Gallstone Ileus With Two Separate Biliary-Enteric Fistulae

F. Javier Ruiz, MD
Sacramento, California

This article has an important message for all primary care physicians: gallstone ileus should be seriously considered in any patient older than 70 years, especially if there are no abdominal scars from previous surgery and no external herniae. Its 15-to-20 percent mortality is caused by delay in surgical treatment.

CASE REPORT

An 83-year-old man was admitted with crampy lower abdominal pain, nausea, and vomiting that started one-half hour after eating a peanut butter sandwich the night before admission and continued through the night. The patient had a history of asymptomatic cholelithiasis noted one year prior to the present admission, had a quiescent hiatal hernia, and had had a right nephroureterectomy for transitional cell carcinoma without evidence of recurrence. There was no history of prior abdominal surgery. Physical examination showed a well-nourished, well-developed man appearing younger than his stated age with occasional lower abdominal cramps. Blood pressure was 130/70 mmHg, pulse 72 beats per minute, respiration rate 16 per minute, and temperature 98.8°F. The abdomen was soft and nondistended with vague tenderness in the left lower quadrant. The bowel sounds were hypoactive and no rebound or guarding was noted. There were no abdominal surgical scars. Rectal examination was negative for blood.

On admission the white blood cell count was $16.9 \times 10^3/\mu L$ with 61 percent segmented neutrophils, 25 percent bands, and 7 percent lymphocytes. Electrolytes were normal. The abdominal film revealed fluid levels of distended small bowel compatible with partial small bowel obstruction. There was gas and fecal material in the colon. There was no air in the biliary tract. Later review of the film disclosed a pair of air-fluid levels in the right upper quadrant.

After 24 hours of conservative management with intravenous fluids and nasogastric suction without improvement, exploratory laparotomy was performed. A multifaceted gallstone measuring $0.1 \times 1.5 \times 1.5$ cm in maximum dimension was found impacted in the distal ileum. The calculus was extracted through a transverse enterotomy. The colon was adherent to a markedly scarred contracted gallbladder surrounded by numerous adhesions. Upon dissection a cholecystocolonic fistula (with a diameter of 1.5 to 2 cm) was found. Both the fistula tract and colon were closed. Further dissection revealed another fistula connecting the neck of the gallbladder and the duodenum, with an opening of 1.5 cm in diameter. This fistula tract was also closed, and a cholecystectomy was performed. The pathology report indicated moderately differentiated invasive adenocarcinoma of the gallbladder. During the postoperative course the patient developed some atelectasis and a small right pleural effusion that resolved spontaneously. Fourteen days after surgery the patient was discharged from the hospital.

DISCUSSION

Fewer than 30 cases of cholecystoduodenocolonic fistula have been reported, and only four cases were associated with gallstone ileus[1,2]; in this case the patient had two separate biliary-enteric fistulae: cholecystoduodenal and cholecystocolonic.

About 3 to 5 percent of patients with cholelithiasis develop fistulas between the extrahepatic biliary system and the gastrointestinal tract.[3] The most common locations of biliary enteric fistula, in decreasing order of incidence, are cholecystoduodenal, cholecystocolonic, cholecystogastric, and choledocoduodenal.[1] Multiple fistulas occur infrequently. Gallstone ileus occurs less than one-tenth as often as biliary enteric fistula, indicating that most of the calculi pass through harmlessly.[3] Gallstones are responsible for only 2 to 3

Submitted, revised, April 9, 1985.

From the Department of Family Practice, University of California, Davis, Sacramento, California. Requests for reprints should be addressed to Dr. F. Javier Ruiz, c/o Iglesias, 601 NE 105th Street, Miami Shores, FL 33138.

percent of all instances of intestinal obstruction, but they are responsible for the 20 percent in patients who are more than 65 years of age, and 24 percent in patients aged over 74 years presenting with typical signs and symptoms of mechanical intestinal obstruction.[4] The site where obstruction occurs is usually the terminal ileum, as it is the narrowest portion of the small bowel.[5] In several large series of gallstone ileus, the most common complaints included cramping abdominal pain, nausea, vomiting, abdominal distention, and obstipation.[5] Symptoms of progressive obstruction in an elderly person who has undergone no previous abdominal surgery strongly suggest gallstone ileus, especially if he or she has a history of gallbladder disease.[5] Berliner and Burton[6] reviewed 57 cases of gallstone ileus with fistula. In their series the incidence of primary adenocarcinoma of the gallbladder was 15 percent in contrast with the 1.12 percent incidence of carcinoma occurring in all operations of the biliary tract. They stressed that the longer the patient with a fistula survives, the greater the chance of carcinoma.

