Hypoglandularis Levator Glandulae Thyroideae with Pyramidal Lobe Agenesis

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Abstract: **Thyroid gland is situated on the anterior aspect of the lower half of the neck region extending from C5-T1 vertebrae level. Congenital anomalies of the thyroid gland are the most common among all the endocrine glands. Agenesis during the organogenesis is a well-established presentation but all the research studies reported some differences in their observation. To prevent the iatrogenic injuries to the thyroid gland it carries immense importance to know about such variations. In our study, we have reported the morphology of the levator glandulae thyroideae along with its vascularisation which is a rare variation to be reported.**

***Key Words*: levator glandulae thyroideae, pyramidal lobe, hypoglandularis**

INTRODUCTION

Thyroid gland is mainly located on the lower half of the anterior aspect of neck. It shapes like a butterfly with two lateral lobes and one connecting isthmus, as a result it resembles like the letter H. the extend of the gland is from C5 to T1. The gland is closely related to important structures of neck region. Thyroid gland is known for its embryological defects. Sometimes it presents as an accessory pyramidal lobe which is attached to the upper border of isthmus by its base and extends to the hyoid bone through its apex by a fibrous band which is the remnant of thyroglossal duct. Sometimes it presents as muscle fibres forming the fibromuscular band named as levator glandulae thyroideae. Function of the levator glandulae thyroideae is to elevate the thyroid gland. Now presence of such variation may lead to the changes in the vascularisation in the region and also in the innervation. This may lead to iatrogenic injuries during the surgical, diagnostic and therapeutic procedures.

FINDINGS

During the routine dissection of the neck as a part of teaching curriculum, we found this variation in one cadaver among 10 dissected cadaver. We followed all the steps of Cunningham's Practical Manual of Anatomy, we reflected the skin, superficial fascia containing the platysma muscle, anterior jugular vein, the strap muscles of neck which were arranged as sternohyoid and superior belly of omohyoid on the superficial plane and sternothyroid in the deeper plane. Once we reflected the muscles, we found the thyroid gland intact, here it presented as two lateral lobes which are connected by isthmus but the pyramidal lobe is absent. There we found a long fibromuscular band extending from the upper border of the left lateral lobe and adjoining isthmus to the lower border of hyoid bone. The whole extent is the same in diameter covered by fascia. In addition, it has received its arterial supply from the left side and from the left superior thyroid artery. The band did not receive any nerve supply.

PICTURES:

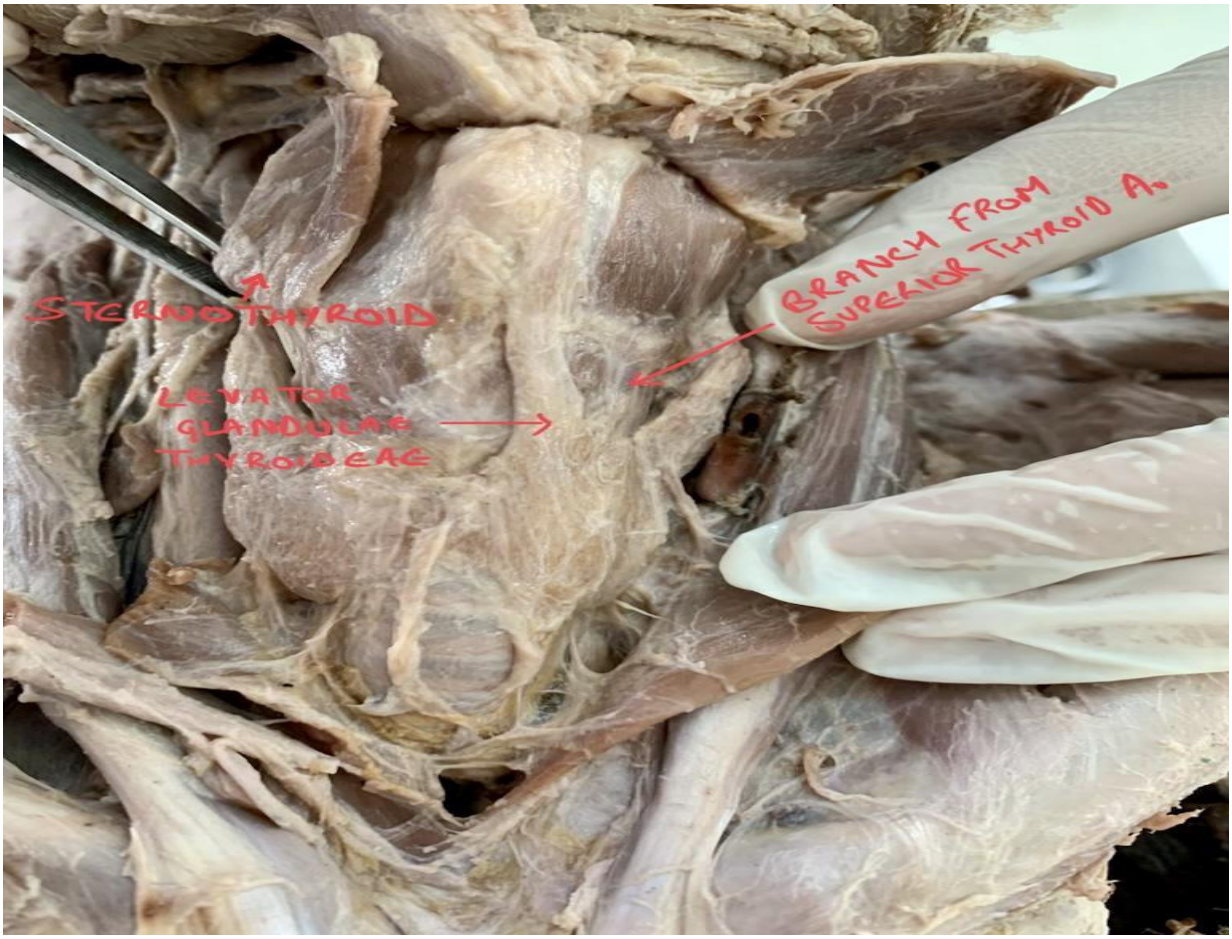

FIGURE 1: showing the levator glandulae thyroideae supplied by superior thyroid artery

FIGURE 2: showing the strap muscles

FIGURE 3: showing the cricothyroid muscle

DISCUSSION

The organogenesis of thyroid gland shows different variations. During the 4th week of development, we know that the thyroid gland first appears as midline thickening. It is soon converted into a cord-like structure. It is located in between the tuberculum impar and copula. This is named as thyroglossal duct. After that, the lower end of the thyroglossal duct gets bifurcated and ultimately forms the two lobes which get connected by the isthmus. Then the upper end gets degenerated. Sometimes the thyroglossal duct remains as thyroglossal cysts. Anomalies of thyroglossal cyst is well documented but agenesis of thyroid gland or isthmus is a rare anomaly.

In this current study, we found that the levator glandulae thyroideae is extending from the junction of isthmus and left lateral lobe. There was absence of pyramidal lobe and most importantly, the arterial supply from the left superior thyroid artery which is not reported so far. Mori has classified the different types of levator glandulae thyroideae. There are 5 types:

A} Hypopyramidalis
B} Thyreopyramidalis
C} Thyreoglandularis
D} Hypoglandularis
E} Tracheoglandularis

So, in this study we report the Hypoglandularis type of levator glandulae thyroideae. Thyroid gland shows extreme variations. The morphology of such variation is the representation of the remnant of the thyroglossal duct. Very few cases are reported as the absence of pyramidal lobe and origin of the levator glandulae thyroideae from the upper border of isthmus.

In a study by Susan P J et al (2009) reported agenesis of isthmus with persistence of lateral lobes along with pyramidal lobes on each lateral lobes which were connected by two levator glandulae thyroideae but they did not report any separate blood supply.

Gunapriya R et al (2010) reported a case of levator glandulae thyroideae on the right side with absence

pyramidal lobe but they reported thyreoglandularis type.

Chaudhary P et al (2013) reported the similar case as our finding but they did not report the arterial supply.

Sinha MB et al (2014) reported the levator glandulae thyroideae from the right lobe with hypoplasia of left lobe of thyroid gland.

Pacifico FA et al (2019) reported a case where two muscle bundles arose from the hyoid bone to cricoid cartilage and another one hyoid bone to the pyramidal lobe to the right side.

Such kind of variation carries importance for the head neck surgeries and also for some therapeutic, diagnostic procedures. Knowledge of such variation will help the surgeons to prevent iatrogenic injuries. Here it showed the arterial supply is separate for the levator glandulae thyroideae which is not reported yet. And we report the agenesis of the pyramidal lobe in this case.

CONFLICTS

No conflicts of the study reported by the authors.

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