

Gallstone ileus

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Keywords: Gallstone ileus, Rigler triad

Date of Submission: 01-02-2019

Date of acceptance:18-02-2019

I. Introduction:

Gallstone ileus is an important, though infrequent, cause of mechanical bowel obstruction, affecting older adult patients who often have other significant medical conditions. It is caused by impaction of a gallstone in the ileum after being passed through a biliary-enteric fistula. The diagnosis is often delayed since symptoms may be intermittent and investigations fail to identify the cause of the obstruction. The mainstay of treatment is removal of the obstructing stone after resuscitating the patient. Gallstone ileus continues to be associated with relatively high rates of morbidity and mortality.

Incidence :

Gallstone ileus is an unusual complication of cholelithiasis, occurring in less than 0.5 percent of patients who present with mechanical small bowel obstruction

Pathogenesis:

The usual means of gallstone entry into the bowel is through a biliary enteric fistula, which complicates 2 to 3 percent of all cases of cholelithiasis with associated episodes of cholecystitis. Sixty percent are cholecystoduodenal fistulas, but cholecystocolonic and cholecystogastric fistulas can also result in gallstone ileus.

Gallstone ileus results in obstruction if the gallstone is of large enough size. Ninety percent of obstructing stones are greater than 2 cm in diameter, with the majority measuring over 2.5 cm. Fifty to 70 percent of gallstones impact in the ileum, which is the narrowest segment of the intestine. The jejunum and stomach are the next most frequently affected sites. Colonic obstruction tends to occur where there is preexisting pathology, such as a post diverticulitis stricture, since the normal colonic diameter usually permits passage of gallstones. Multiple gallstones may be found along the obstructed bowel.

Clinical features:

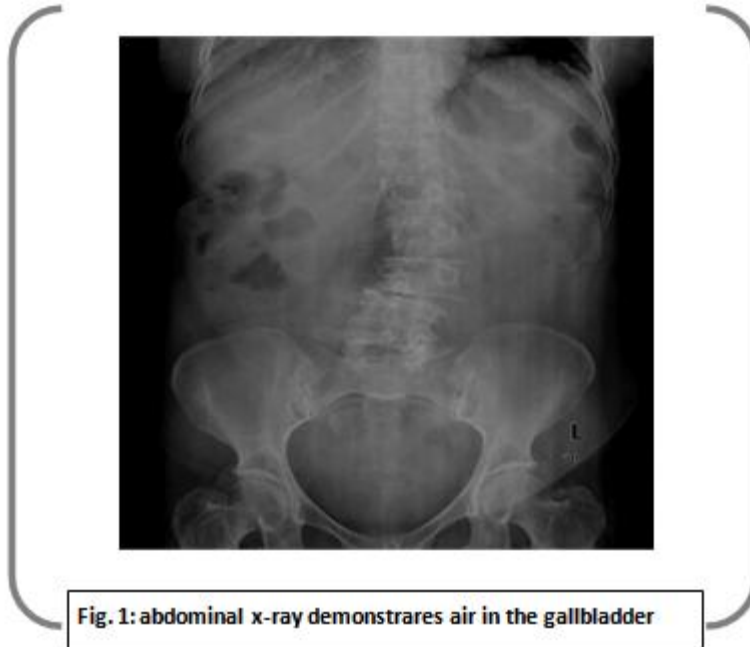
The classic clinical presentation of gallstone ileus is episodic subacute obstruction in an older woman. Transient gallstone impaction produces abdominal pain and vomiting, which subside as the gallstone becomes disimpacted, only to recur again as the progressively larger stone lodges in the more distal bowel lumen. As a result, vague and intermittent symptoms may be present for some days prior to evaluation.^[2]

Case scenario

II. "RADIOLOGICALSTUDY"

as emergency case abdominal x-ray, abdominal Ultrasound & CT of Chest, Abdomen & Pelvis was done for her & shows :

