



Case Report

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Co-Inciding Native Infective Endocarditis and COVID-19 in an Older Patient: A Case Report



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ABSTRACT

Coronavirus Disease 2019 (COVID-19) is an ongoing pandemic caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). Patients with infective endocarditis (IE) and COVID-19 can present similar signs and symptoms; thus, it may be difficult for clinicians to diagnose such infections. This report presented a patient diagnosed with IE and co-infected with COVID-19. This case highlights that every physician should consider COVID-19 infection when evaluating patients with IE.

Introduction

Coronavirus Disease 2019 (COVID-19) is part of a global pandemic caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) [1]. As the current pandemic continues, COVID-19 concomitant with other infections, including infectious endocarditis (IE), will be more common in daily clinical practice. Patients with IE and COVID-19 may present similar signs

and symptoms, including fever, dyspnea, and chest pain; thus, diagnosing such infections may be challenging for clinicians [2]. We presented a patient diagnosed with IE and concomitant with COVID-19 infection.

Case Presentation

A 67-year-old female patient who received hemodialysis due to chronic renal failure was admitted to our emergency department with fever and shortness of breath for 5 days. Physical examination revealed

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that her blood pressure was 105/63 mmHg, heart rate was 112 beats per minute, and body temperature was 38.8°C. In addition, an increase in the diameter of the left arm compared to the right arm was noted. Furthermore, an ecchymotic lesion suggesting peripheral embolism was observed on the sole of the right foot (Figure 1A,B). A previously undocumented III/VI systolic ejection murmur was heard on cardiac auscultation. Laboratory analysis revealed an elevated white blood cell count, lymphopenia, elevated D-dimer level (2.080 ng/mL, normal range: 0-500 ng/mL) and C-reactive protein level (20.9 g/L, normal range: 0-0.5 g/L). Transthoracic Echocardiography (TTE) was performed, revealing a normal left ventricle ejection fraction and moderate to severe mitral regurgitation due to partial chorda rupture. Besides, there was a hyperechogenic mass surrounded by mobile hypoechoic vegetation on the posterolateral mitral valve in the parasternal long-axis, parasternal short-axis, and apical 4-chamber views (Figure 1C,D,E).

COVID-19 RT-PCR test was performed due to peripheral lymphopenia, and the test result was positive. There was mild ground glass infiltration on the basal segments of the chest on the computed tomography (Figure 1F). Three sets of blood cultures obtained from two separate arms at two-hour intervals yielded *Staphylococcus lugdunensis*. Antibiotic treatment, including vancomycin

and gentamicin, low molecular heparin, and COVID-19 treatment protocol (hydroxyl chloroquine & favipiravir), was applied in our institution were given. After two weeks of medical treatment, the patient's general condition improved significantly, and the COVID-19 RT-PCR test applied twice at separate times was negative. After completing COVID-19 therapy, the patient was recommended to undergo surgical mitral valve replacement. However, the patient refused cardiac surgery.

Discussion

The COVID-19 infection caused by SARS-CoV-2 has rapidly spread worldwide, infecting millions of people in a short time [1]. The association of COVID-19 with IE has not been documented in the current literature; however, we consider that COVID-19 infection may cause systemic inflammation and endothelial damage; all are potential risk factors of IE, especially in susceptible patients with underlying chronic diseases [3]. Moreover, as per our case, although peripheral embolism or possible venous obstruction in the left arm could be attributed to IE, the role of COVID-19 infection could not be ruled out because this infection could lead to abnormal coagulation parameters. Furthermore, it would be challenging to prove the role of a virus in endocarditis, and we could not find any recorded case specifically proving a virus as the causative agent.

