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【 PICTURES IN CLINICAL MEDICINE 】

Pericarditis with Increased Vascular Permeability after COVID-19 Vaccination

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Key words: pericarditis, vascular permeability, coronavirus disease 2019, SARS-CoV-2, mRNA vaccination

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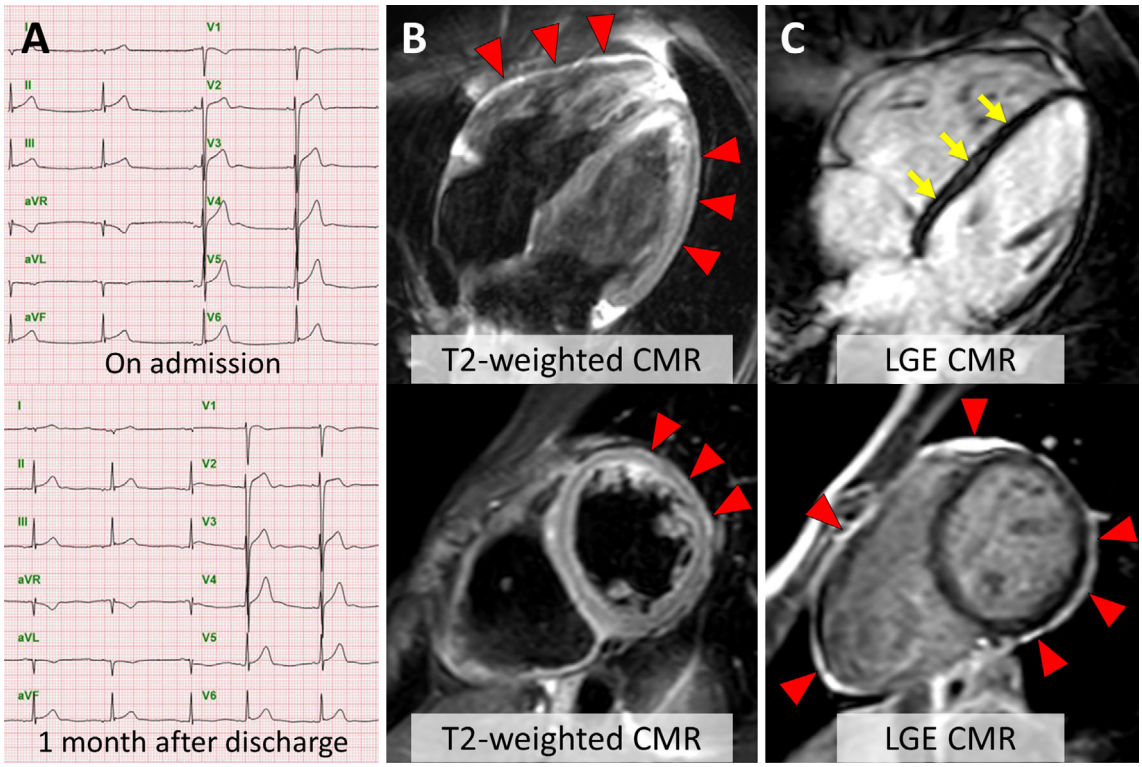

Picture 1.

A 16-year-old previously healthy boy presented to the hospital with chest pain 3 days after his second dose of the BNT162b2 mRNA SARS-CoV-2 vaccine (Pfizer-BioNTech). On admission, he was afebrile with normal vital signs; an Abbott ID NOW COVID-19 test was negative; electrocardiography showed diffuse ST-segment elevation (Picture 1A); echocardiography showed normal left ventricular wall motion and thickness with a small pericardial effusion; and his troponin T level was ≤3 ng/L. Cardiovascular magnetic resonance (CMR) imaging demonstrated hyperintense pericardium on T2-weighted sequence with fat suppression (Picture 1B, red arrowheads), gadolinium-delayed hyperenhancement of the entire pericardium (Picture 1C, red arrowheads), and midwall hyperenhancement of the interventricular septum (Picture 1C, yellow arrows), indicating pericarditis with slight myocardial involvement. A right ventricular endomyocardial biopsy revealed enhanced extravasation of erythrocytes (Picture 2A-B) without inflammatory cell infiltration in the myocardium (Picture 2C-E). Platelet aggregation was also found in the myocardial microvasculature (Picture 2F).

