

## Case Report

## Hemiogenesis of Thyroid with Hypothyroidism

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## Abstract

The thyroid gland begins its development during the 3<sup>rd</sup> week of gestation from the median endodermal thickening in the floor of the pharynx that later form the median diverticulum. It grows caudally as bifurcating tubular ducts to form the lateral lobes and isthmus. Abnormalities during the development lead to defective organogenesis or descent, complete or partial absence of the gland with or without ectopic thyroid tissue [1]. Thyroid hemiogenesis is a rare congenital abnormality characterized by the absence or failure to develop one lobe of the thyroid gland with or without the absence of the isthmus. Here, we report a case of Right hemiogenesis of thyroid with hypothyroidism.

**Keywords:** Hemiogenesis; Hypothyroidism

## Case Report

A 10 year old female presented with left sided neck swelling noticed by her father 10 days back. It was painless and was not associated with any compressive symptoms like dyspnea, dysphonia, or dysphagia. There was no history of tremors, palpitations, or change in weight or bowel habits [2]. There was no history of any fever or recent infections or neck surgery or irradiation. No family history of hypothyroidism or hyperthyroidism. Clinical examination of the neck revealed a soft swelling in the region of the left lobe of thyroid which moved freely with deglutition (Figure 1). There was no cervical lymphadenopathy and no eye or skin changes. Systemic examination was normal; investigations were as follows

Total T4 - 10.2 µg/dl (normal 4.5-11.7),

Total T3- 2.8 nmol/L (normal 1.1- 3.1),

TSH – 11.2 µIU/ml (normal 0.2- 4.0)].

Antithyroperoxidase antibody – Negative.

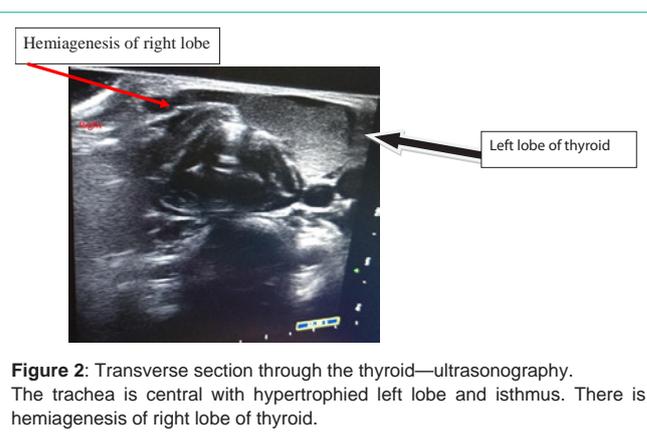
Ultrasound neck showed Hemiogenesis of right lobe of thyroid with hypertrophied isthmus and left lobe (Figure 2). Patient was started on Tab. Levothyroxine 25 mcg once daily and advised to follow up at regular intervals [3].

## Discussion

Developmental anomalies of the thyroid gland are rare, and are usually due to the result of abnormal descent of the thyroid gland rather than abnormal development. Hemiogenesis is a form of thyroid dysgenesis, in which one thyroid lobe fails to develop, with or without agenesis of the isthmus. It was first described in 1866 by Handsfield-Jones [4]. In literature more than 300 cases are reported till now, and left lobe hemiogenesis is more common (80%). The isthmus may be absent in 40–50% of cases. Right side involvement is rare compared to left side [5]. The disorder is more common in females. The exact etiology of hemiogenesis of the thyroid gland is not known, most of the cases are sporadic. Although patients may have a normal thyroid lobe with euthyroidism, both hypothyroidism and hyperthyroidism are known to occur [6]. In our case, the 10



**Figure 1:** Swelling on left side of neck. (Written informed consent for publication of the clinical image was obtained from the patient's parent).



**Figure 2:** Transverse section through the thyroid—ultrasonography. The trachea is central with hypertrophied left lobe and isthmus. There is hemiogenesis of right lobe of thyroid.

year old female child presented with swelling on left side neck with no other complaints, and investigations showed elevated levels of TSH and ultrasonography of neck showed hemiogenesis of right lobe of thyroid. We report this case as hemiogenesis of right side is rare. Clinicians should be aware of this developmental anomaly as hypothyroidism can be associated with this condition as in our case and also to prevent inadvertent surgical removal of the enlarged functioning lobe of the gland [7]. Early screening and treatment can prevent the complications of untreated hypothyroidism.

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