OLGU SUNUMU CASE REPORT

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PERICARDIAL EFFUSION AND CARDIAC TAMPONADE AFTER COVID-19 VACCINE: A RARE CASE REPORT

COVİD-19 AŞISI SONRASI GELİŞEN PERİKARDİYAL EFÜZYON VE KARDİYAK TAMPONAD: NADİR BİR OLGU SUNUMU

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Öz

Bilinen kronik hastalık öyküsü olmayan 44 yaşında kadın hasta, covid-19 aşısı (Pfizer-Biontech) sonrası taşikardi ve nefes darlığı şikayetiyle acil servise başvurdu. Kardiyolojiye konsülte edilen hastanın tansiyonu: 80/40 mmHg. Ekokardiyografi (EKO): Ejeksiyon Fraksiyonu %65, en geniş noktasında kalbi çepeçevre saran ve sağ kalp boşluklarını diyastolde kollabe ederek tamponad kliniğini oluşturan 5 cm perikardiyal efüzyon (PE) mevcuttu. Hastaya acil perikardiyosentez uygulandı. Hastanın perikardiyal sıvı içeriği seröz idi. Perikardiyosentez sonrası klinik durumu stabilize olan hasta koroner yoğun bakım ünitesinde takip edildi. Takiplerinde kontrol ekoda perikardiyal efüzyon izlenmedi. Hastanın Covid-19 a yönelik yapılan PCR sonuçları negatifti. Hasta kardiyoloji poliklinik kontrolü ile taburcu edildi.

Anahtar Kelimeler: Covid-19, Perikardiyal efüzyon, Aşı, Kardiyak tamponad

Abstract

A 44-year-old female patient with no known history of chronic disease was admitted to the emergency room with tachycardia and shortness of breath after covid-19 vaccine (Pfizer Biontech). The blood pressure of the patient who was consulted to cardiology: 80/40 mmHg. Echocardiography (ECHO): Ejection Fraction was 65%, pericardial effusion (PE) was present at its widest point, 5 cm encircling the heart, collapsing the right heart cavities in diastole, forming the clinic of tamponade. Emergency pericardiocentesis was applied to the patient. Pericardial fluid content of the patient was serous. The patient, whose clinical stability was stabilized after pericardiocentesis, was followed in the coronary intensive care unit. No pericardial effusion was observed in the control echo duringfollow-up. Thepatient's PCR results were negative. The patient was discharged with cardiology outpatient control.

Keywords: Covid-19, Pericardial effusion, Vaccine, Cardiac tamponade

Introduction

Since the outbreak of clusters of viral pneumonia due to the novel coronavirus (severe acute respiratory syndrome coronavirus 2 or SARS-CoV-2) in Wuhan, China in December 2019 (1).Coronavirus disease 2019 primarily infects the lungs, has demonstrated a wide spectrum of clinical manifestations and may even extend to other organs such as the cardiovascular system. Mounting evidence is now supporting that COVID-19 affects the cardiovascular system with acute cardiac injury, high risk of thrombosis including

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stroke, pulmonary embolism, and acute coronary syndrome. Conversely, very few attention has been paid to pericardial effusion (PE). Only very fewcase reports described PE, revealed by chest pain or a deterioration of general condition. (2-6).There is no case report of pericardial effusion and tamponade developing after covid-19 vaccine (pfizer-biontech) in the literature.

Case Report

A 44-year-old female patient with no known history of chronic disease was admitted to the emergency room with tachycardia and shortness of breath after covid-19 vaccine (Pfizer Biontech). The blood pressure of the patient who was consulted to cardiology: 80/40 mmHg. Electrocardiography (ECG) findings were consistent with sinus tachycardia, heart rate of 102 beats/min and low voltage (Figure 1). In the patient's laboratory parameters; ALT 65.5 U/L (reference: 0-33 U/L), AST 57 U/L (reference:0-32 U/L), CRP 28.44 mg/L (reference: 0-5 mg/L)) was detected. Troponin and other blood values of the patient were within normal reference ranges. Ejection Fraction was 65%, pericardial effusion (PE) was present at its widest point, 5 cm encircling the heart, collapsing the right heart cavities in diastole, forming the clinic of tamponade (Figure 2a, 2b, 2c). Emergency pericardiocentesis was applied to the patient. Pericardial fluid content of the patient was serous. The patient, whose clinical stability was stabilized after pericardiocentesis, was followed in the coronary intensive care unit. No pericardial effusion was observed in the control echo during follow-up. The patient's PCR result was negative. The patient was discharged with cardiology outpatient control.

