

## PRIMARY AND SECONDARY TOTAL THYROIDECTOMY FOR DIFFERENTIATED THYROID CARCINOMA

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There is considerable controversy concerning the most appropriate surgical treatment of patients with differentiated thyroid carcinoma (DTC). Although some authors have advocated subtotal thyroidectomy, because of the decreased surgical morbidity and the lack of improved survival with a more extensive procedure, total thyroidectomy has been defended by others as a treatment of choice with lower morbidity. The aim of this study was (1) Evaluate the various surgical treatment modalities in management of DTC: the immediate and late results of incomplete, primary total and secondary completion thyroidectomy, as well as the duration of in-patient stay. (2) Find the relationship between complications and time of completion thyroidectomy. (3) Evaluate the various surgical treatment modalities in management of lymph nodes in DTC: relationship between neck dissection and complications, relationship between lymph node metastases and local recurrence, and (4) Three years survival rate after both primary total and secondary completion total thyroidectomy. The study included 54 patients with differentiated thyroid cancer. Patients were classified into 3 groups: Group I: including 30 patients, referred from outside clinics, who had undergone less than total thyroidectomy for thyroid swelling whose preoperative pathology was unknown and postoperative biopsy revealed DTC (18 cases of papillary carcinoma, 10 cases of follicular carcinoma and 2 cases of Hurthle cell carcinoma), (control group). Group II: Including 24 patients, for whom primary total thyroidectomy, central neck dissection, and radical neck dissection, when indicated, were done. Group III: Including the same 30 patients of group I, for whom reoperation with completion of total thyroidectomy (secondary total thyroidectomy), central neck dissection and radical neck dissection when indicated, were done. Our study found that (1) Post operative complications after primary total thyroidectomy were insignificantly different from that of incomplete thyroidectomy. (2) The remnant thyroid tissue in patients whom underwent less than total thyroidectomy had residual malignancies in 73.3 % of cases. (3) The risk of complications was significantly less after primary total thyroidectomy than completion surgery. (4) Initial treatment with total or near-total thyroidectomy decreases the incidence of recurrence in thyroid cancer. So we can conclude that: (1) Primary total thyroidectomy is the operation of choice for most patients with differentiated thyroid cancer when this operation can be safely performed. (2) Completion thyroidectomy as soon as possible after incomplete resection of the tumour may improve prognosis in differentiated thyroid cancer. (3) En block resection of central  $\pm$  lateral lymph nodes minimize local recurrence.

**Key words:** Cancer thyroid- Total thyroidectomy- Completion thyroidectomy

### INTRODUCTION

There is considerable controversy concerning the most appropriate surgical treatment of patients with differentiated thyroid carcinoma (DTC). Various opinions exist concerning the management of the thyroid cancer as well as cervical metastases. Although some authors have advocated subtotal thyroidectomy as the safe treatment of choice for DTC, many have reported minimal morbidity following total thyroidectomy has some advantages : it carries a low rate of morbidity; treats occult contralateral

disease; facilitate radioiodine scanning and ablation of residual functioning thyroid tissue or metastatic disease; eradicate multicentric tumour foci; and avoid aggressive local infiltration. Recently, some reports have demonstrated that completion thyroidectomy (i.e. the surgical removal of the thyroid tissue remnant following a less than total thyroidectomy) can be performed with minimal morbidity. On the other hand, the the incidence of complication after reoperative thyroidectomy has been found to be greater than after primary operation in some series. In addition to the total thyroidectomy, some

surgeons have advocated elective neck dissection to obtain locoregional tumour control. However, others recommended that modified radical neck dissection should be performed only in patients with palpably or histologically involved lymph nodes<sup>(1)</sup>.

The aim of this study was (1) Evaluate the various surgical treatment modalities in management of DTC: The immediate and late results of incomplete, primary total and secondary completion thyroidectomy, as well as the duration of in-patient stay. (2) Find the relationship between complications and time of completion thyroidectomy. (3) Evaluate the various surgical treatment modalities in management of lymph nodes in DTC: Relationship between neck dissection and complications, Relationship between lymph node metastases and local recurrence, and (4) Three years survival rate after both primary total and secondary completion total thyroidectomy.

