

Clinical significance of residual occult malignancy in thyroid carcinoma

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Abstract

Purpose: Total or near-total thyroidectomy is advocated in reducing the recurrence rate and improving survival in differentiated thyroid carcinoma. However, this potential benefit could be seen in all patient groups or only in the patients who have multifocal disease. We analyzed the clinical significance of occult multifocal disease in patients with completion thyroidectomy.

Patients and methods: Ninety-seven patients in whom the completion thyroidectomy was performed within 6 months were included. The patients were grouped according to whether they have malignancy in the remnant thyroid tissue. The groups were examined and compared according to patients and tumor characteristics. The effect of the presence of residual tumor in remnant thyroid tissue on clinical course, disease-free survival, and overall survival were evaluated as well.

Results: After completion thyroidectomy, 20 (20.6%) of the 97 patients revealed additional cancer focus in the residual tissue. Median follow-up period was 104 months (range, 84–205 months). Only tumor multifocality in the resected lobe after first surgery was predictive of the presence of malignancy in the thyroid remnant ($P = .002$; relative risk, 4.9; 95% confidence interval, 1.7–14.5). Detection of malignancy in the remnant thyroid tissue did not affect the disease-free survival ($P = .39$). There were no deaths in patients who underwent reoperative thyroid surgery.

Conclusions: Only tumor multifocality in the original thyroid lobe was predictive of finding additional cancer in the contralateral lobe. However, clinical significance of occult multifocal disease was not shown.

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1. Introduction

Differentiated thyroid carcinoma (DTC) is indolent in nature, with a low metastatic potential and a high definitive cure rate. Despite the improvements in imaging methods and wide use of fine-needle aspiration biopsy, there is also a group of patients who cannot be diagnosed with DTC preoperatively [1]. Therefore, indication of completion thyroidectomy sometimes becomes necessary. In spite of the accepted optimal therapeutic approach is either total or near total thyroidectomy, the extent of surgery remains controversial [2–6].

It was advocated that local recurrence and survival rates appear to be better in total thyroidectomy patients when compared to limited surgery [2,4,7–12]. This may be due to

either removing thyroid tissue itself or removing possible residual cancer foci in remnant thyroid. In this particular study, the prognostic significance of detecting cancer foci in the residual thyroid tissue in the patients who were operated on for completion thyroidectomy in 6 months after the first surgery on the disease-free and overall survival was investigated.

2. Patients and methods

2.1. Ethical consideration

The data were collected retrospectively and approved by the ethical committee of Ankara Oncology Education and Research Hospital (Turkey).

2.2. Study population

We reviewed the medical records of 97 patients who underwent completion thyroidectomy between 1989 and 2002, at Ankara Oncology Education and Research Hospital.

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The preoperative sonogram of the patients revealed unilateral nodule(s). The patients initially underwent lobectomy or lobectomy with isthmectomy based on the preoperative cytologic diagnosis of suspicion of malignancy or follicular neoplasm including Hurthle cell neoplasm. All of the patients underwent completion thyroidectomy after obtaining the final histopathologic diagnosis of thyroid carcinoma. Criteria for completion thyroidectomy were as follows: postoperative malign histopathologic diagnosis except small or single papillary carcinomas without capsular extension, lymph node, or distant metastases; significant amount of thyroid tissue detected by imaging methods, having thyrotropin levels lower than 30 $\mu\text{U}/\text{mL}$ 4 to 6 weeks postoperatively. All patients underwent reoperation within 6 months after initial surgery. None of the patients had regional lymph node or distant organ metastases. The patients were grouped as having residual malignant foci in the remnant thyroid tissue.

2.3. Compared factors

The groups were examined and compared according to age, sex, histologic type, tumor size (according to sixth edition of the TNM classification system), multifocality, vascular invasion, capsular invasion, and thyroglobulin levels 4 to 6 weeks postoperatively. The effect of the presence of residual tumor in remnant thyroid tissue on clinical course, disease-free survival, and overall survival were evaluated as well.

2.4. Postoperative treatment

Thyrotropin was suppressed to undetectable or nearly undetectable levels ($<0.1 \text{ mU}/\text{L}$) in all patients. Radioactive iodine ablation as an adjuvant therapy was given to all except 3 patients.

2.5. Follow-up procedure

After the second operation, further controls were carried out every 3 months in the first postoperative year, every 6 months in the second to fifth postoperative year, and then annually. The usual follow-up after resection of DTC at our hospital primarily includes physical examination, monitoring of serum thyroglobulin and serum thyrotropin, and iodine 131 (^{131}I) whole body scanning. Neck ultrasonography, chest radiograph, magnetic resonance imaging, and positron emission tomographic scan are often used in selected patients. Stimulated serum thyroglobulin levels are obtained 4 to 6 weeks after surgery and then approximately 12 months after ^{131}I ablation, at which point serum thyroglobulin should be undetectable. Stimulated thyroglobulin is then obtained yearly until 2 consecutive studies are negative. ^{131}I whole body scanning is performed 4 to 6 weeks postoperatively in patients to detect residual thyroid or metastatic disease. It is also performed after a therapeutic dose of ^{131}I for ablation. ^{131}I whole body scanning is

repeated yearly until 2 consecutive negative studies in patients treated with total thyroidectomy.

2.6. Disease progression

Recurrence of disease was defined as any locoregional or distant recurrence after a documented disease-free period. Patients could be treated with reoperation, radioactive iodine treatment, or both.

2.7. Statistical analyses

Descriptive statistics were calculated for all variables. The χ^2 test or the Fisher exact test was used to compare the distribution of patient demographic characteristics and tumor-related characteristics between the groups. Patients who were never disease-free after surgery were excluded from the recurrence analysis. Recurrence and survival rates were calculated as the time from surgery to recurrence or death, respectively. Outcomes were estimated by the Kaplan-Meier method and compared using the long-rank test. *P* values of less than .05 were considered as statistically significant. All analyses were carried out using SPSS software (version 13.0; SPSS Inc, Chicago, IL).

3. Results

The study included 81 women and 16 men patients. The median age was 38 years (range, 11–63 years). After initial surgery, there were 78 patients (80.4%) diagnosed as

Table 1
Compared factors affecting the detection of residual cancer foci in remnant thyroid tissue

		Residual tumor		<i>P</i>
		Yes (n = 20)	No (n = 77)	
Age		38.0 \pm 9.7	38.2 \pm 10.8	.94
Sex (no. of patients)	Male	2	14	.38
	Female	18	63	
Histologic type (no. of patients)	Papillary carcinoma	18	60	.40
	Follicular carcinoma	1	11	
	Hurthle cell carcinoma	1	6	
Tumor size (no. of patients)	T1	6	23	.24
	T2	7	23	
	T3	5	24	
	T4	2	7	
Multicentricity (no. of patients)	Yes	11	15	.002
	No	8	59	
	Unknown	1	3	
Vascular invasion (no. of patients)	Yes	1	7	.49
	No	18	67	
	Unknown	1	3	
Capsular invasion (no. of patients)	Yes	6	21	.89
	No	13	54	
	Unknown	1	2	

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