



ORIGINAL RESEARCH PAPER

General Surgery

AN RARE CASE OF ACUTE INTESTINAL OBSTRUCTION : GALL STONE ILEUS

KEY WORDS:

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ABSTRACT

Gallstone ileus is a rare cause of intestinal obstruction. Typically as a result of the formation of cholecystoduodenal fistula, surgical removal of the gallstone is the mainstay of treatment in order to relieve the intestinal obstruction. A 70-year-old female with no history of cholelithiasis presented with features of a small bowel obstruction. Ultrasound scan of the abdomen demonstrated multiple dilated small bowel loops with to and fro peristalsis with mild hepatomegaly and grade 1 fatty liver. The patient underwent a laparotomy and removal of one gallstones via an enterotomy. Gallstone ileus is an uncommon cause of mechanical bowel obstruction with often delayed presentation and non-specific symptoms. A high level of suspicion is required in at-risk groups, and in patients presenting with a bowel obstruction and known gallstone disease.

INTRODUCTION :-

Gallstone ileus is a rare cause of intestinal obstruction, occurring in less than 5% of patients who present with a mechanical small bowel obstruction . Gallstone ileus is an unusual complication of cholelithiasis. It is caused by the impaction of a gallstone in the small bowel, usually after passing through a biliary-enteric fistula typically formed between the gallbladder and duodenum . Female and older patients are disproportionality affected, and a high index of suspicion should be needed when patients present with a bowel obstruction and known history of gallstones .

Pathogenesis :-

In patients with gallstone ileus, the gallstones are usually eliminated via an internal biliary fistula. In majority of cases (75%–83%), the elimination route is from the gallbladder to the duodenum. However, elimination may proceed from the gallbladder to the colon or stomach, or in extremely rare cases, naturally via the bile duct, involving passage from the gallbladder to the common bile duct and subsequently to the papilla of Vater. Based on these facts, this study focused only on internal biliary fistula classified as cholecystointestinal fistula. In many cases, an internal biliary fistula forms due to vascular insufficiency or chronic inflammation caused by compression of the gallbladder wall during calculus formation, which allows elimination of the calculus. jejunum (16.1%–26.9%), The most common impaction site of the gallstone is the ileum (50.0%–60.5%), duodenum (3.5%–14.6%) and colon (3.0%–4.1%), in order. Bouveret syndrome, named after the physician who first discovered the condition, refers to impaction in the duodenal bulb that causes gastric outlet obstruction. The impacted gallstones are mainly of the cholesterol type and approximately 4cm in size, which is within the ≥2.5 cm range considered as impaction prone.

Epidemiology :-

Gallstone ileus occurs in 0.15%–1.5% of cholelithiasis cases and <0.1% of ileus cases overall, and the recurrence rate is 5%–8%.

Diagnosis :-

Gallstone ileus has no distinctive symptoms, but tumbling

gallstone advancement that results in alternating aggravation and resolution of ileus is a relatively common feature. Many patients with gallstone ileus are elderly, present with comorbidities, have poor general condition and delayed diagnosis that leads to dehydration, shock, sepsis, or peritonitis.

In a review of 176 cases (49 male and 127 female patients; age, 24–91 years) of gallstone, Nakao et al reported abdominal pain at presentation in majority of the patients (91.5%) with accompanied abdominal distension, vomiting and fever in 84.7%, 59.7% and 40.9% of all patients, respectively.

In a review of 128 cases of Bouveret syndrome, Cappell and Davis reported the mean age of patients of 74.1 years, a larger proportion of female patients (female-to-male ratio of 1.86), and clinical symptoms of nausea and vomiting (87%), abdominal pain (71%), haematemesis (15%), weight loss (14%) and poor appetite (13%).

In a systematic review of 38 cases of sigmoid gallstone ileus, Farkas et al reported the age range of patients of 65–94 years, mean age of 81.1 years, and nearly threefold higher proportion of female patients than of male patients; regarding clinical symptoms, 74% of the patients presented abdominal pain, whereas 93% of the patients presented other obstructive symptoms of constipation (61%), vomiting (50%) and abdominal distension (26%).

Rigler et al reported that pneumobilia and intestinal tract dilatation and specularity, calculus within the intestinal tract, and calculus movement observed on plain abdominal radiography are useful for diagnosis of the condition; however, the combined signs only appeared in <50% of cases.

In another review, Cappell and Davis the frequency of the plain radiographic findings as follows: pneumobilia, 25%; gastric dilatation, 15%; calcified mass or calculus around the gallbladder or in the upper right abdominal area, 24%; moreover, those findings were confirmed on CT scans at frequency of 60%, 20% and 90%, respectively, which indicates that advances in CT could significantly improve the diagnosis rate.

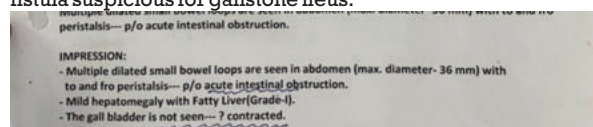
The imaging findings of intestinal tract dilation showed similar frequency in both abdominal radiography and CT (88% vs 92%); however, CT achieved more than twofold higher rate of diagnosis of ectopic gallstone than radiography (33% vs 81%), which suggests that CT is useful for visualisation of pneumobilia and intestinal calculi.

