

COMPLETION THYROIDECTOMY FOR DIFFERENTIATED THYROID CARCINOMA

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ABSTRACT

Objective: The purpose of this study was to evaluate the morbidity and mortality of completion thyroidectomy for differentiated thyroid carcinoma.

Material and Methods: This study was conducted in the department of ENT Head and Neck surgery and General Surgery Lady Reading Hospital, Peshawar over a period of two years from December 2005 to December 2007. Forty patients of differentiated thyroid carcinoma underwent completion thyroidectomy. The patients with thyroid nodule underwent pre op thyroid ultrasonography, FNAC, biochemical examination and indirect examination of the vocal cord.

Results: Forty patients were included in this study, in which four were males and thirty six were females, age ranged from 27 to 62 years, with an average of 27 ± 2.6 . The indications for initial operation were a solitary thyroid nodule in 36 (90%), patients, multi-nodular goiter 3(7.5%) and Grave's disease 1(2.5%). The initial operation for solitary thyroid nodule included unilateral lobectomy in 33 patients and hemithyroidectomy in 3, subtotal thyroidectomy in 3 patients of multi nodule goiter and near total thyroidectomy in 1 patient of Grave's disease. Total morbidity was 12.5% and comprised of transient hypoparathyroidism in 3(7.5%), permanent hypoparathyroidism in 1 (2.5%) transient Recurrent Laryngeal Nerve (RLN) palsy in 1 (2.5%) patient. There was no mortality.

Conclusion: Completion thyroidectomy can be performed safely with morbidity of 12.5% and no mortality.

Key words: Differentiated thyroid carcinoma, Papillary carcinoma, Follicular carcinoma, Hurtle Cell carcinoma, Completion thyroidectomy.

INTRODUCTION

Malignant neoplasms of the thyroid include papillary carcinoma, follicular carcinoma, Hurtle Cell Carcinoma, Medullary carcinoma, anaplastic carcinoma, Thyroid lymphoma, sarcomas, and metastatic carcinoma. Papillary and follicular carcinomas are considered well differentiated tumors with an over all good prognosis. Medullary and anaplastic are less differentiated and tend to be aggressive.¹

70 – 90 percent of patients with well differentiated carcinoma of thyroid present with a thyroid nodule. The patient's history may provide an index of suspicion for malignancy. Useful informations to obtain include: age, sex, history of

radiation, and family history.² Malignancy rates as high as 60% have been reported for ages less than 30 and greater than 60. Over 70% of the patients with this disease are women. Women have a better prognosis when compared to men with the same pathological entity. Although women constitute the vast majority of thyroid cancer victims, men with a solitary nodule are more likely to have carcinoma than women with a solitary nodule.⁴ Tumors arising as a result of radiation exposure tend to be larger and multicentric and have a higher rate of local recurrence than other disease. They often show lymphocytic infiltration or hashimotos exposure and is more common in women. Family history can be indicative of multiple endocrine neoplasia syndrome.³

MATERIAL AND METHODS

During a period of 2 years from December 2005 to December 2007, a total of 40 patients with differentiated thyroid carcinoma (papillary carcinoma and follicular carcinoma).

were treated at ENT department Head and Neck Surgery, Lady Reading Hospital, Peshawar. Before initial operation, the patients with thyroid nodules underwent preoperative thyroid ultrasonography, fine-needle aspiration cytology, and biochemical examination of thyroid function. Intraoperative frozen sections facilities were not available and because of inconclusive results of fine needle aspiration cytology so either unilateral lobectomy or subtotal thyroidectomy or hemithyroidectomy was performed. When permanent histopathologic sections of the respected thyroid tissues revealed a differentiated thyroid carcinoma, a second elective operation (completion thyroidectomy) was performed. Completion thyroidectomy is basically removal of the both lobes of the thyroid and isthmus with preservation of parathyroid. Iodine 131(131 I) scanning was routinely performed 6 weeks after total thyroidectomy for differentiated carcinoma. Hypoparathyroidism was defined as sustained symptomatic hypocalcaemia. Hypoparathyroidism was considered permanent if the patient requires calcium supplement to maintain a normal serum calcium level for 6 months or longer. Transient hypoparathyroidism is the situation if the patient can be weaned off the calcium supplement within 6 months. Recurrent laryngeal nerve (RLN) palsy is characterized by hoarseness or loss of voice quality in those cases which are documented by a vocal cord paralysis on indirect Laryngoscopy. RLN palsy may be transient if there is documented proof of recovery of the RLN by Laryngoscopy within 6 months of surgery.

