

Eosinophilic Myocarditis Following Coronavirus Disease 2019 (COVID-19) Vaccination

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A 53-year-old man presented with fever, dyspnea, and chest pain 2 days after receiving the second dose of the BNT162b2 vaccine (Pfizer-BioNTech) against coronavirus disease 2019 (COVID-19). At 5 days post vaccination, he was transferred to the emergency department because of worsening chest pain and dyspnea. Serology and a serum polymerase chain reaction assay excluded viral presence, including severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Clinical findings included high levels of serum C-reactive protein (peak level, 117 mg/L; normal levels <0.3 mg/dL), serum high-sensitivity troponin I (peak level, 988 ng/L; normal levels <12 ng/L), and eosinophils (peak level, $3.07 \times 10^9/L$; normal levels, $<3.0 \times 10^8/L$). Echocardiography showed mild left ventricular hypokinesis and pericardial effusion. Coronary angiography revealed no significant stenosis. T2-weighted cardiac magnetic resonance imaging showed high signal intensity, indicating myocardial edema and inflammation of the mid-ventricular septum and apex (**Figure A**). Late gadolinium enhancement was identified within the same region (**Figure B**). Interven-

tricular septal biopsies obtained from the right ventricle revealed diffuse eosinophilic infiltration of the myocardial interstitium (**Figure C**). Eosinophilic infiltration, as well as eosinophil degranulation between the myocardial fibers, was observed (**Figure D**). The patient's dyspnea and chest pain improved without treatment within a few days of admission, while his fever decreased 10 days after onset.

Myocarditis following COVID-19 vaccination in patients aged over 50 is very rare, and eosinophilic myocarditis following COVID-19 vaccination identified by biopsy has not been reported.¹ We concluded that this case was COVID-19 vaccination-related eosinophilic myocarditis in the absence of other causes.

Disclosures

The authors declare there are no conflicts of interest.

Reference

1. Bozkurt B, Kamat I, Hotez PJ. Myocarditis with COVID-19 mRNA vaccines. *Circulation* 2021; **144**: 471–484.

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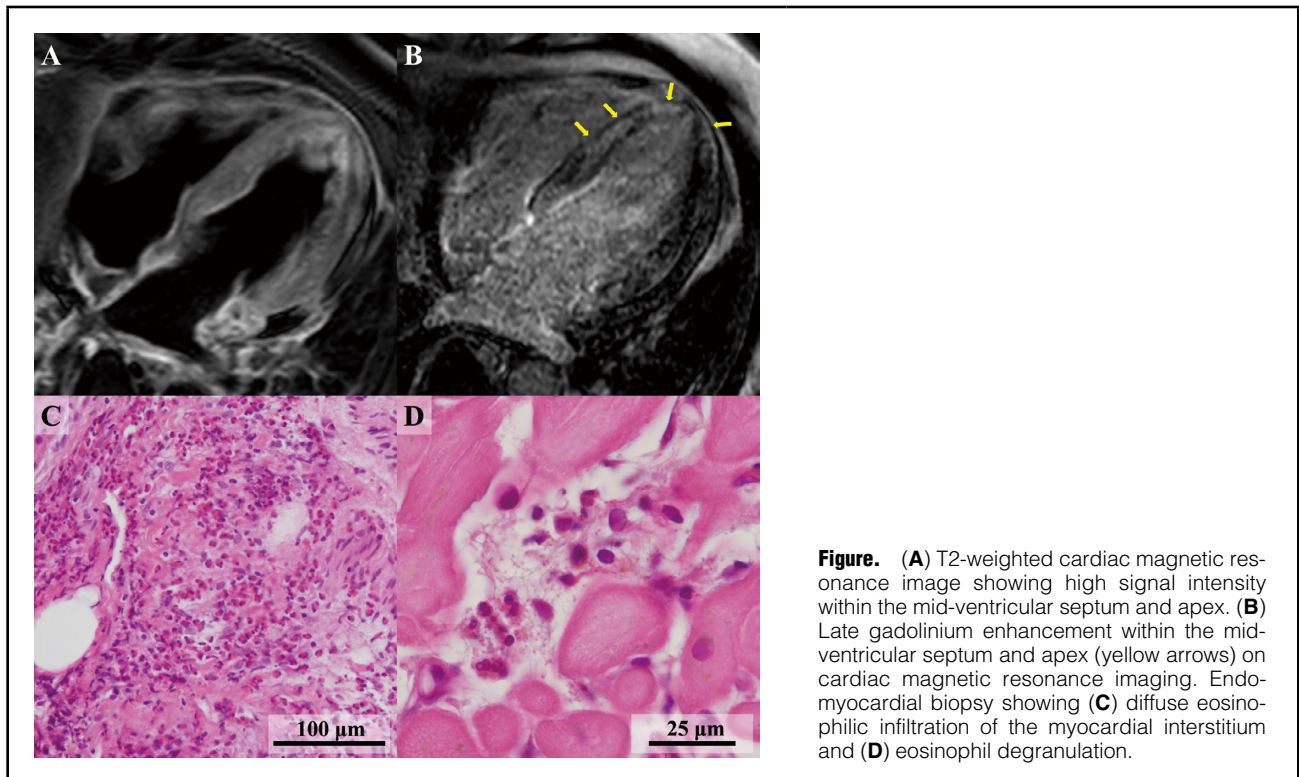


Figure. (A) T2-weighted cardiac magnetic resonance image showing high signal intensity within the mid-ventricular septum and apex. (B) Late gadolinium enhancement within the mid-ventricular septum and apex (yellow arrows) on cardiac magnetic resonance imaging. Endomyocardial biopsy showing (C) diffuse eosinophilic infiltration of the myocardial interstitium and (D) eosinophil degranulation.