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Case report

# Small bowel adenocarcinoma a rare cause of upper gastrointestinal obstruction (a case report and literature review)

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ABSTRACT

*Introduction:* Small bowel adenocarcinoma is a rare but increasing disease. It poses both a diagnostic and therapeutic challange. Small bowel adenocarcinoma is a rare cause of small bowel obstruction. We present the case of a patient admitted to our emergency department for a bowel obstruction due to a mass of the jejunum and whose anatomopathological diagnosis was adenocarcinoma.

*Patient and method:* It is a 62-year-old woman with unparticular history, admitted to the emergency of visceral surgery of Ibn Rochd University Hospital for subocclusive syndrome evolving for one year, with early postprandial vomiting becoming stenosing two months ago. The abdominal CT scan showed thickening jejunal wall of 46 mm with upstream distension. She underwent a segmental bowel resection of 50 cm of small bowel with 3 cm stenotic mass located at 40 cm from the duodenojejunal angle. The pathophysiology revealed an invasive liberkhunian adenocarcinoma. The postoperative follow-up was simple, feeding allowed at D4 with discharge allowed at D6 and functional improvement at the time of the control performed three months after the intervention.

*Discussion:* Small bowel adenocarcinoma is rare and represents only 1–3% of all gastrointestinal cancers. The incidence of SBA is 24 to 66 times lower than that of colorectal cancer (CRC). Due to its non-specific clinical manifestation and less accessible location, SBA is diagnosed at an advanced stage, and often at specimen analysis. The treatment is resection and the overall survival is increased when diagnostic is early made.

*Conclusion:* Small bowel adenocarcinoma is a rare but increasing cause of gastrointestinal malignancy, being both a diagnostic and therapeutic challenge. In front of the occlusive syndrome of small bowel appearance, adenocarcinoma must be ruled out.

## 1. Introduction

Small bowel adenocarcinoma (SBA) is a rare but increasing tumors of gastrointestinal malignancy, with diagnostic and therapeutic challenge. The clinical manifestations are unspecific, location resulting in delayed diagnosis, lack of a screening and prevention programme, SBA is diagnosed at an advanced stage, and very often at specimen analysis [1]. The annual incidence of the SBA accounts for only 1–3% of all gastrointestinal cancers and is 24–66 times lower than that of colorectal cancer [2]. Rarely small bowel obstruction may occur as a result of strictures secondary to small bowel adenocarcinoma [3]. We present the case of SBA revealed by the specimen resection after an upper subocclusive syndrome evolving over a year and taken for celiac disease. The aim of this study is to alert the clinicians for this tumor which is often misdiagnosed. This manuscript has been reported in line with SCARE's 2020 Criteria [4].

## 2. Patient and method

It is a 62-year-old woman without any particular history, admitted to the emergency department of visceral surgery at Ibn Rochd University Hospital Center for a subocclusive syndrome evolving for one year, with early postprandial vomiting becoming stenosing two months before the consultation. The patient consulted a gastroenterologist who treated her

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with NSAI and immunosuppressor for celiac disease. The physical examination found a patient conscious with GCS of 15/15, blood pressure: 12/7 cm Hg, 75 of pulse, respiratory rate: 16 cpm, with haemodynamic and respiratory stability, no jaundice of conjunctiva and mucosa. The palpation revealed epigastric pain. Pelvic examination was normal. The abdominal CT scan showed thickening of the jejunal wall of 10 mm, with 50 mm of proximal jejunum distension (Fig. 1). The patient went first to a gastroenterologist who treat her for celiac disease but the symptoms worsened and he continued to alter the overall health. The biological assessment showed HB: 13,5 g/dL; WBC: 7500/mm$^3$ PLT:114000/mm$^3$ Natremia: 134 meq/L kaliemia:3 meq/L uremia:1.22 g/L Creatininemia:16 mg/L, ASAT: 48UI/L ALAT: 51 UI/L CRP:6,7 mg/L lipasemia: 22 IU/L. She underwent resection of 50 cm of small bowel enbloc with a 3 cm mass located at 40 cm from the duodenojejunal angle stenotic (Fig. 2). The postoperative follow-up was simple, feeding allowed at D4 with discharge from hospital at D6 and functional improvement at control three months after the intervention. The specimen analysis revealed an invasive liberkhunian adenocarcinoma. The limits of resection were safe and the number of lymphe nodes harvested was 9 and nonmetastatic with pT3N0. The patient received adjuvant chemotherapy for insufficient lymphe node harvested after concertation with oncologist. She is in good healthy conditions till now.

