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Case Report

Adenocarcinoma of the appendix presenting as chronic small bowel obstruction: A case report ☆,☆☆

Zaid Sawaftah[a], *Ameer Awashra*[a,*], *Ali Bani Odah*[a], *Ahmed Sawafta*[a], *Ola Ahmad*[a], *Amer Khatib*[b], *Huthayfa Dababat*[b], *Anas Yasin*[b]

[a] *Department of Medicine, An Najah National University, Nablus, Palestine*
[b] *Department of Surgery, Tubas Turkish Governmental Hospital, Tubas, Palestine*

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ABSTRACT

Appendiceal carcinoma, a rare malignancy comprising less than 1% of gastrointestinal cancers, often presents diagnostic challenges due to its atypical symptoms. This report details a 68-year-old female with a history of severe anemia, gastrointestinal bleeding, and persistent abdominal symptoms, ultimately diagnosed with chronic small bowel obstruction caused by an appendiceal adenocarcinoma. Despite initial treatment for Helicobacter pylori-induced gastritis, her symptoms persisted, prompting further imaging that revealed a narrowed small bowel segment. Exploratory laparotomy uncovered a stricturing tumor 2 meters from the duodenojejunal junction, leading to en bloc resection of the tumor, appendix, and part of the lateral abdominal wall. Histopathology confirmed moderately differentiated adenocarcinoma. A multidisciplinary team recommended a complete right hemicolectomy, successfully performed despite extensive adhesions and a mesenteric abscess. Postoperatively, the patient recovered well, with ongoing management for anemia and close surveillance. This case highlights the importance of considering rare malignancies in differential diagnoses for chronic small bowel obstruction.

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* Corresponding author.
E-mail address: Ameer.Awashra7@gmail.com (A. Awashra).

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Introduction

Appendiceal carcinoma is a rare malignant disease of the appendix, representing less than 1% of all malignancies of the gastrointestinal tract [1]. This, coupled with an atypical presentation, makes it difficult to diagnose. The usual symptoms include abdominal pain, abdominal masses, or symptoms mimicking other diseases such as appendicitis or ovarian tumor [2]. There are several different histological subtypes of appendiceal carcinoma, including adenocarcinoma, mucinous adenocarcinoma, and goblet cell carcinoid [3]. Most commonly found in the form of adenocarcinoma, which can be further divided into both mucinous and nonmucinous variations. Mucinous adenocarcinomas, for instance, are usually marked by their extensive production of mucus, which can even cause pseudomyxoma peritonei in some cases, where mucus accumulates in the peritoneal cavity [4].

We report a 68-year-old female with chronic small bowel obstruction who presented with persistent anemia, nausea, vomiting, and weight loss. After an exploratory laparotomy, the cause was identified as a mass originating from the appendix. Histopathology confirmed the diagnosis of appendiceal adenocarcinoma. The patient is recovering well and remains under close follow-up.

Case presentation

A 68-year-old female with a significant past medical and surgical history presented with complaints of shortness of breath, fatigue, and abdominal symptoms, including nausea, vomiting, and poor appetite. Upon physical examination, the patient was conscious, alert, and oriented, with normal vital signs. Laboratory investigations revealed an abnormally low hemoglobin level of 6.5 g/dL (Normal range: 12.0-15.5 g/dL) and a mean corpuscular volume (MCV) of 72 fL (Normal range: 80-100 fL), prompting her hospitalization and the administration of 2 units of packed red blood cells. The patient's condition was further complicated by positive stool occult blood tests, indicating gastrointestinal bleeding. Endoscopic evaluations, including both upper and lower gastrointestinal endoscopies, confirmed the diagnosis of chronic active gastritis consistent with Helicobacter pylori infection. A regimen of triple therapy and iron supplements was initiated.

A few months later, the patient's symptoms did not improve. Specifically, she continued to experience episodes of anemia and abdominal symptoms, including nausea, vomiting, poor appetite, and unexplained weight loss of 5 kg over the past few months. Notably, an abdominal examination revealed distention. Consequently, multiple investigations were conducted, including an abdominal X-ray that demonstrated multiple air-fluid levels and dilated bowel loops, suggestive of small bowel obstruction (refer to Fig. 1). Furthermore, magnetic resonance enterography (MRE) further confirmed the presence of dilated bowel loops and identified a 5 cm narrowed segment of the small bowel (See Fig. 2).

