

In follicular thyroid carcinoma we found, ^{131}I uptake positive bone metastases and negative pulmonary metastases. Whole body ^{18}F -FDG uptake was negative 3 months earlier

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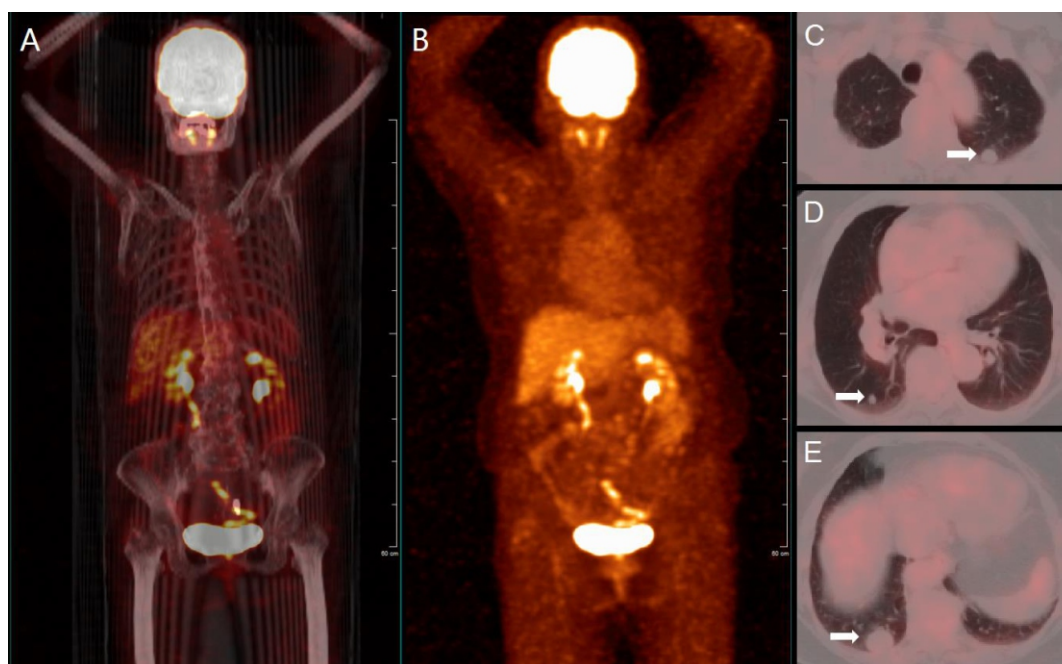


Figure 1. A 74 years old female had multiple pulmonary nodules on the computed tomography (CT) scan on a routine medical examination. Fluorine-18 fluorodeoxyglucose (^{18}F -FDG) positron emission tomography/CT scan followed. Maximum intensity projection image demonstrated a whole body normal uptake (early and late anterior views) (A-B). Multiple pulmonary nodules with no ^{18}F -FDG uptake were found on the fusion transaxial images (C-E, arrows).

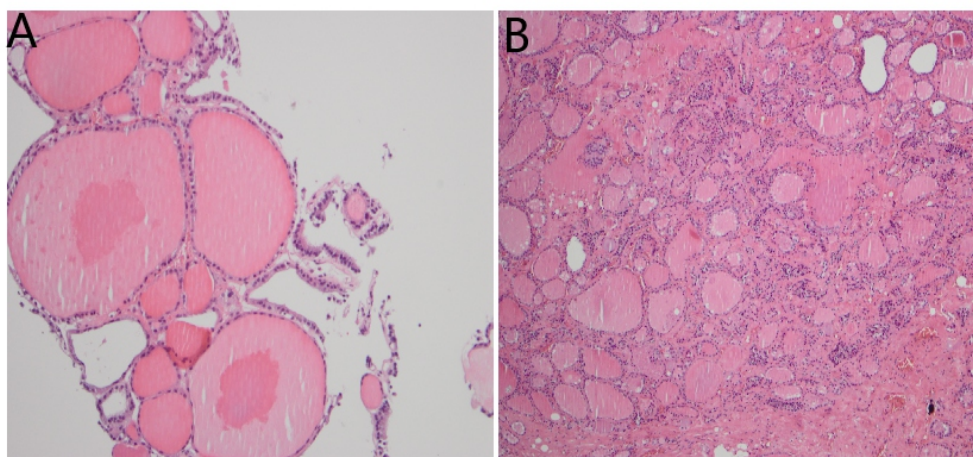


Figure 2. Biopsy of the nodule of the right lung showed the thyroid follicular-like tissue (A-B). Immunohistochemical staining was positive for TTF, PAX, TG and negative for CK19, HBME-1, Galectin-3. Thyroidectomy was performed and the pathology results revealed well-differentiated follicular thyroid carcinoma. Immunohistochemical analysis was positive for TTF-1, Galectin-3, Ki-67(MIB-1) (+, 1~2%) and negative for HBME-1 and negative for HBME-1 and CK19.