## MATERIAL AND METHODS

The study was done at Mansoura Surgical Oncology unit of Mansoura university hospital, between January 1995 and September 1999 (a total of 56 months). The study included 54 patients with differentiated thyroid cancer, 34 females and 20 males, with a mean age of 43 years (range 10-73 years). No patient had had previous irradiation to the head and neck.

### *Patients were classified into 3 groups :*

Group I: Including 30 patients, referred from outside clinics, whom had undergone less than total thyroidectomy for thyroid swelling whose preoperative pathology were unknown and postoperative biopsy reveal DTC (18 cases of papillary carcinoma, 10 cases of follicular carcinoma and 2 cases of Hurthle cell carcinoma), (control group). 17 of them came with recurrent neck swelling and 13 of them come for prophylactic total thyroidectomy.

Group II: Including 24 patients (12 cases of papillary carcinoma, 9 cases of follicular carcinoma and 3 cases of Hurthle cell carcinoma) for whom primary total thyroidectomy, central neck dissection and/or radical neck dissection , when indicated, were done followed by TSH suppression  $\pm$  radioiodine treatment .

Group III: Including the same 30 patients of group I, whom had undergone less than total thyroidectomy, for whom completion total thyroidectomy, central neck dissection, and / or radical neck dissection, when indicated, were done followed by TSH suppression  $\pm$  radioiodine treatment.

### *Pre-treatment assessment*

Before starting treatment, all patients were subjected to :

1- History and Clinical examination,

2- Laboratory investigations : routine investigations plus assessment of blood serum thyrotropic hormone (TTH), thyroxin (T4), triiodothyronine (T3), thyroglobulin (TG) levels and serum calcium to evaluate the effect of operation and post-operative hormone therapy.

3- Radiological investigations : (a)- Neck ultrasonography : used for the preoperative localization of thyroid residuals, thyroid nodules, suspicious lymph nodes, and a guided fine-needle aspiration biopsy, (b)-  $I^{131}$  or  $I^{123}$  whole body scanning [WBS].

4- Pathological investigations : (a)- FNAB: was done preliminary for all cases as primary step for diagnosis of cancer thyroid. If the result was not conclusive , we shifted to trucut biopsy, (b)- Trucut biopsy: this method was in diagnosis of thyroid carcinoma in 22 patients, (c)- Lymph node biopsy: if cervical L.N. enlarged with or without clinically palpable thyroid swelling, (12 cases), (d)- Frozen section.

5- Tumour markers : (a)- Measurement of serum thyroglobulin [Tg] , and (b)- Tumour- associated glycoprotein antigen CA-50.

6- Indirect laryngoscope : to evaluate the mobility of the vocal cords.

### *Treatment planning:*

Group I : complete history, examination and thorough investigations were done for those patients to evaluate the early and late results of incomplete thyroidectomy.

Group II: for whom primary total thyroidectomy and central neck dissection were done. Ipsilateral neck dissection was done in 7 patients, with palpable lymph adenopathy, with postoperative TSH suppression therapy and radioiodine treatment.

For patients in whom diagnosis is already known to be a cancer, we remove the entire thyroid gland as one piece to avoid tumour cells implant in the thyroid bed.

For patients in whom diagnosis is not already known to be a cancer, a meticulous, complete lobectomy on the tumour side was done, and, while preparing the other lobe, we confirm the diagnosis histologically by frozen section examination, the contralateral lobe is then removed.

If there is concern about the viability of the parathyroid glands, a thin slice of thyroid tissue was left to protect the contralateral upper parathyroid glands and recurrent laryngeal nerve.

Group III: for whom secondary completion total thyroidectomy and central neck dissection were done. Ipsilateral neck dissection was done in 11 patients, with palpable lymph adenopathy, with postoperative TSH suppression therapy and radioiodine treatment. 13 patients underwent prophylactic completion total thyroidectomy whereas the remaining 17 patients were treated with a therapeutic completion operation because of recurrent disease after initial thyroid surgery.

The extent of surgery generally correlated with the extent of disease apparent at operation. We routinely expose the internal jugular chain and the tracheoesophageal groove during thyroidectomy and biopsies were taken from any enlarged or suspicious nodes and sent for frozen section. If the nodes were positive, a modified radical neck dissection was done.

