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TALLER-THAN-WIDE SHAPED THYROID NODULES IN ANY PLANE HAVE AN INCREASED RISK OF THYROID CANCER

Moon HJ, Kwak JY, Kim EK, Kim MJ. **A Taller-than-wide shape in thyroid nodules in transverse and longitudinal ultrasonographic planes and the prediction of malignancy.** Thyroid 2011;21:1249-53. Epub August 30, 2011.

SUMMARY

BACKGROUND

A taller-than-wide shape of a thyroid nodule has been shown by several groups to be associated with differentiated thyroid cancer (1-6). Most of the prior studies have defined taller-than-wide as the ratio >1 of the anteroposterior measurement as compared with the transverse measurement in the transverse (anteroposterior) plane. This group looked at which ultrasound plane, transverse, longitudinal (sagittal), or either, a taller-than-wide shape was most predictive of thyroid malignancy.

METHODS AND RESULTS

This was a retrospective observational study at a single referral center. A total of 471 nodules in 435 patients were included in the study. There were 370 women (mean age, 50.4 years [range, 15 to 82]) and 65 men (mean age, 50.4 years [range, 15 to 82]). Each nodule was evaluated by ultrasound (US) and an ultrasound-guided fine-needle aspiration biopsy (FNAB). The cytology in 339 (72%) was benign, in 98 (20.8%) it was malignant for papillary thyroid carcinoma (PTC), in 20 (4.2%) it was suspicious for PTC, in 1 (0.21%) it was indeterminate, and in 12 (2.8%) results were nondiagnostic. Thyroid surgery was performed in 120 patients. There were 326 nodules in 315 patients in the study who did not have surgery after the FNAB. These patients were classified by the FNAB cytology result. The sensitivity, specificity, and negative predictor value of predicting malignancy for taller-than-wide nodules in the transverse plane were 58.4%, 83.5%, and 84.8%, respectively; in the longitudinal (sagittal) plane 44%, 94.5%, and 82.4%; and in either plane 68%, 82.1%, and 87.7%.

CONCLUSIONS

This study demonstrates that taller-than-wide shape in either the transverse or longitudinal plane was useful to predict thyroid malignancy.

COMMENTARY

The 2009 ATA thyroid nodule and cancer guidelines specifically indicate that a shape taller than the width measured in the transverse dimension is suspicious for malignancy. Some studies have suggested that this measurement should be in the transverse plane, the longitudinal plane, either plane, or the plane was not indicated. The results of this study have sensitivity, specificity, and negative predictive value similar to prior studies showing that taller-than wide shape predicts malignancy. The previous studies showed sensitivity, specificity, and negative predictive values of 32.7% to 83.6%, 60% to 92.5%, and 67.4% to 98%, respectively (1-6). This is the first study to show that a taller-than-wide thyroid nodule in either the transverse or longitudinal plane is useful to predict malignancy.

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