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Gastric outlet obstruction by a lost gallstone: Case report and literature review

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ABSTRACT

INTRODUCTION: Spilled gallstones from a laparoscopic cholecystectomy can be a source of significant morbidity, most commonly causing abscesses and fistulae. Preventative measures for loss, careful removal during the initial surgery, and good documentation of any concern for remaining intraperitoneal stones needs to be performed with the initial surgery.
CASE REPORT: An 80-year-old male with a history of complicated biliary disease resulting in a cholecystectomy presented to general surgery clinic with increasing symptoms of gastric outlet obstruction. CT imaging was concerning for a malignant process despite negative biopsies. A distal gastrectomy and Billroth II reconstruction was performed and final pathology showed dense inflammation with a single calcified stone incarcerated within the gastric wall of the inflamed pylorus and no malignancy.
DISCUSSION: Stones lost during laparoscopic cholecystectomy are not innocuous and preventative measures for loss, careful removal during the initial surgery, and good documentation of any concern for remaining intraperitoneal stones.
CONCLUSION: This is the first case of gastric outlet obstruction caused by an intramural obstruction of the pylorus from a spilled gallstone during a laparoscopic cholecystectomy and subsequent inflammation. This is an etiology that must be considered in new cases of gastric outlet obstruction and can mimic malignancy.

1. Introduction

For the past three decades, laparoscopic cholecystectomy has been the gold standard for treating gallstone disease, with shorter hospitalization, less postoperative pain, and better cosmetic results than open cholecystectomies [1]. Despite advantages to a minimally invasive cholecystectomy, there is an increase in the rate of ductal injuries and complications related to lost stones [2].

Spilled gallstones from a laparoscopic cholecystectomy can be a source of significant morbidity, with up to 12% leading to complications [2]. A recent systematic review of 111 publications cited intra-abdominal abscess as the most frequent (1.7/1000 laparoscopic cholecystectomies), followed by fistula formation [2]. However, there is a plethora of rarer sequelae including stone expectoration, stones within hernia sacs, stones within an ovary, and tubalithiasis [2]. Proximal intestinal obstruction (Bouveret syndrome) is an exceedingly rare complication of stones occurring in 1 in 10,000 cases of cholelithiasis [3].

There is significant diagnostic dilemma associated with these complications. First, there is often a substantial time delay between cholecystectomy and symptoms prompting patients to seek medical attention, with the median time interval of approximately 5 months [4]. Secondly, the presenting symptoms are wide ranging due to the multiple types of complications and location of spilled stones [5]. A complicating factor is the lack of surgeon documentation of stones spilled and their (possible) recovery at laparoscopic cholecystectomy [6]. Lastly, radiographic abnormalities caused by radiolucent stones are difficult to attribute to stone disease. If these stones are surrounded by a granulomatous reaction, the presence of underlying calculus is often missed or misinterpreted as an intra-abdominal neoplasia with peritoneal deposits from metastasis, endometriosis, focal liver masses, and lymph nodes [7].

We present an unusual case of gastric outlet obstruction secondary to an obstructing stone, masquerading as a possible malignancy, requiring distal gastrectomy and reconstruction. To our knowledge, this is the first case of gastric outlet obstruction caused by an intramural obstruction of the pylorus from a spilled gallstone during a laparoscopic cholecystectomy and subsequent inflammation.

This case report has been written in accordance with SCARE criteria [8].

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Fig. 1. Axial view of CT abdomen/pelvis with IV contrast demonstrating a bulky circumferential irregular thickening and enhancement of the gastric wall at the level of the pylorus involving the duodenal bulb. Additionally, there is a chronic ellipsoid pocket of fluid associated with the peritoneal lining posterior to the liver that was noted to represent an old abscess or hematoma cavity.

2. Presentation of case

An 80-year-old male presented to the General Surgery clinic for symptoms consistent with gastric outlet obstruction. He had been seen in the clinic five years previously due to biliary disease requiring a laparoscopic cholecystectomy. The patient was currently reporting a 4-month history of 30-pound weight loss, progressively worsening nausea, vomiting and significant gastroesophageal reflux. He had already been seen by a gastroenterologist who arranged for esophagogastroduoenoscopy (EGD) and computed tomography (CT) of the abdomen. EGD found retained gastric contents, with thickening of the pylorus and first part of the duodenum; biopsies taken were negative for malignancy. The CT demonstrated bulky, circumferential and irregular thickening and enhancement of the gastric wall at the level of the pylorus, involving the duodenal bulb (Fig. 1). The differential at the time included peptic ulcer disease, primary gastric neoplasm, infectious disease, or lymphoma.

