

Case report on Gallstone ileus: A cause of small bowel obstruction

A.C.Baro¹, Sadagar Deuri², Rituparna Bhowmick³

¹.Professor and HOD, Department of General Surgery, JMCH,

². Assistant Professor, Department of General Surgery, JMCH

³.Post graduate trainee, JMCH

Abstract: Gall stone ileus is a rare complication of gallstone disease. It is an uncommon cause of small bowel obstruction and accounts for 1%-4% of all cases of mechanical bowel obstruction. The symptoms of gall stone ileus are mostly non-specific. Surgical management remains the mainstay of treatment for the condition.

Keywords: Gall stone ileus, enterolithotomy, bowel obstruction.

Core tip: We present a 35 year old female who presented with vomiting and abdominal pain for 7 days. Ultrasound revealed a grossly contracted gall bladder and a large debris laden mixed echogenic collection in the right adnexa and POD suggestive of hemorrhagic collection /abscess and an uterine myoma. CT scan revealed cholecystojejunal fistula and a large calculus intraluminally in the proximal ileum with proximal dilatation of the bowel loops. Intramural uterine fibromyoma and bilateral ovarian endometrioma was also noted. She underwent enterolithotomy and had an uneventful postoperative course.

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I. Introduction:

Gall stone ileus can occur when a large gall stone erodes through the wall of the gall bladder directly into the intestine via a cholecystoenteric fistula. These stones can then pass through the intestinal tract until they reach an area of fixed obstruction. Proximal stones can become impacted in the pylorus or proximal duodenum causing gastric outlet obstruction: Bouverat syndrome. Those that travel distally may become lodged in surgical anastomosis or ileocecal valve where they become impacted and cause small bowel obstruction.¹

Biliodigestive fistulae are a very rare complication of cholelithiasis occurring in 0.3%-1.5% of the patients.^{2,3} Gallstone ileus is a mechanical obstruction caused by a gallstone which passes through a cholecystoenteric fistulae and impacts in the intestinal lumen. Although the fistula most commonly occurs in the duodenum, it can occur anywhere in the GI tract (colon, stomach and small bowel). The term 'ileus' is a misnomer as there is a mechanical cause for obstruction.⁴

II. Case Presentation:

A 35 year old female presented with a history of vomiting and pain abdomen for 7 days. The pain was colicky in nature and was vaguely located around the umbilicus. There was nausea followed with vomiting (4-5 episodes) which initially consisted of undigested food and was followed by bilious content. She also reported three days of constipation. She had increased menstruation but was otherwise a healthy female with no comorbid conditions. Initial evaluation revealed a normal plain picture abdomen and USG whole abdomen revealed a large debris laden mixed echogenic collection in the right adnexa and POD pushing the uterus anteriorly: suggestive of an abscess or hemorrhagic collection with uterine myoma and a grossly contracted gall bladder. The patient was admitted in the gynecology ward. Upon admission, there was progressive distension of the abdomen with no passage of flatus. The bilious vomiting which had initially subsided had resurfaced. The patient was afebrile and normotensive but there was tachycardia. Routine blood counts showed leucocytosis ($19.50 \times 10^3/\text{ul}$: N_{81.2} L_{12.5} M_{5.6} E_{0.6}) and thrombocytosis ($510 \times 10^3/\text{ul}$), Liver Function tests were elevated mildly (AST -74 u/l, ALT-138 u/l, Alkaline phosphatase 212 u/l) and there was hyponatremia (128.91 mg/dl). The other blood parameters were within normal limit. Surgery consultation was sought and upon asking she gave history of being diagnosed with cholelithiasis 1 year back for which she was advised cholecystectomy but could not do so pertaining the ongoing covid-19 pandemic. A contrast ct scan of the abdomen was advised which revealed a collapsed gall bladder with air foci within it. A fistulous tract was noted with the gall bladder and the first part of the duodenum. A large calculus (~3cm) intraluminally in the proximal lumen obstructing the lumen and causing upstream bowel dilatation. Intramural uterine fibromyoma with bilateral ovarian endometriosis was also noted. The patient was planned for laparotomy and was shifted to surgery side. Ryles tube was indwelled

and the patient was asked to discontinue oral feeds. After resuscitation with intravenous fluids and antibiotics, the patient was taken up for operation.

