Multiple Bee Sting-Induced Life-Threatening Takotsubo Cardiomyopathy

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An 87-year-old woman was transferred to the emergency department with multi-organ failure following more than 100 bee stings (Figure A). On admission, blood pressure was 91/68 mmHg, pulse rate was 104 beats/min, and body temperature was normal. On laboratory data, white blood cell count was increased (30,800/µL), along with elevated lactate dehydrogenase (6,423 U/L; normal range, 85–253 U/L), aspartate aminotransferase (8,505 U/L; normal range, 9–37 U/L), alanine aminotransferase (2,977 U/L; normal range, 3–49 U/L); serum creatinine (1.51 mg/dL; normal range, 0.5–1.2 mg/dL); blood urea nitrogen (40 mg/dL; normal range, 7–21 mg/dL); and creatine kinase (7,975 U/L; normal range, 6–246 U/L), suggesting acute renal failure and liver dysfunction with rhabdomyolysis. In addition, B-type natriuretic peptide and troponin-I were markedly elevated (1,616.7 pg/mL; normal range, <18.4 pg/mL; and 31,990.8 pg/mL; normal range, <26.2 pg/mL, respectively), indicating severe cardiac overload and myocardial damage. Electrocardiogram (ECG) showed extremely marked ST segment elevation in leads I, II, aVL, aVF, and V2–V6 (Figure B) compared with that performed at the previous hospital (Figure B). Echocardiography showed classic left ventricular (LV) apical ballooning, suggesting acute coronary syndrome or takotsubo cardiomypathy (TCM; Figure C, Movie S1). Emergency coronary angiography showed no significant coronary artery stenosis (Figure D); the patient was diagnosed with TCM. She underwent intensive care, including capillary hydrodynamic flow fractionation for rhabdomyolysis accompanying multi-organ failure possibly due to toxic effects of injected bee venom. Twenty-six hours after admission, sudden death occurred. Post-mortem computed tomography (CT) showed pericardial effusion that was not seen on CT at admission (Figure E, white arrowheads); pericardial effusion was detected in the cardiac apex resulting from TCM (Figure F). Moreover, the low-CT-value area in the LV chamber induced by anemic blood extended into the lateral myocardial layer (Figure F), which was the suspected rupture site. TCM following bee stings is very rare, but should be considered in patients with chest pain associated with ECG changes following hymenoptera sting. This is the first imaging and report of post-mortem CT in a patient with ruptured TCM. As in the present case, anemia-induced low CT value of blood could indicate akinesis at the cardiac apex and a suspected rupture site.

Supplementary Files

Supplementary File 1

Movie S1. Echocardiography.

Please find supplementary file(s); http://dx.doi.org/10.1253/circj.CJ-18-0047