Case Report
JCAM

Giant Thyroid Nodule Atypically Located in The Carotid Triangle of The Neck: A Case Report

Boyun Karotid Üçgende Atipik Yerleşim Gösteren Dev Tiroid Nodülü: Bir Olgu Sunumu

Thyroid Nodule in the Carotid Triangle

Güçlü Kaan Beriat, Hande Ezerarslan, Sinan Kocatürk, Şefik Halit Akmansu
Kulak Burun Boğaz ABD, Ufuk Üniversitesi Tıp Fakültesi Dr. Rıdvan Ege Hastanesi, Ankara, Türkiye

Özet

Ektopik tiroid dokusu tiroid dokusunun anormal migrasyonuyla oluşan nadir görülen bir tiroid patolojisidir. Yaklaşık olarak 100,000-300,000 doğumda bir görülür ve genellikle asemptomatiktir. Tiroid doku hiperplazisine bağlı olarak, asemptomatik ektopik tiroid dokusu büyüyerek boyun kitlesi şeklinde semptomatik hale gelebilir. Trakea önündeki normal lokalizasyonu dışında tiroid bezi, dil kökü ile trakea arasında genellikle orta hatta herhangi bir seviyede görülebilir. 71 yaşında erkek hasta, boyun sağ tarafında, sağ karotid üçgende 5x4x3 cm boyutlarında kitle ile kulak burun boğaz polikliniğimize başvurdu. Yapılan ince iğne aspirasyon biyopsisi sonucu tiroid dokusu olarak rapor edildi ve takiben kitle genel anestezi altında eksize edildi. Yapılan patolojik değerlendirmesi sonucunda kitlenin atipik olarak yerleşim gösteren ektopik yerleşimli tiroid nodülü olduğu anlaşıldı. Hastanın yapılan bir yıllık takibinde herhangi bir komplikasyonla karşılaşılmadı.

Anahtar Kelimeler

Ektopik Tiroid Dokusu; Karotid Üçgen; Tiroid Nodülü

Abstract

Ectopic thyroid tissue is a rare pathology of the thyroid that is formed by the abnormal migration of the thyroid tissue. It is seen once in about every 100.000 to 300.000 births and is generally asymptomatic. Asymptomatic ectopic thyroid tissue may grow larger and become symptomatic in the form of a neck mass due to thyroid tissue hyperplasia. The thyroid gland, apart from its normal localization before the trachea, may lie between the tongue root and the trachea generally on the middle line at any level. A 71-year-old male patient presented to our ear- nose and throat clinic with a mass of 5x4x3 cm located in the right carotid triangle. The thin-needle aspiration biopsy specimen was reported as thyroid tissue and subsequently the mass was excised under general anesthesia. The histopathological evaluation of the mass revealed that it was an atypically located ectopic thyroid nodule. No complications were seen within one year follow-up of the patient.

Keywords

Ectopic Thyroid Tissue; Carotid Triangle; Thyroid Nodule

DOI: 10.4328/JCAM.586 Received: 17.01.2011 Accepted: 02.03.2011 Printed: 01.05.2016 J Clin Anal Med 2016;7(3): 403-405
Corresponding Author: Güçlü Kaan Beriat, Ufuk Üniversitesi Tıp Fakültesi Dr. Rıdvan Ege Hastanesi Kulak Burun Boğaz Anabilimdalı, Balgat, 06520, Ankara, Türkiye.
T.: +90 3122044175 F.: +90 3122847786 E-Mail: beriat4@gmail.com

Introduction

The embryologic development of the thyroid gland begins on the 24th day of fetal life as an epithelial proliferation at the foramen cecum. The thyroid tissue reaches its final position before the trachea during the 7th week of fetal life [1, 2].

Ectopic thyroid tissue (ETT) is a rare congenital anomaly and is generally asymptomatic. Its prevalence is about 1/100.000-1/300.000 [1].

ETT develops as a result of the incomplete migration of the thyroid gland and is generally located between the tongue root and the trachea mostly on the mid-line (90% of the cases) although it is sometimes found in various other localizations on the neck [3].

