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Case Report

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A rare cause of acute renal failure

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ABSTRACT

Adenocarcinoma of the small intestine is a rare but aggressive malignancy accounting for a small fraction of gastrointestinal cancers. We present a clinical case of a female in her mid-30s with acute kidney failure caused by persistent vomiting due to an occlusive small intestine adenocarcinoma. This report highlights the diagnostic and therapeutic challenges associated with this uncommon tumor and underscores the importance of considering rare malignancies in patients with unexplained gastrointestinal symptoms and renal complications.

Keywords: Small intestine adenocarcinoma, Intestinal obstruction, Acute renal failure, Case report

INTRODUCTION

Adenocarcinoma of the small intestine (SBA) is an uncommon malignancy, representing less than 2% of all gastrointestinal cancers.[1] Although the small intestine constitutes the majority of the gastrointestinal tract's length and mucosal surface, malignant tumors of this region remain rare compared to those of the stomach or colon.[2] The annual incidence of SBA is approximately 1 per 100,000 individuals, with a higher prevalence in males and a median age at diagnosis around 60 years.[3] Several studies have suggested that both environmental and genetic factors contribute to its pathogenesis, with increased incidence in developed regions such as North America and Europe.[4] Recognized risk factors include hereditary syndromes (familial adenomatous polyposis, Lynch syndrome, Peutz-Jeghers), chronic inflammatory diseases (Crohn's and celiac disease), and dietary or lifestyle factors.[5] Symptoms are frequently nonspecific-such as abdominal pain, weight loss, vomiting, and anemia-leading to delayed diagnosis and poorer outcomes.[6] Due to the deep anatomical location and limited accessibility by endoscopy, diagnosis usually relies on a combination of imaging, capsule endoscopy, and histopathology.[7] Surgical resection remains the cornerstone of treatment, while adjuvant chemotherapy may be considered, extrapolated largely from colorectal cancer protocols.[8]

Here, we present a rare case of small bowel adenocarcinoma in a young female presenting primarily with acute renal failure secondary to persistent vomiting, emphasizing the importance of early suspicion and multidisciplinary management.

CASE REPORT

A 35-year-old female with no significant medical history presented with persistent vomiting, oral intolerance, and weight loss of approximately 8 kg over one month. Laboratory investigations revealed elevated inflammatory markers and acute kidney injury (KDIGO stage 3) with severe electrolyte imbalance.

Abdominal imaging demonstrated proximal small bowel dilatation with a transition point (Figures 1 and 2), suggestive of obstruction.

Endoscopy showed gastric stasis without mucosal lesions (Figure 3).

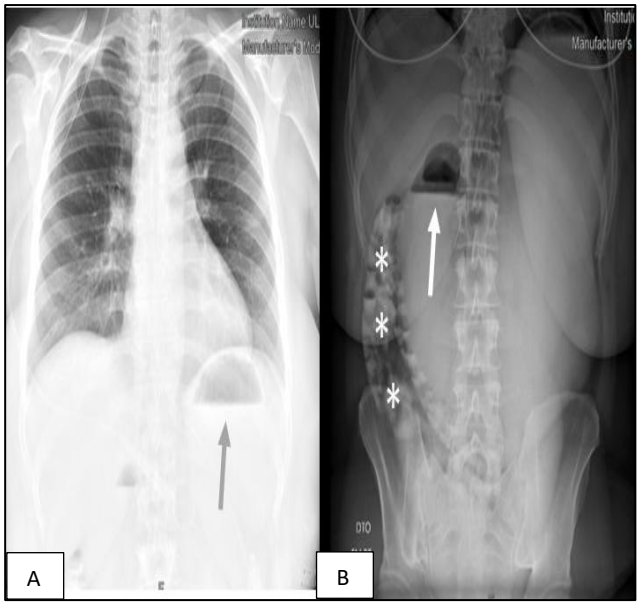

Figure 1 (A and B): Thoracic and abdominal x-rays showing air-fluid levels of stomach and small intestine (arrows) and oral contrast in the colon (*).

