Abdominal para-aortic ectopic thyroid tissue mimicking lymphadenopathy on computer tomography

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A 70-year-old woman presented to our hospital for workup for chronic cough. A contrast computed tomography (CT) of the thorax and abdomen revealed an incidental finding of multilobulated soft tissue lesions in the abdomen along the left para-aortic region. The lesions measured up to 7.4 cm in diameter and demonstrated mild increased attenuation on pre-contrast images and vivid heterogenous enhancement on post-contrast study (Fig 1a and b). Appearance and location of these lesions raised concern about possible lymphadenopathy so fluorodeoxyglucose-18 positron emission tomography–CT was performed. The lesions demonstrated only mild metabolic activity (maximal standard uptake value=2.6) [Fig 1c]. They showed no interval change in appearance, and no other hypermetabolic lesion could be detected elsewhere. Tumour markers including alpha-fetoprotein, carcinoembryonic antigen, and cancer antigen 125 were not elevated.

The CT-guided biopsy of the para-aortic lesions subsequently showed cuboidal follicular cells arranged in architecture resembling thyroid parenchymal tissue (Fig 2). Immunostaining for thyroglobulin and thyroid transcription factor-1 were positive. There were no nuclear features of carcinoma.

Thyroid scintigraphy using technetium-99m pertechnetate showed intense radiotracer uptake over the corresponding para-aortic lesions (Fig 3). Findings were consistent with ectopic thyroid tissue. The presence of an orthotopic thyroid at its normal pretracheal position was demonstrated on CT and on technetium-99m scan (Fig 4). The patient's thyroid function was normal.

Ectopic thyroid gland is a rare developmental abnormality with a prevalence of approximately 1 per 100 000 to 300 000 population.[1] It results from aberrant embryogenesis of the gland during its migration from the foramen cecum at the posterior aspect of the tongue to its final pretracheal position. Frequent locations include its path of embryological descent along the midline of the neck, with a lingual thyroid at the base of the tongue being most common, accounting for up to 90% of reported cases.[2] Other locations include the lateral neck and superior mediastinum. More distant locations such as subdiaphragmatic locations have also been

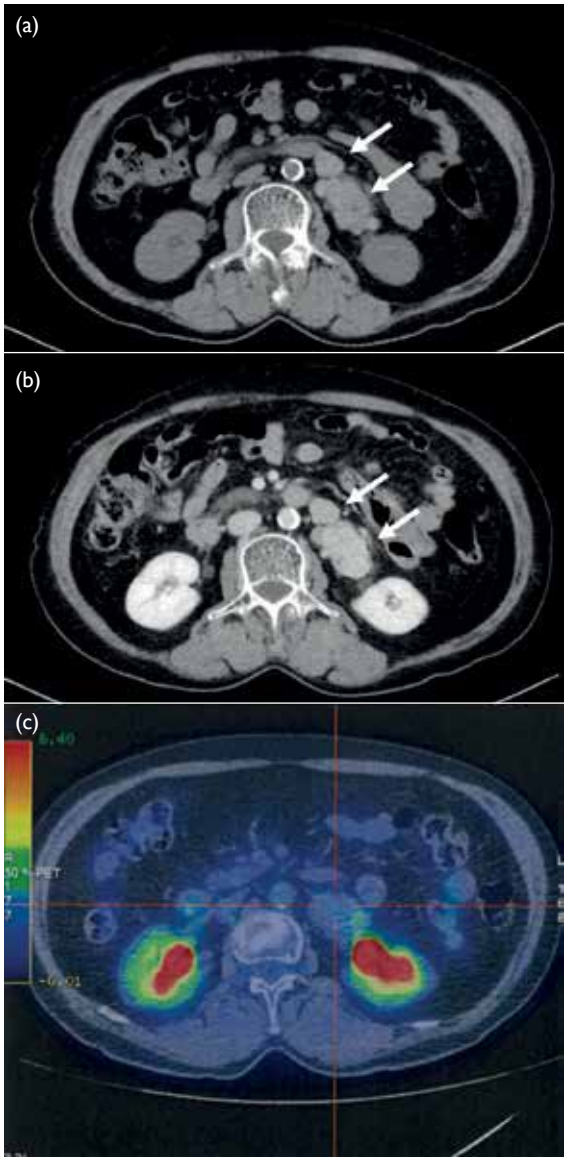

FIG 1. (a) Pre-contrast and (b) post-contrast axial computed tomography images showing multilobulated lesions at left para-aortic region (white arrows). The lesions showing mild increased attenuation on pre-contrast images and vivid heterogenous enhancement on post-contrast images. (c) Axial fluorodeoxyglucose-18 positron emission tomography-computed tomography demonstrating mild metabolic activity over the lesions (maximum standard unit value=2.6)

