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Case Report

A Rare Incidental Diagnosis of Appendicular Carcinoid Tumor in a Patient with Acute Appendicitis- A Case Report

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Abstract

Carcinoid tumors, or well-differentiated Neuroendocrine Tumors (NETs), are rare neoplasms frequently arising in the gastrointestinal tract, most often in the appendix. These tumors are commonly detected incidentally during appendectomies performed for suspected acute appendicitis. Typically found at the tip of the appendix, they exhibit indolent behavior and excellent prognosis. We present the case of a 33-year-ol d woman who underwent laparoscopic appendectomy for acute appendicitis. Postoperative histopathology revealed a Grade I well-differentiated NET at the appendiceal tip. Given the tumor's small size (0.4 cm) and low proliferative index (Ki-67 <1%), no further intervention was required. This case underscores the critical role of routine histopathologic examination of appendectomy specimens to detect incidental neoplasms.

Keywords: Appendicitis; Carcinoid; Enterochromaffin Cell; Histopathology; Incidental Tumour; Neuroendocrine Tumour

Introduction

Carcinoid tumors are slow-growing neuroendocrine neoplasms that originate from enterochromaffin cells, most commonly in the Gastrointestinal (GI) tract, with the appendix being the most frequent site of origin [1]. These tumors account for approximately 50% of all gastrointestinal neuroendocrine tumors and are typically diagnosed incidentally during appendectomy performed for suspected acute appendicitis [1,2]. In a large retrospective analysis, appendiceal carcinoids were found to comprise 18.9% of all carcinoid tumors and showed a marked female predominance [2,3]. Although appendiceal carcinoid tumors are rare, their identification is clinically important. Most cases are asymptomatic until inflammation mimics acute appendicitis, leading to surgical intervention [3,4]. This underlines the critical role of routine histopathological examination of all appendectomy specimens, as it remains the only definitive method for diagnosing such tumors [3]. Surgical resection remains the mainstay of treatment, and the long-term prognosis is generally excellent, especially for tumors discovered at an early stage [5]. According to current guidelines, right hemicolectomy is only recommended for tumors measuring ≥2 cm, tumors involving the base of the appendix, or in cases with mesoappendiceal invasion, lymphovascular invasion, or positive surgical margins [6]. For tumors <2 cm confined to the tip, simple appendectomy is considered adequate, with a negligible risk of metastasis [6]. In this report, we present the case of a 33-year-old female diagnosed with a well-differentiated neuroendocrine tumor located at the tip of the appendix, discovered incidentally following laparoscopic appendectomy for acute appendicitis. Written informed consent was obtained from the patient prior to publication.

Case Presentation

A 33-year-old female presented to the emergency department at Asgar Ali Hospital with right lower quadrant abdominal pain for three days. The pain was colicky, non-radiating, exacerbated by movement, and associated with multiple episodes of vomiting. She reported no fever, weight loss, or systemic symptoms. Medical, surgical, and family histories were unremarkable. Physical examination revealed a body temperature of 36.5°C, BP 110/70 mm Hg, pulse 100 beats/min. During assessment, the patient experienced tenderness and rebound tenderness in the right iliac fossa. McBurney's point tenderness was positive but no palpable masses were observed in the abdomen. Laboratory tests were performed yielding the following results in (Table 1).In addition, abdominal ultrasonography revealed findings consistent with acute appendicitis, including a non-compressible tubular structure in the RIF with periappendiceal fluid.

Laboratory results are summarized in Table 1 below

Test	Result	Reference Range
Hemoglobin	12.3 g/dL	12.0 - 16.0 g/dL
White Blood Cell Count	5.19 × 10^3/µL	4.0 - 11.0 × 10^3/µL
Neutrophil Percentage	68.50%	40% - 75%
Platelet Count	202 × 10^3/µL	150 - 400 × 10^3/µL
C-reactive Protein (CRP)	32.77 mg/L	<5 mg/L
Serum Sodium	141 mmol/L	135 - 145 mmol/L
Serum Potassium	3.71 mmol/L	3.5-5 mmol/L
Serum Creatinine	1.06 mg/dL	0.6 - 1.3 mg/dL
Random Blood Sugar (RBS)	4.3 mmol/L	3.9 - 7.8 mmol/L
Serum Bilirubin	0.6 mg/dL	0.2 - 1.2 mg/dL
Serum Lipase	110 U/L	0 - 160 U/L
Serum Glutamate Pyruvate Transaminase (SGPT)	19 U/L	7 - 56 U/L
Urine Routine Microscopic Examination (RME)	PUS Cell: 30-35 / HPF	0 – 5 / HPF
	Epithelial Cell: 5-7/ HPF	0 – 5 / HPF
	RBC: 3-5 /HPF	0 – 3 / HPF

Abbreviations: µL = Microliter, g/dL = Grams Per Deciliter, mg/L = Milligrams Per Liter, mmol/L = Millimoles Per Liter, U/L = Units Per Liter, HPF = High Power Field.

