MULTICENTRICITY AND MANAGEMENT OF WELL DIFFERENTIATED CARCINOMA IN THE THYROID

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The surgical treatment for a well differentiated thyroid carcinoma grossly confined to one lobe is either a total thyroidectomy or hemithyroidectomy. The advocates for total thyroidectomy argue that since the frequency of microscopic cancer found in the contralateral lobe is between 20% to 58% it is better for the patient to be rid of these possible microscopic foci in the remaining lobe. However, Tollefsen and Decosse (1963) and Winship (1967) pointed out that, in contrast, clinical recurrences in the opposite lobe occur only in about 3.7% to 7%, and they therefore strongly advise a hemithyroidectomy for a well-differentiated carcinoma which at operation is found to be confined to one lobe and the isthmus.

The object of this paper is to find out what is the rate of microscopic cancer in contrast to clinical recurrence in the opposite lobe in the ten year period between 1958-1967. Before 1961 when there was hardly any frozen section service, it was not an uncommon practice in Singapore to only enucleate or perform a partial lobectomy for a well encapsulated nodule in an otherwise normal thyroid gland. Lately two schools of thought emerged in Singapore: one school performed a total thyroidectomy and the other a hemithyroidectomy for a well differentiated carcinoma. In the majority of cases a frozen section was done at operation. If a frozen section was not carried out and at paraffin section a well differentiated carcinoma was diagnosed to the surprise of the surgeon, he would either perform another operation to complete the hemithyroidectomy or total thyroidectomy, depending on which school of thought he belonged. If at operation, the entire thyroid was either diffusely involved or nodules were found in both lobes, a total thyroidectomy was then routinely performed. There is no debate on this category of cases.

MATERIAL & METHOD

There were 212 cases of thyroid cancer histologically diagnosed by the Department of Pathology between 1958 and 1967. All the slides and reports of these cases were reviewed and histologically scrutinised. New sections or levels were cut from the blocks when found necessary. All cases of hemithyroidectomies performed for carcinoma grossly confined to one lobe at operation were especially studied, and cases of clinical recurrences were noted. As total thyroidectomy performed for carcinoma confined to one lobe at operation was practised mainly in 1966 and 1967, all cases that fell into this category in these 2 years were separated out. Ten cases of unsuspected carcinomas found in total thyroidectomy specimens performed for benign conditions (e.g. thyrotoxicosis) were included in this series. Total thyroidectomies performed for non cancerous conditions and at pathology found to be benign were excluded from this series. Microscopic cancer was particularly looked for in the contralateral lobe of these cases of total thyroidectomy.

The well differentiated carcinomas included all cancers with an easily recognisable follicular or papillary pattern. All mixed patterns were included in the papillary variety (Tan, 1968). No attempt was made to differentiate between multicentric foci de novo and intraglandular dissemination, as this was extremely difficult, if not impossible.

RESULTS

Out of the total of 212 cancers diagnosed in this decade, 96 were cases of hemithyroidectomy performed for unilateral cancer. Five out of these 96 cases showed a clinical recurrence in the contralateral lobe. This gives an incidence of 5.2% of clinical recurrence. Table 1 summarises these cases. All these recurrences were in females, and all the recurrences occurred within four years and two months. Three of them had follicular carcinomas in the first lobe that was removed, and the recurrences were papillary in the remaining lobe. One case had papillary carcinoma in both lobes, and the last case showed follicular patterns in both the primary and the recurrence (Table 1).

In the 2 year period of 1966 and 1967, there were 33 cases of total thyroidectomy, ten of which were performed for non cancerous conditions. Five of these cases were for thyrotoxi-

TABLE I

FIVE CASES OF CLINICAL RECURRENCE

Case	Race	Age	Sex	Interval between 1st and 2nd operation in months	*Histology
1	Chinese	18	Female	17	Papillary
2	Chinese	32	Female	49	Follicular and Papillary
3	Malay	31	Female	18	Follicular and Papillary
4	Chinese	18	Female	7	Follicular
5	Chinese	45	Female	30	Follicular and Papillary

* When the histology denotes two different histological patterns, it means that one pattern is seen in each lobe.

