Journal of Surgery
Kim S, et al. J Surg 10: 11455
www.doi.org/10.29011/2575-9760.11455
www.gavinpublishers.com
Case Report

Metastatic Mucinous Adenocarcinoma Presumed to Be Acute-On-Chronic Diverticulitis: A Case Report

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Citation: Kim S, Bhat R, Biernecki O,Whalen B, Khanna P, et al. (2025) Metastatic Mucinous Adenocarcinoma Presumed to Be Acute-On-Chronic Diverticulitis: A Case Report Technique J Surg 10: 11455 DOI: 10.29011/2575-9760.011455

Received Date: 20 September 2025; **Accepted Date:** 25 September 2025; **Published Date:** 27 September 2025

Introduction

Colon cancer is a leading cause of cancer-related deaths worldwide [1]. Although rare, perforation of the bowels secondary to colon cancer is a well-established malignancy-related emergency that can result in abscess or peritonitis [2]. In many cases, colon cancer and diverticulitis share clinical resemblance [3]. Le describes a perforating colonic adenocarcinoma presumed to be acute-on-chronic diverticulitis [4]. These vignettes described the characteristic need for increased literature between the subtle radiographic and clinical considerations between diverticulitis and perforated colon cancer.This paper aims to elucidate this rare and atypical occurrence by detailing its diagnostic challenges, clinical presentation, and treatment approaches. Our study strives to increase awareness among the medical community regarding the similarities between diverticulitis and perforated colon cancer. Moreover, this investigation aims to elucidate consequential clinical complications from delayed therapy including bacterial seeding.

Case

A 50-year old male patient presented to the Emergency Department (ED) with the chief complaint of left-sided epigastric pain. The patient co-presented with subjective fever, headache, bloody stools and nausea and vomiting. Review of records from a previous medical system demonstrated a history of diverticulitis.On physical exam, the patient presented with an oral temperature of 99.1°F, a heart rate of 94 beats per minute, respiratory rate of 16 breaths per minute, and a blood pressure of 118/69 mmHg. Lungs were clear to auscultation with no wheezes, rhonchi, or crackles appreciated. The patient presented with left-sided abdominal tenderness on palpation with greater pain in the left-upper quadrant. Laboratory results demonstrated a white blood cell count of 11.5 x 10^3 cmm. A Computerized Tomography (CT) with contrast was ordered with strong suspicion of diverticulitis and secondary perforation. The CT scan demonstrated a 7 x 10 cm abscess near the splenic flexure with splenic infarction and small left pleural effusion. The patient was moved to in-patient observation within the day. On day 9 of in-patient care, repeat CT imaging was performed. A complex, mixed attenuating lesion with wall thickening and surrounding inflammation was seen within the left upper quadrant. The lesion was inseparable from the continuing lesion. Repeat imaging prompted additional laboratory tests that presented elevated Carcinoembryonic Antigen (CEA) levels of 63.94 ng/mL. The patient continued to recover. Although colostomy was considered on day 9 and on day 14, colostomy was reconsidered due to improving clinical picture and tentative hemicolectomy with splenectomy was planned. On day 15, the patient presented with supraventricular tachycardia and a sudden decline. Repeat chest and abdomen CT imaging demonstrated worsening left-sided atelectasis, cardiomegaly with trace pericardial effusion, and concerns for underlying abscess.Explorative laparotomy was planned. The operation began and an enlarged mass was noted on the spleen. Upon palpation, the mass along the splenic flexure released pus. Left hemicolectomy was pursued with the distal margin distal to the inferior mesenteric artery and the proximal margin beyond the middle colic artery. The spleen was removed first then the colon containing the tumor was removed. Microbiological cultures revealed a mixed anaerobic infiltrate with complex secondary Mycobacterium avium-intracellulare

complex isolation. Surgical pathology reported a diffuse metastatic mucinous adenocarcinoma present in the lymph nodes, spleen, and colon. The mucinous adenocarcinoma was found to be MLH1 and PMS2 deficient.

Discussion

Although rare, colon cancer can lead to perforation of nearby organs due to the development of an abscess. The patient's previous history of diverticulitis masked the perforated colon that presented ambiguously with fever, headache, bloody stools, nausea, vomiting, and left-sided abdominal tenderness. Recommendations for distinguishing abdominal pain caused by colon cancer are insufficient. Our study complements the case described by Le; however, our report described pre-procedural signs that demonstrate algorithmic differences between diverticulitis and perforated colon cancer such as elevated serum CEA levels.Perforation in colon cancer, rather uncommonly, occurs in ~15% of cases, often due to tumor necrosis causing proximal perforation [5]. Furthermore, any leakage of the bowel increases the risk of abscess formation. Surgical intervention of perforated colon cancer has proven to be challenging as a result [6]. Endoscopic procedures and CAT scans are commonly used to evaluate the severity of the perforation. If surgical intervention is recommended, a laparotomy, colectomy, or diverting colostomy is recommended [7]. Blood work and imaging can aid in distinguishing perforated colon cancer from similar presenting issues such as diverticulitis. In this case, multiple symptoms ruled in favor of colon cancer such the patient's CT scan noted enlarged lymph nodes and the abscess being no longer than 10 cm. There were clinical indications of diverticulitis such as the febrile presentation and past medical history. Singh and colleagues suggest some clinical relevance to historical diverticulitis and future colon cancer [8].

The exact relationship is yet to be fully elucidated; however, this investigation finds that a strong need for advancing algorithms for work-up for patients with historical diverticulitis and suspicious imaging to include CEA testing. Splenic abscesses and their association with non-tuberculous mycobacteria is incredibly uncommon [9]. More interestingly, NTM infections are more insidious than common infections such as *Staphylococcus aureus* [10]. NTM abscesses are fairly uncommon, especially as a complication of colon cancer, thereby highlighting a notable gap in medical literature. The presenting fever, ascites, and abdominal pain in our investigation complement previous reports of the rare infection [11]. However, it is one of the first to describe this pathway for NTM infection infiltration of the thoracic space [12].

Altogether, patients with perforated bowels due to untreated mucinous adenocarcinoma can present as acute-on-chronic diverticulitis. Advancements in clinical decision making should be made to decrease time to diagnosis for patients presenting with suspicious imaging and overlapping clinical features. Both this investigation and the study by Le found that explorative laparotomy was effective in final diagnosis [4]. Additionally, infectious agents can disturb clear clinical pictures and greater efforts for work-ups should be made if secondary abscess is present.

Data Availability Statement

The participants of this study did not give written consent for their data to be shared publicly, so due to the sensitive nature of the research supporting data is not available.

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