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Case report

# Jejunal Adenocarcinoma: A Report of Two Cases

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## Abstract

**Introduction:** Adenocarcinomas of the small intestine are a rare cause of gastrointestinal neoplasms. Their incidence increases with age and has recently been reported to be on the rise, likely due to the implementation of advanced diagnostic tests. Nevertheless, they remain a diagnostic challenge, leading to delayed care, especially in patients with advanced disease, which limits treatment options and worsens prognosis. **Case Report:** This article presents two cases of patients diagnosed with jejunal adenocarcinoma. Both patients exhibited nonspecific symptoms and imaging and endoscopic evidence of small intestinal lesions. They were treated with minimally invasive surgery, and the diagnosis was confirmed histopathologically. The first patient experienced tumor recurrence at three years, presenting with advanced-stage disease. The second case involved hepatic and cervical lymph node metastases identified at the time of diagnosis. **Discussion and Conclusions:** Despite the atypical presentation and advanced stage at diagnosis, both patients received surgical and systemic oncological treatment. However, further studies are needed to assess the potential implementation of new diagnostic and therapeutic strategies aimed at improving clinical outcomes.

## Keywords

Jejunum, adenocarcinoma, double-balloon enteroscopy, lymph nodes, neoplasm metastasis.

## INTRODUCTION

Small intestine neoplasms are a rare clinical entity, accounting for approximately 5% of all gastrointestinal tumors[1,2]. Their incidence varies geographically, but the typical age of presentation is between 55 and 65 years, with a higher prevalence observed in male and Black populations[3]. There are four histological subtypes of small intestine malignancies, with adenocarcinomas and neuroendocrine tumors comprising over 50% of diagnosed cases. In recent years, an increase in the incidence of these tumors has been noted, likely attributable to advancements and greater accessibility in diagnostic tools; however, few studies have comprehensively described the true epidemiology of this disease[1,4,5].

Diagnosing small intestine adenocarcinoma poses a significant challenge for clinicians due to the variability and non-specificity of symptoms, which may present as abdominal pain, weight loss, occult gastrointestinal bleeding, or intestinal obstruction, among others. Surgical resection with negative margins and lymphadenectomy remains the cornerstone of treatment, offering favorable oncological outcomes in early-stage cases, with 5-year survival rates exceeding 85%[6–8]. Nonetheless, due to low clinical suspicion, non-specific symptomatology, the limitations of con-

ventional endoscopic examinations in visualizing lesions, and inconclusive imaging studies, over 60% of patients are diagnosed at an advanced stage. Additionally, there are significant gaps in knowledge regarding the efficacy of adjuvant therapies for these patients, with much of the available data extrapolated from colorectal cancer studies. This report presents two cases of small intestine adenocarcinoma, detailing their management and outcomes[1,2,5,9].

## CASE DESCRIPTION

### Case 1

This case involves a 67-year-old male patient presenting with a three-month history of progressive dyspeptic symptoms and vomiting. Initial diagnostic studies, including upper gastrointestinal endoscopy, colonoscopy, liver, pancreas, and biliary tract ultrasound, as well as magnetic resonance cholangiopancreatography, revealed no findings to explain the clinical presentation. However, a contrast-enhanced abdominal CT scan showed thickening of the jejunal walls over an extended segment, suggestive of an inflammatory or neoplastic process, without the detection of a discrete mass. An enteroscopy was performed, which identified an exophytic, concentric, and lumen-stenosing lesion located one meter distal to the ligament of Treitz in the mid-jejunum. Biopsies of the lesion confirmed the presence of jejunal adenocarcinoma (**Figure 1**).

