
Total Thyroidectomy versus Subtotal Thyroidectomy for Benign Thyroid Disease: Complication Rates in 214 Cases

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Abstract:

Traditionally, Subtotal Thyroidectomy (ST) has been considered the standard surgical treatment for benign thyroid disorder because of its safety compared with Total Thyroidectomy (TT). However, with the recent introduction of safe surgical technique, TT for benign thyroid disease is being performed more frequently.

Pitfalls of ST include high recurrence rate and malignancy in the remnant thyroid tissue.

In this study, we compare the complication rates after ST and TT.

During 3 years period 214 thyroidectomies for benign thyroid disease were performed in our hospital: 51(ST), 98(TT) and 65 lobectomy.

Permanent hypocalcaemia was observed in 2 cases of ST group and 3 cases of TT group (difference is not statistically significant).

Permanent RLN palsy complicated in 1 case in the ST group and 2 cases in the TT group difference is not statistically significant.

In the ST group 8 cases developed recurrence of primary disease for which they need to be reoperated.

Histopathological examination of the resected specimens revealed incidental micro carcinoma in 10 cases. We conclude that TT for benign thyroid disease is of comparable safety to ST with the advantage that it eliminates the possibility of malignancy in the thyroid remnants or recurrence of the primary disease.

Introduction:

Complete removal of the diseased gland with less complication and without need for secondary surgery should be the effective treatment for bilateral multinodular goitre.

Extent of thyroidectomy in the treatment of goiter remains controversial although recent reports from all over the world continue to recommend total thyroidectomy for treatment of patients with bilateral multinodular goiter.¹⁻⁴

Surgeons still continue to debate whether the potential benefits of total thyroidectomy outweigh the potential complications.^{5,6}

Some surgeon still argue that total thyroidectomy is the operation that is almost never justified.⁷

Malignant suspicion, compression symptoms and cosmetic reason are the main indication of surgery.⁸⁻¹¹

Total thyroidectomy is reasonable option when the disease involve both lobes of the gland and if there is risk of recurrence as in MNG, Graves, cancer.^{4,12}

But morbidity is lower in subtotal thyroidectomy as compared with total thyroidectomy as suggested by some surgeons.^{10,11}

However, there is a risk of recurrence and increase surgical complications during the secondary surgery.⁵⁰

Also considerable number of patient will need postoperative thyroid hormone therapy.

Popularity of total thyroidectomy for treatment of bilateral thyroid gland disease is increased.^{1-4,13-17}

Because complication rates in the hand of experienced surgeons is low.¹⁸⁻¹⁹

And moreover the incidence of complications are comparable with that of STT.

In this study we compared different technique of surgery, recurrence rate, complication of surgery and postoperative thyroid hormone therapy.

Our goal from this study is to evaluate the benefit of each thyroid surgical procedure and its complications over the other.

Patients & Methods:

Information was obtained from retrospective thyroid surgery database in surgery department 7th October hospital Benghazi Libya in period from 1st of January 2003 till 31st of December 2005. Two hundred fourteen patients underwent surgical treatment for

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thyroid disease. Data include gender, age, pathology of disease, type of surgery done and different complications of surgery were recorded on already prepared Performa. The main indication of surgery in our institution were compression symptoms, cosmesis and failure of medical treatment of thyroid hyper function or suspicion of malignancy. Surgery has been done by consultant surgeons.

Evaluation of recurrent laryngeal nerve function by indirect laryngoscopy and serum calcium level were assessed pre and postoperatively were also recorded.

Permanent recurrent laryngeal nerve injury was defined as palsy of the vocal cords diagnosed by otolaryngologist which lasted for more than 6 months postoperatively and permanent hypoparathyroidism was defined as need for calcium supplementation which lasted for more than 6 months postoperatively.

Results:

In our hospital, 214 different types of thyroidectomy were done in the period of three years from 1st of January 2003 till 31st of December 2005.

