Total Thyroidectomy

The Treatment of Choice for Patients With Differentiated Thyroid Cancer

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There is considerable controversy about the most appropriate treatment of patients with thyroid cancer. This report concerns the author's experience with 82 consecutive patients having total thyroidectomy from January 1977 through December 1981. The age of the patients ranged from 21 to 86 years (mean age 44 years). There were 44 women and 38 men. Twenty-four patients (29%) had had previous thyroid operations; ten patients (11%) had coexistent parathyroid adenomas removed; and seven patients (8.5%) had modified radical neck dissections. Thirty-four patients (41%) had a history of radiation to the head and neck, and 12 (35%) of the 34 irradiated patients and 51 (63%) of the entire group of 82 patients had thyroid cancer (45 papillary, five follicuar, one medullary). Coexistent lesions in the patients with papillary cancer included Hashimoto's thyroiditis, five patients; parathyroid adenomas, four patients; Graves' disease, one patient; Hurthle cell neoplasm, one patient; and amyloid struma, one patient. If less than total thyroidectomy had been performed, 26 (51%) of the 51 patients with thyroid cancer would have had cancer left in the residual thyroid lobe, and focal cancers in the lobe opposite to the one containing the nodule for which the operation was performed would have been missed in five patients (10%). Five of the 20 patients with unilateral cancer had follicular cancer. Complications included one case of permanent hypoparathyroidism and two cases of transient bilateral recurrent laryngeal nerve palsy. Ninety-six per cent of the patients were discharged within four days of thyroidectomy, 94% by three days, and 79% by two days. Uptake of radioactive iodine was not above background levels in nine (26%) of the 35 patients studied after operation and was less than 1% in the remainder. These data suggest that total thyroidectomy is the treatment of choice for patients with thyroid cancer because residual cancer would persist in the remaining thyroid tissue in at least 61% of patients if only lobectomy had been performed. Total thyroidectomy can be done with minimal permanent disability in patients with benign and malignant thyroid tumors, in patients who have had previous thyroid operations, and in patients with coexistent hyperparathyroidism.

THERE IS CONSIDERABLE controversy concerning the most appropriate surgical treatment of patients with differentiated thyroid cancer. The spectrum of recommended procedures varies from excisional biopsy to total thyroidectomy.[2,3,4,7,10,12,13,23,35] Near total thyroidectomy is the procedure advocated most often in the United States, but total lobectomy plus isthmusectomy is strongly endorsed by some investigators.[4,7,30] There is a virtual consensus that lobectomy is the least that should be done for a thyroid nodule thought possibly to be a cancer; lesser procedures increase the chance of recurrence and decrease the chance of long-term survival.[2,3,12,25] In several retrospective studies, survival after lobectomy was comparable with that after more extensive resections.[4,7,30] Lobectomy is associated with fewer complications than is total thyroidectomy, since only one recurrent nerve is at risk, and it is impossible to remove or injure all of the parathyroid glands. Whether lobectomy offers the same long-term survival as total or near total thyroidectomy for patients with differentiated thyroid cancer is unknown.

Several studies, however, suggest that when treating papillary and follicular thyroid cancers larger than 1.5 cm in diameter, total thyroidectomy may be the treatment of choice.[6,12,13,25] Some surgeons have compared the results of lobectomy with those of total thyroidectomy. Despite the fact that total thyroidectomy was utilized in patients with more extensive tumors, the long-term results were as good as those described for smaller or unilateral tumors treated by lobectomy.[7,30]

In the author's opinion total thyroidectomy has theoretic and practical advantages for differentiated thyroid cancers, even though it entails a slightly higher complication rate. Total thyroidectomy should not be performed, however, in a noncompliant patient who might not take thyroid medication, or when at least one viable parathyroid gland cannot be identified and preserved. Furthermore, the complication rate must be kept below 2%.

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TABLE 1. *Indications for Operation**

(82 Patients)	Number
History of irradiation and thyroid nodule	34
Thyroid nodule	19
Documented thyroid cancer (preoperatively)	19
Thyroid cancer by aspiration biopsy cytology	6
Hyperparathyroidism and thyroid nodule	10
Recurrent benign goiter	4
Recurrent amyloid struma	1
Coccidioidomycosis	1
Graves' disease with suspicious nodule	1
Graves' disease with severe exophthalmos	1

* Some patients more than one indication.

This report demonstrates that total thyroidectomy can be performed safely, and under these circumstances, is the treatment of choice for patients with differentiated thyroid cancer larger than 1.5 cm. If less than total or near total thyroidectomy had been performed, 31 patients (61%) would have been left with residual cancer in the thyroid. The residual cancer was microscopic or occult (less than 1.5 cm in diameter) in only seven of these patients.

