

CASE REPORT

Spontaneous Relief of Mechanical Bowel Obstruction in Gallstone Ileus

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Abstract

We report the case of a 60-year-old female Libyan patient who presented with a three day history of vomiting, colicky abdominal pain, and constipation. She was dehydrated, tachycardiac, with a distended, tender abdomen and exaggerated bowel sounds. She had leucocytosis and an increased blood urea nitrogen level. Plain abdominal x-ray films showed dilated small bowel loops and pneumobilia. Ultrasound and computed tomography (CT) examinations confirmed the diagnosis of gallstone ileus. The obstruction was spontaneously relieved by passing the stone into the cecum.

Key words: Gallstone ileus, intestinal obstruction, pneumonia

Introduction

Gallstone ileus refers to a mechanical intestinal obstruction that is rarely caused by gallstones. It is an uncommon and potentially serious complication of cholelithiasis (1,2). In the majority (75%) of cases, the diseased gallbladder opens into the duodenum by a fistula, and the stone enters the intestinal tract where it becomes impacted in the bowel lumen near the ileocecal valve.

It was first described by Bartholin in 1654 (3). The formation of a fistula between the gallbladder and the duodenum may allow a gallstone to enter the intestinal tract. Cholecystoduodenal fistula is the most frequent (75%), followed by cholecystocolic fistula (10-20%), and a variety of other types (15%). Spontaneous enterobiliary fistula occur secondary to biliary disease, and disease of adjacent structures. These are



Figure1: A plain abdominal film showed a dilated small intestine in the upper abdomen with air shadow at area of gallbladder (Arrow), later with comparing with CT finding it was free air inside gallbladder.



Figure 3: Axial view of abdominal computed tomography (CT), image showing an abnormal Gas in the intrahepatic biliary ducts.



Figure 2: Coronal view of abdominal computed tomography (CT) image showing an abnormal Gas in the gallbladder (Close arrow) and in common bile duct (Open arrow). Pneumobilia.



Figure 4: Coronal view of abdominal computed tomography, image showing a shadow of multiple ectopic small stones located in the cecum (Arrow).

usually associated with gallstones but have also been reported with peptic ulcer disease, abdominal trauma, Crohn's disease, and malignancies of the biliary tract, bowel, and head of the pancreas (4). The obstruction usually occurs at the level of the ileocecal valve (5). The mortality and morbidity of gallstone ileus are high because it is common in older aged patients, when the presence of concomitant diseases is often noted, and it is frequently a late diagnosis (6). The delay in diagnosis is due to the non-specific clinical presentation of the condition (7,8). The diagnosis is

confirmed by plain x-ray films, abdominal ultrasound, and CT examinations.

Presence of pneumobilia, ectopic gallstone, and mechanical obstruction (Rigler's triad) demonstrated in plain films are only seen in about 50% of cases (9) and there are recent reports advocating early use of other imaging modalities like abdominal ultrasound (US) and computed tomography (CT) scans for early diagnosis (2,7,10,11). Gallstone ileus is treated surgically by enterolithotomy with or without cholecystectomy and closure of the fistula. We present

here an illustrative case with spontaneous relief of gallstone ileus by passing the stone into the cecum.

Case Report

A 60-year old woman presented to our emergency department with a case of intestinal obstruction of three days history. Symptoms were vomiting, distension, constipation and abdominal pain. On physical examination, her abdomen was tender with mild abdominal distension. Murphy's sign was negative. The white blood count was