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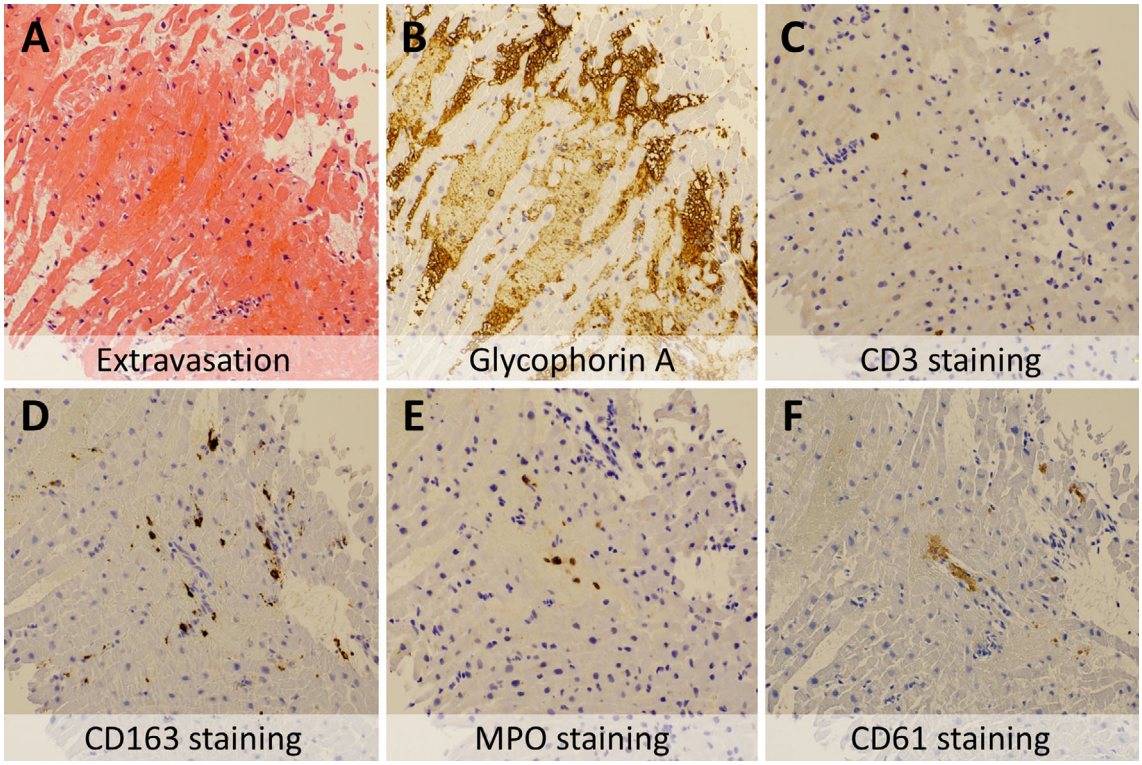

Picture 2.

Picture 3.

Extravasation of erythrocytes was observed in all samples obtained from the interventricular septum (Picture 3). Serological testing ruled out systemic virus infections. The patient's symptoms resolved without treatment, and he was discharged two days after admission. His electrocardiographic changes were partially resolved one month after discharge from the hospital (Picture 1A). These findings suggest that increased vascular permeability triggered by COVID-19 vaccination may play an important role in cardiovascular adverse reactions.

Author's disclosure of potential Conflicts of Interest (COI).
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