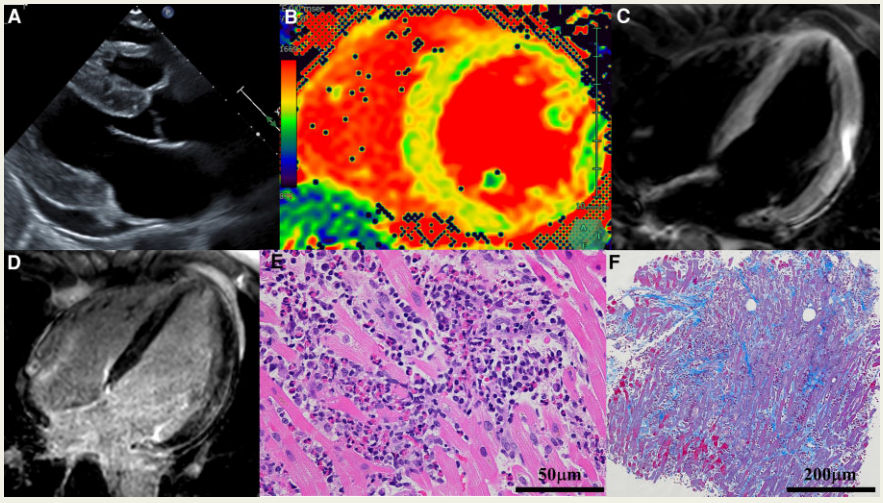
CARDIOVASCULAR FLASHLIGHT

https://doi.org/10.1093/eurheartj/ehac239
Online publish-ahead-of-print 13 May 2022

Acute necrotizing eosinophilic myocarditis after COVID-19 vaccination

Kisho Ohtani[1]*, Soichiro Takahama [2], Seiya Kato[3], and Taiki Higo[1]

[1]Department of Cardiovascular Internal Medicine, National Hospital Organization, Kyushu Medical Center, 1-8-1 Jigyohama, Chuo-ku, Fukuoka 810-8563, Japan; [2]Internal Medicine, Clinical Research Institute, National Hospital Organization, Kyushu Medical Center, 1-8-1 Jigyohama, Chuo-ku, Fukuoka 810-8563, Japan; and [3]Division of Pathology, Saiseikai Fukuoka General Hospital, 1-3-46 Tenjin, Chuo-ku, Fukuoka 810-0001, Japan
*Corresponding author. Tel: +81 92 852 0700, Fax: +81 92 846 8485, Email: ohtani.kisho.478@m.kyushu-u.ac.jp



A 41-year-old male patient who had achieved HIV viral suppression presented with dyspnoea, accompanied by pulmonary oedema on chest X-ray. He developed a high fever and myalgia 10 days after a third-dose BNT162b2 vaccine against COVID-19. The patient had no previous history of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection, and the reverse transcription-polymerase chain reaction test for SARS-CoV-2 in nasopharyngeal swabbing specimens was negative. An electrocardiogram showed sinus tachycardia at 110 b.p.m. with diffuse ST elevation, and a laboratory test displayed elevated high-sensibility troponin I level (3087 pg/mL) with marked eosinophilia (3.1×10^3/μL). Echocardiography exhibited diffuse hypokinesis of left ventricular ejection fraction of 50% with left ventricular hypertrophy and pericardial effusion (*Panel A*). Cardiac magnetic resonance imaging showed abnormal high native T1 (*Panel B*), hyperintensity on T2-weighted imaging (*Panel C*), and extensive late gadolinium enhancement (*Panel D*). These findings were compatible with acute myocarditis. Conventional haematoxylin–eosin section of the endomyocardial biopsy (EMB) specimens revealed widespread infiltration of eosinophils with cardiomyocyte necrosis (*Panel E*). The oedematous and mildly fibrotic stromal expansion was seen in Masson trichrome section without established scarring (*Panel F*). A diagnosis was consistent with acute necrotizing eosinophilic myocarditis temporally associated with the COVID-19 vaccine without other specific causes. He was treated with pulse methylprednisolone, followed by oral prednisolone, resulting in clinical improvement and improved left ventricular function. The patient had a good clinical course and was discharged home. The majority of acute myocarditis associated with COVID-19 vaccination reportedly showed lymphocytic myocarditis. The EMB is useful to diagnose hypersensitivity myocarditis.

The authors declare that there is no conflict of interest.