
ORIGINAL ARTICLE

To Compare the Efficacy and Safety Profile of Total thyroidectomy with Near Total Thyroidectomy for Benign Multinodular Goiter: A District Headquarter Hospital Experience

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ABSTRACT

Background: The objective of this study is to compare Total Thyroidectomy with Near Total Thyroidectomy in terms of efficacy and safety. Total thyroidectomy is currently the preferred treatment for thyroid Cancer and benign multinodular goiter. However, many surgeons do not perform total thyroidectomy to treat benign thyroid diseases owing to the associated risk of postoperative hypoparathyroidism and recurrent laryngeal nerve damage. In our research we compared total thyroidectomies performed for benign thyroid diseases with near total thyroidectomy in order to assess whether the results support the hypothesis that total thyroidectomy is safe and can be considered as the optimal surgical approach for treating benign thyroid diseases.

Materials and Methods: 250 patients with multinodular goiter were selected for the study from August 2008 to August 2013 at District Headquarter Hospital Kohat KPK, Pakistan. Patients were divided equally in two groups Group A and B (125 patients each). All patients were euthyroid. Group A patients underwent Near Total Thyroidectomy whereas Group B patients Total Thyroidectomy. Results were analyzed in terms of efficacy and in both group using SPSS program.

Results: Group A (125 patients) underwent near total thyroidectomy and Group B(125 patients) underwent total thyroidectomy. In Group A patients undergoing Near Total Thyroidectomy, 18 patients (14%) with recurrence were found to have carcinoma on histopathological assessment of the removed gland and 10(8 %) patients had recurrence of goiter in follow up. Out of the total 28, 20 patients having recurrence were re-operated out of which 10 patients were reported to have carcinoma. Post operatively after first procedure 2 patients had recurrent Laryngeal nerve injury (1.6%) in near Total and 01 in Total Thyroidectomy Patients. Incidence of recurrent laryngeal nerve injury increased to 20% in second surgery in cases of patients undergoing Near total thyroidectomy as first procedure. 4 patients were offered Radioiodine ablation and the remaining 4 refused treatment amongst Carcinoma Thyroid patients. Recurrence in Total Thyroidectomy patients was 0%

Conclusion: Total thyroidectomy is a safe alternative for patients with benign multinodular goiter due to low complication rate and also the procedure eliminates the need for reoperation for recurrent goiter and unexpected malignancy.

Key Words: Near Total Thyroidectomy, Total Thyroidectomy, Multinodular Goiter, Thyroid Carcinoma

INTRODUCTION

The most common indication for thyroidectomy in endemic iodine deficient regions is multinodular goiter¹. The role of total thyroidectomy in the treatment of benign thyroid disease remains controversial . Both total thyroidectomy and near total thyroidectomy are practiced and advocated by surgeons in the country as well as abroad.²There is growing evidence that total thyroidectomy is appropriate for patients with multinodular goiter when there is significant nodular disease involving both lobes^{2,3}. Previously near total thyroidectomy has been advocated for the treatment of bilateral

nodular disease but high recurrence rates were observed. As many as half of the patients who developed recurrence of benign goiter require surgical reoperation which carries a greatly increased risk of permanent complications.³ Also several studies have demonstrated that total thyroidectomy can be performed with a morbidity rate comparable to that of lesser procedures^{4,5,6} . Near Total Thyroidectomy involves total lobectomy on one side, isthmusectomy and subtotal lobectomy on other side leaving behind minimal amount of thyroid tissue. In contrast to this total

thyroidectomy entails complete removal of thyroid tissue.

