

## Images in Medicine

### Interlesional 'flip-flop' between $^{68}\text{Ga}$ -DOTATATE and FDG-PET/CT in thyroglobulin-elevated negative iodine scintigraphy (TENIS) syndrome

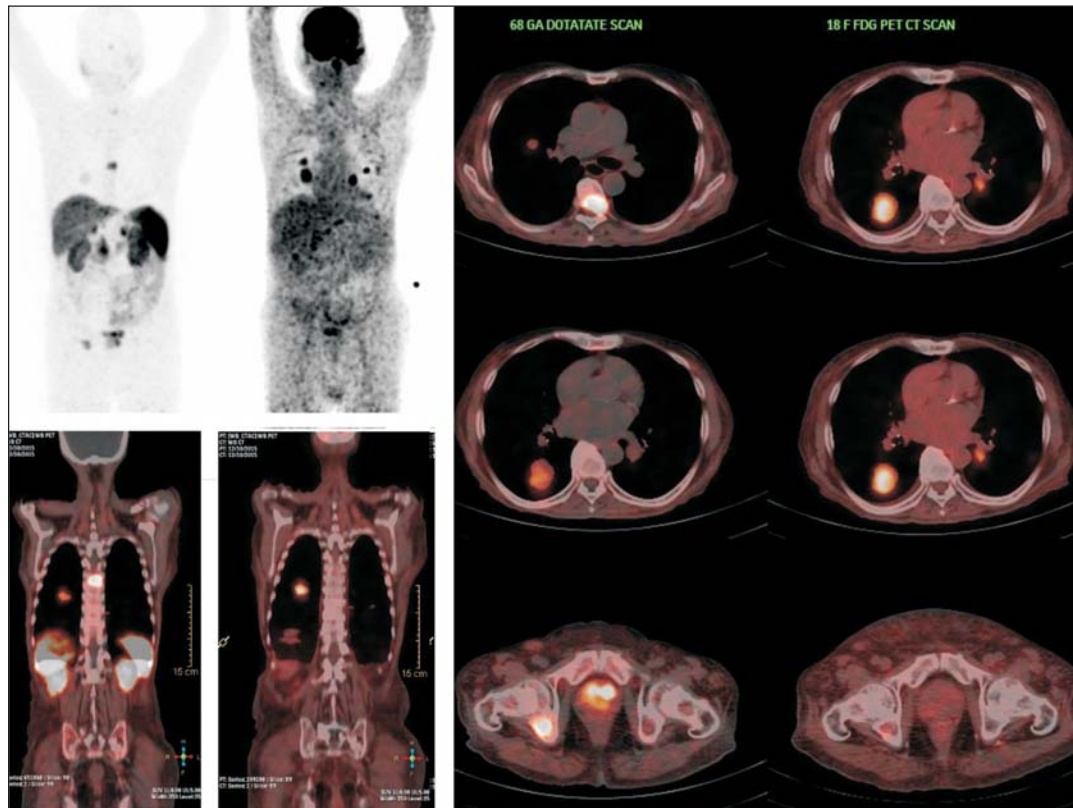


FIG 1. MIP and fused coronal and transaxial slices of PET-CT with  $^{68}\text{Ga}$ -DOTATATE (left columns) and FDG (right columns) showing interlesional 'flip-flop' between the two PET tracers

Patients with elevated thyroglobulin and negative iodine scintigraphy (TENIS) are a challenging group among patients of thyroid carcinoma. Currently, multiple therapeutic options and approaches (such as tyrosine kinase inhibitors, PRRT) are being explored. We illustrate the case of an 81-year-old man with a diagnosis of TENIS with both pulmonary and skeletal metastases (serum thyroglobulin level  $>300\ \mu\text{g}/\text{dl}$ ), where an interesting 'flip-flop' phenomenon was observed between individual metastatic lesions: the skeletal lesions were mostly  $^{68}\text{Ga}$ -DOTATATE-positive (SUVmax 15.27 and 8.52) but FDG-negative (SUVmax 1.5 and 2.8) whereas the pulmonary lesions were FDG-positive (SUVmax 10.44) with minimal or absent uptake on  $^{68}\text{Ga}$ -DOTATATE-PET/CT (SUVmax 3.7; Fig 1). A solitary left pulmonary lesion was negative on both tracers (Fig. 1 coronal slices). Interestingly, the patient had a recent history of associated middle ear infection, which was manifested by uptake on FDG-PET/CT in the petrous bone (Fig. 1 MIP). Biopsy of the prominent right lung nodule showed a focus of poorly differentiated thyroid carcinoma arising in a conventional papillary thyroid carcinoma. The patient had relatively stable disease compared to his previous FDG-PET/CT ( $^{68}\text{Ga}$ -DOTATATE was not done previously). In view of his skeletal symptoms and the vertebral lesions showing intense uptake on  $^{68}\text{Ga}$ -DOTATATE PET/CT, he was considered for PRRT with  $^{177}\text{Lu}$ -DOTATATE.

Molecular imaging with multitracer PET can depict tumour biology and aid in devising management strategy.

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