

Markers predicting the contralateral lobe involvement in patients with multifocal papillary thyroid carcinoma: An institutional case series of 914 patients

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Introduction

The characteristics of multifocal PTC remain controversial. Surgical approach to multifocal tumor changes between centers. In cases that the initial procedure was lobectomy, most clinicians would suggest for completion thyroidectomy since the risk of PTC in the contralateral lobe is significant. This study aimed to evaluate the incidence of bilateral involvement, predictive factors for bilaterality and whether or not bilaterality was related with more aggressive histopathologic features in patients with multifocal PTC.

Methods

➤ Medical records and pathologic data of 914 patients who underwent total thyroidectomy and diagnosed with PTC were retrospectively reviewed. The patients with multifocal disease were detected and subdivided into two subgroups as unilateral-multifocal PTCs and bilateral multifocal PTCs. These two groups were compared to each other regarding demographic, clinical and histopathological features.

Results

➤ Multifocal disease was detected in 294 patients (32.7 %). Of all, 102 patients (36.7%) had unilateral whereas 192 cases (65.3%) had bilateral involvement. As a result of univariate analysis, bilaterality was significantly associated with the number of tumor foci ($p < 0.001$), tumor size ($p = 0.008$), TSH ($p = 0.002$) and capsule invasion ($p = 0.018$). Multivariate analysis demonstrated that the number of tumor foci and TSH level were independent risk factors for bilaterality in multifocal PTC ($p < 0.001$ and $p = 0.006$, respectively).

Conclusion

➤ Incidence of bilateral tumors is high and increases with the number of tumor foci in multifocal PTC. Bilateral involvement in multifocal PTC is not associated with worse histopathological features. TSH can be taken as a preoperative indicator able to predict multifocal cancers and guide clinical decision making and surgical management.

Table 3. Comparison of unilateral and bilateral multifocal PTCs according to tumor characteristics and histopathologic features

	Unilateral (102 patients with 229 tumor foci)	Bilateral (192 patients with 485 tumor foci)	p
Number of carcinoma foci	2.26 ± 0.57	2.56 ± 0.76	0.001
Median Tumor size in mm (min-max)	5.0 (0.4 -60)	6.0 (0.5-70)	0.002
Number of microcarcinomas	183 (79.9%)	344 (70.9%)	0.009
PTC variant			0.780
Classical	181 (79%)	388 (80%)	
Follicular	30 (13.1%)	60 (12.4%)	
Oncocytic	4 (1.7%)	8 (1.6%)	
Tall cell	2 (0.9%)	8 (1.6%)	
Other	12 (5.2%)	21 (4.3%)	
Capsular invasion	28 (12.2%)	84 (17.3%)	0.203
Vascular invasion	4 (1.7%)	6 (1.2%)	0.681
Extrathyroidal extension	12 (5.2%)	45 (9.3%)	0.160
Lymph node metastases	9 (3.9%)	28 (5.8%)	0.152
TNM stage (AJCC)			0.065
Stage I	82 (80.4 %)	132 (68.7%)	
Stage II	2 (1.9%)	12 (6.2%)	
Stage III	10 (9.8)	37 (19.2%)	
Stage IV(a/b/c)	8 (7.9)	11 (5.9%)	
Local recurrence	0	4	0.303
Regional recurrence	9	13	0.669
Distant metastasis	0	1	0.660
Incidental	134 (%58.5)	279 (%57.5)	0.915

Table 4: Independent risk factors for bilaterality in multifocal PTC (multivariate analysis)

	Multiple logistic regression	
	OR (95% CI) ‡	p-value
Age	0.986 (0.963-1.009)	0.221
Number of carcinoma	2.088 (1.338-3.258)	<0.001
Tumor Size	1.126 (0.975-1.295)	0.105
TSH	1.399 (1.100-1.779)	0.006
Lymph node metastasis	1.072 (0.451-2.549)	0.875
Capsular invasion	1.614 (0.881-2.956)	0.121

‡ Adjusted odds ratios