Methods and Materials

This report concerns the author's experience with 82 consecutive patients having total thyroidectomy at the University of California Medical Center and the Veterans Administration Medical Center in San Francisco, California from January 1977 to January 1982. The age of the patients ranged from 21 to 86 years (mean age 44 years). There were 44 women (mean age 37.9 ± 2.2 years) and 38 men (mean age 50.3 ± 2.5 years). The indications for operation are listed in Table 1. The majority of these procedures were performed because of a thyroid nodule in a patient with a history of low-dose irradiation to the neck (34 patients) or because of thyroid cancer documented before operation by histologic (19 patients) or by cytologic (six patients) examination. Twenty-four patients had had a previous thyroid operation, and ten patients (five of whom had been irradiated) had coexistent parathyroid adenoma and hyperparathyroidism. Six patients had recurrent nodular goiter, two with a history of irradiation, one caused by amyloid struma, and one caused by coccidioidomycosis. One patient had Graves' disease with a suspicious thyroid nodule, and one other patient had recurrent Graves' disease and severe exophthalmos. Some patients had more than one indication for operation.

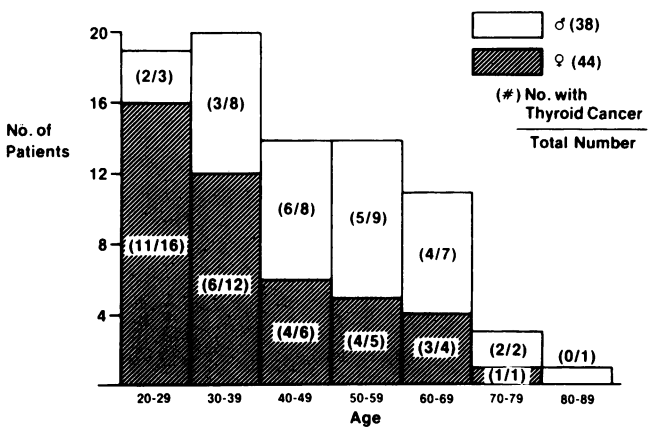

FIG. 1. Age and sex of patients with benign and malignant thyroid tumors.

In this study all thyroid cancers were a pure papillary or a mixed papillary-follicular pattern are considered as papillary cancers. Total thyroidectomy is defined as the surgeon's attempt to perform an extracapsular removal of the thyroid gland preserving the parathyroid glands, recurrent laryngeal nerves, and external laryngeal nerves. The technique used is comparable with that previously reported.[1,14,25] The blood supply to the parathyroid glands is preserved by ligating the branches of the inferior thyroid artery on the thyroid capsule rather than by ligating the main vessel proximally. By dissecting the vessels and parathyroid glands from the thyroid gland, the blood supply to the parathyroid glands is preserved. Initially, no attempt is made to identify the recurrent laryngeal nerves because the parathyroid glands might be devascularized. The recurrent nerves are eventually identified, and injury to the nerves is avoided by clamping only small amounts of tissue. It is rarely necessary to transplant normal parathyroid glands into the sternocleidomastoid muscle during this operation. Transplantation is performed when the vascular pedicle to the parathyroid has been compromised, when the parathyroid gland is surrounded by tumor, or when it is identified on the surface of the extirpated thyroid gland. The nature of the presumed parathyroid gland should be confirmed by frozen section of a biopsy before transplantation to avoid transplanting thyroid cancer. Modified radical neck dissection is used only in patients with clinically palpable cervical lymphadenopathy or proven metastatic thyroid cancer within the lymph nodes.

The duration of follow-up evaluation is short (four months to four years). Tumor was judged to have recurred if histologically proven thyroid cancer was documented in a patient initially considered to be free of disease following surgery or if metastatic disease was observed by uptake of I^{-131} outside of the thyroid bed.

Results

The age and sex of the patients and the distribution of benign and malignant thyroid tumors are presented in Figure 1. Twenty-nine (66%) of the 44 women and

