



# Paramedian Ectopic Thyroid Gland and Unusual Origin of Superior Thyroid Artery-A Case Report and Review of Literature

CASE REPORT

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## ABSTRACT

Ectopic thyroid is considered as one of the developmental anomalies of the thyroid gland. It is usually found in the midline, along the line of descent of thyroid diverticulum. Ectopic thyroid is very rarely found in the lateral part of the neck. During the routine dissection classes for undergraduate medical students, we came across the presence of a laterally placed ectopic thyroid gland. An oval-shaped mass of thyroid tissue was situated on the left side of the neck. It was located superficial to the inferior constrictor muscle, close to its origin from the oblique line of the thyroid cartilage. It was supplied by a branch of superior thyroid artery. Superior thyroid artery arose from the common carotid artery just before its bifurcation into external and internal carotid arteries.

**Keywords:** Thyroid gland, accessory thyroid gland, superior thyroid artery, neck surgery

## INTRODUCTION

The thyroid gland is the first endocrine gland to develop and start functioning in the body. Its early development is required for the normal development and growth of the body systems. However, there are a few anomalies related to the development of the thyroid gland. Some of them go unnoticed throughout the life and a few others cause functional disturbance or surgical complications. Lingual thyroid, sublingual thyroid, suprahyoid thyroid, and mediastinal thyroid are well-known cases related to the developmental errors of the thyroid (1-3). Most of the thyroid anomalies, whether positional or morphological, are situated in the midline of the neck and move during deglutition. Knowledge of thyroid anomalies is very useful in diagnostic, therapeutic, and surgical procedures. We observed an accessory thyroid gland and an unusual origin of superior thyroid artery (STA) during our dissection classes. We discuss the embryological and clinical importance of the case in this article.

## CASE REPORT

During regular dissection classes for undergraduate medical students, we came across the presence of ectopic thyroid gland in an adult male cadaver aged approximately 70 years. The body was donated to the anatomy department for teaching and research purpose. We do not have the history of any disease when the person was alive. The neck was dissected using scalpel and forceps. The skin and the muscles covering the thyroid gland were cleared. An oval-shaped mass of thyroid tissue was situated on the left side of the neck. It was located superficial to the inferior constrictor muscle, close to its origin from the oblique line of the thyroid cartilage. It was positioned about 2 cm above the level of the upper pole of the left lobe of the thyroid gland. It was enclosed by deep fascia and was measuring about 2.4 cm in length, 1.9 cm in breadth, and 0.6 cm in thickness. STA arose from the common carotid artery just before its bifurcation into external and internal carotid arteries. It coursed medially and reached the upper pole of the lobe of the thyroid gland. During its course, STA gave a branch to supply the ectopic thyroid mass. This branch entered the ectopic thyroid mass from its lower pole. The thyroid gland was located in the normal pretracheal position and presented two lobes and an isthmus (Figure 1, 2). There was no ectopic thyroid tissue on the right side.

## DISCUSSION

The thyroid gland develops from the endodermal thyroid diverticulum that descends from the floor of the developing pharynx, in the third or fourth week of gestation. The tongue also develops from the floor of the primitive pharynx. The thyroid diverticulum descends along the midline of the neck from the foramen cecum of the tongue till its final pretracheal destination. The distal part of the diverticulum forms the thyroid gland, and the proximal part of the diverticulum (thyroglossal duct) disappears. However, in some cases, the thyroglossal duct fails to degener-

