



## THYROID CANCER

### High risk of thyroid cancer in patients with multinodular goiter

#### BACKGROUND

Thyroid cancer is common and the incidence is increasing rapidly, especially in women. Thyroid cancer presents as a thyroid nodule. There has been controversy in the literature about the risk of thyroid cancer in patients with multiple thyroid nodules (multinodular goiter) as well as with Graves' disease and toxic nodular goiters which are the most common causes of hyperthyroidism. Initially, studies suggested that patients with Graves' disease, multinodular goiter and toxic nodular goiter carried a lower risk of thyroid cancer than patients with only a single thyroid nodule. However, recent studies suggested a higher risk of cancer in these patients (10-20%). This study looked at how frequently thyroid cancer was found in patients undergoing thyroid surgery because of Graves' disease, multinodular goiter and toxic nodular goiter.

#### THE FULL ARTICLE TITLE

Smith JJ et al. Cancer after thyroidectomy: a multi-institutional experience with 1,523 patients. *J Am Coll Surg* 2013;216:571-9. Epub February 8, 2013.

#### SUMMARY OF THE STUDY

This study reviewed studies from 3 centers in the United States. A total of 1523 patients underwent thyroid surgery between 2000 and 2011. All patients with cancer or indeterminate fine needle aspiration biopsy findings before the operation were excluded from this analysis. The risk of thyroid cancer was calculated and analysis was performed to identify the risk factors for thyroid cancer. The total risk of cancer was 16% in the studies and was similar in all 3 centers. The average cancer size was 1.1 cm and 39% of cancers were larger than 1 cm. Younger age, male sex and presence of nodules were associated with higher risk of thyroid cancer. The highest

risk of cancer was found in toxic nodular goiter (18%) and the lowest risk in Graves' disease (6%).

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

This study suggests that the risk of thyroid cancer in patients with multiple nodules is high as nearly one in five patients with multiple nodules had thyroid cancer. However, this does represent a selected population as all of these patients went to surgery, so the results cannot be applied to all patients with multiple nodules. Despite this, it is clear that the risk of thyroid cancer in patients with multiple nodules is not less than those with single nodules. Further, this study confirms that patients with Graves' disease to have a lower risk of thyroid cancer. Finally, this study does suggest that total thyroidectomy by an experienced surgeon should be more considered in patients with multiple nodules, especially in males and younger patients.

— Jamshid Farahiti, MD

#### ATA THYROID BROCHURE LINKS

Thyroid Nodules: <http://www.thyroid.org/what-are-thyroid-nodules>

Goiter: <http://www.thyroid.org/what-is-a-goiter>

Graves' disease: <http://www.thyroid.org/what-is-graves-disease>

Thyroid cancer: <http://www.thyroid.org/cancer-of-the-thyroid-gland>

Thyroid Surgery: <http://thyroid.org/patients/patient-brochures/surgery.html>

Hyperthyroidism: <http://www.thyroid.org/what-is-hyperthyroidism>

#### ABBREVIATIONS & DEFINITIONS

**Goiter:** a thyroid gland that is enlarged for any reason is called a goiter. A goiter can be seen when the thyroid is

overactive, underactive or functioning normally. If there are nodules in the goiter it is called a nodular goiter; if there is more than one nodule it is called a multinodular goiter.

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## **THYROID CANCER**, continued

**Thyroid nodule:** an abnormal growth of thyroid cells that forms a lump within the thyroid. While most thyroid nodules are non-cancerous (Benign), ~5% are cancerous.

**Thyroid fine needle aspiration biopsy (FNAB):** a simple procedure that is done in the doctor's office to determine if a thyroid nodule is benign (non-cancerous) or cancer. The doctor uses a very thin needle to with-draw cells from the thyroid nodule. Patients usually return home or to work after the biopsy without any ill effects.

**Indeterminate thyroid biopsy:** this happens usually when the diagnosis is a follicular or hurthle cell lesion. Follicular and hurthle cells are normal cells found in the thyroid. Current analysis of thyroid biopsy results cannot differentiate between follicular or hurthle cell cancer from noncancerous adenomas. This occurs in 15-20% of biopsies and often results in the need for surgery to remove the nodule.

**Graves' disease:** the most common cause of hyperthyroidism in the United States. It is caused by antibodies that attack the thyroid and turn it on.

**Toxic nodular goiter:** characterized by one or more nodules or lumps in the thyroid that may gradually grow and increase their activity so that the total output of thyroid hormone in the blood is greater than normal.

**Thyroidectomy:** surgery to remove the entire thyroid gland. When the entire thyroid is removed it is termed a total thyroidectomy. When less is removed, such as in removal of a lobe, it is termed a partial thyroidectomy.

**Prospective study:** a research study in which a group of individuals who have one or more common characteristics are followed over time.

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