Case Report
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Aberrant Cervical Thymus Mimicking Thyroid on Ultrasonography: A Case Report[1]

초음파상 갑상선과 유사한 소견으로 보이는 이소성 경부흉선: 증례 보고[1]

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Aberrant cervical thymus is rarely reported in adults. We report a case of solid aberrant cervical thymus in a 27-year-old female, which was found incidentally on ultrasonography for the evaluation of the thyroid cancer. On ultrasonography, the lesion was found between the left thyroid and common carotid artery without any remarkable interface echo, and had similar echogenicity to the thyroid. The lesion extended to the upper pole of the left thyroid.

Index terms
Thymus Gland
Thyroid
Ultrasonography

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INTRODUCTION

An abnormally positioned thymus may either be aberrant or ectopic. Aberrant cervical thymus (ACT) is located along the normal pathway of descent of the thymus, with an attachment to mediastinal thymus via thymic tissue or fibrous cord in 50% of the cases (1). ACT is usually diagnosed within the first and second decade of life, and most lesions are cystic (1-3). We experienced a case of the solid ACT in a 27-year-old female, which was seen as a soft-tissue lesion between the left thyroid and common carotid artery (CCA). We present the imaging features of this case and review the relative literatures.

CASE REPORT

A 27-year-old woman was referred to our hospital for the operation of thyroid cancer. She did not have any neurological symptoms. During the ultrasonographic evaluation for thyroid cancer, an incidental solid mass was found, which was between the left thyroid and CCA, without remarkable interface echo to the thyroid parenchyma. The lesion had iso-echogenicity to the thyroid parenchyma and internal multiple echogenic dot-like structures (Fig. 1A, B). Doppler ultrasonography showed internal blood flow (Fig. 1C). The lesion had elongated tubular shape and was molded between the left thyroid and CCA, and extended inferiorly to the suprasternal area. Computed tomography (CT) showed a mass extended from the upper pole level of the left thyroid to the superior mediastium (Fig. 1D). The CT Hounsfield unit was 35.8 on the pre-contrast CT and 48.1 on the post-contrast CT. CT scan revealed internal enhancing tubular vascular structure. On the surgical field, the mass was found in the space between the left thyroid and CCA. The mass was a yellowish soft mass and was removed at the level of thoracic inlet. The mass was confirmed as the thymic tissue without any cystic component.

DISCUSSION

Thymus arises from the ventral saccules of the third and fourth branchial pouches during the 6th week of fetal life. By the 8th

