A CASE OF RETROPERITONEAL ABSCESS SECONDARY TO DUODENAL PERFORATION

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Abstract

The development of a retroperitoneal abscess in the setting of duodenal perforation is a rare occurrence. There are various causes of duodenal perforation such as trauma, iatrogenic injury, and most commonly, peptic ulcer disease. Urgent surgical intervention is required when a patient presents with a perforated duodenal ulcer and signs of peritonitis. Most commonly, closure is performed with an omental pedicle or Graham patch. In cases of large perforations, surgical resection, gastric partition with diverting gastrojejunostomy or T-drain placement may be required. In this case, we present a patient with duodenal ulcer perforation complicated by retroperitoneal abscess formation. Treatment involved IR drainage of the abscess, followed by laparotomy after persistence of fluid. Surgery was comprised of a right-side hemicolectomy, Braun jejunojejunostomy, pyloric exclusion, intraoperative abscess drainage, and duodenal repair using an omental pedicle flap.

Case Presentation

This case presents a 57-year-old female with a past medical history of hypertension, gastroesophageal reflux disease, perforated duodenal ulcer status post modified graham patch in 2013, nicotine dependence, cholecystectomy, who presented to the emergency department complaining of diffuse 10/10 abdominal pain, associated with nausea, and vomiting, and bloody bowel movement for the past 2 days. On examination, vital signs were stable, tender in the epigastric area, and had no peritoneal signs. A computed tomography scan obtained in the ED showed fat stranding around the pancreas and fluid in the right retroperitoneum consistent with acute pancreatitis (Figure 1A). The labs in the ED showed a lipase was 1496, WBC of 15.1, hemoglobin of 11.7, and lactic acid of 2.0. She was admitted under the internal medicine service for acute pancreatitis management and was started on IV fluid. She continues to have worsening sepsis and a blood culture obtained on hospital day 7 grew an anaerobic gram-negative rod.

On hospital day 6, general surgery was consulted for anemia evaluation, hemoglobin dropped to 6.6, was given 2 units of packed RBC, and the patient was scheduled for upper endoscopy (EGD). The EGD done on hospital day 10 showed one duodenal ulcer was found in the first portion of the duodenal without active bleeding and no inflammation or fistula was noted in the stomach or duodenal.

Case Presentation

The following day, the patient was having worsening leukocytosis from 20 to 27, and a CT of the abdomen and pelvis with an oral contrast scan was ordered. The CT showed a 7 x 8 cm multiloculated abscess fluid collection in the retroperitoneal extending from the duodenal to the pelvis and a small amount of contrast extravasation around the duodenal consistent with a duodenal perforation in the second or third portion (Figure 1B). On examination, vital signs were stable, abdomen soft, non-distended, non-tender, and had no signs of peritonitis. Due to the patient being stable, we elected to proceed with non-operative management. Intervention radiology (IR) was consulted for percutaneous drain placement. The IR team placed a drain under CT guidance, and purulent fluid was noted in the drain. The patient remained septic despite the IR drain placement, a repeat CT abdomen and pelvis with PO contrast obtained 3 days later showed an unchanged appearance of the retroperitoneal abscess formation extending from the level of the duodenum into the upper pelvis, demonstration of a fistulous communication of the posterior wall of the second portion of the duodenum with abscess formation suggestive of a perforated duodenal ulcer, and diffuse wall thickening of the cecum/ascending colon with surrounding peri colonic and peri-abscess fat stranding (Figure 1C). At this point, surgical exploration was then recommended as the next step in treatment.

A laparotomy incision was made, significant adhesion of the omentum and small bowel to the abdominal wall was noted. During the right colon evaluation, a significant abscess throughout the wall of the cecum extended to ascending colon, also this portion of the colon was thickened and inflamed, and we were concerned about viability. Additionally, we are concerned there may be perforation into the cecum, which influences our decision to proceed with the right colectomy. The retroperitoneal abscess was drained and evacuated, and a 1 cm perforation on the posterior 2nd part of the duodenal, draining significant bilious output. The duodenal perforation was then repaired using a Graham patch with an omental pedicle flap. Two 19 French Blake drains were replaced around the duodenal perforation repair area. To protect our duodenal repair, we decided to perform a pyloric exclusion procedure. We used a loop of jejunum 30 cm from the ligament Treitz to create a retrocolic gastrojejunostomy.

Case Presentation

To reduce bile reflux, a Braun jejunojejunostomy anastomosis was performed between the afferent and efferent limb distal to the gastrojejunostomy anastomosis. The patient was noted to have an abscess in the lesser sac, retroperitoneal, right colon, and pelvis. Copious amounts of irrigation were used to wash out the abdominal cavity. The patient tolerated the procedure well. She had an uneventful remaining hospital stay and tolerated diet advancement. Ultimately, the patient was discharged to a skilled nursing facility for further care.

Discussion

Retroperitoneal abscess secondary to duodenal perforation is very rare and this can be a clinically challenging case to manage (1). The retroperitoneal abscess can be caused by colon perforation, pancreatitis, inflammatory bowel disease, trauma, appendicitis, and or duodenal perforation. Duodenal perforation is most caused by peptic ulcer disease, but can also be caused by trauma, iatrogenic trauma, foreign body ingestion, duodenal diverticulum, and malignancy.

Duodenal ulcer perforation with peritonitis is treated surgically with closure of the defect. Different methods can be used depending on the location and size of the perforation. For perforations adjacent to the gastric pylorus, truncal vagotomy with pyloroplasty can be considered. Most small duodenal perforations in other parts of the duodenum are repaired with a Graham patch. A study that compared morbidity and mortality of patients with duodenal perforation treated by surgical closure versus with stent placement showed no significant difference [3]. Stent placement could be beneficial in presence of suture-line leakage [3].

It is important to note that delayed time to surgery is associated with less favorable outcomes. A cohort study of 2668 patients in Denmark compiled patients that were surgically treated for peptic and duodenal ulcer perforation. Statistical analysis showed that for every hour of surgical delay following admission, there was a 2.4% decrease in 30-day survival [4]. The patient presented in our case had surgery performed 17 days after admission. This delay in treatment could be associated with increased chances of complications, hence the extended hospital stays of over a month.

Conclusion

In this case, we presented a rare case of retroperitoneal abscess in the setting of duodenal perforation. This condition can result in sepsis, diffuse peritonitis, and even death. Identifying the source of retroperitoneal abscess can be challenging and some patients can present without abdominal symptoms. The ideal treatment of retroperitoneal abscess due to duodenal perforation is surgical intervention including laparoscopy, robotic approach, or laparotomy. Endoscopic intervention and IR drainage are other possible treatments.

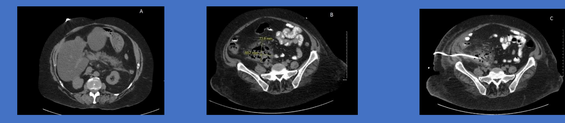


Figure 1A: Fat stranding around the pancreas. Figure 1B: Large fluid collection in the retroperitoneum. Figure 1C: Oral contrast noted in the IR drain. Large fluid collection in the retroperitoneum.

Reference

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