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Case Report

Lateral Ectopic Thyroid on a Healthy Child: Case Report

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A B S T R A C T

Ectopic thyroid is a rare embryological aberration (1 in 4000 to 8000 patients with thyroid disease; 1 in 100 000 to 300 000 normal subjects). Amongst ectopic thyroid glands, 90% are lingual and 10% befall in other locations. Only 1% to 3% of all ectopic thyroid tissues are located in the lateral neck. We report a case of an eight-year-old child with a lateral submandibular ectopic thyroid. Her development and growth patterns were normal. Thyroid function showed a subclinical hypothyroidism. Ultrasonography showed a thyroid cavity filled with adipose tissue and an ectopic thyroid with a heterogeneous structure. A thyroid scan with sodium pertechnetate confirmed the diagnosis. The child was treated with levothyroxine. The repeated thyroid function tests were within the normal limits. This case demonstrates the importance of requesting thyroid function tests and imaging studies in all patients with neck masses.

Palavras-chave:
Criança;
Glândula Tiroide.

Tiroide Ectópica Lateral em Criança Saudável: Relato de Caso

R E S U M O

A tiroide ectópica constitui uma anomalia embrionária rara (1 em 4000 a 8000 indivíduos com patologia tiroideia; 1 em 100 000 a 300 000 indivíduos saudáveis). Entre as glândulas tiroideias ectópicas, 90% são linguais e 10% ocorrem noutros locais. Apenas 1% a 3% de todas as glândulas tiroideias ectópicas são laterais. Relata-se um caso de uma criança de oito anos com tiroide ectópica lateral submandibular. A criança tem um desenvolvimento estaturo-ponderal e psicomotor normal. A avaliação da função tiroideia evidenciou um hipotiroidismo subclínico. A ecografia mostrou um preenchimento da loca tiroideia por tecido adiposo e uma tiroide ectópica com estrutura heterogénea. A cintigrafia com pertecnetato de sódio confirmou o diagnóstico. A criança foi medicada com levotiroxina, com normalização da função tiroideia. Este caso destaca a importância do pedido da função tiroideia e estudos imagiológicos na presença de massas do pescoço.

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Introduction

The thyroid is the first endocrine gland to develop throughout fetal embryology, starting at the third gestation week from the endodermal cells. On the fifth week of gestation the thyroid diverticulum migrates caudally alongside the midline, crossing anteriorly the hyoid bone and the laryngeal cartilage. During migration the thyroid remains attached to the tongue via the thyroglossal duct.[1] Failure on thyroid migration to its loca is called an ectopic thyroid.[2] The most common thyroid ectopia is the lingual thyroid in 90% of the cases but 10% can occur in other locations.[2] In 70% of the individuals with ectopic thyroid, the thyroid gland cannot be found in its local.[3]

We report a case of a lateral ectopic thyroid located between the submandibular gland and the thyroid cartilage on a healthy child.

Case Report

An eight-year-old female child presented with a sore throat which started three days ago. The pregnancy was monitored. She had an eutocic delivery at 41 weeks of gestation without intercurrences. She had been healthy since birth, with normal development and growth patterns. The newborn screening test (heel-prick test) results was normal. There was no family history of thyroid problems. Upon examination, the child had a painless mass on her right side of the neck measuring approximately 20x20 mm. It was non-tender, mobile and non-adherent to the superficial and profound plans. There were no palpable adenopathies and no other findings on physical examination.

Thyroid function and a thyroid ultrasound were requested. Thyroid function showed a subclinical hypothyroidism with a thyroid-stimulating hormone (TSH) 9.46 mUI/L (0.600-4.840 mUI/L) and free thyroxine (fT4) 1.16 ng/dL (0.97-1.67 ng/dL). The ultrasonography described that the thyroid was difficult to assess due to poor cooperation from the child. The child was referred to a Pediatric appointment and was evaluated two months later.

Upon evaluation from the specialty, the child was asymptomatic and new thyroid function assessment and ultrasonography were requested. The thyroid function was again consistent with a subclinical hypothyroidism: TSH 7.530 mUI/L, fT4 1.02 ng/dL, free triiodothyronine (fT3) 3.92 pg/mL (2.53-5.22 pg/mL), anti-thyroglobulin antibody 13.6 (<37 UI/mL) and anti-thyroid peroxidase antibodies <9 (<18). The ultrasonography revealed a thyroid loca filled with adipose tissue and an ectopic thyroid with a heterogeneous structure, 26x25x10 mm, located between the right submandibular gland and the thyroid cartilage.

