Acute Pulmonary Embolism in Dual Dengue Fever and Influenza B Infection

Wen Chi Hsu and Wen Liang Yu

1Department of Nursing, Chi Mei Medical Center, Tainan, Taiwan
2Department of Intensive Care Medicine, Chi Mei Medical Center, Tainan, Taiwan
3Department of Medicine, Taipei Medical University, Taipei, Taiwan

*Corresponding author: Wen-Liang Yu, Department of Intensive Care Medicine, Chi Mei Medical Center, No. 901 Chunghua Road, Yongkang District, Tainan City, 710, Taiwan, Tel: +886-6-2812811, Fax: +886-6-2833351, E-mail: Yuleon_md@yahoo.com.tw

Keywords
Dengue, Influenza B, Pulmonary embolism

Letter
Dear Editor,

Acute Pulmonary Embolism (PE) is a life-threatening condition and the common cause of death is due to obstruction of main pulmonary vessels by the embolus, resulting in pulmonary hypertension followed by right-sided heart failure [1]. Acute PE often occurs in some patients with hereditary and acquired factors predisposing them at a risk for the development of thrombotic events. The hereditary hypercoagulable state due to genetic mutations, such as deficiency of protein C and protein S, involves an increased risk of recurrent venous thromboembolism [2]. The acquired risk factors are commonly seen in some inflammatory or infectious diseases, such as influenza [3], whereas dengue fever has been rarely described [4]. Herein, we describe a diabetic patient with dual dengue fever and influenza B infection, who developed an isolated subsegmental pulmonary embolism.

A 71-year-old diabetic woman with hypertension history suffered from the dizziness, fever, and general weakness on September 13, 2015 during a large dengue outbreak in Tainan city, Taiwan [5]. She was sent to the emergency room of the hospital. The serum dengue virus Nonstructural protein 1 (NS1) antigen showed a positive result, while anti-dengue IgM and anti-dengue IgG antibodies were negative. The presenting serum data included platelet count, 177,000/μL; Asparate Transaminase (AST), 46 U/L; and Alanine Aminotransferase (ALT), 43 U/L. The Computed Tomography (CT) scan of the brain did not indicate obvious lesion except mild brain atrophy. Under the impression of dengue fever, she was admitted to the ward for further management.

A platelet count dropped to the lowest level of 11,000/μL on September 16. After five days of hospitalization, however, she felt worsening malaise, dizziness, anorexia, and newly developed dyspnea. The abnormal serum laboratory data included platelet count 20,000/μL; AST, 1704 U/L; ALT, 762 U/L; total bilirubin, 3.24 mg/dL, direct bilirubin, 1.84 mg/dL, albumin, 2.9 g/dL; lactate (4.1 mmol/L), D-dimer (3271 ng/mL, normal < 500) and activated partial thromboplastin time, 51.5 seconds. Hypoxemia was noted with an arterial Oxygen Partial Pressure (PaO₂) of 57.2 mmHg with using the Fractional Inspired Oxygen (FiO₂) of 35% (PaO₂/FiO₂, 163.4 mmHg). The chest X-ray revealed mild infiltration over bilateral lung fields, suggesting pulmonary edema. The chest CT scan revealed partial thrombosis of right pulmonary artery at superior lobar branch (Figure 1).

Therefore, she was admitted to the intensive care unit. In addition, the result of rapid influenza diagnostic test revealed positive for influenza B antigen in nasopharyngeal swab. The throat Polymerase Chain Reaction (PCR) for Influenza A (H1N1), H3N2 and influenza A were all negative. The dengue virus-PCR as well as anti-dengue IgM and anti-dengue IgG antibodies in serum were all positive on the 8th hospitalized day. A 5-day course of oseltamivir and
Conflict of Interests
We declare no conflict of interest and financial support regarding this letter.

Ethics Statement
The case study in this work was approved by the Institutional Review Board (IRB) of Chi Mei Medical Center (IRB no. 10503-005).

References

In conclusion, Acute PE could occur in the patients with influenza and/or dengue, either alone or coinfection, particularly in those patients with increased procoagulant activity, such as proteins C and S deficiency or in those with other risk factors of PE. Awareness for the vascular thrombotic complications should be recommended to all practitioners who treat patients with dengue fever, particularly coinfected with influenza.