The strap muscles were involved in 4 patients at the time of operation, for whom resection of the muscles was done.

#### ***Follow up :***

1- Indirect laryngoscopy: to evaluate the mobility of the vocal cord.

2- Serum calcium level: to evaluate the function of parathyroid glands.

3- Metastatic workshop after thyroidectomy and ablation of thyroid residues, to identify and localize recurrence and distant metastases: (A) Measurement of serum thyroglobulin [Tg], (B) Tumour- associated glycoprotein antigen CA-50, , (C) I<sup>131</sup> or I<sup>123</sup> whole body scanning [WBS], and (D) Computed tomography (CT): for patients who have no uptake on radioiodine scanning and for patients who have elevated serum thyroglobulin levels and negative radioiodine scanning.

#### ***Post-operative treatment:***

1-Thyroid- stimulating hormone suppression.

2-Adjuvant use of iodine I<sup>131</sup>.

3-External radiation therapy: used when there is no

appreciable uptake of radioiodine in patients with known micro- or unresectable cancer after thyroidectomy.

4-Treatment of hypoparathyroidism, if present, with calcium and/or vitamin D.

#### ***Chart review:***

Hospital in-patient files were-retrieved and analyzed to obtain:

1-The immediate complications after incomplete, primary total and secondary completion total thyroidectomy: wound complications, temporal hypoparathyroidism, and temporal recurrent laryngeal nerve injury (recovery occurred before 6 months).

2-The duration of in-patient stay after incomplete, primary and secondary total thyroidectomy.

3-The late sequela after incomplete, primary total and secondary completion total thyroidectomy: permanent hypoparathyroidism, permanent recurrent laryngeal nerve paralysis ( no recovery occurred after 6 months), local recurrence, regional recurrence, and distant metastases.

4-Relationship between complication and time of completion operation.

5-Relationship between neck dissection and complications.

6- Relationship between lymph node metastases and local recurrence.

7-Three years survival rate after both primary total and secondary completion total thyroidectomy.

## **RESULTS**

Over the 56 months study period, 54 patients with differentiated thyroid cancer had underwent total thyroidectomies, either as an initial operation in 24 patients (44.4%) or as a completion thyroidectomy in 30 patients (55.6%). The interval time between initial and completion thyroid surgery ranged from one week to 4 years (average 16 months).

There were 34 females and 20 males. The patient's age ranged from 10-73 years with a mean age of 43 years, (Table 1).

**Table (1): The characteristics of study groups:**

Items	Group I	Group II	Group III	Total
1. Number	30(54.6%)	24(44.4%)	30(54.6%)	54(100.0%)
2. M./F. Ratio	12/18	8/16	12/18	20/34
3. Mean age	41 years	45 years	41 years	43 years
4. Pathology				
a. Papillary carcinoma	18(60.00%)	12(50.0%)	18(60.00%)	30(55.55%)
b. Follicular carcinoma	10(33.34%)	9(37.5%)	10(33.34%)	19(35.18%)
c. Hurthle cell carcinoma	2(6.666%)	3(12.5%)	2(6.666%)	5(9.27%)
5. Neck dissection				
a. Ipsilateral standard neck dissection		1(04.2%)	1(03.30%)	2(03.80%)
b. Bilateral modified neck dissection		0	1(03.30%)	1(01.90%)
c. Ipsilateral modified neck dissection		6(25.0%)	9(29.70%)	15(27.60%)

In the entire series, 30 patients had papillary carcinoma, 19 had follicular carcinoma and the rest 5 patients had Hurthle cell carcinoma. 18 patients (33.3%) in our series had associated lymph node dissection in addition to the total thyroidectomy. 2 patients underwent ipsilateral standard radical neck dissections, and one

patient required bilateral modified radical neck dissection because of extensive disease and invasion beyond the lymph nodes. Unilateral modified radical neck dissection was performed in the remaining 15 patients. The main presentation of differentiated thyroid carcinoma were summarized in (Table 2).