RESULTS

Four patients were men, and 36 were women (1:9). The age group of these patients ranged from 27 to 62 years, with an average of 27 ± 2.6 years (mean \pm SE). The average age of female patient was 27 ± 2.6 years (range, 30 to 62 years), and that of male patient was 45.8 ± 4.2 years (range, 25 to 58 years). The difference between ages of female and male patients was not significant.

Thirty one patients underwent initial operation at our hospital, and nine patients were referred from other hospitals, for further treatment after initial surgery. The indications for the initial operation were a solitary thyroid nodule in 36(90%) patients, multinodular goiter in 3 (7.5%) patients, and Graves' disease in 1 (2.5%) patient.

The procedures of initial operation are listed in Table 1. One patient had toxic diffuse goiter and initially underwent subtotal thyroidectomy. Reoperation was done because serial permanent sections revealed multifocal papillary carcinoma in the tissue that had been removed. Two patients underwent secondary completion thyroidectomy for the presence of significant residual thyroid tissue after primary completion thyroidectomy (total thyroidectomy) (^{131}I uptake value during a 24-hour period were 16.2%, 22.3%).

Three patients underwent completion thyroidectomy during the same hospital stay. The length of hospital stay in these patients was 6, and 10 days, respectively. The interval between the initial and completion surgical procedures ranged from 4 to 15 days (± 7.8 days) after the initial surgery. The length of hospital stay of initial operation was not different from that of completion thyroidectomy (5.1 ± 0.3 days vs. 5.2 ± 0.3 days). The length of time needed to complete initial operation was not different from that required for completion thyroidectomy (150.0 ± 30 minutes vs. $180.8 - 30$ minutes).

There was no 30-day postoperative mortality with either initial operation or completion thyroidectomy. The postoperative morbidity for completion thyroidectomy consisted of transient hypoparathyroidism in 3(7.5%) patients, permanent hypoparathyroidism in 1 (2.5%) patient, transient RLN palsy in 1 (2.5%) patient. There was no instance of wound infection or hematoma. On the other hand, one transient RLN palsy and one transient hyperparathyroidism occurred at the initial operation. The incidence of complications during the initial operation was not significantly lower than that during the secondary operation. The incidences of transient hypoparathyroidism between initial and secondary operations were not significantly different from each other.

DISCUSSION

The treatment of differentiated thyroid carcinoma remains controversial. Some surgeons believe that procedures less aggressive than total thyroidectomy are sufficient for the management of differentiated thyroid carcinoma.⁵ However, most surgeons and endocrinologists advocate total thyroidectomy as the treatment of choice for differentiated thyroid carcinoma.⁶ Total thyroidectomy results in a decreased rate of recurrence and distal metastasis and an improved survival rate compared with unilateral thyroid lobectomy.⁷ Potential residual tumors is eliminated by total thyroidectomy because the incidence of bilateral differentiated thyroid carcinoma in the literature ranges from 30% to 88%.⁸ Follow-up

PROCEDURE OF INITIAL OPERATION

Procedure	No of patients
Unilateral lobectomy	33
Hemi thyroidectomy	03
Sub total thyroidectomy	03
Near total thyroidectomy	01

