

Chest Pain (Angina) as an Atypical Manifestation in a Repeated COVID-19 Patient

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Abstract

We present a case of a 44-year-old man who came to the emergency room of Permata Hati General Hospital with the chief complaint of chest pain and tingling. The patient denied any complaints of fever, cough, runny nose, sore throat, and decreased sense of smell. The ECG showed a sinus rhythm with a heart rate of 88 beats per minute. The Patient was consulted by the cardiologist for the first time because of chest pain complaint. The patient was finally diagnosed with COVID-19 pneumonia and vasospastic angina. The patient was treated with the same complaint in October 2021 with an ECG examination found a bigeminy PVC arrhythmia fragment, echocardiography and troponin I got results within normal limits. Patient also diagnosed with COVID-19 infection again at that time. With the global COVID-19 pandemic, there are few cases that appear with symptoms of a heart attack due to infection with SARS-CoV-2. Although COVID-19 generally presents with respiratory symptoms, some also appear without respiratory system involvement. This case illustrates that COVID-19 can present with atypical symptoms and affect other organ systems.

Keyword: COVID-19, Angina, Chest pain

Introduction

Coronavirus Disease 2019 (COVID-19) is an infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). Common signs and symptoms of this disease include acute respiratory distress, such as fever, cough, and shortness of breath. In severe cases, this disease can cause pneumonia, acute respiratory symptoms, kidney failure, and even death⁷.

Based on the results of the WHO report dated 14 February 2021, 63,693 new cases in Indonesia (23.3 new cases per 100,000, decreased by 21%). The death rate due to COVID-19 in Indonesia is reported to occupy the first position in Southeast Asia, namely 1,543 new death cases (0.6 new death cases per 100,000; decreased by 7%)⁵.

Common symptoms in patients infected with COVID-19 are cough, fever, myalgia, headache, tightness, sore throat, diarrhea, nausea/vomiting, anosmia, ageusia, rhinorrhea, fatigue, chest pain, or chest feeling pressure⁶.

Early detection and treatment can reduce the mortality rate of patients infected with COVID-19.

Case Report

A 44-year-old man came to the emergency room at Permata Hati Hospital with the main complaint of chest pain and tingling that he felt one day ago. When chest pain appeared, the patient took 5 mg of ISDN drug to improve the complaint. Patients also complain of heavy breathing, shortness of breath, nausea, and decreased appetite. Other complaints are fever, cough, runny nose, sore throat, and decreased smell, denied by the patient.

In 2021 the patient was hospitalized at Permata Hati Hospital with the same complaint. From the EKG examination obtained an arrhythmia PVC fragment episode of bigeminy, the results of echocardiography and troponin I (conducted on 14/10/2021) were found within normal limits, chest X-ray obtained image pneumonia and a positive PCR swab result (performed on 14/10/2021). At that time, the patient was diagnosed with COVID-19 infectious pneumonia and Unstable Angina Pectoris.

On physical examination, the patient's consciousness was compos mentis, blood pressure 120/80 mmHg, pulse 88 beats/minute, respiratory rate 20 beats/minute, axillary temperature 36.5°C with 97% oxygen saturation without oxygen. Vesicular breath sounds were heard on auscultation with bilateral rhonchi in the medial lung.

From the laboratory examination, the Hb result was 13.9 g/dL; leukocytes 7,800/ μ L; hematocrit 40.8%; platelets 221,000 u/L; hs-CRP 49.2 mg/L; D-Dimer 209 ng/mL; positive antigen swab; and positive PCR swab.

On chest X-ray examination, pneumonia was found, and the EKG results obtained sinus rhythm with a heart rate of 88 beats/minute.

From the examination results, the patient was then diagnosed with COVID-19 infectious pneumonia, GERD, and vasospastic angina.

Treatment given to patients as conservative therapy includes an infusion of 0.9% Sodium Chloride 20 drops per minute, Ceftriaxone 1x2 gram (iv), Pantoprazole 2x40 mg (iv), Paracetamol flashes 3x1 gram (iv), Resfar 2x600 mg (iv), Osteosan 1x1000 mg (PO), Favipiravir 2x1600 mg on the first day then 2x600 mg on the second to the fifth day (PO), Diltiazem 3x30mg (PO), and ISDN 5mg if chest pain (SL).

Cough, runny nose, and fever appeared when the patient was hospitalized on day 2.

Discussion

This patient was diagnosed with COVID-19 infectious pneumonia with vasospastic angina. The patient was previously diagnosed with COVID-19 infection accompanied by Unstable Angina Pectoris with echocardiography and troponin I result within normal limits.

As is known, SARS-CoV-2 interacting with ACE2 can change the way ACE2 works, which can damage the lungs, heart, and endothelial cells quickly. SARS-CoV2 is reported to be able to infect the myocardium, which can cause viral myocarditis directly. In most case reports, it is said that increased demands for cardiometabolic processes cause myocardial damage due to systemic infection and low oxygen levels due to severe pneumonia or ARDS^{1,2}.

Another pathophysiology of COVID-19 that can cause symptoms in the form of angina is the immune response to SARS-CoV-2. COVID-19 has two immune responses. The first phase

occurs during the incubation period of the disease. The adaptive immune system works to eliminate the virus. If there is a failure in this phase, SARS-CoV-2 will spread and cause damage to organ systems. Organs more frequently damaged are organs with more ACE2 receptors, including the lungs, endothelial cells, heart, and kidneys. Extensive organ damage causes the second phase, namely organ inflammation. Diabetes, atherosclerosis, and fat reduce the immune regulatory system. This condition causes a poor prognosis in patients who have symptoms of COVID-19¹.

Cytokine Release Syndrome can be a factor in atypical COVID symptom responses through the Cytokine release syndrome mechanism that can appear in COVID-19 patients. Proinflammatory cytokines such as interleukin (IL)-2, IL-10, IL-6, IL-8, and TNF significantly increase in severe cases. Cytokines play a significant role in the first phase of viral infection and severe inflammation in the second, leading to ARDS and organ failure.¹

Many studies conducted during the epidemics of SARS, MERS, and COVID-19 show that there are many causes of heart injury. In severe cases of COVID-19, excessive amounts of Cytokines (Cytokine release syndrome) can cause damage to the vascular endothelium and cardiac myocytes^{1,4}.

Because the disease causes systemic inflammation and increased catecholamines, plaques in blood vessels can rupture, leading to the acute coronary syndrome. Acute coronary syndrome patients in COVID-19 are also associated with coronary thrombosis^{1,3}.

In one study, myocarditis caused by COVID-19 (SARS-CoV-2) was unusual because patients did not have a fever and no respiratory symptoms, which are the hallmark symptoms of COVID-19. So in cases like this, patients must be treated with care and with sufficient attention³.

Conclusion

COVID-19 does not only affect the respiratory system. It can also cause dysfunction in other systems, such as the cardiovascular system. Chest pain is one of the atypical symptoms of the cardiovascular system in COVID-19. Patients must be treated with particular attention to minimizing more severe complications in cases like this. Treatment according to COVID-19 guidelines is still being carried out, plus some heart medications. So joint care must be carried out between an internist, a pulmonologist, and a cardiologist. Further research is urgently needed to address and minimize cardiovascular complications in COVID-19.

NB: tolong perbaiki lagi kata, huruf besar kecil, dan daftar pustaka

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