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Case Report

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Effusive Non-Tuberculosis Mycobacterial and Fungal Acute Pericarditis in Post COVID Patient: A Case Report

Omid Reza Amini[1], Azade Sezavar Seiedi[2], Abbasi Mohamad[3], Somaye Farokhnejad[4,*]

[1]*Cardiologist, Atherosclerosis Prevention Research Center AND School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran*

[2]*Department of Cardiology, Ghaem Hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran*

[3]*Heart surgeon, Mashad University of Medical Sciences, Tehran, Iran*

[4]*Cardiovascular Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran*

ABSTRACT

Purulent pericarditis is identified by pus in pericardial space. Pericarditis due to Candida species is very rare and is associated with severe sepsis, cardiac tamponade, and a high grade of mortality. Pericardial involvement with Mycobacterium avium complex (MAC) is unusual. We present a case of post COVID purulent mycobacterial and fungal pericarditis, which was managed both medically and surgically.

Keywords: COVID-19, Mycobacterium, *Candida Albicans*.

INTRODUCTION

Purulent pericarditis is identified by pus in pericardial space, rising from the spread of a neighboring bacterial infection site or by blood dissemination [1]. Pericarditis due to Candida species is very rare and is associated with severe sepsis, cardiac tamponade, and a high grade of mortality; so it should be diagnosed and treated promptly. Patients with a history of immunosuppression are impressed with this infection [2-4].

Pericardial involvement with Mycobacterium Avium complex (MAC) is unusual [5,6]. Infections caused by either of the *mycobacterium avium (M. avium)* and *mycobacterium intracellulare (M. intracellulare)* are referred as MAC [7]. MAC infections usually introduce in middle to older aged patients. Alcoholics or smoker patients and patients with underlying obstructive pulmonary disorders are more susceptible [8].

We describe a male patient with an unusual case of large purulent pericardial effusion secondary to *Candida albicans* in combination with MAC infection. He had a history of COVID infection 2 weeks prior to his admission into our hospital.

CASE REPORT

A 54-year-old gentleman was admitted to our hospital with two-week shortness of breath, productive cough, positional and pleuritic chest pain and lethargy. He has been suffering from bilateral lower limbs edema

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***Corresponding Author**

Somaye Farokhnejad, MD

Cardiovascular Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Phone: +989122124921

E-mail: somayefarokhnejad@gmail.com

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during last two weeks and had no evaluation for it.

The patient was in semi sitting position and he was obtaining oxygen by nasal canola. Following careful physical examination, blood pressure was 80/50 mmHg, the pulse rate was 140 pulses per minute and oxygen saturation was 96%. Internal jugular vein bulged. No heart murmurs were heard and the normal heart sounds were muffled. Both lower limbs had pitting edema beneath knees.

His only past medical history was admission due to COVID-19 infection 2 weeks before the index date. An obtained electrocardiogram at Emergency Department showed sinus tachycardia and mild diffuse ST elevation.

The chest X-ray (CXR) taken on the day of admission showed cardiomegaly (Figure 1).

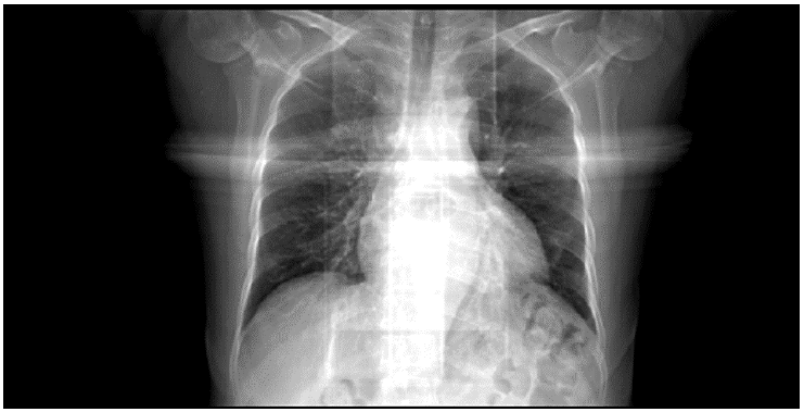

Figure 1. Chest radiography showed cardiomegaly.

