



THYROID NODULES

WHAT IS THE STUDY ABOUT?

While thyroid nodules are very common in adults, they are much less common in children. Studies suggest that thyroid nodules occur in about 1–2% of children and adolescents. Fine needle aspiration biopsy (FNAB) is a procedure commonly used to evaluate patients with thyroid nodules to determine if these nodules are cancerous. FNAB has been shown to be very accurate and helpful in selecting those patients who will need surgery. In 5–10% of FNABs, there are not enough cells obtained to make a diagnosis and this is termed an inadequate/insufficient biopsy. Some studies in adults have shown that the number of inadequate/insufficient biopsies decreases when FNAB is done with the help of ultrasound guidance (US-FNAB). No information is available regarding the usefulness of this method in children. This study looks at the value of US-FNAB in the evaluation and treatment of children with thyroid nodules

THE FULL ARTICLE TITLE: Izquierdo R, Shankar R, Kort K, Khurana K. Ultrasound-guided fine-needle aspiration in the management of thyroid nodules in children and adolescents. *Thyroid* 2009;19:703–5.

WHAT WAS THE AIM OF THE STUDY?

The aim of this study is to evaluate the usefulness of ultrasound guidance when doing a biopsy of thyroid nodules in children and adolescents.

WHO WAS STUDIED?

The patient group consisted of 42 children and adolescents who had enlargement of their thyroid glands (goiters) or thyroid nodules larger than 1 cm in size on exam who were sent for biopsies of these nodules at a medical center in upstate New York between January of 1999 and October 2006. All these children had US-FNAB of their nodules. Some of these children were sent for surgery based on the results of this biopsy. The results of the US-FNABs done in these children were compared to a previous study of FNABs done without ultrasound guidance published by the same authors.

HOW WAS THE STUDY DONE?

The medical records of those 42 children and adolescents, ages between 8 and 19 years, were reviewed. These children had biopsies of nodules that were > 1cm (total 52

biopsies) and these biopsies were all done using the guidance of an ultrasound. Eleven of these children, who had 16 nodules in total, had all or a part of their thyroid glands removed. The results of the biopsy (cytology) were compared with the final results obtained by a pathologist from inspecting the thyroid glands that had been removed. The accuracy of the US-FNA was determined by comparing the results obtained from the ultrasound guided biopsy with the results obtained from inspection of the thyroid glands removed surgically.

WHAT WERE THE RESULTS OF THE STUDY?

The study showed that the accuracy of the diagnosis made from samples obtained by US-FNAB in children was much better than results obtained in the previous study by FNAB without ultrasound guidance. Also, the number of inadequate/insufficient biopsies obtained by US-FNAB (2% of biopsies) was much lower than the FNABs done without ultrasound (11% of biopsies).

HOW DOES THIS COMPARE WITH OTHER STUDIES?

Previous studies in adults had shown that US-FNAB are more accurate and more helpful in selecting patients that need surgery than FNAB done guided only by palpation of the nodule. However, no studies looking at this had been done in children

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

The use of ultrasound to guide biopsies of thyroid nodules in children and adolescents is more accurate than biopsies guided by palpation only. Ultrasound guidance also reduces the number of inadequate/insufficient results and, therefore, decreases the need to repeat the biopsy. These results are similar to those obtained in adults. When possible, biopsy of thyroid nodules in children and adolescents should be done with ultrasound guidance.

— Regina Castro, MD

ATA THYROID BROCHURE LINKS

Thyroid Nodules: http://thyroid.org/patients/patient_brochures/nodules.html

Thyroid cancer: http://thyroid.org/patients/patient_brochures/cancer_of_thyroid.html

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THYROID NODULES, continued

ABBREVIATIONS & DEFINITIONS

Thyroid nodule: an abnormal growth of thyroid cells into 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 withdraw cells from the thyroid nodule. Patients usually return home or to work after the biopsy without any ill effects.

Inadequate/Insufficient biopsy: this happens with not enough cells are obtained during the biopsy to provide a diagnosis. This occurs in 5–10% of biopsies. This

often results in the need to repeat the biopsy.

Thyroid Ultrasound: a common imaging test used to evaluate the structure of the thyroid gland. Ultrasound uses soundwaves 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 (US-FNAB).

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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