

Acute myocarditis: case report

A 20-year-old man developed acute myocarditis following immunisation with elasomeran against COVID-19 infection.

The man was transferred to the hospital due to persistent chest pain. He had received his first dose of elasomeran [COVID-19 vaccine Moderna; *route and dosage not stated*] injection 3 days ago. The next morning, about 12h after the injection, he woke up with shivering, fever, myalgia, fatigue and growing mid-sternal burning chest pain without radiation. Although the flu-like symptoms vanished after one day, the chest pain increased requiring emergency care. He had history of a moderate electronic cigarette use. On admission, physical examination and the chest X-ray were normal. The resting electrocardiogram was also normal except for features of pre-excitation (short PR interval, delta waves, and discordant T waves). Blood tests revealed elevated levels of high-sensitivity troponin-T, creatine kinase, N-terminal pro-B-type natriuretic peptide and C-reactive protein. Cardiac troponin-T rapidly decreased after 12h and was normalised after 7 days. Based on the clinical presentation, myocarditis was suspected thus cardiac MRI was performed. Subepicardial and intramural elevations in native T1 and T2 as well as marked late gadolinium enhancement primarily in the mid and basal inferolateral segments, indicated myocardial injury and oedema in these sites. Although left ventricular ejection fraction was preserved as measured by MRI and echocardiography, speckle tracking analysis exposed a considerable reduction in longitudinal strain down to 15% in the affected segments. He repeatedly tested negative for SARS-CoV-2 infection. Serological assays 9 days after the vaccination detected high titres of IgG and IgM against SARS-CoV-2. Endomyocardial biopsy (EMB) of the left ventricle 9 days after the vaccination was performed that revealed no cardiomyocyte hypertrophy, no giant cells and minimal interstitial fibrosis without proliferating myofibroblast. There were also no signs for haemochromatosis or amyloidosis. Instead, the haematoxylin and eosin stains displayed myocardial oedema and profound mononuclear infiltration in the absence of myocardial necrosis. Importantly, viral genome analysis of two independent myocardial biopsy samples was negative for SARS-CoV-2 and other potential cardiotropic viruses. A final diagnosis of acute myocarditis secondary to elasomeran was made.

The man was discharged after having excluded pericardial effusion and mitral valve regurgitation following EMB. He was advised against a second vaccine dose.