Discussion

Although the pathophysiology is not completely understood, current literature attributes the development of pericardial effusion in COVID-19 patients to the systemic inflammatory response and subsequent cytotoxic and immune-mediated effects related to SARS-COV-2 (7). The pathogenesis of COVID-19 myopericarditis is yet unresolved.

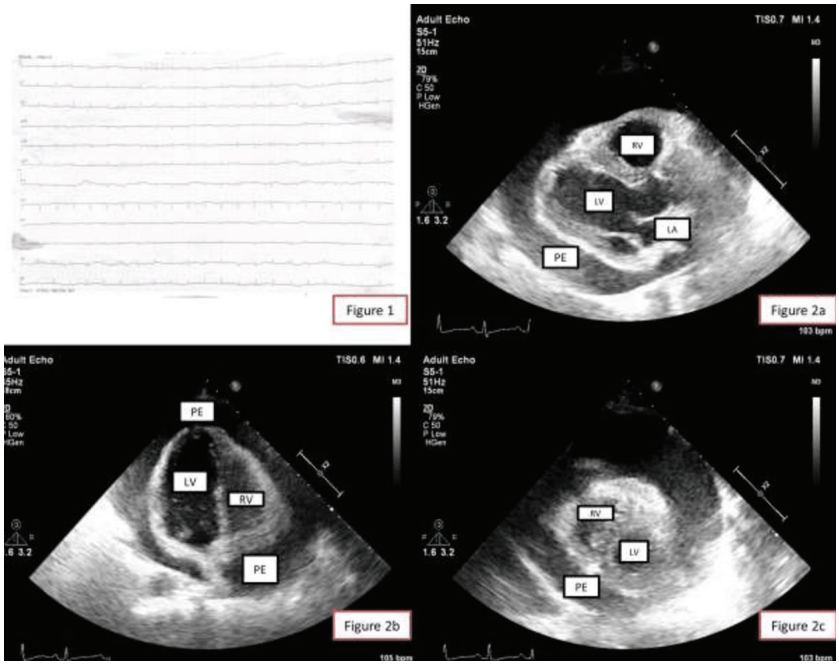

Figure 1
Electrocardiography (ECG) findings were consistent with sinus tachycardia, heart rate of 102 beats/min and low voltage.
Figure 2a
Echocardiography (ECHO): Parasternal long axis, pericardial effusion (PE)
Figure 2b
Apical four chambers, collapsing the right heart cavities in diastole, forming the clinic of tamponade.
Figure 2c
Short axis, Pericardial effusion surrounding the heart.

Abbreviations: *LV: Left ventricle RV: Right Ventricle LA: Left Atrium PE: Pericardial Effusion.*

Two predominant mechanisms could be relevant (8). This could lead to a cytokine storm syndrome and a direct myopericardial lesion by inflammatory cell infiltration, similarly to COVID-19 direct pulmonary lesions (10). First, the heart affinity of the virus could be explained by SARS-CoV-2 S protein direct binding to human angiotensin-converting enzyme 2 (9) present in the human heart, which allows for a cellular infection. Indirectly, myopericarditis could follow a viral replication and dissemination in the blood, from day 7 up to 1 month after symptoms beginning. There is no case report of pericardial effusion and tamponade developing after covid-19 vaccine (pfizer-biontech) in the literature. Whether these vaccines, which were approved for immediate use due to the pandemic, have such effects requires further research and similar case examples.

Conclusions

Presumably, there is a higher incidence of COVID-19-related cardiac diseases such as pericarditis that can manifest from minimal PE to cardiac tamponade. But there is no case report of pericardial effusion and tamponade developing after covid-19 vaccine (pfizer-biontech) in the literature. Cardiologists and emergency physicians should be aware and extensively look for PE at the time of the COVID-19 outbreak. Whether these vaccines, which were approved for immediate use due to the pandemic, have such effects requires further research and similar case examples. However, it should not be forgotten that the only and effective way to prevent the pandemic is stil vaccines, even though there are these and similar side effects.

Limitations

Serological and biochemical analysis of the pericardial fluid taken from the patient could not be performed due to technical problems.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Consent to Participate and Publish

Written informed consent to participate and publish was obtained from individual who included in the study.

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Author Contributions

All of the authors contributed planning, conduct, and reporting of the work. All contributors are responsible for the overall content as guarantors.

Data Availability

No additional data applicable

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