**.Table (2): Main presentation of differentiated thyroid carcinoma:**

Group I		Group II			Group III
Main presentation		Papillary	Follicular	Hurthle cell	Total
1.Thyroid swelling:	8(26.6%)				
a-MNG		7(58.3%)	4(44.4%)	2(66.6%)	13(54.2%)
b-STN		4(33.3%)	4(44.4%)	1(33.4%)	9(37.5%)
c-Occult		1(08.4%)	1(11.2%)	0	2(08.3%)
2.Regional L.N.:					
a-Enlarged	9(30.0%)	6(50.0%)	1(11.2%)	2(66.6%)	9(37.5%)
b-Not enlarged		6(50.0%)	8(88.8%)	1(33.4%)	15(62.5%)
3.Tumor increase in size		6(50.0%)	4(44.4%)	2(66.6%)	12(50.0%)
4.Horseness of voice		1(08.4%)	0	0	1(04.2%)
5.Dysphagia		3(25.0%)	2(22.4%)	1(33.3%)	6(25.0%)
6.Dyspnea		3(25.0%)	4(44.8%)	1(33.3%)	8(26.6%)
7.Toxic manifestations		0	1(11.2%)	0	1(04.2%)
8.Associated malignancy		1(08.4%)	0	0	1(04.2%)
9.Previously excised thyroid swelling with postoperative biopsy revealed cancer thyroid					13(43.3%)
10.Reappearance of neck swelling after previous insufficient thyroidectomy for cancer thyroid					8(26.6%)
11.Cervical lymph-node metastases after previous surgery for thyroid cancer					9(30.0%)
12.Tc 99 scanning:					
a-Cold nodule	8(26.6%)	5(41.7%)	3(33.3%)	2(66.6%)	10(41.6%)
b-Hot nodule		0	1(11.2%)	0	1(04.2%)
c-Warm nodule	22(73.3%)	7(58.3%)	5(55.5%)	1(33.3%)	13(54.2%)
13.Neck Ultrasound:					
a-Solid	14(46.6%)	6(50.0%)	3(33.3%)	1(33.3%)	10(41.6%)
b-Cystic		0	0	0	0
c-Solid and cystic	16(53.4%)	6(50.0%)	6(66.7%)	2(66.7%)	14(58.4%)
14.Pathological diagnosis:					
a-FNAB		2(16.6%)	0	0	2(08.4%)
b-Trucut	17(56.6%)	7(58.3%)	6(85.7%)	2(66.7%)	15(62.5%)
c-Lymphocytic Infiltration		4(33.4%)	3(42.9%)	1(33.4%)	8(33.3%)
d-Lymph node biopsy		4(41.7%)	1(14.2%)	0	5(20.8%)
e-Paraffin section	30(100%)				7(23.3%)
					17(56.7%)

MNG = Multi nodular goiter      STN = Solitary thyroid nodule

after incomplete thyroidectomy had residual malignancies in 7 out of 13 patients (53.8%) with prophylactic completion total thyroidectomy and in 15 out of 17 patients (88.2 %) with therapeutic completion thyroidectomy, (Table 3)

Our study found that: The remaining thyroid tissue

**Table (3): Postoperative pathology after completion thyroidectomy:**

Items	Prophylactic Total thyroidectomy	Therapeutic Total thyroidectomy	Total
1.Number	13	17	30
2.Residual tumour	7 (53.8%)	15 (88.2%)	22 (73.3%)

Our study found that: there was no operative mortality in our series. Early Morbidity in group I ,II and III were summarized in (Table 4) Complications after primary total thyroidectomy were insignificantly differs from patients with incomplete thyroidectomy, but significantly less than after completion thyroidectomy ( $p < 0.05$ ). Statistically insignificant difference was found

between patients with prophylactic completion thyroidectomy and those with therapeutic completion operation ( $p > 0.05$ ).

The duration of in-patient hospital stay after incomplete thyroidectomy, primary total thyroidectomy and secondary total thyroidectomy was significantly differs, (Table 4).

