

# A Rare Variation of Right Thyroid Lobe Hemiagenesis: A Case Report

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## ABSTRACT

Thyroid is the large, unpaired & endocrine gland of the body. [1] Different developmental abnormalities can cause distortions in the thyroid gland's shape. An uncommon developmental anomaly is unilateral or bilateral agenesis of one or both thyroid lobes, with or without isthmic agenesis.[2] Thyroid hemiagenesis is rare and right hemiagenesis is considerably rarer.[3]

The failure of a thyroid gland lobe's embryonic development is known as thyroid hemiagenesis.[3] Prevalence is unknown but estimated to be 0.02 – 0.2 % [4]. Thyroid hemiagenesis is an uncommon congenital anomaly that was originally documented by Handfield–Jones [4]. 80% of cases include the absence of the left lobe, whereas 20% involve the absence of right lobe (a left to right hemiagenesis ratio of 4:1) [5]. Most cases reported are left thyroid hemiagenesis in female.[6] Compared to left lobe, right lobe hemiagenesis is rare.

Thyroid gland is the endocrine gland. Thyroid gland develops mainly from the thyroglossal duct. [2] Various developmental anomalies of the thyroid gland have been reported such as the isthmus may be absent or one of the lobes of gland may be very small or absent.[2] The most uncommon anomalies include agenesis or hemi-agenesis of thyroid lobe and agenesis of isthmus [2]. The anomalies of development of the thyroid gland alter the morphology of the gland and may cause clinical and functional disorder. [7,8] So, knowledge of such rare variations is very useful. The present case report highlights a rare case of Right Thyroid lobe hemiagenesis.

**Keywords :** *Thyroid; Right lobe; hemiagenesis*

## INTRODUCTION

The developmental anomalies of thyroid gland led to structural variations of it in adult human beings, which plays clinically very important role in the evaluation and management of thyroid disorders. The thyroid gland is an endocrine gland with rich blood supply [9]. Thyroid gland is anterior in the neck below and lateral to the thyroid cartilage [1]. The gland lies against vertebrae C5 - C7 & T1 embracing the upper part of trachea. The gland consists of right & left lobe joined to each other by isthmus [1]. The isthmus crosses the anterior surfaces of the second and third tracheal cartilages [1]. It is enclosed in pretracheal fascia [10,11]. Each lobe measures about 5 x 2.5 x 2.5 cm and the isthmus 1.2 x 1.2 cm. On an average, the gland weights about 25 g.[9].

The organogenesis of the thyroid gland in humans is leading to a variety of morphological variations of the gland, such as hypoplasia, ectopy, hemiagenesis and agenesis [5]. Hemiagenesis is an uncommon, congenital anomaly found more often in endemic regions for hypothyroidism. Genetic abnormalities have a role in monozygotic twins. A majority of patients reports no symptoms & is found accidentally during investigation or intraoperatively [3]. It is associated with normal thyroid function but can present with thyroid hypofunction.[3]

The incidence of thyroid hemi agenesis is rare and right thyroid hemi agenesis is even rarer. The anatomical and clinical significance of absence of thyroid lobe is important for medical professionals and the surgeons in planning

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and operating on the thyroid gland. The present case report highlights a rare case of hemiagenesis of right lobe of thyroid gland

### CASE REPORT

During our regular dissection for 1<sup>st</sup> BAMS students, in the dissection hall of KAHER's Shri BM K Ayurveda Mahavidyalaya, Belagavi, of a female cadaver, hemiagenesis of right lobe of thyroid was discovered. The left lobe of thyroid measures 5 x 2.5 x 2.5 cm and the Isthmus 5.4 x 5.2 cm, The gland weights 25gm.

