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WisdomGale

CASE REPORT

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Appendicitis and ileal neuroendocrine tumor: A surprising diagnostic coincidence

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ABSTRACT

We present the case of a 51-year-old woman who presented to the emergency department with right iliac fossa pain. Clinical examination and laboratory results indicated acute appendicitis. However, an abdominal computed tomography scan with contrast revealed an endoluminal budding nodule at the level of the last ileal loop, the scannographic appearance and character of which were highly suggestive of a neuroendocrine tumor (NET), associated with the presence of appendicitis of reactive appearance. Diagnostic confirmation of NET of the last ileal loop was obtained by anatomopathological analysis of the surgical specimen. This case highlights the diagnostic value of cross-sectional imaging in the context of non-specific abdominal symptoms, facilitating the incidental detection of clinically silent but potentially significant neoplastic processes, such as ileal NETs, which are often diagnosed late due to their indolent nature and non-specific presentation.

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Introduction

Neuroendocrine tumors (NETs) of the digestive tract represent a heterogeneous group of rare neoplasias, whose incidence has been rising in recent years, thanks in particular to improved imaging techniques and diagnostic resources. Among these, NETs of the small intestine, and more specifically of the terminal ileal loop, occupy a significant place, although they often remain asymptomatic and are discovered incidentally during investigations carried out for other reasons. They are rarely diagnosed preoperatively due to the non-specificity of the symptoms, which can mimic common clinical pictures such as acute appendicitis.

We report here the case of a 51-year-old patient admitted to the emergency department with right iliac fossa pain, in whom an imaging scan performed in the context of suspected appendicitis revealed an ileal NET, the diagnosis of which was confirmed by pathological examination of the surgical specimen.

Case Presentation

A 51-year-old female patient with no previous medical history presented to the emergency department with 48 hours of abdominal pain localized to the right iliac fossa, with no associated fever or transit disorders.

Clinical examination revealed marked tenderness to palpation of the right iliac fossa, with no tenderness or contracture.

Biological tests showed a slight hyperleukocytosis (11,800/mm^3) with a moderately elevated C-reactive protein (35 mg/l), in favour of an inflammatory process.

An abdominal computed tomography (CT) scan with contrast injection was performed for suspected appendicitis.

It revealed an endoluminal budding nodule at the level of the last ileal loop, intensely enhanced after injection of crontrast (Fig. 1) with portal lavage (Fig. 2), measuring 9.8 × 9 mm and extending over 12 mm.

A NET was suspected in view of the hypervascular nature of the tumor.

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Figure 1. Axial section without and after injection of PDC showing endoluminal budding nodule at the level of the last ileal loop, intensely enhanced after injection of contrast. A). Axial contrast-enhanced computed tomography (CT) image showing an endoluminal hyperenhancing nodular lesion of the terminal ileum (arrow). B). Axial contrast-enhanced CT image confirming the hypervascular nature of the ileal lesion after contrast injection (arrow). C). Axial CT image demonstrating a mildly enlarged appendix with reactive inflammatory changes, without signs of perforation or abscess (arrow).

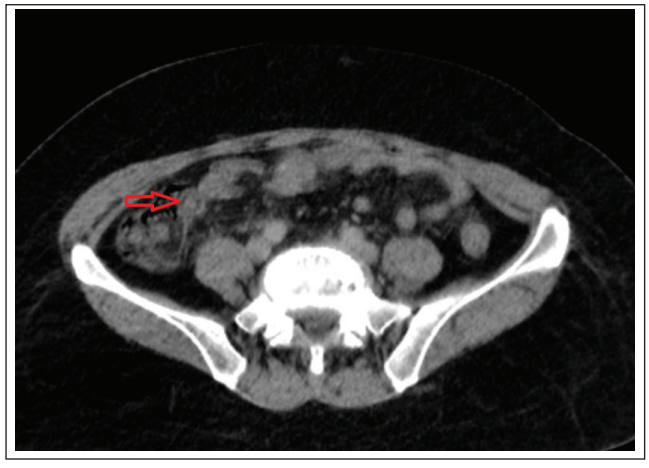


Figure 2. Axial section showing portal lavage of endoluminal nodule.

