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Case Report

Chikungunya infection confirmed in a Moroccan traveller returning from Bangladesh

Tahar Bajjou[1]*, Ahmed Reggad[2], Farida Hilali[1], Safae Elkochri[3], Abdelilah Laraqui[1], Nadia Touil[1], Idriss Lahlou Amine[3], Yassine Sekhsokh[1], Fattouma Mahassine[2]

[1]Research and Biosafety Laboratory, Mohammed V Military Teaching Hospital, Mohammed V University, Rabat
[2]Center of Virology, Infectious and Tropical Diseases, Mohammed V Military Teaching Hospital, Mohammed V University, Rabat
[3]Virology Laboratory, Mohammed V Military Teaching Hospital, Mohammed V University, Rabat

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***Correspondence:**
Dr. Tahar Bajjou,
E-mail: taharbajjou@gmail.com

ABSTRACT

Recently, several countries reported imported cases of infection with chikungunya virus (CHIKV). We report the first case of chikungunya virus infection in Morocco. A 37-year old woman returned to Morocco on 15 August 2017, after she stayed in Dhaka-Bangladesh for 18months. She developed severe arthralgias and rash, fever up to 39°c. In next day's symptoms progressively subsided but arthralgias remained for 3weeks. Laboratory findings didn't show lymphopenia, thrombocytopenia or elevated liver transaminases. Serological tests were positive for CHIKV IgM and negative for IgG antibodies. CHIKV-RNA was detected by RT-PCR. The patient was treated with non-steroid anti-inflammatory drugs and paracetamol. After 15days of hospitalization, symptoms ameliorated but arthralgias persists. The vector is established in Morocco and since the virus is diagnosed in returning travellers, chikungunya has a potential for autochthonous transmission in Morocco, that's why CHIKV must be included in the differential diagnosis of arthralgia in all travellers returning from countries with documented transmission of the virus.

Keywords: Chikungunya, Imported, RT-PCR, Risk, Morocco

INTRODUCTION

Chikungunya is a tropical arboviral disease transmitted by mosquitoes belonging to the genus Aedes. Infection is characterised by an acute-onset fever, rash and incapacitating joint pain.[1] The virus was first isolated in Tanzania in 1953 and now, it is endemic in many tropical countries of Africa and Asia where seroprevalence rates reach 75%.[2,3]

Although periodic outbreaks occurred ever since throughout Africa as well as in southeast Asia, India, Sri Lanka, Indonesia, Singapore and Malaysia were successively affected, including the south of Thailand in the late 2008.[4] Recently in Bangladesh, Chikungunya has emerged as an important public health issue.[5] Over the previous years, three outbreaks have been reported, the last one at July 2017.[5-8]

In Morocco, until now, many arboviruses such as Dengue (DENV), Chikungunya (CHIKV) and Zika (ZIKV) are not yet detected even in imported form, despite the fact that the vector ae. albopictus has been discovered recently in the town of Rabat.[9]

We describe here the case of a Moroccan functionary who presented in our hospital with a chikungunya infection after having stayed exclusively in the city of Dhaka, Bangladesh.

CASE REPORT

Clinical presentation and laboratory findings

On August 18, 2017, a 37-year-old woman was admitted to the Center of Virology and Infectious and Tropical Diseases in Mohammed V Military Teaching Hospital of Rabat, Morocco, because of persistent fever, arthralgias and rash which occurred abruptly 30days before.

She had returned three days before, from Dhaka, Bangladesh, where she stayed the previous 18 months and developed symptoms by July 18th. When she left Morocco, she was vaccinated against yellow fever and she does not remember a mosquito bites during her stay in Bangladesh. She developed high fever up to 39°C. A few days after, she felt symmetrical arthralgias in her ankles, knees, wrists, and elbows but also in small joints of her hands and feet. Her arthralgias deteriorated, so she could hardly walk.

An itchy rash appeared on her trunk, and the next day it extended to her face, extremities, as well as palms and soles. At the same time, she became afebrile, while athralgias remained up to the approximately twenty days of her illness after which she was feeling well, but exhausted.

Routine laboratory tests, made at the time of presentation, were normal, 4170000 erythrocytes/µL, 6300 leucocytes/µL, 2580 lymphocytes/µL, 193000 platelets/µL, C-reactive protein 102 (normal <5IU/L), aspartate aminotransferase 11IU/L (<35IU/L) and lactate dehydrogenase 11IU/L (<40IU/L). Blood smears for malaria and blood cultures were negative. The patient was treated with non-steroidal anti-inflammatory drugs and paracetamol. She was regularly followed up during the next few days in order to treat her arthralgias and also to observe the progress of her illness. Her symptoms ameliorated by 15days after her first visit to the center in Rabat.