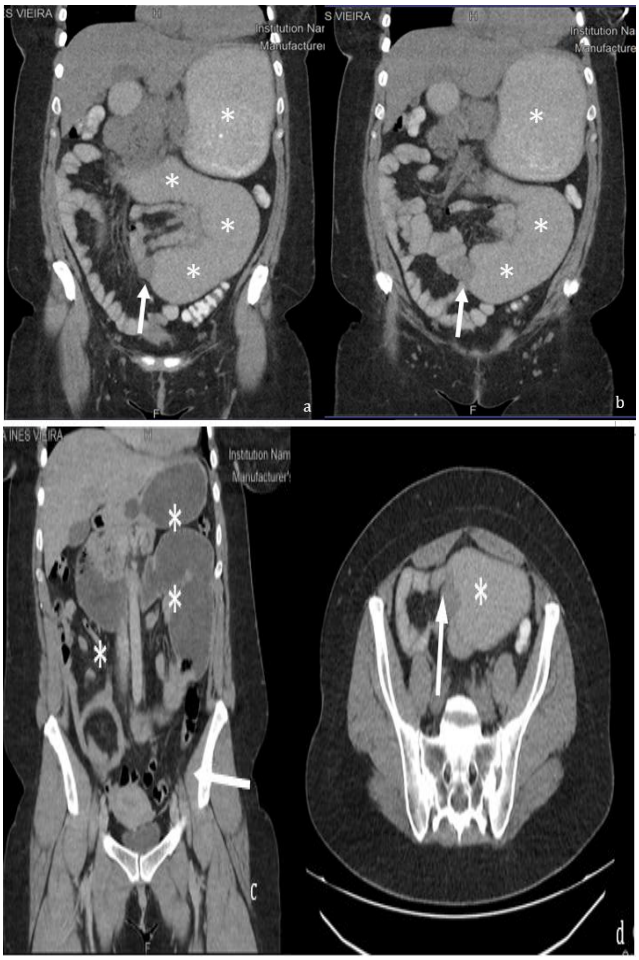

Figure 2 (A-D): Sagittal (A-C) and transverse (D) CT scan images, with distension of proximal small intestine (*) with point of transition (arrows).

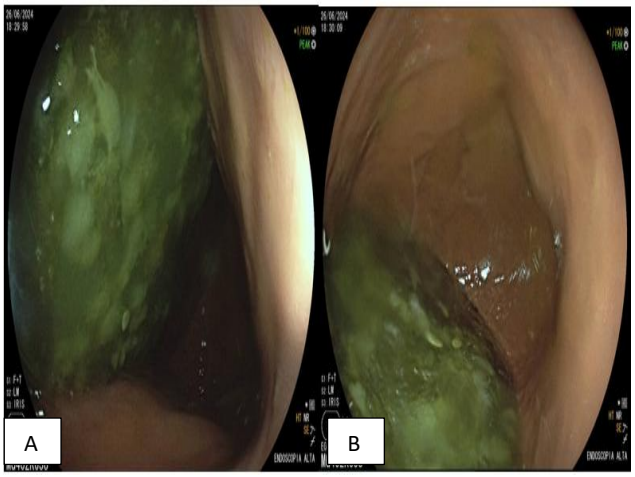

Figure 3 (A and B): Endoscopy images showing stasis content, which limited progression of the endoscopy.

Exploratory laparotomy revealed a stenosing jejunal lesion, and segmental resection was performed (Figure 4). Histopathology confirmed a moderately differentiated (G2) invasive adenocarcinoma infiltrating the serosal surface, with lymphovascular and perineural invasion (pT4aN0). The patient received adjuvant XELOX chemotherapy for eight cycles based on extrapolated colorectal data. She remains disease-free at one-year follow-up.

