

Outcome of Total Thyroidectomy for Bilateral Multinodular Thyroid Disease in tertiary care hospital

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ABSTRACT

Background: Thyroid malignancies have been managed by total thyroidectomies. Total thyroidectomy is now treatment of choice for thyroid malignancies, but in benign thyroid diseases this procedure still under debate in terms of safety and efficacy.

Aim: To evaluate the incidence of recurrent laryngeal nerve injury and hypocalcaemia after total thyroidectomy for multinodular disease.

Study design: Descriptive study

Settings: Fatima Memorial hospital surgical department Lahore.

Methods: A total number of 144 patients with bilateral multinodular disease who were admitted through OPD were included in the study. Total Thyroidectomy was performed in all cases after making the patient Euthyroid clinically and biochemically.

Outcome measures: Recurrent laryngeal nerve injury, Hypocalcaemia.

Results: Incidence of recurrent laryngeal nerve injury in our study was 0.7% and the incidence of hypocalcaemia was 2.8%.

Conclusion: We concluded that total thyroidectomy is the procedure of choice when dealing with the bilateral multinodular disease of thyroid gland. With no additional risk to the parathyroid gland and the recurrent laryngeal nerve and no chances of recurrent disease.

Keywords: Total thyroidectomy. Multinodular disease, Recurrent laryngeal nerve

INTRODUCTION

In surgical department, most common endocrine problem we come across is Mutinodular diseases of thyroid either toxic or non toxic¹. Most commonly the surgery for benign thyroid diseases is performed on surgical floor². Surgeries are performed not only for the pressure symptoms but also for the cosmetic purpose as well³. Surgical modalities for the management of the multinodular masses of the thyroid include subtotal thyroidectomy, near total thyroidectomy and total thyroidectomy⁴. The surgeons who are in favor of near total and subtotal thyroidectomy believe that these techniques are associated with low rates of hypothyroidism and recurrent laryngeal nerve injury⁴. Where as others who are in favor of total thyroidectomy believe that the thyroid conserving surgeries have got chances of recurrence, from the diseased thyroid tissue that is left behind, as a result more reoperations. The incidence of hypocalcaemia and recurrent nerve injury is very high after reoperations where as total thyroidectomy theoretically has no chance of recurrence.⁵ In this regard controversy still exists regarding the ideal surgical procedure. We present the outcome of total thyroidectomies performed for the benign multinodular thyroid in our department.

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METHODS

One hundred and forty four Patients undergoing total thyroidectomy for benign thyroid diseases, between 2012 and 2015 were included in the study. Patients undergoing lobectomy isthmusectomy and total thyroidectomy for malignant diseases were excluded from the study. Preoperative evaluation of the recurrent laryngeal nerve was done by indirect laryngoscopy. Serum calcium levels of all the patients were checked preoperatively. All the patients were evaluated for the biochemical status of the thyroid and were optimized to euthyroid state preoperatively.

After informed consent, Kocher's incision was made after injecting the diluted solution of adrenaline, sub platysmal flaps were raised with diathermy, strap muscles were retracted laterally after dividing median raphe. Middle thyroid vein is ligated and divided at the antro lateral surface of the thyroid tissue. After that lobe of the gland was mobilized with blunt dissection and tracheoesophageal groove was approached recurrent laryngeal nerve was identified and then attention was given to the superior pole and vessels in the superior pole of the thyroid gland are ligated and divided while staying near to the gland after working while working on the inferior pole dissection was carried out on the capsule of the thyroid gland and branches of the inferior thyroid artery were ligated and divided. The main was preserved. Recurrent laryngeal nerve was exposed and

preserved till it enters in the trachea. Parathyroid glands were also identified by gross appearance and were preserved. Care was taken to avoid manipulation of recurrent laryngeal nerve and bipolar diathermy was used. Wounds were closed after placing negative pressure drainage. Post operatively all the patients were evaluated for the development of clinical signs of hypocalcaemia and serum calcium level were also checked for any variation. Change in voice was also checked and post operative indirect laryngoscopy was also performed for the status of the vocal cords. Patients developing complication were managed at the institute. Superficial surgical site was also observed for the development of post operative infection.

RESULTS

A total number of 144 patients with multinodular disease were included in the study among these 123 patients were female and 21 patients were male. On Statistical analysis, Disease was more prevalent in females with 85.4% of the patients were females and only 14.6% of the patients were male as shown Fig 1 One hundred three patients were between the ages of 50 to 60 years and 41 patients were between the ages 35 to 49 years. On statistical analysis 71.5 % of the patients were between the ages of 50 to 60 years and 28.5% patients were between 35 to 49 years age (Fig. 2).

Total number of four patients developed hypocalcaemia after the surgery and rest of the 140 patients do not exhibit any signs or symptoms of hypocalcaemia (Table 1).

