

GALLSTONE ILEUS

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Gallstone ileus is a rare disease, which is responsible for about 1%-4% of all cases of mechanical obstruction. The findings of gallstone ileus on computed tomography (CT) are pathognomonic. The morbidity and mortality rate remain very high, mainly because of delayed diagnosis. We report a case of gallstone ileus which caused intestinal obstruction which was diagnosed on a contrast-enhanced CT scan of the abdomen.

Key-word: Gallbladder, calculi.

Gallstone ileus is a rare and potentially serious complication of cholelithiasis. CT scan shows the classical triad of Rigler with pneumobilia, an ectopic stone and mechanical ileus. In this report, we present a patient with an intestinal obstruction on CT scan.

Case report

An 83-year-old woman was admitted to our hospital with sudden onset of abdominal pain. She complained of banded, colicky epigastric pain and nausea. The patient did not defecate for a week. Abdominal history was significant for gallstone (Fig. 1A and B), acute cholecystitis with microperforation and a liver abscess conservatively treated with antibiotics, acute renal insufficiency and diverticular disease. Physical examination revealed diffuse abdominal tenderness with pressure pain, percussion pain, and rebound pain. Investigation showed high level of uric acid, creatinine, lactate dehydrogenase (LDH), lipase, white blood cells, and platelets. The C-reactive protein was slightly increased. Plain X-ray imaging showed multiple fluid levels in the small bowel without pathological distension and a scoliosis to the right. A calcified mass was detected projecting over the left sacro-iliac joint (Fig. 1C). Contrast-enhanced (80 cc non-ionic iodinated contrast medium, Ultravist®, Bayer HealthCare Pharmaceuticals) multidetector CT scanning of the abdomen (Fig. 1D, 1E, 1F and 1G) demonstrated an intestinal distention with fluid levels and a collapsed ileum and colon: an intestinal obstruction. The obstruction was

located on the transition between jejunum and ileum and was due to a big gallstone that was migrated from the gallbladder to the duodenum by a fistula. The gallbladder was contracted. Concurrently, we detected diverticular disease of the sigmoid. Gallstone ileus was withheld as diagnosis.

Treatment was surgery and consisted of laparoscopic enterotomy with removal of the gallstone. Histopathological examination of the gallstone demonstrated a normal cholecystolithiasis. After 5 days the patient could eat and drink without relapse of complaints. In the future she has to follow a bowel saving diet.

Discussion

Gallstones are prevalent in 10% of the adult American population (1). Gallstone ileus is a rare and potentially serious complication of cholelithiasis (2). The term "gallstone ileus" was first used by Bartholin in 1654 and refers to the mechanical intestinal obstruction caused by the impaction of one or more large gallstones within the gastrointestinal tract. Biliary-enteric fistula formation is the main pathologic mechanism of gallstone ileus (3). The stone must be at least 2 to 2.5 cm in diameter to cause obstruction (4). It accounts for 1%-4% of all cases of mechanical intestinal obstruction, but for up to 25% of those in patients over 65 years. Women are more frequently affected. The most common locations for impaction of gallstones are the terminal ileum and the ileocaecal valve, because of the small diameter and less active peristalsis (5).

The most common clinical manifestations of gallstone ileus are nausea, vomiting and epigastric pain. Laboratory studies may show elevated values of bilirubin and alkaline phosphatase (6). Due to the insidious onset of signs, the illness is often diagnosed late (7).

The diagnosis of gallstone ileus is difficult and usually depends on the radiographic findings. The classic Rigler's triad of radiography includes mechanical bowel obstruction, pneumobilia, and presence of an ectopic gallstone within the bowel lumen (8). Air in the gallbladder is also a frequent finding in gallstone ileus (9).

Plain abdominal radiographic films usually show non-specific findings, because only 10% of gallstones are sufficiently calcified (6). In only 30-35% of cases is the classic triad encountered on abdominal plain radiography (9). The limitations of plain abdominal radiography for diagnosis of gallstone ileus are well known (10).

Barium studies can identify the site of obstruction or fistula formation.

Abdominal ultrasound is useful to confirm the presence of cholelithiasis and may identify the fistula (11).

Abdominal CT has become more important in diagnosing gallstone ileus. Computed tomography scans are able to show a moderately calcified ectopic gallstone, air in the biliary tree and a cholecysto-duodenal fistula (12). Lassandro et al. (13) found that Rigler's triad was present more often in abdominal CT compared to plain abdominal film and abdominal ultrasound. The exact location of the stone and the site of obstruction are of great importance (14). CT is useful for identifying the ectopic gallstone at the transition point between dilated and decompressed bowel (15). Yu et al. (16) concluded that abdominal CT offers crucial evidence for the diagnosis of gallstone ileus and for decision making in management strategy. The speed and aptitude of contrast-enhanced CT in the diagnosis