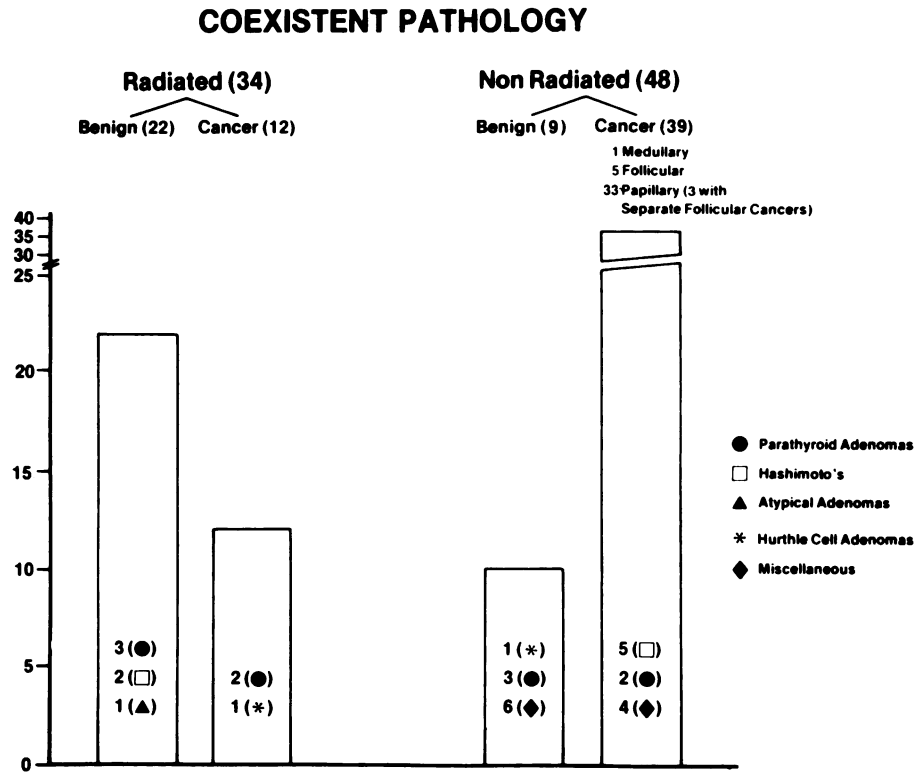

FIG. 2. Distribution of tumors in irradiated and non-irradiated papilloma.

22 (58%) of the 38 men had thyroid cancer. Among the 34 irradiated patients, 22 (65%) had benign lesions and 12 (35%) had cancer (Fig. 2). Five of these patients, three with benign thyroid disorders and two with thyroid cancer, had parathyroid adenomas. Two other patients had Hashimoto's thyroiditis, one patient had a Hurthle cell neoplasm, and another patient had an atypical adenoma.

Among the 48 patients without radiation exposure, 39 (81%) had thyroid cancer and nine (19%) had a benign thyroid lesion (Fig. 2). Only papillary thyroid cancers occurred in the irradiated patients, whereas five follicular and one medullary carcinoma occurred in the nonradiated group. Coexistent pathology in the nonradiated group included five patients with parathyroid adenomas, five patients with Hashimoto's thyroiditis, one patient with a Hurthle cell adenoma, and ten patients with various other thyroid disorders. The stage, type, and extent of the thyroid cancers are illustrated in Figure 3. Forty-five patients had papillary thyroid cancer, 15 with a single focus of tumor and 30 with multifocal papillary thyroid cancers. Twenty-five of the papillary cancers and one medullary cancer were bilateral. All five follicular cancers were unilateral.

Lymph node metastases were present in 16 patients. In one patient with invasive papillary thyroid cancer, and Graves' disease, a metastasis was identified in his left femur by postoperative I^{-131} scanning. Three patients with papillary thyroid cancer had a single focus of follicular thyroid cancer in the contralateral lobe. Whether these represent two separate tumors or intraglandular spread of a mixed papillary-follicular tumor is unknown, but for this study they are included with the patients with papillary cancer. Five papillary thyroid cancers were found in the lobe opposite the nodule for which the operation was performed. These five cancers (two of which were multifocal and invasive, one of which was 2 cm in diameter, and two of which were occult) would have been missed if less than total thyroidectomy had been performed. Five other unsuspected lesions were found in the lobe opposite the index lesion: one follicular carcinoma, two Hurthle cell neoplasms, and two atypical adenomas. In fact, if lobectomy alone had been performed, 31 (61%) of the patients with cancer would have had cancer left in the thyroid gland, and in only seven patients was this microscopic or occult disease.

Seventeen of 24 patients who had previous thyroid operations had persistent thyroid cancer at reoperation. The reasons for reoperation in the seven patients with benign thyroid disorders included recurrent benign nontoxic nodular goiter (four patients, two with history of irradiation), recurrent amyloid struma (one patient), coccidioidomycosis and persistent sepsis (one patient), and recurrent Graves' disease with severe exophthalmos (one patient). The previous operations consisted of lobectomy, 14 patients; subtotal thyroidectomy, seven patients; and partial thyroidectomy, three patients (Fig.

