

Intestinal Exclusion on Mesenteric Ischemia Revealing COVID-19 Infection: Two Cases Report

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Abstract

Case Report

COVID-19 is a disease caused by the SARS-COV-2 coronavirus. Although this virus mainly affects the respiratory system, however it can also affect other organs as a part of the thromboembolic complications. Mesenteric ischemia is among the rare complications related to COVID-19 described in the literature as a complication occurring during hospitalization for COVID-19 pneumonia but even more rarely as an indicative complication of coronavirus disease. We are reporting the cases of two patients admitted to the emergency room for intestinal obstruction due to mesenteric ischemia revealing a COVID-19 infection moreover we focus on early thrombosis especially among patients with comorbidities.

Keywords: virus, SARS-COV-2, coronavirus disease.

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INTRODUCTION

The coronavirus disease named COVID-19 is a zoonosis caused by the novel severe acute respiratory syndrome coronavirus-2 (SARS-COV-2), which emerged in December 2019 in the city of Wuhan [1]. More than a year after the onset of the global pandemic, our knowledge of this virus is still somewhat limited. This disease mainly affects the respiratory system with symptoms ranging from a simple flu-like syndrome to severe respiratory distress syndrome (ARDS) [2, 3]. However, it could also affect several other organs, including the cardiovascular, neurological and gastrointestinal systems.

In general, patients with severe forms of COVID-19 are at high risk of developing thromboembolic complications and these are associated with coagulopathy caused by this virus. In this article, we report two cases of patients admitted to the emergency room with intestinal obstruction due to

mesenteric infarction that revealed COVID-19 infection.

CASE REPORT

Case 1

A 60-year-old YA patient with a history of type 2 diabetes and under treatment by oral antidiabetics, the patient has been admitted to the emergency room with abdominal pain and vomiting for 10 days. A complete obstructive syndrome further complicated the condition for the last 3 days, which developed into a fever and a deterioration in the patient's general condition. Upon admission, the patient was conscious, hemodynamically unstable with a blood pressure of 89/45 mmHg, heart rate of 135 beats per min, polypnea at 29 cycles per min, distended abdomen, generalized defensiveness. The abdominal CT scan showed a central intestinal distension with a tight and extensive stenosis over 33.5 mm of very probable ischemic origin (Figure-1).

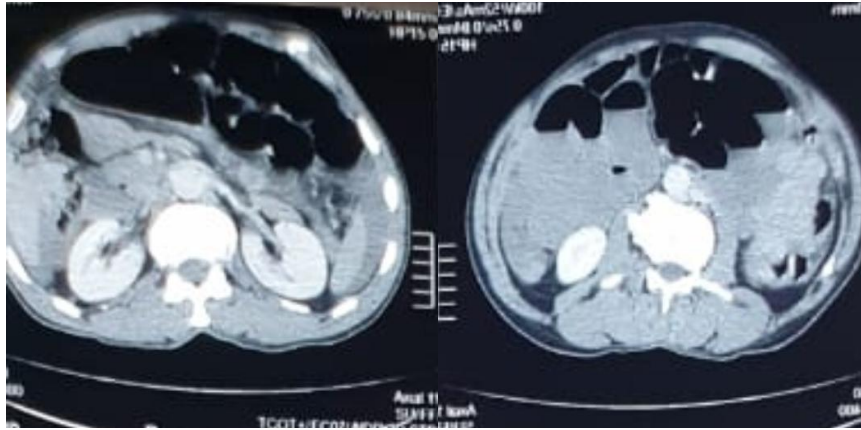


Figure 1: Abdominal CT scan showing central bowel distension with a tight and extensive 33 mm stenosis

Biologically: infectious syndrome with leukocytosis at 13400, C-reactive protein (CRP) at 400, platelet count 159,000, prothrombin rate at 53%, LDH at 650. After the patient was conditioned, he was admitted to the operating room.

