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Case Report

Rigler's triad in gallstone ileus

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ABSTRACT

Gallstone ileus is a rare cause of mechanical small bowel obstruction due to gallstone impaction within the lumen of the small intestine after passing through biliary enteric fistula. We report a case of gallstone ileus that was diagnosed with Rigler's triad (small bowel obstruction, ectopic gallstone, pneumobilia) in abdominal contrast-enhanced CT scan that is less than 30% of the patients.

Introduction

Gallstone ileus is a rare cause (0.5 percent) of mechanical small bowel obstruction due to gallstone impaction within the lumen of the small intestine after passing through biliary enteric fistula (1, 2). Abdominal contrast-enhanced computed tomography (CT) is the investigation of choice in confirmation of gallstone ileus (3, 4). The treatment of gallstone ileus is typically surgical (5).

Case presentation

The patient was a 58-year-old woman with prior history of cholelithiasis and recurrent biliary symptoms who had referred with complaints of low appetite, nausea, colicky abdominal pain and difficulty in passing stool and gas. The patient did not complain of systemic symptoms such as fever, sweating, weight loss and has no history of taking medications. Her vital signs were stable.

In the physical examination, she was ill with sign of mild dehydration, abdominal distension and increased bowel sounds without guarding and tenderness. The patient's abnormal laboratory findings are leukocytosis, pre-renal azotemia and mild hypernatremia (Table 1).

Figure 1. Abdominal CT scan, coronal plane, portovenous phase. The migrated gallstone (oval-shaped, hyperdense) in terminal segment of ileum

The patient was evaluated for intestinal obstruction. According to the abdominal plain radiography findings (signs of partial obstruction and change in previous location of the stone), gallstone ileus was suspected, so the patient underwent an abdominal contrast-enhanced CT. The abdominal contrast-enhanced CT findings that confirmed gallstone ileus include: gallstone in terminal ileum (Figure 1), small bowel obstruction (Figure 2) and pneumobilia (Figure 3). According to the diagnosis of gallstone ileus, the patient underwent surgical treatment.

Discussion

Gallstone ileus is a rare cause of mechanical bowel obstruction due to gallstone impaction within the lumen of the small intestine after passing through biliary enteric fistula (2). Abdominal contrast-enhanced CT is the choice imaging modality for confirmation of gallstone ileus (3, 4). Sensitivity, specificity and accuracy of contrast-enhanced CT for gallstone ileus are 90-93%, 100% and 99%, respectively (1). Rigler's triad consists of three findings that consistent with gallstone ileus (in less than 30% of the patients), include: Small bowel obstruction, ectopic gallstone (most common: terminal ileum) and pneumobilia (6, 7). The treatment of gallstone ileus is typically surgical (enterolithotomy via laparatomy) (5).

Table 1. The patient's laboratory findings

Test	Result	Normal Range
White blood cell (WBC)	12200/µL	4.5-11/µL
Absolute neutrophil count (ANC)	8700/mm3	1500-8000/mm3
Hemoglobin (Hb)	12.3 mg/dl	11-15 mg/dl
Hematocrit (Hct)	46%	35-47%
Platelet (Plt)	252000	150-450 × 10^3
Lactate dehydrogenase (LDH)	337 U/L	150-500 U/L
Aspartate aminotransferase (AST)	28 IU/L	0-31 IU/L
Alanine aminotransferase (ALT)	30 IU/L	0-31 IU/L
Alkaline phosphatase	169 U/L	80-306 U/L
Total bilirubin	0.8 mg/dl	0.2-1.2 mg/dL
Direct bilirubin	0.3 mg/dl	0-0.4 mg/dL
Serum amylase	64 u/L	<90 u/L
Serum PH	7.36	7.35-7.45
Serum bicarbonate	22.8 mmHg	24 mmHg
Serum PCO_2	43.2 mmol/L	40 mmol/L
Serum BUN	44 mg/dl	8-20 mg/dl
Serum creatinine	1.3 mg/dl	0.6-1.1 mg/dl
Serum Na	147 mEq/L	136-145 mEq/L
Serum K	3.8 mEq/L	3.5-5.5 mEq/L
Serum calcium	8.8 mg/dl	8.6-10.3 mg/dl