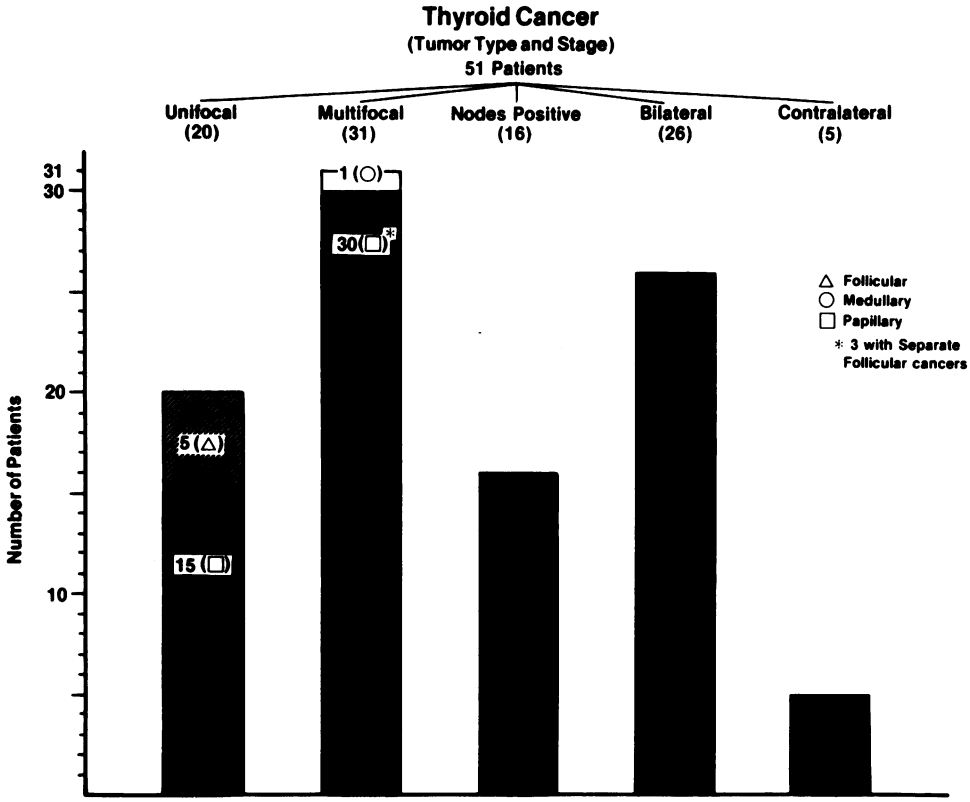

FIG. 3. Stage, type and extent of thyroid cancers.

4). Papillary thyroid cancer was found at reoperation in nine of the 12 patients with papillary cancer, but in none of the five patients with follicular carcinoma. Reoperation is recommended in patients with papillary thyroid cancer if (1) the primary cancer is larger than 1.5 cm, (2) if the lesion is multifocal or invasive, (3) if tumor is found at the margin of the specimen, or (4) there are lymph node metastases. The operations performed for the entire group of 82 patients are listed in Table 2. Forty-three patients had total thyroidectomy, 23 patients had completion of total thyroidectomy after a previous lesser thyroid resection, nine patients had total thyroidectomy and removal of a solitary parathyroid adenoma, six patients had total thyroidectomy and a modified neck dissection, and one patient had completion of total thyroidectomy and modified neck dissection.

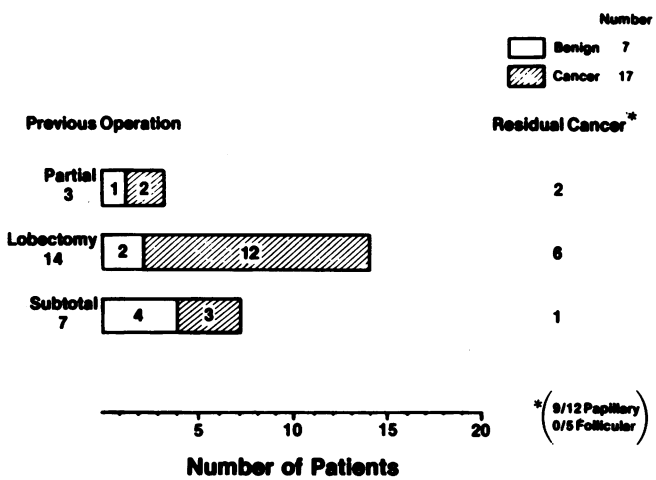

FIG. 4. Repeat operations in 24 patients.

The serum calcium levels before and after operation in these patients are illustrated in Figure 5. One patient has hypoparathyroidism. He is the only patient taking calcium or vitamin D, although nine other patients received calcium supplementation for one to eight weeks immediately after surgery. This patient was treated with bilateral neck dissection and total thyroidectomy for a multifocal papillary thyroid cancer that virtually replaced the gland, surrounded the recurrent laryngeal nerves bilaterally, and involved 32 of 40 lymph nodes in the left neck and eight of 15 in the right neck. He is well with a normal voice three and a half years after treatment without evident tumor; he received I^{-131} therapy after operation.

