

Gastrointestinal Perforation in Covid 19 : A case series

Abstract

Introduction

With the passage of time, it has become evident that the novel corona virus (2019-nCoV) may present with gastro-intestinal symptoms in a proportion of population with or without the involvement of respiratory system.

Case

We report a series of 4 cases who presented with acute abdomen in the emergency room and were diagnosed with bowel perforation and also were found to be covid-19 positive.

Conclusion

These cases highlight that gastro-intestinal symptoms should not be ignored during this time of covid-19 pandemic because if diagnosed late bowel perforation adds further morbidity and mortality in covid infected individuals and further research is due in identifying pathophysiology of this atypical presentation.

Introduction

The coronavirus disease COVID-19 is caused by SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2). More than 4.1 crore population have already become infected with cases rising every day.

Currently, India ranks second with respect to number of cases of covid 19 with more than 77 lakh cases reported till date which shows the enormous burden borne by the healthcare system but also gives the opportunity to study the various patterns of presentation of the disease very closely.

This past year with covid-19 pandemic, entire focus has stayed over predicting, preventing, limiting and treating the respiratory complications caused by the virus with very less emphasis over the atypical presentations mainly gastrointestinal symptoms.

We report a series of cases of patients who presented as acute abdomen in the emergency room and were diagnosed with bowel perforation and were found to be infected with SARS-CoV-2 as well.

Case 1

A 60 year old female was admitted on 25th September, 2020 with complaint of sudden onset of pain abdomen 1 day back and abdominal distension since then.

She had history of being admitted at another institution after testing covid19 RTPCR positive on 15th September, 2020 and discharged on 21st September, 2020 with home isolation for next 7 days. Past operative history included surgery for ruptured right ovarian cyst, two LSCS and surgery for ruptured ectopic pregnancy; last surgery 25 years back. She was a known case of hypothyroidism on thyroxin 75 microgram/day and was on tablet Rivaroxaban (direct factor Xa inhibitor) and steroids as part of covid treatment.

At presentation, vitals were : Pulse = 102/min; Blood pressure = 62/42 mmHg; Saturation = 93 %; Respiratory rate = 24/min; temperature = 98°F.

On examination : Abdomen was distended, tender on palpation and generalised voluntary guarding present.

Laboratory investigations were as follows : Haemoglobin = 9 g/dL; Leucocytes = 21,500/cumm (Neutrophils = 88 % & lymphocytes = 7.7 %); Platelets = 4,48,000; PT-INR = 30.6/2.56; S.creatinine = 1.04mg/dL; S.Alkaline phosphatase = 67 IU/L; Lactate = 4.9 mmol/L; D-Dimer = 953 ng/mL; LDH = 735 U/L;

Chest X-ray (**Figure 1**) showed B/L consolidations involving all the five lobes and free gas under right side of diaphragm. X-ray flat plate abdomen (**Figure 2**) showed dilated air filled large bowel with gas under diaphragm.



Figure 1 : Chest X-ray showing gas under diaphragm



Figure 2 :X-ray FPA showing distended large bowel

HRCT thorax (16/09/2020) (**Figure 3**) was suggestive of multifocal areas of consolidation in bilateral peripheral lung fields- typical of covid-19 pneumonia (CO-RADS - 6; CT severity score 17/25.)

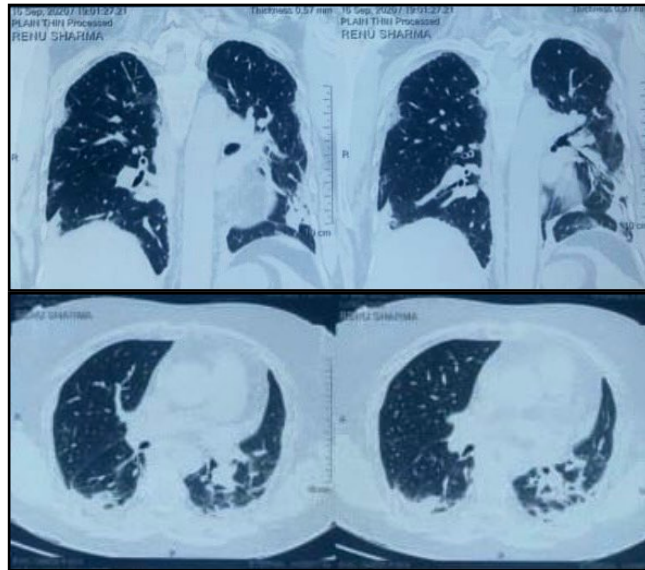


Figure 3 : HRCT thorax showing multifocal areas of consolidation

Patient was found covid positive on repeat RT-PCR sent on the date of admission.

Pre-operative transfusion with 6 fresh frozen plasma done and intra-operative 1 PRBCs were transfused.

