraq of a proven concomitant infection with two species of leishmania parasites.(13) We should mention that simultaneous presentation of visceral and cutaneous forms of leishmaniasis may occur in immunocompromised patients(AIDS, Organ transplant). [14, 15, 16] The pediatricians, dermatologist, & physicians should be aware of such conditions.

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