The appendix appeared slightly enlarged, with no clear signs of perforation or abscess, suggesting

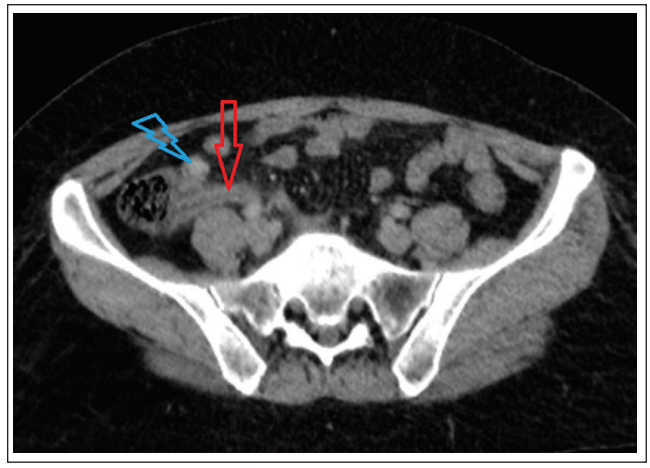


Figure 3. Axial section reactionary appendicitis secondary to a neighboring inflammatory process.

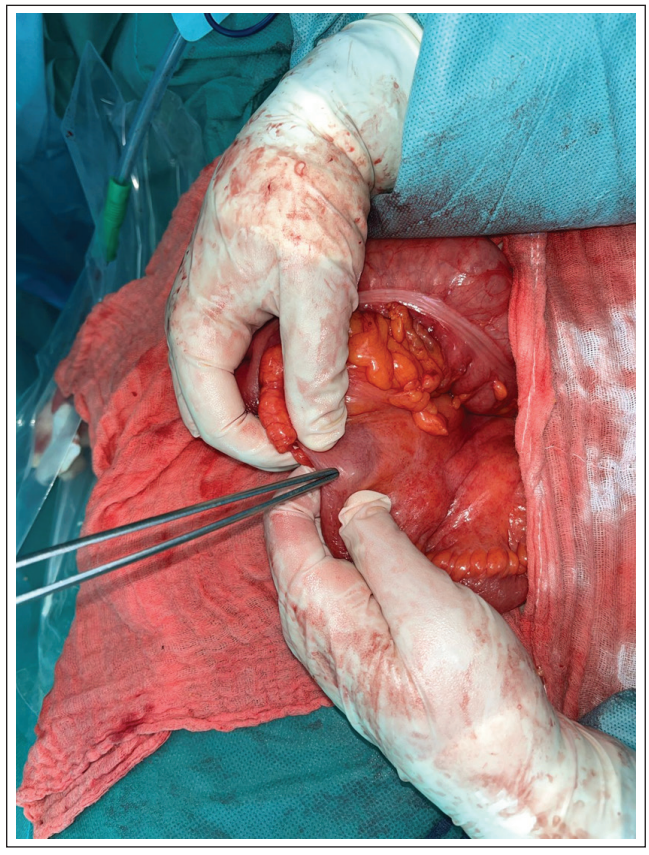
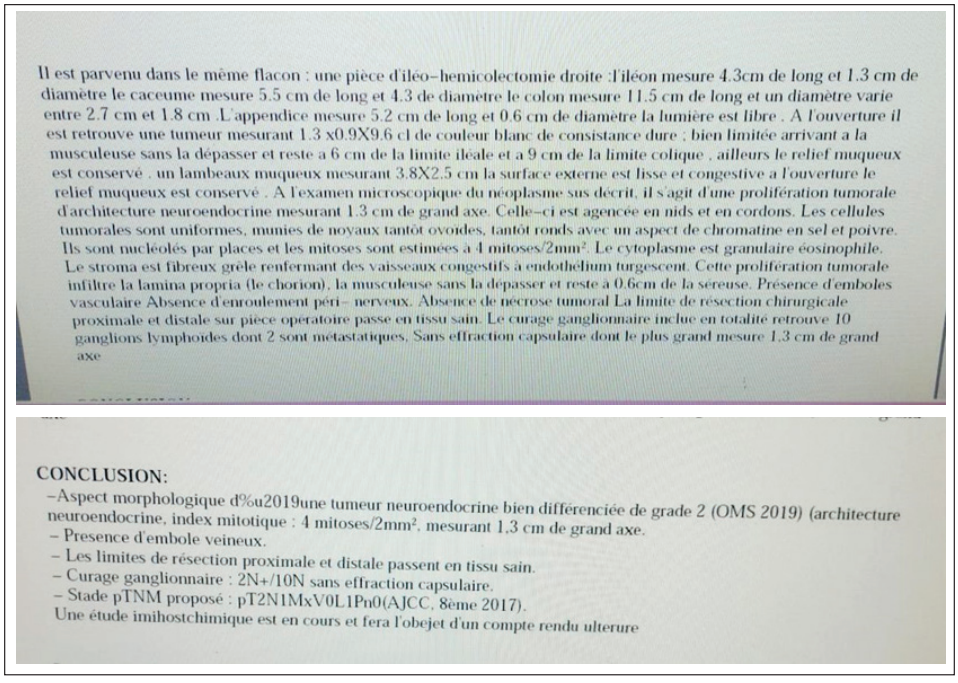