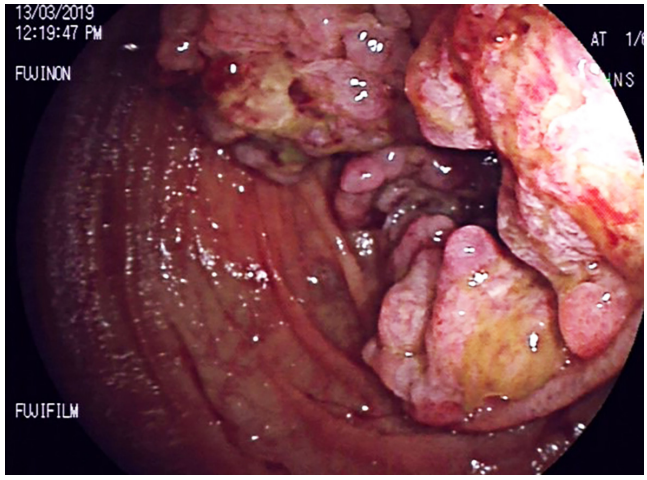



**Figure 1.** Enteroscopic image showing an infiltrative lesion in the proximal jejunum. Source: Medical record of Case 1.

The patient subsequently underwent laparoscopic surgery performed by the Gastrointestinal Surgery and Digestive Endoscopy Service. A solid, tumor-like lesion was identified 40 cm distal to the ligament of Treitz, accompanied by marked edema, retrograde dilation of the proximal bowel loops, and multiple mesenteric adenopathies near the mesojejunum. A segmental jejunal resection with primary end-to-end anastomosis and lymphadenectomy was performed. Pathological analysis confirmed a well-differentiated jejunal adenocarcinoma infiltrating the serosa, with negative margins, no lymphatic or vascular invasion, and 0/9 lymph nodes positive for malignancy. The tumor was staged as pT4N0M0 with no microsatellite instability.

Given the stage IIA classification, the Clinical Oncology team recommended surveillance only. However, the patient did not attend follow-up visits and returned three years later with imaging findings consistent with peritoneal carcinomatosis (omental cake) on contrast-enhanced abdominal CT. A positron emission tomography (PET) scan revealed multiple hypermetabolic peritoneal lesions suggestive of carcinomatosis, without hypermetabolic foci in the liver or distant extra-abdominal sites. A new staging laparoscopy demonstrated a peritoneal cancer index (PCI) of 17, with peritoneal involvement, moderate ascites, and nodular lesions in the small bowel mesentery, left diaphragmatic dome, and omentum. Multiple biopsies were taken, and histopathological and immunohistochemical analysis confirmed metastatic adenocarcinoma (**Figure 2**).




**Figure 2.** PET scan showing multiple areas of peritoneal involvement, with no other hypermetabolic foci. Source: Medical record of Case 1.

The patient is currently clinically stable, with an Eastern Cooperative Oncology Group (ECOG) performance sta-

tus of 0. He is receiving treatment for metastatic disease with a XELOX regimen combined with bevacizumab. The oncology team will assess the response to treatment to determine the feasibility and indication for cytoreductive surgery with hyperthermic intraperitoneal chemotherapy (HIPEC).

## Case 2

This case involves a 58-year-old female patient with a history of hypertension and non-insulin-dependent diabetes. She presented with a two-year history of progressively worsening diffuse abdominal pain. In the four months leading up to her initial consultation, significant weight loss, normocytic anemia, and changes in bowel habits were noted. An upper gastrointestinal endoscopy and colonoscopy were performed but failed to identify the cause of her clinical presentation. A contrast-enhanced thoracoabdominal CT scan revealed diffuse, irregular, concentric thickening of the walls of a short jejunal segment, measuring 1.7 cm in thickness, with heterogeneous density. Additionally, a necrotic-centered mass was observed in the adjacent mesentery, along with lesions suggestive of metastases in the right ovary, left adrenal gland, and hepatic segments II, IV, and VIII.

The patient underwent enteroscopy, which identified an ulcerated exophytic lesion with fibrin coverage and circumferential involvement, narrowing the jejunal lumen by 50%, located 100 centimeters distal to the pylorus. The lesion was marked with India ink, and biopsies were taken (**Figure 3**).

