

⁶⁸Ga-DOTATATE Uptake in Pancreatic Metastasis of Renal Cell Carcinoma Mimicking Pancreatic Neuroendocrine Tumor

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Abstract: A 61-year-old man, with a history of prior clear cell renal cell carcinoma in remission, was referred to ⁶⁸Ga-DOTATATE PET/CT for the further evaluation of pancreatic tail mass. ⁶⁸Ga-DOTATATE PET/CT showed pathologically intense uptake on the pancreatic mass; subsequent biopsy of the pancreatic mass confirmed the diagnosis of clear cell renal cell carcinoma metastasis. ⁶⁸Ga-DOTATATE uptake is not specific for neuroendocrine tumors. In the presence of prior malignancy, it should be kept in mind that malignancies apart from neuroendocrine tumors express somatostatin receptors, and they can show ⁶⁸Ga-DOTATATE uptake.

Key Words: ⁶⁸Ga-DOTATATE, PET, renal cell carcinoma

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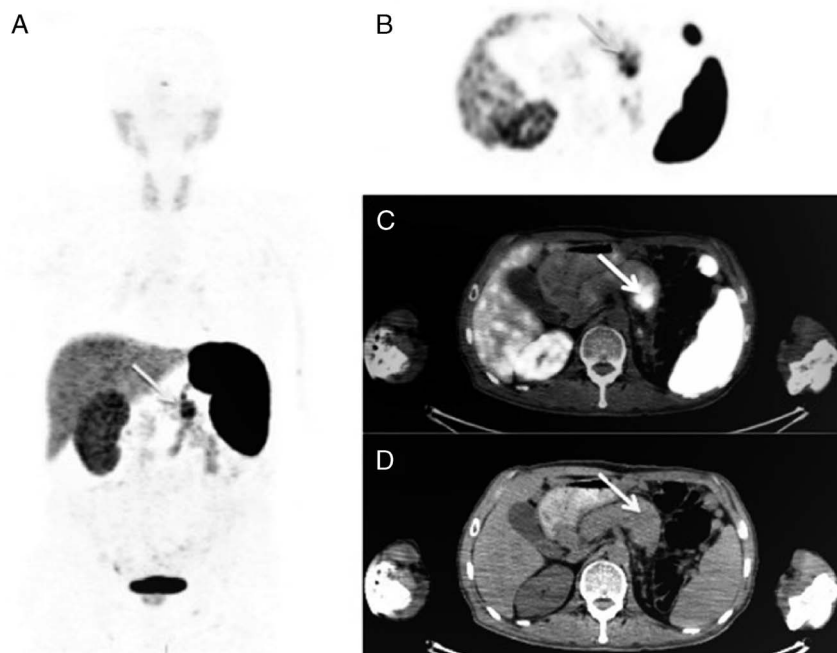


FIGURE 1. MIP (A) and transaxial PET (B), and fused PET/CT (C) and CT (D) images of a 61-year-old man demonstrated pathologically intense ^{68}Ga -DOTATATE uptake (SUV_{max} , 8.5) on the pancreatic mass. As a part of the investigation of diarrhea and abdominal pain, ultrasound examination demonstrated a 4-cm hypervascular mass in the pancreatic tail, considered suspicious for malignancy. Contrast-enhanced CT showed an intensely contrast-enhanced mass on the pancreatic tail measured by 40×30 mm, which was considered suspicious for neuroendocrine tumor (NET). This occurred in the context of prior clear cell renal cell carcinoma (ccRCC), which was in remission after left nephrectomy with right lung posterior segment wedge resection metastasectomy and postoperative chemotherapy 17 years prior. Subsequent biopsy of the pancreatic mass confirmed the diagnosis of ccRCC metastasis. Although somatostatin receptor imaging with ^{68}Ga -DOTATATE PET/CT is usually used in detecting and characterizing NETs,¹ ^{68}Ga -DOTATATE uptake is not specific for NETs.^{1–3} Somatostatin receptors are expressed in different tumor types such as pheochromocytoma and paraganglioma as well as neuroendocrine neoplasms. In the presence of prior malignancy, it should be kept in mind that malignancies apart from NETs express somatostatin receptors, and they can show ^{68}Ga -DOTATATE uptake.^{1–6} ^{18}F -FDG PET/CT, based on the high rate of glucose metabolism in cancer cells, is the most commonly used metabolic imaging technique to assess malignancies. However, the sensitivity of ^{18}F -FDG PET/CT is not very high for the diagnosis of ccRCC due to the low ^{18}F -FDG uptake.^{7,8} ccRCC predominantly expresses the SSTR2 receptor subtype, which explains the intensity of ^{68}Ga -DOTATATE uptake in this case.^{3,9}