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Case Report

Perforated jejunal diverticulum, a case report

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Abstract. Jejunal diverticulosis is a rare condition, with an incidence lower than 1.3%. Often asymptomatic, it may lead to acute symptoms similar to appendicitis or colonic diverticulitis. Perforated jejunal diverticulum is one of the rare causes of the acute abdomen generally seen in the elderly. In case of perforation and peritonitis, exploratory laparotomy, segmental resection and primary anastomosis are still the preferred interventions.

Key Words: jejunal diverticulum, complication, perforation, localized peritonitis, acute abdomen

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Introduction

Diverticula are sacs formed by a fold of the lining of the intestinal wall, more often occurring in the colon, but may also be present anywhere in the gastrointestinal tract. Diverticula may be congenital when the intestinal wall architecture is preserved within the diverticular outpouching, the most common being Meckel's diverticulum. Acquired diverticula form from herniation of the mucosa and submucosa through the muscular layer in the points of minimal resistance in which the vessels cross the intestinal wall. Although they may be present at any level of the gastrointestinal tract, localization in the small intestine is very rare, with an incidence of 0.06 to 1.3% in autopsy studies and 2 to 5% in imaging studies (Miller et al 1970; Patel et al 2008). Jejunal diverticula are usually asymptomatic, and they can rarely present nonspecific symptoms: nausea or abdominal discomfort or upper abdomen pain. Diverticula become symptomatic when complications such as diverticulitis, occlusion, hemorrhage, or perforation peritonitis occur (Alves Martins et al 2018; Aydın et al 2016).

This paper shows the case of a patient with no surgical history who presented with the symptoms of localized peritonitis produced by the perforation of a jejunal diverticulum.

Case report

A 64-year-old patient with a history of grade 3 hypertension with high cardiovascular risk, type II diabetes, presented to the emergency department with abdominal pain that had a sudden onset two days before. Pain was initially located in the upper abdomen, increased in intensity in the last 24 hours, and was accompanied by nausea. The patient also presented similar episodes in the past two years, but of much lower intensity and remission of symptoms in 1-2 days.

The patient had no surgical history. Upon admission, the patient was hemodynamically stable, with a slightly altered general condition, a heart rate of 100 bpm, 150/90 mmHg blood pressure, and subfebrile temperature of 37.8°C. The clinical exam revealed pain with palpation of the left upper abdominal quadrant and of the periumbilical region with involuntary muscle guarding at this level. Laboratory tests showed leukocytosis

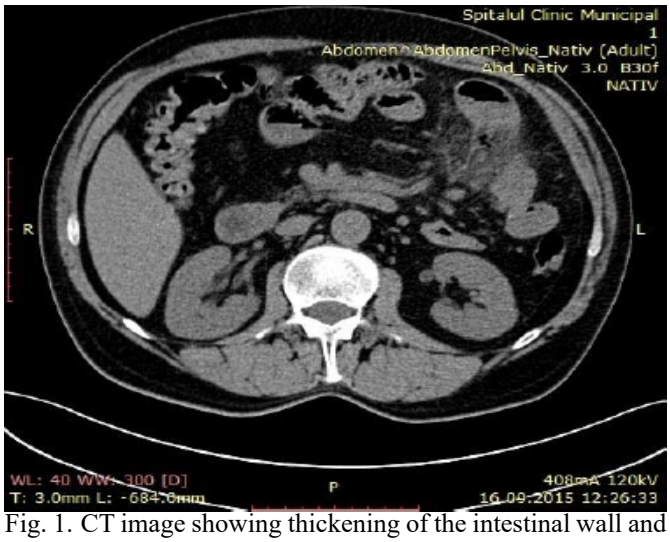

Fig. 1. CT image showing thickening of the intestinal wall and infiltration of the fold at this level

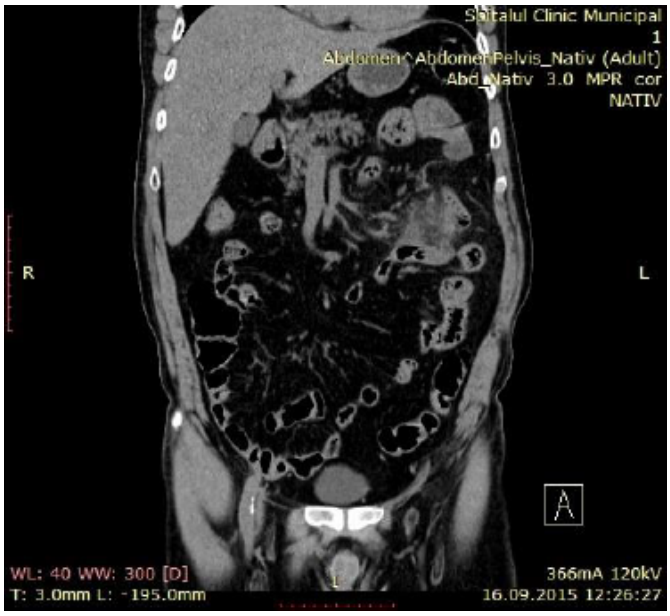

Fig. 2. CT image of the diverticulum with thickened walls and free peridiverticular air, infiltration of adjacent fat