The duration of hospitalization is illustrated in Figure 6. Seventy-nine patients (96%) were discharged within four days of operation and 77 patients (94%) within three days. Three patients required prolonged postoperative hospitalization. One patient was critically ill before total thyroidectomy despite intensive medical therapy for coccidioidomycosis. Even though he had systemic coccidioidomycosis, his general condition im-

proved rapidly after total thyroidectomy.[11] In the two other patients the postoperative course was prolonged because a temporary tracheostomy had been required. Both had bilateral recurrent nerve palsy despite careful identification and preservation of the recurrent laryngeal nerves during the operation. One was a 21-year-old man who had multifocal papillary thyroid cancer with lymph node metastases in the superior mediastinum. He also had acanthosis nigricans, hypospadias, and hyperinsulinism. His operation was uneventful and not difficult, so the transient postoperative vocal cord paresis was unanticipated. The other patient with a transient bilateral recurrent nerve palsy had an exceedingly large (200 g) thyroid gland, which had grown rapidly and was fixed on physical examination. Frozen section examination of the lymph nodes anterior to the larynx (Delphian nodes) was reported as showing metastases, and removal of the thyroid gland was technically difficult. On permanent sections he was found to have Hashimoto's thryoiditis, and the report on the lymph nodes was changed to benign. Both of these patients had their tracheostomy tube removed by one week and are well with normally functioning vocal cords. Prophylactic tracheostomy has been recommended for patients who require resection of extensive thyroid cancer surrounding the recurrent laryngeal nerves, but fortunately this is only rarely required.[24] One other patient with a multifocal mixed papillary-follicular thyroid cancer and amyloid struma required reoperation for a postoperative hematoma. Recurrent cervical lymphadenopathy occurred in one patient, a 64-year-old man with extensive thyroid cancer and nodal metastases, several months after total thyroidectomy and modified neck dissection. The cervical adenopathy proved to be caused by metastases in lymph nodes, which were resected. He has subsequently received radioactive iodine and is well.

Radioactive iodine was given to 35 patients three to four months after total thyroidectomy, about two weeks after discontinuing tri-iodothyronine replacement therapy. In nine patients (26%) there was no I-^{131} uptake above background levels, whereas 26 patients (74%) had minimal uptake (generally less than 1%) either in the thyroid bed (23 patients) or elsewhere (three patients).

TABLE 2. *Operations*

	Number
Total thyroidectomy	43
Completion, total thyroidectomy	23
Total thyroidectomy and parathyroidectomy	9
Total thyroidectomy and modified neck dissection	6
Completion total thyroidectomy and modified neck dissection	1
	82

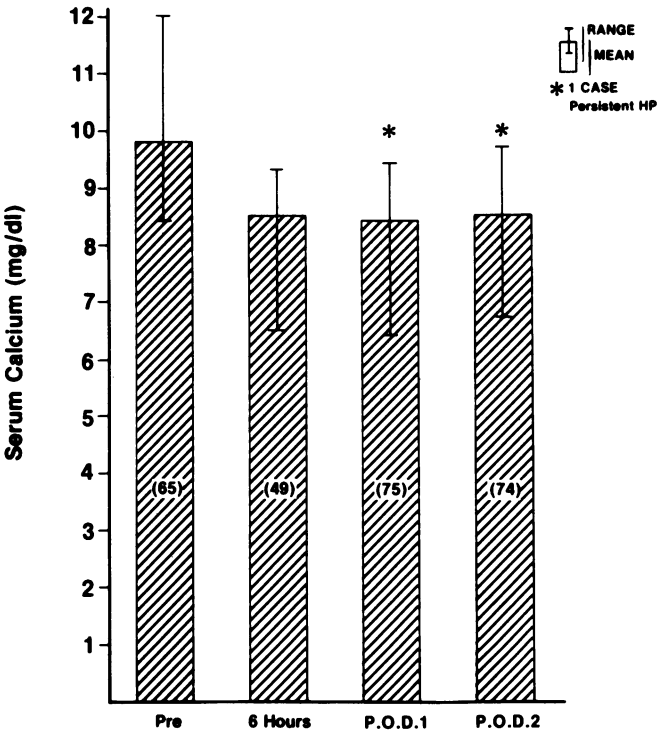

FIG. 5. Serum calcium levels (mg/dl) before and after total thyroidectomy. Number in parentheses is number of samples. *One patient with persistent hyperparathyroidism due to a mediastinal adenoma that was subsequently localized is not included in postoperative levels.

