Case Report

Successful one-stage surgical management of gallstone ileus without enterotomy

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Abstract

Gallstone ileus (GI) is a mechanical type of intestinal obstruction (MIO) due to the impaction of one or multiple stones within the intestinal lumen. GI is one of the rare causes of MIO that accounts for less than 1% of the cases which is common in the elderly population with multiple comorbidities. The presentation non-specific, and this often leads to a delay in diagnosis. Mainly the diagnosis of GI relies on a radiological approach upon background clinical history. The commonly practised surgical management is, relieving obstruction by stone retrieval via an enterotomy.

The case describes a 78 year old patient presented with gallstone ileus, managed successfully without entrotomy by evacuating the stone cholecysto-enteric fistula (CEF). Intra-operative assessment of stone size, CEF opening size, and the status of the intestine proximal to the obstruction will give a chance to retrieve the stone via CEF without enterotomy in the management of GI in addition to the commonly used surgical techniques.

Keywords: Cholecysto-enteric fistula, Pneumobilia, Gallstone ileus, Rigler's triad, Enterotomy, Cholecystectomy

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Introduction

Cholelithiasis is one of the commonest biliary disorders, which gives rise to a spectrum of clinical presentations. Cholecysto-enteric fistula (CEF) and gallstone ileus (GI) are rare complications of gallstone disease that account for about 1-4% of all causes of mechanical intestinal obstruction (MIO)[1,2].

Gallstone will obstruct the intestinal lumen as it passes through the CEF into the intestinal lumen. The presentation of GI is non-specific, and this often leads to a delay in diagnosis[3,4]. In addition to the MIO patient may present with features of cholecystitis. GI is more common in the elderly age group who had long-

standing gallstone disease without proper surgical treatment[4].

Diagnosis of GI relies on a radiological approach to background clinical history. There may be an associated free biliary gas column (pneumobilia). Gallstone erosion into the gastrointestinal tract is one of the reasons for the pneumobilia out of many differential diagnoses. Intestinal obstruction due to gallstone impaction, pneumobilia and the presence of radio-opaque stone in the intestinal lumen (Rigler's triad) are evident in plain abdominal radiograph only about 15% of cases as 90% of gallstones are radiolucent[5]. Contrast Enhanced Computed Tomography (CECT) is the gold standard for diagnosis[6,7].

Surgical management is carried out through either an open or laparoscopic approach. The open approach is described more in the medical literature[3,4,8,9].

Case Report

78-year-old female, who was a diagnosed patient with cholelithiasis, presented with right hypochondriac pain associated non-bilious vomiting for three days and several febrile episodes. The patient was haemodynamically stable, and she was anicteric on admission. Abdominal examination revealed a significant right hypochondriac tenderness. Clinical diagnosis was made as acute cholecystitis, considering her history of gallstone disease.

C-reactive protein level was 43 mg/dL, and neutrophilic leucocytosis was observed in the initial investigations. Her erect plain abdominal radiography revealed free gas in the biliary tree (pneumobilia)(figure 1). The presence of gas in the biliary tree was confirmed by ultrasonography. The patient was kept nil oral and kept under close observation with intravenous fluid and antibiotics.

On the third day of inward treatment, she had severe colicky central abdominal pain which was associated with bilious vomiting. A repeat plain radiograph of the abdomen revealed the presence of small bowel obstruction (SBO) (Figure 2) with a radio-opaque shadow within the bowel lumen in addition to the previously noted pneumobilia. Clinical diagnosis of gallstone ileus was made with the background information.

Contrast enhanced computerized Tomography (CECT) of the abdomen confirmed the pneumobilia, CEF and SBO due to impaction of gallstone mass proximal to the ileocaecal junction (Figure 2).

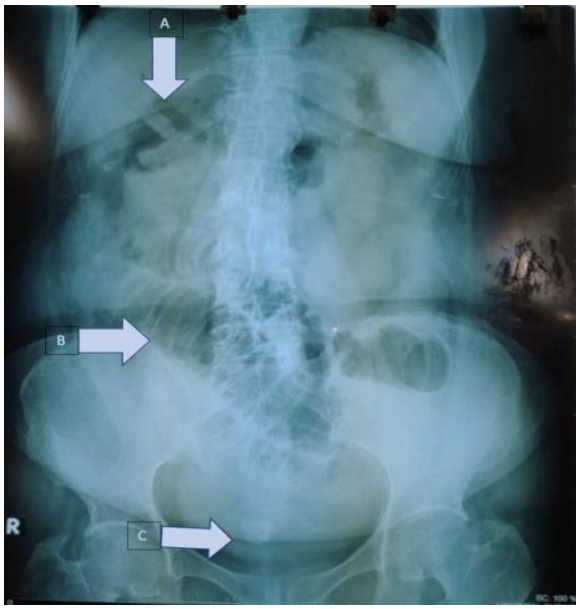

Figure 1: Preoperative pain x-ray abdomen showing A, Gas column in the biliary tree (Pneumobilia); B, Dilated Small bowel suggestive of bowel obstruction; C, Shadow of impacted stone in the distal ileum

Surgical management was carried out with midline laparotomy. There was a 2.5cm stone found approximately two feet proximal to the ileocaecal junction. The CEF was found communicating with the first part of the duodenum (Figure 3).

