CARDIOVASCULAR FLASHLIGHT

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COVID-19-related myocarditis in a 21-year-old female patient

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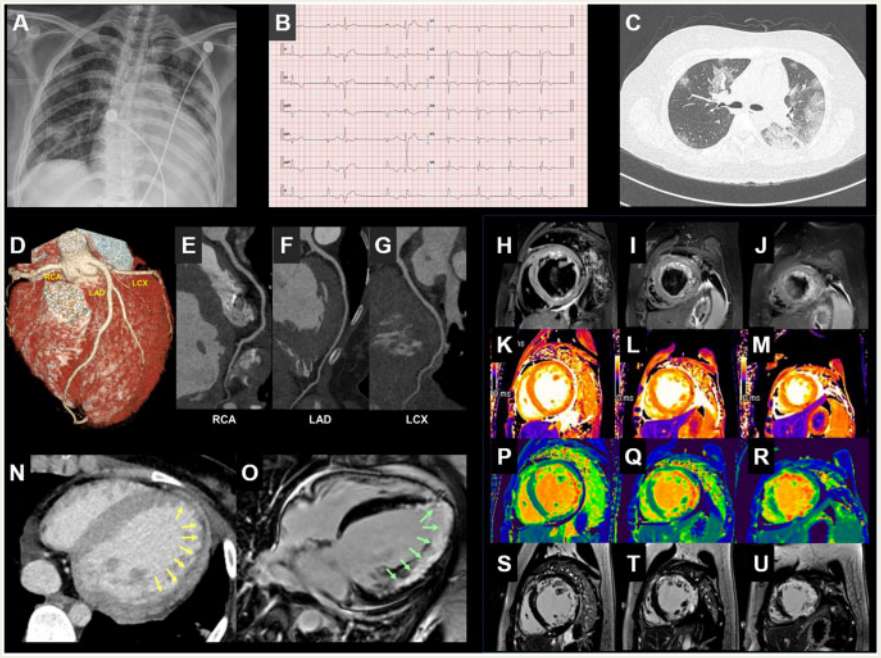

A 21-year-old female patient visited our hospital for febrile sensation, coughing, sputum, diarrhoea, and shortness of breath during the coronavirus disease 2019 (COVID-19) outbreak in Daegu, South Korea. Nasopharyngeal swab was positive for COVID-19. Troponin I level was 1.26 ng/mL (<0.3 ng/mL) and NT-proBNP was 1929 pg/mL (<125 pg/mL). The chest radiograph revealed a multifocal consolidation on both lung fields and cardiomegaly (*Panel A*). Electrocardiography showed non-specific intraventricular conduction delay and multiple premature ventricular complexes (*Panel B*). Echocardiography showed severe left ventricular (LV) systolic dysfunction (Supplementary material online, *Videos S1–S3*). A chest computed tomography (CT) revealed a multifocal consolidation and ground-glass opacification in both lungs in the lower lobe and a peripheral dominant distribution (*Panel C*). On the cardiac CT, the coronary arteries were normal (*Panels D–G*), and the myocardium was hypertrophied due to oedema combined with a subendocardial perfusion defect on the lateral left ventricle (*Panel N*). Cardiac magnetic resonance imaging (MRI) revealed a diffuse high signal intensity (SI) in the LV myocardium on T2 short tau inversion recovery image (*Panels H–J*; SI ratio of myocardium over skeletal muscle = 2.2), and myocardial wall thickening (LV mass index: 111.3 g/m^2), which suggests myocardial wall oedema. On mapping sequence, native T1 (*Figure 1K–M*; mid-septum, 1431 ms; lateral wall, 1453 ms, reference value ~1150 ms) and extracellular volume (*Panels P–R*; mid-septum, 29.7%; lateral wall, 61%; reference value ~25%) values were diffusely increased (*Panel O*). Extensive transmural late gadolinium enhancement was noted (*Panels S–U*). Myocarditis combined with COVID-19 was confirmed by multimodality imaging.

Supplementary material is available at *European Heart Journal* online.