

Small Bowel Obstruction due to Gallstones (Gallstone ileus)

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Eigthy one years old male,presented with history of abdominal pain, vomiting, and abdominal distension. Abdominal radiographies revealed pneumobilia, small bowel obstruction, and aberrantly located gallstone. He underwent laparotomy and simple enterolithotomy after stabilization. Subsequently, the patient improved clinically and was discharged.

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Gallstone ileus was first described by Bartholine in 1654, as mechanical intraluminal obstruction, caused by impaction of gallstone in the bowel lumen¹. The disease occurs more frequently in women than in men, in a ratio of 6:1^{2,3}. And mostly affecting ages over 65 years¹⁻⁴. Spontaneous biliary enteric fistula was found in 0.9% of patients undergoing biliary tract procedures⁵. In fact, most spontaneous fistulas result from complication of gallstone disease. Biliary enteric fistulas occur in about 1% of patients with acute cholecystitis^{5,6}. Chronic inflammation of gallbladder may follow acute cholecystitis, but usually developed insidiously^{5,7}. The most common communication of the fistula is between gallbladder and duodenum, followed by colon and stomach^{5,6}.

Gallstone ileus has a high morbidity (15 – 18%) and mortality (7%)⁷. The diagnosis of gallstone ileus is difficult. Gallstone ileus requires urgent and appropriate surgical therapy⁸.

We reported a rare cause of small intestinal obstruction by gallstone in 84 years old an indian male which is less common in male, although the diagnosis of this disease is difficult preoperatively. However, our case has all the radiogolical finding of gallstone ileus.

The case:

The patient is 81 years old Indian male. Known case of hypertension control on medication, Admitted to SMC on July 1st 2002, with history of difuse colicky abdominal pain for one week, followed by constipation for four days, and bilious vomiting for two days. He did have a history of ERCP, sphinotrotomy, and removal of CBD stone on Oct 2001.

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Abdominal examination revealed abdominal distension, diffuse tenderness, exaggerated obstructive small bowel sound, and empty rectum on PR examination. Laboratory studies showed high WBC count, band cells, and mildly elevated liver enzymes and bilirubin. The patient was moderately dehydrated on admission. He was kept NPO and a nasogastric tube was inserted. He was given fluid replacement and the electrolyte imbalance was adjusted.

Radiographic investigation confirmed Gallstone ileus. The imaging revealed the following findings: Air in the intra and extrahepatic biliary tree, Intestinal obstruction and intraluminal mass suggestive of gallstone ileus.

Radiological diagnosis:

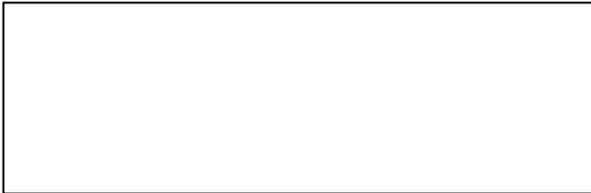


Figure 1. Supine conventional radiography of the abdomen

Supine abdominal radiograph shows dilated small bowel loops. The colon is normal in diameter and some fecal material can be seen in the ascending and transverse colon. The overall appearance is consistent with an early or partial distal small bowel obstruction. A curvilinear lucency over the liver represents air in the biliary tree (Fig.1).



Figure 2. Barium contrast studies of small bowel

Contrast examination of the small bowel shows opacification of dilated proximal small bowel. A collection of contrast can be seen arising from the lateral wall of the second segment of the duodenum extending in a cephalad direction. Delayed images (not shown) demonstrated opacification of the gall bladder. This tract is therefore consistent with cholecystoduodenal fistula (Fig.2).



Figure 3-1. Contrast enhanced CT scan of the abdomen

Contrast enhanced CT of the abdomen shows air in the intra hepatic bile ducts (Fig.3-1). The gall bladder is contracted and contains a single gallstone which has a rim of calcification (not shown).

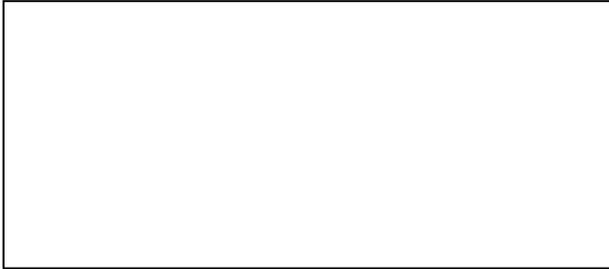


Figure 3-2. Contrast enhanced CT scan of the abdomen

The small bowel is dilated. At the point of obstruction in the distal small bowel, there is a 2.5 cm intraluminal mass which has a rim of calcification suggestive of a gallstone (Fig. 3-2).

Abdominal ultrasound showed a thick-walled contracted gall bladder with calculi within it, consistent with chronic calculus cholecystitis, CBD was normal in size .

Following stabilisation of the patient and confirmation of the diagnosis, the patient was taken to the theater for emergency exploratory laparotomy was done. There were distended proximal jejunal bowel loops, collapsed distal ileal bowel loops and there was reactionary fluid in the peritoneum. Obstruction was localised in the proximal two third of the small bowel. Enterolithotomy was done in the antimesenteric border proximal to the obstruction. A large stone more than 2,5 cm was extracted. The Incision was closed with two layers of 3/0 vicryl.

