

Small bowel (jejunal) perforation as a suspected extrapulmonary manifestation of COVID-19

Oscar Enrique Guzmán-Del-Giudice.¹,
Javier Ramón Targarona-Módena.²,
Elio Paul Lucchesi-Vásquez.³,
Miguel Trelles-de-Belaúnde.⁴,
Sebastián Javier Balarezo-Aguilar.⁵

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Dear editor:

SARS-CoV-2 (Severe Acute Respiratory Syndrome-related Coronavirus 2) is a new discovered pathogen belonged to the beta-coronavirus family. Its disease was named COVID-19 (Coronavirus Disease 2019). It had been first reported on the city of Wuhan, Province of Hubei, Democratic Republic of China by the end of December of 2019, and it is the responsible of the current pandemic declared by WHO by March 2020.

By the time of this writing, COVID-19 patients are mostly reporting prominent respiratory manifestations that include fever, dry cough, dyspnea, etc.; but it is also increasing evidence of extrapulmonary manifestations.

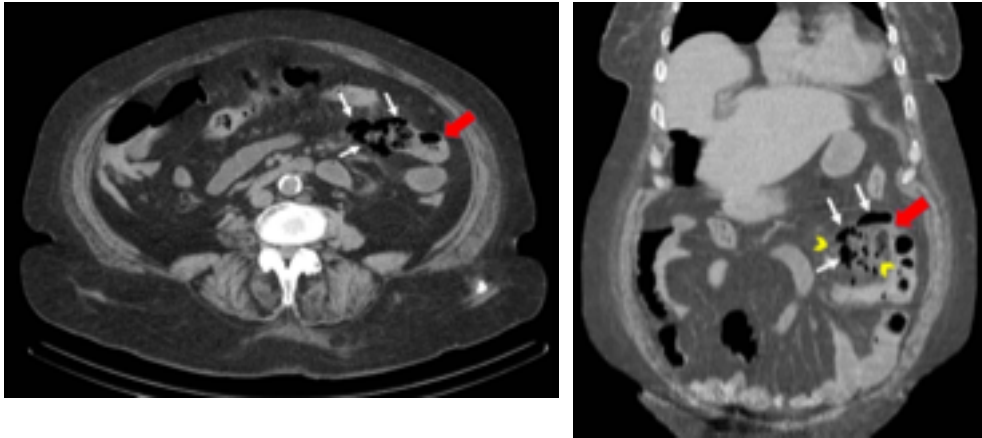
We present the case of an 81-year-old woman that presented at our emergency department with two days of left lower quadrant abdominal pain, vomiting, fever and malaise. She denied pain migration, diarrhea or respiratory symptoms. Patient had history of celiac disease, atrial fibrillation, hypertension and mild chronic renal failure and was chronically anticoagulated with rivaroxaban.

Upon arriving on triage, vital signs were BP 77/49 mmHg, HR 134 bpm, RR 18 rpm, T37.5°C, SatO₂ 95%. She was classified as septic shock placed on monitoring at shock trauma, two IV lines were started, saline bolus was

administered and blood samples were taken for culture and labs. Clinical examination showed left lower quadrant abdominal tenderness and peritoneal signs. An urgent enhanced abdominal CT and general surgery consultation was requested. Initial diagnostics were: 1. Septic versus hypovolemic shock, 2. Acute abdomen or surgical acute abdomen 3. Perforated/complicated diverticulitis versus ischaemic mesenteric thrombosis versus aortic emergency. Relevant laboratory tests results were leukocytosis with left deviation (WCC 19 040 Cel/uL, bands 952 Cel/uL), high C-reactive protein (29,37 mg/dl), procalcitonine (3,61 ng/ml), lactate (2,4 mmol/l) and serum creatinine (2,13 mg/dl). The initial CT scan order was changed from enhanced to a non-enhanced due to elevated creatinine at 2,8 times her previous values (0,74mg/dl) and the chest study was included due to concern secondary to the ongoing pandemic. CT showed an intraabdominal 4,5cm collection with air fluid level and surrounding fat stranding suggestive of abscess secondary to localized small bowel perforation. No free intraabdominal air. Colonic diverticulosis without signs of an acute diverticulitis were also identified. Lungs showed bilateral central dominant ground-glass opacities indeterminate for the diagnosis of COVID-19 pneumonia.¹ See full reports and images on annex. The patient was started on antibiotics, a nasopharyngeal swab sample for

1. MD. Attending physician. Emergency Department, Clínica Delgado, Lima, Peru.
2. MD. Surgeon, Clínica Delgado, Lima, Peru.
3. MD. Emergency physician. Emergency Department, Clínica Delgado, Lima, Peru.
4. MD. Radiologist. Radiology Department, Clínica Delgado Lima, Peru.
5. MD. Attending physician, Emergency Department, Clínica Delgado, Lima, Peru.

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Imágenes 1 y 2. Abdominal non-enhanced CT scan: Red bold arrow: Small bowel. White arrows: Free air bubbles. Yellow arrowheads: Fat stranding.