The patient's complicated surgical history includes a hysterectomy performed 2 decades ago and multiple incisional hernia repair surgeries. These interventions have led to the development of adhesions, which initially raised suspicion for chronic small bowel obstruction . However, during the exploratory laparotomy, an unexpected revelation emerged: the true culprit behind the obstruction was not the adhesions but rather a stricturing tumor located 2 meters from the duodenojejunal junction. In a surprising turn of events, en bloc resection of the tumor, appendix, and a portion of the lateral abdominal wall was carried out (see Fig. 3). Consequently, a side-to-side anastomosis was performed, and the postoperative course was uneventful, with no leakage noted.

The resected mass was sent to histopathology. Postoperatively, histopathological examination confirmed moderately differentiated adenocarcinoma. The patient was subsequently referred for an oncology consultation to discuss the necessity of adjuvant chemotherapy versus further surgical intervention. After comprehensive discussions regarding the patient's prognosis and potential treatment benefits, the multidisciplinary team decided that the patient should undergo an additional surgery for a complete right hemicolectomy. The procedure was complicated by extensive adhesions from previous surgeries and a small mesenteric abscess near the anastomosis site. Nevertheless, the resection was completed successfully with no evidence of liver lesions or lymph node involvement.

As of the latest follow-up, the patient is recovering well, exhibiting improved wound healing and no discharge. She is currently undergoing management with the oncology team and remains under close surveillance. A detailed follow-up plan includes regular imaging, blood tests, and consultations with her multidisciplinary team.

Discussion

Appendiceal carcinoma includes several distinct histological subtypes, each impacting prognosis and treatment differently. Mucinous adenocarcinoma is characterized by mucin production, often leading to pseudomyxoma peritonei . Consequently, patients may present with abdominal pain or distension, and treatment involves extensive surgical resection and possibly hyperthermic intraperitoneal chemotherapy (HIPEC). Early-stage tumors have a better prognosis [5]. In contrast, goblet cell carcinoid exhibits both neuroendocrine and adenocarcinoma features and is often more aggressive with a tendency to metastasize. Therefore, right hemicolectomy is common, and the prognosis is poorer than for typical carcinoids [6]. Similarly, colonic-type adenocarcinoma resembles colorectal cancer, presenting with appendicitis-like symptoms or as a mass, and requires right hemicolectomy due to high metastasis risk. Consequently, its prognosis is generally poor, akin to advanced colorectal cancer [2]. Overall, understanding these subtypes aids in tailoring treatment and predicting outcomes.

The nonspecific nature of its presentation often leads to confusion with other conditions. Among the common differential diagnoses is acute appendicitis, which is frequently the initial clinical suspicion—especially in younger patients with right lower quadrant pain. Additionally, ovarian cysts or tumors, particularly in female patients with pelvic masses, col-

