



## THYROID NODULES

### Thyroid nodule size larger than 4 cm does not increase the risk of false negative biopsy results or the risk of cancer

#### BACKGROUND

Thyroid nodules are very common, occurring in up to 50% of the population as determined by neck imaging. Thyroid nodules are concerning due to their risk for thyroid cancer, which occurs in 5-8% of nodules. The evaluation of thyroid nodules frequently involves a fine needle aspiration biopsy of the nodule. In addition to the biopsy results, the size of the nodule is often used to decide whether to refer the patient for thyroidectomy. In this study, the authors evaluated whether nodule size >4 cm affected the accuracy of thyroid biopsy or the incidence of cancer in the nodule.

#### THE FULL ARTICLE TITLE

Burch HB et al The impact of thyroid nodule size on the risk of malignancy and accuracy of fine-needle aspiration: a ten-year study from a single institution. *Thyroid* September 10, 2012.

#### SUMMARY OF THE STUDY

Between 2001 and 2011, 3013 patients had a biopsy of thyroid nodules at the Walter Reed Army Medical Center. Those who had surgery were included in the analysis. The nodule size was determined by the largest diameter measured by ultrasound and classified into 3 groups according to nodule size: Group A - 0.5 to 0.9 cm; Group B - 1 to 3.9 cm and Group C -  $\geq 4$  cm. The analysis

included 540 patients with 695 nodules. Of these, 417 (60%) were benign; 22 (3.2%) were atypical; 122 (17.6%) showed follicular neoplasm; 77 (11.1%) were suspicious for malignancy and 57 (8.2%) were classified as malignant. There were 35 nodules in group A, 533 nodules in group B and 127 nodules in group C. Based on surgical pathology there were 129 cancerous nodules (18.6%) and the cancer rate was similar between all size categories

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

Previous studies had shown that between 11- 20% of cancerous nodules  $\geq 4$  cm may be misclassified as benign (false negative) and this has led to recommendations that all nodules  $> 4$  cm should be removed. The results of this study, however, show that thyroid nodule size  $\geq 4$  cm does not increase the risk of false negative biopsy results or the overall risk of cancer.

— M. Regina Castro, MD

#### ATA THYROID BROCHURE LINKS

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

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

#### ABBREVIATIONS & DEFINITIONS

**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 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 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 withdraw cells from the thyroid nodule. Patients usually return home or to work after the biopsy without any ill effects.

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

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## **THYROID NODULES**, continued

**Atypical thyroid biopsy:** this happens when there are some abnormal/atypical cells in the biopsy sample but not enough to diagnose a cancer. However, because there are abnormal cells in the biopsy sample, the specimen cannot be called benign. Sometimes a repeat biopsy may be helpful but often surgery is recommended to remove the nodule.

**Suspicious thyroid biopsy:** this happens when there are atypical cytological features suggestive of, but not diagnostic for malignancy. Surgical removal of the nodule is required for a definitive diagnosis.

**False negative results:** this happens when the thyroid FNAB is consistent with a benign nodule, however, the surgical pathology reveals a malignant thyroid nodule.