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# COVID-19 Related Recurrent Pericarditis: A Case Report

# COVİD 19 İle İlişkili Tekrarlayan Perikardit: Olgu Sunumu

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## Abstract

Coronavirus Disease (2019). (Covid-19), caused by the Severe Acute Respiratory Syndrome-Coronavirus 2 (SARS-CoV-2) virus, is a pandemic infection widely seen worldwide and has a very high mortality rate. This infection, which often has upper and lower respiratory tract symptoms, may present with atypical presentations with different clinical pictures in the recent period. Respiratory and cardiac system findings are at the forefront of Covid-19, a multisystem involvement infection. Cardiac involvement may present as myocarditis, pericarditis, rhythm disturbances, heart failure, and acute coronary syndrome. Although mostof the cases diagnosed with Covid-related pericarditis have been reported as pericarditis accompanying respiratory system findings, it is known that there arepatients diagnosed as isolated pericarditis cases. There is no different diagnosis and treatment protocol in pericarditis cases due to SARS-CoV-2 compared to other viral pericarditis cases in terms of diagnosis and treatment.
Our case; Following the diagnosis of Covid-19 infection, he was examined with complaints of increasing back pain and numbness spreading to the left arm, and pericarditis was detected on echocardiography, and treatment planning was made. It was learned that the patient was diagnosed with Covid infection two years ago and with pericarditis due to the examinations performed due to similar symptoms following the PCR positivity and was treated by admission to the cardiology service. This case report aims to draw attention to the fact that Covid-19 infection may occur in different forms, raise awareness regarding early recognition of the complications, and do the necessary treatment planning.

**Keywords:** Covid-19, Pericarditis, Colchicine, Ibuprofen.

## Özet

Severe Acute Respiratory Syndrome-Coronavirus 2 (SARS-CoV-2) virüsünün etken olduğu Coronavirus Disease 2019 (Covid-19) tüm dünyada yaygın olarak görülen ve mortalitesi oldukça yüksek seyreden pandemik bir enfeksiyondur. Sıklıkla üst ve alt solunum yollarına ait semptomların görüldüğü bu enfeksiyonun son dönemde farklıklinik tablolar ile seyreden atipik prezentasyonları karşımıza çıkabilmektedir. Multisistem tutulum gösteren bir enfeksiyon olan Covid-19 enfeksiyonunda solunum ve kardiyak sisteme ait bulgular ön plandadır. Kardiyak tutulumda tablo miyokardit, perikardit,ritim bozuklukları, kalp yetmezliği ve akut koroner sendrom tablosu şeklinde karşımıza çıkabilir. Covid ilişkili perikardit tanılı vakalarının birçoğundasolunum sistemi bulgularına eşlik eden perikardit tablosu bildirilmişse de izole perikardit vakaları olarak da tanı alan hastaların olduğu bilinmektedir. SARS-CoV-2'ye bağlı perikardit olgularında tanı ve tedavi açısından diğer viral perikardit vakalarına göre farklı bir tanı ve tedavi protokolü bulunmamaktadır.
Olgumuz; Covid-19 enfeksiyonu tanısı almasını takiben artan sırt ağrısı ve sol kola yayılan uyuşma şikayeti ile tetkik edilmiş ve ekokardiyografide perikardit tespit edilerek tedavi planlaması yapılmıştır. Hastanın iki yıl önce Covid enfeksiyonu tanısı aldığı ve yine PCR pozitifliğini takiben gelişen benzer semptomlar sebebiyle yapılan

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tetkikler sonucunda perikardit tanısı konulduğu ve kardiyoloji servisine yatışı yapılarak tedavi edildiği öğrenildi. Bu olgu sunumunda amaç Covid-19 enfeksiyonu tablosunun farklı biçimlerde de karşımıza çıkabileceğine dikkat çekmek ve oluşabilecek komplikasyonların erken tanınması ile gerekli tedavi planlamasının yapılması açısından farkındalık yaratmaktır.

