



Chikungunya Masquerading as Acute Rheumatism in an Omani Traveler

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ABSTRACT

Chikungunya is a mosquito-borne viral disease. It typically presents as an acute febrile illness associated with a varying degree of arthralgia and musculoskeletal sequelae. Cases of chikungunya have been reported from more than 40 countries in several continents. Chikungunya is often reported in travelers returning to non-endemic/epidemic countries. With increasing international travel, it is vital that clinicians in non-endemic areas are made aware of this rapidly spreading infection. Increasing international travel (for social, leisure, and business) between Oman and several chikungunya endemic countries including Pakistan may facilitate the introduction of chikungunya to Oman. We report the first imported case of chikungunya in an Omani traveler with a link to the current outbreak in Pakistan.

Chikungunya is an arboviral disease caused by the chikungunya virus – an alphavirus – and is largely transmitted by the *Aedes aegypti* and *Aedes albopictus* mosquito species. It was first described after an outbreak in East Africa in 1952.¹ Since then, it has become a global concern but remained limited until recently. Today, chikungunya has been reported in over 40 countries from Africa, Asia, Americas, Europe, and Oceania/Pacific islands.² It is postulated that this drastic spread is due to increasing global travel with infected travelers importing the virus to non-endemic areas.³

Chikungunya has an incubation period of two to 12 days with more than 70% of infected individuals becoming symptomatic.⁴

The diagnosis of chikungunya during the acute phase of the infection (within the first seven days) is best confirmed using the reverse transcriptase-polymerase chain reaction (RT-PCR) to detect the viral RNA.⁵

Chikungunya is classically a biphasic illness with an acute phase (polyarthralgia, high fever, asthenia, headache, vomiting, rash, and myalgia),⁶ and a chronic phase (chronic rheumatologic condition). Nearly 5% of patients with chronic post-chikungunya arthritic syndrome end up suffering from chronic inflammatory rheumatism of which rheumatoid arthritis and spondyloarthropathy are most common.⁷ At times, chikungunya mimics seronegative rheumatoid arthritis.⁸

The elderly and patients with chronic medical conditions are generally at higher risk for chikungunya-related rheumatologic complications in the acute phase of the disease.⁹ Similarly, female gender and old age predict an unfavorable long-term rheumatic impairment post-chikungunya infection.⁷ Chikungunya virus infection was also found in a recent study to be associated with exacerbation and worsening of preexisting chronic inflammatory rheumatisms.¹⁰

CASE REPORT

A 60-year-old Omani male presented to the emergency department at Sultan Qaboos University Hospital, Oman, with an acute febrile illness for four days associated with severe pain and stiffness of large and small joints, muscle and body pain, extreme fatigability, and a rash on his lower extremities. His joint pain was severe and incapacitating. The pain involved the small joints of his hands, and both wrists, shoulders, ankles, and knees. The patient had returned from a family visit to Karachi, Pakistan, one day before presentation. However, his symptoms started three days before returning to Oman. The patient was accompanied during his travel by his wife and children all of whom experienced similar symptoms while in Pakistan and spontaneously recovered. He recalled several mosquito bites while in Karachi.

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The patient was previously healthy except for well-controlled diabetes mellitus. He did not seek pre-travel counseling and did not receive vaccinations or malaria chemoprophylaxis. His only medication was metformin 1.5 g twice daily.

At triaging in the emergency department, he was alert and oriented but looked exhausted. He was febrile (38.5°C) and tachycardic (110 beats/minute). His blood pressure was 120/90 mmHg, and he had a respiratory rate of 20 breaths/minute, and oxygen saturation of 98% in room air.

General examination showed no pallor, icterus, or conjunctival hemorrhages, and no palpable lymphadenopathy. He was observed to have mild stooped posture.

Skin examination revealed diffuse, erythematous, painless, non-pruritic, and non-blanchable maculo-papular rash involving lower limbs and limited to both shins. Examination of the joints demonstrated tenderness with a limited range of movement and stiffness of small joints of hands, both wrists, elbows, shoulders, ankles, and knees with mild synovitis of the left knee joint. The remainder of the physical examinations were normal.