The examination revealed a large peritoneal effusion and an extensive necrosis of the small intestine from the Treitz angle to the ileo-caecal with an ischemic preperforation appearance.

The surgical procedure was an extensive resection of the necrotic small intestine and the cecum with meocolostomy, abundant lavage and drainage by Delebet blade then transferred to intubated ventilated and sedated intensive care unit (Figure-2).



Figure 2: Extended resection of the necrotic Small intestine and cecum

On the fifth postoperative day, the patient was weaned from norepinephrine and awake, but only after two unsuccessful extubation attempts. The positive gas test showed moderate acute respiratory distress syndrome and the RT-PCR test was positive. The patient's condition ended when the patient passed away on the 27th day of the patient's hospitalization.

Case 2

Patient C.Z, 68 years old, with a history of poorly monitored hypertension and diabetes, which was accidentally discovered during the hospitalization of the patient, the patient was admitted to the emergency room for abdominal pain with bilious vomiting, cessation of fluids and gas, as well as respiratory difficulties that had been progressing for a week. The patient was conscious during the examination, hypertensive at 100/55 mmHg, tachycardia at 120 beats per min, polypneic at 32 cycles per minute. Saturation at 97% under oxygen flow 5l/min with dyspnea stage III, positive urine strips with two crosses of glycosuria and two crosses of ketone bodies, During the examination of the abdomen, it is noted that there is an abdominal tenderness around the navel and at the level of the right hypochondrium. The abdominal CT objective a greglic occlusion associated with splenic and renal infarctions and a pan colitis evoking an ischemic origin.

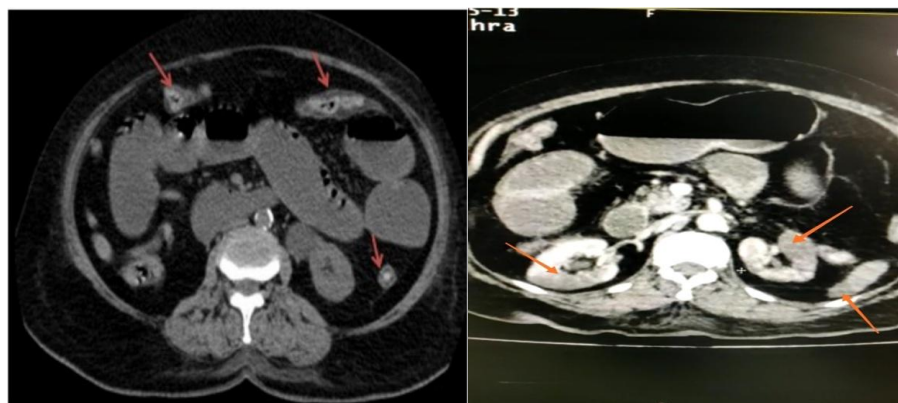


Figure 3: Axial CT scan with no injection shows pan colitis on the left and splenic and renal infarctions on the right

The thoracic CT scan confirmed severe pulmonary disease caused by the viral infection, and the electrocardiogram revealed a regular sinus rhythm of 120 bpm and ST-

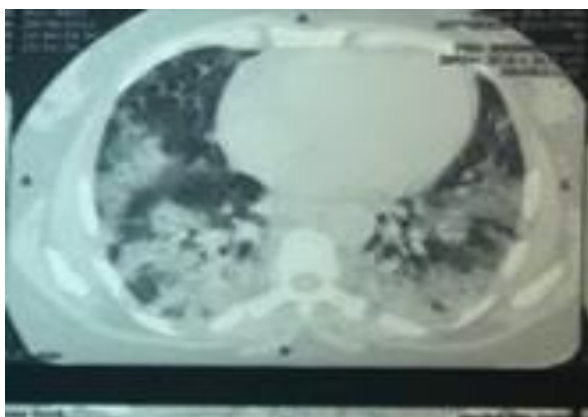


Figure 4: Thoracic CT scan in favor of a severe pulmonary infection of a viral infectious origin

