

Enterocutaneous Fistula Secondary to Cecal Carcinoma Masqueraded as Gastrointestinal Tuberculosis: A Rare Case Report

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Case report

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Introduction

Enterocutaneous Fistula is an abnormal connection between the intestinal tract and the skin that arises iatrogenically, often due to surgical complications such as intestinal anastomotic dehiscence and enterotomies (1) Abdominal trauma accounts for the etiology in 25-50% of ECF cases, while other origins encompass cancer, radiation, inflammatory bowel disease (IBD), ischemia, and infectious diseases. Therefore, the origins of ECF can be postoperative, traumatic, or spontaneous.(2)

Colorectal carcinoma (CRC), in contrast, is the third most prevalent cancer globally, with 1.8 million new diagnoses and stands as the second leading cause of cancer-related deaths, contributing to approximately 881,000 fatalities in 2018(3). The cecum, the initial segment of the colon, can harbor a specific form of cancer termed as carcinoma of the cecum. Despite its often subtle clinical presentation, historical data reveals that nearly 20% of colorectal tumors originate in the cecum. Notably, gastrointestinal tuberculosis is often referred to as the "great mimic" because it exhibits symptoms similar to those of cecal malignancy, complicating its accurate diagnosis(4). Not only this, the convergence of enterocutaneous fistula (ECF) with colorectal cancer (CRC) too is a rare occurrence, typically indicative of an advanced stage of the disease. This case report aims to elucidate the exceptional conjunction of carcinoma of the cecum with enterocutaneous fistula, an association rarely documented in the medical literature, thereby aiming to underscore the possibilities of misdiagnosis, the importance of early detection, intervention and management in advanced cases of colon cancer that carry poor prognosis.

Case History

A 36-year-old woman with a history of abdominal tuberculosis had received two months of treatment with anti-tuberculosis drug. She had also undergone an incision and drainage procedure for a psoas abscess. The patient now presented to the emergency department experiencing leakage of fecal matter from her right flank region. She described that for the previous two weeks, she had been experiencing a foul-smelling, feculent discharge from her right lower abdomen. Fever, nausea, and reduced appetite were present along with the other symptoms. In the preceding six months, she had struggled with intermittent constipation and had experienced occasional per rectal bleeding. Moreover, she mentioned significant weight loss over the last three months. Importantly, she confirmed that there was no family history of tuberculosis, colon cancer, or any malignancies.

Upon physical examination, she appeared to be in a weakened state, confined to her bed, and showed signs of malnourishment. Vital signs taken upon admission indicated that she was running a fever and exhibited tachycardia. Closer inspection revealed spontaneous feculent drainage through an anterolateral opening on her anterior abdominal wall shown in *Figure 1*. This area showed signs of edema. In the right iliac fossa, a firm to hard mass measuring approximately 10x10 cm was identified. Aside from this, her abdomen felt soft without any tenderness. A rectal examination revealed a normal tone, but the examining finger was stained with feces, although no palpable mass was identified internally.

Methods

For a clearer diagnosis, laboratory tests were conducted, and the results indicated an elevated white blood cell count at 14×10^3 per L, with the normal range being $4.0-10.8 \times 10^3$ per L. This elevation was primarily due to neutrophilia. Furthermore, her hemoglobin level was slightly low at 11 mg/dL, compared to the typical range of 12-16 g/dL. Her albumin level was also below the normal, registering at 3.1 g/dL, where the standard range is between 3.4 and 4.8 g/dL.

Imaging examinations provided further insights into her condition. A CT scan displayed a substantial mass originating from the caecum and extending to the transverse colon as shown in *Figure 2*. This mass measured 13x10x13 cm and had multiple air locules noted along the posterior lateral wall of the ascending colon mass. This mass extended towards the hepatic flexure and opened into the subcutaneous plane. A colonoscopy further revealed a large ulcerated growth in the transverse colon, causing a narrowing of the lumen. This made it difficult for the scope to be advanced proximally. A biopsy of this growth confirmed the diagnosis of adenocarcinoma of the colon

Expert opinion was taken and the patient was planned for an exploratory laparotomy with extended right hemi colectomy and en bloc resection as shown in *Figure 3*. Biopsy showed poorly differentiated mucinous adenocarcinoma, tumor extended beyond muscularis propria and perforated serosa with positive lymph node findings. Post operatively patient was sent to oncology for chemotherapy.

