



# **Intestinal Obstruction as a Manifestation of Metastatic Gastrointestinal Neuroendocrine Tumor – A Case Report and Literature Review**

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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**Case Study**

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## **ABSTRACT**

Neuroendocrine tumors (NETs) are rare tumors that are capable of secreting hormones into the bloodstream. They can affect any organ but are most commonly found in the digestive system, particularly in the small intestine.

Neuroendocrine tumors (NETs) are often identified in later stages due to the emergence of nonspecific symptoms. Chromogranin A serves as the primary biochemical indicator for NETs. Evaluating the extent of the disease typically involves conventional imaging techniques such as CT scans and MRIs, as well as isotopic imaging methods.

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Curative surgery remains the gold standard in the management of small intestine neuroendocrine tumors (SI-NETs). It should be considered as soon as possible, even in cases of metastatic stage. Somatostatin analogs (SSAs) are pivotal in both managing symptoms and therapeutically addressing metastatic Neuroendocrine Tumors (NETs). we present a case of a neuroendocrine tumor with intestinal obstruction along with a literature review.

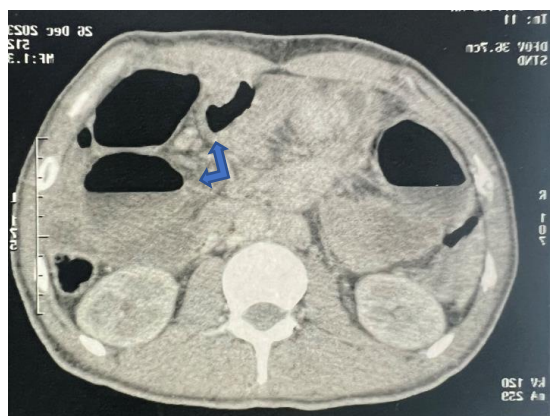
**Keywords:** Neuroendocrine tumors; obstruction; surgery.

## 1. INTRODUCTION

Neuroendocrine tumors (NETs) are rare tumors. Most often asymptomatic, these tumors are sometimes incidentally discovered during surgery, or even more rarely revealed by a clinical carcinoid syndrome. Herein, we present a case of a neuroendocrine tumor revealed by an obstructive syndrome along with a literature review

## 2. CASE PRESENTATION

A 43-year-old patient was admitted to the emergency department for subacute intestinal obstruction without vomiting, evolving in a context of general deterioration with a weight loss of 20 kg over 9 months and asthenia. Patient was conscious, oriented and hemodynamically stable. Abdominal examination showed diffuse tenderness on palpation without abdominal distension or palpable mass with exaggerated bowel sounds. The rest of the clinical examination was unremarkable, and the laboratory tests were normal. Abdominal CT scan revealed small bowel obstruction due to non-complicated small bowel intussusception with circumferential and regular wall thickening suggestive of inflammation (Fig. 1)



**Fig. 1. Emergency abdominal CT scan**

After consultation with a resuscitation specialist, the patient was transferred to the operating room for an open laparotomy. Exploration revealed a large mass involving the small intestine 5 centimeters from the ileocecal valve associated with upstream small bowel distension and presence of two suspicious hepatic nodules (Fig. 2).

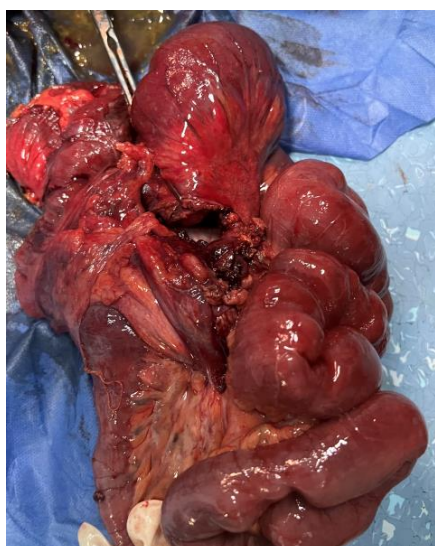


**Fig. 2. Intraoperative appearance**

The surgical procedure consisted of ileocecal resection (Fig. 3) with side-to-side small bowel-colon anastomosis using a mechanical clamp, along with resection of a hepatic nodule. Postoperative recovery was uneventful.