1. Abdominal x-ray



2. Abdominal Ultrasound:

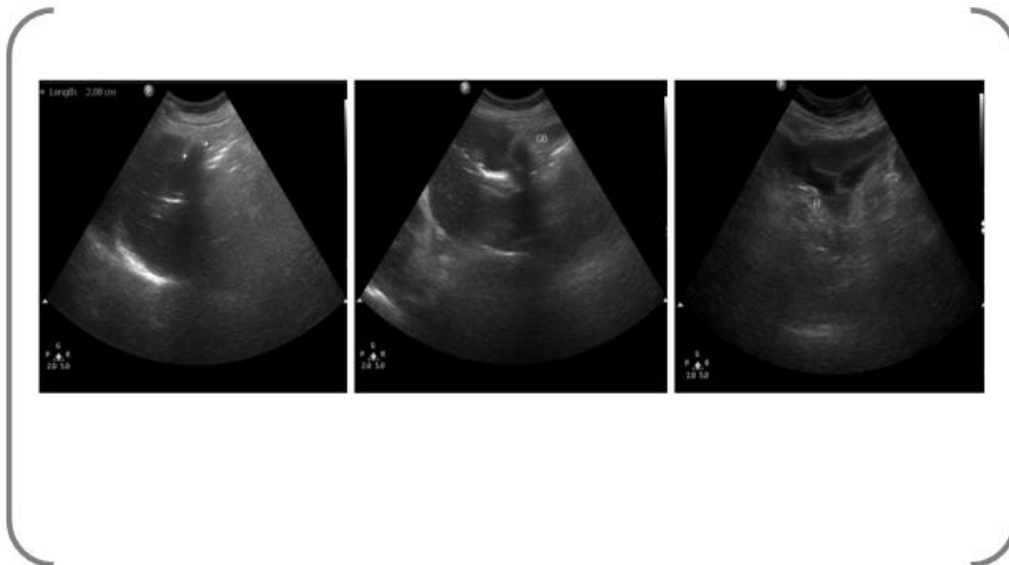


Fig. 2: pic. A&B shows: gallbladder is contracted and contains echogenic foci with posterior acoustic shadow likely suggest stone,
No pericholecystic fluid noted now.
pic. C shows: A minimal amount of free fluid in the pelvis.

3. CT Chest, Abdomen & Pelvis:

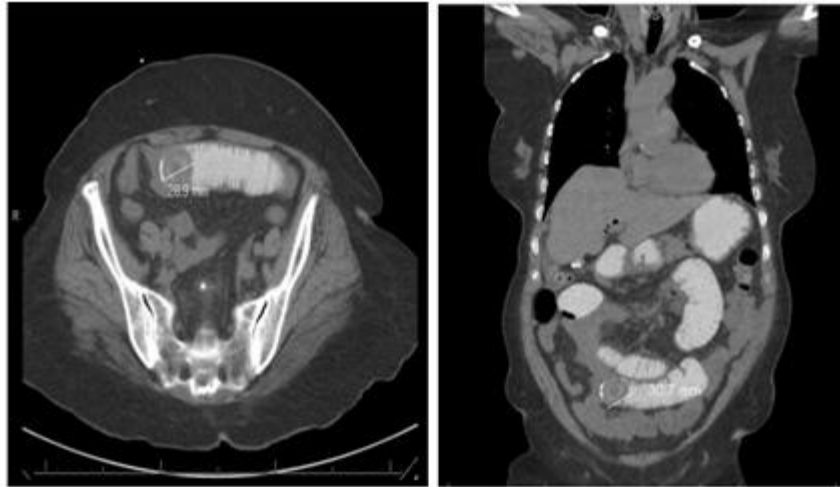
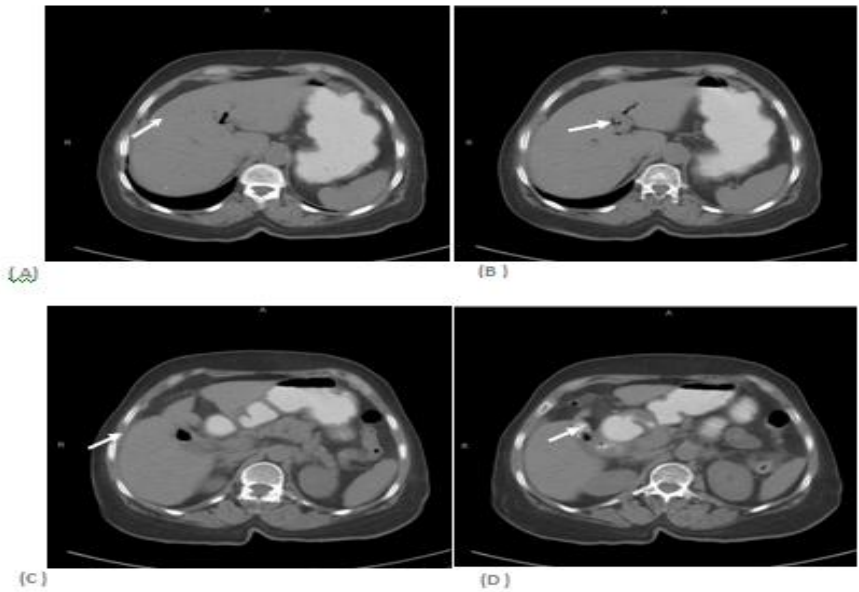


Fig. 4: (A)Axial (B)coronale
Distended proximal small bowel lobe with filling defect 3.2 & 2.8cm represent migrating /ectopic partially calcified GB stone obstructing the small bowel in the right para midline of lower abdomen (distal jejunum). The rest of small & large bowels are collapsed.



Axial view shows:pneumobilia in pic.A,B&C .
And shows Calcification in the fundus of gallbladder in pic.D .