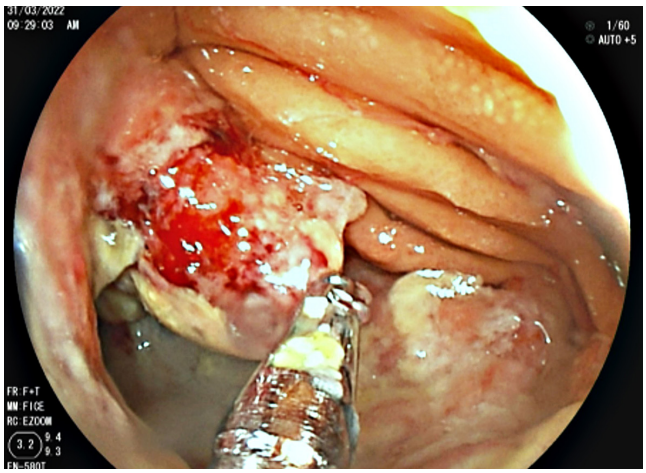



**Figure 3.** Enteroscopic image showing an infiltrative lesion 1 meter distal to the ligament of Treitz. Source: Medical record of Case 2.

Histopathological analysis confirmed jejunal adenocarcinoma. Based on these findings, the Gastrointestinal Surgery and Endoscopy team performed a laparoscopic resection with end-to-end jejunal anastomosis, lymphadenectomy, omentectomy, and palliative right oophorectomy due to the risk of obstruction and persistent bleeding. The final pathology report identified a moderately differentiated jejunal adenocarcinoma with clear resection margins, serosal and adjacent fat involvement, and the presence of perineural and vascular invasion, with 0 out of 13 lymph nodes testing positive for malignancy. The omental and ovarian tissue samples were negative for malignancy, and there was no evidence of microsatellite instability.

The Clinical Oncology team recommended palliative surgery for jejunal adenocarcinoma. However, histopathological analysis found no evidence of malignancy in the mesenteric root lymph nodes, ovarian tissue, or peritoneal fluid. As a result, follow-up of the hepatic lesions with magnetic resonance imaging (MRI) was indicated, along with initiation of the FOLFOX chemotherapy regimen. During clinical follow-up, the patient developed a right supraclavicular adenopathy. Histopathological and immunohistochemical analysis confirmed mucinous adenocarcinoma of intestinal origin, with positive markers for CKAE1/AE3, CK20, CDX2, MUC1, and MUC2, and negative markers for CK7, PAX8, and MUC5AC. The patient is currently awaiting evaluation of her response to the initiated therapy to determine the most appropriate second-line treatment options.

## DISCUSSION

Small intestine tumors have historically accounted for less than 5% of all gastrointestinal tract tumors, despite the small intestine being the longest segment of the digestive system. Some authors suggest that the low incidence in this location may be due to specific physiological characteristics, including rapid intestinal transit, the consistency of the chyme, which may reduce mucosal trauma, the segment's unique bacterial flora, and the protective role of the mucosal barrier with its high IgA concentration[1,3,10,11]. There are several histological subtypes of small intestine tumors, with adenocarcinoma being the most prevalent, accounting for 30% to 50% of cases, depending on the cohort analyzed. Neuroendocrine tumors rank second, followed by stromal tumors such as gastrointestinal stromal tumors (GIST), sarcomas, and lymphomas[3,4].

In a recently published study by Yao and colleagues in 2021, the U.S. population cancer database, which spans over 40 years, was reviewed to determine the prevalence of various histological types of small intestine tumors. The study reported a substantial increase in the diagnosis of neuroendocrine tumors, particularly those located in the duodenum, without corresponding changes in mortality

rates. This finding suggests either overdiagnosis or improvements in diagnostic and therapeutic processes. Notably, significant variations were also observed in the prevalence of sarcomas, GISTs, and lymphomas, accompanied by a marked reduction in mortality rates. This decline is likely attributable to the introduction of imatinib for the treatment of sarcomas and GISTs and rituximab for lymphomas. Lastly, an increase in the incidence of adenocarcinomas has also been documented, though without significant changes in mortality rates. This suggests that diagnoses are still being made at advanced stages of the disease, when the prognosis is poor[1].

