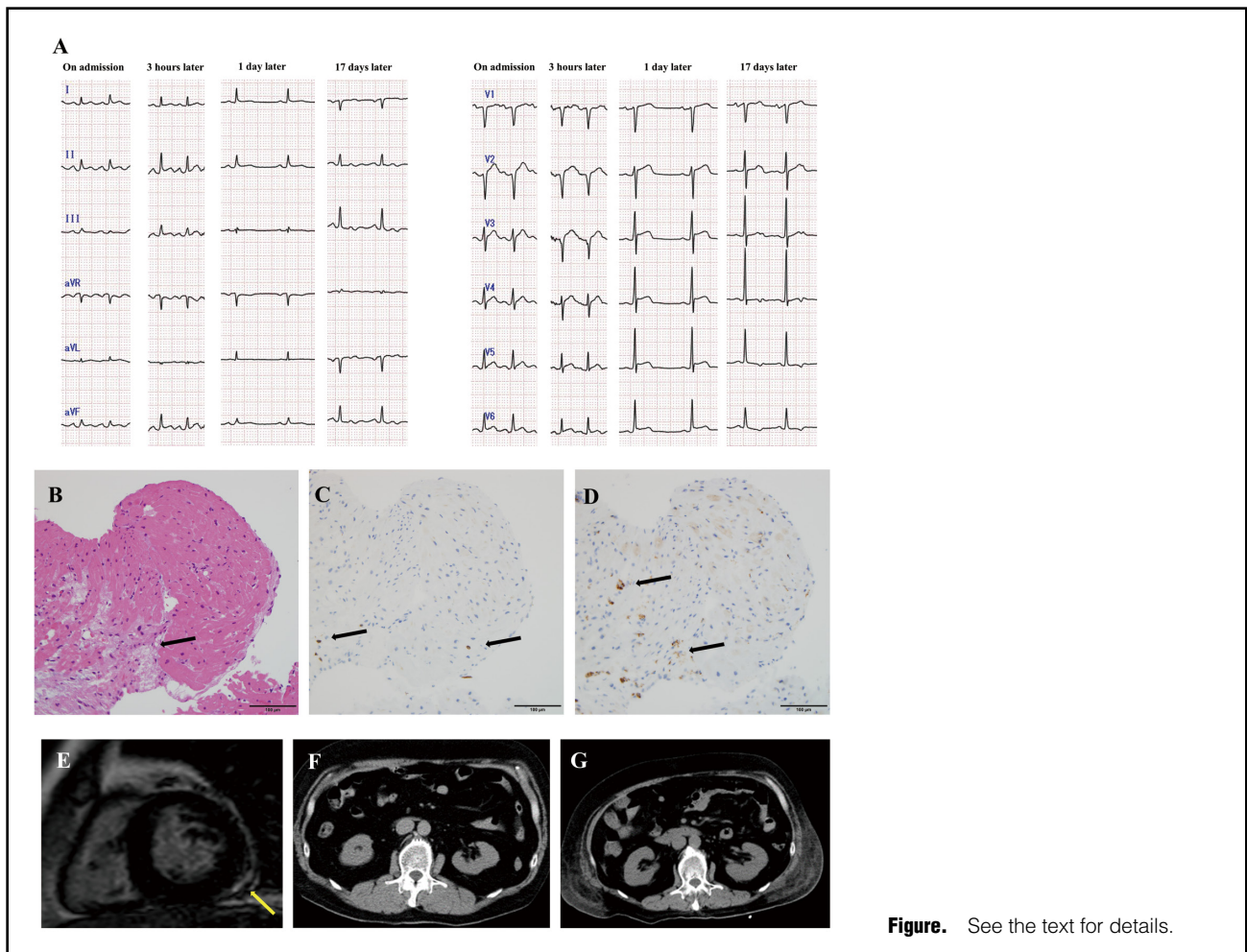


## Multimodal Findings of COVID-19-Related Rhabdomyolysis Complicated With Pericarditis Mimicking Fulminant Myocarditis

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**A** hypertensive 61-year-old man had low blood pressure (97/58 mmHg) and metabolic acidosis 1 day after a COVID-19 diagnosis. A baseline 12-lead electrocardiogram (ECG) showed sinus tachycardia with poor R progression and wide-range ST elevation (**Figure A**). Echocardiography showed diffuse mild hypokinesis and left ventricular hypertrophy with pericardial effusion. Cardiac enzymes were elevated (creatinine kinase [CK] 8,318 U/L, CK-MB 228 U/L, troponin-I 9.63 ng/mL) despite intact coronary arteries on angiography. Two hours later, the patient experienced a cardiopulmonary arrest, and venoarterial extracorporeal membrane oxygenation with corticosteroid therapy was initiated. The patient recovered from the hypovolemic shock within 1 day, followed by an improvement in ECG findings (**Figure A**) and cardiac function. An endomyocardial biopsy performed 4 h after the onset of the hypovolemic shock showed mild fibrosis without myocyte injury (**Figure B**, arrow), and lower densities of CD3-positive T-lymphocytes (**Figure C**, arrow) and CD68-positive macrophages than in definite myocarditis

(**Figure D**, arrow). Because of continuous high fever, marked CK elevation, and acute renal dysfunction, combination therapy of dantrolene and renal replacement therapy was initiated. The patient recovered and was transferred to the general ward on Day 23.

Cardiac magnetic resonance imaging on Day 50 revealed late gadolinium enhancement in a part of the epicardium (**Figure E**, arrow), but none in the myocardium. Computed tomography revealed a significant decrease in skeletal muscle from admission (**Figure F**) to Day 27 (**Figure G**).

In this case, COVID-19-related fulminant myocarditis was initially suspected from shock accompanied by elevated cardiac enzymes and ECG changes, whereas multimodal imaging suggested that the main cause of cardiac arrest was the hypovolemic shock associated with COVID-19-related rhabdomyolysis.

#### Disclosures

None.