Patient was taken for emergency laparotomy. Intra-operative findings were : Dense adhesions with multiple inter-loop faeculent and purulent collections including free peritoneal spaces (~2 litres); an ~ 1 x 1 cm perforation over anterior surface of upper 1/3rd rectum with faecal seepage; large bowel distended and oedematous. No distal growth/obstruction found. Primary repair of rectal perforation was done in two layers and diversion was done in the form of loop transverse colostomy.

Extubation was not attempted and patient was shifted to covid ICU post-operatively.

Antibiotic treatment with Injection Meropenem, Metronidazole and Fluconazole was given along with anticoagulant therapy with low molecular weight heparin.

Post-operative period was uneventful. Extubation done after 12hrs of operation. Colostomy became functional on post operative day 4 (POD-4) and enteral feed started. Repeat RT-PCR on 30th September, 2020 was negative for covid 19. Patient discharged on 5th October, 2020 (POD-9). At discharge, oxygen saturation was 96 % and mild dry cough was present.

Case 2

A 24 year old female patient was admitted on 20th October, 2020 with complaint of pain abdomen and vomiting since 2 days. Her past history included recent LSCS on 13th October, 2020 at Umaid hospital with delivery of healthy male child. She had uneventful post-operative period and was discharged on 17th October, 2020.

Vitals were : Pulse = 132/min; Blood pressure = 102/78mmHg; Saturation = 94 %; Respiratory rate = 32/min; temperature = 102.2°F.

On examination : Abdomen was distended , previous LSCS suture line healthy, tympanic note on percussion with obliteration of liver dullness and generalised voluntary guarding present.

Laboratory investigations were as follows : Haemoglobin = 11.2 g/dL; Leucocytes = 6640/cumm (Neutrophils 5870 (88.4 %) & Lymphocyte count 680 (10.2 %)); Platelets = 1,24,000; INR = 1.70; S.creatinine = 1.46mg/dL; S. Alkaline Phosphatase = 95 IU/L; Lactate = 3.2 mmol/L; D-Dimer = 9059.10 ng/ml; IL-6 = 81.59 pg/ml; Ferritin = 745.5 ng/ml

Chest X-ray (**Figure 4**) showed haziness in right lung and left side pleural effusion and gas under diaphragm. X-ray flat plate abdomen (**Figure 5**) showed free gas under right dome of diaphragm and profusely distended air filled stomach and bowel loops. Ultrasound abdomen and pelvis showed mild fluid in the peritoneal cavity with coarse internal echoes.



Figure 4 : Chest X-ray showing right lung haziness with left pleural effusion and gas under diaphragm



Figure 5 : X-ray FPA showing gas under diaphragm with dilated stomach and bowel

Real-time PCR of nasopharyngeal swabs for SARS-CoV-2 was sent.

Patient underwent emergency laparotomy. Intra-operative findings were : sudden gush of air on entering abdominal cavity, Omentum thickened and adherent at pelvis to previous suture line , ~1.5 litres faeco-purulent collection , grossly distended and oedematous large intestine with pus flakes and inter-bowel adhesions , bulky post-op eruptive uterus which was otherwise normal, a 0.5 x 0.5 cm perforation at anterior surface of caecum with faecal seepage , normal retro-caecal appendix. No obstruction of the distal colon was found.

Primary repair of the caecal perforation was done in two layers and diversion was done in the form of loop ileostomy.

Result of RT-PCR was found positive for Covid 19 post-op and patient was shifted to covid positive isolation ward.

HRCT Thorax performed post-operatively was suggestive of foci of ground glass opacities with atelectatic changes noted in bilateral lung parenchyma suggestive of atypical pneumonia with CT severity score of 4/25.

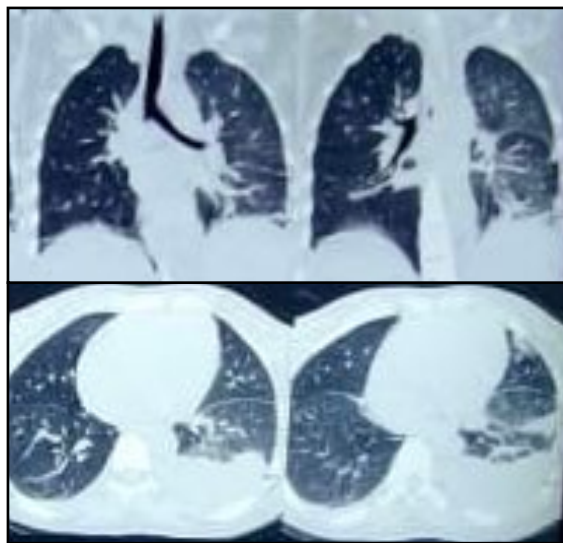


Figure 6 : HRCT thorax showing ground glass opacities in lung parenchyma

Anticoagulant therapy with Low molecular weight heparin and broad spectrum antibiotic treatment with Injection Meropenem and Metronidazole were started post-operatively.