Due to their location, jejunal and ileal adenocarcinomas are challenging to diagnose. Among the most common symptoms are recurrent episodes of gastrointestinal bleeding, with findings of bleeding stigmata during upper gastrointestinal endoscopy and colonoscopy, though without identification of a clear bleeding source, as well as diffuse abdominal pain. In more advanced stages of the disease, symptoms typical of other gastrointestinal neoplasms, such as weight loss, intestinal obstruction, and perforation with peritonitis, may also appear[8]. A retrospective study conducted at the University of Texas found that the most common site for small intestine adenocarcinoma was the duodenum (52% of cases), followed by the jejunum (25%) and the ileum (13%), with a median age of presentation of 55 years and a higher prevalence in men (61%). The epidemiological findings were consistent with the expected age of presentation for this condition[12].

The diagnostic process includes identifying non-specific gastrointestinal symptoms, as previously described, and employing diagnostic tools such as direct visualization via video capsule endoscopy or single- or double-balloon enteroscopy, with the latter method being preferred due to its capacity for biopsy collection and immunohistological analysis. Imaging studies offer improved sensitivity and specificity in locally advanced and metastatic stages. To date, no tumor markers provide reliable characterization of this condition, although there are reports of carcinoembryonic antigen (CEA) and carbohydrate antigen 19-9 (CA 19-9) being used[2,8,12,13].

According to the 2022 National Comprehensive Cancer Network (NCCN) guidelines, treatment strategies for early and locally advanced stages include segmental resection with lymphadenectomy and margins of 5 to 10 cm. Due to the rarity of this condition, chemotherapy regimens are extrapolated from treatments for colonic adenocarcinomas. For adjuvant treatment of lesions classified as T3N0M0 or higher, 5-fluorouracil/leucovorin is recommended, while for metastatic or inoperable stages, FOLFOX, CAPEOX, or capecitabine are advised, with immunotherapy options such as bevacizumab or nivolumab depending on the tumor profile. Follow-up is conducted similarly to that for other gastrointestinal adenocarcinomas, with particular emphasis on the first two years, during which the risk of recurrence is highest[3,8,14].

In this case report, both patients underwent histological confirmation of their diagnosis via preoperative enteroscopy and received segmental resection with optimal lymphadenectomy in accordance with clinical guidelines. The first patient did not receive adjuvant therapy, while the second received palliative adjuvant chemotherapy due to the advanced stage of the disease. Despite the significant difference in initial staging, both patients experienced disease progression and have a poor survival prognosis, particularly when compared to the significant advances achieved in the management of other gastrointestinal tract malignancies, such as rectal adenocarcinoma[1,2,9,12].

## CONCLUSIONS

Small intestine neoplasms pose a significant diagnostic challenge for healthcare teams due to their low incidence, nonspecific early symptoms, limited evidence on therapeutic approaches, and the difficulty of obtaining histopathological confirmation. Although recent publications have reported an increase in the diagnosis and potential overdiagnosis of neuroendocrine tumors, the epidemiology of adenocarcinomas—particularly those of the duodenum and jejunum—remains relevant, as their incidence has risen over time without improvements in survival outcomes despite the introduction of new treatment strategies[2,6,8].

The evidence regarding the treatment, staging, and follow-up of jejunal adenocarcinoma is limited due to the rarity of this disease. However, as with other gastrointestinal tumors, international guidelines recommend preventive strategies that include a healthy, fiber-rich diet, the consumption of at least 2 liters of water daily, a low intake of saturated fats, and regular exercise, defined as at least three sessions per week.

Jejunal adenocarcinoma remains a lethal condition, typically diagnosed at locally advanced or metastatic stages. Histopathological confirmation depends on obtaining tissue samples from anatomically challenging locations and often requires enteroscopy, which is not widely available, or staging laparoscopy, which is more invasive. Adjuvant and neoadjuvant therapy regimens are extrapolated from treatments for colonic and rectal neoplasms. The histopathological classification system and the limited understanding of lymphatic mapping to date hinder improvements in disease-free survival and overall survival rates[15–17].

The management and treatment of jejunal adenocarcinoma require a multidisciplinary team with expertise to facilitate early diagnostic suspicion and optimize surgical treatment, which is crucial to improving the low survival rates associated with this increasingly recognized condition according to the scarce evidence available in the literature[1,11].

## Conflict of Interest

None of the authors have any conflicts of interest related to the planning, production, or writing of this article. It is also clarified that artificial intelligence was not used in any of the aforementioned stages of this article.

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