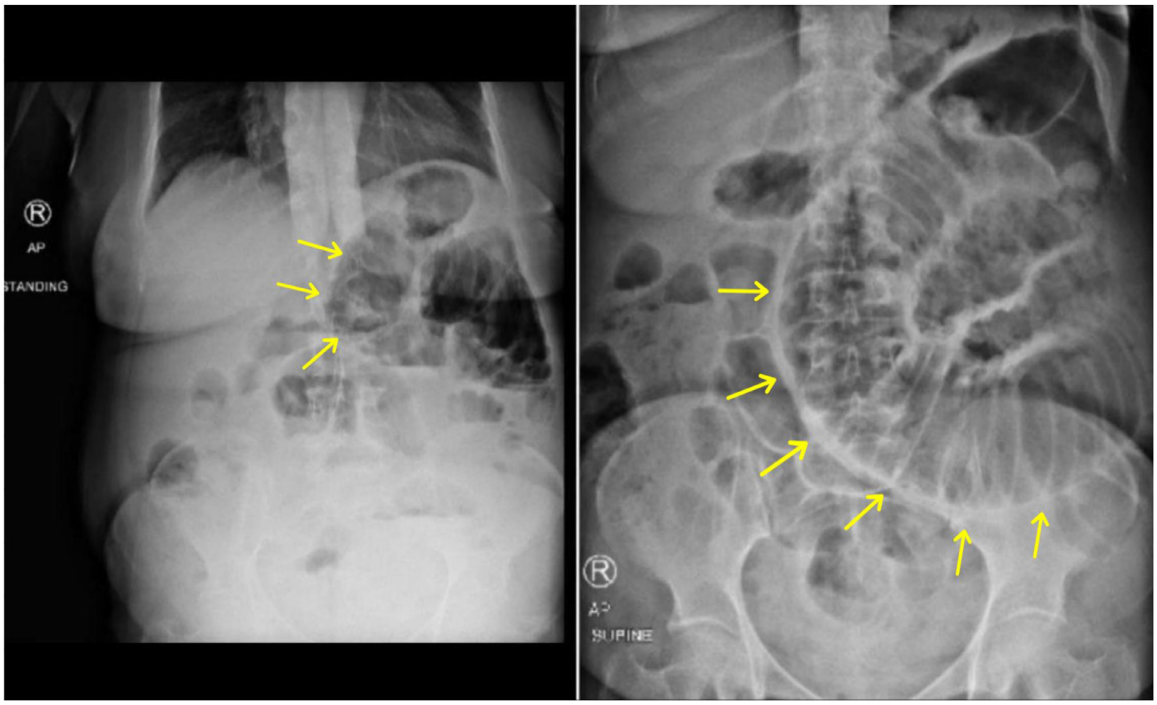

Fig. 1 – X-ray images, indicated by Yellow Arrows, demonstrate multiple air-fluid levels within the small bowel, which are indicative of a small bowel obstruction.

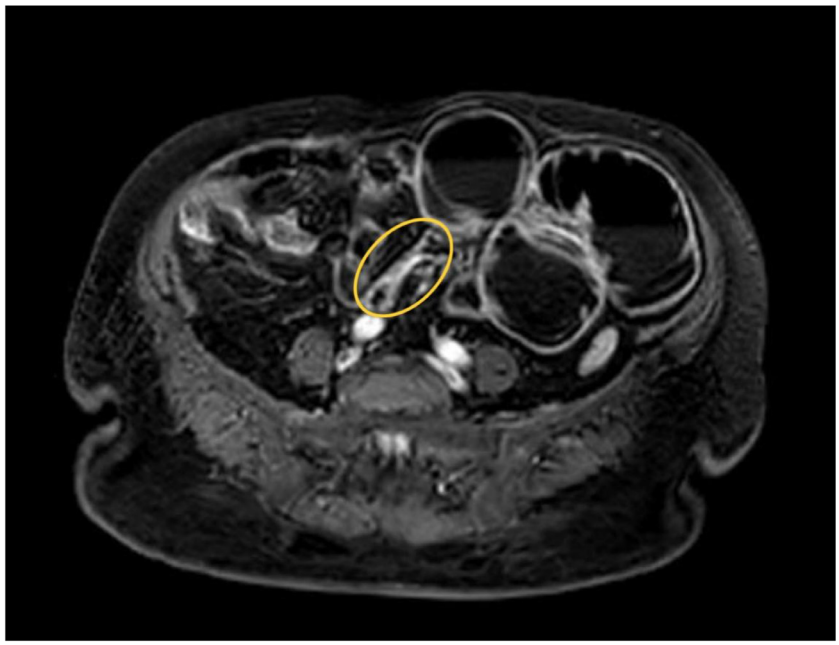

Fig. 2 – MRE, as indicated by the yellow circle, shows circumferential enhancing wall thickening in the distal part of the ileum, resulting in stricture formation and causing diffuse dilatation of the proximal small bowel loops.