Historically, the risks associated with major surgery for treating thyroid diseases and the availability of adequate hormonal replacement therapy have deterred surgeons from performing total thyroidectomies. Thyroid surgery was rarely performed until the late 19th century. ⁶Total thyroidectomies were performed rarely for indications other than cancer until the last quarter of the twentieth century. Total thyroidectomy remains controversial not only for small differentiated thyroid carcinomas but also to treat benign diseases as well^{7, 8}. The procedure was avoided mostly owing to the possible complications such as permanent recurrent laryngeal nerve palsy and permanent hypoparathyroidism. In our research we have compared the results of total thyroidectomy with Near total Thyroidectomy . Although research was done previously in our country on this controversy namely Ali MA, Raziq S, Khan WA, Majeed S, Pak Armed Forces J.2011² and Sheikh IA, Waleem S S, Haider IZ, Haroon A, Ashfaq M, Ayub Med Col.J.2009¹¹ yet data on comparative study is minimal. Furthermore, it has been shown that the complication rates of iatrogenic permanent recurrent laryngeal nerve palsy (0–1.3%) and permanent hypoparathyroidism (1%) following Near Total thyroidectomy are similar to those following total thyroidectomy^{7,8}. However incases of Near Total Thyroidectomy disease recurrence usually requires a repeat surgery, which greatly increases the risk (up to 20 times) of damage to parathyroid glands and laryngeal nerves.⁹ In contrast, total thyroidectomy eliminates all abnormal tissue in the neck and lowers recurrence rates both of multinodular goiter and carcinoma thyroid^{9, 10, 11}. Furthermore, after total thyroidectomy, hormone replacement with L-thyroxin is relatively easy and can be achieved by monitoring the thyroid hormone serum levels. As a result, total thyroidectomy is currently regarded as the surgical procedure of choice to treat multinodular goiter^{11, 12, 13}.

MATERIALS AND METHODS

This study was conducted in department of surgery from August 2008 to August 2013 at District Headquarter Hospital Kohat, Pakistan. A total of 250 patients were included. All the patients were admitted from Out Patient Department. The patients underwent preliminary baseline investigations including preoperative Thyroid Function Tests. All the selected patients for surgery were euthyroid. Patients were randomly divided in two groups as Group A and B, each group having equal number of patients i.e. 125. All the surgeries were performed by consultant surgeon. Data was analyzed using SPSS 17 version.

RESULTS

A total number of 250 patients were selected. All the patients were having benign bilateral multinodular goiter. Out of 250 patients half i.e. Group A (125 patients) underwent Near Total Thyroidectomy and the other half Group B (125 patients) underwent Total Thyroidectomy.

In Group A patients undergoing Near Total Thyroidectomy, 2 patients (1.6%) had per-operative injury to Recurrent Laryngeal Nerve. 18 patients (14%) were found to have Carcinoma on histopathological assessment and 10(8 %) patients had recurrence of goiter over the follow up period of 4-5 years. 20 patients having recurrence were re-operated, out of which 10 patients were reported as having carcinoma and remaining were having recurrence of goiter. Post operatively 4 patients out of 20 operated for second time had recurrent Laryngeal Nerve injury during operation (20%). 4 patients were offered Radioiodine ablation and the remaining 4 refused treatment.

Group B patients underwent Total Thyroidectomy. The operation was performed following standard Extra-Capsular Dissection. As all Surgeries were performed following meticulous dissection, there was 1 case of iatrogenic Nerve injury. However no recurrence was observed in any case.

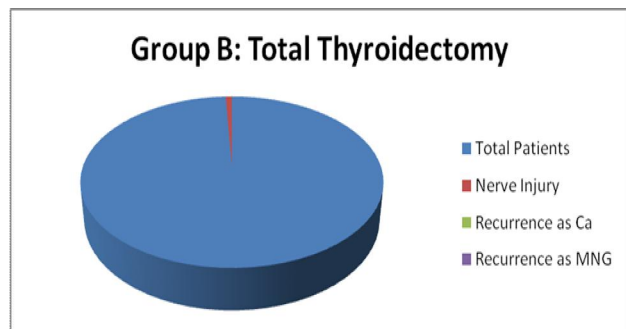
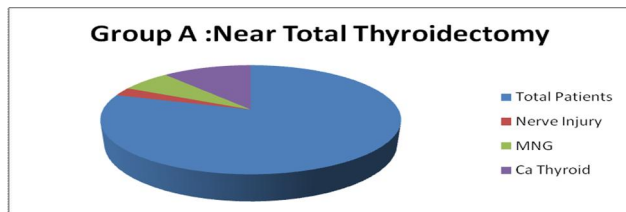
Table 1: Group A: (Near Total Thyroidectomy)