On the biological level, we noted a hyperleukocytosis at 20730 with a C - reactive protein at 150, platelet at 176000-prothrombin rate at 59%, renal failure with urea at 1.38 and creatinine at 24 with slight hyperkalemia at 5 and hyponatremia at 128, glycaemia at 5 g / l, LDH at 1439, D-dimer at 3570, fibrinogen at 5.42 the gas analysis shows uncompensated metabolic acidosis with PH 6.94, PaCO₂: 44.7, PaO₂: 130, BE-23 and HCO₃- at 8.

The treatment was based on a medical resuscitation and correction of metabolic disorders and hydro-electrolytic disorders, followed by a tri-biotherapy and a surgical treatment consisting of a 70 cm grelic resection with gastrointestinal end-to-end anastomosis and drainage performed by two Delbet blades opposite the anastomosis and at the level of the doglas cul de sac.

The patient suffered from hemodynamic instability during the operation, the patient then was put on vasoactive drugs and was sent to the intensive care unit with intubation, assisted by ventilation and sedation. The progression of the patients was unfavorable with the death of the patient because the patient died of refractory septic shock on Day 3 after the surgery.

DISCUSSION

COVID-19-related mesenteric ischemia is among the rare complications that occur during the course of coronavirus disease as described in the literature. It is related to the hypercoagulable state generated by the virus, which can be directly linked to its structure characterized by the presence of a surface protein, which is the Spike protein. This protein is attached to the receptor of the angiotensin 2 converting enzyme (ACE2), located on the membranes of host cells such as lung, oral mucosa, liver, endothelium, and

intestine that have a high number of ACE2 receptors [4-7]. Several factors are involved in the pathophysiology of thrombotic events in patients with COVID-19, these factors include endothelial inflammation, thrombin formation, integration activation and initiation of an immune response that leads to a hypercoagulable state and thus increases the risk of thromboembolic complications [8, 9].

This hypercoagulable state increases the risk of mesenteric ischemia from 0.2 in the general population to 3.8% in patients with COVID-19 [10, 11].

A recent meta-analysis of the literature cases of patients with mesenteric ischemia complicating COVID-19 infection reports that among thirteen patients, four had concomitant thrombosis in other areas: cerebral, portal vein, splenic veins and kidneys [12].

In our report, the first case had isolated mesenteric thrombosis while the second case had mesenteric thrombosis associated with splenic and renal thrombosis.

Thromboembolic complications are often associated with severe forms of covid-19 [13]. However, the peculiarity of these two case reports is the absence of any serious symptoms of COVID-19 and in fact that these patients were diagnosed with digestive symptoms in the complication stage. This indicates that the appearance of thromboembolic complications is not synonymous with a severe clinical picture of COVID-19 pneumonia and that the infection may go unnoticed until the stage of thromboembolic complications. It is therefore important to highlight the value of an abdominal CT scan in the presence of any suspicious digestive symptoms, even for less severe forms of COVID-19 pneumonia.

What these two cases have in common is the presence of comorbidities such as high blood pressure and diabetes. There are several studies that describe the association or relationship between COVID-19 and thromboembolic, ischemic events, and co-morbidities such as obesity and systemic arterial hypertension [14]. These pre-existing comorbidities form the basis for a thromboembolic events. This explains the importance of thrombophylaxis in all patients with comorbidities, even when there is an absence of any serious symptoms of covid-19.

CONCLUSIONS

Mesenteric ischemia is a life-threatening surgical emergency. It is a rare but serious complication in COVID-19 infection. It can be a complication of the disease occurring during the hospitalization and it can be a mode of revelation of this infection. As was the case in these two observations, which indicate that we should be aware of the thromboembolic complications

even outside of the severe clinical pictures of COVID-19 pneumonia, which explains the importance of early anti-coagulation, especially for patients with comorbidities.

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