TABLE II

NINE CASES OF TOTAL THYROIDECTOMY WITH MULTICENTRIC FOCI IN BOTH LOBES

Case	Age	Sex	Race	Histology	Co-existing Pathology
1	41	F	Chinese	Papillary	—
2	61	F	Chinese	Follicular	—
3	22	F	Chinese	Papillary	—
4	54	F	Chinese	Papillary	—
5	57	F	Chinese	Follicular	—
6	36	M	Chinese	Papillary	Hashimoto Disease
7	36	M	Chinese	Papillary	Hashimoto Disease
8	43	F	Chinese	Papillary	Thyrotoxicosis
9	12	M	Chinese	Papillary	Multinodular goitre

cosis, three were for multinodular goitre and two were for Hashimoto disease. Two cases of Hashimoto disease, one case of multinodular goitre and one case of thyrotoxicosis had malignant foci in both lobes, whilst the remaining 6 cases had a solitary focus in one lobe. Out of these 33 cases of total thyroidectomy, 9 showed multicentric malignancies in both lobes. This gives an incidence of 27.3%.

Table 2 summarises some of the features of these nine cases. They were all in Chinese patients, and six of them were females whilst three were males. Seven of them showed a papillary pattern and two were follicular in type. Two arose from pre-existing Hashimoto disease, one from thyrotoxicosis and one from a multinodular goitre. It was interesting that the two cases of Hashimoto disease and one case of multinodular goitre were all in males (Table II).

COMMENT

Winship (1967) quoted that most investigators found the incidence of microscopic cancer in both lobes was between 20% to 58%. Sloan (1954) showed an incidence of 33%, Underwood (1958) gave an incidence of 32%, and Tollefson and Decosse's (1963) figure was 30%. The highest figure came from Clark & Associates (1958) who gave a figure of 58%. The incidence in this Singapore series is 27.3%. In contrast, Tollefson and Decosse (1963) gave their incidence of clinical recurrence as 3.7%, whilst Black & Associates' (1960) figure was 7%. The incidence of clinical recurrence in this Singapore series was 5.2%. Therefore whilst Tollefson & Decosse (1963) showed an eightfold difference between the frequency of microscopic cancer and clinical recurrence, this series in Singapore showed a sixfold difference.

The risks and morbidity of total thyroidectomy over hemithyroidectomy are (1) hypothyroidism, (2) hypoparathyroidism, (3) injury to the second recurrent laryngeal nerve. Although hypothyroidism can be easily managed, hypoparathyroidism is a rather crippling condition. Tollefson and Decosse (1963) who specialise in head and neck surgery, quoted a figure of 33% of hypoparathyroidism in their cases of total thyroidectomy and stressed the distressing morbidity in these patients. Our figures in Singapore surely would not be any lower than theirs. However, figures are not available, but the Senior Radiotherapist, Dr. Chia Kim Boon, informed the author that there are quite a few cases of hypoparathyroidism subsequent to total thyroidectomy in Singapore.

Therefore, the author advocates the following procedure in any thyroidectomy operation for cancer. If the tumour is confined to one lobe and isthmus, a frozen section is made to confirm whether the histology is well differentiated or otherwise. If it is well differentiated, a hemithyroidectomy including the isthmus is performed. The recurrent laryngeal nerve must be exposed before the lobe is removed. If the frozen section is undifferentiated, then there is no point in carrying out any form of radical surgery. However, it is the tendency nowadays to include medullary carcinomas of the thyroid in the well-differentiated group, as they are sometimes just as slow growing. If there is involvement of both lobes, a "near-total" thyroidectomy is performed, and this includes all thyroid tissue except for that in the tracheooesophageal groove. The parathyroid glands are often found within this groove.

SUMMARY

Two hundred and twelve thyroid cancers were diagnosed histologically during 1958-1967 by the Department of Pathology, Singapore. Ninety-six of these cases had hemithyroidectomy for unilateral cancer, and out of these 5 cases showed clinical recurrences in the remaining contralateral lobe. All the recurrences occurred within 49 months. This gives a clinical recurrence rate of 5.2%.

There were 33 cases of total thyroidectomy performed in the years 1966-1967 for carcinoma grossly confined to one lobe or for non cancerous conditions which later turned out to be malignant. Nine of these cases showed multicentric foci of malignancy in both lobes. This incidence of 27.3% is similar to figures from other countries.

This sixfold difference between clinical recurrence and microscopic cancer in the contralateral lobe suggests that conservatism for unilateral carcinoma of the thyroid gland is well justified. It is suggested that for a well differentiated carcinoma grossly confined to one lobe and isthmus should only have a hemithyroidectomy and not a total thyroidectomy.

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