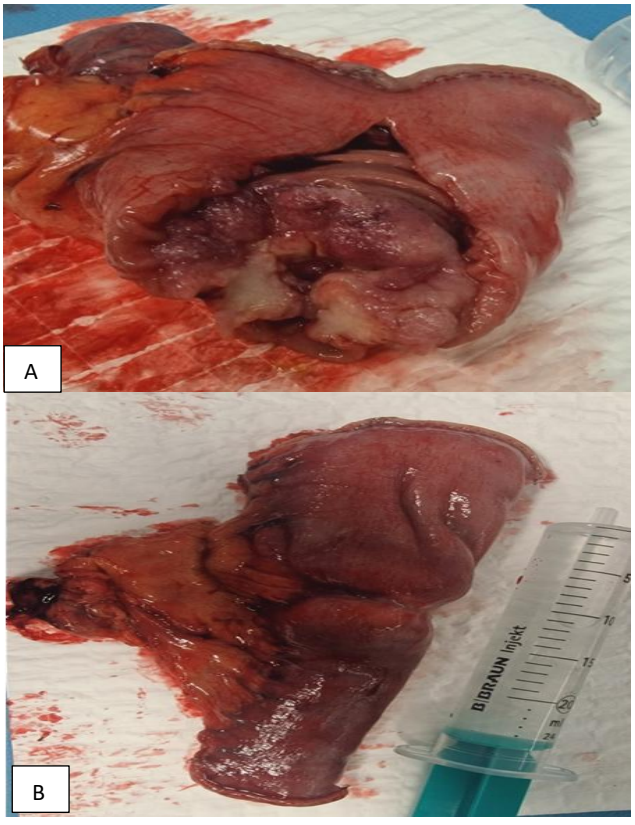

Figure 4 (A and B): Segmentary resection of jejunum, showing area intramucosal lesion (*) and transition point (arrow).

DISCUSSION

Small bowel adenocarcinoma poses significant diagnostic and therapeutic challenges due to its rarity and nonspecific presentation.[2,4] In most reports, the disease predominantly affects older males, typically in the sixth decade; however, our patient illustrates that it may also occur in younger individuals.[5] Obstructive symptoms are among the most common clinical presentations, often accompanied by nausea, vomiting, and abdominal distension.[6] In this case, persistent vomiting resulted in severe dehydration and pre-renal acute kidney injury-a rarely described complication in SBA.[7]

Endoscopic evaluation is frequently limited by the location of the tumor, as was observed in our patient, where the jejunal lesion was beyond reach of standard endoscopy.[8] Similar findings have been reported in several case series, where diagnosis was ultimately achieved only during surgical exploration.[9] Histologically, our patient's tumor demonstrated serosal invasion and perineural and lymphovascular infiltration, consistent with aggressive biological behavior described in prior literature.[10] Nevertheless, absence of nodal metastases and complete resection (R0) are positive prognostic indicators, aligning with outcomes reported in previous studies.[11]

Treatment of localized SBA remains primarily surgical. The benefit of adjuvant chemotherapy is uncertain, especially in stage II disease without nodal involvement, though some studies have suggested improved disease-free survival in high-risk patients.[12] Given the patient's young age and high-risk histological features, adjuvant XELOX was administered, with favorable short-term outcomes. This case underscores the importance of maintaining clinical suspicion for rare neoplasms in unexplained gastrointestinal obstruction and highlights the value of a multidisciplinary approach integrating surgical, pathological, and oncological expertise.

CONCLUSION

Adenocarcinoma of the small intestine is a rare yet aggressive malignancy that can present with atypical complications such as acute renal failure secondary to vomiting and dehydration. Early diagnosis remains difficult due to vague symptoms and limited accessibility of diagnostic modalities. Surgical resection continues to be the mainstay of curative therapy, and adjuvant chemotherapy may be beneficial in selected cases. This case emphasizes the need for high clinical vigilance in patients with recurrent vomiting and unexplained renal impairment.

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