Several case reports have indicated that contrast-enhanced CT achieves high sensitivity (93%), specificity (100%), and accuracy (99%) in the diagnosis of gallstone ileus. The presence of a fistula can be diagnosed by drip infusion cholangiographic CT to confirm leakage of contrast medium from the biliary system into the gastrointestinal tract. In addition, abdominal ultrasonography can visualise impacted calculus and presence of cholelithiasis. Upper gastrointestinal endoscopy can be used to confirm the diagnosis of impacted calculus and internal biliary fistulas such as cholecystointestinal fistulas.

The differential diagnosis includes adhesive ileus in patients with history of abdominal surgery or abdominal radiotherapy, dietary ileus, ileus accompanying gastric calculus, ileus due to ingestion of a foreign object undetectable through radiography, and ileus due to malignant tumour.

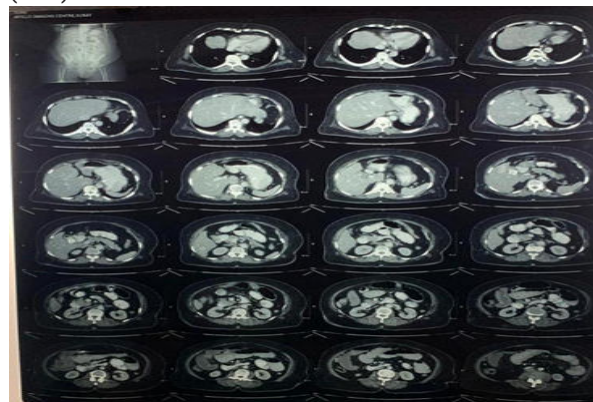
Case Presentation :-

A 70 year old female presented with a five -day history of colicky epigastric pain and few episodes of vomiting. She also reported three days of constipation and not passing flatus. She also is a known case of diabetes melitus type 2 and hypertension since 20 year and taking medication regularly. she was haemodynamically stable and afebrile on presentation. Examination revealed a moderate distension and generalized tenderness; however, no rebound tenderness or guarding was noted. CT of the abdomen demonstrated a small bowel obstruction with the point of obstruction in mid abdomen and a cholecystoduodenal fistula suspicious for gallstone ileus.



1) Ultrasound Of Patient

When diagnosis is still doubtful, an abdominal ultrasound (US) will be indicated for gallbladder stones, fistula and impacted gallstone visualization. It may also confirm the presence of choledocholithiasis. The use of US in combination with abdominal films to increase the sensitivity of diagnosis has been advocated. US is more sensitive at detecting pneumobilia and ectopic gallstones. The combination of abdominal films and US has increased the sensitivity of diagnosis of gallstone ileus to 74%. The most frequent findings in Bouveret's syndrome are gallstone in or near the gallbladder (53%), pneumobilia or cholecystoduodenal fistula (45%), gallstone in duodenum (25%), dilated or distended stomach (15%), and a contracted gallbladder (13%).



2) CECT Of Abdomen And Pelvis Report

Computed tomography (CT) is considered superior to plain abdominal films or US in the diagnosis of gallstone ileus cases, with a sensitivity of up to 93%. The frequency of Rigler's triad detection is higher under CT examination. In a retrospective study by Lassandro et al, Rigler's triad was observed in 77.8% of cases by means of CT, compared to 14.8% with radiographs and 11.1% with US. Bowel loops dilatation was seen in 92.6% of cases, pneumobilia in 88.9%, ectopic gallstone in 81.5%, air-fluid levels in 37%, and the bilio-digestive fistula in 14.8%. Yu et al performed a prospective study where 165 patients with acute small bowel obstruction were evaluated for gallstone ileus, with retrospective identification of three diagnostic criteria: (1) small bowel obstruction; (2) ectopic gallstone, either rim-calcified or total-calcified; and (3) abnormal gallbladder with complete air collection, presence of air-fluid level, or fluid accumulation with irregular wall. Overall sensitivity, specificity and accuracy were 93%, 100%, and 99%, respectively. Rigler's triad was detected only in 36% of cases. These tomographic diagnostic criteria need further prospective validation. Current CT scanners may describe the location of the fistula, offending gallstones and gastrointestinal obstruction with better precision, and helping in therapeutic decisions.

In Bouveret's syndrome, major findings on CT scan are obstruction due to a gastro-duodenal mass or lesion, pericholecystic inflammatory changes extending into the duodenum, gas in the gallbladder, pneumobilia or cholecysto-duodenal fistula, filling defects corresponding to one or more gallstones, thickened gallbladder wall, and a contracted gallbladder.

CT scan may allow detection of a rim or totally calcified ectopic gallstone without oral contrast administration. This may be done even with non-enhanced CT. Identification of a rim-calcified gallstone may be more difficult with contrast-enhanced CT, compared to total calcified gallstones. Less calcified gallstones could be missed. Contrast-enhanced CT

allows detection of edema and ischemia of the affected gastrointestinal tract site. Given the relevance of possible bowel ischemia, contrast-enhanced CT is of particular importance in management decision making.

Management :-

Patient was resuscitated with intravenous fluids and had a nasogastric tube inserted for decompression. The patient underwent a laparotomy. Intraoperative findings noted small bowel obstruction with the transition point at 60 cm from the ileocaecal valve caused by single large gallstone obstructing the lumen (Figure 3). A longitudinal 1 cm enterotomy was made proximal to the distal gallstone (Figure), Stone was extracted from the bowel and the enterotomy was closed transversely with Vicryl 2-0 . His post-operative period was uneventful, and the patient was discharged home day 5 post-operatively.