**Table (4): Early complications after both primary total and secondary completion total thyroidectomy:**

Early complications	Group I	Group II	Group III			Total
			Prophylactic	Therapeutic	Total	
1.Number	30	24	13	17	30	54
2.Wound complications,	1	1(4.2%)	0	2(11.8%)	2(6.66%)	3(5.70%)
3.Transient hypoparathyroidism,	1(5.9%)	2(8.4%)	2(15.4%)	3(17.6%)	5(16.6%)	7(12.9%)
4.Temporary R.L. Nerve palsy,	1(5.9%)	1(4.2%)	2(15.4%)	1(5.9%)	3(10.0%)	2(3.8%)
5.Average Hospital stay (days)	5	9	10	12	11	10

\* = significant

The late complications after primary total thyroidectomy were significantly less than after completion thyroidectomy ( $p < 0.05$ ), and insignificantly differs from that after incomplete thyroidectomy.

Our study found that: No local recurrence occurred in group II and III patients, while in group I: local recurrence occurred in 8 patients (26.6%), (with involvement of the remnant of thyroid in 7 patients and lateral neck in the other patient). Among the 8 patients with local recurrence, one patient was found to have lymph-node metastases at the time of operation. This patient underwent a concomitant modified radical neck dissection, (Table 5).

Regional lymph node recurrence occurred only in one patient (4.2%) in group II and other patient in group III (3.3%). In group I regional lymph nodes recurrence was

reported in 11 patients (36.6%).

Locoregional recurrence was reported in one patient in group II, one patient in group III and 5 patients (16.6%) in group I . All patients with regional or locoregional recurrence underwent neck dissection with completion total thyroidectomy, (Table 5).

Distant recurrence was reported in one patient in group II, 2 patients in group III and 3 patients in group I. The median time to recurrence was 24 months, (ranged between one to 4 years after treatment).

Recurrences located most commonly regional (36.6%), followed by local (26.6%), combined locoregional (16.6%), and distant metastases (10%), (Table 5).



**Table (5): Late complications after both primary total and secondary completion total thyroidectomy:**

Items	Group I	Group II	Group III	Total
1.Number	30	24	30	54
2.Permenant Hypoparathroidism	0	1 (4.2%)	3 (10.0%)¶	1 (1.90%)
3.Permenant R. L. Nerve palsy.	0	0	0	0
4.Local recurrence:	0	0	3 (09.9%)¶	3 (05.7%)
A-Remainant of thyroid	0	0	2 (06.6%)¶	2 (03.8%)
B-Thyroid bed	0	0	0	0
C-Adjacent structure excluding LN		0	1** (03.3%)¶	1 (01.9%)
5.Regional LN recurrence	0	1* (4.2%)	5**#(16.5%)¶	6 (11.1%)
6.Distant recurrence	0	1* (4.2%)	2# (06.6%)¶	2 (03.8%)
7.Locoregional recurrence	0	0	1 (03.3%)¶	1 (01.9%)
Total		1* (4.2%)	5 (16.5%)¶	6 (11.1%)

\* = regional and distant recurrence in the same patient.

\*\* =local and regional recurrence in the same patient.

# = regional and distant recurrence in the same patient.

¶ = significant

Our study found that: Patients who underwent their completion thyroidectomy within six months of the primary operation had significantly fewer recurrences, fewer lymph node metastases, fewer haematogenous

metastases and survived significantly longer than those in whom the second operation was delayed for longer than six months, (Table 6).

**Table (6): Relationship between completion thyroidectomy and time of operation:**

Items	Completion thyroidectomy within 6 months	Completion thyroidectomy within 6 months	Total
1.Number	12	18	30
2.Local recurrence	1 (8.33%)	2 (11.11%)	3 (10.0%)
3.Lymph node metastases	1 (8.33%)	4 (22.22%)	5 (16.7%)
4.Haematogenous metastases	0	1 (05.55%)	1 (03.3%)
5.three-years survival	11 (91.6%)	15 (83.33%)	26 (86.7%)

Our study found that: The 18 patients who underwent neck dissection had a higher incidence of complication than those treated with only thyroidectomy (33.3% vs 8.3%,  $p = 0.019$ )

6 of 18 patients undergoing neck dissection had accidental complications, whereas complications were

noted in only 3 out of 36 patients without neck dissection i.e. the complications rate of patients with neck dissection was higher than those without neck dissection, This difference was statistically significant ( $p < 0.05$ ). However our study found that en-block resection of central + lateral L.N. minimize local recurrence, (Table 7).

