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Case Report

COVID-19 gastrointestinal manifestation presenting as acute surgical like abdomen

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ABSTRACT

COVID-19 disease is caused by severe acute respiratory syndrome corona virus-2 (SARS-CoV-2) which can cause respiratory symptoms more. It can cause gastrointestinal symptoms also due to this RNA virus protein binding to the angiotensin converting enzyme 2 (ACE2) receptors which are abundantly present in stomach, small intestine, large intestine and liver. The gastrointestinal manifestations of COVID-19 disease can present as acute surgical abdomen which can create diagnostic dilemma. We presented a case of COVID-19 disease, admitted in our hospital. Later he had symptoms of acute surgical abdomen symptoms like sudden onset abdominal pain, nausea, vomiting and loose stool without blood. He was properly evaluated and conservatively managed. The gastrointestinal manifestations of COVID-19 disease can present as acute surgical abdomen. So, these patients properly evaluated and then only surgical plan will be made according pathology.

Keywords: COVID-19, SARS-CoV-2, Gastrointestinal manifestations, Acute surgical abdomen, ACE2 receptors, RNA

INTRODUCTION

In February 2020, the WHO designated the disease COVID-19, which stands for Corona disease 2019 as a pandemic. COVID-19 is caused by the severe acute respiratory syndrome corona virus-2 (SARS-CoV-2). Mainly COVID-19 manifest as lung infections. But it can involve other systems of the body and it can involve extra pulmonary systems like gastrointestinal system, renal and cardiovascular systems also.

In some patients gastrointestinal symptoms like anorexia (26.8%), diarrhea (15.4%), nausea/vomiting (12.4%), abdominal pain (11.4%), blood mixed stool can appear without lung infection symptoms due to COVID-19 infection.[1]

COVID-19 patients with severe condition of disease are prone for developing gastrointestinal symptoms during their course of disease or later period due to COVID-19 corona virus RNA protein spike binding to ACE receptors which are present more in number in enterocytes of small intestine and colon.[2] Gastric symptoms due to corona virus infections are less due to low gastric pH.

In stomach angiotensin converting enzyme (ACE) receptors are present in lamina propria. Gastrointestinal manifestations of COVID-19 disease can present as acute abdominal pain due to low level of mesenteric ischemia, inflammation edema of intestinal wall, mesenteric lymphadenopathy, appendicitis, pancreatitis or due to involving liver causing acute liver injury.[2] The presentation of GI tract symptoms can mimic as acute surgical abdomen and with proper evaluation can be

managed conservatively also. But there are les studies regarding the presentation as surgical abdomen due to COVID-19 infection as a GI tract manifestation.

So, we presented one case of COVID-19 disease who had complaints of acute surgical like abdomen symptoms. Initially we thought it may be due to surgical pathology but after proper evaluation we managed him conservatively.

CASE REPORT

A 52 years old gentleman with known diabetic on medication came to our hospital emergency block with a history of Cough, fever and generalized weakness of the body. He was clinically evaluated and he was admitted in the hospital.

Later RT-PCR test was done which came out as positive. He was observed in the hospital managed according to institution protocol. Later after 5th day of admission he had complaints of sudden onset generalized abdominal pain and loose stools without blood mixed, nausea, 2 episodes of bilious vomiting. On clinical examination he was dehydrated but his vitals were stable. On abdominal examination mild tenderness present. Abdominal distension present but no guarding and no rigidity. He had persistent symptoms up to 12 hours. Antispasmodics and analgesics were started.

Table 1: Para clinic report.

Parameters	Values	Reference values
Hb	11.2 g/dl	14-18 g/dl
Platelet count	1.6 lacs/ml	1.5-4.5 lacs/ml
Total leukocyte count	13600 per cu.mm	4000-11000 per cu.mm
Neutrophils	68%	37-68%
Lymphocytes	28%	18-47%
Hematocrit	41%	38-45%
Aspartate aminotransferase	27.3 U/l	2-40 U/l
Alanine aminotransferase	41.3 U/l	2-41 U/l
Amylase	48 U/l	40-96 U/l
Total bilirubin	0.9 mg/dl	0 .2-1.2 mg/dl
Indirect bilirubin	0.6 mg/dl	0-0.3 mg/dl
S. creatinine	1.1 mg/dl	0.5-1.2 mg/dl
C-reactive protein		
Procal	0.0657 ng/ml	0.01-0.50 ng/dl
PT	12.9 sec	12.7-16.1 sec
INR	1.02 sec	0.8-1.2 sec
Arterial blood gas analysis		
pH	7.412	7.345-7.415
PO_2	72.4 mmHg	75-100 mmHg
PCO_2	39.2 mmHg	40-45 mmHg
HCO_3	22.4 mmol/l	24-26 mmol/l
SpO_2	97.4%	100%
Lactate level	1.2 mmol/l	12 mmol/l

