

Case Report:

Gallstone Ileus: Unfortunate Encounter

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Abstract:

Gallstone disease is a common burden that affect worldwide that carry broad spectrum of its complications and severities. Gallstone ileus (GSI) remained the rare complication that arise form gallstone disease that mainly affected the elderly population. The mainstay of treatment for GSI is to relieve the small bowel obstruction by extraction of the impacted gallstone. Surgical options for GSI remained the long-standing arguments involve single-staged procedure (enterolithotomy, cholecystectomy and fistula repair) or two-staged procedure (enterolithotomy alone, and cholecystectomy with fistula repair later). We reported a case of a 76-year-old male who presented with symptoms of small bowel obstruction and computed tomography (CT) of abdomen confirmed the presence of calcified lesion at ileum with pneumobilia which was successfully managed with two-staged procedure.

Keywords: gallstone disease; gallstone ileus; small bowel obstruction; pneumobilia; enterolithotomy

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Introduction:

Gallstone disease carries significant healthcare problem which affecting 10% to 15% of the adult populations with up to 20% of patient will experienced biliary pain or its complications¹. The important risk factors related to gallstone disease include gender (female), age (over 40), severe obesity (BMI >32kg/m²) and underlying metabolic diseases¹. The incidence of GSI accounts up to 0.5%

of gallstone disease and less than 0.1% of mechanical small bowel obstruction cases, but it contributed up to 25% of non-strangulated small bowel obstruction in elderly population².

Case report:

A 76-year-old male, with multiple comorbidities; ischemic heart disease, hypertension, and type 2 diabetes, presented with 5 days history of worsening colicky abdominal pain, distension, and

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bilious vomiting. There was no previous history of abdominal surgery.

General examination revealed mild tachycardia and dehydration. His abdomen was distended with generalised tenderness marked over the upper part of abdomen. Laboratory investigations showed evidence of leucocytosis, acute kidney injury and dehydration. Initial resuscitation was started including, correction of hydration status, nasogastric insertion to alleviate his symptoms and broad-spectrum antibiotics.

Plain abdominal x-ray showed dilated small bowel consistent with intestinal obstruction. Computer tomography (CT) of abdomen was obtained to find out the causative factor of small bowel obstruction. The CT finding reported as small bowel dilatation with presence of 2.5cm calcified lesion within the ileum, and pneumobilia. (Figure 1&2)

After initial resuscitation and stabilization, he was subjected for laparotomy with operative findings, presence of gallstone measuring 2.5cm x 2.5cm at 80cm from terminal ileum with evidence of small bowel dilatation proximal to site of obstruction (Figure 3). The whole length of small bowel was examined for presence of residual stone. The gallbladder was unable to identified due to dense adhesion surrounding the structure. Due to the poor general condition of the patient, decision was made for enterostomy and enterolithotomy alone without cholecystectomy. His recovery was uneventful and discharged well on day 5 post-operatively. On interval follow up, he was counselled for cholecystectomy, but he opted for expectant management.

Discussion:

Gallstone ileus (GSI) was first described by Thomas Bartholin in 1654 is defined as mechanical obstruction that arise from impaction of at least one of the gallstone within the gastrointestinal tract⁽²⁾. The term "ileus" is a misnomer considering the nature of the obstruction is true mechanical phenomenon².

GSI occurred as a consequences of fistula formation between the gallbladder and the adherence part of gastrointestinal tract due to inflammation process.

Hence, duodenum is the commonest site for fistula formation due to its close proximity to gallbladder³. The diameter for gallstone to be impacted and lead for small bowel obstruction would be ranging from 2cm to 5cm⁴. In our case, we managed to extracted gallstone sized 2.5cm in diameter that was impacted at the ileum.

Majority of GSI patient may presented with acute, intermittent gastrointestinal obstruction. The nature of intermittent pain is due to gallstone advancement and impaction in gastrointestinal tract. This "tumbling phenomenon" resulted in delayed in presentation of the patient which usually present up to 8 days after the initial symptoms⁵. Therefore, the patient may present in the state of dehydration and electrolytes imbalance which required initial resuscitation and optimisation prior surgical intervention.

The pathognomonic triad of GSI in plain abdominal x-ray include; signs of small bowel obstruction, presence of ectopic radio-opaque gallstone and pneumobilia². However CT is gold standard in diagnosing GSI with sensitivity up to 93% and specificity of 100%⁶.

