

Intrathyroidal Ectopic Thymus: A Rare Diagnosis

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A 3-year-old male, with no relevant medical history, was referred to pediatric endocrinology due to a thyroid nodule that was discovered during a cervical adenopathy ultrasound. The initial ultrasound revealed a homogeneous thyroid parenchyma, with an 8 mm hypoechoic nodular formation, with some internal millimeter echogenic foci on the right lobe of the thyroid gland. The thyroid levels were normal, and a physical examination showed a normal sized thyroid with no nodules. After three months, the patient was submitted to an ultrasound reevaluation revealing an increase in the dimensions of the nodule (12 mm) and, therefore, a biopsy was suggested. After reevaluating the ultrasounds, and taking into consideration the age of the patient, the possibility of an intrathyroidal thymus was considered. A new ultrasound showed an extension of the lower part of the lesion that seemed to continue with the thymus, presenting ultrasound characteristics similar to the thymus (Figs. 1 and 2). With the diagnosis of an intrathyroidal thymus, the biopsy was dismissed, and the patient remains under clinical and ultrasound monitoring.

The intrathyroidal ectopic thymus is a rare entity due to defect thymic migration during embryogenesis, which is usually benign and asymptomatic, and is often an incidental finding.¹⁻³

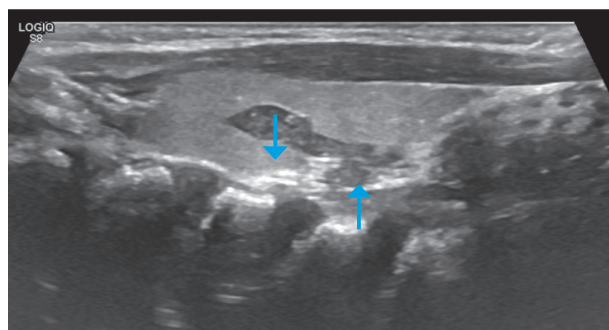


Figure 1. Hypoechoic nodule in the right lobe of the thyroid gland with a millimeter echogenic focus (left arrow) and caudal extension with continuity with the thymus (right arrow).

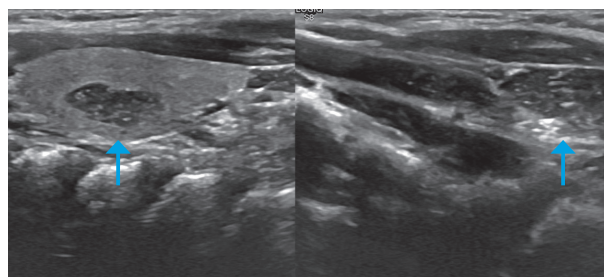


Figure 2. Thymus (right arrow) with hypo echogenicity and internal micro septa like thyroid lesion (left arrow). Intrathyroidal ectopic thymus.

The presence of normal thymus intrathyroidal tissue may simulate a false nodule,² wrongly diagnosed as pathological, leading to unnecessary invasive procedures or surgical treatments.^{2,5} The majority of the diagnoses described in the literature were established after an inconclusive biopsy followed by thyroidectomy.³⁻⁵

The thymus tissue has a characteristic ultrasound pattern that enables you to recognize it and differentiate it from other thyroid lesions (Table 1).^{1,2,6} Long-term monitoring has revealed a decrease in the size, which meets the regular thymus involution.^{2,3} However, ultrasound monitoring should be maintained in order to consider further investigation in case of a significant increase and size and the rare possibility of malignant degeneration.

Table 1. Ultrasound characteristics of the thymic tissue and thyroid nodule

Type	Ultrasound characteristics	Flow
Thymus	Heterogeneous and hypoechoic compared to thyroid tissue. It may have multiple linear and focal echogenic structures, corresponding to a micro septa or points, with an appearance like a “starry sky”. Defined limits. Thymus shape may vary with respiratory movements during ultrasound, facilitating differential diagnosis with other solid nodules.	Scarce or absent
Thyroid nodule	Solid, cystic or mixed. Hypoechoic with micro or macrocalcifications. Defined or undefined limits.	Present

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WHAT THIS REPORT ADDS

- The embryogenesis of the thymus might fail and end up in an ectopic position that can mimic a thyroid nodule.
- The intrathyroidal ectopic thymus has a low prevalence, but its ultrasound characteristics should be known in order to be considered in the diagnosis of thyroid nodules in pre-pubescent ages and, therefore, avoiding unnecessary invasive procedures or an unnecessary extraction of the gland.
- Unlike most described cases, the diagnosis was established resorting to ultrasounds, for which an experienced radiologist and diagnostic acuity are essential.

Conflicts of Interest

The authors declare that there were no conflicts of interest in conducting this work.

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Confidentiality of data

The authors declare that they have followed the protocols of their work centre on the publication of patient data.

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