Table 1: Laboratory Investigations at Admission

Surgical Procedure and Findings: The patient underwent a laparoscopic appendectomy. Intraoperatively, the appendix measured 4.5 cm in length and 6 mm in diameter. It appeared inflamed with the presence of mild peri-appendicealfluid . There were no adhesions, masses, or signs of perforation noted during the procedure (Figure 1 and Figure 2). The appendix was successfully removed and sent for histopathological examination.

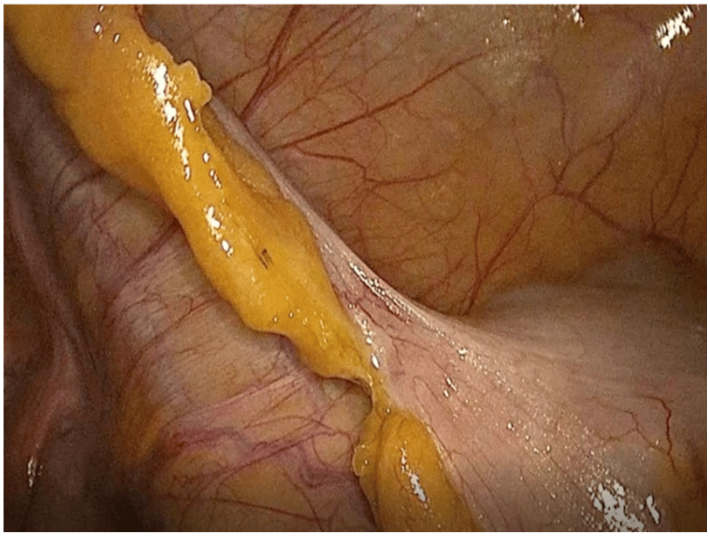

Figure 1: Laparoscopic intraoperative view of the appendix.

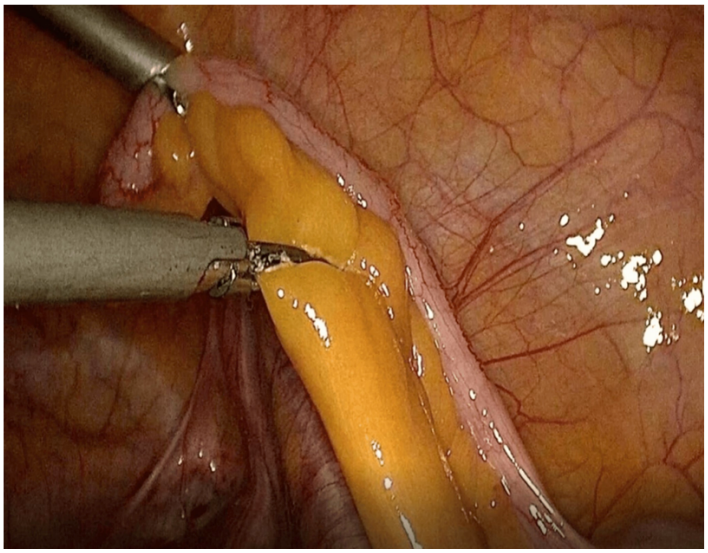

Figure 2: Laparoscopic Intraoperative View Of The Appendix.

Histopathological examination revealed a well-differentiated Neuroendocrine Tumor (NET) , Grade I, located at the tip of the appendix, measuring 0.4 cm in maximum diameter . No mitotic figures were observed, and the Ki-67 index was less than 1%, indicating a low proliferative rate (Figure 3 And Figure 4).