**Table (7): Relationship between neck dissection and complications:**

Complication	Neck dissection	No neck dissection	Total
1.Number	18	36	54
2.Temporary RLN palsy	3 (16.7%)	0	3 (05.6%)
3.Temporary hypoparathroidism	2 (11.2%)	2 (5.5%)	5 (09.3%)
4.Permenant hypoparathyroidism	1 (05.6%)	0	1 (01.9%)
Total	6 (33.3%)	3 (8.3%)	9 (16.7%)

The presence of lymph node metastases at diagnosis is

not associated with decreased survival rates, but is

associated with increased local recurrence rates. The correlation of younger age with frequent nodal metastases and older age with less frequent nodal metastases suggests

a biologic difference between risk groups with thyroid cancer, (Table 8).

**Table (8): Relation between lymph node metastases and local recurrence:**

Items	Patients with lymph node metastases	Patients with no lymph node metastases	Total
1.Number	18	36	54
2.Mean age	34 years	52 years	43 years
3.Local recurrence	4 (22.2%)	1 (02.7%)	5 (09.2%)
4.Three-years survival	11 (61.1%)	22 (61.1%)	33 (61.1%)

## DISCUSSION

The extent of primary thyroidectomy for differentiated thyroid cancer is controversial. There are strong proponents for total thyroidectomy based on its presumed and theoretical disease control benefits.

Our study found that: The remaining thyroid tissue after incomplete thyroidectomy had residual malignancies in 73.3% of patients, (Table 3).

Our study found that: there was no operative mortality in our series. Early Morbidity in group I included: wound complications in one patient (3.3%), transient hypoparathyroidism in one patients(3.3%), and temporal RLN palsy in one patient(3.3%). Early Morbidity in group II included: wound complications in one patient (4.2%) , transient hypoparathyroidism in 2 patients (8.4%) , and temporal RLN palsy in one patient (4.2%). Morbidity in group III included: wound complications in 2 patients (6.6%) ; transient hypocalcaemia in 5 patients(16.6%) and temporal RLN palsy in 3 patients (10%). Sim and Soo ,1998 (2)found that Morbidity included: wound complications in 2%; transient hypocalcaemia in 16.8% and permanent in 3.4%: and hoarseness of voice in 8.1% with 4.7% having proved recurrent laryngeal nerve palsy. A retrospective analysis over a 5 year period at the Department of Endocrine Surgery, Sanjay Gandhi Postgraduate Institute of Medical Sciences (SGPGIMS), 1996; yielded 19 patients who underwent completion thyroidectomy. This group represents 23% of 82 patients who underwent total thyroidectomy for differentiated thyroid cancer (DTC) during that period. The residual thyroid tissue was excised through a lateral approach and could be resected safely, preserving the recurrent laryngeal nerve (RLN) and the parathyroid glands. Postoperative complications included transient RLN palsy (n = 2) and transient hypoparathyroidism (n =4) Completion thyroidectomy using lateral approach is safe in reoperative thyroid surgery (3).

Our study found that: The rate of definitive

complications after re-operations is greater than first line thyroidectomy but is low enough to allow iterative surgery using vigorous procedure in selected patients, so we recommended primary total thyroidectomy as a treatment of choice for DTC. Clark and Duh ,1997 (4) recommended total thyroidectomy when it can be done safely, as a treatment of choice for most patients because persistent or recurrent disease can be detected earlier, by determining increased serum thyroglobulin levels, and by scanning with radioiodine. O'Doherty and Coakley ,1998(5) recommended total thyroidectomy as this allows adequate follow-up of patients using thyroglobulin measurements assessment scans as necessary, and further therapy with radioiodine for metastatic disease. Menegaux et. al. 1997(6) found that :The frequency of bilateral cancer justifies completing thyroidectomy after partial thyroidectomy. In contrast, there are equally strong advocates of less aggressive thyroidectomy with its lower hazard of parathyroid and recurrent nerve injury. Wanebo et. al. , 1998 found that total thyroidectomy in high-risk patients with differentiated thyroid cancer (containing follicular histology, vascular invasion, or extracapsular extension) showed no benefit over partial thyroidectomy. This suggests that the general use of total thyroidectomy is indicated in highly selected patients.

