Stress-induced cardiomyopathy (SCMP) is characterized by transient left ventricular (LV) systolic dysfunction with regional wall motion abnormalities that do not match coronary arterial territories. Although this syndrome is similar to acute myocardial infarction, the diagnosis of SCMP requires the absence of obstructive coronary artery disease or acute plaque rupture. There are several types of SCMP: apical ballooning (typical type, about 75–80%), midventricular ballooning (about 10–20%), basal ballooning (inverted type, about 5%), and biventricular type (less than 0.5%). The estimated incidence of SCMP is about 1–2% of patients with suspected acute coronary syndrome. Because it can be caused by intensive emotional or physical stress, there can be occurrences of SCMP in patients with novel coronavirus disease-2019 (COVID-19). In one study of 1,216 COVID-19 patients, SCMP incidence was 2% (19 patients). The reported in-hospital SCMP mortality is up to 5%. We present 2 fatal cases of SCMP in COVID-19 patients requiring intensive care.

**CASE 1**

A 78-year-old woman presented with fever and sore throat for the previous 7 days. She was admitted to another hospital due to worsening dyspnea. Initial vital signs at admission were as follows: blood pressure, 114/76 mmHg; heart rate, 112 beats/min; respiratory rate, 24 breaths/min; and body temperature, 38.4°C. After admission, her systolic blood pressure dropped to 80 mmHg and her oxygen saturation was 60%. She was transferred to our hospital for further treatment. Initial chest X-ray showed diffuse infiltration of whole lung fields (Figure 1A). The electrocardiogram showed sinus rhythm with right bundle branch block, and initial echocardiography was normal LV systolic function (Figure 1C and D, Movie 1). Her troponin-I was 277.2 pg/mL (reference, 2.3–17.5 pg/mL) and N terminal pro B-type natriuretic peptide was 2,033 pg/mL (reference, < 314 pg/mL). She was treated with antiviral agents and an ECMO with supportive care, and apical ballooning disappeared after 7 days. Although the attending physician tried to remove the ECMO and ventilator, the patient died with worsening stiffness of the lung on her 54th hospital day.
CASE 2

A 73-year-old woman presented with fever and cough for the previous 13 days. She was previously healthy without underlying cardiovascular disease. Initial vital signs at admission were as follows: blood pressure, 148/78 mmHg, heart rate, 70 beats/min; respiratory rate, 28 breaths/min; and body temperature, 37.6°C. Her chest X-ray showed the typical diffuse ground-glass appearance that suggests viral pneumonia (Figure 2A), and computerized tomographic examinations revealed diffuse infiltration of bilateral lung fields (Figure 2B). After admission, her systolic blood pressure dropped to 54 mmHg, and her heart rate was reduced to 43 beats/min. The echocardiographic examination demonstrated apical ballooning with dyskinetic movement and severe LV systolic dysfunction (Figure 2C and D, Movie 2). Her troponin-I was increased from 30.4 pg/mL to 1,037.9 pg/mL, and creatine kinase-MB type was elevated from 0.8 ng/mL to 6.7 ng/mL (reference, < 6.2 ng/mL). The patient died after 3 days due to profound hypotension despite intensive care with ventilator therapy.
SUPPLEMENTARY MATERIALS

**Movie 1**
Echocardiographic examination of case 1.

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**Movie 2**
Echocardiographic examination of case 2.

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REFERENCES


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