Turkish Journal of Endocrinology and Metabolism, (1999) 1 : 37-40 **ORIGINAL ARTICLE**

Surgery of Thyroid Cancers; Retrospective Analysis of 120 Cases

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The goal of this retrospective study was to evaluate the surgical methods used and their outcome in 120 patients. In the last five years, 120 patients with thyroid cancer were treated and their data were reviewed. The diagnosis was made by fine needle aspiration biopsy (FNAB) in 60 (50%) patients, by frozen section in 12 (10%) patients and by surgical specimen histology in 48 (40%) patients who were operated on for nodular goiter. The data of 120 patients verified well differentiated papillary carcinoma in 70 (58%) patients, follicular carcinoma in 34 (28%) patients, medullary carcinoma in 10 (9%) patients and indifferentiated carcinoma in 6 (5%) patients. Tumor size was found to be less than one cm. in 24 (20%) patients and was evaluated as microcarcinoma. Seventy-six (63%) patients underwent total thyroidectomy, six (5%) near total thyroidectomy, 32 (27%) unilateral lobectomy on the affected side and subtotal thyroidectomy to the contralateral lobe. No operation was performed on the patients with indifferentiated carcinomas. Neck dissections and muscle excisions were performed on 24 (20%) patients. Eighty-four (70%) patients were able to be followed up after the operation and the median follow up time was 2,2 years. Cancer mortality rate was five percent, occurring in six patients with indifferentiated carcinoma. Permanent postoperative complications were hypoparathyroidism in three patients and recurrent nerve injury in one patient.

KEY WORDS Thyroid cancer, surgical treatment

Introduction

Thyroid cancer is a slowly progressing disease with an overall favorable outcome. The most common types of thyroid carcinomas are the well differentiated thyroid carcinomas, papillary and follicular, which derive from follicular cells of the thyroid. Medullary thyroid carcinoma derives from the second major cell type, the parafollicular or C cells which produce calcitonin. Anaplastic carcinoma of the thyroid is an undifferentiated form with grave prognosis due to its aggressive local invasion and resistance to radiation (1).

The standard surgical treatment for differentiated thyroid cancer is total thyroidectomy (except patients with papillary carcinoma and minimally invasive follicular cancer), radioiodine treatment and TSH suppressive therapy. Most surgeons and endocrinologists recommend thyroid lobectomy for patients with occult papillary thyroid cancers and for patients with minimally invasive follicular cancer. The prognosis of thyroid cancer is reported to be dependent on histologic type, tumor stage, age, sex and local macroscopic and microscopic invasion beyond the thyroid capsule. These certain factors have been linked to tumor behavior and used to determine prognosis (2,3).

The most common specific complications of surgery for thyroid cancer include vocal cord dysfunction resulting from injury to the recurrent or external laryngeal nerves and hypoparathyroidism. During thyroid operations, it is important to achieve a balance between the benefits of extensive resection for cure and the increased potential for complications (4,5).

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The purpose of this retrospective case study is to evaluate the surgical treatment methods, their results, and complications of thyroid cancer.

Patients and Methods

120 patients with thyroid carcinoma were treated and followed up in the General Surgery Department of Gulhane Military Medical Academy between 1992 and 1997. Patients with well documented histologic, surgical and radiotherapeutic records were included in this study. The prognostic scoring system of Cady and Rossi, AMES (Age, Metastasis, Extent, Size), was used to determine the low or high risk patients. Low risk patients were defined as men<41 or all older patients with intrathyroidal cancer or minor tumor capsular involvement or primary cancer<5 cm. with no distant metastasis. High risk patients were defined as all patients with distant metastasis or all older patients with 1) extrathyroidal differentiated cancer or major capsular involvement and 2) primary cancers>5 cm. in diameter regardless of the extent of the disease.

Of the 120 patients studied, there were 70 women and 50 men with a mean age at diagnosis of 32, 5, ranging from 11 to 70. Eighteen (15%) patients were over the age of 40 at presentat137on. Eighty-four (70%) patients were able to be followed up for a median of 2,2 years.

The diagnosis was made by fine needle aspiration biopsy (FNAB) in 60 (50%) patients, by frozen section in 12 (10%) patients and by surgical specimen histology in 48 (40%) patients who were operated on for nodular goiter. 76 (63%) patients underwent total thyroidectomy, 6 (5%) near total thyroidectomy, and 32 (27%) unilateral lobectomy on the ipsilateral and subtotal lobectomy on the contralateral lobe. No operation was performed on the patients with anaplastic carcinoma. (Table 1 shows the operative procedures for 114 patients). For 24 (20%) patients, neck dissections and muscle excisions were added to thyroid resections.