Initial investigations revealed normal hematocrit (37%), platelets ($227 \times 10^9/\text{L}$), and total white cell count ($7.4 \times 10^9/\text{L}$) with moderate lymphopenia (absolute lymphocyte count of $0.7 \times 10^9/\text{L}$). His coagulation screen was normal. Hepatic function panel showed a two-fold rise in alanine aminotransferase (83 U/L) with normal aspartate aminotransferase (43 U/L), albumin (39 g/L), and bilirubin (6 $\mu\text{mol}/\text{L}$). His renal function and electrolytes panel were normal. Rapid antigen detection test for malaria was negative, blood culture was negative, and chest X-ray was normal. Cardiac electrocardiography was normal with the exception of sinus tachycardia.

RT-PCR for chikungunya was performed at national reference public health laboratory on patient's blood sample. This test was positive (with high chikungunya viral load) confirming acute chikungunya at the time of hospitalization. RT-PCR for dengue virus was negative.

A diagnosis of a confirmed case of travel-related chikungunya with acute polyarthralgia/polyarthritis was made. The patient was managed with simple analgesics (acetaminophen 1 g six hourly) and non-steroidal anti-inflammatory drugs (celecoxib 200 mg 12 hourly). This approach provided symptom relief

with marked clinical improvement within three days. Two weeks later, the patient continued to have mild residual arthralgia (mainly left knee). However, he was able to ambulate independently but with residual mild stooped gait. Follow-up was arranged to monitor for development of post-chikungunya chronic rheumatologic disorder.

DISCUSSION

Chikungunya is frequently reported in travelers returning to non-endemic/epidemic countries. This understandably poses challenges for many physicians practicing in non-endemic settings. Some of these travelers (like our patient) present with acute rheumatologic illness. Other travelers develop rheumatologic disorders months to years after the acute infection.¹¹ It is unclear at present if our patient will progress to post-chikungunya chronic rheumatologic disorder. The patient has two predictors for chronic sequelae namely age and diabetes mellitus.

Chikungunya means to walk bent over (stooped posture) in the Kimakonde language of Mozambique.¹² The patient in this report presented with two classic presentations of acute chikungunya infection namely acute symmetric polyarthralgia and stooped gait. The observation that only this patient developed acute rheumatism requiring hospitalization while his other accompanying family members (who were very likely infected with chikungunya) had mild illness highlights the role of comorbidities and age in predisposition to acute rheumatism.

The current outbreak of chikungunya in Pakistan, which is believed to have started in November 2016, has resulted in an estimated 30 000 patients infected with the virus with more than 4000 laboratory confirmed cases.¹³ This outbreak is of concern to public health officials in Oman given the scale of air travel between these two countries. Many Omanis regularly visit Pakistan for business, social, and family reasons. Our patient is probably one of the first internationally imported cases from this ongoing outbreak.

Chikungunya was suspected in our patient given the recent travel to an endemic area with known virus transmission and his clinical presentation with an acute onset of polyarthralgia and fever. The diagnosis was subsequently confirmed by detection of the viral RNA in serum using RT-PCR.

In Oman, the vector *Aedes aegypti* has been identified in limited parts of Dhofar governorate at a low scale as part of the entomological surveys conducted in the governorate between 2006 and 2014.¹⁴ We predict that it is extremely unlikely that this event will result in sustained transmission or outbreaks of chikungunya virus in Oman. This is largely due to very limited vector population and intensive vector control efforts.¹⁵

CONCLUSION

Recognition of chikungunya virus infection in patients presenting with an acute febrile illness and polyarthralgia after recent travel to epidemic/endemic regions is of paramount importance to prevent the introduction of the virus to Oman. We believe that Omani travelers who frequently visit endemic countries including Pakistan should be cautioned that chikungunya is not an insignificant risk. This is particularly true for individuals at high risk for acute or long-term rheumatologic complications like our patient. In the absence of specific vaccination and antiviral therapy for chikungunya, measures to prevent mosquito bites must be practiced and strictly adhered to those who must travel to chikungunya epidemic locations.

Disclosure

The authors declared no conflicts of interest.

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