| Total Patients operated | Iatrogenic Nerve Injury (First Procedure) | Recurrence as Carcinoma | Recurrence as MNG | Iatrogenic nerve Injury in Second Procedure |
|-------------------------|---|-------------------------|-------------------|---|
| 125 | 2 (1.6%) | 18 (14%) | 10(8%) | 4(20%) |

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Table 1.2 Group B: (Total Thyroidectomy)

| Total Patients operated | Iatrogenic Nerve Injury | Recurrence as Carcinoma | Recurrence as MNG |
|-------------------------|-------------------------|-------------------------|-------------------|
| 125 | 1(0.8%) | 0 | 0 |



Total Thyroidectomy^{18,19}. Recurrence of multinodular goiter often presents with severe symptoms, including dyspnea, dysphagia and pain which may be due to a small tissue of the thyroid left behind during Near Total thyroidectomy. This often extends into the retro esophageal area, causing significant pressure symptoms. Scarring and disruption of normal tissue planes make further thyroid surgery more hazardous. The only strong argument against total thyroidectomy is the potentially higher associated complication rate. However, with experience and appropriate surgical technique, the morbidity of total thyroidectomy can be minimized^{20, 21,22}.

Our Study clearly demonstrated that out of 125 patients(Group-A) who underwent Near Total Thyroidectomy after a preliminary diagnosis of benign disease, 28 patients reported to have recurrence either in the form of carcinoma thyroid (histopathology of removed specimen) or multinodular goiter. 2 patients had iatrogenic nerve injury in the first procedure. Follow up over 5 years revealed recurrence. These results were similar to those reported by Bergenfelz A, Jansson S, Kristoffersson A, et al¹⁶ and Malloy KM, Cunnane MF. Pathology and cytologic features of thyroid neoplasms. Also the second time surgery had much more hazardous results i.e. 20% increase in recurrent Laryngeal nerve injury. The group B patients who underwent Total Thyroidectomy produced excellent results with 0% recurrence. Also there was one case reported with iatrogenic recurrent laryngeal nerve injury following meticulous extra-capsular dissection. These results were supported by Roh JL, Park JY, Park CI. et al¹⁹ and Mackle T, Meaney J, Timon C.²⁰

DISCUSSION

Although multinodular goiter is a benign disease, it has been reported that multinodular goiter is one of a risk factor for Carcinoma Thyroid¹⁴. It is noteworthy here that opinions differ on the proper extent of primary resection and the need for reoperation for nodular benign thyroid disease. Both Near Total And Total Thyroidectomy is practiced in the foreign world as well as in our country.^{2,11} However near Total thyroidectomy was advocated to be safer than total thyroidectomy. This was based on the fact that leaving behind some thyroid tissue would save subsequent thyroxin replacement¹⁵. It is worth mentioning here that over the years it has been observed in different research works that nodules can also arise from portions of the gland that were previously normal, and small nodules can become symptomatic. Also recurrence rates as high as 42 to 45 percent have been reported following Near total thyroidectomy. The incidence of recurrence has been directly related to postoperative follow up and remnant tissue. Most recurrences develop in first 10 years after the primary surgery^{16,17}. Total thyroidectomy can be performed safely in benign nodular goiter but reoperations carry a five-fold increased risk of surgical complications where both sides had been dissected previously i.e in Near

CONCLUSION

Our data support that total thyroidectomy is a valuable option, when surgery is indicated, for treating benign thyroid conditions such as multinodular goiter. It has been shown that total thyroidectomy achieves immediate and permanent cure with no added risk of disease recurrence or repeat surgeries. So it is better to adopt Total Thyroidectomy for Benign Multinodular goiter.

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