Original Research Paper

Volume-7 | Issue-9 | September-2017 | ISSN - 2249-555X | IF : 4.894 | IC Value : 79.96

General Surgery

"THE ROLE OF TOTAL THYROIDECTOMY IN MANAGEMENT OF BENIGN MULTINODULAR GOITRE"

Dr. U.L. Lakshmi Narasamma	MS Professor of General surgery Dept of General Surgery, Kamineni Institute of Medical Sciences, Narketpally, Telangana – 508254, India.
Dr. Sameer Mallampati	MS Postgraduate of General surgery Dept of General Surgery, Kamineni Institute of Medical Sciences, Narketpally, Telangana – 508254, India. Author corresponding
Dr. K. Prudhvinath	DNB Senior resident in surgery Dept of General Surgery, Kamineni Institute of Medical Sciences, Narketpally, Telangana – 508254, India.
Dr. E. Vamshi Krishna	MS Postgraduate of General surgery Dept of General Surgery, Kamineni Institute of Medical Sciences, Narketpally, Telangana – 508254, India.

ABSTRACT **BACKGROUND:** Although Total Thyroidectomy is the procedure of choice in patients with Thyroid carcinoma, it has now emerged as safe option to treat patients with bilateral Benign Multinodular Goitre(BMNG) to avoid complications (Reccurence risk, malignancy etc) in the remnant thyroid when subtotal thyroidectomy is done. Aim is to review the role of total Thyroidectomy for BMNG in respect to complications.

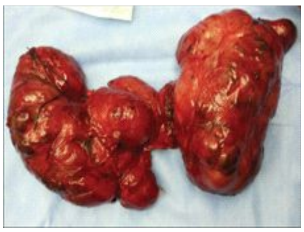
OBJECTIVE: To assess whether the results support the hypothesis that Total Thyroidectomy is safe and considered as optimal surgical approach for treating bilateral BMNG.

METHODS: A prospective study of 94 patients admitted for Bilateral BMNG (FNAC approved) between April 2013 to March 2016 in surgical department of KIMS Hospital Narketpally, were included in this study. Institutional ethical clearance and informed consents from patients are taken. Pre op assessment done and surgery performed. Intra and Post operative complications evaluated and analysed.

RESULTS: Majority patients (59.4%) are between 40 to 60 years of age and females with euthyroidism. 2.12% of all patients had intraoperative RLN injury and 8.5% had primary hemorrage and on average 2 to 3 parathyroids preserved in all. 14.89% developed seroma formation and 4.25% residual vocal cord paralysisand none had calcium deficiency in postoperative period. On followup no cases had recurrence/ malignancy with healthy scar and HPE confirmation. Life Long euthyroidism maintained with postoperative L Thyroxine supplementation (cheap and good patient satisfaction). So our data also support that Total Thyroidectomy is the valuable option for treating bilateral BMNG without risk of second surgery.

CONCLUSION: Total thyroidectomy with capsular dissection can be undertaken safely with low complication rate. Data from many studies shown no significant difference in intra and postoperative complications for both Total and subtotal Thyroidectomy. So Total Thyroidectomy can be accepted as better management for bilateral BMNG.

KEYWORDS :

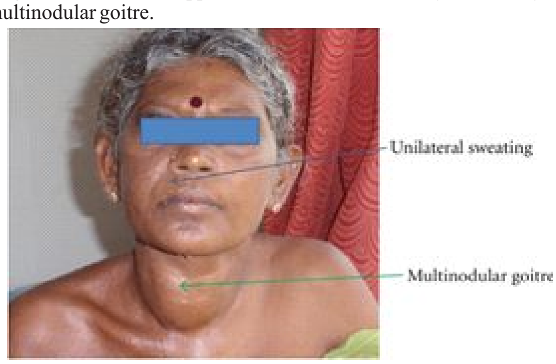


BACKGROUND:

Total thyroidectomy is an operation that has generally been reserved for the management of differentiated thyroid carcinoma. Over the last few decade total thyroidectomy has been become used increasingly and is now the preffered option for treatment of bilateral benign thyroid diseases.

In many areas of surgery there is a balance between benefits from extensive resection in terms of pallaition and cure and the increased potential for complication associated with more radical procedures. Total thyroidectomy is such a procedure, where considerable controversy still exists with respect to its use for conditions such as differentiated thyroid carcinoma. Even more controversial is its use for benign thyroid disease such as multinodular goitre or thyrotoxicosis. On the other hand, re-operation for reccurent disease carries a very significant risk of damage to both the recurrent laryngeal nerves and the parathyroid glands in case patient gets recurrence or malignancy if subtotal thyroidectomy is done.

Technique of total thyroidectomy in which hugging the true capsule with capsular dissection had now become the preffered option for multinodular goitre when the whole gland was involved. The aim of this study is to review the experience of our department with total thyroidectomy for multinodular goitre and to make an assessment on the justification of the approach taken toward total thyroidectomy for multinodular goitre.



PATIENT AND METHODS:

During April 2013 to March 2016, 254 thyroidectomies were performed in Department of General Surgery at Kamineni Institute of Medical Sciences. There were 94 total thyroidectomies carried out for multinodular goitre during this period.Preoperative investigations, including thyroid function tests and routine biochemistry, were performed on all patients. Other tests, such as ultrasongraphic scanning and Fine needle aspiration cytology were performed in all patients. All the patients those approved by FNAC as benign disease are taken in to study. Vocal cord function was assessed routinely before and after operation by an independent otolaryngologist, as well as by the anesthesist at the time of extubation. