



THYROID NODULES

RET/PTC rearrangement may determine rapid growth of benign thyroid nodules

BACKGROUND

Thyroid nodules are very common in the general population. Up to 10% of these nodules are cancerous and are expected to grow over time. Benign (non-cancerous) nodules can also grow over time. Ultrasound guided fine needle aspiration biopsy of growing nodules help identify the cancerous ones that require surgery. The factors that determine the growth of benign nodules are largely unknown. Mutations in certain cancer-associated genes, including the RET/PTC gene, can be seen in thyroid cancer. However, mutations in the RET/PTC gene are also commonly found in benign nodules. The goal of this study was to compare the growth of benign nodules that carry the RET/PTC mutation to the growth of benign nodules that do not carry that mutation.

THE FULL ARTICLE TITLE:

Sapio MR et al High growth rate of benign thyroid nodules bearing RET/PTC rearrangements. *J Clin Endocrinol Metab* 2011;96:E916-9. Epub March 16, 2011.

SUMMARY OF THE STUDY

A total of 125 Italian patients with biopsy-proven benign thyroid nodules were studied. The presence of the RET/

PTC mutation in cytology specimens from those nodules was measured. Patients were followed with repeat neck ultrasound studies at 6 months intervals for up to 3 years. Change of thyroid nodule volume was measured at each follow-up visit.

A total of 19 nodules carried the RET/PTC mutation. While all nodules significantly grew at the end of the follow-up period, those with the RET/PTC mutation grew at a faster rate.

WHAT ARE THE IMPLICATIONS OF THIS STUDY

The presence of mutations in the RET/PTC gene increases the growth rate of benign thyroid nodules. Identification of this mutation may help identify which nodules are likely to require surgery even if they are benign. Further studies are needed to identify other factors influencing thyroid nodules growth.

— Mona Sabra, MD

ATA THYROID BROCHURE LINKS

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

ABBREVIATIONS & DEFINITIONS

Papillary thyroid cancer — the most common type of thyroid cancer.

Cancer-associated genes — these are genes that are normally expressed in cells. Cancer cells frequently have mutations in these genes. It is unclear whether mutations in these genes cause the cancer or are just

associated with the cancer cells. The cancer-associated genes important in thyroid cancer are *BRAF*, *RET/PTC* and *RAS*.

RET/PTC gene — this is gene that codes for a protein that is involved in a signalling pathway and is important for cell growth. Mutations in the *RET/PTC* gene are seen in both thyroid cancer and benign thyroid nodules.