Case Report

A rare care of post covid thromboembolic disease involving both arterial and venous system

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ABSTRACT

The severe acute respiratory syndrome coronavirus disease (COVID-19) pandemic is caused by the novel severe acute respiratory syndrome coronavirus 2 and is affecting all civilizations. At present, there is an availability of minimum data highlighting the occurrence of thromboembolism in patients infected with COVID-19. Here, we report a rare case involving a 49-year-old female patient with thrombotic occlusion of the infrapopliteal artery and venous systems associated with COVID-19.

Key words: COVID-19, Coagulation, Severe acute respiratory syndrome coronavirus 2, Thromboembolism

The current coronavirus disease 2019 (COVID-19) pandemic is caused by severe acute respiratory syndrome coronavirus-2. This pandemic brings a global emergency affecting all civilizations [1]. Thromboembolic and cardiovascular disorders may cause COVID-19-like respiratory distress symptoms [2]. India is also having one of the highest prevalence of COVID-19 infected cases [3]. The higher incidence of thromboembolic and cardiovascular events is associated with COVID-19 [4].

We report an atypical case involving a 49-year-old female patient with thrombotic occlusion of the infrapopliteal artery and venous systems associated with COVID-19.

CASE REPORT

A 49-year-old female presented to our outpatient department with complaints of difficulty in breathing, palpitation, and swelling in the right lower limb along with discoloration in the right foot. Before these symptoms, the patient was apparently normal 7 days before, then she developed right foot dry gangrene, pain in the right foot, and nausea for 7 days. Her history includes diabetes and hypertension in the past 5 years.

The patient was diagnosed with the COVID-19 infection 1 month before the presentation. She was admitted and started on antibiotics and anticoagulants. The following treatment was given to the patient in the hospital – Clindamycine 900 mg, PAN 40 mg, Clexane 0.6 IU, Patoxyphylline 400 mg, Atorvas 40 mg, Ecosprin 75 mg, Amlong 10 mg, Metformin 1 mg, and Lantus 12 Units S/C.

Her clinical examination was suggestive of dry gangrene in the right leg. Her vital signs included a blood pressure of 140/90 mmHg, pulse rate of 100 beats/min, and respiratory rate of 20/min. Further, evaluation revealed that the patient continued to have tachycardia and difficulty in breathing.

The patient computed tomography (CT) angiography of the left lower limb was performed and revealed thrombotic occlusion of the infrapopliteal artery as well as venous systems (Fig. 1). At the same time, pulmonary angiography was done and revealed pulmonary embolism of the right distal pulmonary artery. Echocardiography showed normal left and right ventricular function with tachycardia. She was observed in the hospital and then was discharged.

DISCUSSION

Most of the mortality and morbidity were related to cardiovascular disease, hypertension, and diabetes. The patients detected with COVID-19 tend to suffer from mild upper respiratory tract infections. These patients were asymptomatic with mild-to-moderate respiratory discomforts, fever, cough, and flu, according to clinical observation [5-7].

The vascular system plays a major role in morbidity and more importantly, in mortality. COVID-19 appears to be associated with an increased risk of thromboembolic disease. COVID-19 increased thromboembolism risk is thought to be caused by different mechanisms. Patients infected with the novel coronavirus have abnormally high levels of proinflammatory cytokines. This case elucidates why the COVID-19 pandemic results in such poor outcomes for certain people.

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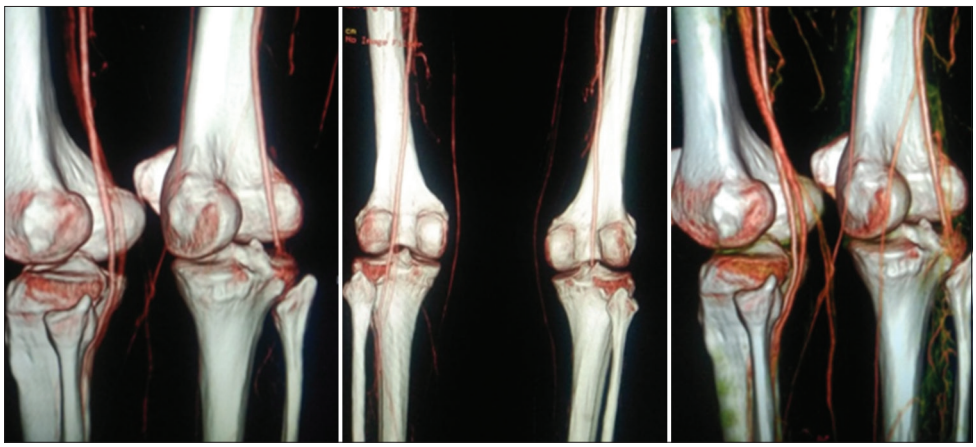

Figure 1: Lower limb computed tomography angiography

The exact mechanism of thrombus occlusion is unknown, but it is hypothesized that the COVID-19 can increase the inflammatory response, hypoxia, immobilization, and disseminated intravascular coagulation (DIC), both of which can increase a person's risk of arterial and venous thromboembolic disease [8]. In general, viral infections can cause an imbalance between pro-and anticoagulant states during the course of the disease, which often results in the destruction of the vascular endothelium [9].

Various pathways involving the coagulation which causes fibrin clots formation and breakdown of these clots lead to the elevation of D-dimer and fibrin degradation levels, both of which are associated with poor prediction in COVID-19 patients, including the requirement for intensive care unit admission, and mortality [10]. The systemic activation coagulation, together with the immobility associated with bed rest, increased thromboembolism risk in COVID-19 patients [11]. The concept of whether or not to use prophylactic anticoagulation in hospitalized COVID-19 patients to enhance their overall clinical performance remains controversial due to a lack of adequate evidence [9].

This rare case study reports the incidence of arterial and venous thromboembolic events detected by CT angiography with COVID-19. Bhatt and Singh reported a unique presentation of COVID-19 that health-care providers must consider when treating similar patients [2]. According to Brüggemann *et al*., a major contributor to COVID-19-related complications are hypercoagulability which needs urgent attention for the occurrence of thromboembolic events in such patients [12].

CONCLUSION

This case illustrates hypercoagulability as a major contributor to COVID-19-related complications, which may be insufficient to reduce the thromboembolic risk, emphasizing the need to monitor patients with COVID-19 for these events.

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