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RESEARCH ARTICLE

AGENESIS OF ISTHMUS OF THYROID GLAND IN A MALE CADAVER

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ABSTRACT

Introduction: Thyroid gland, brownish red and highly vascular endocrine gland, is placed anteriorly in the neck, extending from 5th cervical to 2nd thoracic vertebra. In present case the isthmus of thyroid gland was absent. It's a developmental anomaly of thyroid gland. **Observations**: The two lobes of thyroid gland were separate from each other. There was agenesis of thyroid isthmus. **Discussion:** The agenesis of thyroid isthmus is the complete and congenital absence of the thyroid isthmus. The absence of isthmus can be associated with other types of dysorganogenesis, such as the absence of a lobe or the presence of ectopic thyroid tissue autonomous thyroid nodule ; thyroiditis; primary carcinoma; neoplastic metastases; and infiltrative diseases such as amyloidosis Knowledge regarding thyroid anomalies as agenesis of isthmus of thyroid gland can help the surgeon for surgical interventions.

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INTRODUCTION

Thyroid gland, brownish red and highly vascular endocrine gland, is placed anteriorly in the neck, extending from 5th cervical to 2nd thoracic vertebra. The gland is composed of two lateral lobes connected by isthmus. The normal size of each lobe of the thyroid gland has been described to be 5cm long, its transverse and antero-posterior extent are 3cm and 2cm respectively. The isthmus measures about 1.25cm transversly as well as vertically and is located anterior to 2nd and 3rd tracheal cartilages (Standring, 2005). A conical pyramidal lobe ascends towards the hyoid bone from the isthmus. Levator glandulae thyroidea descends from the body of the hyoid bone to isthmus (Jamuna, 2013). In present case the isthmus of thyroid gland was absent in a male cadaver. The two lobes of thyroid gland were separate from each other. This is a developmental anomaly of thyroid gland. The knowledge of various developmental anomalies of thyroid gland can help the surgeon to plan for safe surgeries.

Observations: Dimensions of each lobe of thyroid gland: measured with Vernier caliper

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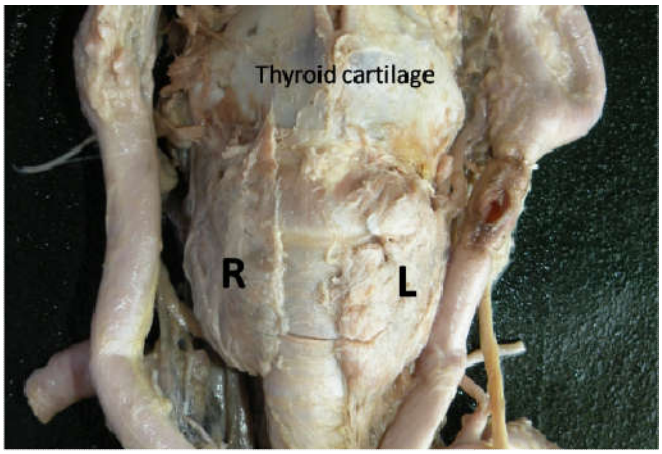
DISSCUSSION

The agenesis of thyroid isthmus is the complete and congenital absence of the thyroid isthmus. It can be explained on the basis of development of thyroid gland (Pastor Vazquez, 2006). The thyroid gland develops from thyroglossal duct. The thyroglossal duct arises from the endodermic epithelium of primitive pharynx, at the level of 2nd and 3rd pharyngeal arch, when it descends down, its lower end divides and gives rise to thyroid lobes and isthmus. At the same time the upper end of the thyroglossal duct degenerates (Moore Persaud, 2003). Rarely a high separation of thyroglossal duct can lead to formation of two thyroid lobes and pyramidal lobes with absence of isthmus (Sgalitzer, 1941). In present case the pyramidal lobe is also absent. The etiology of agenesis of thyroid gland or isthmus is not clearly known and most of the isthmus agenesis is sporadic familial or genetic predisposition (Tonacchera et al., 2007). The mutation in genes responsible for the development of thyroid may be associated with isthmus agenesis, especially TITF-2 genes and chromosome 22 (Omer Faruk Ozkan et al., 2013). The absence of isthmus can be associated with other types of dysorganogenesis, such as the absence of a lobe or the presence of ectopic thyroid tissue (Duh et al., 1994). In present case ectopic thyroid tissue was not seen in on its path of descend. Agenesis of isthmus can be diagnosed via scintigraphy, ultrasonography, CT, MRI (Shankar, 2009).



Right (R) and left (L) lobes of thyroid gland
Isthmus, leavtor glandulae throidae and phramidal lobe were absent

Thyroid gland / Measurements	Right lobe	Left lobe
Length(cm)	3.84	4.28
Width(cm)	1.91	2.26
Thickness(cm)	1.24	0.98

Table 2. Incidence of agenesis of thyroid gland (Dixit, 2009)

Authors	Incidence
Pastor et al	5 to 10 %
Marshall	8 to 10 %
Ranade et al	33 %
Dixit	14.6 %

Knowledge regarding thyroid anomalies as agenesis of isthmus of thyroid gland can help the surgeon for safe surgical interventions.

REFERENCES

Dixit, D., Shilpa, M. B., Harsh, M. P., Ravishankar, M. V. 2009. Agenesis of isthmus of thyroid gland in adult human cadavers: a case series, Cases Journal, vol 2. No. 4, article 6640.

Dr. Jamuna, M., Dr. Manimegalai, Dr. Aleyamma Fenn, Mrs. Deborah Joy Hepzibah, 2013. Agenesis of isthmus of thyroid gland,Innovative journal of medical and health sciences 3 : 6 Nov-Dec, 2013, 266-267.

Duh QY., Ciulla TA., Clark OH. 1994. primary parathyroid hyperplasia associated with thyroid hemiagenesis and agenesis of the isthmus. *Surgery,* 115: 257-263

Keith L. Moore,T V N Persaud, 2003. Chapter 11 : The Pharyngeal Apparatus, "Before We Are Born" Essentials of Embryology and Birth Defects, Saunders,6th edition,printed in China, page 166

Omer Faruk Ozkan, Mehmet Asik, Huseyin Toman, Faruk Ozkul, Oztekin Cikman, 2013. Muammer araayvaz, Agenesis of isthmua of the thyroid gland in a apatient with Graves-Basedow Disease and a solitary nodule, case reports in surgery, vol. article ID 608481, 2 pages.

Pastor Vazquez JF., Gil Vernna, De Paz Fernandez FJ., Barbosa Cachorro M. 2006. Agenesis of thyroid isthmus, *Eur J Anatomy*., 10 : 83-84.

Sgalitzer KE., 1941. Contribution to the study of the morphogenesis of the thyroid gland. *J anat*.75:389-405.

Shankar KD., Bhanu PS., Susan PJ., Gajendra K. 2009. Agenesis of isthmus of thyroid gland with bilateral levator glandulae thyroideae, IJAV: 2:29-30.

Standring S., Herold E., Healy JC., Johnson D., Williams A. 2005. Anatomical basis of clinical practice, Grays' Anatomy, 39th edition. *Elsevier Churchill Livingstone, Philadelphia*: 2005, 560-564.

Tonacchera M., Banco ME., Montanelli L., Di Cosmo C., Agretti P., De Marco G. et al., 2007. Genetic analysis of PAX8gene in children with congenital hypothyroidism and dysgenetic or eutopic thyroid glands, identification of a novel sequence variant. *Clin Endocrinol* (oxf),67, 34-40

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