## 3. Discussion

The small intestine represents 75% of the length and 90% of the absorptive surface area of the gastrointestinal system. However, small bowel tumors are rare, representing only 3–6% of gastrointestinal tract tumors and only 1–3% of all malignant GI tumors. The diagnosis of small bowel tumors is difficult and is frequently delayed. Conventional diagnostic modalities are inaccurate and inconclusive and frequently fail to detect early or locally advanced stages because of the inaccessibility of the small bowel [5]. Primary small bowel cancer is a heterogeneous group of cancers including adenocarcinoma (30–40%), carcinoid tumor (35–42%), lymphoma (15–20%), and sarcoma (10–15%) [4]. Adenocarcinomas and carcinoids account for the majority of small bowel cancers and about 2%–3%1,2 of all gastrointestinal cancers. Adenocarcinoma of the small bowel (SBA) is most commonly located in the duodenum (57%), while 29% of cases are located in the jejunum and 10% in the ileum [6,7]. The estimated annual incidence is 0.3–2.0 cases per 100,000 persons, with a higher prevalence rates in the black population than the white, and has been recently increasing [8]. The incidence of all small bowel cancers in the USA has been increasing over time, with an estimated 10,590 new cases in 2019, of which adenocarcinoma

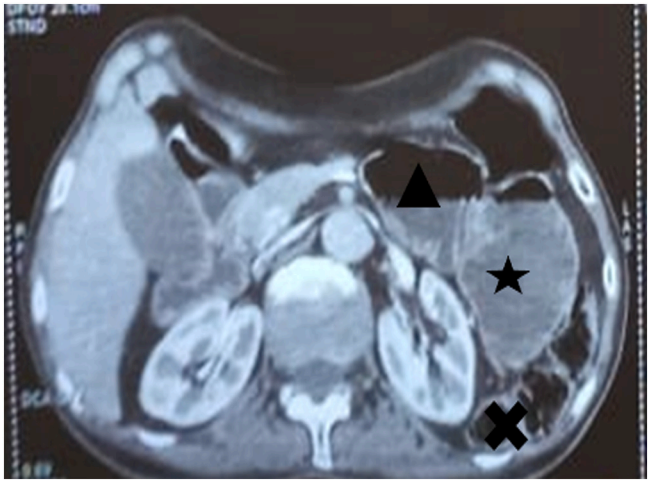

**Fig. 1.** Abdominal CT scan showing the jejunum dilation (asterisk), the stomach (triangle) and the left colon (multiply sign).

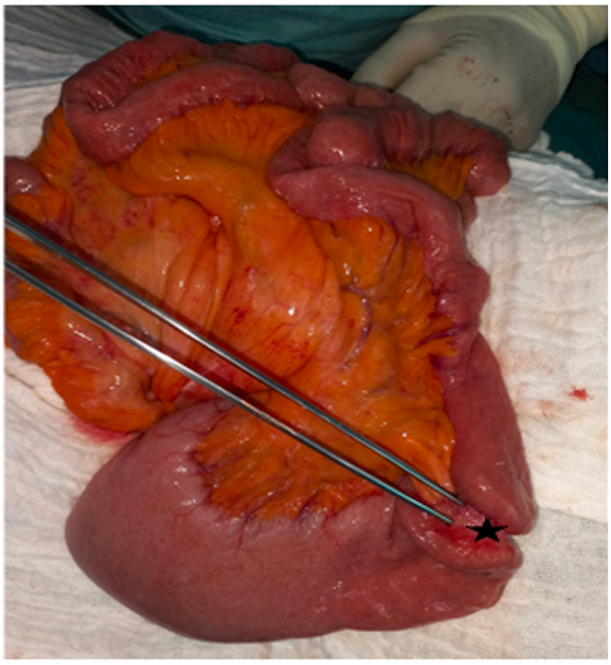

**Fig. 2.** Peroperative image; the mass is stenosing (asterisk and anatomic forceps).

histology occurs in approximately 30%. Primary SBA is rare and challenges physicians in both diagnosis and treatment. [9]. Its global annual incidence accounts for only 1–3% of all gastrointestinal cancers [10]. The clinical manifestation of SBA is not specific (i.e., abdominal pain, weight loss, nausea and vomiting, occult GI tract bleeding), coupled with a limited sensitivity of conventional radiological imaging [11]. Historically, a significant delay from onset of symptoms to diagnosis has been described for small bowel adenocarcinoma (SBA), related to that vague of symptoms and the challenges of evaluating the small intestine [9].

Small bowel obstruction is a surgical emergency that we encounter very frequently in daily practice of surgeons. Postoperative adhesions are the most common cause of small bowel obstruction (60%), followed by hernias, Crohn's disease, malignancy, and volvulus. Other less frequent causes of bowel obstruction differ between young adults and elderly patients; gallstone ileus is more frequent in elderly patients while Crohn's disease is in young adults. Rarely small bowel obstruction may occur as a result of strictures secondary to small bowel adenocarcinoma [3].

