Resolution of Gallstone Ileus with Spontaneous Evacuation of Gallstone: A Case Report

Anupama Tandon · Thingujam Usha · Satish K Bhargava ·
Shuchi Bhatt · Sumeet Bhargava · Meenakshi Prakash ·
Aggrwal Anupkumar Durgadas

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Abstract Gallstone ileus is an infrequent complication of cholelithiasis. The formation of a fistula between the *gallbladder* and duodenum may allow a *gallstone* to enter the gastrointestinal (GI) tract. Gallstone ileus generally occurs in the elderly patients and is associated with significant mortality. Spontaneous resolution of gallstone ileus after passage of gallstone per rectally, though rare, has been reported Farooq et al. (Emerg Radiol 4(6):421–423, 2007). We describe a 60-year-old woman who presented with a 3-day history of vomiting, pain, distension and constipation. Radiological investigations revealed dilatation of small bowel loops with multiple air fluid levels with a large lamellated radio-opaque density measuring 4.4 cm×4 cm seen in the right iliac fossa. A possibility of gallstone ileus was kept. Because of co-morbid conditions (post-myocardial infarct with cardiac failure), surgery could not be done and patient was kept on conservative management. Three days later patient had sudden relief of her symptoms after passing a large calculus per rectally suggesting a spontaneous evacuation of gallstone. This case highlights the possibility of spontaneous resolution of gallstone ileus after the passage of gallstone. It has been reported in stones less than 2.5 cm. However, to the best of our knowledge, this is the first time in which a large stone measuring 4 cm×3.8 cm passed spontaneously.

Keywords Gallstone Ileus · Intestinal Obstruction · Pneumobilia · Cholecystenteric Fistula · Spontaneous Resolution

Introduction

Gallstone-induced intestinal obstruction, also referred to as *gallstone ileus*, is an uncommon and potentially serious complication of cholelithiasis. It accounts for 1–3 % of all cases of surgery for intestinal obstruction. Most patients of gallstone ileus present with repeated episodes of acute pain in the early stage due to contact of the inflamed gallbladder with adjacent organs. The presentation in later stages is usually with sub-acute intestinal obstruction.

The prevalence of gallstone ileus is much higher in age group over 65 years where it accounts for over 25 % of all cases of non-strangulated small bowel obstruction [1]. Associated morbidity and mortality remains high due to the higher age group of these patients and presence of concomitant medical conditions.

Spontaneous resolution of gallstone ileus after passage of gallstone has been reported earlier in stones less than 2.5 cm [2]. We report a case of spontaneous resolution of gallstone ileus in an elderly patient after the per rectal passage of a large stone measuring 4 cm×3.8 cm. This report and a few others from literature highlight the possibility of spontaneous resolution of gallstone ileus after the passage of gallstone. However, to the best of our knowledge, this is the first report where such a large stone passed spontaneously.

Case Report

A 60-year-old woman presented with pain, distension of abdomen and vomiting for past 2 days. She also gave a history of not passing stools and flatus for the past 2 days. Patient gave history of episodes of repeated upper abdominal pain in the

A. Tandon · T. Usha (✉) · S. K. Bhargava · S. Bhatt ·
S. Bhargava · M. Prakash · A. A. Durgadas
Department of Radiology and Imaging, University College
Of Medical Sciences and Guru Tegh Bahadur Hospital, Shahdara,
Delhi 110095, India
e-mail: nanao_lhmc@yahoo.co.in

Fig. 1 **a** and **b** Abdominal radiograph (erect and supine) showing a large radio-opaque density in right iliac fossa with multiple dilated small bowel loops

past. Laboratory investigations were unremarkable except for mild leukocytosis.

Plain x-ray (erect and supine) revealed dilatation of small bowel loops with multiple air fluid levels. In addition, a large lamellated radio-opaque density measuring $4.4\text{ cm} \times 4\text{ cm}$ was seen in the right iliac fossa. A small radio-opaque density was seen in right upper abdomen. However, no biliary gas was seen (Fig. 1a and b). A possibility of gallstone ileus was made.

Ultrasound (USG) abdomen revealed multiple gallbladder calculi, the largest measuring 1.5 cm. Gallbladder wall was thickened but intact. Common bile duct (CBD) was not dilated. Intra-hepatic biliary radicles were not dilated. No evidence of pneumobilia was found. Because of extensive gaseous distension, bowel could not be evaluated.

Contrast-enhanced computed tomography (CECT) revealed dilatation of small bowel loops with normal bowel wall enhancement. A large radio-opaque density measuring $4\text{ cm} \times 3.8\text{ cm}$ was seen impacted at the ileocecal junction

(Fig. 2a and b). In addition, similar smaller densities were seen in proximal small bowel and gallbladder (Fig. 3). There was evidence of adherence of gallbladder to the second part of duodenum with stranding in the surrounding fat, suggesting the possibility of an acute episode before the development of gallstone ileus. However, no obvious fistula was demonstrated. Liver was normal; no intra-hepatic biliary radicles dilatation or pneumobilia was found

A diagnosis of gallstone ileus with cholelithiasis with possibly a healed cholecystoduodenal fistula was made. The patient was advised surgery. However, because of co-morbid conditions (cardiac condition), surgery could not be done and patient was managed conservatively.

