

# Diagnosing Methods and Treatment of Thyroid Cancer

Philipa Amoako\*

Department of Gastroenterological Surgery, Jawaharlal Nehru Institute of Advanced Studies, Bengaluru, Karnataka, India

## Description

The thyroid is a small organ in the front part of the neck that is wrapped around the trachea (windpipe). It is shaped like a butterfly with a small center and two broad wings that extend around one side of the throat. The thyroid is a gland that produces and releases substances that help our body to do certain things. The thyroid produces hormones that control many important functions in the body.

The thyroid helps the body to release and control thyroid hormones that can control metabolism. Metabolism is the process of converting the food you eat in your body into energy. This energy is used throughout the body to keep many of your body systems working properly.

The thyroid gland controls its metabolism through some specific hormones: T4 (thyroxine, containing four iodine atoms) and T3 (triiodothyronine, containing three iodine atoms). These two hormones which are produced by the thyroid gland will affect the energy of the cells.

The thyroid gland is controlled by the pituitary gland located in the center of the skull, below the brain. The pituitary gland monitors and controls the level of thyroid hormone in the blood. When the pituitary gland detects a lack of thyroid hormone or high hormone levels in the body, it adjusts the quantity with its hormones. This hormone is called Thyroid Stimulating Hormone (TSH).

Thyroid disease is a general term for a medical condition that prevents the thyroid from producing the right amount of hormones. The thyroid usually produces hormones to make your body work normally. When your thyroid produces too much thyroid hormone, your body uses energy too quickly. This is called hyperthyroidism (is a condition where the thyroid releases high levels of thyroid hormone into the body). Using energy too quickly will not make you feel tired-it will make your heart beat faster, lose weight without trying, or even make you nervous. On the other hand, your thyroid will produce too little thyroid hormone. This is called hypothyroidism (is a common condition where the thyroid doesn't create and release enough thyroid hormone into your bloodstream). When you have too little thyroid hormone in your body, it can make you feel tired, gain weight, and even cannot tolerate cold temperatures.

## Diagnostic method

The thyroid tests include

- Blood tests
- Picture test
- Physical examination

## Treatment

### Surgery

Surgery is the removal of the tumor and some surrounding healthy tissues during the operation, which is called the resection margin. Surgery can also be called resection (the process of cutting out tissue or part of an organ). It is the common treatment for most patients with thyroid cancer. A surgical oncologist is a doctor who specializes in treating cancer through surgery. Depending on the size of the thyroid nodule (growth of abnormal tissue), common surgical options include:

- Lobectomy: This operation removes the thyroid lobe with cancerous nodules.
- Subtotal thyroidectomy: This is an operation to remove all but a small part of the thyroid.
- Total thyroidectomy: The surgery removed the entire thyroid gland.

### Hormone therapy

Patients undergoing surgery generally require thyroid hormone therapy. Not only replacing the hormones that the body needs, but it also slows down the growth of the remaining differentiated cancer cells.

### Radioactive iodine therapy

The thyroid absorbs most of the iodine that enters the body. Therefore, a type of radiation therapy called radioactive iodine (also called I-131 or RAI) can find and destroy thyroid cells that have not been removed by surgery and thyroid cells that have spread beyond the thyroid. The doctor who prescribes radioactive iodine treatment is usually an endocrinologist or a specialist in nuclear medicine.

\*Address for Correspondence: Dr. Amoako Philipa, Department of Gastroenterological Surgery, Jawaharlal Nehru Institute of Advanced Studies, Bengaluru, Karnataka; India; E-mail: philipaamoako@gmail.com

Radioactive iodine therapy is an option for certain patients with papillary, follicular, and Hurtle cell (rare cancer that affects the thyroid gland) thyroid cancer. Radioactive iodine is used to treat patients with differentiated thyroid cancer that has spread to lymph nodes or distant sites. A small test dose may be given before completing treatment to ensure that the tumor cells absorb I-131. Patients with TCM or undifferentiated thyroid cancer should not receive I-131.

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