



# Isolated Partial Cecal Necrosis as a Differential Diagnosis of Right Lower Quadrant Pain: A Common Presentation with an Uncommon Diagnosis

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## ABSTRACT

**Introduction:** Isolated cecal necrosis is a clinical problem and is usually associated with reduced colonic blood flow, which is rare and mimics acute appendicitis. The findings of many diseases that cause pain in the lower right quadrant of the abdomen are similar to each other, and the diagnosis is usually made during the surgery.

**Case Report:** A 53-year-old woman presented to our emergency department with chief complaints of abdominal pain, loss of appetite, and nausea. There was sensitivity, defense, and rebound in the lower right quadrant during the physical examination. Intraoperative partial cecal necrosis was detected with surgical findings in the patient who was prediagnosed with appendicitis, and partial cecum resection with staplers was performed.

**Conclusion:** While other ischemic diseases of the intestine have high morbidity and mortality rates, the prognosis of isolated cecal necrosis is very good if it is prediagnosed and if surgery is performed on time.

**Keywords:** Cecal necrosis, acute abdomen, surgery

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## Introduction

Partial cecal necrosis (PCN) is a rare variation of ischemic colitis, the origin of which is unknown and is mostly seen among the elderly. It usually occurs spontaneously. It has been reported that it frequently occurs in patients with chronic heart disease or who underwent cardiopulmonary bypass, in those with hypotension due to several causes, in those with trauma, in those receiving systemic chemotherapy, in those who underwent cholesterol embolization, and in those undergoing hemodialysis because of chronic renal failure. PCN most commonly causes pain in the lower right quadrant. Because of this, it can easily be confused with acute appendicitis (1). In this article, we present a rare case of isolated PCN that was scheduled to undergo surgery for prediagnosed acute appendicitis.

## Case Report

A 53-year-old woman presented to our emergency department with chief complaints of abdominal pain, loss of appetite, and nausea. The patient, who was using Varfarin sodium, had a history of diabetes mellitus and mitral valve replacement 3 years ago. She had sensitivity, defense, and rebound in the lower right quadrant during physical examination. Laboratory examination showed the following results: white blood cell count, 13200/mm<sup>3</sup>; C-reactive protein level, 20 mg/dL; glucose level, 243 mg/

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dL; lactate dehydrogenase level, 278 (125–220) U/L; international normalized ratio, 2.15 (0.8–1.2); prothrombin time, 27.1 (10.5–15.5) s; and activated partial thromboplastin time, 42.8 (22–36) s. Other results were normal. A tubular aperistaltic segment compatible with appendicitis was identified in the largest part of the lower right quadrant, 8 mm in diameter, whose wall with edema and ending with blind end at the pelvic ultrasonography (USG) of the abdomen. An increase in the bowel wall thickness and edema were observed in the cecum and ascending colon. Abdominal computed tomography (CT) revealed dilatation in the small intestine showing air–fluid leveling, and no other pathology was observed. Isolated PCN was identified, and the appendix was found to be normal during the surgery, for which the patient was taken for emergency surgery with

a prediagnosis of appendicitis by a McBurney incision (Figure 1). Partial cecum resection was performed by preserving the ileocecal valve from the same incision in a manner that includes appendectomy, linear stapler, and necrosis part (Figure 2). The patient was discharged on healing 8 days postoperatively. Histopathological examination revealed necrosis caused by nonspecific ischemic in the cecum. Informed consent was obtained from the patient who participated in this case.

## Discussion

Ischemic colitis usually results from atherosclerosis and low blood circulation. Acute colon ischemia is a common cause for colitis among the elderly and is an important cause of morbidity. However, ischemic colitis, which only seen in the cecum, is rare. The frequency of isolated ischemic involvement of the right colon is increased in relation to low blood circulation, especially in shock situations (2).

PCN is a rare cause of acute abdomen reported to develop in patients with atherosclerotic heart and chronic renal failure and ergot alkaloids and cocaine users, and it may require urgent surgical intervention with nonspecific indications. In addition, ischemic necrosis and perforation may be seen in the prominent distension of the cecum (>9–12 cm) (3). Dirican et al. (4) reported that chronic renal failure was present in three of four patients in the case series they presented. In our case, atherosclerotic heart disease and heart valve disease were also present, which is in accordance with the literature.

It is extremely difficult to diagnose PCN in the preoperative period. Delay in diagnosis and treatment can cause sepsis and death due to progressive necrosis of intestinal ischemia. Diagnosis is usually made during laparotomy in patients who undergo surgery for perforation, diverticulitis, ischemic colitis, colon malignancy, granulomatous bowel disease, or most often prediagnosed acute appendicitis and who visit the hospital because of sensitivity in the lower right quadrant and with acute abdomen findings. Cecal ischemia clinic is similar to appendicitis clinic, and it is difficult to distinguish between the two. Loss of appetite, pain, and nausea seen in acute appendicitis clinic may not always be present in ischemic colitis. In addition, the onset of pain is more pronounced in ischemic colitis, and the intensity increases rapidly. Findings of inflammation are almost identical in both the cases (5).

There is no specific method to diagnose PCN with certainty. In some cases, abdominal USG and CT can facilitate diagnosis. Findings such as thickened mesenteric echo, thinned intestinal wall, and decreased blood flow in the intestine where necrosis is present can be seen in USG (6). There is no specific finding for cecal ischemia in abdominal CT. However, depending on intramural edema and intramural hemorrhage, peripheral thickening of the cecum wall and the appearance of air images within the wall may suggest the development of necrosis. Pericolonic inflammatory changes and thrombosis in the mesenteric veins or occlusion may occur. Air can also be seen in isolated pneumatosis coli, mesenteric veins, and portal veins. Colonoscopic examination for diagnosis is controversial because of an increased risk of perforation due to an increased wall pressure in



FIGURE 1. Isolated necrotic field on the cecal wall



FIGURE 2. The appearance of the cecum postoperatively

patients with ischemic colitis (7). Laparoscopy can help in diagnosis and treatment of cecal ischemia and necrosis (8).

The treatment for PCN is surgical therapy. Depending on the size of necrosis in the cecum and the presence of peritonitis findings, partial cecum resection of the retained cecum, segmental colon resection, or right hemicolectomy may be performed. Most authors argue that right hemicolectomy should reliably be chosen because partial cecum resection of the cecum is risky (9). However, as seen in our case, partial cecum resection can be performed easily. The most important factors in choosing the appropriate surgery are surgical findings, patient's condition, and surgeon's experience. Morbidity and mortality of PCN are low with early diagnosis and surgery. Because ischemic necrosis is limited to a specific area, we performed partial cecum resection with linear staplers instead of extensive resection. The patient was discharged without any complications in the postoperative period. In some patients with cecal necrosis in a limited area, we believe that right hemicolectomy and anastomosis can cause serious morbidity because of age and comorbidities. There is insufficient information in the literature about the possibility of ischemia in the remaining colon segments after surgical treatment of cecal necrosis (10).

## Conclusion

Isolated cecal necrosis is one of the rare causes of acute abdomen. This should be kept in mind for patients who complain of lower right quadrant abdominal pain in definitive diagnosis. Prognosis is good with early diagnosis and treatment. In patients with PCN, only a limited resection of the necrotic area can be safely performed by preserving the ileocecal valve.

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