Three days later the patient had sudden relief of her symptoms and on the fourth day she passed a large calculus per rectally suggesting a spontaneous evacuation of gallstone (Fig. 4). Because the patient was symptom free, she demanded a discharge and refused any further workup. Hence, no further radiological evaluation was possible.

Fig. 2 **a** and **b** MPR image demonstrates the impacted calculus at the ileo-cecal junction

Fig. 3 Axial CT image showing a similar radio-opaque calculus in the gallbladder

Discussion

Gallstone ileus is a rare complication of cholelithiasis. The term ‘gallstone ileus’ was first coined by Bartholin (1654) and referred to as mechanical obstruction due to impaction of one or more large gallstones within the GI tract. Size of stone should be at least 2–2.5 cm in diameter to cause obstruction [3].

Gallstones reach the intestinal tract through a biliodigestive fistula in 80–85 % and through CBD in 15–20 % of cases [4]. The most common location of impaction is reported to be the terminal ileum and the ileocecal valve because of the anatomical small diameter and less active peristalsis [1].

The clinical manifestations of gallstone ileus may vary, depending on the site of obstruction. It can present as acute, intermittent or chronic intestinal obstruction.

Clinical diagnosis of gallstone ileus is difficult; a radiologic workup using modalities such as USG, CT and/or plain abdominal radiographs can expedite correct diagnosis in over 50 % of cases and decrease pre-operative delay [5].

Fig. 4 Gallstone that was passed per rectally

Abdominal radiographs, both erect and supine, remain the initial imaging workup of any case of intestinal obstruction. The classic roentgenographic signs, described by Rigler et al. [6], include intestinal obstruction, pneumobilia, aberrantly located gallstone and change of location of the previously identified stone on serial exams. Presence of at least two signs is considered pathognomonic. Belthazar and Schechter [7] described a fifth sign that is the presence of 2 air-fluid levels in the right upper quadrant on abdominal radiograph. However, on the radiograph, an aberrantly located gallstone may be confused with other radio-opaque densities such as calculi, enteroliths, calcified nodes etc., unless the classic ‘Mercedes Benz’ sign or internal lucencies are present (as in the present case). Further, the findings on plain abdominal films can be non-specific if the gallstone is not calcified. (Only 10 % of gallstones are sufficiently calcified to be visualized radiographically) [8].

USG can evaluate the status of gallbladder, presence of cholelithiasis, choledocholithiasis and pneumobilia. Demonstration of the fistula with adjoining bowel is usually difficult on sonography. Presence of dilated bowel loops as well as the site and cause of obstruction can be assessed. However, in presence of dilated gas-filled bowel loops, visualization of bowel loops is often sub-optimal.

CT provides better resolution, demonstrates dilated loops, status of bowel wall, site and cause of obstruction. It gives more specific and rapid diagnosis in emergency situations. Multi-detector CT with its exquisite multi-planar reconstructions makes the diagnosis easy.

Radiolucent calculi may not be picked up on routine imaging, and in such situations the diagnosis is made only on laparotomy.

The prognosis of gallstone ileus is usually poor and worsens with age. Mortality (7.5–15 %) and morbidity are high largely due to delayed diagnosis and concomitant conditions such as cardiorespiratory distress, obesity and diabetes mellitus [3].

The goal of treatment in gallstone ileus is early relief of intestinal obstruction and minimization of morbidity and mortality. Gallstone ileus usually requires emergent surgery to relieve intestinal obstruction. A one-stage procedure combines enterolithotomy, cholecystectomy and fistula repair [9]. A two-stage procedure includes enterolithotomy and biliary surgery at a later stage. Recently, laparoscopy-guided enterolithotomy has been proposed as an alternative surgical approach in treating gallstone ileus [10].

Non-surgical treatment of gallstone ileus includes endoscopic removal and shock-wave lithotripsy depending on the location. Other authors [2] have also reported spontaneous resolution of gallstone ileus after passage of gallstone, but the size of stone has been much less.

In the present case report, there was spontaneous resolution of the intestinal obstruction after the elderly patient passed a gallstone measuring 4 cm×3.8 cm during the observation period.

Conclusion

Gallstone ileus occurs more commonly in the elderly who usually have associated cardiorespiratory morbidities, making surgery a difficult proposition.

The passage of stones as large as (4 cm×3.8 cm), as evident in the present case and supported with other reports available in literature, highlights the possibility of spontaneous passage of gallstone and subsequent resolution of gallstone ileus.

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