

## Enteric Perforation and Covid-19: Early Report of Two Cases

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### **ABSTRACT**

Since the outbreak of the COVID-19 pandemic in December 2019, it is becoming more evident that there is a proportion of patients that present only with gastrointestinal tract manifestations with or without respiratory symptoms. We report 2 cases of enteric perforations. Despite majority of the symptoms being related to the respiratory tract, a certain proportion of patients do present with abdominal complaints as their presenting symptoms of COVID-19.

### **KEYWORDS**

Enteric perforation; COVID-19

### **1. INTRODUCTION**

Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus, causing a global pandemic.

Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. Older people, and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness.

As of today, the number of case in the world are 7.94 thousand million and India having the fourth highest number of cases.

Current literature is mainly on the respiratory system but in order to bring forth the importance of the intestinal

tract, we present 2 cases of the patients with enteric perforations in COVID-19 positive patients. It is known that SARS-CoV-2 can present with GI symptoms such as diarrhoea, nausea and vomiting without any respiratory symptoms.

### **2. CASE REPORT**

The first patient was a 40-years old gentleman who presented in the emergency department of our hospital on 10<sup>th</sup> June 2020 with severe abdominal pain and distention for 2 days with intermittent fever for 1 day. He had no medical co morbidities. On examination: patient was tachycardic, and hypotensive with systolic blood pressure of 90. Abdominal exam was suggestive of guarded abdomen with distention and absent bowel sounds. Respiratory exam was clear. Laboratory investigations: Total leucocyte count was 13,000 with leukocytosis, Hb of 14 g percent and a raised CRP. CT abdomen was

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suggestive of pneumoperitoneum with free fluid in the pelvis and right iliac fossa with an ileal perforation. HRCT chest suggestive of bilateral basal atelectasis, with a scorad score of zero and no findings suggestive of COVID-19 changes. An rRT PCR swab for COVID-19 was sent pre operatively, which subsequently tested positive. Pre-operative 2D ECHO was normal, EF 55%. An emergent exploratory laparotomy was performed using a midline incision. Mild to moderate seropurulent fluid was present in the abdominal cavity which was taken for culture. A 2 cm perforation along the mesenteric border in the region of the distal ileum was seen. The mesentery itself was thickened and shaggy. There was no evidence of dilated proximal bowel loops or and obstruction distal to the site of the perforation. Intra operatively, good pulsations were felt. A limited resection was done and the loop was exteriorized in the RIF as a DE functioning stoma. Intraoperatively patient was started on inotropic support and shifted to the intensive care unit on ventilator support. Patient then developed myocarditis and the ejection fraction dropped to 10 percent on the post-operative 2D ECHO. Patient expired within 48 hours of surgery. Histopathology report was acute perforation with focal ulceration with mesenteric congestion, inflammation, thrombosis and fat necrosis.

## **CASE 2**

A 28-years old gentleman, presented with acute abdominal pain and distension since 1 day. No respiratory symptoms or fever. On examination patient was tachycardia and hypotensive. X ray abdomen: Free gas under diaphragm. HRCT done pre operatively was normal with a scorad score 0. Pre-operative rRT PCR swab sent, which tested positive subsequently. An emergent exploratory laparotomy was done suggestive of a caecal perforation. No evidence of distal obstruction. A segmental right colectomy was performed. Post

operatively patient was shifted to ICU and he had an uneventful postoperative course. He was discharged on POD 7. Histopathology again showed acute caecal perforation with serositis and thrombosis of mesenteric vessels.



**Figure 1:** Normal HRCT Chest.



**Figure 2:** Pneumoperitoneum.



**Figure 3:** Ileal perforation along the mesenteric border.

## **DISCUSSION**

The COVID-19 pandemic, caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a continued threat to the human population. Clinical features reported in early confirmed infections included

fever, cough, and myalgias or fatigue [1,2]. But as testing capacity and case numbers have increased worldwide, gastrointestinal (GI) symptoms such as diarrhoea, nausea/vomiting, abdominal pain, and loss of smell and taste have been increasingly recognized [3-5]. The virus has also been isolated in stool samples raising some concerns over a faeco-oral route of transmission. There have been cases reported with the duodenum and rectal swab being sampled and tested positive for COVID-19.

Our patient had a spontaneous ileal perforation, without mechanical distal obstruction, although the pathophysiology of this event is unknown, there may be a direct insult to the ileal cells by the coronavirus itself. ACE2 protein, a cell receptor for SARS-CoV-2, has been found in the glandular cells of gastric, duodenal, and rectal epithelia, suggesting the possible tropism of SARS-CoV-2 for the gastrointestinal tract and partially explaining the gastrointestinal symptoms [6].

The other possible explanation for bowel findings in patients with COVID-19 include direct viral infection, small vessel thrombosis, or non-occlusive mesenteric ischemia. ACE2 surface expression is most abundant in lung alveolar epithelium, enterocytes of small intestine,

and vascular endothelium, suggesting that small bowel and vasculature may be susceptible to COVID-19 [7]. The COVID-19 virus may have a direct inflammatory effect on vascular endothelium [8]. Further, systemic coagulopathy is common in critically ill patients with COVID-19 [9]. This observation has been supported by descriptions of complement-mediated microvascular injury and vascular imaging abnormalities [10].

Bowel abnormalities and cholestasis were common findings on abdominal imaging of inpatients with COVID-19. Patients who went to laparotomy often had ischemia, possibly due to small vessel thrombosis [11].

### **CONCLUSION**

There is limited knowledge available regarding the pathophysiology of COVID-19; hence we need to be on a constant lookout for varied manifestations of the disease. We need to treat acute intestinal problems with utmost vigilance and manage them with due consideration of them being a presentation of COVID-19. Till further data is available regarding enteric perforation and COVID-19, adequate precautions need to be taken by the healthcare workers while managing these patients.

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