

PATIENT AND TUMOR FACTORS ASSOCIATED WITH DISTANT METASTASIS IN THYROID CANCER

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BACKGROUND: Thyroid carcinomas have a favorable prognosis compared to other cancers. Survival rate is diminished significantly in patients with rare cases of distant metastasis, whether on initial presentation, or later during the disease course. The present study investigates patient demographic, tumor pathology and post-operative treatment parameters in patients with distant metastasis compared to patients with non-distant metastatic thyroid carcinoma.

METHODS: A retrospective chart review was performed for all patients with distant metastatic thyroid cancer ($N=32$) from 2006 to 2017 at the QEII Health Sciences Center in Halifax, Nova Scotia. A comparison group of patients who underwent thyroidectomy for thyroid cancer without distant metastasis was also generated ($N=195$). Fisher's exact test and Mann-Whitney test were used for determining univariate statistical associations. Cumulative survival was computed using the Kaplan-Meier method and the log-rank test for univariate analysis.

RESULTS: Distant metastasis were predominantly to lung (48%) and bone (42%). Papillary thyroid carcinoma (PTC) was most common in both patient groups with a relatively high proportion of aggressive pathological features such as tall cells (10% vs 0.5%) and Hurthle cells (23.3% vs 0.5%) in the distant metastasis group. Tumor pathology variables associated with distant metastasis versus non-distant metastatic disease were larger tumor size ($p<0.001$), multifocal disease ($p<0.001$), nodal metastasis ($p<0.001$) and lymphovascular invasion ($p<0.001$). Cumulative survival at 10 years was 44.6% for distant metastasis patients.

CONCLUSIONS: While PTC was the most common pathological diagnosis in both groups, tumor size, multifocal disease, lymphovascular invasion and nodal metastasis were predictors of distant metastasis.