Computed tomography scan (Figure 2) showed severe pericardial effusion up to 30-mm maximal thickness and basilar ground glass opacities in both lungs, with a small left plural effusion.

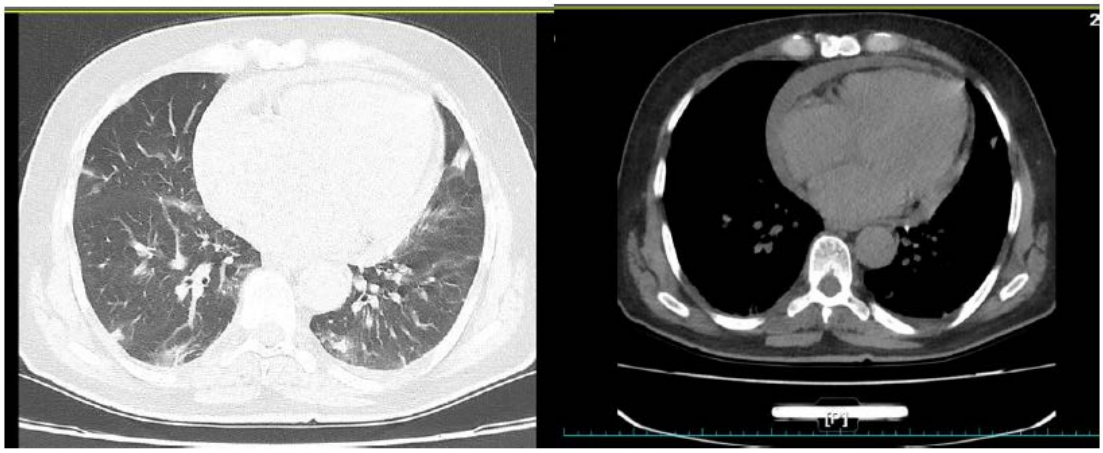

Figure 2. plural effusion with ground glass opacities (left) and pericardial effusion (right).

2-Dimentional transthoracic echocardiographic evaluation revealed normal left ventricle function and size. As predicted based on physical exam and previous imaging, a large circumferential pericardial effusion was detected with all of the echocardiographic tamponade signs. It had right atrium and right ventricle diastolic collapse and the respiratory variation on Mitral valve was more than 10%. There was no evidence of valvular disease.

In lab data we found a leukocytosis (white blood cell: 12000/ml) and elevated erythrocyte sedimentation rate (ESR: 52).

An ultrasound scan of the abdomen did not show hepatomegaly, splenomegaly or intra-abdominal lymphadenopathy.

Considering clinical and Echocardiographic diagnosis of tamponade, pericardial aspiration was performed under echo guidance and 1500 mL purulent fluid was aspirated in two sessions and a pigtail catheter left in place (Figure 3).

