

Ecological Aspects of Dwelling Position For A previous Case of Kala – azar in South of Baghdad , Iraq

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Abstract

This is a contribution to study the situation of a dwelling of previous case of kala- azar in the endemic area (AL-Mahmodiya/ AL-Rasheed district) about 25 km south of Baghdad. In order to assess the possible ecological causes of the incidence and the prevalence of visceral leishmaniasis, in one of the well-known foci of the disease in the central region of Iraq. It was found that the human dwelling position and ecological factors affect the infection with this disease.

Key Words

Factors, Ecology, Dwelling, Kala-azar, Focus, Endemic area, South Baghdad, Iraq.

Introduction

In the central region of Iraq the high number of the reported cases of visceral leishmaniasis was usually during December, January, February and March (1,2,3,4,5) The majority of patients were infants of two years old (6,7,8,9).

The main traditional endemic area with this disease is the central region of Iraq (10,11,12). Also the incidences of kala-azar were reported in north and south regions of Iraq (10,13,14,15).

Many localities such as Mahmodiya, Rasheed, Youssifiya, Latifiya, Suwaira, Aziziya, Madien, Faluja, Numaniya and Abou-Ghraib are well known as traditional foci of this disease (1,2,5,7,8,14,15). However, the endemic area is the alluvial plain around Tigris and Euphrates rivers, where are the cultivated farms with many kinds of plants. The human dwellings, which are mud- made and these of animal shelters are usually favorable places for breeding and resting of the vector (1). The breeding of livestock makes a suitable condition for both the vectors and the reservoirs (12,13,14).

The aim of this investigation is to study the ecological factors and the dwelling position of a kala- azar patient near Baghdad in one of the famous foci of visceral leishmaniasis in the central region of Iraq (2,3).

Materials and Method

The dwelling of the previous case of kala-azar is in Al-Rasheed district about 25 km to the south of Baghdad. The reported case was from Central Hospital for Children in Baghdad City. Human dwelling, animal shelter, wind direction were mapped. Also, the resting and sleeping places of the family during the night and the places of the dogs were carefully noted. Rodent's burrows were marked around the patient dwelling. The study area was visited regularly biweekly during 2000 and 2001.

Rodents were trapped with the help of 12 live traps. Sand flies were collected with four CDC malaria traps in and around the dwelling in a circle of about 300-m diameter.

Results

One case of kala-azar was reported in December 1999 from Central Hospital for Children in Baghdad. This case was of a girl of three years old. She was diagnosed as kala-azar after clinical examinations.

The dwelling of this patient was built in the 1970s of cement in an open land cultivated with different kinds of cereals and vegetables. Date palms trees shade the dwelling.

The animal shelters are in the west of the dwelling (Fig. 1). These are very suitable breeding and feeding places for the sand flies (dark place, presence of animals, manure, straw, deep soil cracks and humidity) as indicated in Fig. (2). Also, the main direction of the wind during summer nights in Iraq was generally northwest with slow breeze.

The previous cases, which were reported from this focus during the three last decades, were at few meters in the west of the dwelling of the present study.

In 2000, a new case was reported eastward of the present dwelling. Also four previous cases of kala-azar were reported in the 1990s from an area of 500 m of a diameter around the present dwelling.

The using of CDC traps in the dwellings (in 1999) showed that the high densities of the collected sand flies were also in westward of the dwellings. The species of sand flies encountered were *Phlebotomus papatasi* Scolpi (with very high-density of 95%) *Phlebotomus alexanderi* Sinton and *Sergentomya baghdadis* Adler&Theodor.

The resting place of the patient in summer of 1999 was a few meters to the north of the animal shelters (Fig 1). Also, in the hot nights of July and August, the density of sand flies was the highest. It was noted that the resting places of the dogs were few meters from the beds of the children. This fact increases the probability of the infection rate in biting times. No external signs of leishmaniasis were noted on the examined dogs. The species of rodents in the study area were *Rattus rattus*, *Rattus norvegicus*, *Mus musculus*, *Tatera indica*, *Nesokia indica*, *Meriones libycus* and *Meriones crassus*.

Discussion

This study showed that the ecological factors and man made factors increase the probability of infections in the study focus. It seems also that the position of human dwellings and animal shelters play an important role in the prevalence of the disease.

The present study is important because of the followings:

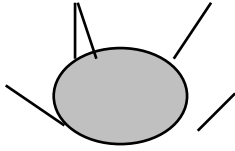
- 1-Two cases of kala-azar were reported at the same dwelling during the last 12 years.
- 2-Two new cases were reported near the study dwelling in 2000.
- 3-Twenty five cases were reported in the study area from 1970 till 2001.

It seems also that this kind of study (patient's dwellings with visceral leishmaniasis) can assist in finding more information about the possible relationships between different ecological factors, which affect the prevalence of the disease.

