COVID-19 Microthrombosis Associated Total Gastrojejunal Anastomotic Disruption Following Roux-en-Y Gastric Bypass

DREXEL UNIVERSITY College of Medicine

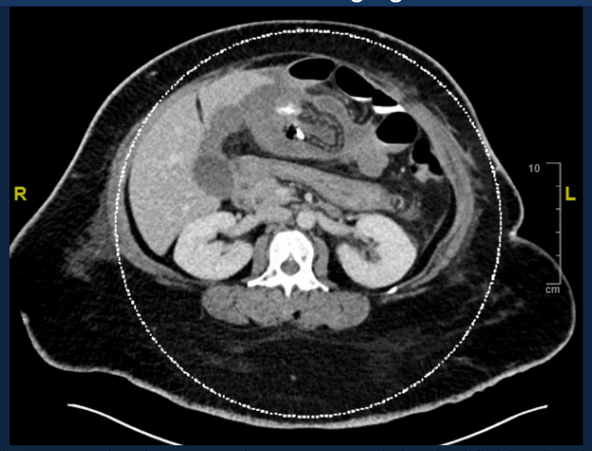
Raj S. Lingnurkar MD, Piotr Krecioch MD

Department of Surgery, Mercy Catholic Medical Center, Philadelphia, PA

Background

Venous and arterial thromboembolic events have been to date strongly associated with COVID-19 infection. In the original cohort of COVID-19 patients in Wuhan, China 46.1% developed lower extremity venous thromboembolism [1]. Recent meta-analyses have found this rate to be closer to 14.7% [2]. Thromboembolic events have been predominantly seen in patients critically ill with COVID-19 infection [3]. Despite this, evidence exists suggesting and overall pro-inflammatory and pro-thrombotic state following recovery from COVID-19 infection [4]. Ultimately, this pro-thrombotic state contributed to an increased rate of COVID-19 associated micro thrombotic events in recovered and asymptomatic patients. Here, we present a novel case of COVID-19 associated microthrombosis causing gastrojuejunal anastomotic disruption on post operative day 8 following a laparoscopic roux-en-y gastric bypass in a patient who had recovered from COVID-19.

Relevant Imaging



Computed Tomography demonstrating an upper abdominal fluid collection abutting the GJ anastomosis with enteric contrast beyond the anastomosis.

Case Presentation

A 51 year old unvaccinated female with a past medical history of hypertension, hyperlipidemia, obstructive sleep apnea, GERD, non-insulin dependent diabetes mellitus, morbid obesity with BMI 43.5 and a recent COVID-19 infection 2 months prior to surgery underwent a laparoscopic Roux-en-Y Gastric Bypass for weight loss. In an otherwise unremarkable procedure, the gastrojejunal anastomosis was fashioned using a 25mm circular stapler. Intraoperatively, the gastrojejunal anastomosis was endoscopically inspected and tested using insufflation. On postoperative day one, anastomotic integrity was confirmed by computed tomography with oral contrast.

The patient was subsequently initiated and tolerated a bariatric clear liquid diet and was discharged following an unremarkable postoperative course.
She then presented to the emergency department one week after discharge with complaints of dyspnea, right upper quadrant abdominal pain and nausea. On presentation, she was afebrile and hemodynamically appropriate, but found to have a leukocytosis to 15000 and hemoglobin of 8.1 . She tested positive for COVID-19 via a PCR based assay. Anastomotic integrity was again noted by CT with oral contrast, which additionally identified a stable fluid collection in the upper abdomen thought to represent a hematoma. She was started on IV ceftriaxone and metronidazole and kept NPO. By hospital day three, she remained afebrile and hemodynamically stable but demonstrated a worsening leukocytosis.

She was taken to the operating room for a diagnostic laparoscopy. Intraoperatively, ascites and hematoma were noted and evacuated. Upon inspection of the gastrojejunal anastomosis, complete disruption was noted along the lesser curvature of the gastric pouch. Upper endoscopy was performed, which identified diffuse ischemic changes with small vessel thrombosis - confirming gastrojejunal anastomotic disruption. The defect was patched with a pedicled omental flap, and buttressed with the falciform ligament. Following irrigation, two blake drains were placed. Postoperatively, the patient was kept NPO and started on total parenteral nutrition. She was transitioned to a bariatric clear liquid diet by postoperative day seven. She now tolerates a regular diet, and has continued to do well.

Discussion

Total disruption of a gastrojejunal anastomosis is rare. Given our intraoperative endoscopic findings at reoperation, the anastomotic disruption in this case is thought to be secondary to ischemia due to COVID-19 associated arterial microthrombosis. Though COVID-19 associated thromboembolism has been well established in patients critically ill with COVID-19, less robust data exist regarding the rate of thrombotic events in recovered patients. One cohort study of 2,832 COVID-19 survivors determined a 1.3% venous thromboembolism rate and a 0.5% arterial thrombosis rate following hospital discharge [4]. Interestingly, there is no clear consensus regarding the benefit for post-discharge anticoagulation [3]. The current American College of Chest Physicians guideline recommends against routine post-discharge anticoagulation, while the International Society on Thrombosis and Hemostasis advocate for thromboprophylaxis with low molecular weight heparin or a direct oral anticoagulant for up to thirty days in patients with a high thrombosis risk and low bleeding risk [4,5]. Thought our patient demonstrated specific risk factors associated with an increase VTE risk in COVID survivors, she did not meet the ASMBS for extended thromboprophylaxis following bariatric surgery. To date, this is the first reported case of gastrojejunal anastomotic disruption due to COVID-19 associated microthrombosis.

Citations

1. Zhang L et. Al. Deep Vein Thrombosis in Hospitalized Patients With COVID-19 in Wuhan, China: Prevalence, Risk Factors, and Outcome. Circulation. 2020 Jul 14;142(2):114-128. doi: 10.1161/CIRCULATIONAHA.120.046702. Epub 2020 May 18. Erratum in: Circulation. 2020 Jul 14;142(2):e33. PMID: 32421381.
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Author Contact

Raj S. Lingnurkar MD
Raj.Lingnurkar@Mercyhealth.org