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BACKGROUND

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In December 2019, an outbreak of pneumonia of unknown cause was reported in Wuhan, Hubei Province, China. This new betacoronavirus became a threat to public health and sustained mandatory social and preventive isolation as a containment measure.

Argentina was one of the few countries that adopted sustained mandatory social and preventive isolation as a containment measure. However, it is among the 10 countries with the most infections in the world. The National Health Ministry reported 1,090,589 confirmed cases to date, with 28,896 deaths [4]. The mortality rate of the virus in our country is 4.7%.

Keywords: NA

Classification: NLMC CODE: WI 100

Language: English



LJP Copyright ID: 392811

London Journal of Medical and Health Research

Volume 21 | Issue 6 | Compilation 1.0



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Gastrointestinal Bleeding in Patients with Severe COVID 19: A Case Report and a Review of the Literature

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BACKGROUND

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There are multiple forms of presentation of the disease. Among them, respiratory and systemic symptoms are the most frequent. Between 3% and 50% of patients present with gastrointestinal symptoms including nausea, vomiting, abdominal pain, and diarrhea [5].

COVID-19 damages the digestive system both directly and via inflammatory response and indirectly by viral invasion. COVID 19 has been shown to use Angiotensin-Converting enzyme II (ACE II) receptors for entry into the cell. ACE II is highly expressed in type II alveolar cells of the lung and epithelial cells of the gastrointestinal system [6].

Gastrointestinal system bleeding is rare and is frequently seen in critical intensive care patients [7][8]. In some cases, and due to the severe inflammatory stage, it is associated with a procoagulant state caused by endothelial damage, with elevation of D-dimer, fibrinogen, thrombopenia, with the consequent excessive production of platelets, triggering as a consequence arterial and venous thrombotic events and disseminated intravascular coagulation (DIC), leading to increasingly frequent severe bleeding events. [16]

We have carried out a review of the literature on gastrointestinal bleeding in patients affected by COVID 19. In this article we will present the conclusions of this review and present the case of a patient hospitalized for severe SARS-CoV-2 associated with gastrointestinal bleeding.

I. CASE REPORT

A 45-year-old male patient presented in the emergency department with fever and progressive dyspnea. He had a medical history of pulmonary tuberculosis, smoking, obesity (BMI 37). The vital signs were blood pressure: 140/90 mmHg, pulse: 103/ beats.min, O₂ saturation 99%, respiration rate 17, Glasgow Coma Score: 15 (G4M6S5). The value of D dimer at admission was 787,5 ng/ml.

At admission a nasopharyngeal swab was performed which tested positive for SARS-CoV-2 infection and chest CT scan showed bilateral interstitial pneumonia (Figure 1).