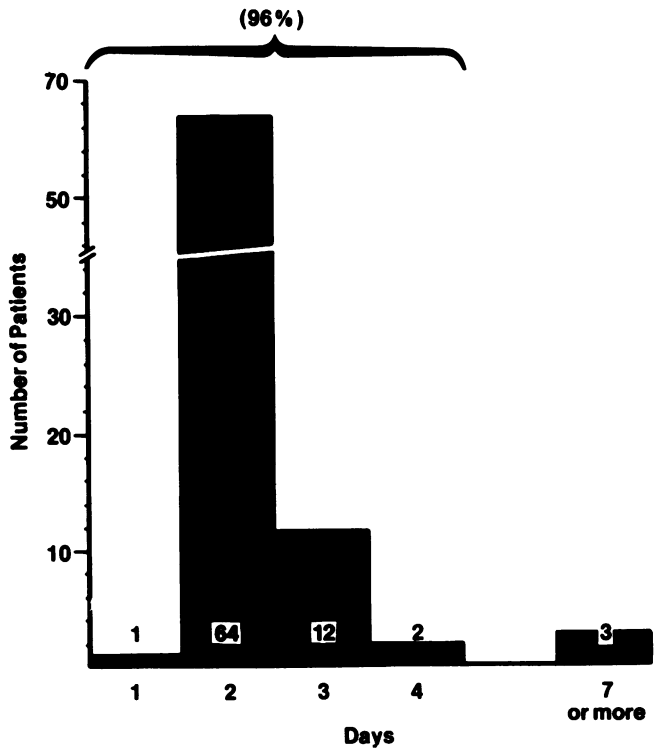

FIG. 6. Duration of hospitalization.

Discussion

This study demonstrates that total thyroidectomy can be performed with minimal morbidity for patients with both benign and malignant tumors of the thyroid gland, in patients with thyroid lesions and associated parathyroid adenomas, and in patients who have had a previous thyroid operation. Not everyone would agree that total thyroidectomy is necessary or even indicated for patients with papillary thyroid carcinoma or benign disorders of the thyroid gland. If less than total thyroidectomy had been performed in the 51 patients with thyroid cancer in this series, however, 26 patients (51%) would have had cancer left in the remaining thyroid lobe, and unilateral thyroid cancers would have been missed in five additional patients (10%). In only seven of these patients was the residual cancer microscopic or occult (<1.5 cm in size). Five of the 20 patients with unilateral thyroid cancer had follicular cancer. In these patients the remaining thyroid tissue was removed not because of a high frequency of intraglandular spread or multifocal tumor, such as in patients with papillary thyroid cancer, but to facilitate uptake of radioactive iodine by possible metastases. Sixteen patients had lymph node metastases, and one had a distant metastasis. Although occult papillary thyroid cancer has an excellent prognosis, the natural history of untreated occult cancers is unknown and all thyroid cancers were at one time occult.[33] Total thyroidectomy eliminates multifocal cancers, eliminates the possibility of transformation of a differentiated to an undifferentiated thyroid cancer, lowers the overall recurrence rate, and most importantly, allows metastases to take up radioactive iodine.[6,12,13,32,35] Follicular and approximately 80% of papillary thyroid cancers will take up radioactive iodine if all normal thyroid tissue has been eliminated.[12,15]

Some clinicians believe it is impossible to perform a true total thyroidectomy, because uptake of radioactive iodine can be detected if the patient is allowed to become hypothyroid after operation. Although most (74%) of the author's patients had some radioactive iodine uptake within the thyroid bed (23 patients) or elsewhere (three patients) after total thyroidectomy, it was invariably less than 1%, and in 26% of patients there was no uptake at all above background levels. Care must be taken not to leave any thyroid tissue when clamping the superior thyroid vessels, when mobilizing the pyramidal lobe, and when dividing the ligament of Berry. The recurrent laryngeal nerve often lies on the thyroid gland just before it enters the posterior medial portion of the cricothyroid muscle, and may be in jeopardy as the suspensory ligaments are taken.

Total thyroidectomy was used in patients with a history of low-dose (6–2000 rad) radiation because cancer is more frequent and often multifocal in such patients.[9,16] The incidence of thyroid cancer in the patients with a history of irradiation (35%) is comparable with what others have reported.[8,9,16] In patients with a history of radiation it is often difficult to know whether the index nodule is a thyroid cancer or whether cancer is situated elsewhere within the gland; cancer is found as often elsewhere in the gland as in the index nodule.[20] Thus any nodule in a patient with a history of irradiation should be considered a possible harbinger of thyroid malignancy, and the remaining irradiated thyroid tissue is also more likely to develop thyroid cancer than is nonirradiated thyroid tissue.[8,9,16] The number of persons who develop thyroid cancer after exposure to low-dose irradiation increases with each decade after exposure for at least three decades.[18]

Total thyroidectomy was also performed in nine patients with benign thyroid disorders who had no history of irradiation to the neck. Four of these patients had recurrent nodular goiter and were thought possibly to have cancer. Among the other five patients cancer was not suspected. One was a 34-year-old woman who presented with a 300 to 400 g recurrent goiter. She had had two previous subtotal thyroid resections for a benign goiter which recurred even though she claimed to be taking thyroid hormone. One patient was a 21-year-old man who had recurrent amyloid struma and a large goiter; one was a 45-year-old man with coccidioidomycosis; one was a 55-year-old man with recurrent Graves' disease and exophthalmos; and one was an 86-year-old man with hyperparathyroidism in whom the parathyroid adenoma (subsequently found to be mediastinal) could not be located. All of the patients with benign thyroid disorders appeared to benefit from thyroidectomy, and there were no complications among this group.

Patients with a nodular goiter and a history of radiation plus primary hyperparathyroidism present another problem. The extent of the dissection required to identify all four parathyroids would make a subsquent total thyroidectomy virtually impossible because of adhesions and the loss of normal tissue planes. Although a higher incidence of hypoparathyroidism has been described in patients having combined thyroid-parathyroid surgery, this has not been my experience. Patients with "hungry bones" and elevated serum alkaline phosphatase levels may be more prone, however, to temporary hypoparathyroidism.[31]

The duration of follow-up among these patients is too short to know whether total thyroidectomy influenced survival. Recurrent lymphadenopathy developed in one patient. The lesion was re-excised from this patient, and he was subsequently treated with radioactive iodine. Another patient has increased uptake of radioactive io-

TABLE 3. *Rationale for Total Thyroidectomy*

1. Bilateral cancer occurs in 30 to 85% of patients.[10,19] Over 80% of patients with papillary thyroid cancer have, at least, microscopic thyroid cancer in the contralateral lobe.
2. Recurrent thyroid cancer occurs in the contralateral lobe of the thyroid gland 4.7 to 24% (mean recurrence about 7% of patients.[12,17,27]
3. Half of the patients who develop recurrent thyroid cancer die from this disease.[21,27]
4. Recurrence rate is lower after total thyroidectomy than after other thyroid operations for thyroid cancer.[6,12,25,35]
5. Survival in some series is greater after total thyroidectomy for clinically significant thyroid cancer (>1.5 cm) than after other procedures.[12,13,35]
6. Forty to 50% of persons dying of thyroid cancer die of central neck disease.[12,22]
7. Radioactive iodine may be used for diagnosis and treatment of recurrent thyroid cancer and is useful for treating microscopic disease after the entire thyroid gland has been removed.[12,13,29,35]
8. Thyroglobulin (Tg) levels may be used to screen for recurrent or persistent disease. After total thyroidectomy serum Tg levels should be low unless persistent disease is present.[28]
9. Transition from a well-differentiated thyroid carcinoma to an anaplastic cancer is less likely.[12,26,34]
10. The patient is not subjected to taking thyroid hormone to suppress serum TSH levels because thyroid hormone should be taken regardless of the procedure performed.[5]

dine over his left femur suggesting persistent disease. Mazzaferri et al.[12,13] have reported that the frequency of recurrent thyroid cancer was lower and survival was better when total thyroidectomy was used for treating patients with papillary thyroid cancer larger than 1.5 cm. The reasons for performing total thyroidectomy are summarized in Table 3.

The major complication in this series was a single case of persistent hypoparathyroidism in a patient who had extensive surgery including bilateral modified neck dissections as well as total thyroidectomy. Previous studies have noted that the incidence of hypothyroidism is higher when total thyroidectomy is associated with neck dissections.[25]

To conclude, if one wishes to remove all gross thyroid tumor in patients with a papillary thyroid cancer larger than 1.5 cm, total or near total thyroidectomy is required. Total thyroidectomy also allows one to utilize radioactive iodine after operation, which appears to decrease recurrence and prolong survival.[12,13,29,35] Even though total thyroidectomy appears to be a superior operation, thyroid lobectomy is an acceptable operation for patients with clinically solitary thyroid cancers because of the prognosis is excellent in patients treated in this manner. After operation all patients with thyroid cancer should receive enough thyroid hormone to suppress TSH secretion whether total thyroidectomy or thyroid lobectomy has been performed.[5]

Acknowledgment

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Discussion

Dr. Colin G. Thomas, Jr. (Chapel Hill, North Carolina): I rise to present a somewhat different perspective.

Dr. Clark has presented a very persuasive argument for the use of total thyroidectomy in the treatment of thyroid cancer and some types of benign diseases of the thyroid. Certainly, his results in terms of morbidity are excellent, and should be considered superior. However, in view of the long natural history of thyroid cancer, whether there is a significant improvement in survivorship, is unknown.

The fact that total thyroidectomy can be performed safely does not necessarily mean that it is indicated in patients with thyroid cancer or, particularly, in patients with benign disease, and I am reminded of a maxim of a former teacher of mine, and I quote: "An operation not worth doing is not worth doing well."

