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Letter to Editor

Co-Infection of Dengue Fever, Aspergillosis and Mycobacterium Avium Complex in an Aged Patient with Pneumonia

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KEYWORDS

Aspergillosis; Dengue fever; Mycobacterium avium Complex

DEAR EDITOR

Invasive pulmonary aspergillosis (IPA) is a potentially fatal infectious complication among immune compromised patients. Patients in post-dengue status may develop IPA. Literature review has alerted clinicians that all cases of Aspergillus infections with concurrent or after dengue have had fatal outcomes [1-4]. Larbcharoensub et al. reported four autopsy cases of previously healthy children with dengue shock syndrome complicated with invasive aspergillosis [1]. Nasa et al. reported a 65-year-old woman in recovery phase from dengue fever had hemoptysis due to IPA; nonetheless, she showed improvement with voriconazole therapy [5]. Herein, we report a dengue fever case with pneumonia in progression, which might be associated with Aspergillus and Mycobacterium avium complex mixed infection in an extremely elderly patient.

A 94-year-old man of bedridden status with dementia and chronic kidney disease had poor appetite and general weakness for 3 days. Then, fever up to 40°C with shortness of breath was noted for one day. There was no diarrhea or skin rash. The patient was sent to the hospital. Laboratory data revealed a white blood cell count of 4,800/μL with 16% band form; hematocrit, 36.4%; platelet count, 80,000/μL; C-reactive protein (CRP), 71.2 mg/L; Procalcitonin (PCT), 15.38 ng/mL; blood urea nitrogen, 31 mg/dL; creatinine, 4.47 mg/dL; blood sugar, 143 mg/dL and lactate, 3.9 mmole/L. Dengue virus-specific immunoglobulin (Ig) IgM and IgG were negative, but the Nonstructural protein 1 (NS1) antigen and dengue virus-PCR in blood sample were positive. The Chest X-ray (CXR) film showed bilateral pulmonary infiltration (Figure 1A). Antibiotic with cefpirome was used. Sputum culture yielded Klebsiella pneumoniae and Staphylococcus aureus, which was resistant to oxacillin. The pneumonia worsened after 5 days of therapy (Figure 1B), while sputum culture began growing Candida albi*cans* and C. tropicalis. The blood Aspergillus Galactomannan (GM) antigen index was 0.41 (normal, < 0.5), but Aspergillus GM index of bronchoalveolar lavage was 0.5 (positive). The cytomegalovirus PCR in sputum sample was negative. Then, the patient received therapy with voriconazole and tigecycline. Meanwhile, the tuberculosis cultures yielded Mycobacterium avium complex in two sputum samples, so ethambutol and clarithromycin were added. The pneumonia gradually improved (Figure 1C). As difficulty in coughing and weaning off a ventilator were encountered, a tracheostomy was created. However, nosocomial pneumonia due to Serratia marcescens and Elizabethkingia species developed (Figure 1D). As unstable hemodynamics eventuated, the family accepted palliative care for the patient, who died after two months of hospital stay.

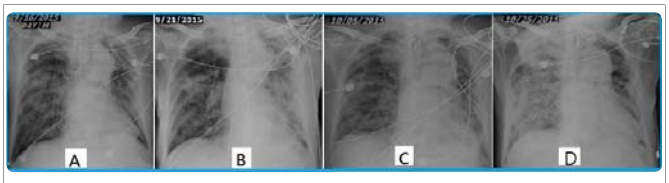

Figure 1: The chest X-ray films showing initial pulmonary infiltration (A), worsening in progression (B), gradual improvement (C) and nosocomial pneumonia later (D).

In conclusion, human immunity might be diminished after dengue, especially in cases such as our aged patient with chronic kidney disease. Mathew *et al.* had reported impaired T cell proliferation and cell-mediated responses with acute dengue infection [6]. Not only limited in IPA, invasive aspergillosis could involve myocarditis and renal necrosis during the recovery phase of dengue shock syndrome [4]. The initially high levels of CRP and PCT in our case may have supported the bacterial coinfection of K. pneumoniae and S. aureus pneumonia with acute dengue [7]; however, the pneumonia in worsening progress might hint at additional etiologies, thereby invasive Aspergillus infection and atypical Mycobacterium probably complicated the course of pneumonia. This report reminds physicians that about potential co-infections of aspergillosis and atypical Mycobacterium with concurrent dengue or in the post-dengue status of patients showing progressive or delayed resolution of pneumonia.

CONFLICT OF INTERESTS

The author declares no conflict of interest and no financial support regarding this work. The case study in this work was approved by the Institutional Review Board (IRB) of Chi Mei Medical Center (IRB no. 10503-005).

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