Table 1

with the serum humanthyroglobulin level in patients undergoing total thyroidectomy is more useful and easier than unilateral lobectomy or subtotal thyroidectomy. When all the thyroid tissue is being removed, anaplastic transformation can also be eliminated in the remnant thyroid tissue.⁹ Some surgeons and endocrinologists have advocated I^{131} ablation of the remaining thyroid remnant to achieve a total thyroidectomy. However, this approach is associated with several disadvantages, including multiple doses for a successful ablation, difficulty in adequate ablation of large thyroid remnants, and secondary injury to the adjacent parathyroid glands.¹⁰ In addition, high doses of radioactive iodine can result in pulmonary fibrosis, temporary bone marrow suppression, and leukemia,¹¹ therefore surgical resection remains the best way to remove the remnant thyroid tissue. Procedures less aggressive than total thyroidectomy are advocated by some surgeons to avoid surgical complications. However, the concerns about increased morbidity with completion thyroidectomy are not necessarily justified. In experienced hands. Total thyroidectomy or completion thyroidectomy can be performed safely with low morbidity to the patient.¹¹ One of the most feared complications of repeated thyroid surgery is RLN injury. Beahrs and Vandertoll¹² Found a 17% incidence of vocal cord paralysis in 548 secondary thyroidectomies. As technique and experience have improved, this incidence of complications has gradually decreased. Calabro et al¹³ reported 1.5% incidence of transient RLN palsy in completion thyroidectomy. In another study of completion thyroidectomies, Pasioka et al¹⁴ reported that the incidence of transient RLN palsy was 5% and there was no permanent RLN palsy. In a study of 100 patients with differentiated thyroid carcinoma who underwent completion thyroidectomy, De Jong et al¹⁵ reported that only 2 patients had transient RLN palsy. Wax and Briant¹⁶ reported that 3% of patients undergoing completion thyroidectomy had ransient RLN but there was no permanent RLN palsy. Recently, Eroglu et al¹⁷ reported that transient RLN palsy occurred in 3% and permanent RLN palsy occurred in 5.5% of 165 patients who underwent completion thyroidectomy. The higher

PATHOLOGICAL DIAGNOSIS OF INITIAL THYROID SPECIMEN

Pathology	No of patients
Papillary carcinoma	30
Follicular carcinoma	09
Hurthle cell carcinoma	01

Table 2

incidence of permanent RLN palsy in their study is because 36(21.8%) patients had loco regional recurrence or metastatic disease at the time of completion thyroidectomy. In our practice we routinely identify the RLN, the chance of injury to the nerve is very low. In our study, transient or permanent RLN palsy occurred in only 2.5% of the patients.

Another feared complication of repeated thyroid surgery is permanent hypoparathyroidism. In our study the incidence of transient or permanent hypoparathyroidism was 7.5% and 2.5% in the two groups. This finding is similar to findings reported in the literature. In the series of Pasioka et al¹⁴ only 1 of 60 patients who underwent completion thyroidectomy had permanent hypoparathyroidism after extensive debulking concurrent with a completion thyroidectomy for extensive regional recurrence of thyroid cancer. De Jong et al¹⁵ reported that transient hyperparathyroidism occurred in 3% of patients and there was no permanent hypoparathyroidism.

It has been suggested that completion thyroidectomy should be preformed either during the initial hospital stay or as early as possible because inflammation scarring, hemoorrhage, edema and friability of the tissue makes the repeated surgical exposure hazardous. To avoid the adhesions and the resultant injuries to the recurrent never, retrograde access through the medial border of the sternocleidomastiod muscle is recommended¹⁸ However, we found that the technical difficulty of completion thyroidectomy was not different from of the initial procedure, it is part of our technique in performing initial lobectomy not to disturb the strap muscles overlying the uninvolved thyroid lobe, so a viring plane is left intact. As seen in this study, there was no increased incidence of local complications in the completion thyroidectomy group. The length of time needed to complete the second surgical producer was not different from the length of time of required for the initial procedures.

CONCLUSION

Completion thyroidectomy for malignancy

can be performed safely with 12.5% morbidity and no mortality.

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