In this case report, we present a patient with an ectopic thyroid nodule located in the carotid triangle of the neck.

Case Report

A 71-year-old male patient presented to our polyclinic with complaint of a mass that was present on the right half of his neck for the last twenty years and which gradually grew within the last three months. The patient had underwent total thyroidectomy because of multinodular goiter about thirty years ago at a different health center. The physical examination revealed a mass of 5x3 cm on the right side of the neck located on the anterior border of the upper 1/3rd sternocleidomastoid muscle. The mass had smooth borders, was semi-mobile and had a hard texture (Figure 1).

Within the scope of the pre- diagnosis the patient was thought to have a mass of unknown primary in the neck and no pathological findings were seen in his pan-endoscopy. Neck ultrasonography (USG) revealed a solid lesion of about 5x4x3 cm with smooth borders that was homogenous and lobulated in the upper right jugular region inferior to the right submandibular gland. Color Doppler USG reported that the vascularity in this region was very distinct and was equivalent to thyroid tissue. For a differential diagnosis of aberrant thyroid tissue, the patient was subjected to thyroid scintigraphy. Thyroid scintigraphy with 5mCi Tc-99 mm pertechnetate showed no involvement in the normal localization of the thyroid gland and reported an amorphous, intensively radioactive activity consistent with thyroid tissue in the upper right jugular localization (Figure 2). The patient's preoperative thyroid hormones and their biochemical values were within normal limits.

Thin-needle aspiration biopsy was performed in order to help preoperative diagnosis and its result revealed intensive colloid and mostly isolated rare thyrocid groups (Figure 3).

The patient's ectopic thyroid tissue was totally excised by dissecting it from the surrounding tissues under general anesthesia (Figure 4, 5).

No complications were seen postoperatively and the histopathology results indicated nodular goiter rich in colloid, showing different sizes, with follicles containing single file epithelium, and displaying no findings in favor of malignancy (Figure 6). Taking into consideration the possibility of postoperative hypothyroidism, the patient was administered thyroxin treatment by the department of endocrinology and metabolic diseases and was followed-up.

Discussion

Abnormalities in the embryologic development and migration of the thyroid gland may result in ETT. ETT can be seen at any localization on the middle neck line, from the tongue root to the mediastinum [4- 6]. Its prevalence is approximately 1/100.000-1/300.000. This rate is 1/4000-1/8000 for those suffering from a thyroid disease [1].

ETT is a rare thyroid pathology. It is more frequently seen in the female population than the male and it generally has an asymptomatic course [7]. However, dysphagia, dysphonia, dyspnea, cardiac failure, and bleeding can be seen based on the localization of the gland [4-6]. Further, it has been reported to exert pressure on the surrounding tissues and to display malignant degeneration [4, 8].

Asymptomatic ETT may become symptomatic specifically during puberty and pregnancy, depending on the increase in the thyroid stimulating hormone (TSH) level and the hyperplasia of the thyroid tissue [4]. ETT is generally hypoactive, it rarely becomes hyperactive. The thyroid mass presented in our case, had hyperplasia with an increased TSH level following total thyroidectomy, possibly assuming the hormonal task of the excised thyroid tissue.



Figure 1. 5x4x3 cm mass on the right side of the neck located anterior to the upper 1/3 of the sternocleidomastoid muscle, over digastric muscle's back belly.

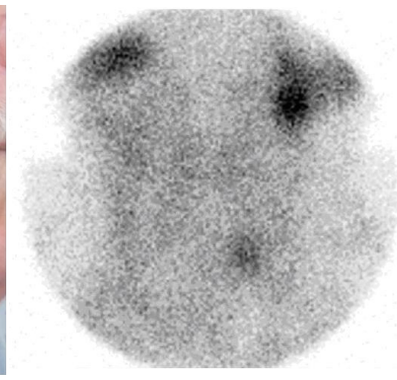


Figure 2. Thyroid scintigraphy; activity involvement displaying an amorphous, intensively radioactive thyroid tissue in the upper right cervical region.