Virological results

Due to similar clinical symptoms and possible coinfections, CHIKV, DENV, and ZIKV were included in differential diagnosis.[10] The serum sample, taken on 23 July, was tested in Bangladesh (Pathology Laboratory, United Hospital of Dhaka) for CHIKV IgM and IgG antibodies. Positivity of CHIKV IgM antibodies as well as negativity of CHIKV IgG antibodies indicated CHIKV acute infection.

In addition, and in our laboratory, the sample was tested for the presence of Dengue virus RNA (DENV RNA) Chikungunya virus RNA (CHIKV RNA) and Zika virus RNA (Zika RNA) using a qualitative real-time reverse transcriptase-polymerase chain reaction (RT-PCR). Nucleic acid isolation was made on an automated system MagMaxTM using 96 Viral RNA Isolation Kit (Life Technologies Ltd, Paisley, UK). The amplification and detection were performed on ABI 7500 Real Time PCR System (Applied Biosystems®, Foster City, CA, USA) by using RealStar® RT-PCR Kits (Altona Diagnostics, Hamburg, Germany). Only RNA of Chikungunya Virus was positive.

According to the cases definition suggested by the international Chikungunya expert group (2015), our patient was classified as an acute clinical case.[11] Upon receipt of the positive test result, national health authorities were notified. Our laboratory is part of a national survey network for Hemorragic fever, Arbovirosis and tropical diseases (Ebola, West Nile, chikungunya, Zika, Degue virus).

DISCUSSION

Since the first outbreak of chikungunya virus in 1952-53 in Tanzania, several outbreaks of chikungunya had occurred in different countries.[12,13] In previous years, outbreaks had occurred in India, Pakistan, and Brazil.[14-16] In Bangladesh three outbreaks were reported in 2008 in 2011 and in 2017.[17-19]

Following these waves of outbreaks spreading from east Africa to southeast Asia, chikungunya infection has been reported increasingly in travellers or workers returning from visits to their home countries during the last years.[20-25] The virus was contracted undoubtedly in Dhaka, Bangladesh. To our knowledge, this is the first imported case of Chikungunya in Morocco and north Africa.

In Bangladesh, over the past two decades, dengue and Chikungunya had been recognized as endemic disease with high incidence during the rainy seasons especially in big cities. This year's outbreak of chikungunya also parallels the same seasonal and environmental characteristics of dengue in Dhaka, Bangladesh. Ae. albopictus was the main vector in 2011 outbreak in Dohar, Dhaka.[26]

Our patient leaves Dhaka for a visit to Morocco exactly during the last outbreak of Chikungunya. This outbreak was declared by the Institute of Epidemiology, Disease Control and Research of Bangladesh (IEDCR).[19] Our patient did not show lymphopenia, thrombocytopenia, and high values of aspartate aminotransferase and alanine aminotransferase in blood as described by many authors but her physicians in Bangladesh were right to prescribe an immunological test of Chikungunya because of the clinical examinations and the epidemiology of the country.[20,27] These arguments justify the fact that she benefits of a serological test of Immunoglobulin IgG and

IgM. That and the positivity of the CHIKV RNA demonstrate that the viremia was still positive, and the disease was in the acute phase when she leaves Bangladesh.

Risk for Morocco

In recent years, the risk of CHIKV emergence in Europe is increasing, as imported cases of chikungunya are continuously reported.[20] This was amply demonstrated by the outbreak of chikungunya in Italy in the summer of 2007 and in French in 2010.[28,29] Any country where Aedes mosquito is present represents a potential area for future chikungunya virus establishment and outbreaks.

Since the vector is established in Morocco and since CHIV is diagnosed in returning travellers, chikungunya has a potential for autochthonous transmission in Morocco. Due to the growing intensity of travel in endemic areas following the development of economic and diplomatic relations between Morocco and various African and Asian countries, the risk of local epidemics, although extremely limited at present, should increase.

So, Control measures should be regularly performed, particularly in areas with established ae. albopictus population. Correct diagnosis of arbovirus infections in travellers is mandatory to recognize the infection. General practitioners are in the first line for considering an arbovirus infection in their differential diagnosis in patients with acute febrile syndrome.

CONCLUSION

We have observed a case of Chikungunya illness that was thereafter diagnosed as chikungunya infection and acquired in Dhaka, Bangladesh. Dhaka is not popular tourist or business spot for Moroccans, but other countries especially in Asia and Africa are. This will increase the likelihood of further imported cases in Morocco. Detection of an imported chikungunya fever in Morocco highlights the need for clinicians to consider chikungunya in the differential diagnosis of arthralgia in all persons coming from a travel in endemics areas where CHIKV transmission is documented.

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