Fistula was explored after duodenal kocherization. Dilated small bowel was decompressed through the duodenal opening by milking the content and stone. Stone milked carefully up to the duodenal opening and retrieved. Edges of duodenal opening were trimmed, and defect was closed with absorbable sutures in two layers. Cholecystectomy was performed. Abdominal wall was closed with two abdominal drains in-situ.

Patient kept nil oral for five days and managed with total parenteral nutrition. Liquid diet introduced gradually on post operative day six and normal oral intake was established on the 8th day. Patient encountered a non-ST elevation myocardial infarction on post operative day nine. After the completion of medical management without complications, she was discharged on post operative day 14 after full recovery.

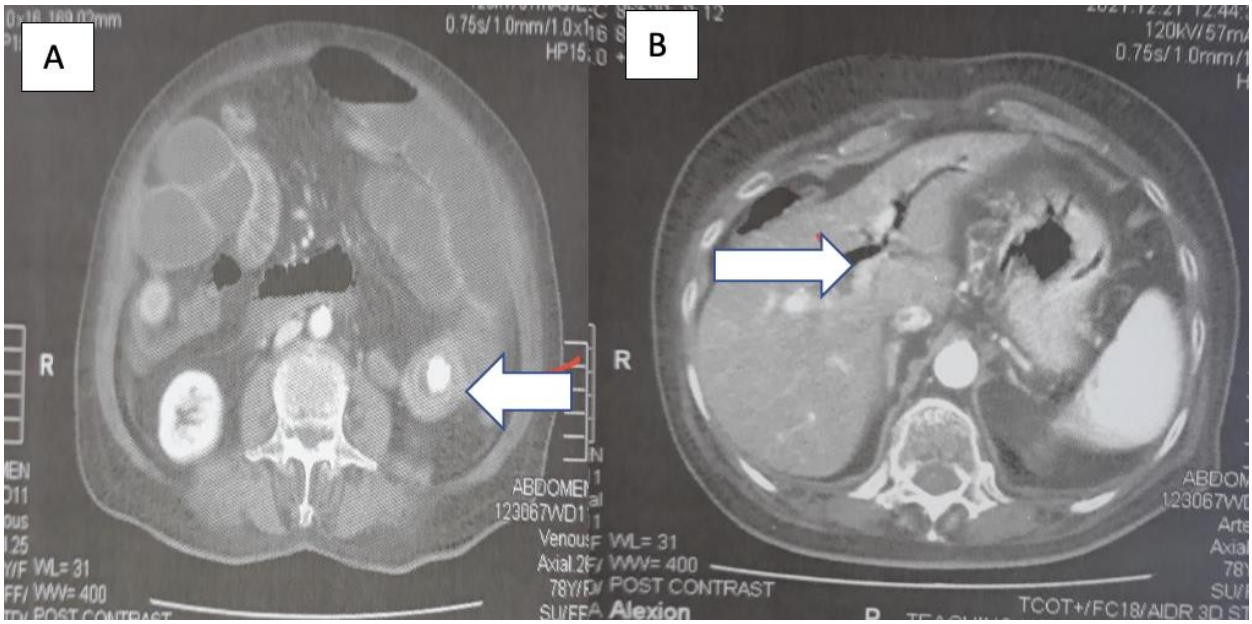

Figure 2: Preoperative CECT abdomen findings: A, Impacted stone in the distal ileum; B, Gas column in the biliary tree (Pneumobilia)