Fig. 1: Gender distribution

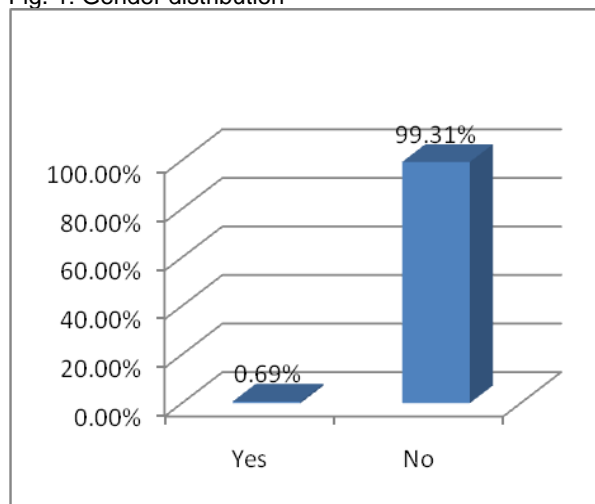


Fig. 2: Age distribution

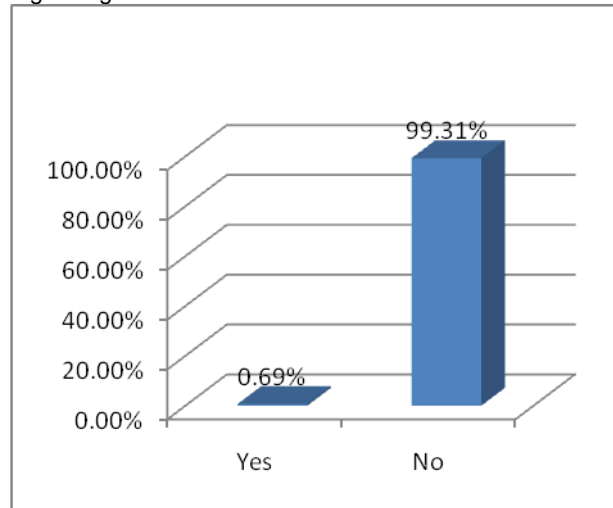
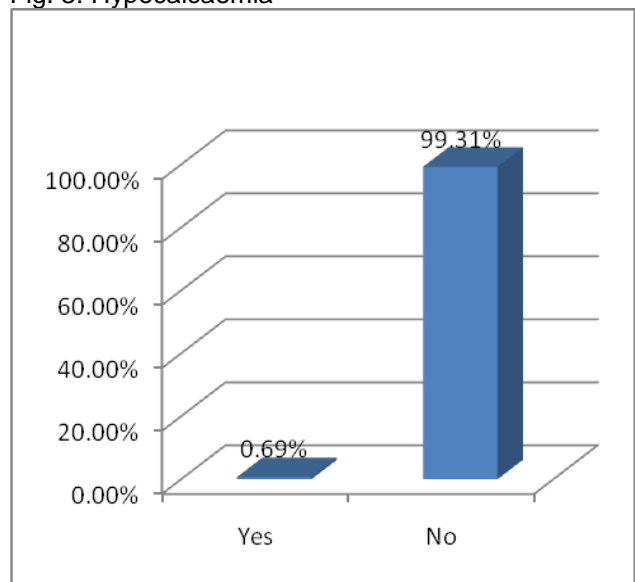


Table 1: (n=144)

Hypocalcaemia	n
Temporary	3
Permanent	1
No Hypocalcemia	140

Upon statistical analysis 97.2% of the patient did not develop hypocalcaemia and 2.8% developed hypocalcaemia clinically and confirmed biochemically. Among these four patients only one patient had permanent hypocalcaemia. Rest of the 03 patients had no symptoms and signs of hypocalcaemia after one month of oral calcium supplementation. With only one patient i.e., 0.7% developing permanent hypocalcaemia.

Fig. 3: Hypocalcaemia



Six patients developed hoarseness of voice, among them four had normal voice one week after the surgery, one patient had permanent hoarseness of voice with paralysis of the right sided vocal cord, and sixth patient had normal voice one month after the surgery. Rest of the patient 138 patients had no change in voice post operatively (Table 2).

Table 2: (n=144)

Recurrent Laryngeal nerve Injury	n
Temporary	5
Permanent	1
No RLNI	138

Upon statistical analysis 4 % of the patients suffered from recurrent laryngeal nerve injury and 96% did not suffer from recurrent laryngeal nerve injury (Fig.4).

