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Case Report

Gallstone Ileus: A Rare Case of Intestinal Obstruction, Presented in a Chronic Kidney Disease Patient on Haemodialysis

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Abstract

The prevalence of gallbladder stones is higher in Chronic Kidney Disease (CKD) patients and it has been shown to increase with the advancement of the disease stage, from 7.7% in stage 1% to 21.3% in stage 5. Gallstone ileus is a rare complication which presents in just 0.3% - 0.5% of patients with cholelithiasis. A 61-year-old female patient, with a known case of CKD on maintenance hemodialysis, (thrice a week) with primary disease of hypertensive and diabetic nephropathy; presented with multiple episodes of loose stool, vomiting, and diffuse abdominal pain for 2 days. Abdomen Ultrasonography (USG) was suggestive of intestinal obstruction. CT abdomen with oral contrast revealed grossly dilated jejuna loops with air-fluid levels and transition zone in the pelvis, in distal jejunal loops/proximal ileum with ovoid intraluminal filling defect cystic polyp and collapsed bowel loops. The patient underwent exploratory laparotomy in view of persistent small bowel obstruction. Resection and anastomosis of the mass-bearing small bowel segment were performed. On cutting and opening the specimen, a large stone was revealed. This gallstone was causing bowel obstruction-gall stone ileus. A gallstone 2.6 cm x 2.1 cm has traversed through a cholecysto-duodenal fistula and got stuck in the proximal ileum, causing small bowel obstruction. The lesson learned is uraemia can cause gastrointestinal symptoms like anorexia, abdominal pain, vomiting, and ileus and hence mimic serious differentials of the acute abdomen like gallstone ileus. Thus no stone should be left unturned especially when the prevalance of gallstones is high in chronic kidney disease patients.

Introduction

In chronic kidney disease, the prevalence of gallbladder stones is shown to increase with the advancement of the disease stage, from 7.7% in CKD stage 1% to 21.3% in CKD stage 5 [1]. Gallstone ileus is a rare complication that presents in just 0.3% - 0.5% of patients with cholelithiasis [2,3]. In gallstone ileus, the gallstone reaches the duodenum after traversing a cholecystoduodenal fistula. This presents with epigastric pain, nausea, and vomiting in patients with concurrent cholecystitis [4]. It is common in elderly females [5]. Interestingly uraemia can cause gastrointestinal symptoms like anorexia, abdominal pain, vomiting, and ileus [6].

Case presentation

We present a case of a 61-year-old female patient, with a known case of CKD, on maintenance haemodialysis (thrice a week) with native kidney disease, being hypertensive and diabetic nephropathy. The patient presented initially with multiple episodes of loose stools, vomiting, and diffuse abdominal pain for 2 days. The patient was admitted to the ward where she was stabilized and investigated. She further developed obstipation along with recurrent abdominal pain for 1 day. USG abdomen revealed dilated ileal loops, with to and fro peristalsis-suggestive of intestinal obstruction. The patient was having a gross right-sided pleural effusion. A PET CT was done to rule out any malignancy. PET CT was reported

as having small bowel obstruction with a transition zone in the proximal ileum and having ovoid hyperdense contents in the large bowel and minor small hyperdense contents in the small bowel (Figures 1-3). An initial differential diagnosis of a tubercular stricture causing bowel obstruction was thought of as a likely etiology. Tubercular workup of the pleural fluid was negative. Gastro-surgery consultation was taken and exploratory laparotomy was planned. The patient was advised for surgery but she developed hypoxemia with difficulty in breathing, for which she was transferred to the ICU for further management. She started passing liquid stools intermittently followed by days of obstipation. As she was a CKD patient, Non-contrast Computed Tomography (NCCT) abdomen with oral contrast was done which revealed grossly dilated jejunal loops with air-fluid levels and transition zone in the pelvis, in distal jejunal loops/proximal ileum with ovoid intraluminal filling defect cystic polyp and collapsed distal loops. Hyperdense contents previously visible in the colon were not present in this scan. The patient underwent emergency surgery after 5 days in view of persistent small bowel obstruction. Resection and anastomosis of the mass-bearing small bowel segment was done. On cutting open the specimen, it revealed a large stone as a cause of bowel obstruction -s/o gallstone ileus. A gallstone 2.6 cm x 2.1 cm (Figure 4) has traversed through a cholecysto-duodenal fistula and got stuck in the proximal ileum, causing small bowel obstruction. A retrospective review of the previous PET CT & NCCT along with co-relation with operative findings, showed the presence of a cholecystoduodenal fistula and the presence of obstructing hypodense lesions in small bowel as radiolucent gall stone while other hyperdense lesions small radio-opaque calcified gall stones traversing the GI tract along its course. Given the limitation that an intravenous contrast CT can not be performed in most CKD patients, possibilities like gallstone ileus should be kept in mind.

Figure 1: CT abdomen with oral contrast showing – jejunal obstruction (Arrows pointing at the obstructed jejunal loops).

Figure 2: CT-Abdomen with contrast showing air(blue pointer) and contrast visible(black pointer) s/o cholecystoduodenal fistula.

Figure 3: CT abdomen with oral contrast showing hypodense gall stone (black pointer) obstructing bowel lumen.