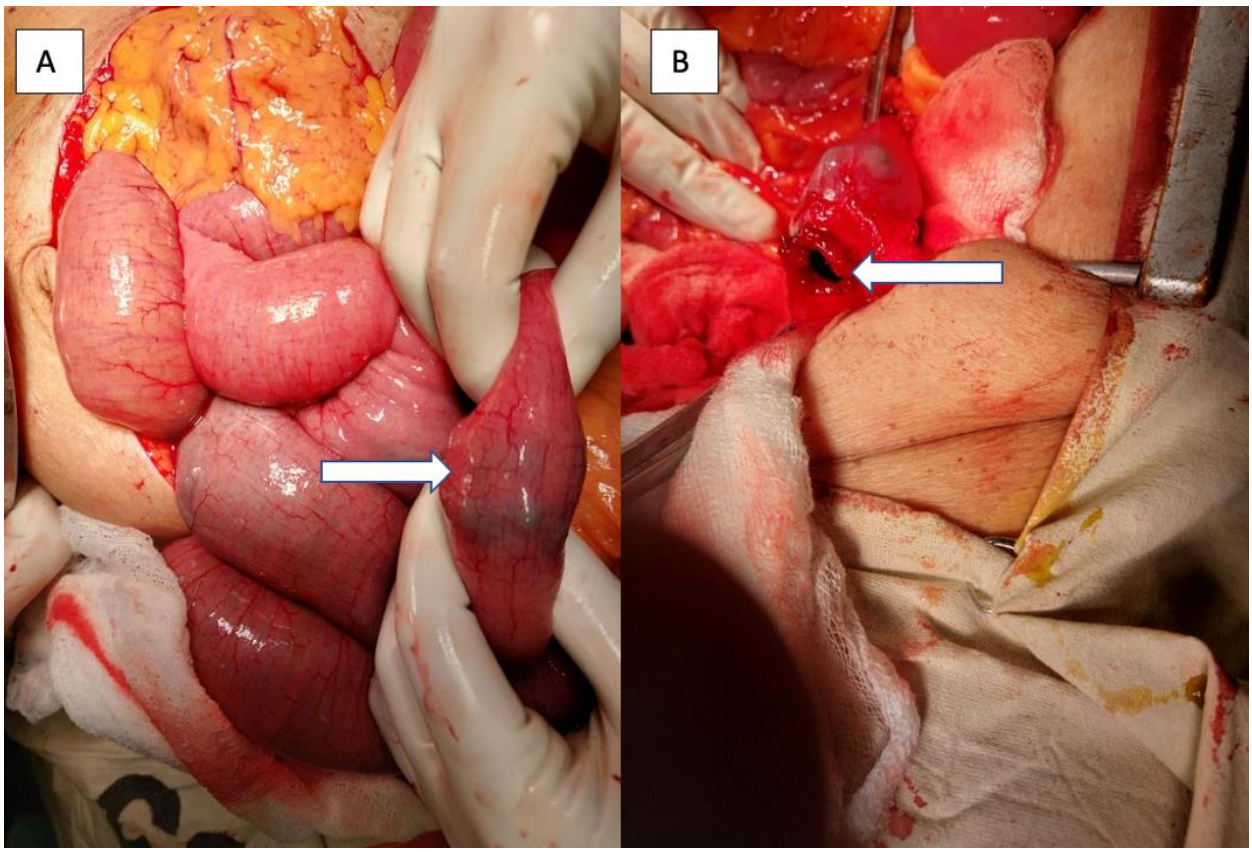

Figure 3: Intraoperative pictures showing A, Impacted stone visualized through the bowel wall; B, Cholecysto-enteric fistula

Discussion

The case describes an elderly patient presented with gallstone ileus, managed successfully following early clinical daiganosis. The surgical technique used for evacuation of the stone obstructing the small bowel was an different from the commonly using methods but results are comparable.

There is no consensus on surgical management of GI; commonly occupied surgical options are [1] Simple enterolithotomy, (2) Enterolithotomy, cholecystectomy and fistula repair (one-stage procedure) and (3) Cholecystectomy and fistula repair will be performed later after enterolthotomy (Two stage procedure)[1,3,4,8–10].

Enterotomy and stone retrieval is the widely used surgical method. The fistula will close spontaneously in about 50% of cases [4,9,11]. Simple enterolithotomy is much safer as gallstone ileus mainly encountered in elderly with multiple co-morbidities and two-stage procedure carries a higher index of mortality and morbidity[2,9].

Enterolithotomy and cholecystectomy with fistula closure can be offered to selected individuals after an assessment of risks and benefits. Out of those two, one stage procedure can be performed in highly selected cases only. But two stage procedure is indicated in patients who are having persistent symptoms due to fistula (cholecystitis, cholangitis, recurrent gallstone ileus). Therefore, in the symptomatic individuals, it is recommended to do the cholecystectomy and fistula closure 4 to 6 weeks after enterolithotomy, because it still carries 2.94% mortality rate in the elderly age group [1,3,4,8–10).

Here, in this case, one stage procedure was carried out with a modification. According to the intraoperative assessment, the stone was milked without any resistance up to the duodenal opening. Stone was retrieved via the duodenal opening without doing an enterotomy. It was much easier to milk the stone with the fluid content accumulated within the intestinal lumen proximal to the obstruction. Therefore, it is a crucial decision to be made by a careful assessment of the size of the stone, size of the fistula opening and status of the intestine proximal to the obstruction which overcomes another enterotomy.

Conclusion

Intraoperative assessment of stone size, fistula opening size, and the status of the intestine proximal to the obstruction will give a chance to retrieve the stone without enterotomy in the management of GI in addition to the commonly used surgical techniques.

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