

Colonic perforation secondary to COVID-19 induced hemorrhagic colitis

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Background

- 17.6% of COVID-19 patients can present with GI symptoms. COVID-19 can gain entry via ACE2 receptor expressed in the epithelial cells of the GI tract and alveolar cells.
- COVID-19 is associated with systemic coagulation defects. Large vessel thrombosis can result in GI sequelae like ischemic colitis.
- Bowel wall abnormalities are described in up to 31% of COVID-19 positive patients. Bowel wall compromise from inflammation, micro thromboses, and neuronal damage increases risk of bowel perforation.
- Here, we present a case of a 40 year old male diagnosed with COVID-19 complicated by hemorrhagic colitis leading to colonic perforation.

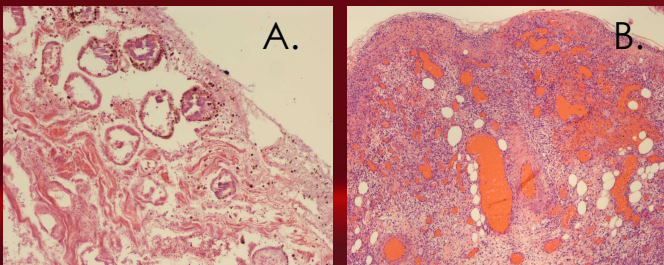


Image 1. Nonviable colon A. Hemosiderin deposits B. Vascular congestion and hemorrhage

Case

- 40-year-old male with no past medical history presents with abdominal pain, fevers, and chills. One week prior, he was discharged from an outside hospital after treated with mesalamine and steroids for COVID-19 induced hemorrhagic colitis.
- He presented for worsening pain, fevers, chills. Afebrile, P140s, WBC 17.9, LA 2.5. CT abdomen pelvis demonstrated dilated small bowel loops and markedly distended descending and sigmoid colon, pneumatosis, pneumoperitoneum, right lower lobe consolidation.
- **Surgery #1-** Exploratory laparotomy, extended left hemicolectomy (Image 2A) transverse colostomy creation, repair of small bowel, appendectomy, drain placement
 - Surgical pathology of left colon - nonviable colon with hemorrhage, peri-colonic fat necrosis, acute serositis with surface adhesions (Image 1A).
- **Surgery #2-** Second look exploratory laparotomy, washout, debridement, indocyanine green (ICG) assessment (Image 2B).
 - Surgical pathology demonstrated omental tissue with necrosis, marked acute inflammation, fibrosis, hemorrhage, and bacteria (Image 1B)
- **Surgery #3-** Third look exploratory laparotomy, washout, retention sutures, wound vac placement, drainage of abscesses
- **Postoperative course:** Prolonged ileus, large left exudative pleural effusion requiring thoracentesis and chest tube, and extensive bilateral iliofemoral DVTs requiring bilateral common femoral and external iliac vein thrombectomy with Penumbra device.
- Found to be heterozygous for factor V Leiden mutation, started on therapeutic anticoagulation.
- Of note, he was never vaccinated for COVID-19.

Discussion

It is necessary to institute precautions for COVID-19 positive patients with GI symptoms, notably GI bleeding. ICG can be infused intravenously as a real-time method to assess vascular perfusion using near-infrared light. The effect of SARS-COV-2 virus on our patient's GI system is multifactorial. Our patient was found to be heterozygous for factor V Leiden mutation and was previously prescribed steroids which increases risk of colonic perforation and may hinder diagnosis. Lastly the SARS-COV-2 virus within the GI system could contribute to local ischemia predisposing to perforation.

Our presentation underscores the importance of completing a thorough hypercoagulable evaluation following COVID-19 induced thrombotic events.



Image 2. A. Gross specimen B. ICG perfusion assessment

