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Original Article

COVID-19 vaccine-induced myocarditis: Case report with literature review



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1. Introduction

Myocarditis is the progressive inflammation of the middle layer of the heart followed by a myocardial injury without ischemic events [1,2]. The infectious and non-infectious causes of myocarditis determine its prognostic outcomes. The (focal/diffuse) degrees of myocardial inflammation determine the severity of symptoms in

patients with myocarditis [1]. The age/gender-appropriate burden of myocarditis was recorded as 6.1/100,000 for men and 4.4/100,000 for women (within the age range of 35–39 years) in 2019 [3]; however, myocarditis-related mortality impacted 0.2/100,000 men and 0.1/100,000 women in the same year. The clinical studies reveal the worst outcomes with poorly understood pathological pathways in 20–30% of hospitalized COVID-19 (coronavirus disease) patients with myocardial injury [4].

These adversities continue to challenge the medical management of myocarditis during the COVID-19 pandemic. The US Food and Drug Administration (FDA) approved two mRNA vaccines to prevent COVID-19 in December 2021. The BNT162b2 mRNA vaccine by Pfizer–BioNTech and the mRNA-1273 vaccine by Moderna aimed to reduce COVID-19-related fatal complications and mortality. The US FDA subsequently approved the Janssen COVID-19 vaccine in February 2021 to strengthen the vaccination drive [5]. This case review investigates myocarditis scenarios that developed after the administration of COVID-19 vaccines to individuals.

1.1. Case presentation

A 70-year-old Caucasian female with a history of multiple sclerosis presented to the hospital after two days of receiving the Janssen COVID-19 vaccine. The patient developed dyspnea at home

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