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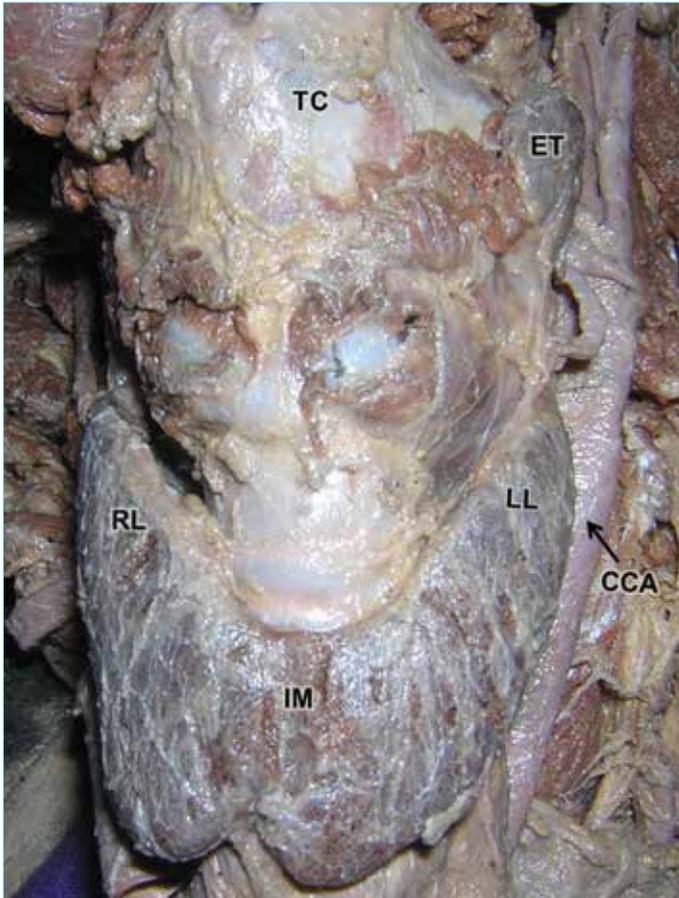
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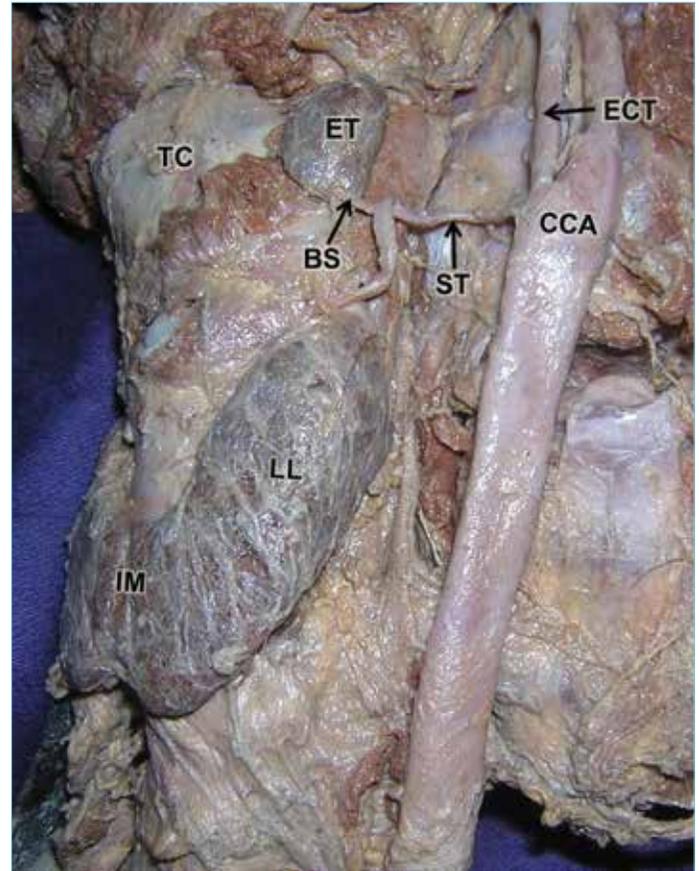


**Figure 1.** Dissection of neck showing the thyroid gland and ectopic thyroid (ET) tissue

CCA: common carotid artery; IM: isthmus of the thyroid gland; LL: left lobe of the thyroid gland; RL: right lobe of the thyroid gland; TC: thyroid cartilage

ate completely, leaving behind the ectopic thyroid tissue above the level of cricoid cartilage (1). Clinically, ectopic thyroid tissue is seen in about 1 per 100,000 to 300,000 people. However, its prevalence ranges from 7% to 10% in autopsy studies. Its incidence is more common in females and in people of Asian origin (1). One of the expected sites of ectopic thyroid tissue is the tongue. Rarely, the accessory thyroid tissue can be found at the foramen caecum of the tongue (2). It might result in speech problem. Some other documented sites of median ectopic thyroid include the mediastinal, intracardiac, and intrathymic. Most of such cases are accidentally discovered (3-6).

Classically, the ectopic thyroid tissue can be found along the line of descent of thyroid in the median plane. However, as in the current case, the ectopic thyroid may be located in the lateral plane also. The exact mechanism and cause for laterally placed ectopic thyroid have not been clearly understood yet. Laterally placed ectopic thyroid might surprise any radiologist or surgeon because of its unexpected location and the presence of lymph nodes along the carotid sheath. The accessory mass might be mistaken for an enlarged lymph node. According to literature, most of the cases of laterally placed ectopic thyroids have been mentioned as accidental findings in various radiological procedures. Many of them have led to misinterpretations and misdiagnosis because of the unexpected positions. Takemoto et al. (7) had reported a case of lateral ectopic



**Figure 2.** Dissection of neck showing the thyroid gland and ectopic thyroid (ET) tissue

CCA: common carotid artery; BS: branch of STA; ECA: external carotid artery; IM: isthmus of the thyroid gland; LL: left lobe of the thyroid gland; TC: thyroid cartilage

thyroid situated on the lower part of the right side of the neck. It produced tumor-like images in the radiograph. Many of the ectopic (accessory) thyroids that during the fine-needle aspiration cytology (FNAC) technique had earlier been diagnosed as normal have now been diagnosed as malignant in histopathology (8). Hence, the ectopic thyroid tissue is likely to form tumors. Choi and Kim (9) had reported a case of ectopic thyroid of lateral neck, masquerading as a metastatic papillary thyroid carcinoma. Other sites of laterally placed ectopic thyroid include submandibular, parapharyngeal, and at the carotid bifurcation (10). The parapharyngeal thyroid may produce dysphagia, cough, or dyspnea, and when it is at carotid bifurcation, it may be misdiagnosed as a carotid body tumor. The current case is a little different than the earlier reported cases. In our case, the ectopic thyroid was situated close to the thyroid cartilage. It was supplied by a branch of STA. The STA is usually a branch of the external carotid artery. But in the current case, it had an unusually low origin from the upper part of the common carotid artery. STA arises from the common carotid artery in about 13% of cases. This is usually associated with the higher level bifurcation of the common carotid artery.

## CONCLUSION

The current case may be of importance to the radiologists and neck surgeons, as the ectopic thyroid was close to the lateral part

of the thyroid cartilage. Because it was closely related to the carotid sheath, it can be mistaken for a deep cervical lymph node. Functionally, this tissue might press the larynx or pharynx, resulting in a foreign body feeling, dysphagia, dyspnea, or dysphonia.

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