Large Bowel Obstruction Secondary to Impacted Gallstone with Biliary-Enteric Fistula to the Transverse Color

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Introduction

Gallstone ileus most commonly occurs secondary to a biliary-enteric fistula, most often to the duodenum due to proximity. In this case, an 88 year old female patient developed a large bowel obstruction secondary to the biliary-enteric fistula located at the transverse colon and the development of a large gallstone that eventually became impacted in the sigmoid colon, causing complete large bowel obstruction and bowel necrosis that required resection and subsequent diversion with a Hartmann's procedure.

Case Presentation

88 year old Hispanic female with past medical history of hypertension presented to the emergency room with increasing abdominal pain for 5 days. Patient described pain as achy and crampy, and diffuse, not localized to any quadrant of the abdomen. Patient had complaint of constipation for 5 days with last bowel movement 5 days ago. Patient stated she was intermittently passing flatus but decreased in amount from her baseline. She denied any nausea or vomiting, complains of decreased appetite. Patient denied any fevers, chills, chest pain, shortness of breath, nausea, vomiting, diarrhea, numbness/tingling in extremities, recent illnesses. Her medical history was significant only for hypertension, denied any past surgical history. Denied any allergies.

On presentation to the Emergency department, she was afebrile, mildly tachycardic, hypertensive, saturating well on room air. Vital signs: Temperature 98.5 F, Heart Rate 110, Blood Pressure 157/83, Respiratory Rate 18, Saturation 95% on room air. On physical exam, she was awake, alert, and oriented, not in any acute distress. Patient was normocephalic, atraumatic. Neck was supple. Pulmonary exam revealed normal respiratory effort without intercostal retractions or accessory muscle use, lungs clear to auscultation bilaterally. Cardiovascular exam revealed tachycardia, normal rhythm. Abdomen was soft, mildly tender to palpation diffusely, nondistended. High pitched bowel sounds were auscultated. There were scattered areas that were tympanic to percussion.

Labs values revealed leukocytosis of 13.9, hemoglobin/hematocrit 12.3/36.5, platelets 211. Chemistries showed sodium 131, Potassium 4.8, chloride 99, bicarbonate 23, urea nitrogen 18, creatinine 1.37, alkaline phosphatase 78, AST 17, ALT 10.

CT abdomen and pelvis with IV and oral contrast was obtained in the emergency department. Findings showed a moderate amount of. Intrahepatic and extrahepatic pneumobilia, the gallbladder was not clearly defined but the gallbladder fossa showed inflammatory stranding and a small amount of fluid, as well as focal outpouching of the proximal transverse colon, consistent with fistulization of the gallbladder to the transverse colon. Hepatic and portal veins were patent. There was a 16 mm right adrenal nodule that could not be fully characterized but statistically was likely to be benign. There was mild left sided hydroureter and hydronephrosis but no obstructing calculus. A mildly distended bladder which may have accounted for the hydronephrosis and hydroureter. The colon was diffusely distended, containing large amounts of stool and gas. At the junction of the descending colon and sigmoid colon, there was a large, intraluminal, oval shaped filling defect within peripheral calcifications, presumed to be a large gallstone, measuring up to 7 cm. The sigmoid colon appeared collapsed. The ileal bowel segments were mildly distended and filled with fluid, suggesting an element of obstruction involving the small bowel as well. There was a small fat containing ventral hernia at the level of the umbilicus. CT findings were read as the gallstone measuring 7 cm in the colonic lumen at the junction of the descending colon and sigmoid colon, gallbladder colon fistula in the right upper quadrant at the level of the proximal transverse colon (Rigler triad albeit with direct fistulation to the colon in this case). Rigler triad usually consists of small bowel obstruction, a gallstone outside of the gallbladder, and air in the bile ducts.



Figure 1

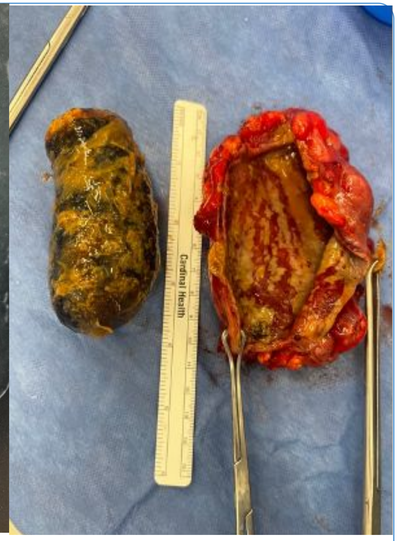


Figure 2

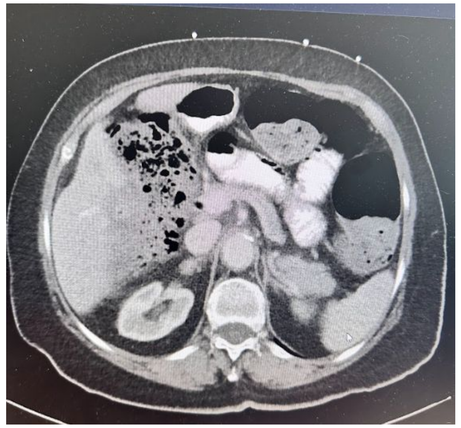


Figure 3

Conclusion

Large bowel obstruction occurs when there is an inability to pass bowel contents secondary to a mechanical obstruction. In this case, a large gallstone became impacted in the sigmoid colon after fistulization to the transverse colon. The large size of the gallstone was the reason for the large bowel obstruction. The large size of the stone also showed necrosis of the bowel wall, requiring resection of the affected segment. Due to the enteric content involved and the large segment of bowel involved, it was deemed safest for diversion with a Hartmann's procedure. The patient's age and clinical status, it was also deemed safer to proceed with diversion due to shorter operative length.

Pathology results: sigmoid colon with gallstone resected segment (measured 10cm length x 6 cm width x 3 cm average thickness) revealed a dilated segment of colon with extensive mucosal ischemic necrosis and associated transmural inflammatory change with adherent gray-brown exudate, no malignancy. Proximal colostomy resected segment revealed portion of bowel with transmural ischemic necrosis and associated inflammatory changes. Gray-brown black ovoid stone measures 9 x 5 cm. The image of the stone may be seen in figure 1 and 2. Postoperatively, patient did well and was discharged to subacute rehabilitation center.

Discussion

Gallstone ileus is most commonly a small bowel obstruction after biliary-enteric fistula to the duodenum or small bowel causes obstruction, often the stone cannot pass through the ileocecal valve and the obstruction remains limited to the small bowel. In this case, the direct biliary-enteric fistula to the transverse colon allowed the gallstone to become impacted in the sigmoid colon, causing large bowel obstruction. Patients with large gallstones are at higher risk of fistulization to the transverse colon. Also patient anatomy plays a role in the risk of fistulization. Patients with transverse colon that anatomically lies closer to the biliary tree have a higher risk of gallstone ileus causing large bowel obstruction.

References

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