



## THYROID NODULES

### Can nodules with a benign ultrasound appearance be left alone without biopsy?

#### BACKGROUND

Thyroid nodules are very common. Some studies have suggested that up to 50% of individuals that have neck imaging for any reason will have a thyroid nodule. The evaluation of a thyroid nodule often includes a thyroid ultrasound and a biopsy, depending on the size of the nodule. Several studies have attempted to link certain features on the thyroid ultrasound that are found in cancerous nodules in order to help target the more concerning nodules for biopsy. Additional studies have shown that some ultrasound patterns are associated with noncancerous (benign) nodules. If these features reliably identify a benign nodule, they may not require a biopsy. This study tests the reliability of several ultrasound patterns to identify benign thyroid nodules.

#### THE FULL ARTICLE TITLE:

Virmani V, Hammond I. Sonographic patterns of benign thyroid nodules: verification at our institution. *Am J Roentgenol* 2011;196:891-5.

#### SUMMARY OF THE STUDY

The pathology records and ultrasound studies of 950 thyroid nodules that underwent ultrasound-guided fine-needle aspiration biopsy from July 2005 through July 2009 were reviewed. The nodules were divided into benign (690 nodules) or cancerous (121 nodules)

based in the biopsy results and the ultrasound images were examined for the presence of one of 4 characteristic patterns seen with benign nodules. A total of 116 of the benign nodules (16.1%) had one of the 4 patterns. A total of 102 of these nodules had biopsies that were benign. The remaining 12 nodules had indeterminate findings and went to surgery; all 12 were benign after surgery. None of the 121 cancerous nodules showed any of the benign ultrasound patterns.

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

This study suggests that there are at least 4 ultrasound features that are always associated with benign thyroid nodules. Thus, if a nodule shows one of these features, it does not necessarily need to be biopsied. However, most benign thyroid nodules do not have one of these findings. If these results are confirmed in larger studies, this may lead to a decrease in the need for biopsies and decrease in the number of surgeries for nodules with indeterminate biopsies.

— Alan Farwell, MD

#### ATA THYROID BROCHURE LINKS

Thyroid Nodules: [http://thyroid.org/patients/patient\\_brochures/nodules.html](http://thyroid.org/patients/patient_brochures/nodules.html)

#### ABBREVIATIONS & DEFINITIONS

**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.

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