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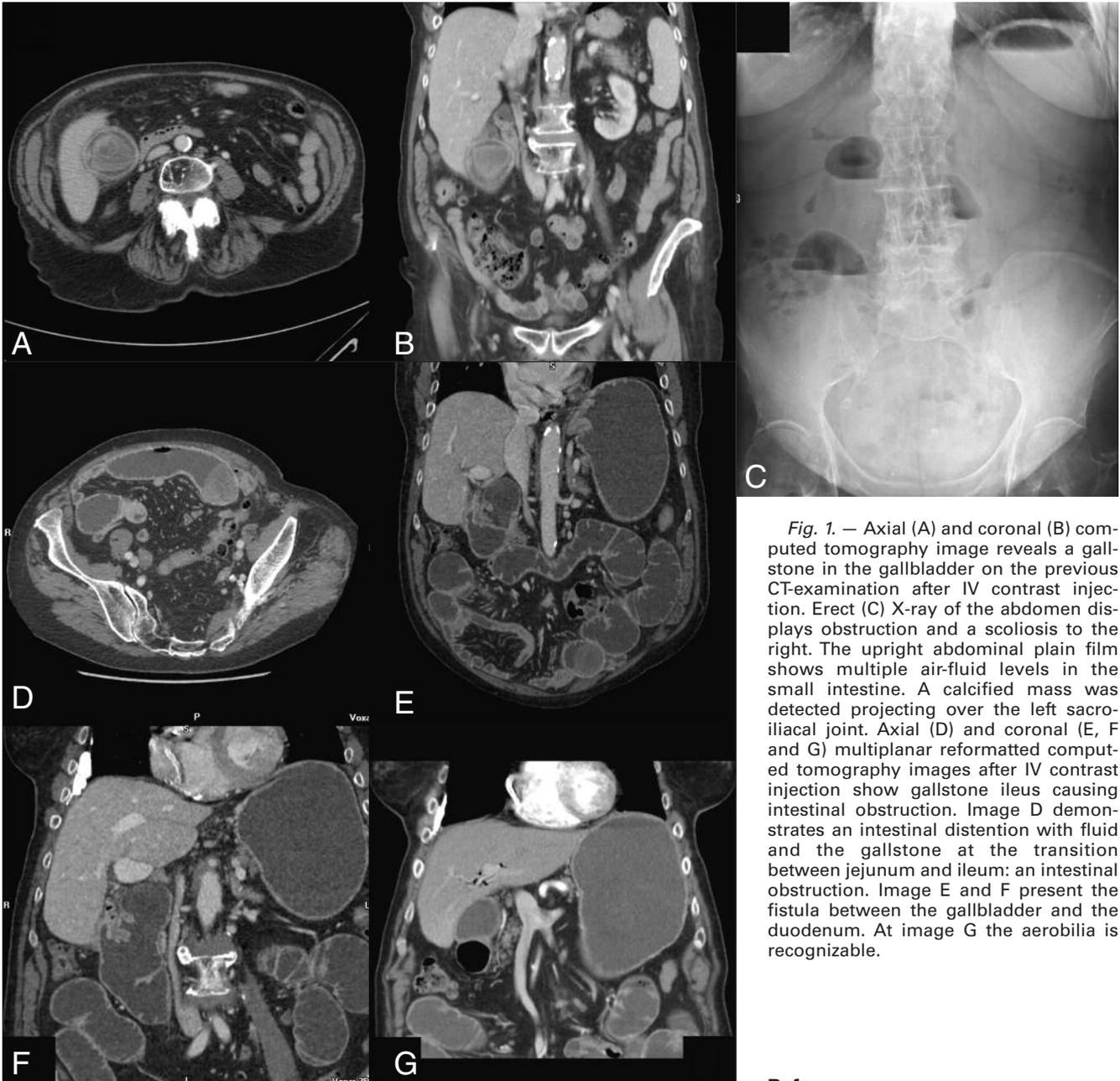


Fig. 1. — Axial (A) and coronal (B) computed tomography image reveals a gallstone in the gallbladder on the previous CT-examination after IV contrast injection. Erect (C) X-ray of the abdomen displays obstruction and a scoliosis to the right. The upright abdominal plain film shows multiple air-fluid levels in the small intestine. A calcified mass was detected projecting over the left sacroiliac joint. Axial (D) and coronal (E, F and G) multiplanar reformatted computed tomography images after IV contrast injection show gallstone ileus causing intestinal obstruction. Image D demonstrates an intestinal distention with fluid and the gallstone at the transition between jejunum and ileum: an intestinal obstruction. Image E and F present the fistula between the gallbladder and the duodenum. At image G the aerobilia is recognizable.

of small bowel obstruction and acute abdomen makes it essential for emergency use (17). Intravenous contrast enhancement is valuable for improved detection of edema, inflammation, and ischemia of the small intestine (18).

Gallstone ileus usually requires emergency surgery to relieve intestinal obstruction. Although surgery remains the mainstay of treatment, a conservative approach is possible (16, 19).

The prognosis of gallstone ileus is usually poor and worsens with age (6). Previous studies reported a 7.5-15% mortality rate (4, 5). The mor-

bidity and mortality rate of gallstone ileus remain very high, partly because of misdiagnosis and delayed diagnosis and otherwise because of the age-related co-morbidities of the afflicted patients (20). Although early diagnosis could reduce mortality (6), the diagnosis of gallstone ileus remains difficult.

Conclusion

Gallstone ileus is a rare cause of intestinal obstruction. Abdominal CT is the best imaging modality because of its rapid diagnosis and its high accuracy.

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