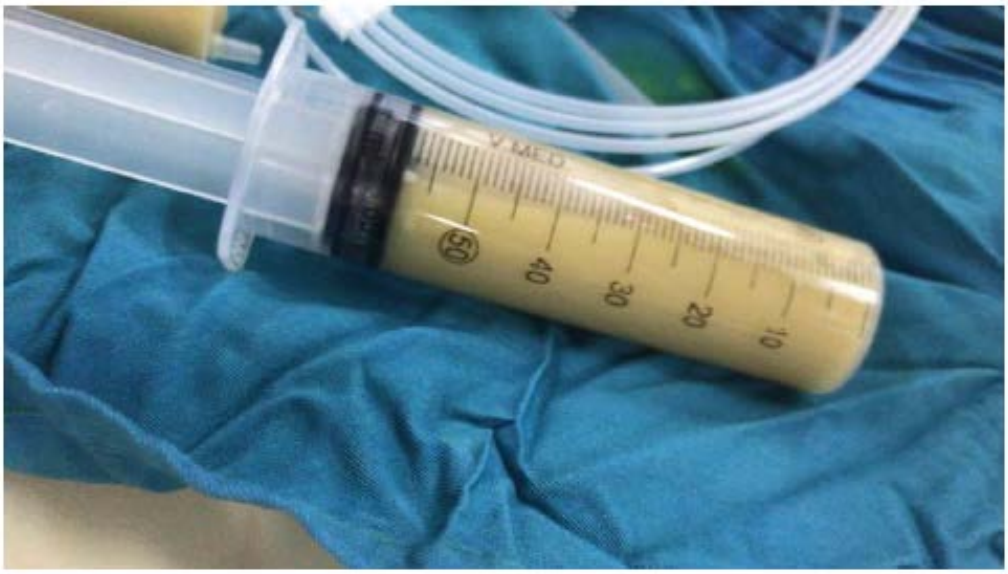

Figure 3. purulent pericardial fluid.

Pericardial fluid cytology showed 2100mg/dl amorphous protein with some lymphocytes, scattered neutrophils, few RBCs and no malignant cells.

First culture of pericardial fluid specimen showed *Candida Albicans* so antifungal treatment with Caspofungin, voriconazole and fluconazole was started and the patient referred for surgery.

The patient was taken to the operating room, 70 mL purulent fluid was removed and pericardial biopsy was done and sent to the pathology department.

Pericardial specimen was evaluated for mycobacterium tuberculosis (MT) by real time polymerase chain reaction (PCR). The result was negative for MT, but it was positive for Non tuberculosis mycobacterium species.

Post-surgical echocardiography revealed resolved pericardial effusion and normal ejection fraction.

Therapy was started with Isoniazid, rifampicin, clarithromycin, and ethambutol, and antifungal treatment was continued. The patient continued being asymptomatic and accordingly discharged home after a few days. The two-week follow-up showed a normal echocardiography and normal sinus rhythm in Electrocardiogram.

DISCUSSION

This was a rare and fascinating case. First, it was a co infection with MAC and *candida albicans* pericarditis. In addition, the MAC was found in the pericardium biopsy when the patient referred for surgery; if not, the infection may have been untreated.

Candida (most common as Candida albicans) is an unusual cause of purulent pericarditis [9,10]. Risk factors for such infection include recent thoracic or abdominal surgery, immunosuppression or malignancy [10]. In our case, given the history of covid infection, we were concerned that it could be the cause for immunosuppression.

Diagnosis of MAC disease is based on detection of MAC from blood cultures, tissue biopsies or body fluids [7]. Species recognition is performed with using of specific DNA probes [11,12], high-performance liquid chromatography or biochemical tests [7].

Therapy for Candida albicans pericarditis is based on surgical drainage and antifungal treatment. Surgical drainage is an essential part of treatment.

Amphotericin B and fluconazole were often used in reported cases [13]. Our case was treated successfully with Caspofungin, Voriconazole and Fluconazole. Antimycobacterial treatment of MAC infection needs combination therapy that should include a macrolide and ethambutol, with or without rifabutin [7]. In our patient we used the Isoniazid, rifampicin, clarithromycin, and ethambutol combination.

CONCLUSION

This is a rare case report of MAC and candida acute pericarditis in a post COVID infected host. Our patient had no evidence of recurrence of symptoms during follow up period.

ACKNOWLEDGMENTS

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CONFLICTS OF INTEREST

All authors have nothing to declare.

AUTHORS CONTRIBUTION

ORA: management of the patient and doing the pericardiocentesis, ASS: management of the patient, SF: writing the manuscript AM: surgical management of the patient.

ETHICS STATEMENT

Consent for publication anonymized has been obtained from the patient. As it is a case report, no approval from our ethics committee was required.

DATA AVAILABILITY STATEMENT

All data are available at the electronic file of the patient and the PACS system of our hospital.

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