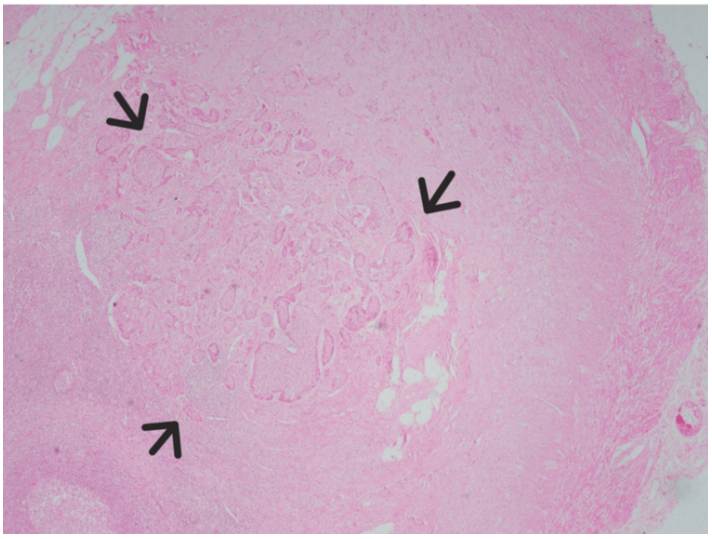

Figure 3: Microscopic image (Hematoxylin and Eosin stain, 4x magnification) showing a well-circumscribed, submucosal neoplastic lesion composed of nests, trabeculae, and acinar structures (marked by black arrow) . The tumor cells are separated by delicate fibrovascularstroma and demonstrate an organoid growth pattern. The surrounding tissue shows no significant dysplasia or necrosis. These findings are consistent with a well-differentiated neuroendocrine tumor (carcinoid tumor).

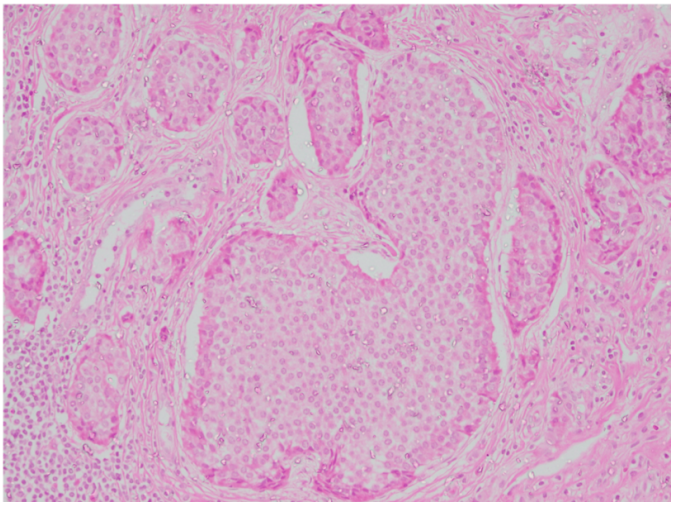

Figure 4: Microscopic image (Hematoxylin and Eosin stain, 40x magnification) demonstrating uniform tumor cells arranged in nests and trabeculae. The cells have round to oval centrally placed nuclei with finely stippled 'salt-and-pepper' chromatin and moderate eosinophilic cytoplasm. No mitotic activity, pleomorphism, or necrosis is identified. These features are characteristic of a well-differentiated neuroendocrine tumor.

Immunohistochemical staining was positive for chromogranin A and synaptophysin, confirming the neuroendocrine nature of the tumor. A postoperative contrast-enhanced CT scan showed no evidence of lymphadenopathy or metastatic disease. Given the small size, favorable location, and low-grade histology of the tumor, no additional treatment was deemed necessary. The patient had an uneventful recovery and was discharged in stable condition on the fifth postoperative day.

Discussion

Appendiceal Neuroendocrine Tumors (NETs), historically referred to as carcinoid tumors, are rare neoplasms often discovered incidentally during appendectomy for presumed acute appendicitis. Despite their low prevalence-found in approximately 0.3-0.9% of all appendectomies-appendiceal NETs remain the most common tumors of the appendix [7]. In this case, a 33-year-old female underwent laparoscopic appendectomy following a clinical diagnosis of acute appendicitis, which was confirmed by ultrasound and supported by raised inflammatory markers (CRP 32.77 mg/L). However, the final histopathological diagnosis revealed a well-differentiated NET of the appendix, emphasizing the importance of routine histological analysis of all resected appendices, even in uncomplicated cases [8]. As reported in previous literature, appendiceal NETs most frequently arise at the tip of the appendix and are typically small, often less than 1 cm in size [9]. Our case demonstrated a 0.4 cm lesion located at the tip, consistent with these findings. Studies show that tumors smaller than 1 cm have an excellent prognosis and rarely metastasize, particularly when confined to the tip with no involvement of the mesoappendix or base [10]. This further supports the decision not to proceed with additional surgical intervention such as right hemicolectomy, which is usually reserved for tumors >2 cm or those with high-risk features (e.g., lymphovascular invasion, positive margins, or mesoappendiceal invasion >3 mm) [11]. The immunohistochemical profile in our patient-positive for chromogranin A and synaptophysin with a Ki 67 index <1%-confirms the neuroendocrine origin and low proliferative activity, further classifying it as a Grade I tumor according to WHO criteria [12]. The absence of mitoses and the low Ki-67 index are favorable prognostic indicators, consistent with reports indicating a near 100% 5-year survival rate for such low-grade lesions [13].

