



## THYROID HORMONE

### Thyroid hemiagenesis: Failure of both lobes of the thyroid to develop normally

#### WHAT IS THE STUDY ABOUT?

Thyroid hemiagenesis is a condition that occurs at birth in which one of the thyroid lobes fails to develop and is absent. It is unknown how common thyroid hemiagenesis is as the absence of one thyroid lobe does not usually cause any symptoms and often goes unrecognized. Thyroid hemiagenesis is usually detected incidentally during an evaluation of other thyroid or neck disorders and its treatment is unclear. It is found more frequently in women and it is more common in the left thyroid lobe. This study examines whether having one thyroid lobe needs to be followed by a physician on a regular basis and whether there are clinical symptoms associated with this condition.

#### THE FULL ARTICLE TITLE:

Ruchala et al. Increased risk of thyroid pathology in patients with thyroid hemiagenesis: results of a large cohort case-control study. *Eur J Endocrinol* 2010;162:153-60.

#### WHAT WAS THE AIM OF THE STUDY?

The aim of this study is to determine whether having one thyroid lobe needs to be followed by a physician on a regular basis and whether there are clinical symptoms associated with this condition.

#### WHO WAS STUDIED?

The study group included 40 patients with thyroid hemiagenesis seen from January 2002 through December 2008 in the Ultrasound Unit of the Department of Endocrinology, Metabolism and Internal Medicine at the University of Medical Sciences, Poznan, Poland. A control group of 80 persons who did not have thyroid hemiagenesis was also examined.

#### HOW WAS THE STUDY DONE?

Both the 40 patients with thyroid hemiagenesis and the 80 control persons had ultrasound imaging and blood tests to examine thyroid hormone levels. The thyroid hemiagenesis group also had a nuclear medicine thyroid scan.

#### WHAT WERE THE RESULTS OF THE STUDY?

The 40 patients with thyroid hemiagenesis ranged in age from 12 through 79 years. A total of 35 were women and 35 had absence of the left thyroid lobe. Overall, the patients had higher levels TSH and T<sub>3</sub> than the control group, although all values were in the normal range. There were more nodules in the thyroid hemiagenesis group than in the control group.

#### HOW DOES THIS COMPARE WITH OTHER STUDIES?

Other studies have shown that thyroid hemiagenesis is rare. A total of 5 ultrasound screening studies found that it occurs in ~0.06% of the population. The left lobe is most often absent. There is no agreement on whether thyroid hemiagenesis should be treated with thyroid hormone unless hypothyroidism is present.

#### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Overall, patients with thyroid hemiagenesis usually have normal thyroid hormone levels. However, this study suggests that physicians need to follow patients with thyroid hemiagenesis on a regular basis as they may be more at risk to develop further thyroid conditions.

— Heather Hoffich, MD

#### ATA THYROID BROCHURE LINKS

Thyroid Function Tests: [http://thyroid.org/patients/patient\\_brochures/function\\_tests.html](http://thyroid.org/patients/patient_brochures/function_tests.html)

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## THYROID HORMONE, continued

### ABBREVIATIONS & DEFINITIONS

**Thyroid Hemiagenesis** — absence of one lobe of the thyroid at birth.

**Thyroid Ultrasound** — a common imaging test used to evaluate the structure of the thyroid gland. Ultrasound uses soundwaves to create a picture of the structure of the thyroid gland and accurately identify and characterize nodules within the thyroid. Ultrasound is also frequently used to guide the needle into a nodule during a thyroid nodule biopsy.

**Thyroid scan** — this imaging test uses a small amount of a radioactive substance, usually radioactive iodine, to obtain a picture of the thyroid gland. A “cold” nodule means that the nodule is not functioning normally. A patient with a “cold” nodule should have a fine needle aspiration biopsy of the nodule. A “functioning”, or “hot”, nodule means that the nodule is taking up radioactive iodine to a degree that is either similar

to or greater than the uptake of normal cells. The likelihood of cancer in these nodules is very low and a biopsy is often not needed.

**Triiodothyronine (T<sub>3</sub>)** — the active thyroid hormone, usually produced from thyroxine.

**Thyroid stimulating hormone (TSH)** — produced by the pituitary gland that regulates thyroid function; also the best screening test to determine if the thyroid is functioning normally.

**Euthyroid** — a condition where the thyroid gland is working normally and producing normal levels of thyroid hormone.

**Hypothyroidism** — a condition where the thyroid gland is underactive and doesn't produce enough thyroid hormone. Treatment requires taking thyroid hormone pills.