ACUTE INFLAMMATION OF THE TRUE CECAL DIVERTICULUM – CASE REPORT

ZBIGNIEW KAMOCKI, JOANNA JAROSZUK, KONRAD ZARĘBA, BOGUSŁAW KĘDRA

2nd Department of General and Gastroenterological Surgery, Medical University in Białystok
Kierownik: prof. dr hab. B. Kędra

In this case report, we describe a rare event: acute inflammation of the true cecal diverticulum. Emergency surgery enabled proper diagnosis and management of this condition. Diagnostic approaches and the management of this disease are described in detail and based on literature review. In conclusion, pathologies of cecal diverticula should be considered in differential diagnosis of pain in the right iliac fossa.

Key words: true cecal diverticulum, inflammation, surgery

True cecal diverticulum is a rare disease with a congenital pathogenesis. Cecal diverticula may present as solitary or multiple lesions. In contrast to a false diverticulum, the wall of a true diverticulum has the same histological structures as the wall of the colon. Cecal diverticula constitute from 1% to 5% of diverticulosis cases (1). The incidence of true cecal diverticula is estimated at approximately 40% of all diverticula found in this location (6). They are predominantly located on the anterior cecal wall, close to the ileocecal valve. Cecal diverticula, either true or false, account for approximately 80% of all diverticula found in the right colon (7, 8).

The clinical manifestations of both true and false diverticula are the same. The course of uncomplicated disease is asymptomatic (7). Symptoms are related to complications, with acute diverticulitis being most frequent. This results from coproliths plugging the diverticular neck and causing the accumulation of mucus and excessive bacterial growth, leading to an increase in intradiverticular pressure. Progressive inflammation may lead to perforation of the diverticular wall. Usually, the perforation is microscopic and the concomitant inflammation is limited to peridiverticular fat. This corresponds to grade I of Hinchley’s scale. This state may progress to grade II diverticulitis, characterized by a large pericolonic abscess. Grades III and IV correspond to purulent and fecal peritonitis, respectively. Both types of inflammation results from the evacuation of the abscess into the free peritoneal cavity (23). The abscess may also evacuate into surrounding organs, e.g. into the small intestine, reproductive organ or ureter, with formation of a fistula. Perforation of the diverticulum through the abdominal wall is rare (5). Fistulas are described in 2% of diverticulitis cases (24). The inflammatory process may resolve via cicatrization of the diverticular wall. Cases of recurrent inflammation may lead to narrowing of the colonic lumen. Bleeding is another complication, independent from the inflammatory process. It is estimated that bleeding occurs in 15% to 30% of patients with symptomatic diverticulosis. Diverticula of the right colon have a higher tendency for recurrent bleeding compared to diverticula located in the left colon (5). Another important clinical problem is distinguishing between severe diverticulitis and neoplastic proliferation.

CASE REPORT

A female patient (B.B.), aged 42, was admitted to the Clinic due to spontaneous, severe abdominal pain lasting for two days. On the
first day, the patient reported pain in the umbilical region, which subsequently displaced into the right iliac fossa. Pain was not accompanied by any other symptoms. The patient had no history of previous surgeries. Palpation revealed soreness in the right iliac fossa, with enhanced muscular defense and positive peritoneal signs. Intestinal peristalsis was normal.

Laboratory abnormalities included severe leukocytosis – 20.28 K/µl. Ultrasonography revealed a non-peristaltic hypo-echogenic area, ca 6.6 x 19 mm in size, in the right inguinal region. This clinical presentation suggested acute appendicitis. There was no free fluid in the peritoneal cavity.

The patient was operated on an emergency basis and prophylactic antibiotic therapy was used. An inflamed cecal diverticulum was found intra-operatively, located on the anterior cecal wall just above Bauchin’s valve (fig. 1).

The appendix was located typically on the cecum, and showed reactive inflammatory changes. The cecal diverticulum underwent resection along with the appendix. Diverticulum stump was cover with double line of stitches. Histopathology revealed purulent inflammation of a true cecal diverticulum. No postoperative complications were noted.

DISCUSSION

The first description of cecal diverticulitis was published by Potier in 1912 (25). Currently, the incidence of acute cecal diverticulitis in the United States amounts to one case per 1 100 laparotomies performed due to acute abdomen symptoms (5). Acute diverticulitis is the most frequent complication of cecal diverticulosis. The average age of patients is 40 years of age. In contrast to acute appendicitis which is usually diagnosed in younger patients, diverticulitis of the left colon is more frequent in elderly subjects (5).

Symptoms suggesting acute diverticulitis include a poor general condition, fever, pain and soreness on palpation of the right lower abdominal quadrant, vomiting, diarrhea or constipation, tachycardia and moderate leukocytosis (9). According to literature, the leukocyte count in 57% out of 32 patients with acute cecal diverticulitis ranged from 10 K to 15 K, and in only one case exceeded 25 K (9).