**Anahtar Kelimeler:** Covid-19, Perikardit, Kolşisin, İbuprofen.

## INTRODUCTION

Covid-19 is a disease of viral origin that can be fatal, ranging from a simple flu infection to severe respiratory failure. The disease may present in 80% as mild, 15% as severe pneumonia, and 5% as Adult Respiratory Distress Syndrome (ARDS), Septic Shock, or Multiple Organ Failure (MODS). Mortality rates in infected cases are approximately 2% (2).

The organ systems most affected by Covid-19 include the respiratory, cardiovascular, and central nervous systems. Acute coronary syndromes, arrhythmias, myocarditis, myocardial damage, and myocardial dysfunction have been reported most frequently in cardiac implications. The most common disease diagnoses accompanying the current situation in patients diagnosed with Covid and exits are ischemic heart disease and atrial fibrillation. In Covid-19 cases, cough, pain in the throat, and nasal congestion are common symptoms.However, with the contribution of mutations seen in SARS CoV2, the clinical picture may present with different presentations secondary to the involvement of many different systems. As with some viral infections, Covid-19 infection can cause cardiac involvement. Increased back and chest pain, dysrhythmia, and weakness are the precursor findings of cardiac involvement in patients. This case report aims to present a recurrent pericarditis patient associated with Covid 19 to diagnose pericarditis cases early with cardiac involvement, plan their treatment and predict complications, and discuss the issue in light of the literature.

Pericarditis is defined as inflammation of the pericardial membrane surrounding the heart. Patients often complain of chest pain that spreads to the neck, back, and shoulders. The pain usually decreases during sitting and leaning forward and increases during lying down or deep breathing. Viral infections often cause it. Patients may experience chest pain, pericardial friction sound, pericardial fluid, and electrocardiography (ECG) changes. ECG changes in patients diagnosed with pericarditis are believed to develop secondary to inflammation of the myocardium adjacent to the pericardium. While ECG changes are detected in approximately 60 percent of patients, normal ECG findings are present in most cases, and this does not rule out the diagnosis of pericarditis. PR segment depression with ST-segment elevation is a typical ECG finding in pericarditis cases.

There is no specific biomarker that can be used to diagnose pericarditis. Elevation of troponin I and T also promotes the involvement of the subendocardial myocardium. However, normal levels of cardiac biomarkers do not indicate that the case is not pericarditis. Which are markers of inflammation; The sedimentation rate, C-reactive protein (CRP), and white blood cell (WBC) levels may tend to rise in about three-quarters of cases. As an echo finding, in patients with pericarditis, fluid collection may be observed in the pericardial space that may progress to the tamponade picture. In pericarditis that passes to the subacute and chronic period, pericardial tissue thickening and increased echogenicity may occur.

## CASE REPORT

A 23-year-old female patient was admitted to the emergency department with complaints of back pain, burning in the chest, and numbness spreading to the left arm. In the anamnesis taken from the patient, it was learned that he was admitted to the emergency department five days ago with complaints of headache and fever, diagnosed with Covid-19, and discharged after his treatment was arranged. In his detailed history, it was found that he was admitted to the emergency department in December 2020 with similar complaints, diagnosed with pericarditis associated with Covid 19, and treated with Colchicine and ibuprofen. It was also learned that the patient had received two doses of the Sinovac vaccine in August and October 2021. In his genealogical history, there were no features. The patient's first evaluation determined that his general condition was moderate-good, his consciousness was transparent, oriented, and cooperative, and the measured vital signs were typical except for fever (37.9 $^{o}$C). On physical examination, no additional pathology was found except tonsillar hyperemia and minimal postnasal discharge. The requested laboratory tests and electrocardiography (ECG) were also within normal limits. Chest X-ray showed peribronchial fullness. Due to the similarity between the patient's past medical history and the current clinical picture, a cardiology consultation was requested, considering his complaints. The patient who was diagnosed with echogenicity in the posterior pericardium on echocardiography (ECHO) performed by cardiology (figure 1) and diagnosed as pericarditis associated with Covid 19 was discharged with treatment.

