



Diagnosis and Treatment in Thyroid Cancer

Adwan J*

Department of Medical Oncology and Hematology, Thomas Jefferson University, Philadelphia, USA

EDITORIAL

Thyroid cancer is the most common malignancy of the endocrine system, representing 3.8% of all new cancer cases in the United States and is the ninth most common cancer overall. The American Cancer Society estimates that 62,450 people in the United States will be diagnosed with thyroid cancer in 2015, and 1950 deaths will result from the disease.

Over the past 3 decades, there has been a dramatic increase in the number of people diagnosed with thyroid cancer, which may be attributable to the wide use of imaging studies, including ultrasounds, computed tomography, magnetic resonance imaging, and positron emission tomography scans that incidentally detect thyroid nodules.

Thyroid cancer is divided into several main types, with papillary thyroid cancer being the most common. The treatment options for patients with thyroid cancer include the surgical removal of the entire thyroid gland (total thyroidectomy), radioactive iodine therapy, and molecular-targeted therapies with tyrosine kinase inhibitors.

The thyroid is an important endocrine gland located at the base of the throat anterior to the trachea. It is composed of 2 wing-shaped lobes and an isthmus that connects them, which normally cannot be palpated through the skin on physical examination. The thyroid uses iodine to secrete hormones that control the heart rate, blood pressure, body temperature, and basal metabolic rate.

After a diagnosis of thyroid cancer, it is important to perform preoperative staging and imaging, because it can alter the patient's prognosis and treatment course. Up to 50% of patients with differentiated thyroid cancer will have cervical lymph node involvement, despite the primary tumor size

Thyroid nodules are very common in the general population, and a great majority of them are benign. A thyroid nodule is a growth of cells (a lump) in the thyroid gland, which is located in the anterior neck region. Radiologically, they are lesions within the thyroid gland that are distinct from the surrounding thyroid parenchyma.

It is estimated that 3% to 7% of the world's population have a palpable nodule, and the prevalence may increase to more than 70% if patients are screened by ultrasound.⁶ Regardless of palpability, approximately 5% of detected thyroid nodules are malignant, with the exception of nodules discovered by PET scans, which have a 33% increased risk for malignancy. Thus, newly discovered thyroid nodules are clinically important, because of the need to exclude thyroid cancer.

Thyroid cancer occurs more frequently in women than in men, at an approximate ratio of 3:1, and is more prevalent in the white and Asian/Pacific Islander populations than in other populations.^{2,8} Thyroid cancer can occur in any age-group but more so in adults aged 45 to 54 years, with a mean age of 50 years at diagnosis.

Thyroid cancer is diagnosed histologically via FNA biopsy and is categorized into 4 main types. Representing approximately 70% to 80% of thyroid cancers, papillary thyroid carcinoma is the most common thyroid malignancy.^{5,8} Papillary thyroid carcinoma is the least aggressive type of cancer, because it tends to grow and metastasize slowly.^{5,8} It is composed of multifocal papillary and follicular elements forming sites of adenocarcinomas

Correspondence to: Jehad Adwan, University of Minnesota School of Nursing, Minneapolis, MN, USA, E-mail: pjehad.adwan@mnsu.edu

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