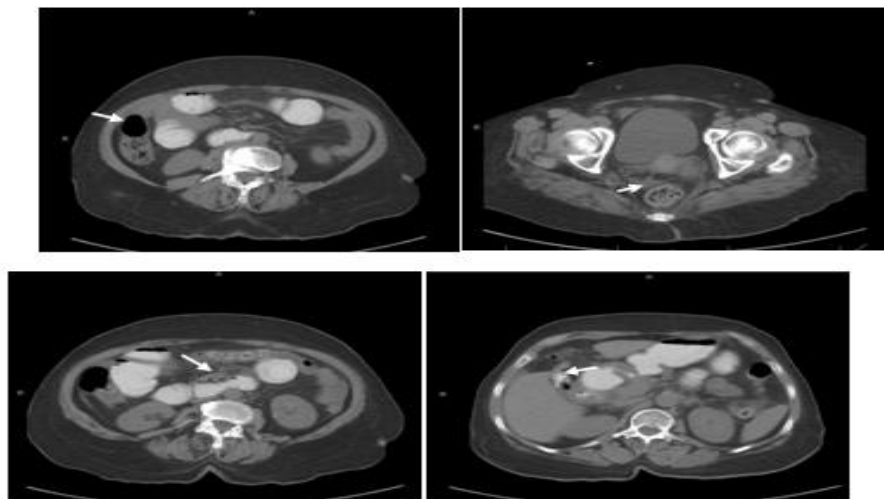
The study done with oral Contrast due to renal impairment & shows:



coronaleview shows pneumobilia (A)
&Calcification in the fundus of gallbladder (B)



coronaleview shows :cholecystoduodenal
fistula .



Axial view shows: free fluid in the abdomen & pelvis

CT demonstrates Rigler's Triad: pneumobilia, small bowel obstruction, and gallstones

The CT scan confirmed the diagnosis as Gall stone ileus, so the patient underwent laparotomy during which two gallstones were removed through enterotomy.

III. Discussion

- Gallstone ileus is rare complication of chronic cholecystitis and occurs when a gallstone passes into the small bowel and usually impacts at the ileocaecal valve& it is an uncommon cause (1-4% of cases) of a mechanical small bowel obstruction.^[3]
- The classic clinical presentation of gallstone ileus is episodic subacute obstruction in an older woman. Transient gallstone impaction produces abdominal pain and vomiting, which subside as the gallstone becomes disimpacted, only to recur again as the progressively larger stone lodges in the more distal bowel lumen. As a result, vague and intermittent symptoms may be present for some days prior to evaluation ^[4]
- diagnosis: Gallstone ileus should be suspected in older adult patients with the above clinical features suggestive of acute or subacute small bowel obstruction and is confirmed by either radiologic evaluation or, in some patients, at the time of surgery for small bowel obstruction. ^[4]
- Abdominal CT is the imaging modality of choice for diagnosis gallstone ileus.^[4]
- Rigler triad consists of three findings seen in gallstone ileus:
 - pneumobilia
 - small bowel obstruction
 - gallstone, usually in the right iliac fossa^[5]
- The treatment for gallstone ileus is primarily surgical. Gallstone ileus involves three key elements, cholelithiasis, biliary-enteric fistula, and intestinal obstruction. Intestinal obstruction is typically addressed with an enterolithotomy (ie, enterotomy with stone removal). Cholelithiasis and biliary-enteric fistula are typically addressed together with a combined biliary procedure involving cholecystectomy and fistula closure.
- Nonsurgical treatments of gallstone ileus have been described but are rarely used
- Since the majority of patients with gallstone ileus are older adults and have other serious medical conditions, the mortality rate for gallstone ileus remains high
- The mortality rate of gallstone ileus is 5 to 10 times higher than those of other causes of mechanical small bowel obstruction.^[4]
- Recurrent gallstone ileus may occur in 4.7 to 17 percent of patients treated with enterolithotomy alone . Fifty-seven percent of recurrences occurred within six months of the original surgery. In addition to recurrent gallstone ileus, symptomatic biliary tract disease developed in 15 percent of patients whose gallbladders were not removed, according to one study^[4]

IV. Conclusion:

The abdominal radiograph is the mainstay of imaging in small-bowel obstruction and can be important in establishing a diagnosis of gallstone ileus. As reported by Rigler triad in 1941, the most frequent findings are small-bowel obstruction, pneumobilia, ectopic gallstone, and change in location of a stone on serial examinations. As a result, CT scanning is increasingly used in the assessment of the acute abdomen, particularly when small-bowel obstruction is suspected.

The use of CT is well-established in the evaluation of small-bowel obstruction and in the evaluation of the acute abdomen. Numerous authors have reported cases of gallstone ileus presenting with acute or subacute abdomen diagnosed by CT. Common findings, in order of frequency, include small-bowel obstruction with transition point, ectopic intraluminal calculi, gas-fluid levels in gallbladder fossa, free abdominal fluid, cholecystoduodenal fistula, pneumobilia, and thickened duodenum. Importantly, CT also assesses for strangulation, provides accurate alternative diagnoses in patients presenting with acute abdomen, and provides valuable information as to whether early laparotomy is warranted or whether nonoperative management should be considered. ^[6]

- **Competing interests:**

The author declares that she has Competing interests and the supervisor have seen and agree with the contents.

- **Consent:** the patient Consent for publication&North West Armed Hospital too,

Reference:

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Gallstone ileus – done by: DR: EmanFarih AL-Enzi" IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 18, no. 2, 2019, pp 42-47