Table 1. Surgical methods performed for thyroid cancer in 120 patients.

Surgical methods	No of patients
Total thyroidectomy	76 (63 %)
Near total thyroidectomy	6 (5 %)
Lobectomy on ipsilateral side	32 (27 %)
Not operated	6 (5 %)

Results

The data of 120 patients verified well differentiated thyroid carcinoma (WDTC) in 104 patients. Seventy of the 104 patients (58%) had papillary WDTC, the other 34 (28%) had follicular WDTC. Medullary carcinoma was found in 10 (9%) patients and FNAB proved anaplastic carcinoma in 6 (5%) patients (Table 2 shows the pathologic diagnoses). Tumor size was found to be between one to four cm.in 64 (53%) patients. According to AMES criteria, 90 of the 104 patients (88%) with WDTC were evaluated as being low risk patients and 14 (12%) as high risk patients.

Tablo 2. Pathologic diagnoses of 120 cases.

Pathologic diagnoses	No of patients
Papillary carcinoma	70 (58.3 %)
Follicular carcinoma	34 (28.3 %)
Medullary carcinoma	10 (8.6 %)
Anaplastic carcinoma	6 (5 %)

Mortality rate was five percent and all deaths were seen in 6 patients with anaplastic carcinoma. For differentiated carcinomas, no mortality was seen in the follow-up period. Permanent postoperative complications were hypoparathyroidism in three patients and recurrent nerve injury in one patient.

Discussion

Well differentiated papillary and follicular carcinoma account for 80 % to 90% of thyroid carcinomas and generally have an excellent overall prognosis. WDTC is a slow growing disease that affects patients at a relatively young age. In this study, 58% of thyroid cancers were papillary carcinoma and 28% were follicular thyroid

carcinoma. The ratio of papillary to follicular carcinoma was 2,07 to 1. This is reported as 4,5 to 1 by Samaan et al. and 5,3 to 1 by Lin et al (7-9). The difference in the ratio of papillary to follicular carcinomas in our patients is probably due to inefficient iodination and endemic goiter in Turkey.

Thyroid microcarcinomas are usually found incidentally and most authors tend to agree that morbidity and mortality from microcarcinoma is minimal. The twenty percent rate of microcarcinoma in the present study is similar to the one in literature (9-11).

Total thyroidectomy is the surgical treatment most commonly performed for thyroid cancers. Total thyroidectomy allows for complete tumor removal. Retrospective studies support this approach, reporting decreased mortality (nine percent with lobectomy, six percent with total thyroidectomy) and reduced local recurrence rate (40% with lobectomy, 26 % with total thyroidectomy) in patients with cervical lymph node metastasis who are treated with total thyroidectomy rather than lobectomy (12). Total thyroidectomy accomplishes three other purposes in addition to complete removal of primary cancer. It allows preparation of the patient for radioactive I^{131} treatment to make the patient hypothyroid. It makes serum thyroglobulin levels more sensitive in detecting recurrent or persistent disease. It makes it possible for multifoci in the thyroid gland to be removed (4,12,13). Unilateral lobectomy may be chosen for patients with microcarcinoma and WDTC less than 2 cm without angio or capsular invasion (8,12). In this study, 63% of the patients were treated with total thyroidectomy and 5% with near total thyroidectomy. Patients with microcarcinoma and some low risk patients were treated with lobectomy on the affected side.

Anaplastic carcinoma account for 5% to 14% of thyroid neoplasms. They have aggressive behaviour and mean survival usually can be measured in months. They are almost inoperable at the time of diagnosis (14,15,16). In the present study, five percent of the patients were diagnosed as anaplastic cancer and died in months without any therapeutic intervention.

Medullary thyroid carcinoma (MTC) account for five percent to ten percent of all thyroid neoplasms. Eighty percent of MTC is sporadic and 20% occurs as part of a MEN syndrome (17-19). In our study, ten patients with MTC, two of them being MEN 2A and eight of them sporadic, were treated with total thyroidectomy.

Permanent recurrent nerve paralysis and hypoparathyroidism are the most important specific complications after thyroid surgery. Reoperations and more radical surgical methods make the complication rates higher. Complications concerning the laryngeal nerve cause considerable morbidity and occur in up to five percent of the patients. Permanent hypoparathyroidism occurred in less than three percent of the patients (4,12,20). In the present study, recurrent nerve paralysis was seen in one patient and permanent hypoparathyroidism occurred in three patients. All complications occurred in reoperated patients.

In conclusion, well differentiated papillary and follicular carcinomas are the most common types of thyroid cancer and if they are in the low risk group according to AMES criteria, they have a good prognosis. Total thyroidectomy is the most accepted method for treatment of thyroid cancer and it may be performed with a low complication rate.

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