

showed a 7 mm nodule on inferior segment of superior left lobe, PET-CT/FDG and OctreoScan[®] were negative but abnormal uptake was verified by ⁶⁸Ga-PET in subcarinal area. A sub centimetric lymph node was resected and pathology confirmed ACTH positive NET, although the patient did not achieve remission. Octreotide LAR, cabergoline and ketoconazole did not control hypercortisolism and bilateral adrenalectomy was performed. Then, T-CT showed stable lung nodule and 2nd ⁶⁸Ga-PET was negative. One year later, T-CT evidenced growth of lung nodule to 15 mm and 3rd ⁶⁸Ga-PET demonstrated for the first time, abnormal uptake in this area. The patient underwent resection of left superior lung lobe along with ipsilateral hilar lymph nodes, and histopathology study revealed an ACTH-secreting atypical pulmonary carcinoid tumor with Ki67 of 10% and 5 out of 11 lymph nodes affected. ACTH fell from 288 to 64 pg/mL after surgery. Conclusion: Despite the high sensitivity attributed to ⁶⁸Ga-PET, false negatives have been reported. In the present case, primary tumor was evidenced by ⁶⁸Ga-PET seven years after the first resection of a metastatic lymph node, in the 3rd ⁶⁸Ga-PET assessment and after tumor growth. This adds to the evidence that further studies are needed to better assess the accuracy of ⁶⁸Ga-PET for EAS. Reference: [1] Varlamov *et al.* Diagnostic utility of Gallium-68-somatostatin receptor PET/CT in ectopic ACTH-secreting tumors: a systematic literature review and single-center clinical experience. *Pituitary* 2019; 22:445–455

Tumor Biology

ENDOCRINE NEOPLASIA CASE REPORTS I

Ga68 Dotatate Detects Ectopic ACTH Secreting Atypical Carcinoid Tumor

Zachary Brent Simons, MD, Sintawat Wangsiricharoen, MD, Elise Gelwan, MD, Solnes Bjork Lilja, MD, MBA, Prasanna Santhanam, MBBS, MD.
Johns Hopkins School of Medicine, Baltimore, MD, USA.

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Title Ga68 DOTATATE detects Ectopic ACTH secreting Atypical Carcinoid tumor Introduction

Ga-68 DOTATATE PET/CT has been shown to have a significant impact in localizing Ectopic ACTH secreting tumors especially those that are not identified on conventional imaging (CT, MRI). We present a person with a tumor that was reported benign (on biopsy) elsewhere but was found to be the source of the Cushing's syndrome and was localized on Ga-68 DOTATATE PET/CT, pathology confirming atypical carcinoid tumor after surgical excision. **Discussion** She was a 63-year-old who presented with a severe proximal myopathy, high urinary free cortisol- 911.6 (µg/day) (<45), elevated ACTH 104(<63), and negative Inferior Petrosal Sinus Sampling. The CT scan demonstrated a small nodule at the right lung base. Axial Ga-68 DOTATATE PET images demonstrated radiotracer activity in the lesion, SUV max of 7.15. Fused Coronal Images showed a 1.9 cm radiotracer avid nodule, that was detected in the medial segment of the right middle lobe. The patient underwent a pulmonary wedge resection. H and E stain of the tumor -Immunohistochemical stains demonstrated that the tumor was strongly positive for synaptophysin and INSM-1 (markers of neuroendocrine differentiation) and

the mitotic count was up to 2–3 mitoses per 10 high-power fields, supporting diagnosis as an atypical carcinoid tumor. The patient had significant improvement of symptoms post excision. Somatostatin Receptor (SSR) based tracer Ga-68 DOTATATE PET/CT has a reported sensitivity for detection of 50 % in occult neuroendocrine tumors (NET), with an overall sensitivity of 64 % in a systematic review. It has been shown in retrospective reviews to help with clinical management both at initial diagnosis as well as follow up of Ectopic Cushing's in approximately 65% of the cases. SSR analogue tracers like DOTATATE have been noted to be slightly better than FDG PET/CT at localizing ACTH producing bronchial carcinoids while small-cell lung cancers and other aggressive tumors are better visualized on FDG PET. The favorable aspect of Ga-68 DOTATATE includes great tumor to background ratio and the half-life of Gallium 68 that is suitable for transport and delivery. Metastatic NET in conjunction with ectopic Cushing syndrome can be also be treated with peptide receptor radionuclide therapy using either 90Y-DOTATOC and 177Lu-DOTATATE (both SSR based) resulting in improved clinical outcomes.

Thyroid

THYROID CANCER CASE REPORTS I

A Coexisting of Two Different Thyroid Malignancies: A Collision Phenomenon

Reza Pishdad, MD, Regine Boutin, MD, Richard Hajjar, MD, Mohammed Jaloudi, MD, Mark Galan, MD, Lissette Maria Cespedes, MD, Maya P. Raghuvanshi, MD, MPH, FACP, FACE.
Rutgers New Jersey Medical School, Newark, NJ, USA.

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A Coexisting of Two Different Thyroid Malignancies: A Collision Phenomenon Introduction:

Collision tumors are rare clinical entities wherein two histologically distinct tumor types occur at the same anatomic sites. Simultaneous papillary thyroid carcinoma (PTC) and follicular thyroid carcinoma (FTC) of the same thyroid is a very rare occurrence with limited clinical information. Herein, we report a case of PTC and FTC of the same thyroid lobe. **Clinical case:** A 79-year-old man presented to the emergency department for evaluation of left hip pain of 2-month duration. Three days before presentation, he sustained a physical trauma to the left side of his body. X-ray imaging of the left femur revealed a lytic bony lesion measuring approximately 5.2 cm x 4.2 cm at the proximal end of left femur as well as a displaced pathologic fracture of its lesser trochanter. Biopsies of the bone lytic lesion suggested metastatic follicular thyroid carcinoma. CT of the neck revealed an enlarged thyroid with a cystic lesion as well as 2 nodules in the left lobe of thyroid gland. Total thyroidectomy was performed. Histopathology revealed 2 separate primary malignancies of PTC and FTC. Following diagnosis, laboratory test results showed TSH 2.6 uIU/mL (reference range, 0.2–4), anti-thyroglobulin antibody (anti Tg) < 1.0 IU/mL (reference range, 0.0–0.9), calcitonin 8.4 pg/mL (reference range, 0–8.4), and CEA 1.1 ng/mL (reference range, 0.0–3.0). The patient was placed on thyroid hormone replacement therapy and was treated with external beam radiation to his bone metastasis. He was scheduled