Figure 4. Per operative image showing the tumor in the final ileal loop.

a reactionary appendicitis secondary to a neighboring inflammatory process (Fig. 3).

The patient underwent laparotomy for a right ileohemicolectomy with ileocolic anastomosis, removing the tumor (Fig. 4).

Pathological examination of the surgical specimen confirmed the presence of a well-differentiated



Il est parvenu dans le même flacon : une pièce d'iléo–hemicolectomie droite :l'iléon mesure 4.3cm de long et 1.3 cm de diamètre le caceume mesure 5.5 cm de long et 4.3 de diamètre le colon mesure 11.5 cm de long et un diamètre varie entre 2.7 cm et 1.8 cm .L'appendice mesure 5.2 cm de long et 0.6 cm de diamètre la lumière est libre . A l'ouverture il est retrouve une tumeur mesurant 1.3 x0.9X9.6 cl de couleur blanc de consistance dure ; bien limitée arrivant a la musculeuse sans la dépasser et reste a 6 cm de la limite iléale et a 9 cm de la limite colique , ailleurs le relief muqueux est conservé . un lambeaux muqueux mesurant 3.8X2.5 cm la surface externe est lisse et congestive a l'ouverture le relief muqueux est conservé . A l'examen microscopique du néoplasme sus décrit, il s'agit d'une prolifération tumorale d'architecture neuroendocrine mesurant 1.3 cm de grand axe. Celle–ci est agencée en nids et en cordons. Les cellules tumorales sont uniformes, munies de noyaux tantôt ovoïdes, tantôt ronds avec un aspect de chromatine en sel et poivre. Ils sont nucléolés par places et les mitoses sont estimées à 4 mitoses/2mm². Le cytoplasme est granulaire éosinophile. Le stroma est fibreux grêle renfermant des vaisseaux congestifs à endothélium turgescent. Cette prolifération tumorale infiltre la lamina propria (le chorion), la musculeuse sans la dépasser et reste à 0.6cm de la séreuse. Présence d'emboles vasculaire Absence d'enroulement péri– nerveux. Absence de nécrose tumoral La limite de résection chirurgicale proximale et distale sur pièce opératoire passe en tissu sain. Le curage ganglionnaire inclue en totalité retrouve 10 ganglions lymphoïdes dont 2 sont métastatiques. Sans effraction capsulaire dont le plus grand mesure 1.3 cm de grand axe

