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SEALED-OFF PERFORATION OF COLORECTAL CARCINOMA INITIALLY INTERPRETED AS DIVERTICULITIS: INTRA-ABDOMINAL ABSCESS AS A DIAGNOSTIC AND THERAPEUTIC DILEMMA

Introduction

Intraabdominal abscesses represent common emergency conditions in clinical practice, most frequently arising as complications of inflammatory or infectious processes, including appendicitis, diverticulitis, inflammatory bowel disease, and postoperative complications. However, although less common, an abscess can also be the initial manifestation of malignancy, particularly colorectal cancer (1). Such atypical presentations may lead to incorrect diagnostic assumptions and delay the establishment of the correct diagnosis.

It is important to promptly consider that an abscess may occasionally originate from tumor perforation rather than a benign process. That is crucial for choosing the optimal therapeutic approach (1, 2). The role of radiologic imaging, as well as consistent implementation of the post-acute protocol, including mandatory colonoscopy is of vital importance to avoid diagnostic oversights.

In this paper, we present the case of a female patient in whom colorectal cancer first manifested as an abscess formation in the right iliac region, initially interpreted as complicated diverticulitis. Through the course of diagnosis and treatment, we discuss diagnostic dilemmas, the significance of anatomical variations, and the importance of systematic evaluation.

Case Report

A 61-year-old female patient with no prior history of gastrointestinal diseases presented with acute onset of pain in the lower right abdominal quadrant, nausea,

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diarrhoea and fever lasting for three days. Her medical history included depressive disorder (on regular antidepressant therapy) and chronic leukopenia, monitored by hematologist but without a clear etiology. There were no significant previous abdominal illnesses, surgeries, or family history of cancer.

Upon admission, laboratory analysis revealed elevated inflammatory markers, including C-reactive protein (CRP), while leukocyte counts were mildly decreased, consistent with the underlying leukopenia. Anemia was not present.

Radiologic evaluation (CT and MRI of the abdomen and pelvis) revealed a collection in the right iliac region, approximately 5×5 cm in size, with signs of surrounding inflammatory infiltration. As an incidental finding, dextropositioned dolichosigmoid colon was noted, which was clinically relevant as this anatomical variation complicated the interpretation of symptom localization. Given the location of pain and the clinical presentation, acute appendicitis was initially suspected. However, radiological findings and disease progression pointed toward complicated diverticulitis with abscess formation. A working diagnosis of complicated diverticulitis with abscess formation (Hinchey stage II) was established. The patient was admitted to the surgical department for inpatient care, initially managed conservatively. The therapeutic approach included bowel rest, parenteral rehydration, correction of electrolytes, and initiation of triple antibiotic therapy (third-generation cephalosporin, metronidazole, and gentamicin). Over seven days of hospital monitoring, there was progressive clinical improvement, normalization of temperature, regression of abdominal pain, and decreased inflammatory markers. A follow-up CT scan on the seventh day showed significant regression of the abscess and reduced inflammation in the surrounding tissues.

The patient was discharged with a scheduled follow-up colonoscopy in six weeks, in accordance with standard protocol.

Colonoscopy revealed an irregular tumor formation in the sigmoid colon, approximately 40 cm from the anocutaneous line, narrowing the lumen by more than two-thirds. Additionally, massive diverticulosis was observed throughout the left colon. Biopsy samples were taken.

Histopathological analysis confirmed the presence of colonic adenocarcinoma.

After complete oncologic evaluation and preoperative preparation, the patient underwent elective surgical resection in the eighth week following symptom onset. Intraoperative findings revealed a tumor mass in the sigmoid colon, without signs of peritoneal dissemination or residual abscess. An oncologically adequate resection was performed with primary colorectal anastomosis, without the need for stoma formation. The postoperative course was uneventful. The patient was mobilized and discharged without complaints.

Definitive histopathological analysis classified the tumor as adenocarcinoma of the sigmoid colon, stage T4, with diverticula present in the tumor area. Regional

lymph nodes tested positive for metastatic infiltration. Tumor TNM staging: T4a, N2, M0. The patient was referred to an oncologic board and included in an adjuvant chemotherapy protocol in accordance with current colorectal cancer treatment guidelines. On follow-up examinations over the following months, there were no signs of recurrence, and the patient remained asymptomatic.

Discussion

Intraabdominal abscesses most commonly arise from various inflammatory and infectious conditions or postoperative complications. Diverticulitis is the most frequent etiological factor, but during diagnostic evaluation, the possibility of colorectal cancer perforation must also be considered.

Colorectal cancer is among the most common malignancies of the gastrointestinal tract, with highly variable clinical presentations. Perforation of colorectal cancer is one of the most severe complications, with an incidence ranging from 1.6% to 10%. It typically occurs in advanced stages and is associated with poorer prognosis compared to non-perforated tumors, as it often leads to peritonitis, sepsis, and the need for extensive surgical procedures, including emergency resection and stoma creation. In addition to increased perioperative mortality, perforated tumors often carry worse oncologic outcomes due to the potential dissemination of tumor cells into the peritoneal cavity at the time of perforation (3, 4, 5, 6).

