

Case Report

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A case report of pericardial effusion as a complication of vaccination against COVID-19 with Sinopharm vaccine**Mohammadjavad Zibaenezhad¹; Sasan Hosseini²; Seyyed Saeed Mohammadi¹; Fatemeh Zibaenejad¹; Amir Hossein Hassani^{3*}**¹Cardiology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran.²Department of Cardiology, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran.³School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran.***Corresponding Author: Amir Hossein Hassani**

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Abstract

Background: Sinopharm vaccine is in fact an inactivated form of SARS-CoV-2. This vaccine is one of the agents that are frequently utilized worldwide. The most frequent adverse effects of this vaccine have been local irritation, fever, and fatigue.

Case presentation: The case is a 34-year-old male without any previous medical conditions who presented with pleuritic chest pain 48 hours after the inoculation of Sinopharm vaccine. In his transthoracic echocardiography, mild anterior pericardial effusion and moderate posterior pericardial effusion was noted. The patient underwent pericardial window insertion and the bloody pericardial effusion fluid was drained which was lymphocyte rich without any signs of malignancy and the pericardial biopsy showed chronic inflammation and foreign body giant cell. The patient's PCR for COVID-19 came back negative. The serology tests for COVID-19 were negative as well.

Conclusion: Pericardial effusion can be seen rarely as a complication of vaccination with Sinopharm vaccine. This complication might have happened due to improper handling of the vaccine. This complication was resolved without any consequence in our patient; therefore, this vaccine is still counted as safe and effective in preventing COVID-19

Keywords: Sinopharm; COVID-19; Pericardial effusion; Vaccination.

Introduction

After the widespread pandemic of COVID-19, it became the main priority of the healthcare systems around the globe. COVID-19 was first thought to involve the respiratory system only, but further investigations found that the disease itself and its complications, as well as the treatments, can engage multiple organ systems and prompted the need for a team approach in tackling this disease [1-3].

Most of the countries have started mass population vaccination by October 29th, 2021 to a level that more than six billion doses of various vaccines have been administered [4].

Iran has not been an exemption in the conflict against COVID-19 and various vaccine preparations are being used in Iran such as Sinopharm for this issue [5]. This vaccine has been proved effective against COVID-19 [6], and fewer side effects are reported for this agent compared to AstraZeneca and Pfizer preparations [7]. The most prevalent adverse effects against the Sinopharm vaccine were fatigue, pain, and erythema at the site of injection as well as minor allergic reactions as urticaria, body pain, headache, and myalgia [8].

In this case report, we aim to report pericardial effusion as a rare complication of Sinopharm vaccination in an otherwise healthy young man.

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Case presentation

The case is a 34-year-old man without any significant past medical history who had experienced chills and fever 48 hours after inoculation of the Sinopharm vaccine. He had taken Acetaminophen to control the fever; however, on the third day post-vaccination, he developed an atypical chest pain for which he was brought to our center. He reported that the pain was pleuritic. He underwent transthoracic echocardiography in our center that revealed moderate posterior pericardial effusion. Consequently, a pan-CT scan with intravenous contrast was performed for him to rule out malignant lesions that could cause pericardial effusion. which showed no findings suggestive of malignant lesions. The CT scans obtained from the patient did not show any lesions in favor of neoplastic processes. Peritracheal lymph nodes were found with less than 10 mm diameter showing benign reactive lymph nodes. The patient was on non-steroidal anti-inflammatory drugs and Colchicine with suspicion for pericarditis but no improvement was seen in his condition evaluated by serial echocardiograms. Therefore, a pericardial window was inserted for him and the pericardial effusion was drained. The pericardial fluid was found to be bloody in the operating room. The samples were sent for cytology and the result came back to be lymphocyte-rich fluid with no neoplastic cells in favor of viral infections. A pericardial biopsy was also sent from the patient which showed chronic inflammation and foreign body giant cell. Acid Fast staining was performed for the pericardial biopsy which was negative. Also, the Tuberculosis PCR of the pericardial fluid came back negative.

During his course of hospitalization COVID-19, PCR was sent from his nasopharyngeal and oropharyngeal samples, all of which came back negative. A SARS-CoV-2 serology test was also sent for the patient that came back negative for SARS-CoV-2 IgM and IgG. The other lab data of the patient during his course of hospitalization is summarized in table 1. After ensuring about the benign nature of the pericardial effusion, the patient was discharged on a well and stable condition with normal vital signs and improved symptoms.

Patient consent: A written consent form was obtained from the patient himself so that we could publish his information publicly if he remained anonymous.

Discussion:

In this study, we reported a case of pericardial effusion as a rare complication of Sinopharm vaccination against COVID-19.

Iran has been using multiple vaccine preparations to fight the pandemic such as Sinopharm, Astrazeneca, Sputnik, and COVIran Barekat. Various methods have been used to develop such vaccines. AstraZeneca vaccine (AZD1222) is a chimpanzee adenoviral vector that contains the gene encoding a surface antigen of SARS-CoV-2 [9]. Sputnik V vaccine (Gam-COVID-Vac) is also an adenoviral vector (rAd5 and rAd26) of glycoprotein S gene which carries the gene for the surface antigen of SARS-CoV-2 [10].

The Sinopharm vaccine is an inactivated form of SARS-CoV-2 using the conventional method [11]; as a result, this vaccine might mimic the signs and symptoms of the disease itself if

Table 1: The lab data of the patient during his course of hospitalization.

Test	First day of admission	Last day of admission
WBC	8.3	7.9
Hb	11.7	14.1
Platelets	331	221
Neutrophil	70.8%	79.7%
Lymphocyte	21.6%	11.7%
Mixed cell	7.6%	8.6%
BUN	19	16
Cr	0.9	1.0
Na	133	136
K	3.4	4.5
Ca	8.6	-
PT	16.9	23.8
INR	1.27	1.83
PTT	41	35
ESR	79	-
CRP	75	-
troponin	3.6 (negative)	-
Blood culture	Negative ×3	-

not handled properly. Multiple reports have described the existence of pericardial effusion and myopericarditis as an extrapulmonary involvement of COVID-19; however, these findings had not been reported with a course of vaccination and negative COVID-19 PCR [12,13]. Some reports have described bloody pericardial effusion in patients with COVID-19 [14]. These findings might indicate the poor method of inactivation or transportation of the vaccines.

In multiple studies performed in China and Iraq, the most common adverse reactions of the Sinopharm vaccine were local irritation, fever, and fatigue [15,16]. No side effects as severe as pericardial effusion had been reported previously.

Shams et al. reported a case with transient 2:1 atrioventricular block following the inoculation of Sinopharm vaccine which raises the probability of cardiac side effects of this vaccine [17].

The findings of this study prompt further evaluation in the adverse effects of COVID-19 vaccines and studying the need for proper screening tests in vaccinated patients; however, finding such rare complications do not question the effectiveness and the necessity of mass population vaccination since COVID-19 imposes a much higher burden on patients and healthcare systems globally.

Conclusion

Pericardial effusion can be seen rarely as a complication of vaccination with Sinopharm vaccine; therefore, this complication should be held in mind if a patient who has recently been vaccinated with this vaccine refers with cardiac complications. This complication might have happened due to improper handling of the vaccine. This complication was resolved without any consequence in our patient; therefore, this vaccine is still counted as safe and effective in preventing COVID-19.

Declarations

Patient consent: A written consent was obtained from the patient to publish the clinical data if the patient remains anonymous.

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Conflicts of interest: The authors declare no conflicts of interest.

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