CONCLUSION:

–Aspect morphologique d%u2019une tumeur neuroendocrine bien différenciée de grade 2 (OMS 2019) (architecture neuroendocrine, index mitotique : 4 mitoses/2mm², mesurant 1,3 cm de grand axe.
– Presence d'embole veineux.
– Les limites de résection proximale et distale passent en tissu sain.
– Curage ganglionnaire : 2N+/10N sans effraction capsulaire.
– Stade pTNM proposé : pT2N1MxV0L1Pn0(AJCC, 8ème 2017).
Une étude imihostchimique est en cours et fera l'obejet d'un compte rendu ulterure

Figure 5. Anatomopathological confirmation.

grade 2 (WHO 2019) NET of the final ileal loop (Fig. 5).

The appendix was the site of nonspecific inflammation, with no evidence of malignancy.

The post-operative course was straightforward, and the patient was discharged from the hospital on the fifth day.

Oncological management was put in place with specialized follow-up.

Discussion

NETs of the small intestine, although rare, represent a major diagnostic challenge due to their often non-specific clinical presentation.

These tumors are frequently asymptomatic or present with non-specific symptoms such as abdominal pain, nausea, or digestive disturbances.

Their early diagnosis is complex, as they often mimic other acute abdominal pathologies, such as appendicitis, which can lead to unnecessary surgical explorations before the true diagnosis is established [1].

In the case of our 51-year-old patient, pain localized to the right iliac fossa, associated with clinical signs suggestive of acute appendicitis, led to an abdominal CT scan.

Although the image was suggestive of reactive appendicitis, the fortuitous discovery in the last iliac loop of an endoluminal budding nodule with its hypervascular character pointed towards a diagnosis of NET.

This situation perfectly illustrates the growing importance of imaging, particularly CT, in the early detection of intestinal NETs, which are often discovered at a stage when they are asymptomatic [2].

Although rare, NETs of the small intestine account for around 25% of all digestive NETs.

Their incidence is rising steadily as a result of diagnostic advances, but they often remain diagnosed at an advanced stage, due to their slow evolution and the low specificity of clinical symptoms.

These tumors are generally low-grade (G1), but can also present intermediate (G2) or high-grade (G3) characteristics, depending on their cell proliferation and biological behavior [3].

In our case, anatomopathological examination confirmed the presence of a grade 2 NET, characterized by greater cell proliferation and a higher mitotic index than grade 1 tumors.

This intermediate grade is associated with a higher risk of metastasis, necessitating more rigorous follow-up [4].

The treatment of choice for intestinal NETs remains surgical resection of the primary tumor, as was the case for our patient.

Other therapeutic approaches, such as chemotherapy or targeted therapy, are mainly reserved for more aggressive or metastatic forms. In our case, surgical resection was performed successfully and without major complications.

However, the management of grade 2 NETs requires particular attention, as they present a higher risk of recurrence or metastasis compared with grade 1 forms.

In the case of metastases, management may include treatments such as somatostatin analogues, chemotherapy, or targeted therapy [5].

Long-term monitoring after resection is essential for early detection of recurrence, or metastasis before the onset of obvious clinical signs [6].

Follow-up is particularly important in grade 2 forms, where the risk of dissemination is higher.

This observation highlights the importance of increased diagnostic vigilance in the face of nonspecific abdominal pain, particularly when associated with clinical and radiological signs suggestive of common pathologies such as appendicitis. Imaging, and in particular CT, plays a fundamental role in detecting incidental abdominal masses and establishing a differential diagnosis that includes NETs, even in the presence of benign symptoms [7].

Conclusion

Imaging, in particular CT scanning, plays a crucial role in the diagnosis of atypical abdominal pain, enabling the incidental discovery of underlying pathologies such as NETs.

This case illustrates the importance of broad diagnostic reasoning in the face of frequent clinical presentations, as well as the need for close collaboration between clinicians, radiologists, surgeons, and anatomopathologists for optimal management of digestive NETs.

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