In order to confirm the diagnosis, it was requested a thyroid scan with sodium pertechnetate which revealed the absence of a thyroid gland in its usual topography and increased uptake on the cervical region, related with an ectopic thyroid, corroborating the ultrasonography findings.

Following the diagnosis, the patient was treated conservatively with levothyroxine 125 µg daily. After the treatment she remained asymptomatic and repeated thyroid function tests. The results were normal (TSH 4.040 mUI/L, fT4 1.28 ng/dL e fT3 1.28 pg/mL). The child remains under semi-annual surveillance.

Discussion

The ectopic thyroid is an embryological anomaly that can befall in any moment of its migration. This happens more frequently in women, with a 4:1 female-to-male ratio.

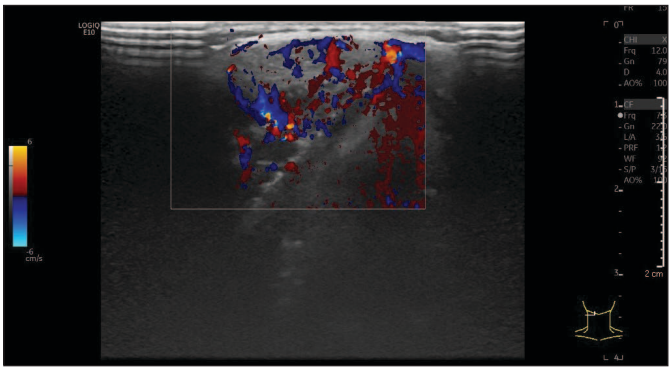

Figure 1 . Ectopic thyroid Doppler.

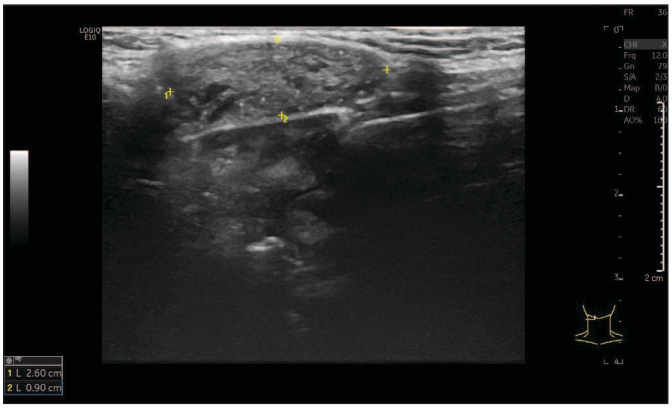

Figure 2 . Ectopic thyroid measurements.

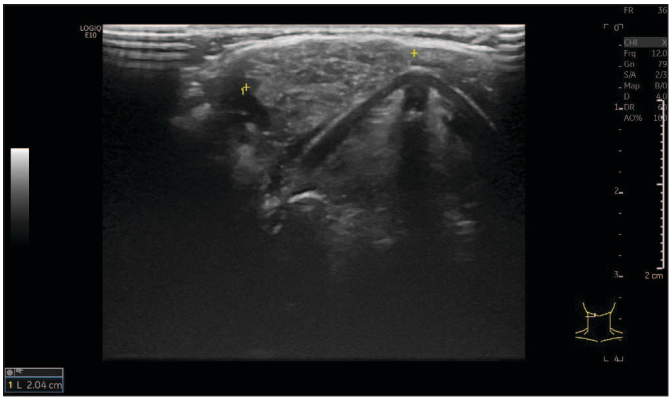

Figure 3 . Ectopic thyroid.

