Pulmonary tuberculosis mimicking pulmonary metastases on ^{131}I post-therapeutic scan

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A 54-year-old woman had a total thyroidectomy with central lymph node dissection because of papillary thyroid carcinoma. She then had ^{131}I treatment with 3,700 MBq. The post-therapeutic whole-body scans acquired 72 h (a) and 1 week (b) after administration of ^{131}I showed focal uptake in the left neck and diffuse uptake in the left lung field. The SPECT/CT image (c) also showed diffuse and focal hot uptake in the left upper lobe and left lower lobe. However, her serum thyroglobulin (Tg) was only 0.1 ng/ml at the time of acquisition of the images.

^{18}F -FDG PET/CT (d) and chest CT (e) scans were ordered for further characterization of the lung lesion. There were several focal and diffuse hypermetabolic nodules with a standardized uptake value of 8.3 in the left upper lobe on the PET/CT images, and bronchiectasis, bronchial wall thickening and multiple centrilobular nodules in the left lung on the CT images. These findings suggest pulmonary infection. She was referred to the Department of Internal Medicine, and her sputum culture revealed *Mycobacterium tuberculosis* complex. She was treated with isoniazid, rifampin, pyrazinamide and ethambutol. Six months after ^{131}I treatment, a diagnostic ^{123}I whole-body scan (f) showed no radioiodine-avid lesion in the neck and lung, and her Tg was 0.3 ng/ml.

Pulmonary tuberculosis may cause radioiodine uptake in the lung mimicking pulmonary metastases from thyroid cancer [1, 2]. Therefore Tg measurement is very important in the interpretation of whole-body scintigraphy following ^{131}I therapy.

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Compliance with ethical standards

Conflicts of interest None.

Informed consent This was a retrospective study, for which formal consent is not required.

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