Before accepting total thyroidectomy as the treatment of all thyroid disease, several considerations need further emphasis. The morbidity and mortality figures that Dr. Clark cited are not true for the country at large. The PAS reports of 1970, covering 24,000 operations on the thyroid, indicated that total thyroidectomy was associated with a much higher mortality than subtotal; it was seven times higher in patients over the age of fifty; morbidity, in terms of hypoparathyroidism, recurrent nerve paralysis, and tracheostomy, was also significantly increased.

Thyroid cancer is a heterogeneous neoplasm with considerable variability in its aggressiveness. This depends upon age and sex of the patient, size of the tumor, the presence of encapsulation. Certainly some of the tumors that are small sclerosing or encapsulated are well treated by operations of lesser magnitude.

Survivorship may not be significantly improved following total thyroidectomy, as Dr. Clark indicated. Although there may be foci of carcinoma in the contralateral lobe, the biologic significance of these is not clear. They may be analogous to the high incidence of occult carcinoma in routine autopsies, which may vary from 13 to 28% in adults, which is more of a testimony to the assiduity of the pathologist than a significant biologic finding.

Total thyroidectomy does have a place in the management of thyroid cancer, and would seem well justified under the following circumstances: when it is necessary to remove all gross neoplasm; when required to treat the multifocal disease known to be associated with medullary carcinoma, and radiation-associated carcinoma; when there is extracapsular extension of the neoplasm, or involvement of cervical lymph nodes; when treatment with radioactive iodine is anticipated because of metastatic disease; and in patients in the older age group, in whom these tumors are much more aggressive.

Total thyroidectomy should not be necessary in benign lesions of the thyroid, in patients with minimal thyroid cancer—and sometimes these are identified fortuitously—in patients with well-encapsulated follicular carcinoma, in whom the pathologist may not be able to identify the invasive features of the lesion except by permanent sections; and in patients with a history of irradiation in whom the index lesion proves to be benign.

Thus, I would urge that the approach to the neoplasm of the thyroid should place greater emphasis on the heterogeneity of thyroid cancers, and treatment should be more selective, and a reflection of the biologic potential of a particular tumor.

I have two questions for Dr. Clark. First, what would his approach be to the patient with a 2 cm encapsulated follicular adenocarcinoma, operated upon by another surgeon, in whom the pathologist, after the 21st section, finally finds angioinvasion, permitting a diagnosis of follicular adenocarcinoma?

Secondly, are there indications for lobectomy, or subtotal thyroidectomy, in the management of thyroid disease?

Dr. R. Robinson Baker (Baltimore, Maryland): I rise to really question the rationale of the use of the routine total thyroidectomy in the treatment of patients with papillary and follicular carcinoma of the thyroid gland.

Mr. John Hyland, who is an Irish surgeon, and I have reviewed our experience at the Johns Hopkins Hospital with the management of papillary/follicular cancer of the thyroid. (slide) We have reviewed a group of patients who have been followed for rather prolonged periods of time, 29 total lobectomies and 52 total thyroidectomies. All of these patients have been followed for at least ten years and the majority for considerably longer. Those patients who had a total thyroidectomy did not have palpable disease in the opposite lobe. Conceptually, the surgeon thought a total thyroidectomy was the treatment of choice.

As previously mentioned, all of the patients have been followed for a rather prolonged period of time, at least ten years.

(slide) There was one incidence of local recurrence in both groups. Interestingly enough, both have been successfully treated by further surgical procedures, a contralateral lobectomy in one instance and local excision in the patient who had had a total thyroidectomy. These patients have not developed any further recurrence and have not died of metastatic disease.

(slide) There were no deaths from thyroid cancer in either group of patients. The mean follow-up was 18.7 years in the total thyroidectomy group and 16.5 years in the lobectomy group. I think this experience demonstrates that similar results can be obtained with a lobectomy compared with a total thyroidectomy in patients with papillary/follicular carcinoma of the thyroid. Total thyroidectomy is simply not worth the inherent risk of either bilateral recurrent nerve palsies or permanent hypoparathyroidism. The treatment of choice in patients with papillary/follicular carcinoma of the thyroid grossly confined to one lobe is a total lobectomy and long-term replacement therapy.

Dr. Edwin L. Kaplan (Chicago, Illinois): We too feel that this operation is probably the ideal one for most differentiated cancers of the thyroid, except those that are occult. We think that it is ideal, however, only if it can be performed safely. The series of Drs. Clark and Way showed a low morbidity, and our operative series is quite similar.

We feel this strongly enough that we reoperate on most patients in whom the pathologists have made an incorrect diagnosis at frozen sections and called their lesions benign, even though a lobectomy was