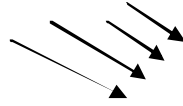
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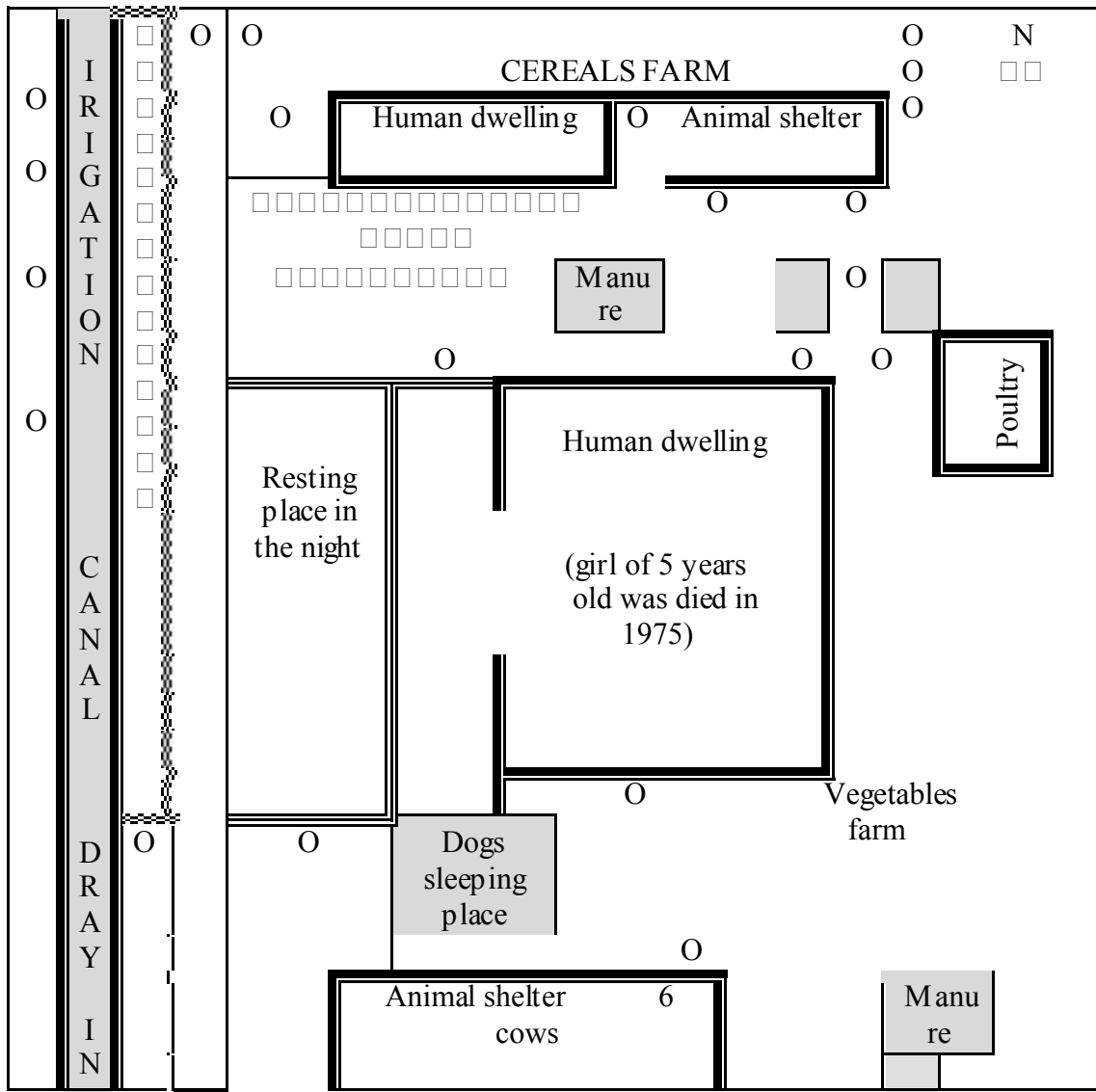
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Sun set in summer



