THYROID NODULES

Large study confirms the 2015 American Thyroid Association guidelines for classifying small thyroid nodules on ultrasound

BACKGROUND:

Thyroid nodules are a common medical problem affecting up to 65% of the population in the United States, especially women and older age groups. Thyroid nodules are being diagnosed more often at present, because of increasing use of medical imaging such at CT scans and MRIs. Ultrasound-guided fine-needle biopsy is the most accurate and cost-effective test available to differentiate between benign and cancerous thyroid nodules. Fortunately, 90-95% of nodules are benign. Given the high frequency of thyroid nodules with a low risk of cancer, it is important to rank thyroid nodules based on their risk of being a cancer to detect thyroid cancer and avoid unnecessary biopsy in benign nodules.

The 2015 American Thyroid Association (ATA) guidelines suggest ranking the cancerous potential of thyroid nodules in five groups based on their ultrasound appearance: group A, highly suspicious nodules with estimated risk of cancer higher than 70–90%; group B with intermediate cancer risk of 10–20%; group C with low cancer risk of 5–10%, group D with very low cancer risk of 3%, and group E, clearly benign nodules with risk of less than 1%. Based on their predicted cancer potential, biopsy to detect cancer is recommended for thyroid nodules 1 cm or larger in groups A and B, 1.5 cm or larger in group C, and 2 cm or larger in group D. The ATA ranking system has not yet been validated in a large series. The goal of this study was to validate this five-group risk ranking system for thyroid nodules measuring 1 to 2 cm.

THE FULL ARTICLE TITLE:

Lee JH et al. Validation of the modified 4-tiered categorization system through comparison with the 5-tiered categorization system of the 2015 American Thyroid Association guidelines for classifying small thyroid nodules on ultrasound. Head Neck. 2017 Nov;39(11):2208-2215.

SUMMARY OF THE STUDY:

A total of 2749 thyroid nodules in 2552 patients underwent ultrasound-guided biopsy between January 2015 and December 2015 at a single South Korean institution. Using the recorded ultrasound features, such as composition, echogenicity, margin, calcification, and shape, the nodules were classified according to the 2015 ATA five-group risk ranking system. Of all 2749 thyroid nodules, 964 nodules in 915 patients measured between 1 and 2 cm. Among these, 147 nodules were surgically removed, and 590 nodules that were not excised had benign or cancer results on biopsy; these two groups were included in the study. Of the total of 737 thyroid nodules in 723 patients, 162 (22%) were cancerous and 575 (78%) were benign. The average age of the patients was 51 years, and the average size of the nodules was 14 mm.

Using the ATA five-group ranking system, the cancer rate was 58% in group A/high suspicion, 6.5% in group B/intermediate, 2.1% in group C/low and 1.3 % in group D/very low. Since there was no statistical difference between the cancer rates of the low/C and very low/D risk groups, the authors proposed to combine these two groups in one category in a modified four-group stratification system. Biopsy of nodules 2 cm or larger was proposed for the revised low suspicion group.

When comparing their diagnostic performance, the modified four-group system performed better overall than the five-group ATA system. With the revised 4-group ranking system, a larger number of unnecessary biopsies in benign nodules could be avoided.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This is one of the first large series to validate that the 2015 ATA risk assessment system for thyroid nodules measuring between 1 and 2 cm effectively differentiates nodules with high, intermediate, and low risk of cancer based on their ultrasound appearance. The proposed modified four-group risk stratification system is easier to use and suggests that fewer nodules should undergo biopsy; however, it needs further confirmation in other studies.

— Alina Gavrila, MD, MMSC

THYROID NODULES, continued

ATA THYROID BROCHURE LINKS

Thyroid Nodules: https://www.thyroid.org/thyroid-nodules/

Fine Needle Aspiration Biopsy of Thyroid Nodules: https://www.thyroid.org/fna-thyroid-nodules/

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), 5-10% are cancerous (malignant).

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.

Echogenicity: the ability of a thyroid nodule to reflect or transmit ultrasound waves.

Thyroid fine needle aspiration biopsy: 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.

Calcification: small or large fleck of calcium that can be seen either inside a thyroid nodule or in the periphery, usually seen as bright spots on ultrasonography.

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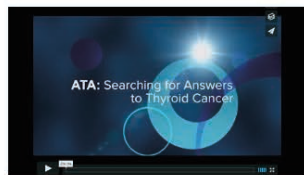
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