CORRESPONDENCE

Takotsubo cardiomyopathy in a patient with dengue fever

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Takotsubo cardiomyopathy is referred to a transient, stress-induced cardiomyopathy, or a transient left ventricular apical ballooning syndrome. Its postulated pathogenesis includes excess secretion of catecholamine, coronary artery spasm, or focal myocarditis. It may occur after surgery or acute medical condition such as acute emotional stress or septicemia.1 Association with acute dengue virus infection was rarely reported in the literature.2

A 72-year-old woman with hypertension and diabetes mellitus suffered from general malaise and poor appetite in recent days. She experienced cold sweating and then had an attack of syncope in the morning of admission on August 5, 2015. She denied having fever, chest tightness, productive cough, or tarry stool passage. Her electrocardiogram showed sinus bradycardia, inverted T wave changes (V3–V6), and prolonged QT interval (QTc = 597 milliseconds; Figure 1A). Elevated cardiac enzymes including total creatine kinase, 312–341 IU/L (normal, 29–168 IU/L); creatine kinase MB form, 13.0–18.4 ng/mL (normal, <5.1 ng/mL); and hs-troponin I, 7848.8–8499.3 pg/mL (normal, <26.2 pg/mL) were noted. Non-ST-elevated acute myocardial infarction (NSTEMI) was impressed.

Initially, dual antiplatelet agents (aspirin and ticagrelor) were given. However, laboratory data of blood obtained before the antiplatelet therapy revealed the following: platelet count, 67,000/μL; white blood cell count, 3200/μL; hematocrit, 35.9%; prothrombin time, 9.8 seconds (normal, 9.9–11.6 seconds); activated partial thromboplastin time (aPTT), >200 seconds (normal, 24.4–34.8 seconds); C-reactive protein, 3.7 mg/L; blood urine nitrogen, 23 mg/dL; creatinine, 0.70 mg/dL; and serum glutamic–pyruvic transaminase, 29 IU/L. Dengue NS1 Ag rapid test and dengue virus-polymerase chain reaction results were both positive. Therefore, the antiplatelet agents were discontinued.

On the next day, her electrocardiogram showed normal QT interval with only nonspecific ST-T changes (Figure 1B). An echocardiogram revealed hypokinesis of the apical anterior wall of the left ventricle (LV; Figures 1C and 1D), adequate LV performance (ejection fraction, 56%), and mild pulmonary hypertension with an estimated pulmonary artery systolic pressure of 42 mmHg. Cardiac catheterization revealed no angiographically significant coronary artery disease. Left ventriculography revealed akinesia of mid and apical segments and well contracting basal segments, indicating takotsubo cardiomyopathy (Figures 1E and 1F). The abdomino sonography revealed bilateral pleural effusion and bilateral minimal perirenal fluid collection, but ascites was not detected. Meanwhile, tarry stool was found. The platelet count further declined to 50,000/μL on August 6, and then recovered to 145,000/μL on August 9. Her general condition improved under fluid management and blood sugar control with insulin therapy. Then the patient was discharged uneventfully on August 11. A follow-up echocardiogram revealed full recovery of LV function without wall motion anomaly on August 24, 2015 (data not shown).

We report a patient who had dengue fever with attack of syncope, thrombocytopenia, prolonged QT interval, mildly
elevated cardiac enzymes, and left ventricular apical wall motion abnormality. The aPTT prolongation and upper gastrointestinal bleeding are characteristic features of hemorrhagic dengue fever. The bilateral pleural effusion and bilateral perirenal fluid collection were probably due to plasma leakage as increased vessel permeability in dengue pathogenesis.3 Typical takotsubo cardiomyopathy usually reverts to normal contractility without any specific treatment.1 In dengue fever, cardiac involvement usually manifests with myocarditis and global hypokinesia, leading to a fulminant course and poor outcome.4,5 Although with prolonged QT interval and inverted T waves on electrocardiogram, similar to a previously reported 11-year-old boy with dengue-related transient takotsubo cardiomyopathy,2 our 72-year-old female patient had the same disease with different manifestations of syncope, sinus bradycardia, and elevated troponin levels, mimicking NSTEMI.

In conclusion, takotsubo cardiomyopathy could occur in a diabetic woman with dengue fever, mimicking NSTEMI. The patient was safely discharged after 1 week of hospitalization with appropriate fluid therapy. It is therefore important for physicians to have a heightened awareness of dengue fever even with atypical presentation in patients living in southern Taiwan.3

References


Figure 1  Electrocardiogram showing (A) inverted T wave changes (V3–V6) and prolonged QT interval, which (B) became nonspecific ST-T wave changes with normal QT interval the next day. Hypokinesis is shown in the apical endocardium at (C) the end-systolic and (D) the end-diastolic phases. Left ventriculography shows the apical hypokinesia by subtracting the (E) end-systolic image from the (F) end-diastolic image as well as the preserved contractility at basal portion and left ventricular apical ballooning appearance (arrows), resembling a Japanese octopus trap, also called takotsubo cardiomyopathy.