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Ectopic Thymic Tissue as a Rare and Confusing Entity

Abstract

A 16-year-old girl with intrathyroidal ectopic thymic tissue, which was diagnosed incidentally after surgery for thyroid nodule, is reported to emphasise the possible clinical and surgical presentations of this rare entity.

Key words
Ectopic thymic tissue · Thyroid · Nodule

Résumé

Le cas d'une fille de 16 ans avec du tissu thymique ectopique intra-thyroïdien qui a été diagnostiqué après chirurgie d'un nodule thyroïdien est rapporté pour insister sur les différentes présentations cliniques et chirurgicales de cette entité rare.

Mots-clés
Tissu thymique ectopique · Thyroïde · Nodule

Resumen

Presentamos una niña de 16 años con tejido tímico ectópico intratiroideo que fue diagnosticado casualmente tras cirugía por nódulo tiroideo para destacar las posibles implicaciones clínicas y quirúrgicas de esta rara entidad.

Palabras clave
Tejido tímico ectópico · Tiroides · Nódulo

Zusammenfassung

Bei einem 16-jährigen Mädchen wurde eine intrathyroidal gelegene Zyste festgestellt, die sich histologisch als ektopes Thymusgewebe herausstellte. Die Feinnadelbiopsie hatte keine eindeutige Diagnose gebracht, ebenso wenig mehrfache Ultraschallkontrollen. Die ektope Lage des Thymus in der Schilddrüse ist eine ungewöhnliche Seltenheit.

Schlüsselwörter
Ektoper Thymus · Schilddrüsengewebe

Introduction

Ectopic thymic tissue in the thyroid gland is a very rare entity, and an almost entirely incidental finding at autopsy or at operation (13). Occasionally, intrathyroidal masses can originate from thymic tissue and be misdiagnosed as thyroid neoplasms or other nodular thyroid pathologies (4). The authors report here on a case of ectopic thymic tissue, which was encountered in association with a thyroid nodule.

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Case Report

A 16-year-old girl presented with a nodular mass in the neck. Physical examination revealed a firm, smooth-surfaced nodular mass measuring about 1.5 × 2 cm on the right side of the neck without any lymphadenopathy. Her secondary sex characteristics were in accordance with her age, and her menstruation cycles were regular. Her medical history showed that she had suffered from hearing loss since birth, but there was no familial history of thyroid disease.

Laboratory tests including complete blood count and blood chemistry were normal. Thyroid function test results were within normal ranges. Neck ultrasonography showed a non-homogenous cystic mass with a size of about 0.9 × 0.7 × 0.6 cm, located centrally in the right lobe of the thyroid gland.

In the light of these findings, the mass was diagnosed as goiter and Na-L thyroxin (50 µg/day) was prescribed. After nine months, the nodular mass persisted with similar findings during physical examination. Repeat ultrasonography showed a mass measuring about 1.7 × 1.5 × 1.2 cm in the same region. A fine needle aspiration biopsy was performed for the nodular mass. The cytological examination showed benign follicular epithelial cells and colloidal substance.

The most recent ultrasonography of the thyroid indicated that the nodular mass had changed its characteristics, and had cystic and solid parts. A ^{99m}Tc-pertechnetate thyroid scan disclosed a cold area at the same location as the nodular mass.

In spite of hormone therapy, enlargement of the mass and scintigraphy findings forced us to carry out an operation. At operation, a nodular mass measuring about 2.5 × 1.0 × 0.5 cm was seen in the right lobe of the thyroid. The left lobe of thyroid was normal and there was no lymphadenopathy. The nodular mass was totally excised together with the right and pyramidal lobes of thyroid. Pathologic examination revealed benign nodular thyroid tissue and ectopic thymic tissue with benign features in the thyroid (Fig. **1**). The postoperative course was uneventful.

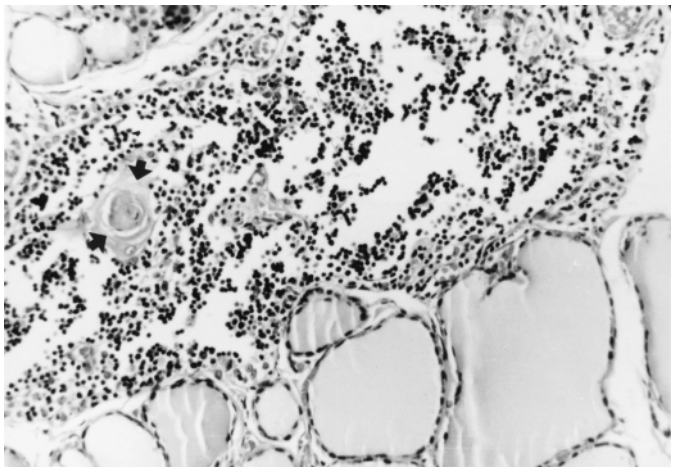

Fig. **1** Ectopic thymic tissue with a Hassall corpuscle (arrows) within the thyroid follicles. (HE, original magnification × 66).

Discussion

Aberrant thymic tissue is found in the neck in up to 20% of persons (13). The last large series of paediatric necropsies showed that out of 3236 paediatric necropsies over a period of 23 years (1969 – 1992), an abnormal position of thymic tissue was recorded in 34 cases. Only one of these cases was in the thyroid, and the other one was in the thyroid capsule (1). It seems that intrathyroidal ectopic thymic tissue is an exceedingly rare entity, and usually found incidentally during autopsy.

Ectopic thymic tissue can be explained by maldescent of the thymus during embryologic development. The thymus develops from the third and fourth pharyngeal pouches in the embryo together with the thyroid and parathyroid glands. During the sixth week of gestation, the epithelium of the third pharyngeal pouch differentiates into the inferior parathyroid and the thymus. The primordia on each side migrate medially and fuse to form the thymus by the eighth week. The adjacent parathyroid glands normally come to rest close to the lower pole of thyroid. The thyroid gland also descends in the midline of the neck anterior to the hyoid bone and comes to rest in the lower neck. The fusion of the right and left thymic primordia is never really complete, so the organ never entirely loses its paired nature. When fusion is complete, the thymus and the inferior parathyroid lose their connection with the pharynx and migrate caudally to their final location which is usually entirely in the anterior mediastinum between the sternum, parietal pericardium and thoracic inlet (2,14,15). An ectopic thymus may therefore be found anywhere along this path of migration.

Occasionally, intrathyroidal ectopic thymic tissue presents together with a thyroidal nodule with or without malignant transformation (5,7,12,17,18). In adults, thymoma, lymphocyte-predominant thymoma or thymic carcinoma have been reported in a few cases (6,8 – 11). To the best of our knowledge, there has been no report of a child with malignancy arising from intrathyroidal thymic tissue to date. However, aberrant thymic tissue may be misinterpreted as a malignant nodule at surgery resulting in unnecessary resections in children.

In the light of these reports, misdiagnosis of a thymic mass is a problem which unfortunately cannot be solved with the present diagnostic techniques including fine needle aspiration biopsy, and scintigraphy (3,16). Therefore we recommend that any intrathyroidal nodular lesion encountered at operation should be investigated immediately to identify any thymic tissue to prevent unnecessary extensive resections.

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