

Is Long-Term Follow-up Necessary for Benign Thyroid Nodules?

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Lee S, Skelton TS, Zheng F, Schwartz KA, Perrier ND, Lee JE, Bassett RL, Ahmed S, Krishnamurthy S, Busaidy NL, Grubbs EG. The biopsy-proven benign thyroid nodule: is long-term follow-up necessary? J Am Coll Surg 2013;217:81-9. Epub May 6, 2013.

Background

The vast majority of thyroid nodules that are biopsied are reported as benign. Recommendation 14 of the American Thyroid Association guideline states that "all benign thyroid nodules should be followed with serial ultrasound examinations 6-18 months after the initial FNA. If nodule size is stable (i.e., no more than a 50% change in volume or <20% increase in at least two nodule dimensions in solid nodules or in the solid portion of mixed cystic-solid nodules), the interval before the next follow-up clinical examination or ultrasound may be longer, e.g., every 3-5 years." (1). The aim of the study reported in the current paper was to determine whether long-term follow-up of benign thyroid nodules was associated with a change in treatment or an improvement in diagnosing a missed malignancy as compared with short-term follow-up.

Methods

Results of thyroid FNA biopsies at the MD Anderson Cancer Center performed from 1998 to 2009 were reviewed, and patients with benign cytology were selected for further review of the clinical and ultrasound (US) findings. Patients who had follow-up were divided into two groups: those followed for <3 years and those followed for \geq 3 years.

Results

Of the 848 patients with benign cytology, 92 underwent surgery. Of the remaining 646 patients, 280 had no further follow-up and 366 were followed; 226 had <3 years of follow-up and 140 had \geq 3 years of follow-up. The median follow-up in the short-term group was 13 months and in the long-term group 57 months. The median nodule size for both groups was 2.3 cm. The long-term group had significantly more US performed (P<0.01) and significantly more repeat FNAs done (13% vs. 4%, P<0.01). Of the 26 nodules (previously biopsied as benign) on which FNA had been performed, 20 were again found to be benign, 3 were found to be follicular lesions, 2 were nondiagnostic, and 1 was found to be suspicious for papillary thyroid cancer (at surgery it was a follicular variant of PTC). The reasons for rebiopsy of the 26 lesions included increased growth in 12, continued suspicious features such as calcification and increased vascularity in 5, and no documented reason in 9. Two malignancies were found in those who underwent surgery after observation, both in the short-term group.

Conclusions

Long-term follow-up of patients with benign thyroid nodules is associated with increased repeat FNA and US without improvement in the detection rate of malignancy. After 3 years of follow-up, consideration should be given to stopping long-term routine follow-up.

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ANALYSIS AND COMMENTARY • • • • •

This interesting study considers the problem of how frequently and how long to follow thyroid nodules that are benign. Although the ATA guideline that is described in the introduction is open-ended, it does not specify the absolute length of follow-up, but it does state that longer follow-up of nodules thought to be stable at earlier intervals should be carried out, perhaps at intervals of 3 to 5 years.

The current study has serious flaws. First it is retrospective. Second, perhaps because MD Anderson Cancer Center is a referral center, 43% (280 of 646) of patients did not undergo follow-up there, and no follow-up data are provided on these patients. The authors point out that there were no clear clinical differences in the remaining patients who underwent either short-term or long-term follow-up. On that basis, their conclusions may be considered valid. Of course, what is needed is a prospective study with nearly 100% follow-up to determine whether there is a significant yield of new findings suggestive of

malignancy in patients who are followed for longer than 3 years.

Continued growth of cytologically benign nodules may be worrisome and justify another FNA. Another concern is false negative FNA results. In the case of small nodules, it is possible that the sampling included mainly the benign tissue surrounding the nodule. In the case of larger nodules, the possibility of heterogeneity has been raised as a basis for false negative cytology, but a recent study from the Walter Reed National Military Medical Center showed that false negative cytology was not more common in nodules larger than 4 cm as compared with smaller nodules (2). Nevertheless, the rate of false negatives in that series was 7%.

For the above reasons, it seems reasonable to follow patients with benign thyroid nodules by ultrasound for 3 years and at much longer intervals after that. Additional studies will be needed to justify stopping follow-up at 3 years when there is no growth of the nodule in order to reduce costs of follow-up.

References

- 1. Cooper DS, Doherty GM, Haugen BR, et al. Revised American Thyroid Association management guidelines for patients with thyroid nodules and differentiated thyroid cancer. Thyroid 2009;19:1167-1214.
- Shrestha M, Crothers BA, Burch HB. The impact of thyroid nodule size on the risk of malignancy and accuracy of fine-needle aspiration: a 10year study from a single institution. Thyroid 2012;22:1251-6. Epub October 19, 2012.