Tumor perforation, although less frequent than diverticular perforation, is a known complication of colorectal adenocarcinoma, particularly in the presence of stenosis that increases intraluminal pressure. A sealed-off perforation represents a specific type of tumor perforation, characterized by localized disruption of the bowel wall with extraluminal spread of contents, without free communication with the peritoneal cavity. This mechanism often results in localized abscess or phlegmon formation, and the clinical presentation may mimic diverticulitis, appendicitis, or nonspecific abdominal infection (6, 7).

Unlike free perforation, which leads to diffuse peritonitis and requires urgent surgery, a sealed-off perforation may remain clinically subtle, often initially treated conservatively, and the underlying malignancy diagnosed only during post-acute evaluation. Nonetheless, even this form of perforation carries a significant risk of tumor cell dissemination and peritoneal implants, thus potentially predicting a worse prognosis than non-perforated tumors (6, 7).

In this case, the presence of an abscess in the right iliac region, absence of visible luminal communication, and subsequent discovery of a stenosing sigmoid tumor suggest a sealed-off perforation that spontaneously closed, likely due to immune response and early antibiotic therapy. Literature describes such scenarios as diagnostic traps, as peritumoral perforations may clinically resemble

diverticulitis. The clinical presentation of diverticulitis, including localized pain, elevated inflammatory markers, and abscess formation on imaging often overlaps with sealed-off colorectal cancer perforation. Both conditions may demonstrate similar CT findings, such as pericolic inflammation, extraluminal collections, and bowel wall thickening. However, in tumor-related perforations, inflammation is typically caused by malignant stenosis or tumor-induced focal ischemia, whereas in diverticulitis, it arises from diverticular rupture (8).

The presented case illustrates the diagnostic complexity in patients with atypical anatomy, such as dextropositioned dolichosigmoid colon. A clinical manifestation of lower right quadrant pain and elevated inflammatory markers typically suggests appendicitis. In this case, the localization of pain and laboratory findings initially led to a suspicion of acute appendicitis, further guiding clinical reasoning toward urgent surgery. However, anatomical variations can significantly alter diagnostic pathways, highlighting the critical role of radiologic imaging. Accurate radiological assessment may prevent unnecessary emergency surgeries, which often involve invasive procedures such as stoma creation, thereby increasing patient morbidity (8).

In retrospect, earlier identification of malignancy as the cause of the abscess might have accelerated diagnosis and treatment. Early oncologic evaluation could have enabled timely staging and planning of elective resection with preservation of function (3). However, surgery during active inflammation carries significant risks, such as extensive resections, stoma formation, and prolonged hospitalization (3, 4, 6). On the other hand, the conservative approach with delayed intervention, as applied in this case, allows for patient stabilization and reduced perioperative risk (9).

The relationship between diverticulitis and colorectal cancer remains open to debate, whether they represent distinct entities or interrelated conditions. In this case, although the initial diagnosis was diverticulitis with abscess, the later discovery of a stenosing sigmoid adenocarcinoma raises the question of whether the malignancy was the primary cause of the inflammatory process. One possible pathophysiological link is that the tumor causes partial or complete luminal obstruction, promoting fecal stasis and local bacterial overgrowth, thereby facilitating secondary diverticulitis. Alternatively, the tumor may lead to focal ischemia and bowel wall damage, further contributing to inflammation (2).

Therefore, in certain cases, the inflammatory process may not be a separate entity but rather a manifestation or consequence of underlying malignancy. These diagnostic overlaps emphasize the importance of complete evaluation after resolution of acute symptoms, as ruling out malignancy directly impacts timely treatment and prognosis (10, 11, 12, 13).

In this case, consistent application of the post-acute diverticulitis protocol, including mandatory delayed colonoscopy enabled timely detection of the tumor as well as extensive left-sided diverticulosis. This further confirms that the patient had a predisposition to inflammatory complications, and it was not possible to definitively

determine whether symptoms were due to diverticular disease or tumor pathology. If this step had been omitted, the malignancy might have remained undetected, delaying treatment. Literature reports cases of several-month or even multi-year diagnostic delays due to premature cessation of evaluation (14, 15, 16, 17).

In conclusion, this case clearly illustrates how a nonspecific abscess presentation can mask a serious pathological entity such as colorectal cancer. A combination of atypical anatomy, vague clinical signs, and absence of classic symptoms can lead to misdiagnosis and inappropriate treatment, while strict application of diagnostic protocols significantly contributes to timely diagnosis and optimal outcomes.

Conclusion

This case highlights the importance of differential diagnosis in patients with abdominal abscesses, particularly when the clinical presentation is atypical. Although the most common causes are inflammatory and infectious, the possibility of malignancy must not be overlooked, especially in older patients and in the presence of atypical findings. Detailed radiological assessment and consistent implementation of post-acute diagnostic protocols, including colonoscopy, are crucial for timely identification of the underlying cause and planning appropriate treatment.

A conservative approach during the acute inflammatory phase provides safer conditions for elective surgery and better functional outcomes. This case confirms the value of a multidisciplinary approach, clinical vigilance, and protocol-based diagnostics as factors that directly influence treatment quality and disease outcomes.

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