Acute Respiratory Distress Syndrome: An Unusual Presentation of Chikungunya Fever Viral Infection

Sir,

Chikungunya fever is an arthropod-borne viral disease that has been a major global health problem since the last decade.[1] It has diverse clinical manifestations, ranging from asymptomatic infection to atypical or rare infections and complications. Typical systemic clinical manifestations include fever, arthralgia, skin rashes, headache, backache, nausea, vomiting, joint swelling, myalgia, lymphadenopathy, fatigue, and anorexia whereas rare complications include convulsions, meningoencephalitis, fulminant hepatitis, acute renal failure, respiratory failure, and myocarditis.[2,3] Atypical and complicated features are reported in <0.5% of cases and more frequently observed in elderly patients, pregnancy as well as children, and/or in the presence of underlying diseases such as hypertension, cardiovascular, or respiratory conditions.[2] Respiratory manifestations such as pneumonia and acute respiratory distress syndrome (ARDS) are unusual with chikungunya fever. We are reporting here a case of a patient with chikungunya fever without any comorbid illness who developed acute hypoxemic respiratory failure leading to ARDS.

A 24-year-old previously healthy male was admitted to the hospital with complaints of high-grade fever, arthralgia, backache, headache, and decreased appetite for 8 days followed by breathlessness for 2 days. His vital parameters recorded on examination were pulse - 120/min, blood pressure - 90/60 mm Hg, respiratory rate - 45/min, temperature 103°F, and pulse oximetry 88% on room air. He also had subconjunctival suffusion along with diffuse erythematous macular rash on the face, trunk, and peripheral extremities. Other systemic examination was unremarkable. He was found to have anemia (hemoglobin 6.6 g/dl), leukopenia (3500/cm^3) with relative lymphocytosis, and mild thrombocytopenia (130,000/cm^3) with normal coagulation profile. Chikungunya IgM antibody by ELISA (Xcyton, Bengaluru, India) was detected positive in serum while dengue, leptospirosis, malaria, typhoid fever, meningococcemia, scrub typhus, rickettsia, and other severe bacterial, viral, and parasitic diseases prevalent locally were also ruled out. The patient was also analyzed for serum using ELISA for Japanese encephalitis and other viruses to rule out any evidence of coinfection. Reverse transcriptase polymerase chain reaction for chikungunya virus (Amplisure Chikungunya RT-PCR Kit, RAS Lifesciences Private Limited, Hyderabad, India) in serum was also detected positive for further confirmation. Rest all laboratory investigations including echocardiography were unremarkable. His chest skiagram revealed bilateral infiltrates involving all zones

with normal cardiac size with no evidence of consolidation and pleural effusion suggestive of ARDS. The arterial blood gas on room air showed a PaO_2 of 51.7 mm Hg, $PaCO_2$ of 25.4 mm Hg, HCO_3 of 20.2 mmol, and pH of 7.52 with wide alveolar–arterial gradient 60.3 mm Hg (respiratory alkalosis with metabolic acidosis with hypoxemic respiratory failure). The working diagnosis of mild ARDS as per Berlin criteria[4] secondary to chikungunya infection was established with baseline Acute Physiology and Chronic Health Evaluation score of 14. He was managed with noninvasive ventilation in view of acute hypoxemic respiratory failure. Fluid resuscitation and intravenous acetaminophen were started along with hemodynamic monitoring followed by subsequent resuscitation with vasopressor support. He was given two units of packed red blood cells. His general condition subsequently improved as he became afebrile after 4 days of admission and vasopressor requirement decreased. There was also improvement in gas exchange parameters as there was improvement in PaO_2-86.4 mm Hg with normalization of alveolar–arterial gradient to 17.3 mm Hg. Repeat hemoglobin was 9.5 g/dl. The patient was managed conservatively with general supportive measures. The patient was discharged in stable condition on the 10th day after admission.

The association of respiratory failure leading to ARDS with chikungunya fever has been rarely reported with limited evidence.[2,5-7] The pathophysiology of chikungunya fever in humans has not been extensively studied.[3,8] This issue has been addressed because of a rare clinical manifestation of a common disease in a previously normal patient, and it also highlights an important, potentially fatal complication of this disease although the patient has been successfully cured. Chikungunya fever seems to be responsible for atypical or fatal clinical presentations not only in elderly patients or patients at high risk but also in younger patients with an unremarkable medical history.[6] It has been strongly suspected to have neurologic, hepatic, and myocardial tropism, with dramatic complications and mortality.[2,7] Majority of cases are usually self-limiting with recovery as usual outcome, but there are fatal febrile outbreaks with significant mortality.[8,9] Therefore, the treatment and outcome of this infection still remains uncertain. There is requirement of immense efforts in creating further development in the field of science, patient care, and public health pertaining to chikungunya fever to limit its current rapid spread and fatal clinical manifestations as well as complications.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

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Quick Response Code:

Website: www.jgid.org

DOI: 10.4103/0974-777X.194374

How to cite this article: Singh A. Acute respiratory distress syndrome: An unusual presentation of chikungunya fever viral infection. J Global Infect Dis 2017;9:33-4.