COVID-19 presenting as acute abdominal pain: A case series

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Abstract

The coronavirus infection presents primarily as a respiratory illness, however, extra-pulmonary manifestations are known to occur, including gastrointestinal manifestations. Hereby, we report three cases of the COVID-19 infection who presented with acute-onset abdominal pain during illness. All three patients had respiratory symptoms suggestive of COVID-19 and abdominal symptoms consistent with acute pancreatitis, acute cholecystitis, and acute appendicitis. All three patients improved in terms of acute abdominal pain; however, the overall clinical course, the three illnesses were variable because of differences in underlying organ involvement and pathophysiology.

Keywords: Acute appendicitis, acute cholecystitis, acute pancreatitis, COVID-19 infection

Introduction

The COVID-19 infection presents primarily as a respiratory illness with a variety of symptoms some of which are as simple as the loss of smell or taste and some with a severe acute respiratory syndrome.

The total number of cases as of today are over 210 million infections across the globe.⁴ With the increasing number of cases being reported daily, more extra-pulmonary manifestations of COVID-19 are being uncovered. We describe a challenging case of a COVID-19 patient who presented with pneumonia symptoms with acute severe abdominal pain. We hereby report three cases of patients hospitalized with acute abdominal pain due to a COVID-19 infection.

Case 1

A 48-year-old male with no addictions or comorbidities, presented with cough, throat pain, mild grade fever, and dyspnea. He did give a history of cholecystectomy 10 years back. The patient tested positive for COVID-19 by real-time-reverse transcription (RT-PCR). The patient was hemodynamically stable and the oxygen saturation was 90% on room air. The treatment was initiated with doxycycline, zinc supplements, vitamin C, methylprednisolone, and supportive medication. On day 5 of admission, he developed severe abdominal pain radiating toward the back along with recurrent vomiting and obstipation. An abdominal examination revealed tenderness in the epigastrium and around the umbilicus.

The laboratory investigations revealed [Table 1] serum amylase and lipase values of 445 and 986 IU/L, respectively. The contrast computed tomography (CT) of the abdomen showed features suggestive of acute pancreatitis [Figure 1]. The patient was shifted to the intensive care unit (ICU) and advised to stay nil orally. As per protocol, the treatment was initiated with IV fluids, analgesics,
and supportive treatment. The patient’s abdominal pain improved subsequently, however, he had to be started on bilevel positive airway pressure (BIPAP) due to increased effort of breathing. His general condition improved and he was discharged on day 11.

Case 2
A 79-year-old male presented with a loss of smell, headache, and cough. He was hemodynamically stable and maintaining oxygen saturation 95% on room air. He tested positive for COVID-19 by RT-PCR. He was given symptomatic medications and was advised to undergo home isolation. On day 8 of the illness, he came back to the hospital with right upper abdominal pain and recurrent vomiting, which was greenish. The abdominal examination revealed tenderness in the right hypochondrium. The laboratory investigations revealed slightly deranged liver enzymes [Table 1]. The contrast CT of the abdomen showed features suggestive of acute cholecystitis [Figure 2]. There was no evidence of cholelithiasis, hence, conservative management was planned initially, but there was no relief in the pain. An interventional radiology opinion was taken and the patient underwent emergency percutaneous cholecystostomy [Figure 3], following which his symptoms improved significantly. Four weeks later, he underwent interval laparoscopic cholecystectomy.

Case 3
A 31-year-old gentleman with no comorbidities presented with fever, body ache, and abdominal discomfort. An abdominal examination revealed rebound tenderness over McBurney’s point and around the umbilicus. He tested positive for COVID-19 by RT-PCR. The CT chest was suggestive of COVID pneumonia (20–25% lung involvement). The laboratory tests revealed an elevated white blood count (WBC) count [Table 1]. An ultrasound scan of the abdomen revealed features suggestive of acute appendicitis and no mass was found. Hence, the patient was managed conservatively and he improved symptomatically.

| Table 1: Laboratory investigations of case reports |
|-----------------------------------------------|
| Case 1 | Case 2 | Case 3 |
|-----------------------------------------------|
| Heamoglobin (in gm%) | 12.3 | 9.8 | 10.6 |
| TLC (in mm3) | 8900 | 4300 | 16300 |
| Neu/Lym/Mon (in %) | 89/8/1 | 80/18/1 | 91/6/2 |
| Platelet count (in Lakhs) | 2.3 | 3.1 | 1.8 |
| Calcium (in mg/dl) | 8.9 | - | - |
| Blood sugar (in mg/dl) | 98 | 102 | 110 |
| Triglyceride (in mg/dl) | 156 | - | - |
| SGOT/SGPT/ALP (in U/L) | 45/56/90 | 114/120/228 | 68/79/114 |
| Urea/Creatinine (in mg/dl) | 32/0.6 | 21/0.7 | 29/0.5 |
| INR | 0.5 | 0.9 | 1 |
| CRP (in mg/L) | 56 | 32 | 68 |
| D-dimer (in ng/mL) | 885 | 654 | 1160 |
| Serum Ferritin (in ng/ml) | 665 | 564 | 909 |
| Serum Procalcitonin (in ng/mL) | <0.5 | 0.968 | 1.8 |
| HbsAG/HCV/HIV | Negative | Negative | |
| COVID severity score (on CT chest) | 10/25 | 7/25 | 7/25 |
| | 35-40% | 15-25% | 20-25% |

Discussion
A large spectrum of diseases can be presented with acute abdominal pain, making the diagnosis sometimes a challenge for every
physician. With such a broad differential and diagnostic modality, the physician should consider giving priority to a life-threatening condition that may need immediate surgical intervention to avoid any mortality or morbidity as a consequence of the delay. The fact that COVID-19 is a multisystem inflammatory disorder has been proven beyond doubt. The wide range of clinical manifestations of COVID-19 includes fever, cough, cold, sore throat, shortness of breath, headache, myalgia, and loss of smell and taste.

Wang et al quoted that 17% of the patients with severe COVID infection had evidence of pancreatic injury as evidenced by the increased level of serum amylase and lipase. The mechanism of injury to the pancreas and its correlation with the severity of the COVID-19 infection remains obscure and warrants further research.

Our second patient was diagnosed with acute cholecystitis as previously described by Minglang Ying et al. Our patient also underwent percutaneous cholecystostomy (gall bladder drainage) following which he improved. The exact pathogenesis of cholecystitis in COVID-19 needs to be elucidated. Viral infections are known to cause lymphoid hyperplasia, which lead to appendix obstruction and mucosal ulcerations. These cause secondary bacterial infections resulting in acute appendicitis. However, the cause and pathogenesis of appendicitis due to COVID-19 have to be investigated further and warrant further studies.

**Conclusion**

The spectrum of the COVID-19 infection has broadened from being a respiratory illness to a multisystem inflammatory disorder. It is prudent to sensitize clinicians toward the possibility of pancreatitis, cholecystitis, and appendicitis, whenever a patient positive for COVID-19 presents with abdominal pain.

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**Conflicts of interest**

There are no conflicts of interest.

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