However the after one month 5 out of the six patients recovered from RLNI which appears to be more of paresis rather than paralysis. Only one patient sustained it permanently resulting in over all incidence of recurrent laryngeal nerve to 0.7% (Fig. 5)

None of the patients in our study developed surgical site infection. Incidence of hoarseness in our study was 2.1%

Fig.4: Recurrent laryngeal nerve injury

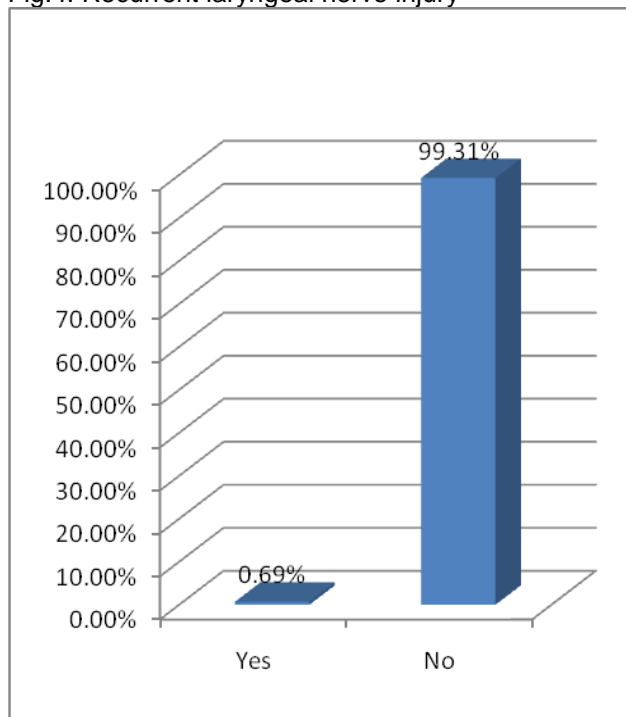
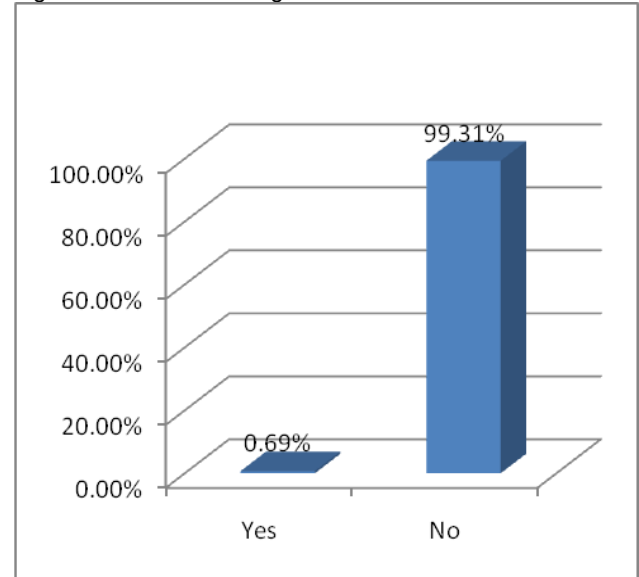


Fig. 5: Permanent damage to unilateral RLN



DISCUSSION

In our institute we prefer total thyroidectomy as the procedure of choice, when dealing with the bilateral benign thyroid disease of thyroid gland. In total thyroidectomy, whole of the diseased tissue is removed from the neck. However in subtotal and near total thyroidectomy grossly diseased tissue is left behind. This tissue has got great potential of regrowth⁶ the rate of recurrence is up to 29%. The daily thyroxin dose given after subtotal or near total thyroidectomy doesn't affect the growth of left over diseased tissue⁷. Total thyroidectomy requires dissection in proper tissue plains and ligation and division of the small vessels, as compared to subtotal or near total thyroidectomy in which left over thyroid tissue bleeds profusely requiring suturing of the thyroid tissue, thus ensuring better haemostasis⁸.

There is high incidence of recurrent laryngeal nerve damage and hypocalcaemia in surgeries done for recurrent disease. Rodhulph N et al compared the complication rate of recurrent thyroid surgery and found out that the rate of permanent recurrent laryngeal nerve paralysis was up to 4% up to 6% of the patients suffered permanent hypocalcaemia⁹.

Keeping in mind the high rates of the recurrent disease and morbidity associated with the second surgery, it is advocated that total thyroidectomy is the procedure of choice for the benign thyroid diseases involving both the lobes. Single reason for not adopting total thyroidectomy is the increased risk of

injury to recurrent laryngeal nerve and hypocalcaemia as stated in some of the trials. Thomusch O et al found that rate of permanent recurrent laryngeal nerve paralysis upto 3% and 12.8% of the patients suffering permanent hypocalcaemia thus concluding that total thyroidectomy is not the procedure of choice for multinodular goiter¹⁰.

In our study the incidence of permanent recurrent laryngeal nerve injury is only 0.7% and incidence of hypocalcemia is only 2.8% which is comparable with the incidence of these complications in patients undergoing thyroid preserving surgeries for the benign diseases as stated by Barczyński M et al. The study found an incidence of hypoparathyroidism to be 2.7% and 0.7% incidence of permanent recurrent laryngeal nerve injury¹¹.

CONCLUSION

We conclude that the total thyroidectomy is the procedure of choice when dealing with the multinodular goiter, as it eradicates the diseased tissue with an acceptable rate of complications like hypoparathyroidism and recurrent lary

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