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Letters to the Editor

Jejunal diverticular perforation due to gallstone ileus

Key words: Diverticulum. Gallstone ileus. Pneumoperitoneum. Acute abdomen.

Dear Editor,

Gallstone ileus is an uncommon cause of small bowel obstruction, mainly affecting elderly patients. The most common cause is impaction of a stone in the ileum after passing through a biliary-enteric fistula (1).

Jejunal perforation is a rare complication of gallstone ileus. We present a case of jejunal diverticular perforation secondary to gallstone ileus, produced by diverticulum wall necrosis. To our knowledge, this is the second case to be reported in the literature.

Case report

A 67-year-old woman consulted the emergency department for periumbilical pain, vomiting and absence of fecal deposition during 6 days. She presented severe mucocutaneous dehydration and leukocyte count was 12,100/mm^3. Abdominal X ray showed dilated small bowel loops with air-fluid levels and pneumoperitoneum. Abdominal computed tomography (CT) scan confirmed these findings, and showed aerobilia, an impacted stone in the jejunum (Fig. 1A) and a cholecysto-duodenal fistula (Fig. 1B). Emergency laparotomy revealed a 3 cm diameter intraluminal stone located 100 cm from the angle of Treitz, and a pinhole perforation at the mesenteric border located 40 cm from the angle of Treitz. After enterotomy, stone removal and resection of the perforated bowel, the patient recovered without complications. Histological examination of the resected section showed an intestinal perforation, necrotic material and food remnants, as well as two diverticula in the vicinity of the perforation (Figs. 1C and 1D).

Discussion

The picture of mechanical obstruction in gallstone ileus is caused by the passage of a stone into the intestinal lumen followed by impaction. It usually causes vomiting and abdominal pain, so the patient has intermittent symptoms for several days before medical evaluation (1).

The radiographic diagnostic criteria of gallstone ileus were described in 1941 (1) and remain in current use. They include: signs of complete or partial obstruction of the small bowel, aerobilia, visualization of a gallstone if calcified, changes of stone position, and two adjacent air- fluid levels in the right upper quadrant. The sensitivity of these criteria is variable; aerobilia, for example, is only visualized in 30-60% of cases (1,2) and, therefore, preoperative diagnosis based on plain abdominal X ray is only obtained in 50% of cases. The use of ultrasonography and computed tomography may increase diagnostic sensitivity (1,2) showing the presence of aerobilia, location of the stone and biliary-enteric fistula (3-5). Surgical treatment involves longitudinal enterolithotomy at the point of impaction, with opening of the intestine and stone removal (6).

Jejunal perforation is a rare complication of gallstone ileus, with 6 cases reported in the literature (7-10). It may coincide with the point of stone impaction or before it. Typically, it appears at the antimesenteric border, secondary to the pressure caused by the obstruction, with necrosis and perforation of the jejunal wall (7). Recently, perforation of the mesenteric border has been described for the first time, by Browning et al., due to perforation of a pre-existing jejunal diverticulum (7).

In our case, the mesenteric location of the perforation, with food remains inside, and the presence of two nearby jejunal diverticula, strongly suggest that intestinal obstruction secondary to gallstone ileus exerted high intraluminal pressure at the level of

the proximal jejunum and caused perforation of a pre-existing jejunal diverticulum. This would therefore be the second such case described in the literature.

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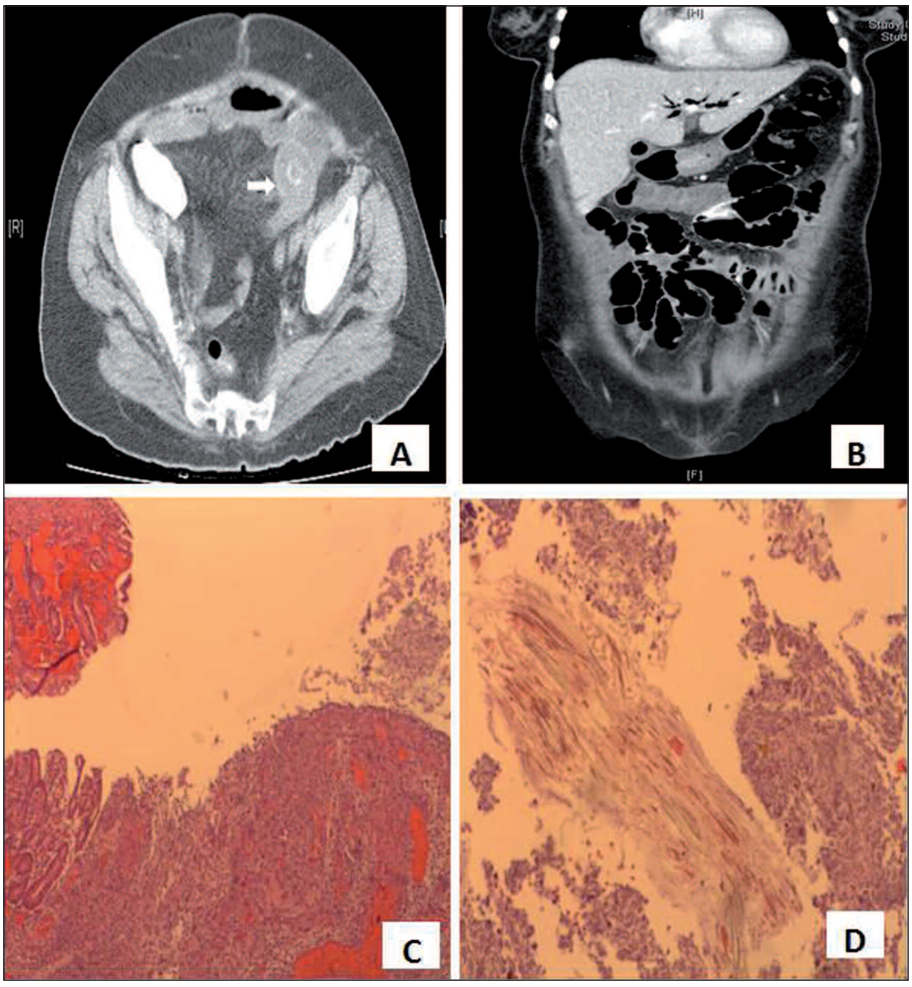

Fig. 1. A. Axial computed tomography (CT) scan showing the presence of an impacted stone in the small intestine (arrow). B. Coronal CT scan reconstruction showing a cholecystoduodenal fistula. C. Hematoxylin-eosin stained histological image showing the area of bowel perforation with granulated tissue at the edges. D. Hematoxylin-eosin stained histological image showing necrotic content and material suggestive of food remains.