CARDIOVASCULAR FLASHLIGHT

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Late-onset endocarditis after coronavirus disease 2019 infection

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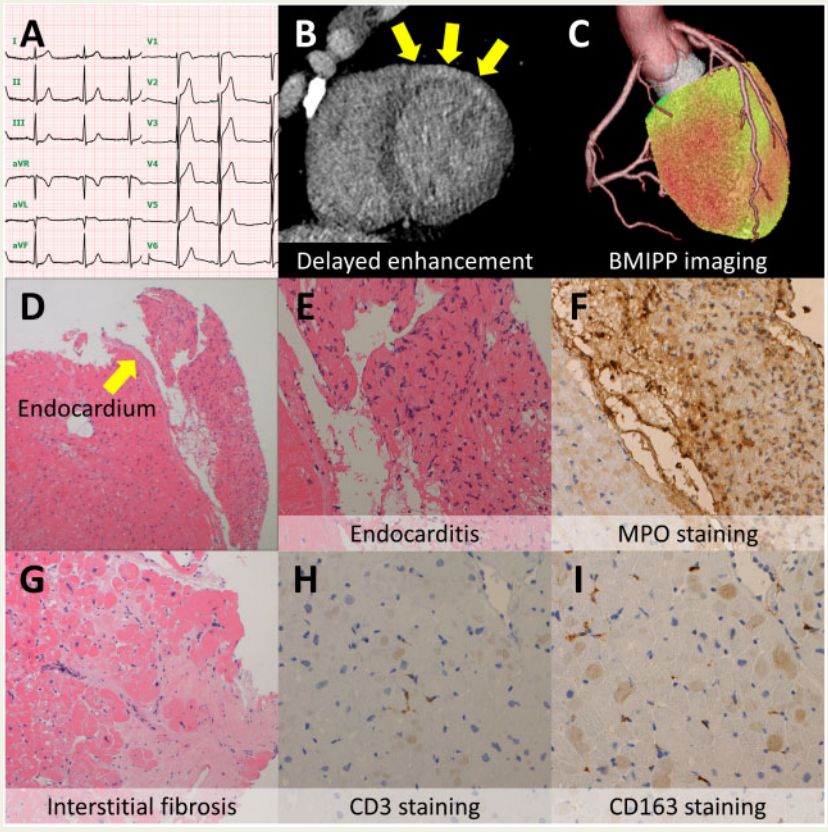
An 18-year-old man with acute dyspnoea presented to our hospital 3 months after hospitalization due to coronavirus disease 2019 (COVID-19) infection confirmed by reverse transcriptase-polymerase chain reaction (RT-PCR) for SARS-CoV-2. On admission, he had no fever and took no medication. Electrocardiography showed an early repolarization pattern in the precordial leads and ST-segment depression in lead III (*Panel A*). Transthoracic echocardiography showed subtle wall motion abnormality in the left ventricular anterior wall (Supplementary material online, *Video S1*). His cardiac troponin T levels were elevated at 642 ng/L, prompting urgent coronary computed tomography (CT) angiography, revealed no coronary artery stenosis in all coronary arteries without any manifestation of pneumonia or pulmonary embolism. Ten minutes after contrast injection, CT showed midwall delayed enhancement in the left ventricular anterior wall (*Panel B*), indicating COVID-19-related myocardial injury, which were consistent with subsequent β-methyl-*p*-[^{123}I]-iodophenyl-pentadecanoic acid (BMIPP) imaging (*Panel C*, Supplementary material online, *Video S2*). The RT-PCR for SARS-CoV-2 on admission returned positive, while serological tests for other virus infections were negative. Right ventricular endomyocardial biopsy revealed the thickened endocardium with fibrin and myeloperoxidase-positive neutrophils (*Panels D–F*) and the moderate interstitial fibrosis without inflammatory cell infiltration in the myocardium (*Panels G–I*), indicating endocarditis complicating myocardial fibrosis. No vegetation or thrombus formation was detected by repeat echocardiography. Serum C-reactive protein levels were negative throughout the course. He was discharged without any complications on Day 3 and had no symptoms on Day 21.



In this case, non-bacterial inflammatory processes by SARS-CoV-2 may cause endocarditis. Our findings underscore the importance of histological work-up to elucidate the mechanisms underlying COVID-19-related myocardial injury.

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

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Conflict of interest: The authors have submitted their declaration which can be found in the article Supplementary Material online.