

Case Report

Double pyramidal lobe at one thyroid lobe: a rare scintigraphic appearance

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Abstract

The thyroid gland may show anatomical variations related to embryonic developmental stages. Persistence of the thyroglossal duct is the cause of most variations in the thyroid gland, which are seen as cyst or ectopic thyroid tissue formation and the pyramidal lobe. The presented case is a patient with Graves' disease showing two pyramidal lobes at the right lobe of the thyroid gland, which is extremely rare on presentation.

Case report

A 70-year old female patient was referred to the nuclear medicine clinic because of a history of hyperthyroidism symptoms of increasing tremors, palpitation and tiredness. She had a history of thyroid complaints unresponsive to medical treatment. The laboratory test results were sT3: 5.95 (normal range 2.3-4.2 pg/mL), sT4: 3.74 ng/dL (normal range: 0.58-1.25) and TSH<0.003 μ IU/mL (normal range: 0.38-5.33) which were consistent with hyperthyroidism.

Thyroid scintigraphy with ^{99m}Tc -pertechnetate was performed to diagnose the cause of hyperthyroidism. The scintigraphic findings were compatible with Graves' disease and also showing the presence of two pyramidal lobes in the right lobe of the thyroid gland; one is extending superiorly at the upper pole and the other is extending inferiorly in the bottom pole on thyroid scintigraphy (Figure 1). Ultrasonography (USG) showed diffusely heterogeneous, hypoechogenic and increased vascularity parenchyma on the thyroid gland concordant with Graves' disease and confirmed superior and inferior pyramidal lobes rising from the same lobe of the thyroid gland (Figure 2).

Discussion

The pyramidal lobe is the most common variation of these and an embryologic remnant of the caudal end of the thyroglossal duct [1,2]. The prevalence of that has been reported to 12%-65% [3, 4]. On thyroid

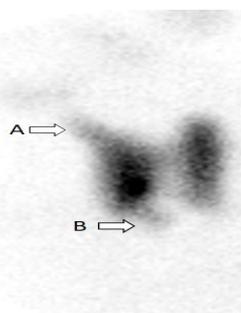


Figure 1. Thyroid scintigraphy showing diffuse radioactivity uptake compatible with Graves' disease. Arrow A is showing the superior pyramidal lobe and arrow B is showing the inferior pyramidal lobe of the right lobe of the thyroid gland on thyroid scintigraphy.

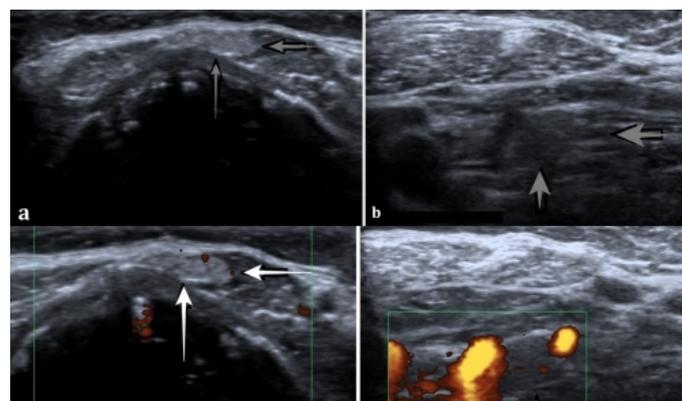


Figure 2. Gray long arrows showing ultrasonography (USG) images of superior (a) and gray short arrows for inferior (b) pyramidal lobes in the right lobe of the thyroid gland; doppler USG images showing the vascularity of superior (c) pyramidal lobe with long white arrows and inferior (d) pyramidal lobes with thick white arrow

scintigraphy, the anatomic origin of the pyramidal lobe has been shown to arise from the right side in 43.7%, from the left in 46.7% and from the isthmus in 9.5% [5].

The treatment options for Graves' disease are antithyroid drug, radioiodine and thyroid gland surgery. Thyroid gland surgery is one of the more common surgical interventions in the head and neck region. The principle of safe and effective thyroid surgery is to understand and observe the anatomy of the thyroid gland and its possible variations.

The pyramidal lobe is usually visualized when there is significant stimulation as hyperthyroidism [6]. All thyroid diseases may originate

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from that [7,8]. It is of importance in treatment planning for thyroid disease. It is especially important to know the localization and number of that in the patient who will undergo a total thyroidectomy operation because after surgery there is known to be a high risk of disease recurrence. Therefore, it should be examined before thyroid surgery.

Conflict of interest

Author hereby declares that he has no financial disclosures and acknowledging any financial support.

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