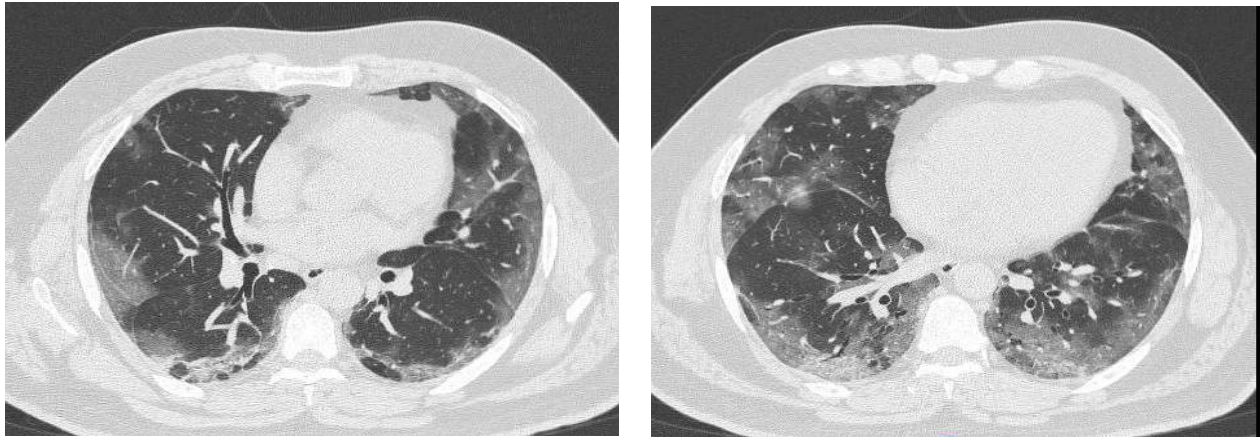


Figure 1: Chest CT Scan

He evolved with a progression of his dyspnea, fever and desaturation that didn't reverse with high-flow oxygen with a 100% reservoir mask. He was transferred to the intensive care unit, with a diagnosis of severe respiratory failure, orotracheal intubation was performed, with the requirement of prone cycles and antibiotic therapy.

During his hospitalization in the intensive care unit he presented multiple complications, and the need for a variety of advanced vital supports, for example: adrenal insufficiency, septic shock with multiple bacteriological rescues and antibiotic therapy, acute renal failure requiring hemodialysis, liver failure, myoclonus in the right

hemibody, prolonged assisted ventilation and tracheostomy, severe malnutrition, alithiasic cholecystitis that required percutaneous cholecystostomy and disseminated intravascular coagulation.

During his evolution, he presented two episodes of lower gastrointestinal bleeding, colonoscopy didn't reveal any tumor or sites of active bleeding. In his third episode, he was treated with support measures and angiography, with no evidence of active bleeding, so after failure of conservative treatment, a right colectomy and diverting loop ileostomy was performed.



Figure 2: A total opening of the surgical specimen was observed in a sector of 9 x 3.5 cm mucosa of blackish coloration, with multiple depressions of rough surface, ulcerated appearance. Rest of the mucosa with preservation of folds, of edematous appearance. The ileum exhibits mucosa with

preservation of the folds. From the adipose tissue of the meso, 4 lymph nodes are resected, the largest of 0.6 x 0.3 cm, when cutting homogeneous brownish tissue.

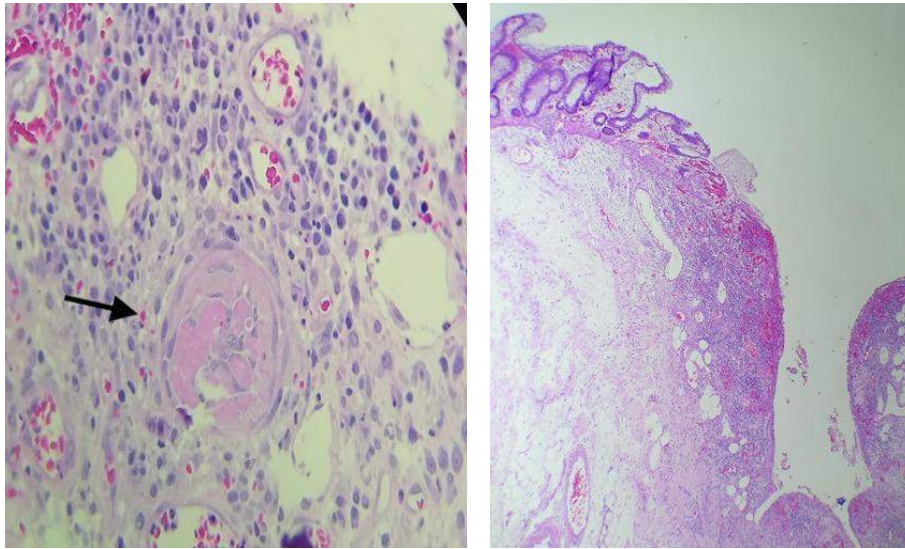


Figure 3 and 4: The different histological sections showed a colon wall with multiple areas with extensive ulceration that involves even the submucosa, with a dense lymphoplasmacytic infiltrate with areas of erythrocyte extravasation. In the lamina propria, small-caliber vessels with fibrinoid thrombi that completely occlude the lumen are observed (black arrow). In the submucosa there is intense edema and in some areas atrophy of the muscular tunica propria. The inflammatory process described above spreads diffusely.

