Left atrial metastasis of Hürthle-cell thyroid carcinoma mimicking myxoma

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A 52-year-old male patient affected by a Hürthle-cell thyroid carcinoma treated with thyroidectomy and radiometabolic therapy with Iodine-131 (I-131) underwent fluorine-18-fluorodeoxyglucose positron emission tomography/computed tomography (F-18-FDG PET/CT) for restaging due to increased serum thyroglobulin levels (10 $ng \cdot mL^{-1}$) and negative I-131 whole-body scan (Figure 1A, B).

Before ^{18}F-FDG injection, the patient had fasted for at least 6 hours; at the time of the injection the glucose blood levels corresponded to 92 $mg \cdot dL^{-1}$. Images were acquired 1 hour after intravenous injection of 270 MBq of ^{18}F-FDG. The unenhanced CT scan was performed from the skull base to the inguinal region with a voltage of 120 KeV and tube current of 30 mA. PET scan was acquired in 3D-mode. Iterative reconstruction and CT-based attenuation correction were used. PET images were visually and semi-quantitatively analysed by using the maximal standardized uptake value (SUVmax).

PET/CT detected a focal area of increased F-18-FDG uptake in the left atrium (Figure 1C). A cardiac magnetic resonance imaging (MRI) revealed a 2.5-cm lesion in the left atrium consistent with myxoma (Figure 1D), corresponding to the PET finding as showed by fused PET/MRI image (Figure 1E). Subsequently, the atrial nodule was resected and pathology demonstrated a neoplastic lesion consistent with metastatic Hürthle-cell thyroid carcinoma (Figure 1F, G).

F-18-FDG PET/CT is particularly useful in evaluating aggressive thyroid cancers which lose the ability to take up radioiodine due to dedifferentiation.[1,2]

Cardiac uptake of F-18-FDG is frequently observed in patients undergoing PET/CT and it may be a physiological finding or related to inflammatory diseases, benign, or malig nant tumors.[3] Recognition and awareness of the various causes of cardiac F-18-FDG uptake may facilitate correct interpretation of these findings.[3] In our case F-18-FDG PET/CT correctly detected a rare atrial metastasis of Hürthle-cell thyroid carcinoma mimicking an atrial myxoma at MRI.

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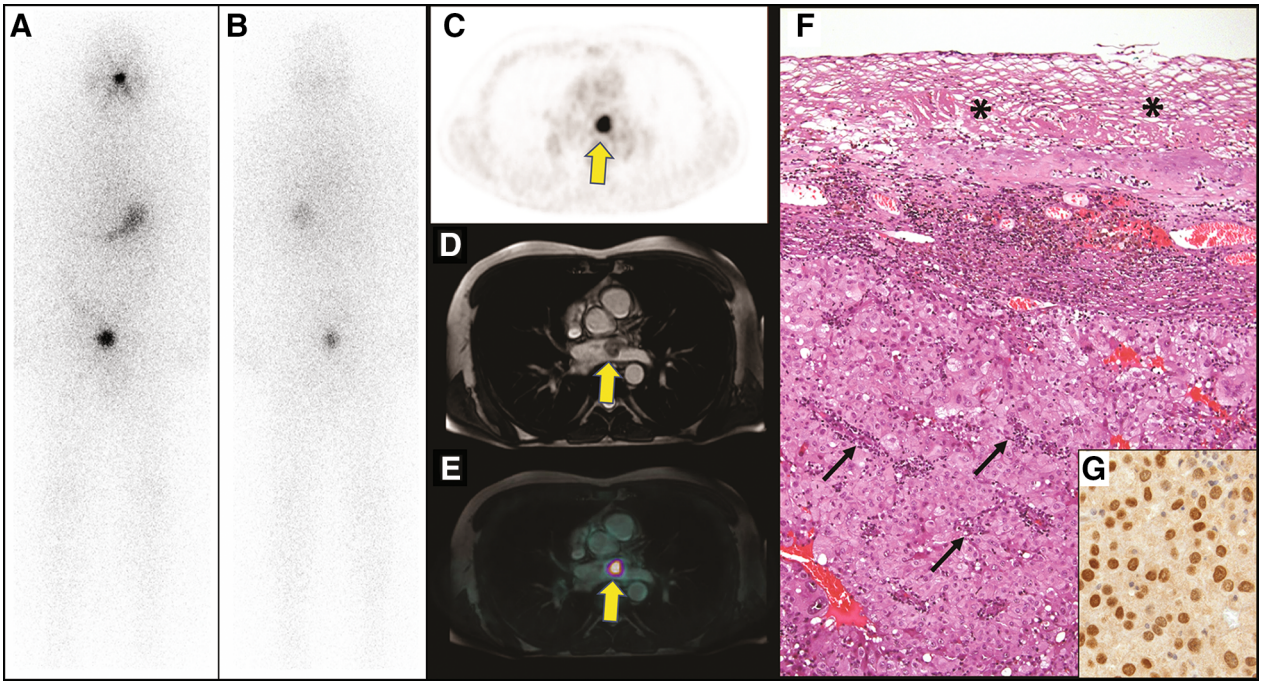

Figure 1. Iodine-131 whole-body scans in anterior (**A**) and posterior view (**B**) showing no areas of abnormal tracer uptake in a patient affected by Hürthle-cell thyroid carcinoma treated with thyroidectomy and subsequent radiometabolic therapy. Axial F-18-FDG PET image (**C**) showing an area of increased radiopharmaceutical uptake (SUVmax: 8) corresponding to a 2.5-cm lesion located in the left atrium at MRI (**D**), as demonstrated by fused PET/MRI image (**E**). Hematoxylin and eosin stain (**F**) demonstrated a neoplastic lesion surrounded by a cap of fibrin (*asterisk*) and constituted by eosinophilic cells with granular cytoplasm mixed up with lymphocytes (*arrows*). The immunohistochemical stain with thyroid transcription factor-1 antibody showed intense nuclear expression (**G**) consistent with metastatic Hürthle-cell thyroid carcinoma.

Conflict of interest

The authors declare that they have no conflict of interest.

Disclosure

None.

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