The extraction of impacted gallstone remain the mainstay of treatment for relieving the obstruction in GSI. Three surgical approaches were described in literatures review; either simple enterolithotomy, enterolithotomy with cholecystectomy and fistula closure (single-staged procedure), or enterolithotomy with cholecystectomy performed later (two-staged procedure)^{2,5,7}. Enterostomy must be performed with care to avoid stenosis of lumen. Thus, an incision should be made proximal to site of impaction in longitudinal manner with transverse closure of enterostomy³.

The ongoing debates in the management of GSI is whether biliary surgery should be carried out in during the relief of obstruction or performed later on. In our case, we opted for enterolithotomy alone in our case due to patient's condition not permissible for further intervention. As most of the GSI patients are elderly with multiple comorbidities, and delayed in presentation, majority of them experienced fluid and electrolytes imbalance which required optimisation prior surgical intervention. Thus relief the of gastrointestinal obstruction alone remained the safest option in these patients^{2,5,7}. Recurrent of GSI may occur up to 17% of patient treated with enterolithotomy alone⁴. Therefore it is advisable to continue monitoring these patient for complication related to gallstone disease later.

Conclusion:

Gallstone ileus is a rare cause of intestinal obstruction. It should be considered as one of the causes for intestinal obstruction elderly patient. CT is the preferred imaging modality in comparison to other imaging for diagnosis of GSI. Enterolithotomy

is the safest option for this condition as majority of the patient are elderly with comorbidities while single-staged surgery may be offered after careful selection of patient.

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and prepared the table and figures and wrote the manuscript.

Ikhwan Sani Mohamad became the corresponding author and replied to the editor.

Maya Mazuwin, Leow Voon Meng and Nagarajan T Vellasamy provided expert opinion and revised the final manuscript. All authors approved the final manuscript.

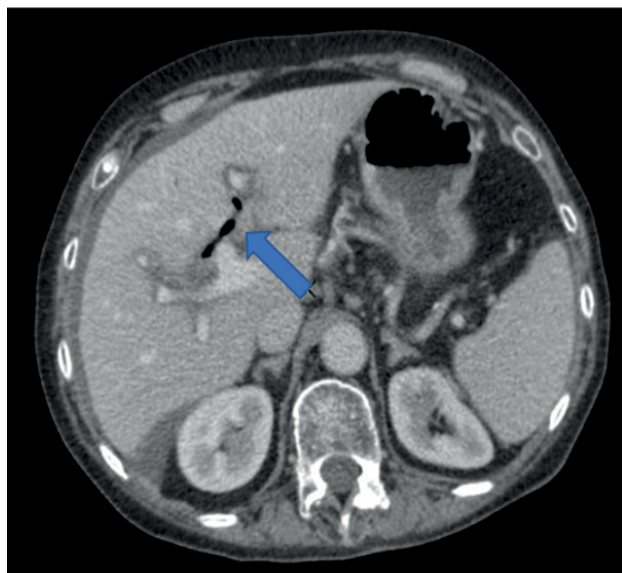


Figure 1: Axial CT abdomen showed presence of pneumobilia (blue arrow).

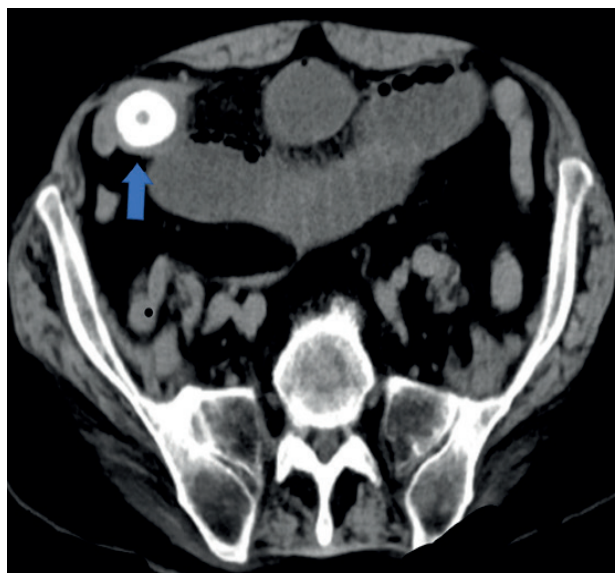


Figure 2: Axial CT abdomen showed presence of calcified lesion at ileum (blue arrow).



Figure 3: Enterolithotomy performed relieving impacted gallstone.

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