Discussion

Gallstone ileus makes up 1% - 4% of intestinal obstruction, caused by the migration of a large gallstone through a cholecystoenteric fistula formed from inflammatory processes such as repeated episodes of cholecystitis. Gallstone ileus can occur in any part of the gastrointestinal tract, however, normally occurs in the narrower lumen of the distal small bowel with the terminal ileum being the most common (60% - 70%) and the duodenum being the rarest (1% - 3%) [7]. It constitutes the etiologic factor in less than

Figure 4: Resected segment showing a large stone as a cause of bowel obstruction-s/o gall stone ileus. A gall stone 2.6 cm x 2.1 cm (arrow is pointing at it) has traversed through a cholecysto-duodenal fistula and got stuck in proximal ileum, causing small bowel obstruction.

5% of cases of intestinal obstruction, but up to one-quarter of nonstrangulated small bowel obstructions in elderly patients [8]. As gallstones are more common in female patients, the majority of gallstone ileus patients correspond to the female gender, with variable percentages from 72% - 90% [9,10]. Numerous studies revealed an increased prevalence of biliarylithiasis in Hemodialysis (HD) patients compared to the healthy population [10,11]. Secondary hyperparathyroidism, diabetes mellitus, and increased phosphorus levels were shown to be related to the increased prevalence of GBS in HD patients [1,10,12,13].

A study performed in a Sicilian population of hemodialysis patients found a positive correlation between GBS prevalence and the presence of diabetes, age, and high serum phosphorus levels [14]. A study done in the Turkish population found that the prevalence of GBS was positively correlated with number of blood transfusions, alkaline phosphatase, and LDL-cholesterol levels in the hemodialysis population [12]. In one of the studies, it has been suggested that secondary hyperparathyroidism in patients with CRF as a result of increased Ca x P product leads to increased excretion of Ca and P into bile and their crystallization [13].

Gallstone ileus is an infrequent complication of cholelithiasis and is defined as a mechanical intestinal obstruction due to the impaction of one or more gallstones within the gastrointestinal tract [15]. Symptoms are nonspecific and common to all types of ileus. Characteristic patient complaints include nausea, vomiting, constipation as well as abdominal distension, and pain. Imaging is the basic method used to establish the diagnosis. The treatment of choice is surgery using an open, laparoscopic procedure for gallstone ileus, or a less common endoscopic approach for Gallstone obstructing duodenal lumen causing gastric outlet/duodenal obstruction, known as Bouveret syndrome [16,17].

Kirchmayr, et al. [18] described four main reasons for poor prognosis. First of all, gallstone ileus is a disease of the elderly. Second, concomitant diseases, such as cardiorespiratory diseases and/or diabetes mellitus are frequent. Third, because of uncommon symptoms diagnosis is difficult and a mean delay of 4 days from the beginning of symptoms to hospital admission is reported. Fourth, postoperative recovery is also hampered; age-related complications such as pneumonia or cardiac failure are more frequent than surgery-associated complications [18].

Gołasa Paulina, et al. [19] reported a case of a 48-year-old obese woman with chronic stage G4 / G5 kidney disease due to polycystic kidney disease, with comorbidities including hypertension, diverticulosis, and epilepsy. She was admitted to the nephrology department because of exacerbated renal failure and migrating abdominal pain. The patient underwent hemodialysis treatment owing to a high urea level, hyperkalemia, and oliguria. As the abdominal pain did not resolve, became diffuse, and was accompanied by bloating, and then fecal vomiting, urgent ultrasonography was followed by computed tomography. Imaging revealed features typical of bowel obstruction: computed tomography showed dilated loops of the small bowel, air-fluid levels, and a round, calcified concretion of 25 mm in diameter in the ileum. Another, similar in size, concretion was detected in the gallbladder and accompanied by the presence of air in the biliary system. Based on that, the diagnosis of gallstone ileus was established. The patient underwent urgent laparotomy during which concretion removal, cholecystoduodenal fistula closure, and cholecystectomy were performed [21].

Another example of atypical localization of gallstones was reported by Ohira, et al. [20], who described an impacted stone at the ampulla of vater. The patient suffered had epigastric pain mimicking pancreatitis. Retrograde cholangiopancreatography was performed and demonstrated an enlarged ampulla of vater with impacted gallstone [21].

Conclusion

Prevalance of gallstones increases with the advancement of chronic kidney disease. Uraemia can also cause gastrointestinal symptoms like anorexia, abdominal pain, vomiting, and ileus. Thus, gallstone ileus despite being rare can mimic the symptoms of uremia in a patient with end-stage kidney disease and that too in a patient with an unremarkable history of gallstones. In our case report, metabolic ileus secondary to uremia would have been an obvious reason for the above presentation. But out of surprise, this turned out to be gallstone ileus.

Secondly given the limitation that IV contrast CT can not be performed in most CKD patients; one should not rule out a rare possibility of gallstone ileus.

Establishing the diagnosis of such a frequent condition as gallstones may be tricky in CKD patients especially when they are encountered with unexpected complications like gallstone ileus.

Thus, the significance of broad differential diagnosis especially in patients with multiple comorbidities is imperative.

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