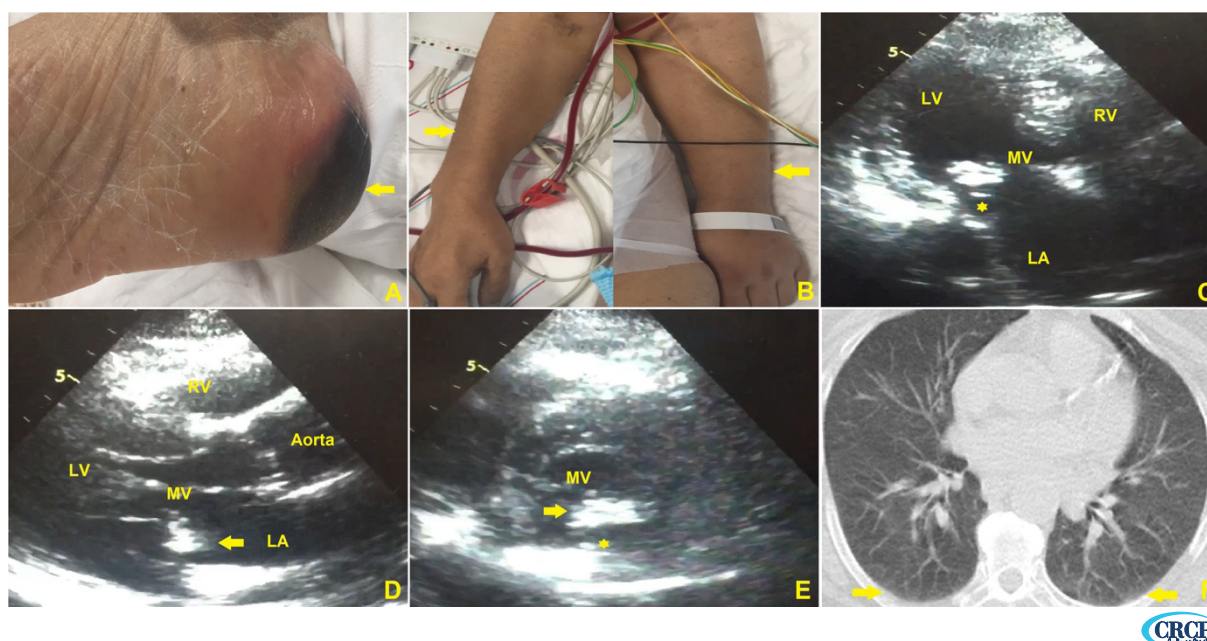


Figure 1. A) An ecchymotic lesion suggesting peripheral embolism was noted on the sole of the right foot (arrow); B) The diameter of the left arm compared to the right arm was increased, suggesting a venous obstruction (arrows); C,D,E) Transthoracic echocardiography images outlining a hyperechogenic mass surrounded by hypoechoic vegetation (arrows) and partial chorda rupture (*) on the parasternal long-axis, parasternal short-axis, and apical 4-chamber views; F) Computed tomography image demonstrating mild ground glass infiltration (arrows) on the basal segments of the chest

LA: Left Atrium; LV: Left Ventricle; RV: Right Ventricle; RA: Right Atrium; MV: Mitral Valve

Current IE guidelines recommend that the decision to initiate antibiotic treatment must be individualized and discussed when waiting for findings from blood cultures with the endocarditis team [4]. In hemodynamically unstable patients with clinical presentation in favor of IE, empirical antibiotic therapy can be initiated [4]. Our presented case was hemodynamically stable; thus, the antibiotic regimen was administered based on the blood cultures results, which showed a multiresistant coagulase-negative *Staphylococcus lugdunensis* sensitive to vancomycin and gentamicin. Additionally, cardiac surgery is recommended in patients with refractory heart failure due to IE. However, there are no examples of literature endorsing heart valve surgery in IE patients with COVID-19. In our case, since the patient was stable, cardiac surgery was postponed until the completion of COVID-19 treatment according to an infectious specialist recommendation.

Data on treating patients with COVID-19 and IE are scarce. In our case, the therapy with hydroxychloroquine and antiviral agent (favipravir) was given with benefit. Patients who received a diagnosis of cytokine storm, most likely the result of SARS-CoV-2 infection, can be treated with biologic agents, such as tocilizumab and intravenous immunoglobulin [5]. Moreover, anticoagulation should be given because arterial and venous thromboses appear ordinary in COVID-19 cases.

Conclusion

We reported a case of IE concomitant with COVID-19 infection. This case highlights that in patients with IE, complete standardized screening should be done to exclude or confirm co-incidental COVID-19 infection during this pandemic situation.

Ethical Considerations

Compliance with ethical guidelines

There were no ethical considerations to be considered in this research.

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Authors' contributions

All authors equally contributed in preparing this article.

Conflict of interest

The authors declared no conflicts of interest.

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