Post-operatively, patient had episodes of pyrexia (temperature = 100-102°F) with saturation fall to 88-89 % on postoperative days 1 & 2. Supportive treatment with oxygen supplementation and injection Remdesivir initiated. Ileostomy became functional on postoperative day 4 and enteral feed was started. Patient developed

Surgical site infection (SSI) with purulent discharge from suture line on post-operative day 5 which eventually resulted in wound dehiscence. Secondary suturing done on post-operative day 15. Patient had mostly uneventful stay after that with saturation of 96 % on room air and no episodes of fever.

Case 3

A 21 year old young male patient presented in the emergency and trauma centre on 18th October, 2020 with complaint of sudden onset of severe pain in umbilical region since yesterday. Patient had history of dull abdominal pain since 5 days with single episode of fever 5 days back. No history of NSAIDs/SSRI abuse, no history of alcohol addiction or smoking was present.

Vitals were : Pulse = 116/min; Blood pressure = 98/66 mmHg; Saturation = 96%; Respiratory rate = 28/min; temperature = 100.6°F.

On examination : Abdominal tenderness with rebound tenderness and generalised involuntary guarding could be elicited.

Laboratory findings included : Haemoglobin = 15.3 g/dL; Platelets = 2,19,000; Leucocytes = 2430/cumm (Neutrophils = 77.8 % & Lymphocytes = 21.4 %); INR = 2.14; S.creatinine = 1.10mg/dL; S.alkaline phosphatase = 39 IU/L; Lactate = 6 mmol/L.

Chest X-ray erect showed grossly normal bilateral lung parenchyma with gas under diaphragm. X-ray flat plate abdomen (**Figure 6**) showed free gas under right dome of diaphragm and increased fundus gas shadow of stomach over the left side. Ultrasound abdomen showed moderate amount of free fluid with internal septations and few echoes in the peritoneal cavity, HR pouch, perisplenic space.



Figure 6: X-ray showing free gas under diaphragm and distended stomach

Real-time PCR of nasopharyngeal swabs for SARS-CoV-2 was sent.
Pre-operatively 6 fresh frozen plasma were transfused.

Patient underwent emergency laparotomy on the same day. Intra-operative findings were : Omentum oedematous and inflamed, ~ 2 litres of bile mixed purulent fluid collection, pus-flakes and inter-bowel adhesions, 0.5 x 0.5 cm perforation over anterior surface of stomach at pre-pyloric region; rest hollow and solid viscera normal.

Peptic perforation repair was done with modified Graham's omental patch with abdominal drain placement in the pelvis.

RT-PCR report received post-operatively was positive for covid-19 infection and patient was shifted to covid 19 isolation ward.

Post-operatively patient was started on low molecular weight heparin and broad spectrum antibiotic treatment with Injection Meropenem, Amikacin and Metronidazole was initiated.

Patient had fever on post-operative day 0 and 1 with saturation = 96-97 % on room air. Rest of the post-operative period was uneventful. Enteral feed was started on post-operative day 5 and patient passed first bowel movement on post-operative day 6. Patient was discharged on 28th October, 2020 (post-operative day 10) in satisfactory condition with oxygen saturation 98 % on discharge with no respiratory complaints.

Case 4

A 66 year old male patient presented to emergency and trauma centre on 2nd August, 2020 with complaint of pain abdomen mainly in epigastrium since 3 days and breathing difficulty. No history of NSAIDs/SSRI abuse, no history of alcohol addiction or smoking was present.

Vitals were: Pulse = 108/min; Blood pressure = 106/74mmHg; Saturation = 94%; Respiratory rate = 22/min; temperature = 100.2°F.

On examination : Abdominal tenderness with rebound tenderness and generalised guarding could be elicited.

Laboratory findings included : Haemoglobin = 12 g/dL; Platelets = 2,42,000; Leucocytes = 6900/cumm (Neutrophils = 80 % & Lymphocytes = 22 %); INR = 1.25; S.creatinine = 1.21mg/dL; S.Alkaline phosphatase = 124 IU/L; Lactate = 2.3 mmol/L.

Chest X-ray erect showed right peripheral and basal area of consolidation with gas under diaphragm. X-ray flat plate abdomen showed free gas under right dome of diaphragm. USG abdomen showed moderate amount of free fluid in the peritoneal cavity with coarse internal echoes.

Real-time PCR of nasopharyngeal swabs for SARS-CoV-2 was sent.

Patient was taken for emergency laparotomy on the same day. Intra-operative findings were : ~ 1.5 litres of bile contaminated fluid with inter-bowel adhesions; a 1x1 cm peptic perforation over anterior surface of D1 part of duodenum.

Primary repair of Peptic perforation was done with modified Graham's omental patch with abdominal drain placement in the pelvis.

Patient was shifted to covid 19 isolation ward postoperatively and started on broad spectrum antibiotic treatment with Injection Meropenem, Levofloxacin and Metronidazole.

Post-operative period was mostly uneventful. Enteral feeding was started on post-operative day 5. Patient was discharged on 12th August, 2020 in satisfactory condition with oxygen saturation of 98 % on room air.