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ARTICULO ORIGINAL CORTO – SHORT REPORT

Severe and complicated imported *Plasmodium vivax* malaria in Valera, Trujillo, 2006*

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Abstract

Background: *Plasmodium vivax* remains as an important threat in Southeast Asia and Latin America, where represents more than 80% of the etiology of malaria. Although historically considered a benign species, recently many reports and publications have highlight the possibility of atypical, severe and complicated disease caused by this parasite. Herein we report the clinical spectrum of three cases of atypical imported malaria due to *P. vivax* seen during year 2006 in the Central Hospital of Valera, Trujillo state, Venezuela. Cases: Case 1 corresponded to a male child, 15 months-old, presenting as unknown origin fever and sepsis. Case 2 was an adult, 39 y-old male, presenting with intense headache, abdominal pain, fever and coluria. Case 3 was also an adult, 41 y-old female, with complains of fever, tremors, coluria, headache and vomiting. All cases came from far locations outside the metropolitan area of Valera city. In all cases the smear with Giemsa revealed *P. vivax* (in the pediatric case also the diagnosis was established in a bone marrow aspirate). They were successfully treated with chloroquine and primaquine according to the national antimalarial therapy program. Discussion: Malaria due to *P. vivax* is requiring and deserving more biomedical research, particularly because in few past years the literature has shown a growing incidence of atypical, complicated and severe cases of *P. vivax*, as we have been reporting. Further research on these aspects should be focused in regions where this parasite is highly prevalent.

Key Words: imported malaria, *Plasmodium vivax*, severe, complicated, travel, Venezuela.
(source: DeCS Bireme)

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Introduction

Malaria still remains as a major public health problem in endemic developing countries where its morbidity and mortality burden is very high. Although most of this burden is due to *Plasmodium falciparum*, in South East Asia and Latin America *P. vivax* is responsible for more than 80% of the cases, sometimes producing severe and complicated clinical presentations, that can be even lethal in some cases, particularly in non-immune populations, such as residents of non-endemic zones visiting endemic areas where this parasite is prevalent.[1-3]

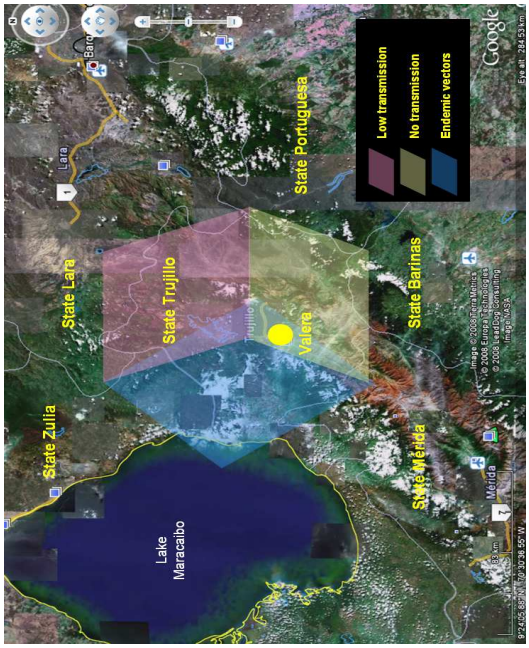
At this point that concept should be independent of the country, the important issue is to identify the endemic zones, because travel of non-immune populations to endemic areas could be occurring in countries with particular endemic regions, such as Venezuela and other Latin American countries, where disease could be acquired and then diagnosed in non-endemic settings.[4, 5]

In the Andes regions malaria transmission is low, usually with less than 1 case per 1,000 pop (API <1.0) in the endemic regions where *P. vivax* is the predominant species mainly transmitted by *Anopheles nuneztovari*.[6]

The three biggest cities in the Andes, Merida (Merida), San Cristobal (Tachira) and Valera (Trujillo) are considered from long time ago as non-endemic for malaria. In the case of Trujillo, this state has low transmission areas, all of them below <1,500 masl (Figure 1).[7] Valera is the biggest city and the most metropolitan area of the state where there are not malaria transmission or nearby to the city. Then all cases seen and diagnosed in the city corresponded to imported

cases from other areas of the state, other states or other countries with endemic zones.

Figure 1. Satellital image showing the distribution areas of Trujillo state according to the Malaria transmission.



