

# Management of Papillary Thyroid Microcarcinomas: Our Clinical Experience

## *Papiller Tiroid Mikrokarsinomlarının Tedavisi: Klinik Deneyimimiz*

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The prevalence of papillary thyroid microcarcinomas (PTMC) appears to be increasing in recent years. However, there are some controversies for the management of PTMCs. The present study is an evaluation of sixty two patients with PTMC in our center. Total or near-total thyroidectomy was performed in 49 (79%) and subtotal thyroidectomy in the rest (21%) of the patients. Nodal involvement of PTMC was identified in 2 (3%) patients, and distant metastases has not been detected in any patient. The tumors were multifocal in 9 (14%) of the patients. Although the survival is very good in these cancers, recurrences may occur. Therefore, the follow-up of PTMC should be made carefully in a multidisciplinary approach.

**Keywords:** Thyroid, papillary microcarcinoma, treatment

Son yıllarda papiller tiroid mikrokarsinom (PTMK) prevalansı artmaktadır. Buna rağmen, PTMK'nın tedavisinde bazı tartışmalar bulunmaktadır. Bu çalışma merkezimizdeki PTMK'lı 62 hastanın değerlendirilmesidir. Kırk dokuz (79%) hastada total veya totale yakın tiroidektomi, geri kalanlarda (21%) subtotal tiroidektomi uygulanmıştır. Nodal tutulum 2 (3%) hastada saptanmıştır. Uzak metastaz hiçbir hastada tespit edilmemiştir. Dokuz (14%) hastada multifokal tümör saptanmıştır. Bu kanserlerde yaşam beklentisi iyi olmasına rağmen rekürrensler görülebilmektedir. Bu nedenle PTMK'nın takibi multidisipliner yaklaşım ile dikkatli bir şekilde yapılmalıdır.

**Anahtar Kelimeler:** Tiroid, papiller mikrokarsinoma, tedavi

### Introduction

Papillary thyroid carcinomas (PTC) account for 85-90 % of all thyroid tumors. In recent years, ultrasonography and fine needle aspiration biopsies have been used more frequently to evaluate the thyroid nodules. Therefore, PTCs are being diagnosed in smaller sizes and also at earlier stages (1).

PTC, which is less than 1.0 cm in size, is defined as a papillary thyroid microcarcinoma (PTMC) by World Health Organization (2). Besides being diagnosed by ultrasonography and fine needle aspiration biopsies, PTMCs are often identified incidentally at surgery for benign thyroid disorders.

Differentiated thyroid carcinomas, in general, have usually excellent prognosis. There are several prognostic risk factors in PTCs. One of the most important factors is the tumor size besides age, extension beyond the thyroid capsule and distant metastases (3). Therefore, PTMCs are considered to have even better outcome. However, some PTMCs

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may be more aggressive. Local recurrences in the neck and distant metastases have been reported in several studies (1, 4-6). It is important to identify the patients with PTMC with good prognosis versus with poorer prognosis in order to decide for the optimal treatment. However, the optimum management of this group of thyroid tumors has not been established. This study represents our experience with PTMC.

### Material and Methods

Between 1999 and 2005, 62 patients with PTMC have been treated at Gazi University Medical Faculty, Departments of General Surgery and Endocrinology and Metabolism. The records of these patients were reviewed retrospectively. Patient histories, indications for surgery, operation procedures (bilateral thyroidectomy or unilateral lobectomy), and histopathological examinations were recorded.

Statistical analysis was performed using the SPSS 10.0 software package program (Chicago, IL, USA). Descriptive analysis was performed. The results were expressed as mean  $\pm$  standard deviation (SD).

### Results

The mean age was  $47.1 \pm 9.9$  (22-66) years in patients with PTMC [53 (85.5%) women and 9 (14.5%) men]. Forty-seven patients had multinodular, and 15 had solitary nodular goiters. Fine needle aspiration biopsies revealed papillary carcinoma in 12 patients, follicular carcinoma in one patient and suspicion for malignancy in 7 patients. Indications for surgery were malignancy or suspicion of malignancy in fine needle aspiration biopsies, hyperthyroidism and progress in nodule volumes.

Bilateral total thyroidectomy and near-total thyroidectomy in 49 (79%) patients and subtotal thyroidectomy in the rest (21%) of the patients were performed. Unilateral lobectomy has not been performed in any patient.

In 9 (14%) of the patients the tumor was multifocal. Extrathyroidal invasion was not found in any of the patients. Also, no distant metastases was diagnosed in the patients. However, nodal involvement of PTMC was identified in 2 (3%) patients during surgery and lymph node dissection

have also been performed in those patients in addition to a total thyroidectomy.