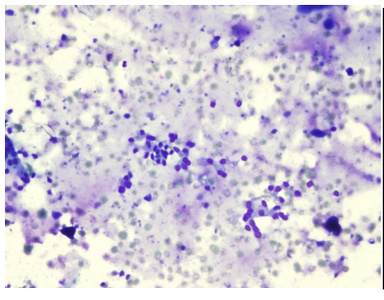


Figure 3. Tyrocid clusters, single or in groups, looking benign on a colloid base (Giemsa x40).



Figure 4. Intraoperative image of the dissection area following the excision of the mass.

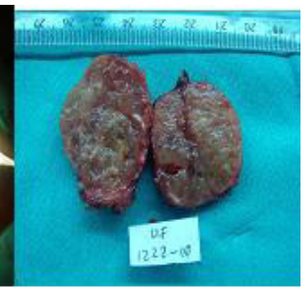


Figure 5. Complete and half macroscopic images of the excised thyroid nodule.

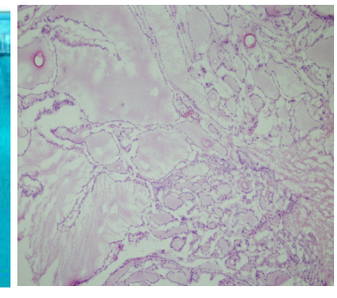


Figure 6. Thyroid follicules in different sizes. (H&E, x10)

ETT can even be seen in the mediastinal, intracardiac, gastrointestinal tract, and intraperitoneal localizations besides along the normal migration route of the thyroid [2, 4]. ETT is mostly found in the sublingual position (90%). Our case with aberrant thyroid tissue is one of the rare cases in literature with its atypical place in the right carotid triangle.

The etiology of ETT is not wholly known but it is argued that gene mutations might have an effect on it [4]. The mutation of "thyroid transcription factor 2" (TTF-2) is found to be related to thyroid agenesis, the mutation of the "Pax 8 gene" to the various forms of thyroid dysgenesis, and the gene mutation of TTF-1 to thyroid agenesis or dysgenesis. These gene mutations also give way to ectopic migration [4].

Seventy percent of ETT cases contain only the thyroid tissue, whereas others also house different cell groups in their surroundings. All diseases of the thyroid gland present in the thyroid tissue in its normal localization can also be seen in the ectopic thyroid tissue [6].

USG, scintigraphy, computerized tomography (CT), and magnetic resonance imaging (MRI) are radiological methods that can be used in the diagnosis. Thyroid scintigraphy is both a sensitive and a specific method in determining whether the thyroid is in its normal location or not. Scintigraphy is a valuable method in the differential diagnosis of ETT from other mid-line cervical masses such as thyroglossal duct cysts, lipoma, epidermoid cysts, lingual thyroid, etc. [1]. Thyroid scintigraphy enabled us to reach a differential diagnosis concerning other lesions that might be present in this region by showing that the mass, which was not on the mid-line, was thyroid tissue. USG, CT, and MRI are also useful in diagnosis but they are methods that have low levels of sensitivity and specifity. These methods are more valuable in the determination of the detailed localization and surroundings of masses.

ETT settled in lymph nodes and localized in the lateral neck region is very rare and many authors see it as the metastasis of papillary thyroid carcinoma. It was reported that 0.3-1.6 % of neck dissection material of cases operated for head-neck cancer, coincidentally contained thyroid tissue [9]. In our case, pathological evaluation revealed no lymph tissue and malignancy. On the contrary, a whole thyroid nodule with smooth borders was reported.

The treatment of ETT is either medical treatment (thyroid hormone suppression treatment) or surgical excision [1]. Therapeutic method is chosen depending on the size of the lesion, symptoms of local pressure, patient's age, presence of the thyroid gland and degeneration in the thyroid tissue (e.g. ulceration, hemorrhage, and cystic degeneration), suspicion or presence of malignancy, and the functional situation of the tissue.

