

Is Constrictive Pericarditis Associated with Long COVID, Its Vaccine, or Both?

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Pericarditis may develop after an infection or due to systemic diseases, tuberculosis, malignancy, or autoimmune diseases. Constrictive pericarditis results from inflammatory pericardial fibrosis. However, it may also be associated with concurrent medical conditions with an unclear etiology. A rare cause of constrictive pericarditis may be coronavirus disease-2019 (COVID-19), which has been experienced in the recent past and whose effects are still observed. The condition may also be a long-term effect of the vaccine. To raise awareness of this rare cause, we have presented the case of a 33-year-old male with no chronic diseases in this article.

The patient was admitted to our cardiology outpatient department with a history of progressive dyspnea and swelling of the legs for 8 months. He noted that these symptoms began 4 months after developing COVID-19 and 5 months after receiving the coronavirus vaccine. He reported receiving three doses of the mRNA-BioNTech vaccine. He did not have any history of tuberculosis, previous cardiac surgery, radiotherapy, malignancies, or connective tissue diseases. Cardiovascular examination revealed a left-sided apical impulse, 1/6 systolic murmur, and pitting edema (grade 1+) of both lower limbs. Neck examination revealed distension of the jugular veins (Kussmaul's sign). The electrocardiogram exhibited a normal sinus rhythm (47 bpm) and inverted T-waves in the V1-V5 leads. The laboratory tests revealed only a slightly elevated pro-BNP level. Transthoracic echocardiography was performed, and it showed a normal ejection fraction (60%) and a thickened pericardium with septal bounce. Thus, a cardiac magnetic resonance (MR) was performed. The cardiac MR revealed pericardial thickening (7 mm), mild pericardial inflammation, septal bounce, and ventricular interdependence (respiratory) (Figure 1). The echocardiography and cardiac MR findings were suggestive of constrictive pericarditis. Thus, right heart catheterization was performed to confirm the diagnosis and plan the operation (Figure 2). Subsequently, pericardectomy was performed.

Constrictive pericarditis is a condition in which pericardial fibrosis leads to loss of elasticity, which subsequently affects ventricular filling.¹ Numerous factors play a role in the etiology of constrictive pericarditis. It may develop after viral infections or after vaccines that trigger autoimmune events.² However, it may also develop in patients with conditions such as microorganisms and systemic conditions such as neoplasia, autoimmune disorders, connective tissue diseases, and renal failure.³ Neurological conditions such as Creutzfeldt-Jakob disease and clinical conditions such as lymphadenopathies have been reported following a COVID-19 infection or administration of its vaccines.^{4,5} As with many diseases, including COVID-19, effective vaccination can reduce disease-related mortality.⁶ Currently, the effects of the COVID-19 vaccine and those of the long-term disease remain highly debatable. Cardiovascular conditions are at the forefront of these. Although a few suspected cases have been reported in the literature, awareness of COVID-related constrictive



FIG. 1. Cardiac MR showing pericardial thickening and brightness. MR, magnetic resonance.



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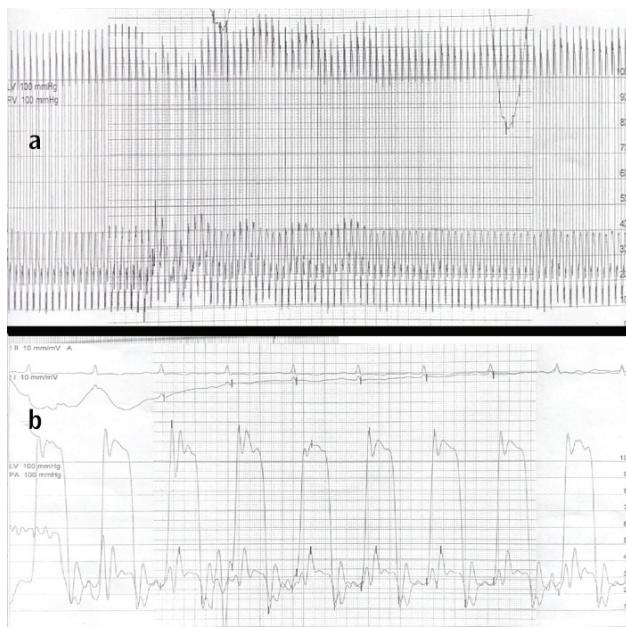


FIG. 2. Cardiac catheterization revealed (a) respiratory interdependence and (b) equalization of right ventricular and left ventricular diastolic pressures (“square root” sign).

pericarditis in our country is limited.^{7,8} In this report, the long-term effects have been discussed in a patient with constrictive pericarditis without any suspicious conditions other than COVID-19 and a vaccination history. In patients with constrictive pericarditis of unknown etiology, even those with a long-term history, a history of COVID-19 or its vaccination should be elicited.

The chronic effects of the COVID-19 disease and its vaccines should be considered because it may play a role in constrictive pericarditis and the etiology of several unexplained diseases.

Informed Consent: Written informed consent was obtained from the patient before being enrolled in the study.

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