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Ultrasound and clinicopathological characteristics of isthmus-origin papillary thyroid carcinoma

Soo Yeon Hahn, Boo-Kyung Han, Jung Hee Shin, Eun Sook Ko, Meeyoung Nam
Samsung Medical Center, Korea.
bkhan@skku.edu

PURPOSE: The goal of this study is to analyze the ultrasound (US) features and clinicopathologic characteristics of isthmus-origin papillary thyroid carcinoma and to evaluate the differences from lobe-arising papillary thyroid carcinoma.
MATERIALS AND METHODS: From a retrospective review of pathologic database of our institution between January 2007 and December 2008, 48 patients (39 female and 9 male; mean age, 47.5 years; range, 28 – 77 years) who had a histologic diagnosis of classic papillary carcinoma arising thyroid isthmus (mean size, 1.2 cm; ranges, 0.3 – 3.7 cm) were identified. All of the patients had preoperative US imaging, total thyroidectomy with bilateral central lymph node dissection, and at least 2 year follow-up period after surgery. As a control group, 96 patients who had diagnosis of classic papillary carcinoma arising thyroid lobe after total thyroidectomy with bilateral central lymph node dissection were randomly matched with respect to age, gender, and tumor size.
RESULTS: According to the analyses for the clinicopathologic characteristics, extrathyroidal extension in patients with isthmus-origin cancer was higher than control group (87.5% vs. 72.9%, $p = 0.047$). Lymph node metastasis ($p = 0.267$), multiplicity ($p = 0.346$), and capsular invasion ($p = 0.131$) were not significantly different between the groups. According to the analyses for the US characteristics, isthmus-origin cancer had a higher incidence of circumscribed margin ($p = 0.030$), wider-than-taller shape ($p < 0.001$), and contact with the adjacent capsule ($p < 0.001$) than the control group. Echogenicity ($p = 1.000$), calcification ($p = 0.905$), and cystic change ($p = 0.760$) were not significantly different between the groups.
CONCLUSION: This study demonstrated that isthmus-origin papillary thyroid carcinoma was more likely to have extrathyroidal extension compared with the lobe-arising papillary thyroid carcinoma. Therefore, careful US evaluation should be performed on the isthmus-origin masses even when US findings exhibit a circumscribed mass with wider-than-taller shape.