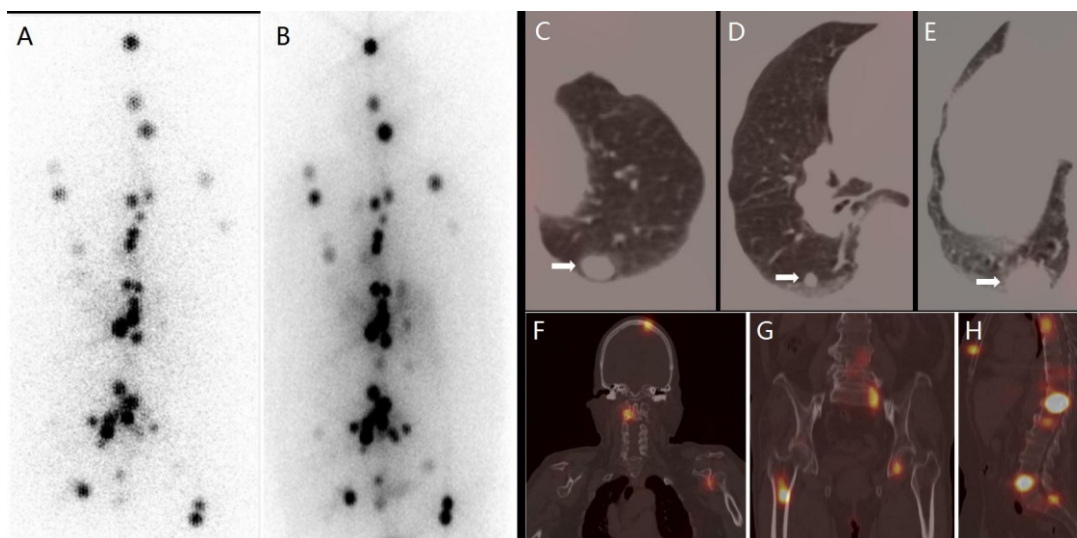


Figure 3. Three months later, the patient was referred for iodine-131 (^{131}I) treatment to our department. The thyroglobulin level at that time was $332.3\mu\text{g/L}$ and TSH: 42 mU/L . A diagnostic whole-body ^{131}I scan revealed multiple ^{131}I -positive lesions predominantly in the axial bone area which highly indicated bone metastases (A). A dose of 9.25GBq (250mCi) ^{131}I was given for treatment. Four days later, therapeutic whole-body scan showed multiple ^{131}I -avid lesions (B). Single photon emission tomography/CT fusion imaging confirmed that the lesions were all located in the bones (F-H), including the left frontal bone, sphenoid bone, cervical, sternum, ribs, humerus, multiple thoracic and lumbar vertebrae, pelvis and femoral bone. All bone lesions had no signs of bone destruction on CT. Surprisingly, nodules in both lungs had no uptake of ^{131}I (C-E).

Negative ^{131}I uptake and positive ^{18}F -FDG uptake are associated with worse survival [1]. Coexistent iodine-negative and iodine-positive metastases in the same patient were also reported [2]. This patient had the negative ^{131}I and ^{18}F -FDG uptake in lung metastatic lesions. Prognosis needs further follow-up.

Bibliography

1. Okuyucu K, Ince S, Alagoz E et al. Risk factors and stratification for recurrence of patients with differentiated thyroid cancer, elevated thyroglobulin and negative I-131 whole-body scan, by restaging ^{18}F -FDG PET/CT. *Hell J Nucl Med* 2016; 19(3):208-17
2. Qiu ZL, Luo QY. Coexistent iodine-negative pleural metastasis with iodine-positive lung and bone metastases in a patient with differentiated thyroid cancer. *Clin Nucl Med* 2009; 34:836-7.

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