Subsequently the patient did well post-operatively and discharged without any complications

Discussion:

Gallstone ileus considered as geriatric surgical emergency accounting for 1-4% of mechanical intestinal obstruction. The classic triad on plane abdominal radiographs includes pneumobilia, intestinal obstruction, and aberrantly located gallstone. The presence of two of these findings is considered as a pathognomonic of gallstone ileus^{2,9,10}.

Once the stone gets access to the gastrointestinal tract it may be vomited, passed spontaneously or become impacted most frequently in the terminal ileum which is the narrowest part of small bowel¹.

The size of the obstruction stone range from 2.5 to 5 cm¹⁰⁻¹⁴. Stone less than 2.5 cm in diameter are usually passed spontaneously. The management of gallstone ileus is controversial; the choice is between performing simple enterolithotomy with longitudinal incision on the antimesenteric border proximal to the site of obstruction, or a single stage

procedure involving enterolithotomy cholecystectomy and closure of the fistula^{2,6}. In the largest single published review of gallstone ileus 80% of the 1001 patients were treated by enterolithotomy and stone extraction only, The recurrence rate of gallstone ileus was noted to be 4% to 7%¹⁴. Concomitant definitive single stage procedure is advocated if the patient is in good condition and has sustained no prolonged preoperative losses or intra-operative complication and there is no significant inflammatory reaction at the fistula site¹⁵. Most recently the obstruction has been successfully overcome by shock wave lithotripsy without surgical intervention¹⁶.

Conclusion:

Gallstone ileus is rare and serious geriatric emergency. It may causes signs of small bowel obstruction. Often the diagnosis is delayed because of non-specific finding on various examination. However presence of the pneumobilia, small bowel obstruction, and ectopic gallstones are specific for diagnosis of gallstone ileus.

Gallstone ileus mandates urgent and appropriate surgical intervention. We recommend enterolithotomy procedure provided that sufficient drainage via common bile duct is maintained; sphincterotomy being an example of such drainage procedures that allow good and constant flow of bile preventing any possibility of stasis and subsequent stone formation. Although, this procedure reduces intra-operative complication, it is advocated for contracted non-visualized gallbladder and it minimizes operation time for elderly and unstable patients.

References

1. Van Landingham SB, Broders CW. Gallstone ileus. *Surgical Clinics of North America* 1982, 62:241-7
2. Clavien PA, Richon J, Burgan S, et al. Gallstone ileus. *Br J Surg* 1990,77(7):737-42.
3. Moss JF, Bloom AD, Mesleh GF, et al. Gallstone ileus. *Am Surg* 1987,53:424-8.
4. Davies JB, Sedman PC, Benson EA. Gallstone ileus. Beware the silent second stone. *Postgraduate Medical Journal* 1996;72:300-1.
5. Lu SC, Kaplowitz N. Diseases of the biliary tree. In: Yamada T, ed. *Textbook of gastroenterology*. JB Lippincott Company: Philadelphia,1991:1990–2020.
6. Safaie-Shirazi S, Zike WL, Printen KJ. Spontaneous enterobiliary fistulas. *Surgery, Gynecology and Obstetrics* 1973;137:769–72.
7. Van der Werff YD, Loffeld BC. Gallstone ileus. *Postgraduate Medical Journal* 1995;71:313-15.
8. Sapula R, Skibinski W. Gall stone ileus as a complication of cholecystolithiasis. *Surg Endosc* 2002;16:360a-360.
9. Van Hillo M, Van der Vliert JA, Wiggers T, et al. Gallstone obstruction of the

- intestine: An analysis of ten patients and a review of the literature. *Surgery* 1987;101:273-6.
10. Deitz DM, Standage BA, Pinson CW, et al. Improving the outcome in gallstone ileus. *Am JSurg* 1986;151:572-6.
 11. Kasahara Y, Umemura H, Shiraha S, et al: Gallstone ileus. Review of 11 the Japanese literature. *Am J Surg* 1980;140:437-42 .
 12. Kurtz RJ, Heimann TM, Beck AR, et al. Patterns of treatment of gallstone ileus over a 45-year period. *Am J Gastroenterol* 1985;80:95-8.
 13. Jenkins HP, Evans R, Kkeller TW. Gallstone ileus. *Surg Clin North Am* 1961;41:71-81.
 14. HYPERLINK "<http://www.rbrs.org/database/84-2/page76.html>" \l "#"
 15. Reisner RM, Cohen JR. Gallstone ileus: A review of 1001 reported cases. *Am Surg* 1994;60:44-6.
 16. Day EA, Marks C. Gallstone ileus. Review of the literature and presentation of thirty-four new cases. *Am J Surg* 1975;129:552-8.
 17. Sackman M, Holl J, Hearlin M, et al. Gallstone ileus successfully treated by Shock-wave lithotripsy. *Sabitson Textbook of Surgery*, 15th edn. *Sunders* 1991;36:1794-1147.