Radioactive iodine remnant ablation treatment was given to 46 (74.1%) patients.

### Discussion

PTC, which is smaller than 1.0 cm in size is called as PTMC (2). PTMC, as a specific subgroup of PTC, merits attention because of the increased frequency in recent years. PTMCs account for about 30% of all PTCs (7). PTMCs are mostly detected incidentally, with a high prevalence in autopsy studies and in histopathological examinations of surgical specimens. Also, they are being diagnosed more often with the increased practice of ultrasonography and fine needle aspiration biopsies in recent years. It has been reported that incidental microcarcinomas (found in surgeries for benign thyroid diseases) have a lower risk for recurrence than the patients with nonincidental disease (1). In our study, nearly 75 % of the microcarcinomas have been found incidentally in surgeries.

It is known that PTMCs have a very good prognosis with a mortality rate as low as 0-1% (8, 9) but local recurrence is about 4-6% (4, 5, 8). So, the treatment should be planned according to the risks of recurrence. Mean follow-up time for our patients is about 3.5 years and we did not find any local recurrence of PTMC.

It has been recommended that total or near-total thyroidectomy should be performed for tumors larger than 1 cm in size in most of the guidelines (10, 11). Also, unilateral lobectomy has been reported to be appropriate for the tumors smaller than 1 cm in size in these guidelines. However, there is a wide spectrum of treatment modalities in several centers.

In autopsy studies, PTMC is present in 1-36 % of the patients (8). Therefore, most of the PTCs are latent. Based on this observation, Ito Y et al. (12) conducted a study that they observed 211 patients with PTMC with a mean follow-up for 47.9 months. In more than 70 % of the patients the tumor size did not increase during the follow-up. As a result, the authors suggested that micro-

carcinomas that do not have unfavorable features can be followed without immediate surgical treatment.

Other than this extraordinary approach, some centers perform lobectomy in accordance to current guidelines; however, nowadays the treatment of choice is becoming mostly total or near-total thyroidectomy (13). Total or near-total thyroidectomy offer the possibility of better monitoring of treated patients by radioiodine scan and thyroglobulin measurements to detect persistent or relapsing disease. It also facilitates the yield of postoperative radioiodine ablation therapy, if indicated (13). Opponents to this approach suggest that total thyroidectomy may have some complications. However, we think that with experienced surgeons this procedure can be safely performed with minimal morbidity. Therefore, we don't prefer unilateral lobectomy in our clinic.

PTCs are often found to be multifocal. This is also true for PTMCs. It has been revealed that multifocal tumors have a higher relapse rate than unifocal tumors (1, 12). Dietlein M et al. (14) studied incidental multifocal papillary carcinomas and concluded that subtotal thyroidectomy followed by radioiodine therapy is a possible treatment option in multifocal microcarcinomas. Pellegriti G et al. (1) evaluated 299 patients with papillary carcinomas less than 1.5 cm in size. The authors found that nearly 1/3 of papillary microcarcinomas in their series were multifocal and 1/5 of the tumors were bilateral and they suggested that total thyroidectomy should be the choice of therapy in PTMCs. In our study we detected multifocality in 14 % of the patients.

Radioactive iodine ablation therapy in PTCs may reduce the frequency of recurrence and possibly mortality. Theoretical goals of radioiodine ablation are to destroy any residual microscopic carcinoma and facilitate follow-up and early detection of recurrent or metastatic disease by measurement of serum thyroglobulin levels or radioiodine scanning (15). It has been reported that radioiodine therapy is safe, and does not appear to be associated with any genetic risks to the offspring (16). Pearce EN et al. (17) suggested that after total thyroidectomy, postoperative radioiodine thyroid remnant ablation should be given in patients who have multicentric tumors, positive lymph nodes, or tumors with

capsular or vessel invasion in PTMEs. Most of the patients in our follow-up is low-risk patients, however, our radioactive iodine treatment rate is high. Our country is an iodine deficient area; and after the application of iodine prophylaxis programme, we observe higher serum thyroglobulin antibody measurements. We give radioiodine ablation therapy after surgery to patients with PTMC if they have multifocal tumors, nodal involvement, positive thyroglobulin antibody or age over 45 years.

In conclusion, we think that bilateral surgical approach instead of unilateral lobectomy should be preferred not only for the papillary carcinomas larger than 1 cm, but also for PTMCs. In addition, we give radioactive iodine ablation treatment in selected patients. We also think that our different approach may contribute to better disease-free survival in patients with PTMC.

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