The duration of in-patient hospital stay after both primary total thyroidectomies is significantly less than after secondary total thyroidectomy.

Our study found that: no local recurrence occurred in group II and III patients while in group I: local recurrence occurred in 8 patients (26.6%), Regional lymph node recurrence occurred in 9 patients (30%) in group I, while in group II and III regional lymph nodes recurrence was reported in one patient in each group. Locoregional recurrence occurred in 5 patients (16.6%) in group I, while in group II and III locoregional recurrence was reported in one patient in each group. Visset et al, 1997 (9) found that tumour recur in the neck more than twice in patients who have had subtotal thyroidectomy than in patients who have had total thyroidectomy. Local recurrence is almost



always a manifestation of a growing residual tumour, microscopic or macroscopic. Rarely it may follow implantation of malignant cells as a result of spilling on the cut edges of the wound. Such recurrence occurs in the raw surface of the tumour bed <sup>(10)</sup>.

Our study found that en-block resection of central  $\pm$  lateral L.N. minimize local recurrence. However some surgeons stated that prophylactic modified neck dissection has no place in the treatment of papillary carcinoma ,although most patients with papillary carcinoma have microscopic nodal involvement as in some patients , these microdeposit can be ablated with I<sup>131</sup> and in others they fail to grow <sup>(4)</sup> Ducci et. al. ,1997 <sup>(11)</sup> found that: patients with cervical lymph node metastases require a complete loco-regional neck dissection, (modified radical or radical neck dissection). In papillary thyroid carcinoma extensive lymph node dissection at presentation has been stated to offer no advantage versus selective lymphadenectomy, but causing increased morbidity as accessory spinal nerve and cervical plexus permanent sequelae.

The presence of lymph node metastases at diagnosis is not associated with decreased survival rates, but is associated with increased local recurrence rates. The correlation of younger age with frequent nodal metastases and older age with less frequent nodal metastases suggests a biologic difference between risk groups with thyroid cancer, (Table 8).

New findings concerning thyroid oncogenes and tumour suppressor genes as well as studies of growth factors are starting to explain why patients acquire specific thyroid tumours with different behaviour. Growth factors, tumour suppressor genes, and oncogenes play important roles in the development and progression of thyroid cancers.

## CONCLUSION

1. Primary total thyroidectomy is the operation of choice for most patients with DTC when this operation can be safely performed, as initial treatment with total or near-total thyroidectomy decreases the incidence of recurrent thyroid cancer, and, the notion that "no tissue left - no local recurrence " is generally accepted in thyroid cancer.

2. Reoperation in the form of total thyroidectomy or debulking of the tumour mass is associated with higher morbidity . So it is important to perform a meticulous complete hemithyroidectomy for all unilateral nodules that might be cancer, with removal of any possible involved lymph nodes in the central neck.

3. Completion thyroidectomy as soon as possible after incomplete resection of the tumour improve prognosis in differentiated thyroid cancer.

4. Recurrent cancer in regional lymph nodes is best treated by modified neck dissection.

5. External radiation treatment is helpful when tumours cannot be removed.

6. Close follow - up for recurrent disease is indicated because it is easier to cure patients and resect small rather than large metastases.

7. Although conventional treatment of differentiated thyroid carcinoma is highly effective. Several aspects in the evaluation and management of this disease are changed or may be change in the near future; some modification may improve the welfare of patients and the overall results.

A-Because the symptoms of hypothyroidism are vexing, there has been great interest in using recombinant human thyroid-stimulating hormone (rhTSH) to prepare patients for iodine 131 imaging. rhTSH has been about as effective as thyroid hormone withdrawal for diagnostic imaging so that approval for its use is expected.

B-Another topic of interest is the administration of I<sup>131</sup> therapy to patients whose serum thyroglobulin levels are abnormal but whose diagnostic I<sup>131</sup> scans are negative. because a reduction of serum thyroglobulin can occur by this approach.

C- Minimize the amount of I131 that should be used for diagnostic scanning, although past opinion favored larger doses, as scanning of thyroid remnant and tumour can occur with diagnostic I131 imaging. Substituting I123 is an alternative for post-thyroidectomy scanning, but when administered as 300 uCi it is less accurate than I131 for recurrent disease or distant metastases.

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