Myocarditis after COVID-19 mRNA vaccination – a case report

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Introduction: Data from multiple studies show a rare risk for myocarditis following receipt of messenger ribonucleic acid (mRNA) COVID-19 vaccines. It occurs most frequently in adolescent and young adult males, within two weeks after receiving the second dose of an mRNA COVID-19 vaccine with incidence 0.48 per 100,000 in the general population and 1.2 per 100,000 in recipients aged 18–29[1]. For most cases, patients who presented for medical care have responded well to medications and rest and had prompt improvement of symptoms. It is important to distinguish myocarditis from other conditions presenting with chest pain and heart failure due to treatment decision and prognosis.

Case report: 46-year-old male with no risk factors received second dose of mRNA vaccine in August 2021. Ten days later he was admitted to hospital due to chest pain lasting for six hours. At presentation ST-segment elevation was detected on electrocardiography (ECG), which was most prominent in the anterolateral leads **(Figure 1)**. Both, troponin I and N-terminal pro b-type natriuretic peptide (NT-proBNP) were elevated suggesting myocardial infarction. Coronary angiography was preformed upon admission and revealed intact coronary arteries. A transthoracic echocardiogram showed global left ventricular systolic dysfunction with ejection fraction (EF) 35-40% and normal left ventricular dimensions. Global longitudinal strain (GLS) showed severe reduction in all analyzed segments (GLS avg -11%), **Figure 2**. As the patient was hemodynamically stable, he received only analgetic (paracetamol) for pain relief. Ten days after presentation, left ventricular EF was 50% with completely normal ECG, significant regressive dynamics of troponin I and NT-proBNP serum levels and he was discharged home. GLS remained altered with normalization after four months **(Figure 3).**

Conclusion: Myocarditis after mRNA COVID 19 vaccine is rare complication and, in most cases, self-limited disease. The benefits (prevention of COVID-19 disease and associated complications) outweigh the risks (expected myocarditis cases after vaccination) in all populations for which vaccination has been recommended[2]. Supportive therapy is a mainstay of treatment, with targeted cardiac medications or interventions as needed.

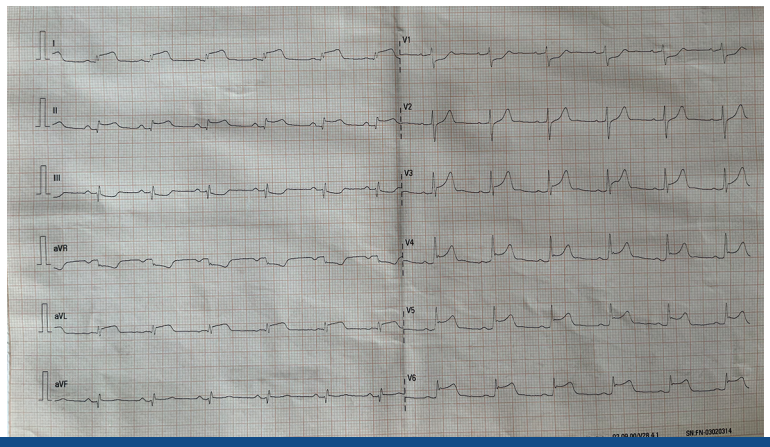

FIGURE 1. Electrocardiogram at presentation.

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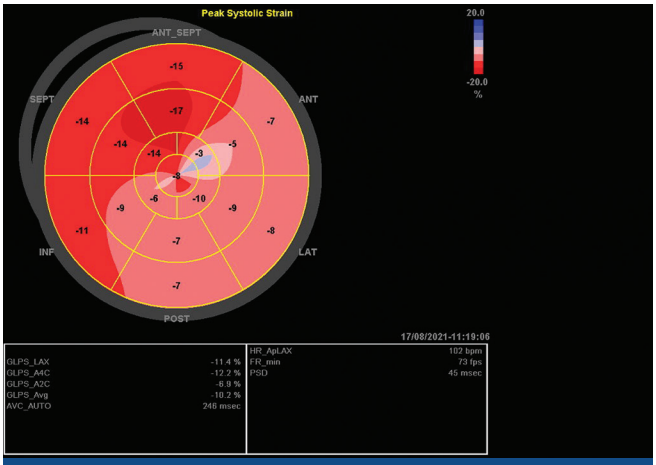

FIGURE 2. Initial longitudinal strain diffusely reduced.

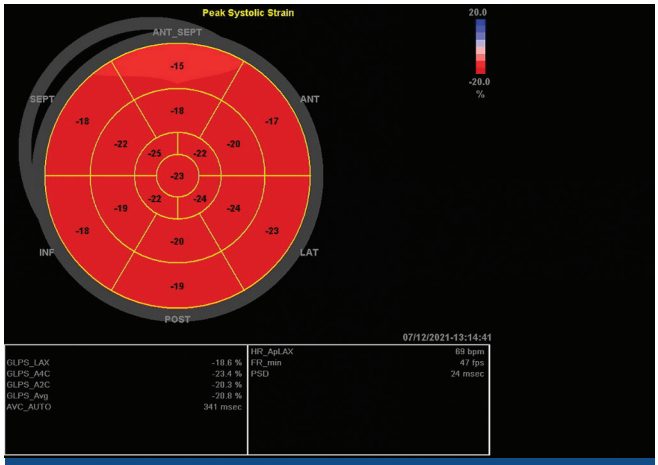

FIGURE 3. Complete recovery of longitudinal strain after four months.

LITERATURE

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