### DISCUSSION

The developmental anatomy of the thyroid gland is very important to know the reason behind the anatomical variations of thyroid gland. The anatomical variations of thyroid gland are due to a partial persistence of the median or thyroglossal duct, failure of the development of the entire gland or a part of the gland results in agenesis [12,13]. Various developmental anomalies of the thyroid gland have been reported. However, the most uncommon anomalies include agenesis or hemi-agenesis of thyroid lobe and agenesis of isthmus (2). Thyroid hemi agenesis is rare and right Thyroid Hemiagenesis is even rarer. The literature suggests that the chromosome 22 plays a major role in the thyroid development [14]. A majority of patients reports no symptoms & is found accidentally during investigation or intraoperatively. It is associated with normal thyroid function but can present with thyroid hypofunction.[15]

### CONCLUSION

A thorough knowledge of the thyroid gland anatomy and its associated anatomical variations is important for routine surgical interventions, for endocrinologists. Clinically it is not easily ruled out so it is very important for surgeons & clinicians to diagnose and treat the disease and also to avoid undue complications.

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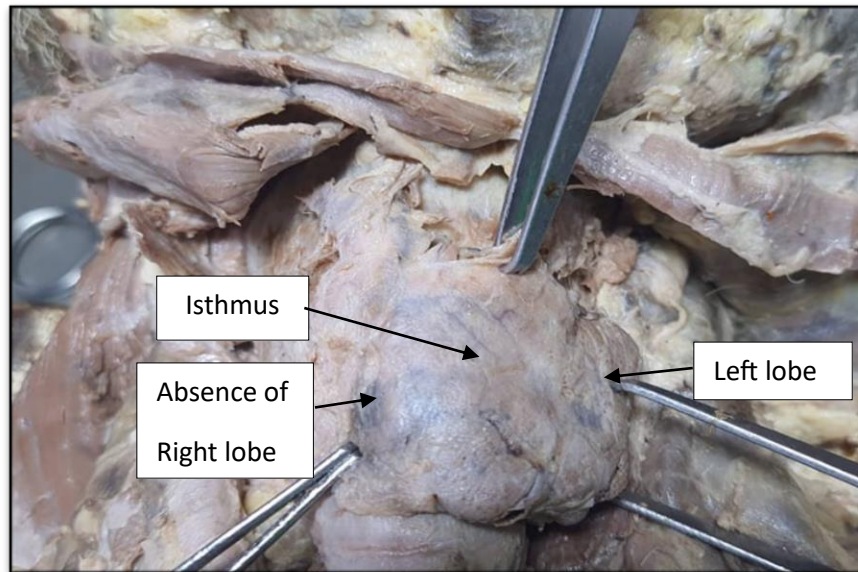


Fig 1 : Hemiagenesis of Right lobe of Thyroid gland  
(Anterior aspect)

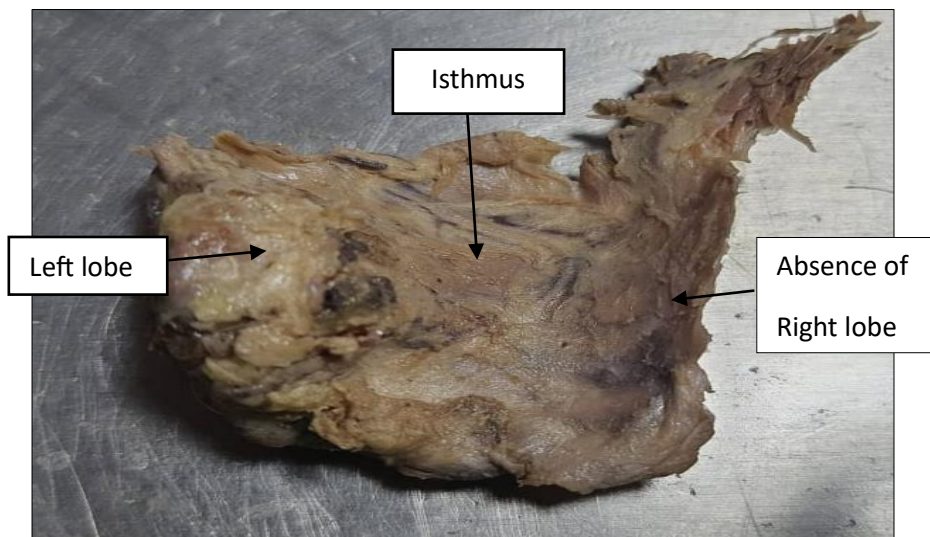


Fig 2 : Hemiagenesis of Right lobe of Thyroid gland  
(Posterior aspect)