Wind direction is northwest in main part of the year



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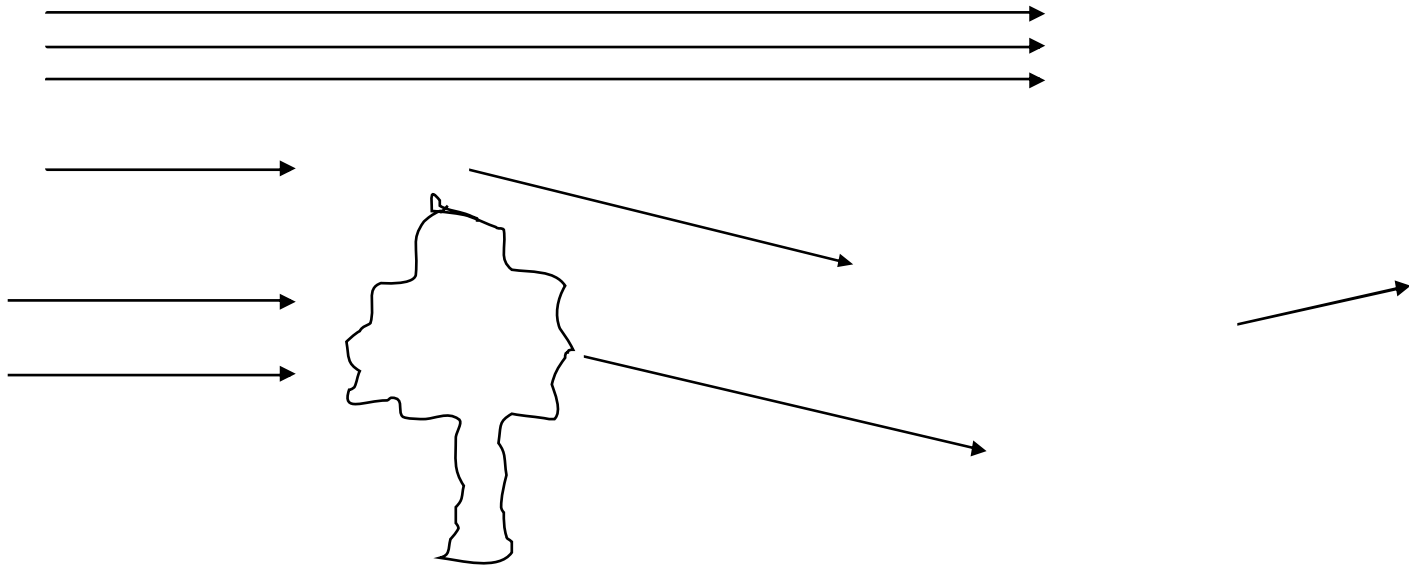
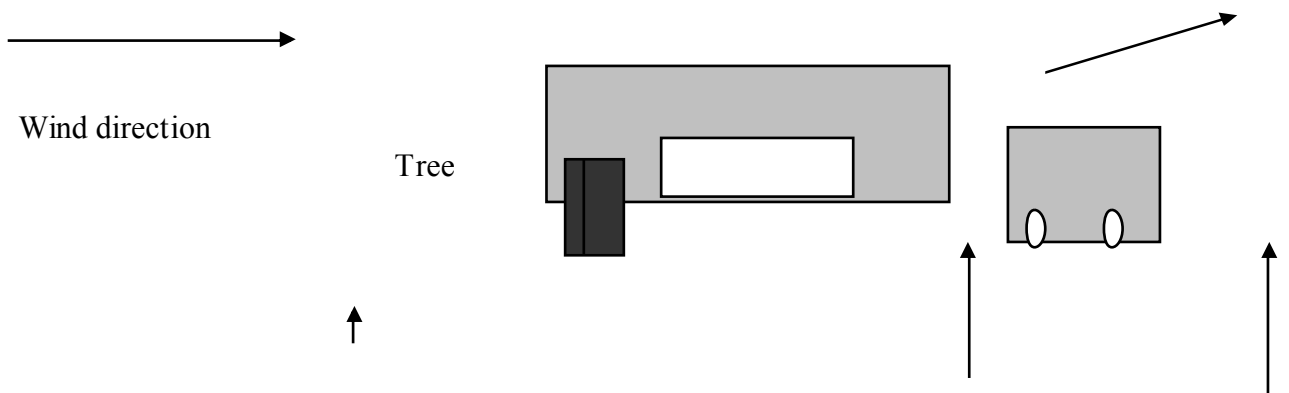


Fig. (1): Illustration map showing the dwelling of the case of kala azar.
 5 m

(OOO: Rodents burrows. **□: Trees. □□: Date palm trees).



Low density of sand flies
High density of sandflies

Fig. (2): Diagram showing the effect of wind direction, trees and places of high density of sand flies in the dwelling of the present study .

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تحديد موقع السكن وعلاقته بالجوانب البيئية في الإصابة بمرض الكالازار جنوب بغداد

شهاب احمد سلمان

قسم علوم الحياة ، كلية العلوم ، جامعة بغداد

الخلاصة

تم دراسة موقع أحد المساكن المسجلة به حالتين سابقتين لمرض الكالازار في المنطقة الموبوءة بالمرض من اجل تحديد العوامل البيئية المحتملة و التي تساعد على الإصابة و مدى علاقتها بموقع المسكن في قضاء الحمودية جنوب مدينة بغداد بقرابة 25 كم والتي تعتبر واحدة من البؤر المعروفة للمرض في وسط العراق. وقد وجد ان موقع الدار والعوامل البيئية هي في علاقة تساعد على الإصابة بهذا المرض.

