P2-05-05

THE ROLE OF THE NODULE VOLUME IN EVALUATING THE RISK OF MALIGNANCY IN THYROID NODULES

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Background

➢In evaluating thyroid nodules by ultrasonography (US), the nodule diameter is routinely measured. However, the relationship between the nodule size and malignancy is not certain. In this study, we aimed to determine the role of the nodule volume in evaluating the risk of malignancy in thyroid nodules.

Methods

➢ The medical records of patients who underwent total thyroidectomy or lobectomy between January 2007 and December 2014 in our institution were reviewed. Demographic and clinical data as well as preoperative ultrasonography (US) findings were analyzed. The nodules in these patients were grouped as ≥4.0 cm, 1.0-3.9 cm and <1 cm according to US measurements (Figure 1). For these groups, the histopathological findings were compared.

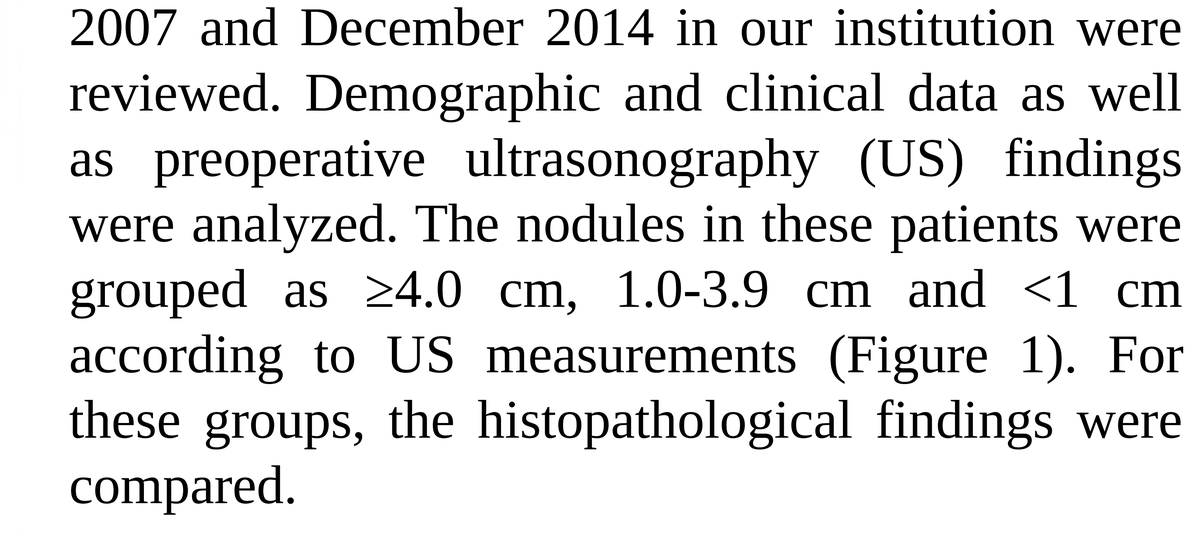
Results

➢Data from 5,561 nodules in 2,463 patients were analyzed. There were 1,008 nodules ≥4.0 cm, 4,013 nodules 1.0-3.9 cm, and 540 nodules <1.0 cm. Based on histopathological findings, 8.5%, 10.2%, and 25.6% of nodules ≥4.0 cm, 1.0-3.9 cm, and <1.0 cm were malignant, respectively ($p<0.001$). There was no significant difference between benign and malign nodules <1 cm and 1.0-3.9 cm in terms of mean nodule volume ($p=0.20$ and $p=0.11$, respectively). However, significant difference between benign and malign nodules in terms of mean nodules volumes was observed for the nodules ≥4.0 cm ($p=0.012$).

Conclusion

➢ In evaluating the risk of malignancy in the thyroid nodules ≥4.0 cm, considering the volume of nodule instead of maximum diameter of the nodule may be more significant and predictive.

Figure 1: Final histopathological results of all thyroid nodules according to size



*: $p<0.001$ when compared to 1.0-3.9 cm and ≥4.0 cm nodules
†: $p=0.108$ when compared to ≥4.0 cm nodules
‡: $p=0.002$ when compared to <4.0 cm nodules