

Papillary Thyroid Cancer Associated With Hyperthyroidism

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Introduction

The most common causes of hyperthyroidism in the pediatric age group are autoimmune conditions (Graves' disease or Hashitoxicosis). Hyperfunctioning thyroid carcinomas are rarely reported. In this case report, we present a 17-year-old girl who was diagnosed with papillary thyroid carcinoma upon testing for hyperthyroidism.

Case

- A 17-year-old girl had presented to another center with a one-month history of palpitations, hand tremors, and weight loss and was treated for one month with methimazole (5 mg twice a day) for a diagnosis of hyperthyroidism.
- Her history did not include any exposure to radiotherapy.
- There was no consanguineous marriage in her family history, but a cousin had undergone surgery for papillary thyroid carcinoma (PTC).

Physical examination:

- Weight: 1.66 SDS
- Height: 0.7 SDS,
- BMI: 2.0 SDS.
- Pulse rate: 102/min
- Blood pressure: 160/70 mmHg.

Laboratory:

- ❖ FT4: 1.55 ng/dL (N, 0.50–1.51)
- ❖ FT3: 5.11 pg/mL (N, 2.5–3.9)
- ❖ TSH <0.015 µIU/mL (N, 0.38–5.33)
- ❖ anti-TPO: 0.5 IU/mL (N, 0–9)
- ❖ anti-TG: 0.9 IU/mL (N, 0–4)
- ❖ TRAB <0.10 ng/mL (N, <0.10)

Radiologic Findings;

- ❖ **Thyroid USG (October 2017)**; revealed homogeneous parenchyma with a **1.2-cm isoechoic solid nodule** in the inferior left lobe. Thyroid volume was calculated 10,2 mL (1,48 SDS).
- ❖ **Thyroid USG (January 2018)**; revealed homogeneous parenchyma with a **1.4x0.9-cm isoechoic solid nodule** in the inferior left lobe. Thyroid volume was calculated 10 mL (1,42 SDS).
- ❖ **Thyroid scintigraphy**; showed increased and homogeneous activity distribution in both lobes (**Figure 1**).

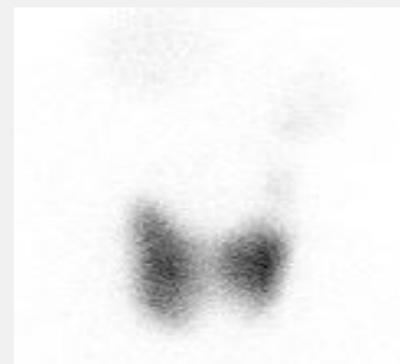


Figure 1. Thyroid (Tc- 99m pertechnetate) scintigraphy; The distribution of activity in both lobes of the thyroid gland is homogeneous and increased. No active uptake was detected in the 1.4x0.9-cm isoechoic solid nodule

Treatment & follow-up:

- ✓ The patient was symptomatic (tachycardia), her treatment was adjusted (methimazole 10 mg twice a day) and propranolol 40 mg twice a day was added.
- ✓ During clinical follow-up, an increase of over 20% in control thyroid nodule diameter was observed. Fine-needle aspiration biopsy (FNAB) revealed cellular crowding with atypia, and total thyroidectomy was performed for suspected PTC.
- ✓ The results of histopathologic examination were consistent with PTC.
- ✓ The patient tested negative for autoimmune markers and no mutation was detected in TSH receptor gene.
- ✓ There were no signs of vascular invasion on histopathologic examination, so radioactive iodine therapy was not planned.
- ✓ The patient is now euthyroid with L-thyroxine therapy (150 µg/day) and is continuing clinical follow-up.

Conclusion

- Both pediatric and adult thyroid cancer patients are usually euthyroid.
- In the literature, the coexistence of thyroid cancer and hyperthyroidism has been reported at rates of 5–15% in adult series.
- Hyperthyroidism associated with pediatric thyroid cancers has only been described in case reports.
- Functional thyroid malignancies should be included in the differential diagnosis for patients presenting with non-autoimmune hyperthyroidism and thyroid nodules.