The correct diagnosis is usually made preoperatively in only 13 to 48 percent of patients.[7-9] In 1941 Rigler et al[8] postulated the four criteria to diagnose gallstone ileus by plain abdominal film: (1) pneumobilia, (2) gallstone in small bowel, (3) change in position of demonstrate gallstone, and (4) distended loops of small bowel. Nelson[10] reported in 1973, however, that distended loops were present only in 86 percent, pneumobilia in 60 percent, and ectopic gallstone in 25 percent, indicating that in many patients with gallstone ileus the plain abdominal film was not diagnostic. In 1975 another radiologist, Balthazar,[11] pointed out the same findings as Nelson's,[10] and gave great emphasis to contrast examinations when gallstone ileus is suspected. The demonstration of a diverticulum-like structure or a fistulous tract adjacent to the first duodenal segment associated with intestinal obstruction on delayed films leads to a rapid and correct diagnosis. Balthazar[12] also described paired air-fluid collections in the right upper quadrant in patients with gallstone ileus based on plain films. New techniques have been applied to the diagnosis of the gallstone ileus. In 1981 Renner[13] reported the first diagnosis of gallstone ileus not evident on plain film using real time sector-scan ultrasound. In 1984 there were two publications of preoperative diagnosis of gallstone ileus using hepatobiliary scan,[14,15] where failure of the radiopharmaceutical to pass beyond the point of obstruction, marked reflux into the stomach, and nonvisualization of the gallbladder should suggest the possibility of gallstone ileus. Because most patients with biliary-enteric fistulas and gallstone ileus are elderly and in poor general condition, simple removal of the obstructing gallstone is usually adequate, but interval cholecystectomy is recommended in patients with a long life expectancy because recurrence of calculi and symptoms increases with time.[16]

SUMMARY

A patient with gallstone ileus associated with two separate biliary-enteric fistulae has been reported. The patient had exploratory laparotomy with removal of the gallstone from the distal ileum, repair of the two fistula tracts, and cholecystectomy. The pathology report showed adenocarcinoma of the gallbladder. The patient was discharged 14 days after surgery. It is important to point out that the diagnosis was not suspected prior to surgery, although the patient was elderly with known cholelithiasis, no prior abdominal surgery, and clinical symptoms of bowel obstruction. The plain abdominal film showed a partial small bowel obstruction pattern with a pair of air-fluid levels in the right upper quadrant, no air in the biliary tract, and no visible calculus. When there is a clinical suspicion of gallstone ileus and the plain abdominal film is not diagnostic, there are several modalities available that have been proven to be useful (ie, contrast medium examinations, ultrasound, and hepatobiliary scan).

References

1. Doromal NM, Estachio R, Sherman H: Cholecysto-duodenocolonic fistula with gallstone ileus: Report of a case. Dis Colon Rectum 1975; 18:702-705
2. Shocket E, Evans J, Jonas S: Cholecysto-duodeno-colonic fistula with gallstone ileus. Arch Surg 1970; 101:523
3. Porter JM, Mullen DC, Silver D: Spontaneous biliary-enteric fistulas. Surgery 1970; 68:597
4. Glenn F, Reed C, Grafe WR: Biliary enteric fistula. Surg Gynecol Obstet 1981; 153:527-531
5. Day EA, Marks C: Gallstone ileus: Review of the literature and presentation of thirty-four new cases. Am J Surg 1975; 129:552-558
6. Berliner SD, Burton LC: One stage repair for cholecysto-duodenal fistula and gallstone ileus. Arch Surg 1965; 90:313
7. Buetow GW, Crampton RW: Gallstone ileus: A report 23 cases. Arch Surg 1963; 86:504-511
8. Rigler LG, Borman CM, Noble JF: Gallstone obstruction: Pathogenesis and roentgen manifestation. JAMA 1941; 117:1753-1759
9. Cooperman AM, Dickson ER, Remine WH: Changing concepts in the surgical treatment of gallstone ileus. Ann Surg 1968; 167:377-383
10. Nelson SW: Gastrointestinal Tract Disease Syllabus. Chicago, American College of Radiology, 1973, pp 206-207
11. Balthazar EJ, Schechter LS: Gallstone ileus: The importance of contrast examinations in the roentgenographic diagnosis. Am J Roentgenol Radium Ther Nucl Med 1975; 125:374-379
12. Balthazar EJ, Schechter LS: Air in gallbladder: A frequent finding in gallstone ileus. AJR 1978; 131:219
13. Renner W: Ultrasound demonstration of non-calcified gallstone in distal ileus causing small-bowel obstruction. Radiology 1982; 144:884
14. Elkin CM, Weissmann HS, Freeman LM: Gallstone ileus diagnosed by technetium-99 m dimethyliminodiacetic acid cholescintigraphy: A case report. Clin Nucl Med 1984; 9:79-80
15. Bocobo G: Hepatobiliary imaging in gallstone ileus. Clin Nucl Med 1984; 9:4-5
16. Ramanujam P, Shabeeb N, Silver JM, et al: Unusual manifestations of gallstone migration into the gastrointestinal tract. South Med J 1983; 76:30-32