In a recent report by Al Hamoud et al., a similar case was documented in a younger patient, where the appendiceal carcinoid was also discovered incidentally during surgery for suspected appendicitis [7]. Both cases underscore the silent clinical nature of these tumors and the diagnostic challenge they present. Although preoperative imaging may assist in identifying complicated appendicitis, it rarely detects small carcinoid tumors preoperatively [8,12]. Furthermore, as observed in our patient, the normal white blood cell count with disproportionately high CRP might suggest a subtle inflammatory process, and such atypical laboratory findings may not always correlate with intraoperative or histological severity [12]. These nuances emphasize the need for high clinical vigilance and comprehensive postoperative evaluation. In summary, this case aligns well with established literature indicating that small, incidentally detected appendiceal NETs located at the tip and without high-risk features can be safely managed with appendectomy alone [10,11,13]. It also reinforces the clinical imperative to routinely examine resected specimens histologically, as this remains the only method to uncover unexpected diagnoses like carcinoid tumors, which can significantly impact long-term surveillance and management strategies.

Conclusions

This case reinforces the critical role of routine histopathological evaluation of appendectomy specimens, enabling detection of rare but clinically important neuroendocrine tumors. For small, well-differentiated tumors, appendectomy is curative with excellent long-term outcomes . Clinicians should maintain vigilance for such incidental findings, even in apparently straightforward cases of appendicitis .

Additional Information

Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study.

Conflicts of interest: In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/ services info:** All authors have declared that no financial support was received from any organization for the submitted work.

Financial relationships: All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work.

Other relationships: All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

References

1. Dlamini S, Elhassan S, Al-Khafaji H (2025) A case of well-differentiated neuroendocrine tumor of the appendix in a 14-year-old male adolescent clinically presented with features of acute appendicitis: a case report and literature review. Int J Surg Case Rep 112: 111474.
2. Sandor A, Modlin IM (1998) A retrospective analysis of 1570 appendiceal carcinoids. Am J Gastroenterol 93: 422-428.
3. Gu Y, Wang N, Xu H (2015) Carcinoid tumor of the appendix: a case report . OncolLett 9: 2401-2403.

4. Moertel CG, Dockerty MB, Judd ES: Carcinoid tumors of the vermiform appendix. Cancer. 1968, 21:2-270.

5. Deans GT, Spence RAJ (1995) Neoplastic lesions of the appendix. Br J Surg 82: 299-306.

6. Thirlby RC, Kasper CS, Jones RC (1984) Metastatic carcinoid tumor of the appendix. Dis Colon Rectum 27: 42-46.

7. Al Hamoud RM, Mohamed SM, Al-Najem WA (2023) Appendiceal carcinoid tumor in a 16-year-old patient. Dr Sulaiman Al Habib Med J 5: 62-64.

8. Spallitta SI, TermineG, Stella M, Calistro V, Marozzi P (2000) [Carcinoid of the appendix. A case report] . Minerva Chir 55: 77-87.

9. Bowman GA, Rosenthal D (1983) Carcinoid tumors of the appendix. Am J Surg 146: 700-703.

10. Goede AC, Caplin ME, Winslet MC (2003) Carcinoid tumour of the appendix. Br J Surg 90: 1317-1322.

11. Stinner B, Rothmund M (2005) Neuroendocrine tumours (carcinoids) of the appendix. Best Pract Res Clin Gastroenterol 19: 729-738.

12. Barut B, Gönültaş F (2019) Carcinoid tumors of appendix presenting as acute appendicitis. UlusTravmaAcil CerrahiDerg 25: 510-513.

13. Roggo A, Wood WC, Ottinger LW (1993) Carcinoid tumors of the appendix. Ann Surg 217: 385-390.