Conclusion and Results

This case highlights one of the rarest complications of cecal carcinoma which is enterocutaneous fistula formation. Following the biopsy report, the patient attended follow-up appointments, was advised to undergo chemotherapy, but unfortunately, was lost to follow-up thereafter. These findings, therefore, highlight the importance of clinical awareness, early diagnosis, timely intervention, and a comprehensive approach to patient management. Such measures ultimately lead to better prognosis and higher survival rates for patients facing similar conditions.

Discussion

A fistula is an abnormal connection between two epithelialized surfaces. An enterocutaneous fistula (ECF) specifically refers to an abnormal communication between the intestinal tract and the skin. One study found that 51% of fistulas were low-output, while 49% were high-output. Approximately 95% of ECFs resulted from postoperative complications, with the ileum being the most common site of ECF formation(5).

Globally, colon cancer is the second leading cause of cancer-related deaths. A recent report by the World Health Organization (WHO) highlighted that in 2020, there were over 1.9 million new cases of colorectal cancer and more than 930,000 deaths from the disease(6). According to prior research, the cecum has been identified as the site of colorectal malignancy in 20% of cases, making it a lesser prevalent tumor site(7). Up to one third of patients with CRC may present to the emergency room with complications like perforation and obstruction, while patients with CRC frequently present to the outpatient setting with changes in bowel habit, rectal bleeding, or iron deficiency anemia(2).

However, perforation of right sided colon cancer may cause a localized collection inside the abdomen that spreads superficially into the skin to form a fistulous tract, making it a rare occurrence. Furthermore, in areas where tuberculosis (TB) is prevalent, Mycobacterium tuberculosis is frequently the cause of primary psoas abscess(8).

The clinical presentations of gastrointestinal tuberculosis share similarities with those of cecal malignancy and enterocutaneous fistula, posing diagnostic challenges. Misdiagnosis can lead to delays in appropriate treatment, potentially allowing the condition to progress to an advanced stage, as demonstrated in this case.

Subsequently, the emergence of enterocutaneous fistula (ECF) as a complex complication in cancer patients further complicates management, especially if they have previously undergone treatments such as surgery, radiation, and chemotherapy. Beyond addressing the intricacies of misdiagnosis, our case also explores one of the rarest complications of cecal carcinoma: the development of an enterocutaneous fistula. Existing literature primarily concentrates on more common complications of colorectal carcinoma, like perforations and bowel obstructions. The onset of ECF in cecal cancer patients complicates their treatment, often delaying or even precluding palliative care or additional adjuvant therapy. This has significant consequences on patients' quality of life and overall survival.

Initial management of ECF involves resuscitation, infection control, skin protection, providing nutritional

support to the patient, and managing ECF effluent. Surgical repair is commonly required. The preparatory phase is crucial for the surgical treatment of these patients. In some scenarios, non-surgical therapy might be the primary or sole treatment, based on the tumor type(5,7,9).The primary goal of surgery is the curative resection of the tumor, which includes excising the fistula tract and the tumor en bloc. In our case, this approach was paired with postoperative chemotherapy (10).

The development of ECF in colorectal carcinoma can be traced back to localized perforation, leading to the tumor invading neighboring regions and the skin. Often, the presentation of such cases is delayed, resulting in unfavorable prognosis and heightened morbidity and mortality rate(5).In conclusion, there's an urgent need for more extensive research and more strategic interventions to deepen our understanding and enhance the management of these severe complications linked to colorectal carcinoma.

List of abbreviations:

Enterocutaneous fistula: ECF

Tuberculosis: TB

Colorectal Carcinoma: CRC

Inflammatory Bowel Disease: IBD

World Health Organization: WHO

Declarations

Ethics approval and consent to participate

The Institutional Review Board of Jinnah Postgraduate Medical Centre with reference number: NO.F.2-95/2023-GENL/211/JPMC had granted approval for this case report.

Consent for publication

Written informed consent was obtained from the patient for publication of this case report and accompanying images

Availability of data and materials

The authors confirm that the data supporting the findings of this study are available within the article.

Conflict of interests

The authors declare no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

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Authors' contributions

The case discovery was done by HM and SAH. The literature and drafting of the manuscript were conducted by HM, RN, SAH, MA, AKY, and AAF. The editing and supervision were performed by HM and MA. All authors have read and agreed to the final version of the manuscript.

Clinical trial registration

Not applicable

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Figure 1: Shows 1x1 cm ovoid opening at right anterolateral abdominal wall with fecal discharge



Figure 2: CT abdomen coronal view shows large perforated cecal mass with fistulous connection with subcutaneous tissue with air locule



Figure 3: Specimen of extended right hemicolectomy En bloc with fistulous connection with anterolateral abdominal wall