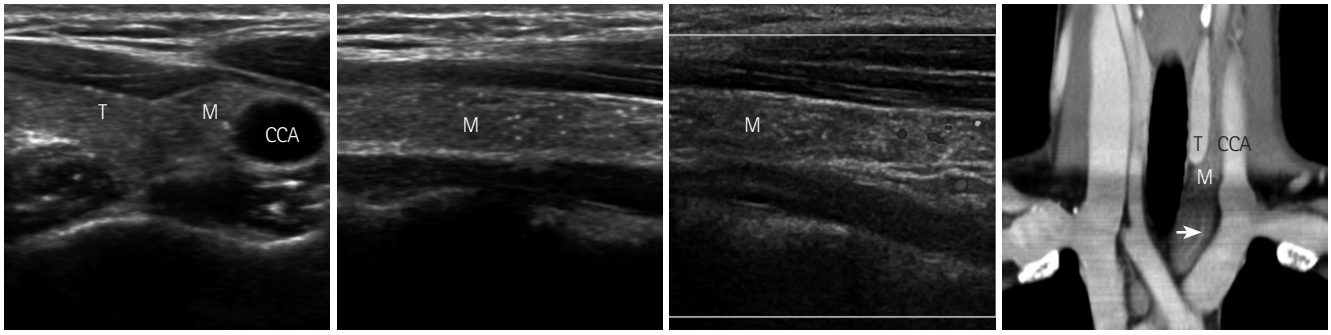

Fig. 1. Ultrasonography reveals a solid mass between the left thyroid gland and CCA, which has elongated tubular shape and similar echogenicity to the thyroid parenchyma (**A:** transverse image, **B:** longitudinal image). There is no remarkable interface echo to the thyroid parenchyma. The lesion has multiple internal echogenic dots **(A, B)**. Doppler ultrasonography reveals internal blood flow **(C)**. Post-contrast coronal reconstructed CT scan shows about 7 cm, elongated tubular shaped mass, located between the left thyroid and CCA, and extends from the upper pole level of the left thyroid to the superior mediastinum **(D)**. Several enhancing vascular structures (arrow) are noted in the mass **(D)**.
Note.—CCA = common carotid artery, M = mass, T = thyroid

week of fetal life, the thymus descends to its location in the superior mediastinum. It travels from the pyriform sinus through the thyrohyoid membrane, between CCA and vagus nerve, and inferior-lateral to the thyroid gland (2). ACT is located along the normal pathway of descent of the thymus. The ectopic thymic tissue is positioned in any other location, such as pharynx, trachea, and posterior neck (2). A recent literature revealed that the midline lower cervical region, which was reported as one of the common locations for the ACT (4, 5), was a normal anatomic location for the thymus, especially, in the pediatric age and young adults (6). In our case, ACT had direct continuity to the mediastinal thymus; however, it extended to the upper pole of the left thyroid. This cephalad extension is beyond the normal variation of the superior extension. The location of our case is relatively unique. According to the previous reports (2, 3, 7), ACT descends inferiorly between CCA and vagus nerve. In our case, ACT descends more medially between the left thyroid and CCA. There was only one case which had similar location to our case (8). This location may be the possible route for the descent of the thymus.

Previous reports have discussed the importance of recognizing ACT in a differential diagnosis of pediatric neck masses, such as cervical lymphadenopathy, branchial anomalies, vascular malformations, inflammatory lesions and neoplasms (5). ACT can be cystic, solid, or mixed; however, most ACT lesions are cystic and more frequently found in the lateral neck than in the midline (2). Cystic ACT cases were usually molded by or invaginated to the adjacent tissue space, and could extend toward more than one cervical space (1, 3). The wall or solid components were enhanced by using the contrast agent on CT or MRI (1, 3). Solid ectopic thymus had relatively iso-echogenicity, compared to that of the muscle, and internal linear or dot-like echogenic structures on ultrasonography. Doppler studies could revealed internal blood flow (4, 8, 9). In our case, ACT was found at relatively old age, and a solid lesion mimicked the thyroid gland. The lesion in our case was molded between the left thyroid and CCA, and had similar echogenicity to the thyroid parenchyma without remarkable interface echo. Therefore, it might be confused as a part of the thyroid if there was no visible continuity to the mediastinal thymus. Solid ACT only constitutes 10% of all ectopic thymus. Neoplasms have been reported in solid ACT, and should be removed (1, 3, 10). In our case, the cervical portion was removed with the thyroid gland and mediastinal thymus was left.

In conclusion, this report outlines the unusual manifestation of ACT. ACT can be found between the left thyroid and CCA. ACT can have similar echogenicity to the thyroid and mimic the thyroid on ultrasonography.

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초음파상 갑상선과 유사한 소견으로 보이는 이소성 경부흉선: 증례 보고[1]

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이소성 경부흉선은 성인에게서 드물게 보고되는 질환이다. 우리는 27세 여성에게서 갑상선 종양 평가를 위한 경부 초음파상 우연히 발견된 고형의 이소성 경부흉선의 증례를 보고한다. 초음파상 이 병변은 갑상선과 계면 에코를 보이지 않고, 갑상선과 비슷한 정도의 에코로 좌측 갑상선과 총경동맥 사이에서 발견되었다. 이 병변은 좌측 갑상선의 상극까지 뻗어 있었다.

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