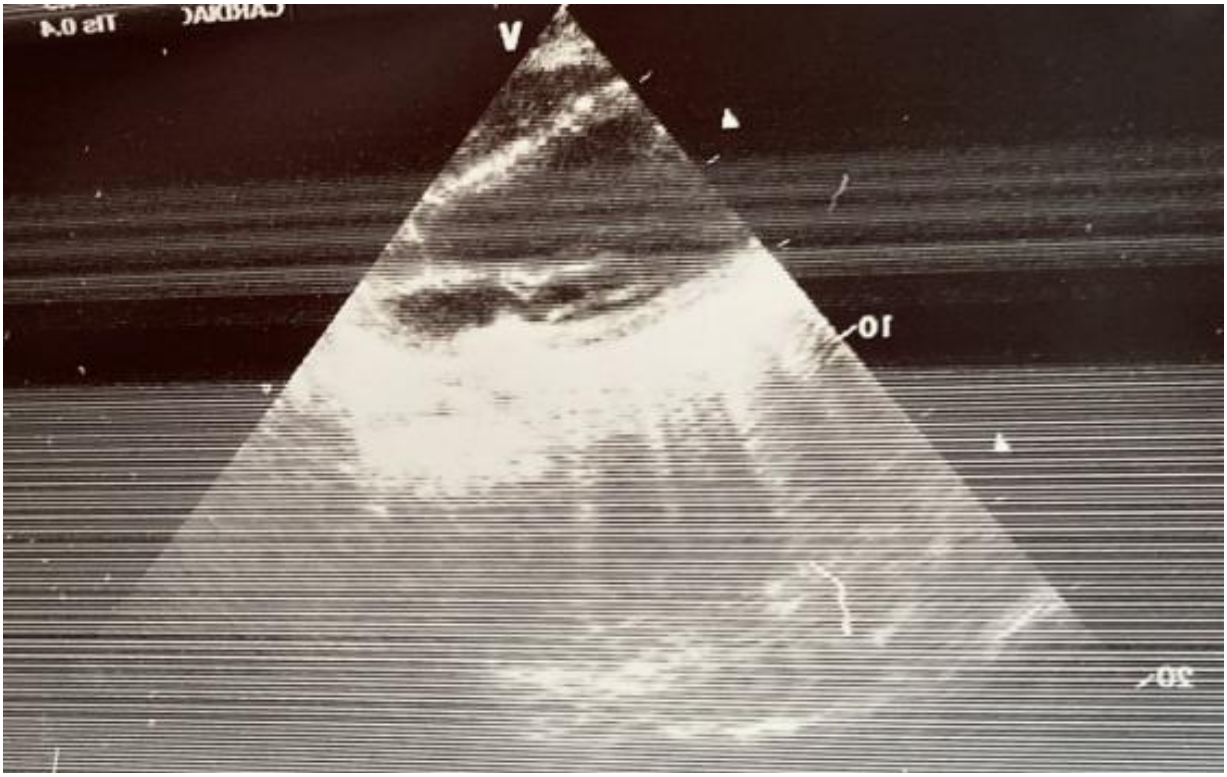

**Figure 1.** Pericarditis Due To Covid 19 With Echogenicity In The Posterior Pericardium On Echocardiography.

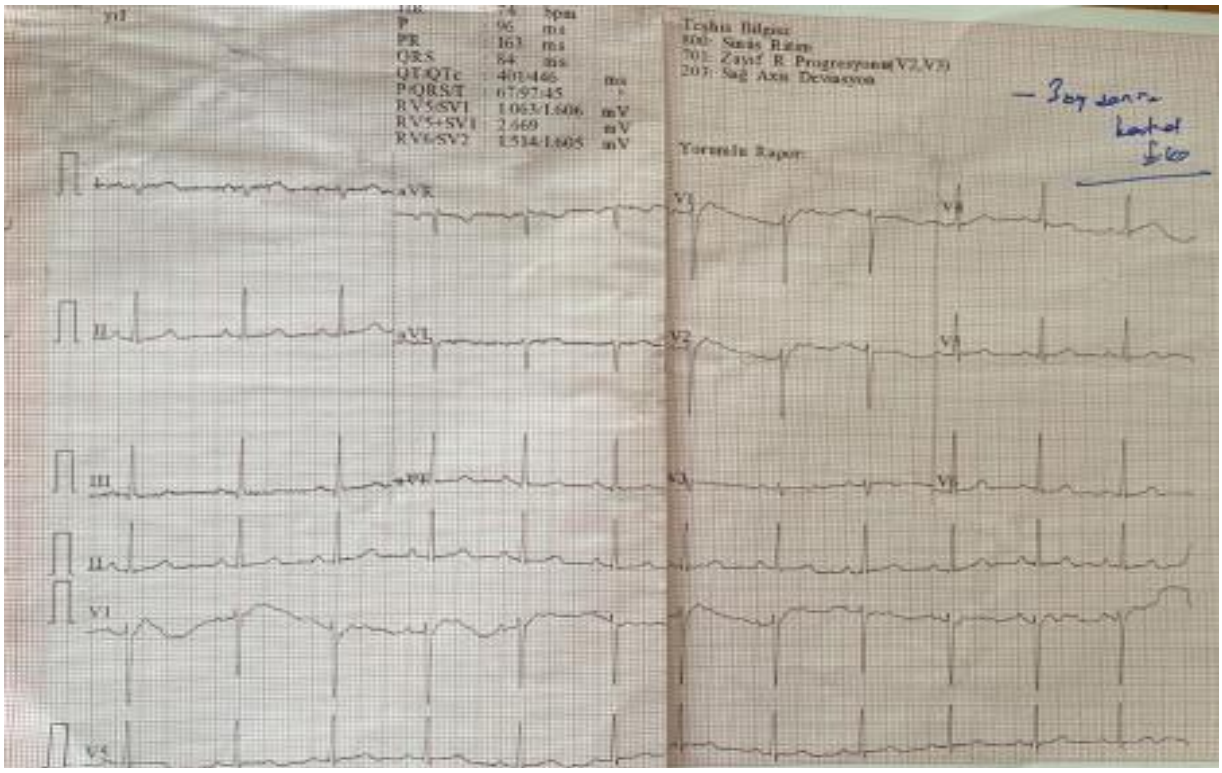

**Figure 2.** (a): Electrocardiography Of The Patient

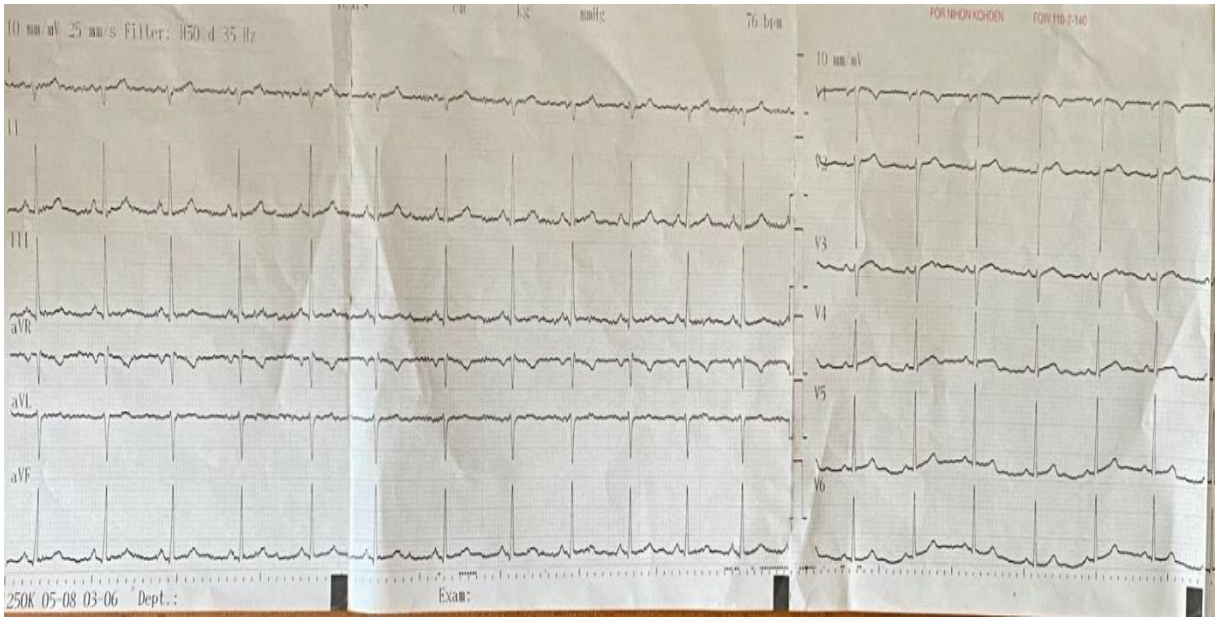

**Figure 2.** (b): Electrocardiography Of The Patient

## DISCUSSION

Covid-19 is an infection that can cause multiorgan involvement and may present with different clinical pictures according to the affected system. The most common findings in infected cases are influenza symptoms due to respiratory system involvement. Other system involvements may accompany the picture during the infection, and the admission symptoms may vary through the system infected by the virus in the foreground. In the COVID-19 pandemic, the patient group with the highest mortality rate due to the current infection, geriatric group cases with diseases of the cardiovascular system, were identified. Although it was thought that respiratory system findings were at the forefront at the beginning of the

disease and progressed through respiratory insufficiency cases, it was concluded that it was seen to a considerable extent, especially in cardiovascular involvement in the following period. In a study examining infected patients, myocardial damage was observed in 22% of critically ill patients and in 7% of all infected patients (3).