The symptoms of the hereby described case were relatively scanty. They included pain, soreness and peritoneal symptoms in the right hypogastrium along with leukocytosis. Nonetheless, this presentation is consistent with previous observations of symptoms most frequently encountered with cecal diverticulitis. Other, less specific symptoms, such as nausea, vomiting or diarrhea, are not always present (1, 7). The clinical manifestation of acute cecal diverticulitis is nearly identical as that of acute appendicitis. Both events are accompanied by fever, leukocytosis, pain and soreness on palpation of the right lower abdominal quadrant. The rare occurrence of this disease, along with similar clinical symptoms, may lead to a false initial diagnosis. Slight differences between the clinical courses of diverticulitis and appendicitis exist and include lower incidence of nausea and vomiting and a longer lasting (for more than two days) prodromal period in diverticulitis patients (1, 7). The incidence of acute cecal diverticulitis amounts to one case per 34 to 300 appendectomies performed, 10 with acute appendicitis given as the initial diagnosis in 77% to 82% of diverticulitis patients (7, 11). Theoretically, a history of previous appendectomy should markedly increase the accuracy of pre-operative diagnosis in diverticulitis cases. Data from relevant literature, however, indicates that this increase in diagnostic accuracy is not as large, as expected (1).

Acute cecal diverticulitis is rarely diagnosed pre-operatively. Proper diagnosis is possible intra-operatively, as was the case in our patient. Therefore, imaging studies, and particularly ultrasonography and computed tomography...
Come to terms with these lesions (15, 16). In cases where CT-based diagnosis is not possible, contrast enema may be used as an adjunct diagnostic tool. This is necessary in approximately 10% of patients (14). The combined use of ultrasonography and CT was revealed to be a reliable and rapid diagnostic tool allowing some patients to avoid surgical intervention (10). The intra-operative diagnosis of acute diverticulitis may also cause some difficulties. The rate of true positive diagnoses is only 60-70% (1). Histopathology allows for distinguishing between true and false diverticula. However, rich inflammatory infiltrations of the diverticular wall and its fibrosis may hinder proper assessment of these lesions (15, 16).

Uncomplicated acute cecal diverticulitis may be treated conservatively or surgically. Conservative treatment includes the cessation of oral nutrition and application of wide spectrum antibiotic therapy. This protocol is limited to cases in which diagnosis has been confirmed pre-operatively using imaging studies (9, 12). Surgery is required in cases where conservative treatment fails or whenever complications occur (10, 17). Pharmacotherapy may be reconsidered in case of recurrence (18). In their paper, Lo and Chu questioned the effectiveness of the conservative approach, particularly if purulent infiltration or inflammatory tumors are present and in cases lacking proper pre-operative diagnosis (11). As such, diagnostic laparotomy seems to be a safer and more reliable approach both from the diagnostic and therapeutic viewpoint (7). In Asian countries, where cecal diverticula account for 35% to 84% of diverticulosis cases and diagnostic imaging is oriented towards this type of lesion, the effectiveness of conservative treatment remains relatively high (2, 3, 4, 18, 21).

Different surgical protocols for acute diverticulitis have raised many controversies. After intra-operative diagnosis, three surgical management options are possible. In the first one, surgery is limited to an appendectomy and is followed by postoperative antibiotic therapy. The effectiveness of such an approach was confirmed by Fisher and Farkas (20). Synchronous resection of the diverticulum and appendix is a second option. The third possibility entails right-sided hemicolectomy (19). Diverticulectomy, as the least invasive procedure, should be the method of choice in the management of acute diverticulitis or its perforation (15, 21). However, diverticulectomy is possible only in cases of solitary diverticula with no involvement of the ileocecal valve and after the malignancy of lesions has been excluded (11, 16, 22).

Most retrospective studies on the management protocols of acute cecal diverticulitis refer to more radical methods of surgical treatment (16, 18). The reasons behind such an approach include: suspected cecal malignancies, the presence of multiple diverticula, diffuse inflammation involving the ascending colon, cecum, distal ileum or ileocecal valve, along with the intent to provide sufficient blood supply to the intestines (1, 5, 11, 18). According to Fang et al., approximately 25% of patients who were subjected to conservative treatment in acute cecal diverticulitis or appendectomy alone experience recurrences (18). In lieu of the risk of potential malignancy, some authors prefer ileocecal resection with intra-operative histopathological examination of the surgical specimen. Confirmation of malignancy necessitates an extended operation (7). In contrast, Papaziogas et al. found the right-side hemicolectomy unnecessary, even in cases where cecal cancer was suspected or multiple diverticula were present (15). Nonetheless, in the opinion of most authors, right-side hemicolectomy and ileocecal resection are the proper approaches in cases of interstitial inflammatory infiltration, multiple diverticula, suspected malignancy, involvement of the ileocecal valve, ascending colon or cecum, as well as by disorders in the blood supply of the intestine.

In the hereby described case, the surgeon decided to perform a diverticulectomy. This approach seems reasonable in lieu of most of the aforementioned studies and clinical observations. A solitary diverticulum was clearly distinguished intra-operatively, the ileocecal valve was not involved in inflammatory processes, and the intestinal blood supply was normal. The reason for the synchronous appendectomy was reactive appendicitis.

In conclusion, the hereby described case confirms that pathologies of cecal diverticula should be considered in the differential diagnosis of right iliac fossa pain.
REFERENCES


Received: 21.04.2011 r.
Adress correspondence: 15-276 Białystok, ul. M. Skłodowskiej-Curie 24A