Published in final edited form as:

J Gastrointest Surg. 2016 June ; 20(6): 1278–1280. doi:10.1007/s11605-016-3096-0.

THE PROGRESSION OF CHOLELITHIASIS TO GALLSTONE ILEUS: DO LARGE GALLSTONES WARRANT SURGERY?

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Abstract

Gallstone ileus is a rare cause of small bowel obstruction, classically occurring in patients with recurrent cholecystitis. The incidence of biliary enteric fistula and gallstone ileus in patients with large, asymptomatic gallstones is not known. We report a case of gallstone ileus, which occurred in the setting of a large, asymptomatic gallstone. This case suggests that large gallstones may warrant cholecystectomy, even in asymptomatic patients.

Keywords

Gallstone ileus; Cholelithiasis; Enterolithotomy

Case presentation

A 56-year-old female was incidentally found to have a large, 4.5cm gallstone and gallbladder wall thickening on CT scan (Figure 1), obtained during routine surveillance after treatment of stage III anal carcinoma. At that time, she denied symptoms consistent with biliary colic and declined to undergo cholecystectomy.

Nine months later, she presented to the emergency department with a 3-day history of abdominal pain, nausea, vomiting, and anorexia. She was afebrile, non-tachycardic, and mildly hypertensive. Her abdomen was slightly distended and non-tender to palpation. Laboratory evaluation demonstrated a mild leukocytosis (15.8), as well as elevated total bilirubin (2.8) and AST (41). Abdominal CT scan revealed a large, radiopaque stone obstructing the proximal ileum, a cholecystoduodenal fistula and a thick-walled, gas-filled gallbladder (Figure 2).

Radiographic diagnosis of gallstone ileus was made, and the patient was brought to the operating room for exploratory laparotomy. Distended small bowel was encountered with a transition point at the proximal ileum. Transverse enterotomy of the ileum was performed, allowing delivery of the impacted stone. The bowel was decompressed, and the enterotomy was closed in two layers. The gallbladder and the associated fistula were left intact for

expectant management. Her postoperative course was uncomplicated, and she was discharged home on the fourth postoperative day.

Discussion

Approximately 1 in 200 people develop gallstones each year, of which 2–4% progress to biliary colic, cholecystitis, or choledocholithiasis [1]. Biliary enteric fistula formation is uncommon and typically follows recurrent cholecystitis. In the setting of a biliary enteric fistula, gallstones pass freely into the lumen of the small bowel. Once in the bowel lumen, most gallstones pass in the stool; however, large stones have potential to cause obstruction. Gallstone ileus is responsible for less than 0.1% of cases of mechanical small bowel obstruction [2].

Gallstone size has traditionally been an important consideration in the management of asymptomatic gallstones. For gallstones of greater than 3 cm, there is a relative risk of 10.1 for the development of gallbladder cancer, compared to patients without gallstones. This increased risk has justified recommendations for prophylactic cholecystectomy in cases of large stones (>2.5 cm) [3]. This approach may expose patients to unnecessary operative risks and costs, supporting a guideline of expectant management for asymptomatic gallstones regardless of size. Although these patients are at risk for developing biliary enteric fistula and gallstone ileus, the actual incidence of this progression is not known.

Diagnosis of gallstone ileus is typically made by CT scan, which demonstrates an obstructing stone, gallbladder wall thickening, and pneumobilia. The treatment is primarily surgical and is focused on removal of the obstructing stone by enterotomy. Cholecystectomy and closure of the cholecystoduodenal fistula is general not recommended, especially in medically or surgically complex patients.

References

1. Haldestam I, et al. Development of symptoms and complications in individuals with asymptomatic gallstones. *Br J Surg.* 2004; 91(6):734–8. [PubMed: 15164444]
2. Halabi WJ, et al. Surgery for gallstone ileus: a nationwide comparison of trends and outcomes. *Ann Surg.* 2014; 259(2):329–35. [PubMed: 23295322]
3. Csendes A, et al. Number and size of stones in patients with asymptomatic and symptomatic gallstones and gallbladder carcinoma: a prospective study of 592 cases. *J Gastrointest Surg.* 2000; 4(5):481–5. [PubMed: 11077323]

Figure 1.
Routine surveillance CT scan demonstrating a large, 4.5cm gallstone abutting the second
portion of the duodenum
GB (gallbladder); D (duodenum); white arrow (gallstone)

Figure 2.

CT scan demonstrating a gas-filled gallbladder, fistulous communication between the gallbladder and duodenum, and gallstone obstructing the proximal ileum

2a: Black arrow (air-filled gallbladder)

2b: White arrow (gallstone obstructing the proximal ileum)

2c: D (duodenum); black arrow (cholecystoduodenal fistula)

2d: S (stomach); D (duodenum); black arrow (cholecystoduodenal fistula); * (dilated loops of small bowel); white arrow (arrow origin at obstructing enterolith showing stone trajectory with downstream decompressed small bowel)