BRAF V600E MUTATION IS ASSOCIATED WITH AGGRESSIVE FEATURES IN FOLLICULAR VARIANT OF PAPILLARY THYROID CANCER

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Background/Purpose: *BRAF* represents the most common molecular alteration and serves as a prognostic indicator of poor outcome in conventional papillary thyroid cancer (PTC). In contrast, *BRAF* is far less common in the follicular variant of PTC (FVPTC), where its association with aggressive disease is less well known.

Methods: Single-institution, consecutive series of patients with histologic diagnosis of single foci FVPTC between 1/07-12/12 who had prospective molecular testing performed.

Results: Analysis included 274 patients, 20% (54/274) male, with mean age of 49 years (range 14-89), and mean tumor size of 2.4 cm (sd $\pm$ 1.7). In the 148 patients who had pathologic lymph node examination, lymph node metastasis (LNM) was present in 13% (19/148). *BRAF* positivity was present in 10% (28/274) of patients, 9% (26/274) had extrathyroidal extension (ETE), and 14% (37/274) had advanced TNM stage III/IV at presentation. A total of 245 patients had follow-up $\geq$6 months (mean 26 months), and 3 (1%) experienced cervical recurrence at mean time-to-recurrence of 16 months. *BRAF* positive mutation status was significantly associated with ETE (OR 5.1, p=0.001), LNM (OR 4.9, p=0.003) and advanced TNM stage (OR 3.7, 0.004) in univariable analysis. Multivariable analysis for LNM revealed significant association with *BRAF* (OR 5.4, p=0.004) and male gender (OR 5.7, p=0.001), but not with age $\geq$45 years (p=0.92) or tumor size $\geq$2 cm (p=0.55).

Discussion & Conclusion: *BRAF* V600E mutation is relatively uncommon in FVPTC, but is still associated with aggressive disease features, and therefore may bear prognostic significance as it does for conventional subtypes of PTC.