If the ETT is the only thyroid tissue and if this tissue has a normal function and is small and asymptomatic, the patient can be followed-up without any treatment or it can be repressed through the external introduction of thyroid hormone [9]. The mass can be reduced in size slowly but distinctively by radioactive iodine treatment. Through this therapy the volume can be reduced by 30-50 % in 4 to 6 months [3]. This treatment, however, does not guarantee success and ablation with radioactive iodine is not appropriate for young patients [7].

Surgical treatment can be selected if there is pressure to surrounding tissues and organs or obstructive symptoms, if the patient is nonresponsive to radioactive iodine treatment, if there is a suspicion or presence of malignancy, or if the patient prefers surgery [1]. Moreover, surgical treatment is a therapeutic modality which is rapid, practical, and has low morbidity rates; and it also offers histological definitive diagnosis [3]. The disadvantage of surgical treatment is the possibility of long term thyroid hormone replacement in patients because of postoperative permanent hypothyroidism. Therefore, patients should be tested in regard to postoperative thyroid functions and hormonal replacement treatment for regulation when necessary [3].

It is seen that in literature some authors suggest medical treatment even if there are no suspicion of malignancy and serious clinical symptoms. On the other hand, other authors suggest the excision of the thyroid tissue in the selection of treatment method regardless of the presence of normal thyroid tissue [1]. In the latter suggested method the patient's condition improves and the possibility of a future development of malignant degeneration is eliminated. The fact that the lesion was large, the patient was old and the fact that the patient informed us about an enlargement in the last three months made us conclude that the risk of malignancy may be high. Besides, the insistence of the patient to get the mass surgically removed and the fact that he was living in a rural and remote area again made us move away from the option of medical treatment that would take a long time and would necessitate careful follow-up.

It should be remembered that thyroid tissue can rarely be seen outside its normal localization and it should definitely be taken into consideration in the differential diagnosis. It should also be noted that, although it is rare and is most of the time a benign anomaly, ETT may cause serious problems based on its local mass effect and potency for malignant degeneration.

Competing interests

The authors declare that they have no competing interests.

References

1. Chawla M, Kumar R, Malhotra A. Dual ectopic thyroid: case series and review of the literature. Clin Nucl Med. 2007;32:1.
2. Rinkel RN, Manni JJ, van der Beek JM. Ectopic thyroid tissue manifesting as a unique cause of an oropharyngeal mass. Otolaryngol Head Neck Surg. 2001 ;124:340
3. Zieren J, Paul M, Scharfenberg M, Menenakos C. Submandibular Ectopic Thyroid Gland. J Craniofac Surg. 2006 ;17:1194
4. Maino K, Skelton H, Yeager J, Smith KJ. Benign ectopic thyroid tissue in a cutaneous location: a case report and review. J Cutan Pathol. 2004:31:195.
5. Rao PN, Pandit N, Kumar R, Upadhya IV, Vidya Sagar MS. Ectopic Functioning thyroid in the thyroglossal duct detected by radionuclide ımagıng. Clin Nucl Med. 2005;30:630.
6. Kumar R, Sharma S, Marwah A, Moorthy D, Dhanwal D, Malhotra A. Ectopic goiter masquerading as submandibular gland swelling. Clin Nucl Med. 2001;26:306.
7. Gallo A, Leonetti F, Torri E, Manciocco V, Simonelli M, DeVincentiis M. Ectopic lingual thyroid as unusual cause of severe dysphagia. Dysphagia. 2001; 16:220.
8. Shah BC, Ravichand CS, Juluri S, Agarwal A, Pramesh CS, Mistry RC. Ectopic thyroid cancer. Ann Thorac Cardiovasc Surg. 2007;13:122.
9. Leon X, Sancho FJ, Garcia J, Sanudo JR, Orus C, Quer M. Incidence and significance of clinically unsuspected thyroid tissue in lymph nodes found during neck dissection in head and neck carcinoma patients. Laryngoscope 2005;115:470.
10. Thomas G, Hoilat R, Daniels J. S, Kalagie W. Ectopic lingual thyroid: A case report. Int J Oral Maxillofac Surg. 2003;32:219.