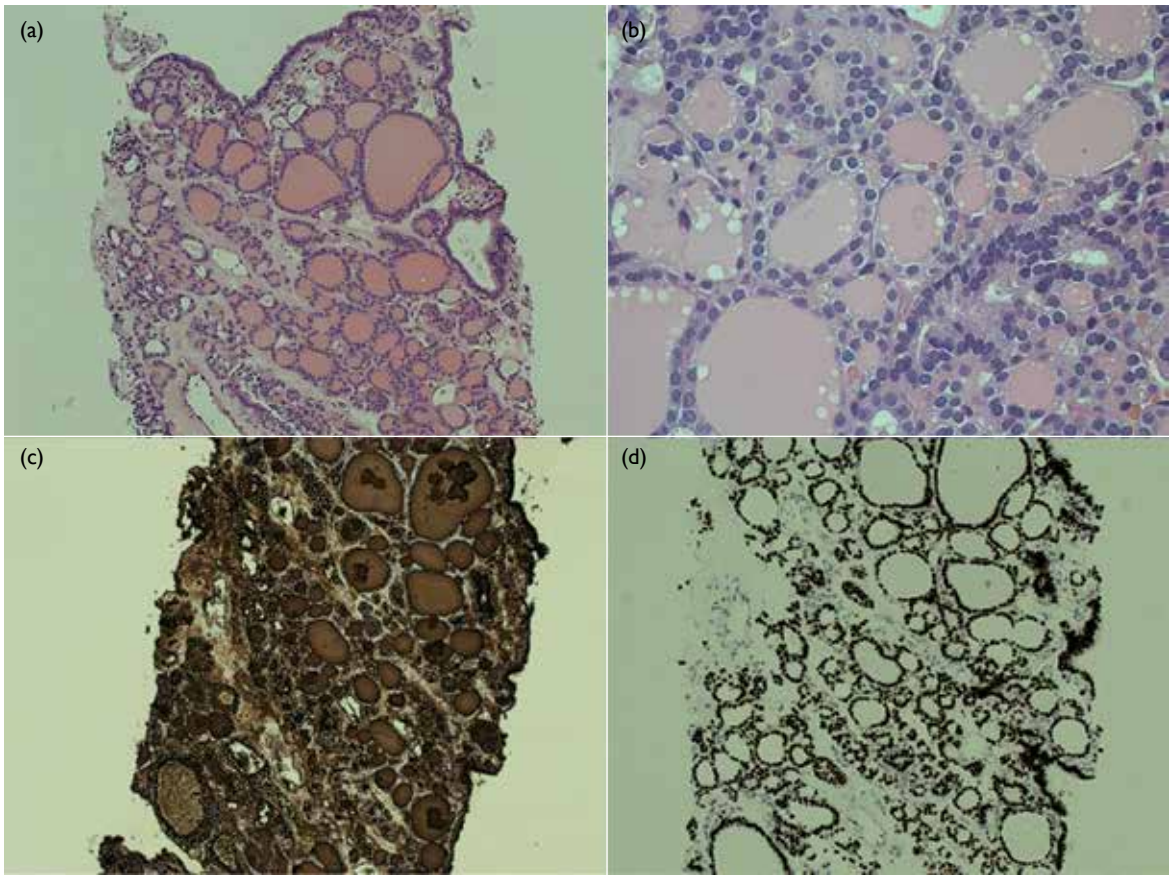

FIG 2. (a, b) Histological images of the para-aortic lesions showing tissue consisting of colloid-containing follicles of different sizes, arranged in architecture resembling normal thyroid parenchymal tissue. Immunostaining for (c) thyroglobulin and (d) thyroid transcription factor-1 was positive

reported but are exceedingly rare. To the best of the authors' knowledge, this is the first report of ectopic thyroid tissue occurring at the para-aortic region of the abdomen, mimicking the appearance of lymphadenopathy on CT.

Thyroid scintigraphy is the most important and sensitive imaging tool to detect ectopic thyroid tissue. It also has the advantage of being able to demonstrate the presence or absence of an orthotopic thyroid gland. In patients with ectopic thyroid tissue, it is important to evaluate for the presence of orthotopic thyroid and thyroid function. Hypothyroidism may be present, particularly in those without a normal thyroid gland, and more common in patients with lingual ectopic thyroid.[2] Ultrasound is also useful to locate and evaluate the orthotopic thyroid gland.

Computed tomography and magnetic resonance imaging are important adjuncts in evaluation. Ectopic thyroid tissue may show similar imaging characteristics to normal thyroid gland with high attenuation on non-contrast CT due to its high iodine content and vivid post-contrast enhancement. When ectopic thyroid tissue is found in a location not consistent with embryologic development, the possibility of malignant metastasis needs to be considered, occurring in 7% to 23% of patients.[3] Biopsy is invaluable and the orthotopic gland should be evaluated for possible malignant change. Pathological changes that affect a normal thyroid including malignant change have been reported in ectopic tissues,[1] and should be considered in the management and follow-up of ectopic thyroid tissue.

Author contributions

Concept or design: All authors.
Acquisition of data: CHK Wong, HL Tsui, CN Ling.
Analysis or interpretation of data: CHK Wong, HL Tsui, CN Ling.
Drafting of the manuscript: CHK Wong, HL Tsui, CN Ling.
Critical revision of the manuscript for important intellectual content: All authors.

Conflicts of interest

All authors have disclosed no conflicts of interest.