orectal cancer, and peritoneal carcinomatosis should be considered [4]. The diagnostic process for appendiceal carcinoma typically begins with imaging studies such as CT scans and ultrasounds, which may reveal a mass in the appendix or suggest mucinous ascites. However, the definitive diagnosis is usually made postoperatively when the appendix is removed and histopathologically examined. Intraoperative findings often guide the extent of surgical intervention, with suspicious masses prompting immediate histological evaluation. Preoperative biomarkers like carcinoembryonic antigen and CA-125

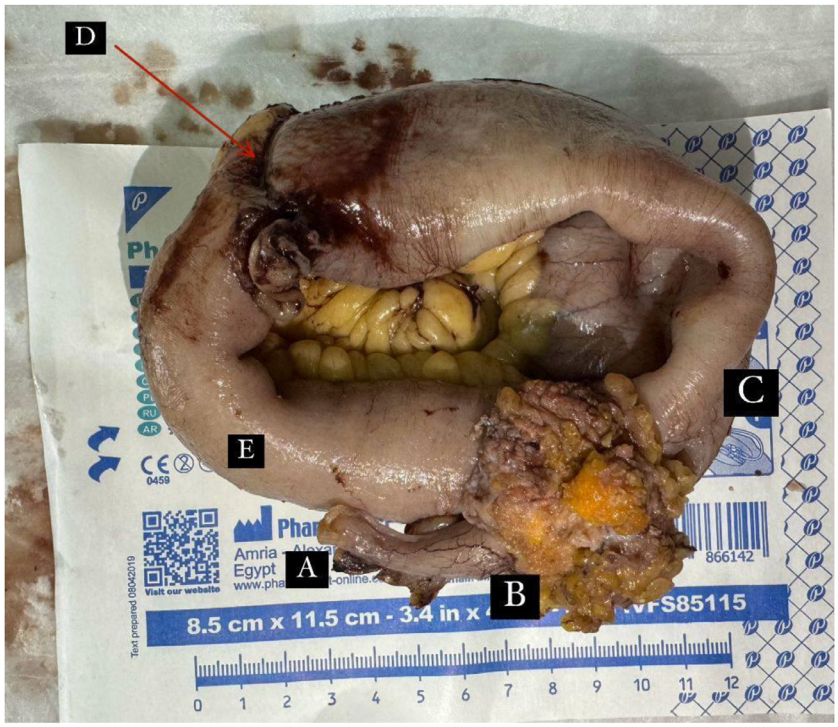

Fig. 3 – This figure illustrates the surgically removed portions of the mass. The labeled structures correspond to specific anatomical locations within the gastrointestinal tract. (A) The base of the appendix (B) The tip of the appendix (C) Part of the ileum (D) Resection site (E) Part of the jejunum.

can also aid in the diagnostic process, especially when appendiceal cancer is suspected due to atypical imaging findings. Notably, during surgery, a frozen section biopsy can provide immediate diagnostic information, guiding the extent of surgical resection needed [5].

In the context of management strategies for appendiceal carcinoma, the approach significantly depends on the tumor's histological subtype and stage. For localized tumors, an appendectomy might be sufficient. However, in cases where the tumor is more advanced or exhibits aggressive histological features, a right hemicolectomy—removal of part of the colon along with the appendix—is typically recommended. For patients with peritoneal dissemination, cytoreductive surgery combined with HIPEC is often employed to reduce tumor burden and manage symptoms [7]. Systemic chemotherapy regimens, including drugs like 5-fluorouracil and oxaliplatin, are used for metastatic disease or as adjuvant therapy [1].

Conclusion

This case attests to the diagnostic complexity and the rarity of appendiceal adenocarcinoma presenting as chronic small bowel obstruction. The continued symptoms of the patient on treatment for the much more common gastrointestinal conditions underline the seriousness of the need for further evaluation with consideration for rare malignancies. This also pointed out how effective comprehensive care through integrated, multidisciplinary management is in achieving the best outcome for the patient. Clinicians should be vigilant and consider very rare diagnoses in cases of atypical clinical presentations to facilitate timely and correct treatment strategies.

Patient consent

Written informed consent was obtained from the patient's himself for his anonymized information to be published in this article.

Ethics approval

Our institution does not require ethical approval for reporting individual cases or case series.

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