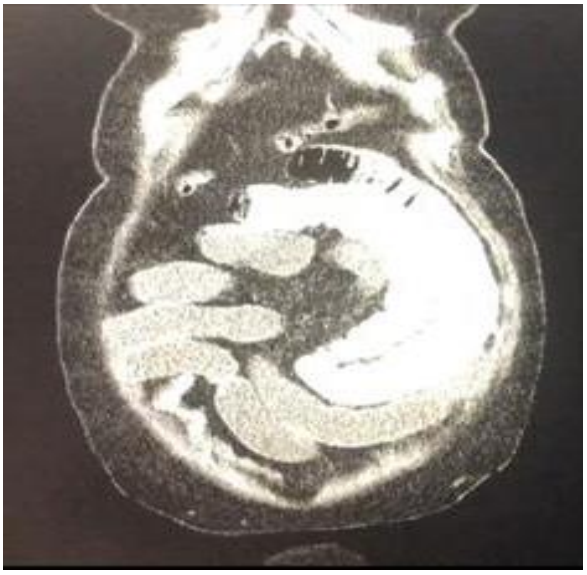

Figure 2. Abdominal CT scan, coronal plane, portovenous phase. Dilated segment of proximal ileum loop caused by migrated gallstone bstruction (small bowel obstruction)

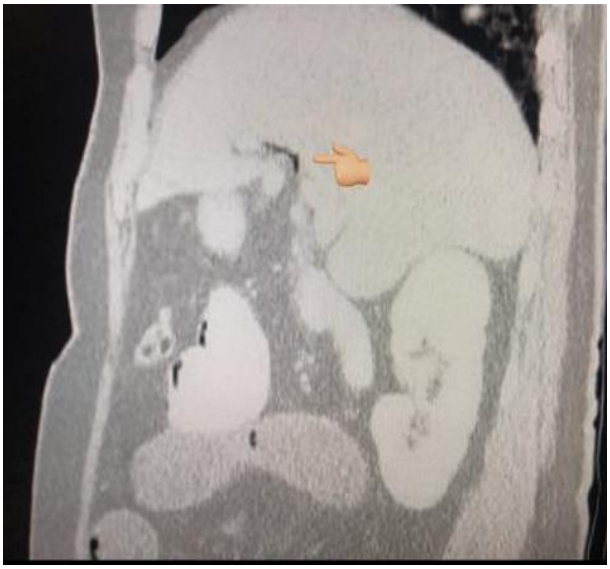

Figure 3. Abdominal CT scan, coronal plane, portovenous phase. A hypodense linear tract at the anatomical site of common bile duct and common hepatic duct due to existence of gas in the biliary tract (pneumobilia)

Conclusion

Gallstone ileus is rare and its diagnosis is difficult. In patients with symptoms and signs of small bowel obstruction with current or history of recurrent cholelithiasis, gallstone ileus should be considered and abdominal CT should be performed to confirm this diagnosis (Rigler's triad).

Ethical disclosure

Before starting the work, it was explained to the patient and inform consent was obtained.

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Author contributions

All the authors have accepted responsibility for the entire content of this submitted manuscript and approved submission.

Conflict of interest

The authors declare any conflict of interest.

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References

1. Chang L, Chang M, Chang HM, Chang AI, Chang F. Clinical and radiological diagnosis of gallstone ileus: a mini review. Emerg Radiol. 2018;25:189-196. Doi:10.1007/s10140-017-1568-5

2. Nuno-Guzman CM, Marin-Contreras ME, Figueroa-Sanchez M, Corona JL (). Gallstone Ileus, clinical presentation, diagnostic and treatment approach. World J Gastrointest Surg. 2016;8:65-76. Doi: 10.4240/wjgs.v8.i1.65

3. Balzarini M, Broglia L, Comi G, Calcara C. Large Bowel Obstruction Due to a Big Gallstone Successfully Treated with Endoscopic Mechanical Lithotripsy. Case Rep Gastrointest Med. 2015;798746. Doi: 10.1155/2015/798746

4. Sertkaya M, Emre A, Akbulut S, Vicdan H, Sanli AN. A typical gallstone ileus: clinical, radiological and operational findings. Turk J Gastroenterol. 2019;30(4):377-80. Doi: 10.5152/tjg.2018.18347

5. Jakubauskas M, Luksaite R, Sileikis A, Strupas k, Poskus T. Gallstone Ileus: Managemen and Clinical Outcomes. Medicina. 2019;55:596-598. Doi: 10.3390/medicina550905598

6. Ramirez M, Villanueva-saenz E, Zubietta G. Rigler's triad in gallstone ileus: a rare form of bowel obstruction. Clinical image in gastroenterology. 2016;81(2):103-104. Doi: 10.1016/j.rgmxen.2016.02.005

7. Brandariz-Gil L, Fernandez-de-Miguel T, Perea J. Rigler's triad in gallstone ileus. Rev Esp Enferm Dig. 2016;108(9):581-582. Doi:1130-0108/2016/108/9/581-582