Multidisciplinary management of bowel ischemia after cardiac surgery in a patient with a Roux-en-Y gastric bypass complicated by Enterocutaneous Fistula

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Introduction

Acute mesenteric ischemia is a rare complication after cardiac surgery, with reported rate of 0.04-1.9%.[1] This complication carries high mortality risk (67%).[2] Most common cause of this complication include nonocclusive mesenteric ischemia (NOMI) due to splanchnic vasoconstriction, acute arterial embolism, or mesenteric vein thrombosis. Patients with advanced age, heart failure, hypotension, hypovolemia, prolonged bypass time, and smoker are at higher risk to develop this complication. Diagnosis can be challenging because these patients often remained intubated and sedated patients and they may have nonspecific symptoms. The most common symptoms is abdominal pain. Other symptoms include nausea, vomiting and diarrhea. Physical exam finding of peritonitis should prompted further radiographic imaging. Additionally, lab and abdominal X-ray can be non-conclusive. Gold standard diagnostic test in this setting is mesenteric angiography. Computed Tomography Angiography (CTA) are usually utilized due to its non-invasive and fast modality. Once diagnosed, these patient usually required aggressive resuscitation, initiation of antibiotics and emergency surgery for source control.

Case

A 59-year-old morbidly obese female with a history of Roux-en-Y gastric bypass presented with an acute abdomen eight days after elective coronary artery bypass grafting. Bariatric Surgery was consulted, and the patient was taken for emergent abdominal exploration. A sigmoid colon perforation was noted requiring segmental resection. Additionally, there was full thickness necrosis at the midpoint of the Roux limb – necessitating resection as well. The patient was left in discontinuity with temporary abdominal closure (TAC) and taken to the intensive care unit for further resuscitation. During the takeback, the colon was not viable and an area of necrosis at the common channel was noted both requiring resection, subtotal colectomy, and another TAC. On subsequent re-exploration, the biliopancreatic limb was severely dilated with a small perforation on the remnant stomach fundus. This was repaired with an omental patch and a gastrostomy tube was placed. Two days later, she was taken to the OR with assistance from colorectal surgery for anastomosis of previous resections at the Roux limb and the common channel, ileostomy creation and abdominal wall excisional debridement. The abdomen was closed with biosynthetic mesh bridge. Her course was complicated with mesh breakdown. It was explanted and a Vicryl mesh was used as a new bridge for abdominal wall closure. She was discharged to a rehabilitation facility on day 14 from her last surgery. Three months later, she had split-thickness skin graft for abdominal wall wound closure with plastic surgery. She had excellent graft take. After completion of rehabilitation, medical and nutritional optimization the patient underwent ileostomy reversal, gastrocutaneous fistula takedown and incisional hernia repair with bilateral component separation. Her post-operative course was complicated by a small incisional wound dehiscence that was treated with negative pressure wound therapy.

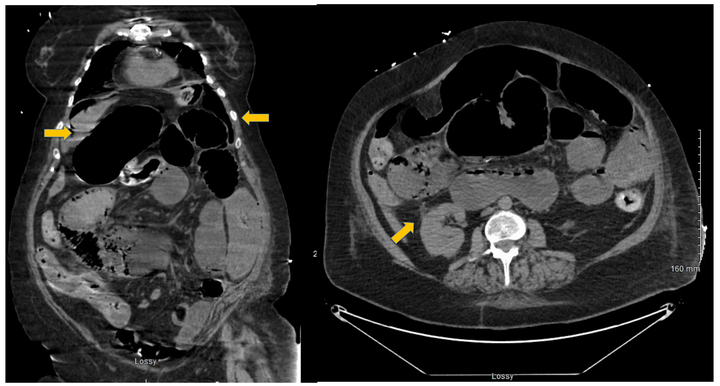


Figure 1. Initial CT scan of the abdomen and pelvis without contrast showed pneumoperitoneum (a) and pneumatosis intestinalis (b).

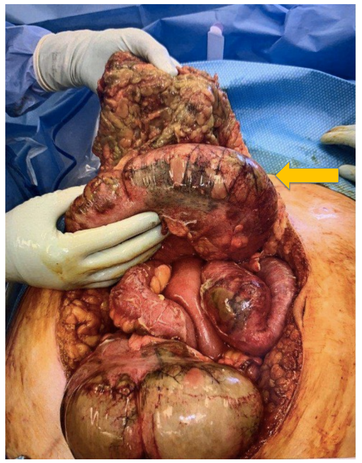


Figure 2. Intraoperative finding of necrotic small bowel and colon.



Figure 3. Abdominal wound reconstruction with bridging mesh and split-thickness skin graft.

Discussion

Gastrointestinal perforation is a rare complication of cardiovascular surgery with high mortality. Diagnosis can be delayed and challenging due to vague symptoms and non-sensitive labs and imaging studies. High suspicion for AMI should be high in post-operative patients who was on prolonged cardiopulmonary bypass and who has other medical-comorbidity. In this case, the patient was complaining of abdominal distention and nausea prior to presenting with peritonitis. Her risks was increased due to her severe obesity, COPD and history of longstanding tobacco smoking. Her previous history of bariatric gastric bypass and malnutrition complicated her intraoperative and post-operative course. Successful outcomes require a multi-disciplinary approach as in this case including bariatric, colorectal and plastic surgery. The need for physical rehabilitation and nutrition optimization were also highlighted in this case.

References

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2. Eris C., Yavuz S., Yalcinkaya S., et al. Acute mesenteric ischemia after cardiac surgery: an analysis of 52 patients. *The Scientific World Journal.* 2013;2013:1–8. doi: 10.1155/2013/631534.