



Discovery of a Small Primary Tumor on the Appendix Tip in a Patient with Liver Neuroendocrine Metastases via Ga-68 DOTA-TATE PET/CT Images

LETTER TO THE EDITOR

Ummuhan Abdulrezzak, Mustafa Kula, Ahmet Tutuş

Carcinoid tumors of the appendix most commonly occur between the 3rd and 4th decades. Clinically, these can present as acute appendicitis, but sometimes, the patients may not present with pain if the tumor is at the appendix tip as it may not cause luminal obstruction. Patients with a tumor diameter of <1–2 cm have a very low risk for widespread disease (1, 2). The most significant adverse prognostic factor is the presence of liver metastases (3, 4). Experience related to advanced disease is lacking because of the rare occurrence of these tumors. In metastatic appendiceal tumors, instead of only appendectomy, more aggressive surgeries such as right hemicolectomy are recommended (3, 5). Although Ga-68 DOTA-TATE PET/CT has a significant clinical impact in the management of patients with NET, till date, no case report has been presented related to the imaging features and somatostatin receptor expression status in an appendiceal carcinoid as small as 10 mm. Consequently, this case shows us that a small appendiceal tumor can have an aggressive nature regardless of the tumor size and careful examination should be performed to reveal the primary focus (Figure 1a-c).



Figure 1. A 47-year-old man presented with multiple hypodense lesions in liver consistent with metastases on computerized tomography (CT). Fine-needle aspiration cytology of the liver was performed, and neuroendocrine carcinoma metastases were observed. Ultrasonography, colonoscopy, and thoraco-abdominal CT failed to demonstrate primary tumor. The patient was referred for Ga-68 somatostatin analog imaging to demonstrate the primary tumor and stage the disease. Ga-68 dodecanetraacetic acid tyrosine-3-octreotate (DOTA-TATE) positron emission tomography/CT (PET/CT) (A: MIP image; B: coronal CT image; C: coronal fusion image) revealed intense somatostatin receptors expressing multiple metastatic lesions in the liver. In addition, a small tumor measuring approximately 10 mm was found at the appendix tip (arrows), with the regional pericolic mesenteric lymph node showing high-grade uptake. Because of the advanced disease, the patient was subjected to a right hemicolectomy procedure with lymph node dissection. In the pathological examination, the appendiceal lesion was interpreted as a carcinoid tumor. A few tumor cells were present in the mesoappendix, and metastatic involvement was identified in one of the regional lymph nodes. Immunohistochemical analysis of the specimen revealed a neuroendocrine tumor with positive staining of synaptophysin and chromogranin. It was a low-grade neoplasia in terms of the mitotic count, and the Ki-67 index was 1%-2%.

Department of Nuclear
Medicine, Erciyes University
School of Medicine, Kayseri,
Turkey

Submitted
12.12.2015

Accepted
22.11.2015

Correspondence

Ummuhan Abdulrezzak MD,
Erciyes Üniversitesi Tıp
Fakültesi, Nükleer Tıp
Anabilim Dalı, Kayseri,
Türkiye
Phone: +90 352 437 67 04
e.mail:
ummuhan@erciyes.edu.tr

©Copyright 2016
by Erciyes University School of
Medicine - Available online at
www.erciyesmedj.com

Peer-review: Externally peer-reviewed.

Authors' Contributions: Conceived and designed the experiments or case: MK. Performed the experiments or case: UA. Analyzed the data: AT. Wrote the paper: UA. All authors have read and approved the final manuscript.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study has received no financial support.

REFERENCES

1. Goede AC, Caplin ME, Winslet MC. Carcinoid tumour of the appendix. *Br J Surg* 2003; 90(11): 1317-22. [\[CrossRef\]](#)
2. Makridis C, Rastad J, Oberg K, Akerström G. Progression of metastases and symptom improvement from laparotomy in midgut carcinoid tumors. *World Journal of Surgery* 1996; 20(7): 900-7. [\[CrossRef\]](#)
3. Hellman P, Lundström T, Ohrvall U, Eriksson B, Skogseid B, Oberg K, Tiensuu Janson E, Akerström G. Effect of surgery on the outcome of midgut carcinoids disease with lymph node and liver metastases. *World Journal of Surgery* 2002; 26(8): 991-7. [\[CrossRef\]](#)
4. Mitra B, Pal M, Paul B, Saha TN, Maiti A. Goblet cell carcinoid of appendix: A rare case with literature review. *Int J Surg Case Rep* 2013; 4(3): 334-7. [\[CrossRef\]](#)
5. Fornaro R, Frascio M, Sticchi C, De Salvo L, Stabilini C, Mandolino F, Ricci B, Gianetta E. Appendectomy or right hemicolectomy in the treatment of appendiceal carcinoid tumors? *Tumori* 2007; 93(6): 587-90.