Ectopic Multinodular Goiter: Multidetector Computed Tomography Findings

Ektopik Multinodüler Guatrın Çok Kesitli Bilgisayarlı Tomografi Bulguları

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Abstract

The thyroid is the first endocrine gland to form during embryogenesis. At this stage, incomplete or anomalous migration of thyroid tissue causes ectopic localization of the gland. In our case, a 55-year-old woman who was evaluated via ultrasonography (USG) and multidetector computed tomography (MDCT) had no thyroid gland at the normal location, but did have ectopic thyroid tissue in the left submandibular and submental regions.

Keywords: Ectopic thyroid, Multidetector computed tomography, Goiter

Özet

Tiroid bezi embriyogenez esnasında ilk oluşan endokrin bezdir. Bu gelişim sürecinde bezin migrasyonunu tamamlayamaması ya da anormal bir şekilde tamamlaması bezin ektopik yerleşimine neden olur. Bizim vakamızda 55 yaşında bayan hasta ultrasonografi (USG) ve çok kesitli bilgisayarlı tomografi (ÇKBT) ile değerlendirilmiş ve yapılan çalışmalarda tiroidin normal lokalizasyonunda olmamakla birlikte submandibular ve submental bölgede ektopik yerleşim gösterdiği tespit edilmiştir.

Anahtar Kelimeler: Ektopik tiroid, Çok kesitli bilgisayarlı tomografi, Guatr
Introduction

The thyroid is the first endocrine gland to form during embryogenesis [1]. At embryonic week 7, the thyroid anlage descends to the level of second and third tracheal cartilages and fuses with the lateral ultimobranchial bodies [2,3]. Ectopic thyroid tissue is a rarity that likely results from aberrant migration or developmental defects [1]. Ectopic thyroid tissue can be found at any location along the migration path from the foramen cecum to the mediastium, with or without a coexisting normally-located thyroid gland [4]. Ectopic thyroid tissue can be identified via computed tomography, ultrasonography or scintigraphy. In our case, we report MDCT findings of left submandibular and submental ectopic thyroid gland.

Case Report

A 55-year-old woman was seen with a bilateral upper lateral neck mass in the submental and left submandibular area that had been present for approximately 10 years. She denied any history of trauma. An elastic, immobile, painless mass of dimensions 5 x 3 cm was detected upon physical examination. In addition, thyroid hormone profiles, including TSH and free T4, were normal. USG showed a soft lobulated mass containing multiple nodules that was approximately 5 x 3 cm in size in the left submandibular and submental regions. Additionally, the thyroid gland was absent at the normal location. We performed contrast-enhanced MDCT after USG examination and found no thyroid tissue in the normal location and an extensive enhancing density with similar attenuation properties to that of soft tissue. Multiple nodules with the same density were visualized. These findings were interpreted to represent ectopic thyroid tissue with nodular goiter (Figures 1,2). In addition there were no lymphadenopathies, vascular lesions or signs of compression that might be associated with the mass.

Thyroid ultrasound-guided fine-needle aspiration cytology of the mass demonstrated an adenomatous goiter.

Discussion

Ectopic thyroid tissue may be found anywhere along its embryological path of descent [5]. The thyroid primordium originates from the posterior floor of embryonic pharynx during the fourth week of embryonic development. Eventually, the gland anlage descends through the tongue into the neck, passing anteriorly to the hyoid bone and thyroid cartilage to reach its final position anterolaterally to the superior part of the trachea in the seventh week of embryonic development. During its migration, the thyroid gland is attached to the foramen cecum via a narrow tube called the thyroglossal duct. This duct is normally obliterated and finally disappears. Ectopic thyroid tissue is defined as thyroid tissue that is not located anterolaterally to the second through fourth tracheal cartilages [1]. Ectopic thyroid is usually found along the normal path of descent (lingual and sublingual or prelaryngeal and intralaryngeal thyroid), but ectopic tissue has also been found in non-midline sites such as an intratracheal location, submandibular region, aortic wall, intrathymic sites, the retropharyngeal region, intracardiac sites, in the esophagus and in the abdomen.
Three primary entities are found during the differential diagnosis of patients presenting with neck masses: inflammatory diseases, benign neck masses, and malignancies [1]. The treatment of ectopic thyroid depends on the location, size and presence of symptoms or complications [7]. Therefore, accurate diagnosis greatly reduces post-treatment complications.

Many diagnostic tools can be used in the diagnosis of ectopic thyroid tissue, including USG, scintigraphy and CT. USG is an operator-dependent tool and has sensitivity limitations in some areas. Scintigraphy is a radioactive technique, and it is also difficult to determine the precise location of thyroid tissue with scintigraphy because of the poor spatial resolution and the lack of other comparable tissues in the image. This technique based on the affinity of gland for iodine. Thus, reliable images can be acquired using iodine contrast solutions. However, use of this technique is limited because it only provides single-planar images [8].

Contrast-enhanced MDCT is more reliable than USG, CT or scintigraphy since it is not an operator-dependent or invasive method. It also provides multi-planar and three-dimensional images and has high spatial and temporal resolution [8].

In conclusion, we described the occurrence of ectopic left submental and submandibular thyroid, which is a rare condition. When the thyroid gland is absent at its normal location, contrast-enhanced MDCT is a reliable tool for detecting ectopic gland since it has high spatial and temporal resolution and the thyroid gland has a high affinity for iodine-based contrast media.

Conflict interest statement The authors declare that they have no conflict of interest to the publication of this article.

References