Histopathological results favored a multifocal grade 2 neuroendocrine tumor involving the small bowel wall and mesentery, with Ki67 at 5% and mitotic index at 4 infiltrating the intestinal wall up to the subserosa, stage pT3N1M1. The patient was referred to an oncology consultation for further management. A follow-up liver MRI

showed liver metastases (segments I, III, IV, VII, VIII) (Fig. 4).



**Fig. 3. Surgical specimen**



**Fig. 4. Post-operative MRI of the liver**

### 3. DISCUSSION

Digestive neuroendocrine tumors (NETs) are a group of rare tumors. Their incidence has been increasing over the last decades and is currently estimated at five cases per 100,000. The small bowel is the most common site of digestive neuroendocrine tumors, along with the appendix (30% of digestive neuroendocrine tumors) [1,2].

Symptoms vary depending on the secreted hormone, but there are also non-functional tumors (80% of NETs) without clinical symptoms related to hormonal secretion. At advanced stages, they are often multiple, locally advanced at the time of diagnosis, and can cause obstructive symptoms. They are sometimes associated with carcinoid syndrome, usually

correlated with the presence of hepatic metastases [1,2].

Chromogranin A is the main biochemical marker of digestive NETs, increased in 85% of patients with digestive NETs. Urinary 5HIAA (5-hydroxyindoleacetic acid) levels over 24 hours for 1 to 2 days with appropriate diet can be useful to confirm the presence of carcinoid syndrome in patients with motor diarrhea [3].

Morphological diagnosis presents variable difficulties depending on the site of the primary tumor and the presence of hepatic metastases. The two useful radiological assessments in patients with symptomatic neuroendocrine tumors are enteroscopy and somatostatin receptor scintigraphy, sometimes supplemented with ileoscopy or small bowel MRI to detect small bowel tumors. For staging, a thoraco-abdomino-pelvic CT scan with arterial and portal phases will be performed. However, MRI is more sensitive than CT for detecting hepatic metastases.

Apart from Somatostatin receptor scintigraphy, the Gallium-68 dotatate PET/CT is an advanced functional imaging technique for assessing well-differentiated NETs [4,5,8]. It should be prioritized as the imaging method of choice for initial diagnosis, and locating unknown primary tumors [6,7].

The treatment of localized small bowel NETs is based on surgical resection combined with mesenteric lymphadenectomy, removing at least 8 lymph nodes to identify N+ tumors.

In the presence of metastases, management of associated carcinoid syndrome should be carried out before any surgical procedure.

Curative surgery remains the "gold standard" in the management of small bowel NETs. It should be considered as soon as possible, even at a metastatic stage. Cholecystectomy should be systematically discussed in patients with high-risk small bowel NETs due to the subsequent risk of gallstone formation.

Somatostatin analogues (SSA) play a crucial role in the symptomatic and therapeutic treatment of patients with metastatic NETs. They can help control symptoms associated with excessive hormone secretion and slow disease progression by inhibiting tumor growth.

For well-differentiated metastatic tumors, the benefit of targeted therapies and metabolic radiotherapy is well established. In cases of surgical emergency for obstructive syndrome, a stoma is proposed while organizing elective surgery [9,10].

#### 4. CONCLUSION

Neuroendocrine tumors of the small intestine are rare tumors with an increasing incidence. They present a dual challenge: early diagnosis and therapeutic management. Surgical resection even in patients with advanced or metastatic NET's helps by reducing their size to alleviate symptoms and clear scarred or obstructed areas of the intestine.

#### ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

#### CONSENT

As per international standard or university standard, patient(s) written consent has been collected and preserved by the author(s).

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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