



Correlation between the BRAF V600E mutation status and the clinicopathologic features of papillary thyroid carcinoma

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ABSTRACT. This study sought to investigate the correlations of V-raf murine sarcoma viral oncogene homolog B1 (BRAF) gene mutations with the clinicopathologic features of papillary thyroid carcinoma and central lymph node metastasis. We retrospectively analyzed the 2-year medical records of patients who underwent surgery for papillary thyroid carcinoma. After screening, the records of 126 patients who met the study requirements were used to assess the characteristics associated with the BRAF V600E gene mutation. The BRAF mutation incidence rate among patients with papillary thyroid carcinoma was 69.0% (87/126). Univariate analysis revealed that the BRAF mutation status was correlated significantly with both tumor size and lymph node metastasis ($P < 0.05$). Multivariate analysis revealed a significant correlation between lymph node metastasis and BRAF mutation status ($P < 0.05$). When the tumor diameter was ≤ 10 mm, the BRAF mutation status had no effect on lymph node metastasis ($P > 0.05$). When the tumor diameter was > 10 mm, the incidence of lymph node metastasis was significantly higher among BRAF mutation-positive patients

than among BRAF mutation-negative patients ($P < 0.05$). BRAF gene mutations independently predicted central lymph node metastasis in patients with papillary thyroid carcinoma. For patients preoperatively diagnosed to be BRAF mutation-positive, the importance of central lymph node dissection should be emphasized because the tumor diameter increases; regional lymphatic and adipose tissue dissection should be routinely conducted. However, in mutation-negative patients with tumor diameters of ≤ 5 mm, the need for central lymph node dissection should be re-examined.

Key words: Papillary thyroid carcinoma; BRAF; Gene mutation; Lymph node metastasis