Intraoperative findings:

Upon opening the abdomen, grossly dilated bowel was encountered. The bowel was traced from the DJ flexure. A calculi (~3*2.5*2.5cm) was found lodged in the ileum, 2 inch away from the ileocecal valve [As shown in Fig 3]. The gall bladder upon palpation was contracted and clumped with omentum. A wide fistula with the gall bladder and first part of deudenum was found. Enterotomy was done and gall stone was removed [As shown in Fig 4] . The enterotomy was repaired in two layers. The patient had an uneventful postoperative course and was discharged on postoperative day 18. Flatus was passed on post operative day 3 and feces on postoperative day 5 respectively.



Fig 1: Nect showing obscured fat plane between gall bladder and first part of deudenum



Fig 2: Cect showing air foci in the gall bladder and the obscuring of fat plane between gall bladder and the first part of deudenum



Fig3: Impacted Gall stone



Fig 4: Small bowel enterotomy for removal of gall stone

III. Discussion:

GI is more common in women, the ratio of females: males is 3.5:1⁽⁵⁾ given the known prevalence of gall bladder disease in females. The gall stone size represents a key factor for the causation of an impaction and it should be atleast ≥ 2.5 cms in diameter to cause obstruction, smaller in case of stenosis⁽⁴⁾. Most of the stones lodge in ileum(60.5%),the narrowest segment of the bowel; reduced peristalsis in this area has also been a

contributing factor⁽²⁾. Although rare, GI is associated with a significant morbidity and mortality (overall 18%)². Pericholecystic inflammation results in the formation of adhesions between the gall bladder and the gastrointestinal tract, usually in the duodenum due to close proximity usually after an episode of acute cholecystitis. The pressure effects of the gallstone with the inflammation results in erosion of the stone through the gall bladder wall into the intestine forming the fistula tract as presently elaborated^(6,7). The nature of the obstruction often results in non-specific and intermittent signs and symptoms. Clinical examination reveals findings consistent with a bowel obstruction like nausea, vomiting, dehydration, abdominal distention and high pitch bowel sounds, which are most frequently present^(6,7,8). There may be a delay in the presentation due to the “tumbling” phenomenon. It describes the intermittent nature of symptoms when the stone dislodges, travels distally and impacts again. This can cause a delay in making a diagnosis as the clinician may find a benign examination.⁽⁹⁾ There may also be signs of sepsis in a patient who presents with an acute attack of cholecystitis or peritonitis due to the impaction of the gall stones causing pressure to the bowel wall, necrosis and perforation.⁽⁶⁾ As such, only a high level of suspicion in patients with history of gallstones is required presenting with bowel obstruction is required. Plain films may show an obstructive bowel gas pattern but may fail to identify a radiolucent stone. CT is highly sensitive and specific for gall stone ileus as ultrasound evaluation is highly limited by the presence of extensive bowel gas.⁽¹⁾ The aim of the treatment is to relieve the obstruction, which requires removal of the gallstone.⁽¹⁰⁾ While in case of very proximal stones endoscopic retrieval can be effective. But for more distal obstruction there is a consensus regarding the need for surgical enterolithotomy, either open or laproscopically. There is a controversy in the literature as to whether the repair of the fistula and cholecystectomy should be performed concurrently. Though enterolithotomy with stone extraction alone remains the most common surgical method because of its low incidence of complications, the complications related to gallstones and the chance of future ileus remains.⁽¹⁾

IV. Conclusion:

Gall stone ileus is an uncommon cause of mechanical bowel obstruction with often non-specific symptoms at presentation. As such a high level of suspicion is required in patients who present with a bowel obstruction and have a known gallstone disease.

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