In patients diagnosed with COVID-19, the direct myocardial damaging effect of the virus, hypotension, hypoxia, downregulation of ACE 2 receptors, increased inflammatory status, drug toxicity, and endogenous catecholamines are seen as the reasons for the occurrence of cardiac side effects (4). Myocarditis and pericarditis are relatively common conditions that should be kept in mind, especially in infected patients. Patients present with acute viral pericarditis. It was concluded that the prognosis in patients diagnosed with pericarditis was better in the long term than other complications. There is data that corticosteroids, Colchicine, and Anakinra treatment improve symptoms (5). The use of Colchicine in treatment increases the response to treatment by decreasing leukocyte motility and phagocytosis capacity observed in inflammatory responses (6). In patients with prominent fever symptoms, paracetamol may be added to treatment procedures as a priority (5). Myopericarditis findings with high CRP levels in the follow-up of the patients are in the poor prognosis group. In case of suspicion of acute pericarditis for these reasons, it is mandatory to perform blood tests and transthoracic ECHO together with the parameters of inflammatory-myocardial damage.

## CONCLUSION

In cases diagnosed with Covid-19 infection, careful consideration of the symptoms that increase during infection and early recognition of the complications that may occur is of great importance for the patient's prognosis due to the infection's multisystem involvement. In Covid-19 cases, as in all infected cases, starting early treatment and isolation measures without losing time are important factors that will increase the chance of success in the fight against the virus. In the course of the disease, cardiac involvement should be considered, especially in cases followed for heart diseases and in some healthy young adult patients if chest and back pain are present or if there is a change in quality. A delay in diagnosis may adversely affect individual mortality and morbidity as it may cause time losses in planning the patient's treatment. It should be kept in mind that as a result of the structure of the SARS-CoV-2 virus and its mutations over time, different clinical pictures may be seen more frequently. Difficulties in diagnosis may occur due to the similarity of respiratory and cardiovascular system disease symptoms. Cases may not present with a typical pericarditis picture as in most cases of viral pericarditis. ECG in patients can be found within normal limits. Especially in cases that have passed into the subacute period, a significant effusion or elevation in inflammatory markers may not be detected. In such cases, suspicion is essential in the diagnosis. If it is kept in mind that Covid-19 infection may cause cardiac involvement and pericarditis, the diagnosis can be reached by further examination and evaluation.

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**Competing interests:** The authors declare that they have no competing interests.

## Ethical Declaration

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008. Ethics committee approval has been granted from our institution. Informed consent has been obtained from the participant.

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