

Recurrent Medullary Carcinoma detected by Gallium-68 Positron Emission Tomography

Cigdem Soydal, Elgin Ozkan, Mine Araz, Ozlem N Kucuk, Taner Demirer

ABSTRACT

In this case, we would like to share our experience of a recurrent medullary thyroid cancer patient whose recurrence was detected by Ga-68 DOTATATE PET/CT.

Keywords: Medullary thyroid cancer, Recurrent disease, Ga-68 DOTATATE PET/CT.

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INTRODUCTION

After primary surgery, detection of medullary thyroid cancer (MTC) recurrence can be problematic in patients with elevated calcitonin levels. It is recommended that patients with calcitonin levels higher than 150 pg/ml should be scanned by imaging modalities.¹ Neck ultrasound (US) is the first scanning tool in this case. However, it can be difficult to evaluate neck by US, especially in patients who underwent repeated surgery. Most nuclear medicine techniques, such as Tl-201 chloride, Tc-99m sestamibi, Tc-99m (V)-DMSA, I-123/I-131 MIBG, In-111 pentetate and 18F-FDG PET/CT have been researched in MTC recurrence.²⁻⁵ Although PET/CT has a higher spatial resolution than SPECT imaging, sensitivity of 18F-FDG PET/CT is relatively low in MTC due to the low differentiation rate of MTCs. Imaging tools with Ga-68 labeled somatostatin analogs have widely been performed in neuroendocrine tumors and also there is limited literature about the usage in medullary thyroid carcinoma.^{6,7}

MATERIALS AND METHODS

We present a case of 35 years old female patient who underwent Ga-68 DOTATATE PET/CT for restaging of medullary thyroid carcinoma. Before 14 years she had undergone subtotal thyroidectomy for multinodular goiter. Pathological examination of this thyroidectomy material was reported as benign. After 5 years, a lymph node excision was performed and the patient has been diagnosed as medullary thyroid cancer. After completion of

thyroidectomy, the patient has been operated twice for neck lymph node metastases until today. The patient was referred for Ga-68 DOTATATE PET/CT, for restaging of disease because of elevated serum calcitonin levels (7400 pg/ml). Before Ga-68 DOTATATE PET/CT, neck USG, thoracoabdominal CT, I-123 MIBG scintigraphy and 18F-FDG PET/CT were performed and all of them were negative for recurrence. Whole body MIP image and transaxial CT and 18F-FDG PET images of thorax were shown in Figures 1 and 2. In Ga-68, DOTATATE intense Ga-68 DOTATATE accumulation which assumed to disease recurrence was seen in paratracheal, precarinal, prevascular and right hilar lymph nodes. Ga-68 DOTATATE PET/CT whole body MIP image and transaxial CT and PET images of thorax were shown in Figures 3 and 4.

CONCLUSION

In this case, we would like to contribute this limited literature by introducing intense Ga-68 DOTATATE uptake in recurrent MTC patient.

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Fig. 1: 18F-FDG PET/CT whole body MIP image of the patient

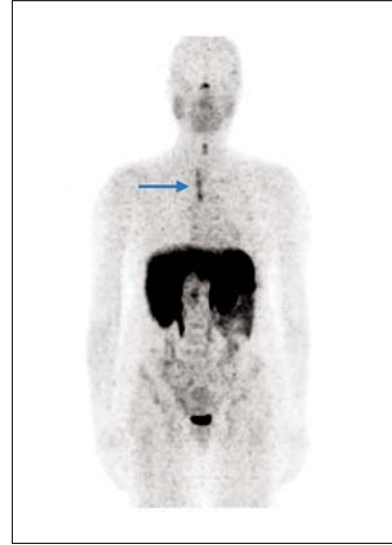


Fig. 3: Ga-68 DOTATATE PET/CT whole body MIP image of the patient

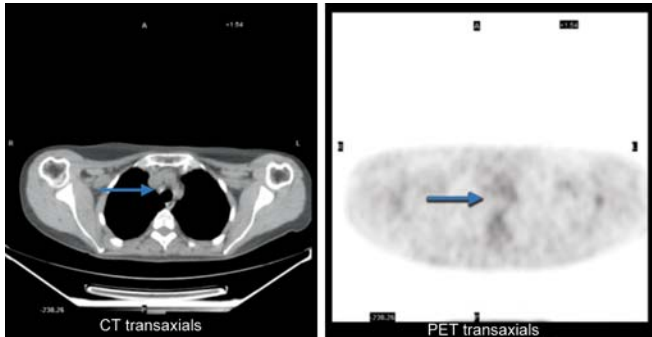


Fig. 2: Transaxial thoracic 18F-FDG CT and PET images of the patient

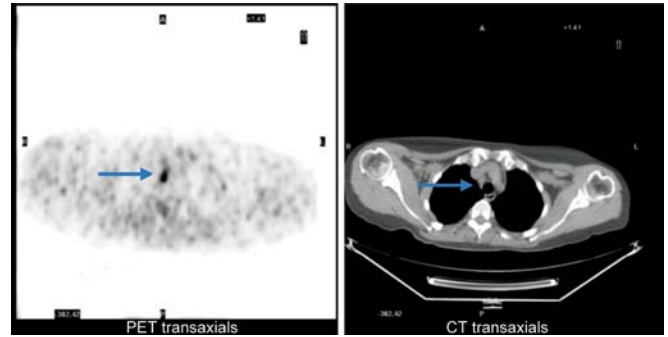


Fig. 4: Transaxial thoracic 18F-FDG CT and PET images of the patient

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ABOUT THE AUTHORS

Cigdem Soydal (Corresponding Author)

Consultant, Department of Nuclear Medicine, Ankara University Medical School, Mamak, Turkey, e-mail: csoydal@yahoo.com

Elgin Ozkan

Consultant, Department of Nuclear Medicine, Ankara University Medical School, Mamak, Turkey

Mine Araz

Resident, Department of Nuclear Medicine, Ankara University Medical School, Mamak, Turkey

Ozlem N Kucuk

Professor, Department of Nuclear Medicine, Ankara University Medical School, Mamak, Turkey

Taner Demirer

Professor, Department of Hematology, Ankara University Medical School, Mamak, Turkey