

Primary Duodenal Diverticulum Caliculi Resulting in Small Bowel Obstruction: A Case Report

Vitas Wagner MD,PhD; Jonathan Brown; Steven Giss, MD, FACS; Tommy Brown, MD, FACS
Virginia Mason Franciscan Health, Tacoma, WA

Virginia Mason Franciscan Health™

Introduction

- Duodenal diverticula are a common, increasing in incidence as the population ages. Retroperitoneal perforations are preferentially managed conservatively.
- Stones that may be present in duodenal diverticula or causing small bowel obstruction are almost always secondary to cholecystoduodenal fistula
- Here we present a case of a primary duodenal diverticulum stone formation resulting in small bowel obstruction.

Presentation and Clinical Course

- Active 70 yow with medical history of hypertension, atrial septal defect (ASD) and surgical history of ASD open repair and femoral hernia repair.
- Presented to the ED with complaints of fatigue, nausea, abdominal pain. Physical exam significant for soft, minimally tender abdominal distention. Labs were notable for a WBC of 17,000 cells/cm3.
- CT scan demonstrated phlegmon/mass in a perforated duodenal diverticulum with contained retroperitoneal air.
- Patient was managed non-operatively with NG decompression until return of bowel function. Advanced to full liquid diet with instructions to continue FLD for 14 days after discharge.
- Patient presented 7 days post-discharge with recurrent distention, emesis; CT demonstrated distal small bowel obstruction with no evidence of recurrent duodenal perforation, and absence of duodenal diverticular phlegmon/mass.
- Operative intervention via midline laparotomy obtained large obstructing stone in the distal small bowel. Patient discharged without complication post-operative day 3.
- Patient was counseled about risks and benefits of cholecystectomy given imaging was low-probability for cholecystoduodenal fistula. Patient preferred diagnostic laparoscopy with cholecystectomy, which demonstrated a benign gallbladder.

Figure 1. Initial Presenting CT with presumed perforated duodenal diverticulum with bezoar versus phlegmon in axial (a) and coronal (b) view.

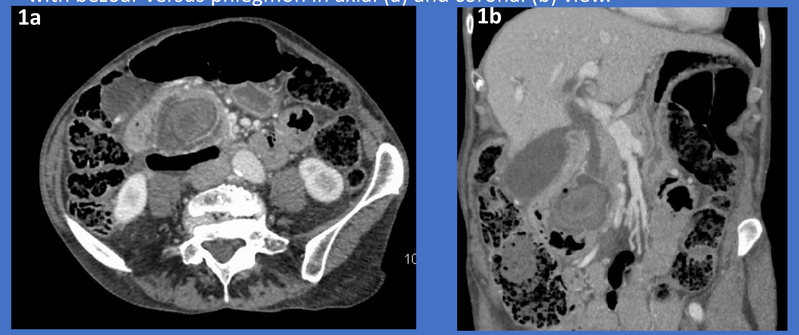
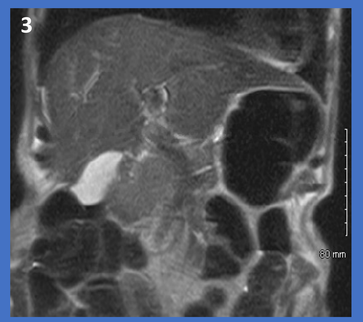


Figure 2. Duodenal diverticulum without plegmon in axial view (a) and distally obstructing stone in coronal view (b).



Figure 3. MRCP demonstrating gallbladder without clear evidence of cholecystoduodenal fistula.



Discussion

Duodenal diverticula are common outpouchings of the intestinal wall which are often benign. They can lead to complications such as bowel obstructions, perforations and bleeding which require surgical intervention; however, these cases are not common. At the index operation it was presumed the patient had gallbladder pathology, although the gallbladder/duodenum was not visualized during this procedure. Subsequent MRCP suggested normal gallbladder. After extensive counseling about the low likelihood of recurrent stones and thorough explanation about the most likely etiology of the patient's obstructing stone, a cholecystectomy was performed at the patient's discretion. In future cases with normal gallbladder on imaging this is likely not warranted.

We were unable to find incidents in the medical literature suggesting that caliculi develop multiple times within duodenal diverticulum. In this case, the stone probably developed over the extent of decades, which makes the likelihood of another stone forming in the remainder of her life exceedingly low. As this patient was not having complications or symptoms related to the diverticulum alone, no operation on the duodenal diverticulum was offered, nor is advised.

Fewer than 40 cases of bowel obstruction secondary to stone formation in small bowel diverticulum have been reported. If a parallel case with no evidence of gallbladder pathology arises, a follow-up cholecystectomy may be avoided.

Citations

Surg Today. 2006;36(11):1003-6. doi: 10.1007/s00595-006-3283-9. PMID: 17072724.
BMJ Case Rep. 2017 Oct 4;2017:bcr2017221514.
Am J Gastroenterol. 1982 Sep;77(9):621-4. PMID: 6810693.
Am J Gastroenterol. 1992 Dec;87(12):1846-8. PMID: 1449155.
Dis Colon Rectum. 1991 Oct;34(10):941-4.
Rev Gastroenterol Mex. 2017 Jul-Sep;82(3):248-254.
Surgical Treatment: Evidence-Based and Problem-Oriented. Munich: Zuckschwerdt; 2001.