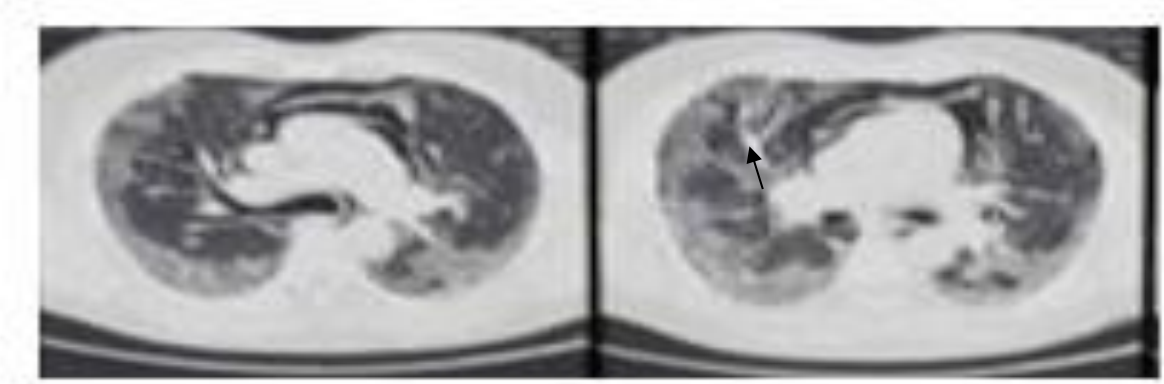

Figure 1: CT of abdomen and chest showing: CT chest showing ground glass opacity and peripheral alveolar opacity and fibrosis bands.

We started prophylactic unfractionated heparin. Required blood investigations were done. Abdominal X-ray was done which showed no significant air fluid levels and no air under diaphragm. After that we planned for CT (computed tomography) abdomen and chest. CT abdomen showed mesenteric edema and lymphadenopathy and no significant surgical cause to plan surgery. CT chest showed peripheral alveolar and ground glass basal bilateral lung lobar opacities.

Then our plan was to manage him conservatively according to his symptoms and he was observed and heamodynamically stabilized. Gradually the patient clinically improved and the GI symptoms were improved. He was discharged after 14 days of hospitalization with two consecutive COVID-19 negative RT-PCR report. He was followed up in our surgical OPD.

DISCUSSION

In this COVID-19 pandemic, COVID-19 disease generates wide spectrum of symptoms from asymptomatic patents to severe manifestations mainly involving respiratory system. In these pandemic respiratory symptoms are emphasized more due to their high prevalence. Other gastrointestinal manifestations due to COVID-19 disease also considered very importantly. Because the GI manifestations of COVID-19 disease can present without respiratory symptoms and it can present as an acute surgical abdomen like symptoms.[3]

In recent study reported that the gastrointestinal symptoms like diarrhea, pain abdomen, nausea and vomiting are also common and those patients who presented with digestive manifestations had a worse prognosis.

Like in our case, the GI manifestations of COVID-19 disease presented as acute surgical abdomen without having any significant intra peritoneal surgical pathology.

The ACE2 receptors abundantly present in epithelial cells of stomach, liver and enterocytes of small intestine and large intestine. ACE2 is the main receptor for SARS-CoV-2 binding place receptor and through that receptor SARS-CoV-2 infects human beings and it causes apoptosis and pyroptosis of cells. It can lead to cell damage and dysfunction of the microcirculation resulting in cases of bleeding and inflammation in the intestine that explain the symptoms of pain.[4]

The pathophysiology of gastrointestinal manifestations remains unclear. Evidence suggests that the gastrointestinal tract could be a viral target for SARS-CoV-2 infection because this pathogen infects host cells through the ACE2 receptor that is expressed in various organs, including the lungs, heart, kidneys, and intestine.[5] Most of these receptors are found on the epithelial cells of the esophagus and on the absorbent enterocytes of the ileum and colon. Once the virus enters the cell, it has the potential to generate a release of cytokines and chemokines, which triggers an acute intestinal inflammation characterized by infiltration of neutrophils, macrophages and T cells. This would explain the microvascular dysfunction associated with tissue edema and sometimes with pro-coagulant state or bleeding which could explain the clinical presentation of some patients. Multiple studies recommend that the SARS-CoV-2 test be considered a protocol for patients presenting with gastrointestinal symptoms, especially severe acute abdominal pain that suggests surgical pathology as a differential diagnosis.[6]

COVID-19 disease which is caused by SARS-CoV-2 which is RNA virus binds to ACE2 receptors in the body can cause GI manifestations also. In our case initially we thought acute abdominal pain may be due to surgical pathology and after proper evaluation we managed him conservatively. So, the patients with COVID disease can present as acute surgical abdomen also and to be careful and properly evaluated first. Because these conditions can be managed conservatively. More studies should be required for proper protocol guidelines to manage these types of patients.

CONCLUSION

The gastrointestinal manifestations of COVID-19 disease can be present as acute surgical abdomen like presentations. So, the patients with gastrointestinal symptoms due to COVID-19 disease properly evaluated and management should be done according to pathology. So, don't plan for surgery without knowing pathology underlying it.

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