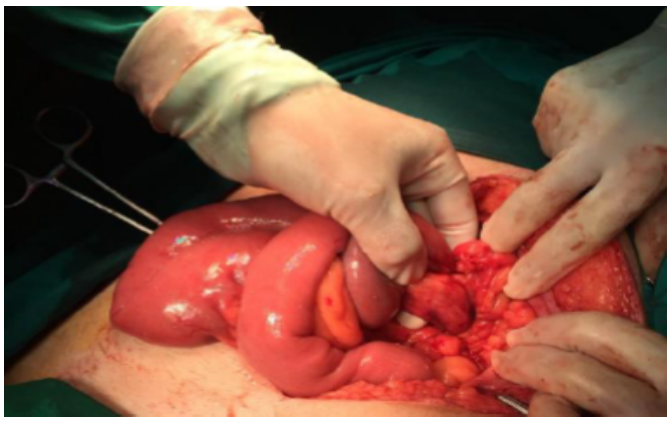

Figure 3. Adherent block consisting of omentum and jejunal loop with perforated diverticulum

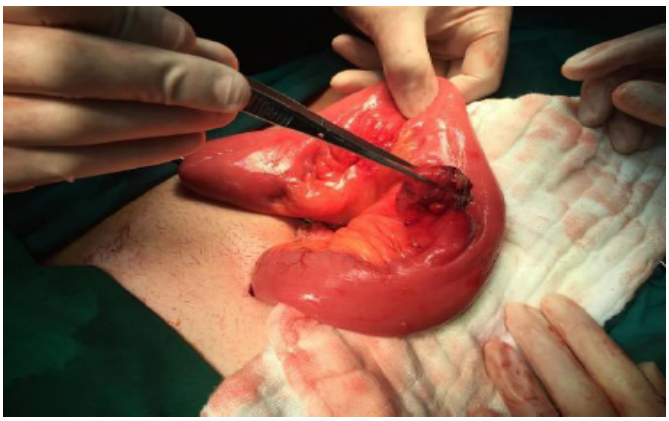

Figure 4. Jejunal diverticulum on the mesenteric edge with perforation hole

14,000/μL and neutrophilia, hyperglycemia 200 mg/dl, US-C-reactive protein 5.3 mg/dl.

Abdominal CT was performed showing a dilated jejunal loop with mixed content below the splenic flexure, and thick fat on the mesenteric edge adjacent to it, with air fluid levels and a minimum amount of free fluid near the jejunal loop. All these aspects advocate for a perforation in the jejunal loop with localized peritonitis (Figure 1, 2).

The following treatment was initiated: intravenous fluid therapy, intravenous antibiotic therapy, and pain therapy, with a positive response from the patient.

Laparotomy was performed by median supraumbilical incision. Intraoperatively, after the examination of the peritoneal cavity, an adherent block consisting of intestinal loops and omentum was identified approximately 30 cm from the duodenojejunal angle (Fig 3).

At the dissection of this adherent block, a jejunal diverticulum was identified on the mesenteric edge of the jejunum with a diameter of approximately 4 cm and a perforation hole, accompanied by a small amount of purulent peridiverticular fluid (Fig. 4). A 15 cm segment of the jejunum containing the perforated diverticulum was dissected by performing T-T jejuno-jejunal anastomosis, extended lavage of the peritoneal cavity and drainage of the pouch of Douglas. The histopathological report described the jejunal loop segment with a diverticulum of approximately 4 cm on the mesenteric edge, with diverticulitis and a perforation hole. Two smaller diverticula were also observed adjacent to the diverticulum described.

Postoperative progression was favorable and the patient was discharged on day 5 with a good general condition.

Discussion

Small bowel diverticula are in most cases acquired, the walls consisting of mucosa and serosa. Mucosal herniation occurs at the points of minimal resistance of the intestinal wall, where the vessels penetrate the intestinal wall (Kongara and Soffer 2000). Localization in the jejunum is the rarest, with an incidence of 0.06 to 1.3% in autopsy studies and 2 to 5% in imaging studies. The incidence increases with age, the maximum values being recorded at age 60-70 (Harbi et al 2017). The presence of diverticula in the jejunum remains asymptomatic in most cases over the life course. Rarely, some patients may experience nonspecific symptoms: epigastric pain, bloating, anemia due to chronic hemorrhage, intestinal malabsorption (Giannopoulos 2013; Fidan et al 2015).

Jejunal diverticula become symptomatic with complications such as diverticulitis, hemorrhage, intestinal occlusion, or perforation with localized or generalized peritonitis. Apart from complications, jejunal diverticula are incidental findings during imaging investigations or surgery for other pathologies (Khan and Ayyaz 2015). In case of emergency presentation with diverticulitis or diverticular perforation, there are clinical signs of acute abdomen. Because of the rarity of jejunal diverticulitis, the etiologic diagnosis of acute abdomen is unlikely to be established on clinical grounds alone. Contrast-enhanced computed tomography seems to be the most effective investigation used in emergency. CT identifies the thickening of the intestinal wall, omentum infiltration and pneumoperitoneum.

In most cases, complications of jejunal diverticulosis require surgical treatment. The preferred surgical treatment for diverticulum perforation is exploratory laparotomy, resection of the affected intestinal segment (usually limited), and termino-terminal anastomosis of the jejunum (Sehgal et al 2016). Although there have been cases successfully treated by laparoscopy alone, the role of laparoscopy in these cases is still limited (Garg et al 2009).

Conclusion

Jejunal diverticulosis presented with acute surgical abdomen is a rare pathology that raises diagnostic and treatment problems. Diagnosis is usually determined by abdominal CT performed to determine the cause of the acute abdomen. The preferred treatment is the exploration of the abdomen using laparotomy and the resection of the affected intestinal segment using T-T jejuno-jejunal anastomosis. Although a very rare pathology, it is to be considered as a cause of acute surgical abdomen.

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