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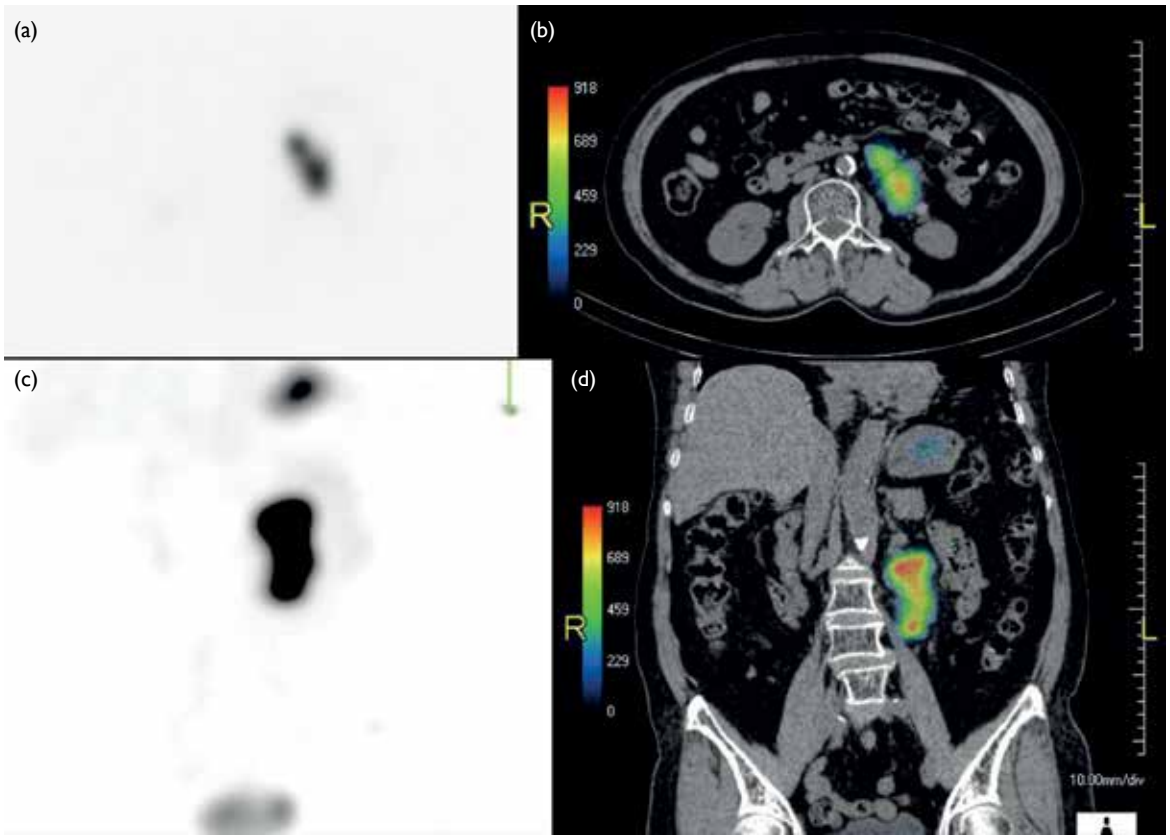

FIG 3. (a) Axial and (b) coronal thyroid scintigraphy images using technetium-99m pertechnetate showing intense uptake of radiotracer at the left side of the abdomen. Corresponding (c) axial and (d) coronal computed tomography fusion images showing the left para-aortic lesions

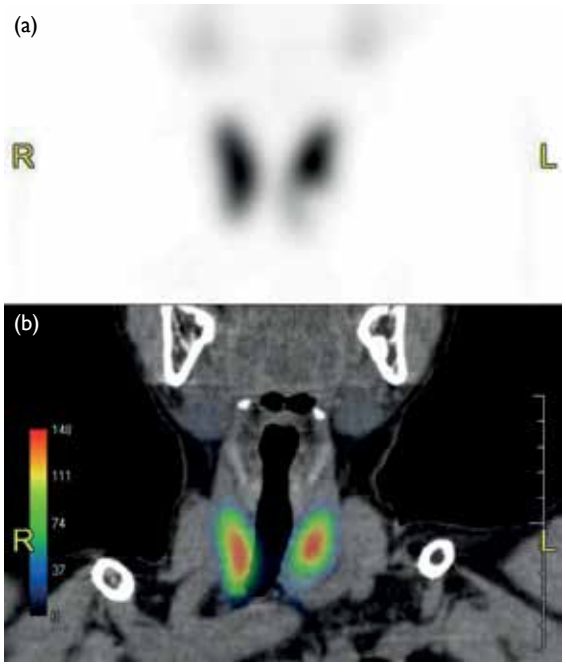

FIG 4. (a) Thyroid scintigraphy image and (b) corresponding computed tomography fusion image showing the presence of orthotopic thyroid gland, with a focal defect at the lower pole corresponding to a cold nodule

Ethics approval

The patient was treated in accordance with the Declaration of Helsinki. The patient provided written informed consent for all treatments and procedures and consent for publication.

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