Herein we report the clinical spectrum of three cases of atypical imported malaria due to *P. vivax* seen during year 2006 in the Central Hospital of Valera, Trujillo state, Venezuela.

Materials and Methods

Although non-endemic city, in Valera, particularly in the Hospital Central de Valera, high level of suspicion exist for particular tropical diseases endemic in different areas of the state, including malaria, Chagas disease and cutaneous and visceral leishmaniasis. Then in febrile patients, particularly in children, these tropical diseases are always considered in the differential diagnosis, and there is a close interaction with the Malariology regional service (for malaria) and the Instituto Experimental José Witremundo Torrealba (former Trujillan Parasitological Research Center JWT) of the Universidad de Los Andes (for Chagas disease and cutaneous and visceral leishmaniasis).

Hospital Central de Valera, Valera, Trujillo state, western Venezuela, it was build as 300-planned-bed, general hospital of the Trujillo state (the main), which opened in 1958 (including at that moment just two initial departments, Gynecology and Obstetrics, and Pediatrics). There are seven departments in the hospital: pediatrics, gynecology & obstetrics, surgery, internal medicine, emergency, anesthesiology and radiology & laboratory. Pediatrics service includes pediatric ward, surgical pediatric ward and neonatology.[8]

Results

During 2006 three cases of malaria were diagnosed and hospitalized at our institution, representing approximately a hospital income rate for malaria of 0.7 cases per 1,000 hospitalized patients. A clinical summary of these cases is now described.

Case 1: corresponded to a male child, 15 months-old, presenting as unknown origin fever and sepsis.

Case 2: was an adult, 39 y-old male, presenting with intense headache, abdominal pain, fever and coluria.

Case 3: was also an adult, 41 y-old female, with complains of fever, tremors, coluria, headache and vomiting.

All cases came from far locations outside the metropolitan area of Valera city (two came from Portuguesa state and the other from Barinas state).

In all cases the smear with Giemsa revealed *P. vivax* (in the pediatric case also the diagnosis was established in a bone marrow aspirate). They were successfully treated with chloroquine (25 mg/kg, 10 mg/kg on days 1 and 2, 5 mg/kg on day 3) and primaquine (3.5 mg/kg, 0.25 mg/kg/d × 14 days) according to the national antimalarial therapy program.

Discussion

Malaria due to *Plasmodium vivax* is requiring and deserving more biomedical research, particularly because in few past years the literature has shown a growing incidence of atypical, complicated and severe cases of *P. vivax*, as we have been reporting in different clinical and epidemiological settings.[1, 3-5, 9-12]

Further research on these aspects should be focused in regions where this parasite is highly prevalent, such as Venezuela.

However, from a general point of view, a country with areas of malaria transmission would be considered as an endemic nation, but this epidemiological denomination does not reflect accurately the geographical distribution of the disease risk. In many countries there is a heterogeneous geographic pattern of malaria transmission.[2, 4] This occurs in countries such as Venezuela and many other South American nations. Valera is a metropolitan area in the Andes

region of western Venezuela not endemic for malaria. Additionally no species of Anopheles are present in the city but 300 kms there are significant areas where *A. nuneztovari* and other species are endemic. As was seen in this study, imported cases of malaria are seen occasionally in the last years at these locations, most of them complicated by different clinical alterations.

Imported cases of malaria due to *P. vivax* in this population are associated with significant complications. In a other populations of adult patients living in an endemic zone of northeastern Venezuela, where *P. vivax* is endemic, thrombocytopenia was seen in 65% of patients and leukopenia in 4.5%,[1, 9] although for thrombocytopenia was lightly higher in pregnant women (75%).[12] These atypical manifestations are increasingly presenting and should be highlighted.[3, 5, 13]

These findings illustrate the importance of educating non-immune populations about malaria risk; and from a pubic health perspective, the need to develop malaria prevention strategies at a national level to avoid imported cases of malaria, particularly in the context of national tourism and migration.[14] The relationship between malaria transmission and population mobility represents a major challenge for malaria control programs in Latin America and elsewhere.[15] The identification of access routes of imported cases of malaria represents a feat that would allow us to identify and evaluate population migration and its impact on the dynamics of malaria transmission in Venezuela and other Latin American countries.

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