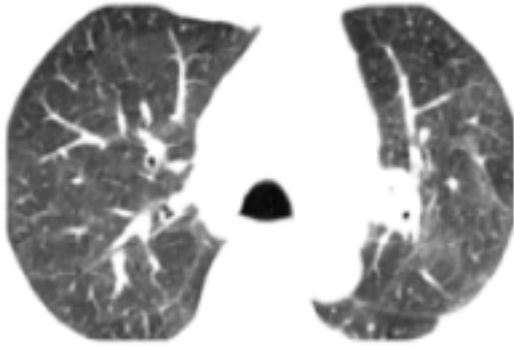
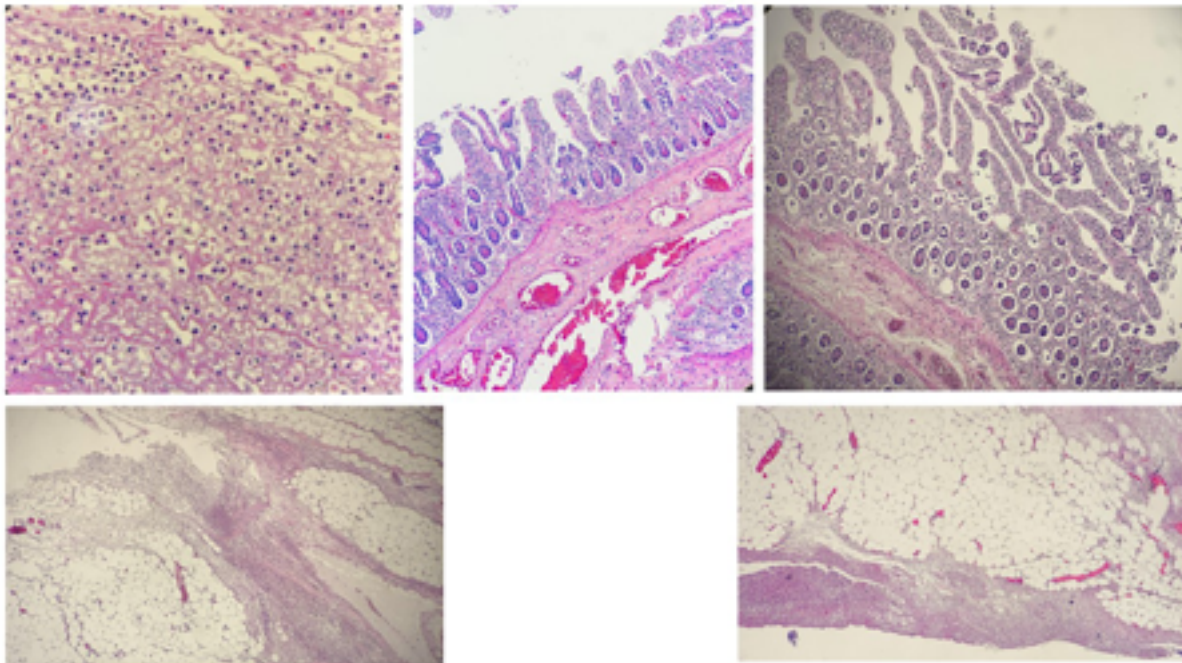


Imagen 3. Bilateral central dominant ground glass opacities over the lungs.

rRT-PCR testing SARS-CoV-2 and prepared for emergency surgery. Surgery, hematology, cardiology and intensive care consultations were done and the patient was sent to the Operation Room.

During surgery, a plastron was identified over a segment of jejunum that showed unusual microperforations on its mesenteric side and gas bubbles extending into the mesenteric root corresponding to the affected area seen on CT. The small bowel loop was resected and a latero-lateral anastomosis performed. After the surgery, the patient was admitted to the ICU for further management and support including mechanical ventilation. After surgery, SARS-CoV-2 PCR test was reported as positive.



Imágenes 4a-4e. Transmural jejunal necrosis associated to erosive intestinal mucosa with vascular congestion and inflammatory infiltrate, mainly by lymphoplasmocytes. Diffuse severe fibrin leukocytic serositis.

Pathology reported transmural jejunal necrosis associated to erosive intestinal mucosa with vascular congestion and inflammatory infiltrate, mainly by lymphoplasmocytes, diffuse severe fibrin leukocytic serositis, reactive lymphadenitis and surgical borders with no evidence of malignancy.

In China, there has been four case reports of emergency abdominal surgery highly suspicious of being related to COVID-19. Two of them were due to bowel perforation.² Xiao F. et al described among all of the 73 hospitalized patients infected with SARS-CoV-2, 39 (53.42%), including 25 male and 14 female patients, tested positive for SARS-CoV-2 RNA in stool. Also, immunofluorescent data showed that ACE2 protein, which has been proven to be a cell receptor for SARS-CoV-2, is abundantly expressed in the glandular cells of gastric, duodenal, and rectal epithelia, supporting the entry of SARS-CoV-2 into the host cells. SARS-CoV-2 RNA detection and intracellular staining of viral nucleocapsid protein in gastric, duodenal, and rectal epithelia demonstrate that SARS-CoV-2 infects these gastrointestinal glandular epithelial cells. In lamina propria of the stomach, duodenum, and rectum, numerous infiltrating plasma cells and lymphocytes with interstitial

edema were seen. Tissue samples were taken through upper and lower endoscopy procedures. His report included in-hospital patients from February 1 to 14, 2020.³

This case shows a probable case of mesenteric infarction related to COVID-19. In times of pandemic, we recommend to be aware of this potential severe complication as an extrapulmonary manifestation of COVID-19.

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CORRESPONDENCE

Oscar Enrique Guzmán-Del-Giudice,
oguzman@auna.pe, dr.oscar.guzman@gmail.com

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