Various investigational modalities are available to detect small bowel tumors but are limited in the diagnosis. Barium meal follow-through has a sensitivity of 50% in the detection of the tumor whereas push enteroscopy can only assess up to 40% of the small bowel length. CT enteroclysis has been the most promising mode of investigation with a sensitivity of 100% for some authors. Double-balloon enteroscopy and the development of wireless capsule endoscopy have made the diagnosis of small bowel adenocarcinoma less challenging for a large number of cancer patients at a relatively early stage [3,5]. The optimal evaluation of abnormal small bowel is possible when it is well distended, with contrast enhanced and thin-section CT performing. The tumor appears as a thickned wall of $\geq$3 mm despite adequate lumen distention. With enhanced CT, heterogeneous enhancement is typical of small bowel neoplasms, especially SBA and gastrointestinal stromal tumors but detection of SBA at an early stage remains difficult [12]. Recently, some authors combine the conventional modalities with artificiel intelligence to improve the diagnosis of small bowel pathologies both inflammatory and tumors [13]. The treatment of SBA is surgical based on R0 resection of the tumor with lymphe node dissection. The intraoperative discovery

of a small bowel adenocarcinoma should respect the classic oncological requirements: complete exploration of the entire peritoneal cavity for possible adenocarcinoma metastases, exploration of the mesentery for lymphadenopathy, liver palpation, careful palpation of the whole of the small intestine and the colonic frame looking a second location or a potential primary tumor. The resection should be large at least 5 cm over the tumor's borders. Lymph node dissection must follow the mesenteric axis as far as possible and guided by palpation of possible suspicious lymphadenopathy. The quality and extent of the initial resection influence the prognosis and prevents the risk of subsequent recurrence, because no adjuvant chemotherapy nor radiotherapy has proven the efficacy, regardless of age, location or histological type [14]. For our patient and the specimen showed R0 resection, however the number of lymphe node harvested was 9 which seemed quite inferior of the required number and she has been treated with adjuvant chemotherapy after oncologists concertation. The prognosis of advanced SBA is poor, according ARCAD-NADEGE, the OS for patient with SBA stage I- to III was in patients with locally resected tumors, the 3- and 5-year OS rates were 77.1% (95% CI, 69.9–82.7) and 65.9% (95% CI, 57.3–73.1), respectively for a follow up of 54.1 months and the recurrence was observed in 47 out of 202 (23.3%) patients [Stage I (11.8%), Stage II (13.4%), Stage III (34.3%)]. By the way, for some studies, adjuvant chemotherapy for SBA, Ecker [15], in his study found that adjuvant chemotherapy significantly improves survival in patients with stage III SBA according to their propensity score-matched analysis [16]. Nevertheless, the efficacy of adjuvant chemotherapy in SBA remains to be confirmed in a prospective randomised trial. An ongoing international randomised Phase III GLOBAL BALLAD trial is addressing the value of adjuvant postoperative chemotherapy and the added value of oxaliplatin. In the metastatic setting, despite a silght improvement, the overall survival remains poor and new treatments including tailored targeted therapies to the individual tumor biology should be evaluated in SBA patients [17]. This case showed the difficulties encountered for diagnosing small bowel adenocarcinoma and the challenge of its treatment. Due to its rarity, SBA is often revealed by complications such as obstruction or metastases [3,18,19].

## 4. Conclusion

Small bowel adenocarcinoma is rare malignancy with a poor prognosis. It is also a rare cause of small bowel obstruction. Its clinical manifestation is nonspecific and the access to the small bowel by imaging very difficult which lead to a delay time of diagnosis and treatment challenge. Although rare, jejunal adenocarcinoma should be kept in mind during the management of small bowel obstruction.

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## Ethical approval

The study is exempt from ethical approval in our institution.

## Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

## Author's contribution statement

Sylvestre KABURA: designed the study, wrote the protocol and the first draft of the manuscript.

Hasna Benghait: designed the study, wrote the protocol and the first draft of the manuscript.

Mounir Bouali: managed the analyses, and the correction of the manuscript.

ElBakouri Abdelillah: managed the analyses, and the correction of the manuscript.

Khalid ElHattabi: managed the analyses, and the correction of the manuscript.

Fatima Zahra Bensardi: managed the analyses, and the correction of the manuscript.

Fadil Abdelaziz: managed the analyses, and the correction of the manuscript.

All authors read and approved the final manuscript.

## Registration of research studies

Not applicable.

## Guarantor

KABURA Sylvestre.

## Declaration of competing interest

No conflicts of interest.

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