However, he later presented another episode of gastrointestinal bleeding with porraceous discharge from the nasogastric tube, an endoscopy was performed that shows: "congestive-erosive gastropathy, without bleeding stigmata".

After this last episode, the patient evolved favorably, hospital discharge was granted fifty days later.

II. DISCUSSION

We present a case of covid-19 disease with an atypical presentation in the form of severe gastrointestinal bleeding associated with disseminated intravascular coagulation. This is another case that suggests that SARS-CoV-2 can trigger a severe thrombotic microangiopathy which can end up with uncontrolled bleeding, due to endothelial lung damage resulting in microthrombi formation and platelet consumption. The pathogenesis of thrombocytopenia could also recognise other mechanisms [9] [10]:

- Development of autoantibodies or immune complexes.
- Direct infection of hematopoietic stem / progenitor cells: following virus infection, the cytokine storm destroys bone marrow cells and leads to a decrease in platelet production.

During hospitalization in the intensive care unit for severe COVID 19 with respiratory failure, he presented three episodes of gastrointestinal bleeding with hemodynamic decompensation, requiring vasoactive drugs and transfusion of blood products. Four endoscopies were performed which did not achieve hemostatic treatment and two negative angiographies, hindering the algorithm and delaying surgical treatment. Guidelines advise that patients who present with acute upper GI bleeding should undergo endoscopy within 24 hours from presentation [11]. However, the discussion for endoscopy in patients with COVID 19 pneumonia brings about unique management decisions. Although endoscopy can provide a solution if a discrete

visible vessel is seen, the risk of the procedure may outweigh the benefit in patients with COVID 19 pneumonia. In the study of Kimberly Cavaliere et al they decided to treat these patients conservatively with a proton pump inhibitor drip, blood transfusion as needed, and frequent monitoring of vital signs, GI symptoms, and hemoglobin value. Endoscopy was reserved if the patient did not respond to conservative management by 24 hours (lack of hemodynamic stability and if the hemoglobin was not stable). Cessation of clinical symptoms of acute upper GI bleeding was seen in all of their patients in combination with stabilization of hemoglobin. None of the patients required upper endoscopy during their clinical course [12].

It has recently been shown that delaying the endoscopy for 24 hours has not affected 30-day mortality in comparison with earlier endoscopy. [13]

According to the current literature, the procoagulant state associated with SARS-CoV-2 is due to a systemic inflammatory response, producing high levels of D-dimer (direct relationship with increased mortality) and in more severe cases DIC with prolongation of PT and KTTTP . Therefore, it has been shown to be predictive of severity and mortality, which could require more aggressive treatment due to the increased risk of severe bleeding with a difficult endoscopic management. Likewise, serial coagulation tests should be performed in the initial stages of the disease, seeking early detection of coagulopathy for intensive clinical management. Given the severity of the patient's condition and the strong association of SARS-CoV 2 infection with DIC, it should be sought and treated intensively [14].

III. CONCLUSION

In conclusion, digestive bleeding in patients with COVID 19 should be managed conservatively. The endoscopy should be performed for those who failed with conservative treatment. We propose this algorithm for those patients with gastrointestinal bleeding and severe COVID 19 Figure 6.

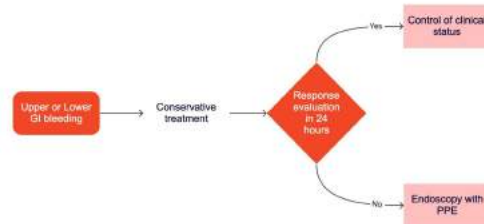


Figure 6: PPE (Personal protective equipment)

Declaration of Competing Interest

None

Acknowledgements

None

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