The decision was made to proceed with surgical management given his symptoms and the highly suspicious nature of his endoscopic and radiographic findings, despite negative pathology for malignancy. Intraoperatively, a firm palpable mass was felt in the distal pylorus; the area was quite adherent to the liver and the duodenum itself was quite adherent to the surrounding structures requiring careful dissection from the IVC, pancreas and porta hepatis. The duodenum was eventually dissected free and removed with the distal stomach. Reconstruction was performed with a retrocolic Billroth II anastomosis and insertion of a jejunal feeding tube. The pathology showed submucosal thickening in the region of the pylorus. A single calcified stone measuring 0.6 cm in diameter was identified incarcerated within the wall of the pylorus (Fig. 2A–B). Histologic sections from the gastric wall with the incarcerated stone (Fig. 2C–D) showed dense inflammation centered in the submucosa emanating from the cavity formed by the incarcerated stone. There was no dysplasia or malignancy identified.

The patient was slow to recover post operatively due to preoperative wasting and pre- existing difficulty with mobilization but was eating well and able to be transferred to rehabilitation approximately one month after surgery.

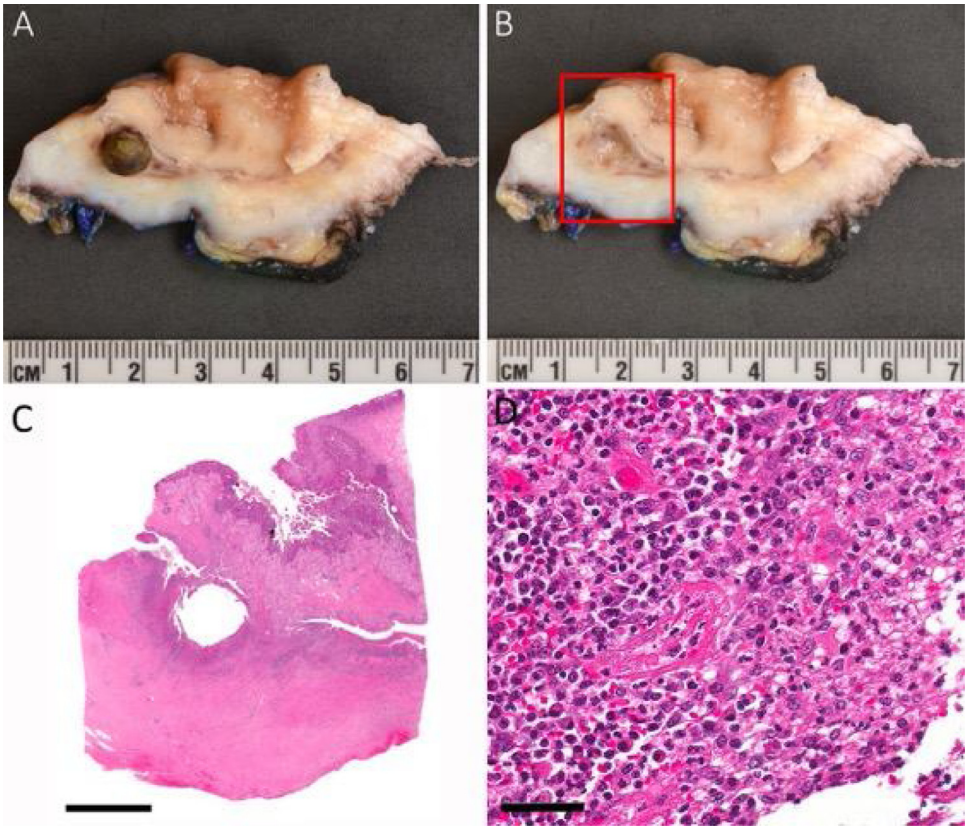

Fig. 2. (A) cross section of the stomach with the incarcerated gallstone lodged within the wall. (B) image with the gallstone removed showing the cavity in the wall (red box denotes the area that was sampled in the histologic sections). (C) Low power photomicrograph (scale bar = 5 mm) showing the cavity in the wall with the overlying gastric mucosa. (D) High power photomicrograph (scale bar = 50 μm) showing mixed acute and chronic inflammation within the wall of the stomach.