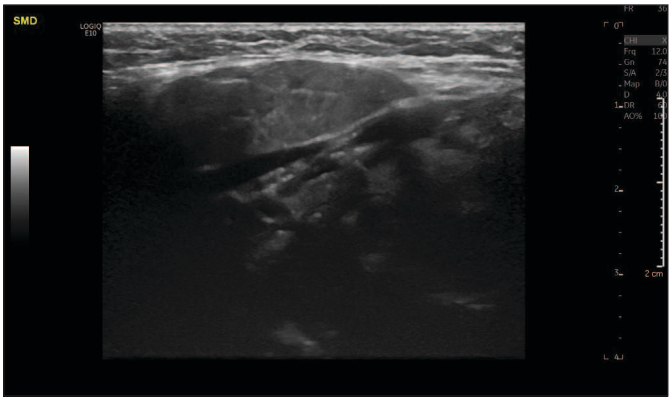

Figure 4 . Right submandibular gland.

Ectopic thyroid can be diagnosed at any age. Most cases are identified during the neonatal period through newborn screening test (heel-prick test).[4] However, in some cases the diagnosis occurs during childhood, adolescence and menopause. This is mostly related to the increased demand of thyroid hormones in these phases of life, causing a rise of TSH circulating levels and consequently the growth of the ectopic thyroid tissue.[5] Thyroid hormones modulate the metabolism and development of both ovaries and uterus tissue, playing a vital role on female reproductive system. During adolescence and menopause, the most common symptoms are menstrual irregularities and infertility.[6]

Ectopic thyroid is the most frequent form of thyroid dysgenesis (48% to 61% of the cases)[7] with a prevalence 1 per 4000 to 8000 patients with thyroid disease and 1 per 100 000 to 300 000 healthy individuals.[8] Among ectopic thyroid glands, 90% are lingual and 10% occur in other sites such as subdiaphragmatic space, mediastinum, esophagus, visceral organs, thoracic cavity and intra-tracheal and submandibular regions.[9,10]

Less commonly (in 1% to 3% of all ectopic thyroid tissues)[11] ectopic thyroid can occur in the lateral neck, usually in the submandibular space. Until recently, cases of ectopic thyroid detected in the lateral cervical region were considered as malignant (metastatic) lesions and were designated as "lateral aberrant thyroid".[12,13]

Submandibular thyroid tissue is more common in women and is located mainly on the right side of the neck.[13]

Ectopic thyroid cancer incidence rate is approximately 0.3% to 0.5% of thyroid cancer and a lateral aberrant ectopic thyroid is even rarer.[14,15]

The main diagnostic exams for assessing ectopic thyroid tissue are scintigraphy and ultrasonography. Fine needle aspiration is considered to be the best exam to differentiate between a benign and a malignant lesion and it correctly diagnosis 95% to 97% of all cases. However, it is an invasive exam that may sometimes be misleading or non-diagnostic. It is useful in a nodular ectopic gland when there is suspicion of malignancy or a metastasis from a thyroid cancer or to assist as a preoperative diagnosis.[16]

Concerning the management of ectopic thyroid, literature is not consensual. However, most authors consider that it depends on the patient symptoms. Most ectopic thyroids are asymptomatic and no therapy is necessary.[5] Even though ectopic thyroid cancer is unusual, benign tissue tends to be accompanied by hypothyroidism.[17] Asymptomatic patients with normal thyroid function are recommended to keep a close follow-up with thyroid blood samples and regular ultrasonography of the neck in order to monitor disease progression efficiently, detect mass enlargement or the development of complications.[13,17] Patients with hypothyroidism are treated with hormonal therapy. However, symptoms like dysphagia, dysphonia, bleeding or dyspnea are related with the growth of the thyroid tissue.[5] Surgical treatment is only indicated for symptomatic patients after failure of medical treatment or for those with dysphagia, bleeding or suspicion of malignancy.[18]

In this case report the initial diagnosis with the ultrasonography was not made. Nevertheless, the suspected pair of palpable mass and subclinical hypothyroidism led to the need of a new ultrasonography and a scan with sodium pertechnetate. This timeline led to the diagnosis of a lateral ectopic thyroid, an even rarer diagnosis than initially suspected. As this was an asymptomatic eight-year-old child, who did not cooperate during the ultrasound, and as the main diagnostic tests did not reveal any suspicion of malignancy, fine needle aspiration was not performed. A conservative treatment with hormonal substitution has been implemented since the child keeps regular follow-up to monitor possible recurrences or complications.

Contributorship Statement / Declaração de Contribuição:

CAM, BO, GS and FG - Contributed equally to this case report and were responsible for conceptualization, writing original draft, review and final approval.

Responsabilidades Éticas

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