The age and sex distribution of patients are shown in table I. The peak age incidence was in the third and fourth decade. Number of females were 182(85.8%) and male were 30(14.2%) given ratio of female to male of 6:1. The commonest histological type observed was simple goiter. Surgery performed for these patients ranged from total lobectomy and isthmectomy in 65 cases (30.6%), subtotal thyroidectomy in 51 cases (24.0%) and total thyroidectomy in 98 cases (45.7%). During this period eight cases after subtotal thyroidectomy (8/51-15.6%) presented to us with recurrence of the original disease and finishing surgery was done for each of them. There was no operative mortality. Permanent recurrent nerve palsy in the literature is 1.5% while permanent hypo parathyroidism is up to 4%.¹¹⁻¹⁴ Temporary hypocalcemia were developed in seven patients three in subtotal thyroidectomy [3/51-5.8%] four in total thyroidectomy [4/98-4%] while permanent hypocalcemia developed in two patients one in subtotal thyroidectomy (1/51-1.9%) and one in total thyroidectomy (1/98-1.0%), recurrent nerve palsy of temporary type developed in five cases, three in total thyroidectomy (3/98-3.0%) and two in subtotal thyroidectomy (2/51-3.9%) while permanent nerve palsy developed in two cases one in subtotal thyroidectomy (1/51-1.9%) and the other one in total thyroidectomy (1/98-

1.0%) and these results are in concordance with the results in the literature.

Discussion:

The goal of surgical treatment in thyroid disease should be to eliminate the disease with low complication rates and to minimize the necessity for reoperative procedures.

Reoperations are undertaken for postoperative histological evidence of thyroid cancer or recurrent goitre during follow up period and are associated with higher complication rates compared with primary procedures.^{1-4,20-32}

Subtotal resection [unilateral or bilateral] have been the preferred surgical treatment for Multinodular goiter.^{2,33,34}

A limited surgery followed by thyroid hormone therapy has been claimed to effectively prevent recurrence.^{34,35}

If all nodules were removed at first surgery recurrence rate was very low.

Anderson et al³⁴ found that post thyroidectomy L-thyroxin therapy reduces the rate of recurrence, but limited unilateral resections were associated with a high rate of recurrence. Recent studies have documented that the recurrence rate after subtotal resection is high and giving postoperative thyroid hormone treatment to prevent recurrence is highly questionable.

Performance of total thyroidectomy in goitre disease has been reserved for large goitre. Opponents of total thyroidectomy claimed that this type of surgery is not justified in MNG because rate of complication is high.^{36,37}

Recently it has been proved that total thyroidectomy can be done safely but reoperations carry greater risk.^{1-13,21,26}

Moreover the relative risk for permanent complication has been found to be greater in reoperations for recurrent disease than in primary extensive resection.³⁸

The incidence of thyroid cancer showed no significant difference in solitary cold nodules and in cold nodules of MNG and patients with thyroid cancer frequently presented with MNG.³⁹⁻⁴¹

Recently total thyroidectomy has emerged as surgical treatment of MNG especially in iodine deficient regions.^{1-4,12-13,38,39,42-44}

Multinodular hyperplasia frequently involves the whole thyroid gland and there is no normal tissue to leave behind, and so the rate of recurrence is high after subtotal resection for

MNG despite postoperative thyroid hormone supplementation.^{2,22-25,39,42}

A considerable number of patients undergoing STT need reoperation for recurrence which has higher rate of complications as compared with primary procedures.^{2,26-29}

Also the incidence of thyroid cancer varies from 7.5:13% in MNG.⁴⁵⁻⁴⁶

The presence of multiple nodule decreases the diagnostic value of fine needle aspiration biopsy, and thyroid cancer is usually an incidental finding in histopathological examination postoperatively. In such patients treatment with STT completion thyroidectomy might be necessary.

Recurrent nerve injury and hypoparathyroidism are the most serious complication that occur after thyroid surgery, where as postoperative neck hematomas may be immediately life threatening. These complications are uncommon after total thyroidectomy when operation is done by an experienced surgeon.⁵³

Also total thyroidectomy has the advantage of elimination the disease in cases of patients

with risk of thyroid cancer as in patients with family history or patients with history of exposure to radiation if they presented with MNG.

Post thyroidectomy recurrent laryngeal nerve palsy has been reported to occur in 0:5%.^{1,31,47,48-52}

And if this palsy persist for more than six months it is permanent. hypoparathyroidism with serum calcium of less than 7.5 persist for more than six months is labeled as permanent and it occurs in rate of 0.6:5,0% where as transient hypocalcaemia is common.^{31,51-53}

This should be considered as postoperative event not a complication.

Conclusion:-

Our results showed that experience surgeon performing thyroidectomy for bilateral MNG goitre can be achieved by low permanent complication rate operative skills and experienced surgeon determine the complication rates rather than type of surgery.

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