16.3/dl, blood urea nitrogen 64 mg/dL, the other tests were unremarkable. A plain abdominal film showed a dilated small intestinal loop in the upper abdomen with air shadow at the area of the gallbladder (Figure 1). On the second day of admission, the patient clinically improved. All symptoms had improved and her obstruction was relieved. Abdominal sonographic examination was performed one day after admission and the findings included contracted gallbladder with thickened wall, without stones, presence of air in the intrahepatic biliary tree, and dilated small bowel with increased peristalsis suggestive of intestinal obstruction. For a detailed analysis of intraluminal air shadowing, the patient was referred for non-contrast abdominal computed tomography (CT). The CT images showed abnormal gas in the gallbladder, in the common bile duct (Figure 2), and in the intrahepatic biliary ducts (Figure 3). The presence of these abnormal gas shadows and the dilated small intestine with shadow of multiple small stones located in the cecum (Figure 4), confirmed the presence of gallstone ileus. Magnetic resonance cholangiopancreatography (MRCP) revealed a clear fistula tract connecting the gallbladder and first part of duodenum (Figure 5). The patient had been treated after admission with intravenous fluids (0.9% sodium chloride) and nasogastric decompression, Rocephin 1gm intravenously (IV) once daily, and Omeprazole 40 mg IV once daily. The input and output of all fluids were recorded. The patient's condition improved dramatically and she underwent surgery one week after her admission. Through a right upper paramedian incision, a small contracted gallbladder with dense adhesions to the omentum and duodenum was found.

After dividing the adhesions, a fistulous tract between the gallbladder and first part of duodenum was found (Figure 6). The tract was divided. Cholecystectomy and repair of the hole in the duodenum in two layers using polyglycolic acid 2/0 sutures were performed. The postoperative course was uneventful.

Discussion

Clinical diagnosis of gallstone ileus is difficult and usually depends on the radiographic findings. The presence of two signs of the classic Rigler's triad is considered pathognomonic in 50% of patients. In 50% of these cases, the diagnosis is often made only at laparotomy (6). However, air in the gallbladder is also a frequent finding in gallstone ileus (14). Plain abdominal films usually show non-specific findings because only 10% of gallstones are sufficiently calcified enough to be visualized radiographically. Abdominal sonography is useful to confirm the presence of cholelithiasis, and may identify a fistula (15). In our patient, sonographic findings demonstrated a thickened gallbladder wall without stones, and dilated small intestine. Abdominal CT, because of its better resolution, is a more important diagnostic modality in gallstone ileus. By comparing the CT scan with the plain abdomen film and abdominal sonogram, a more rapid and specific diagnosis can be reached. It has been suggested that abdominal CT offers crucial evidence not only for the diagnosis of gallstone ileus but also for the decision regarding management strategy (10,7). Gallstone ileus usually requires emergency surgery to relieve intestinal obstruction. There is no uniform surgical procedure for this disease because of its low incidence. Bowel resection is only indicated when there is intestinal perforation or ischemia (16). Although enterolithotomy alone remains the popular operative method in most reports, the one-stage procedure composed of enterolithotomy, cholecystectomy and repair of fistula may be necessary (17). Enterolithotomy alone is the preferred operation more than enterolithotomy combined with cholecystectomy (18), though both procedures are safe with little risk of mortality. The one-stage procedure should be reserved only for highly selected patient with absolute indications (19). In our patient, because

her obstruction state was relieved spontaneously, there was no indication for urgent surgical treatment, and we prepared the patient for elective surgery. The operation was completed during the same admission with cholecystectomy and fistula repair.

Recently, laparoscopy-guided enterolithotomy has become the preferred surgical approach in treating gallstone ileus (20). Additionally, the non-surgical treatment of gallstone ileus has been suggested, including endoscopic removal and shockwave lithotripsy, but this depends on the location of obstruction (21, 22). The prognosis of gallstone ileus is usually poor and worsens with age. The mortality rate ranges between 7.5%-15% (6,13), largely due to delayed diagnosis and concomitant conditions such as cardio-respiratory disease, obesity, and diabetes mellitus. The postoperative recurrence rate of gallstone ileus is 4.7%, and only 10% of patients require secondary biliary surgery for recurrent biliary symptoms (6, 23).

We conclude that in gallstone ileus, if the clinical signs and symptoms, or imaging evidence, are not consistent with those of complete intestinal obstruction, spontaneous resolution is possible and should be initially cautiously expected.

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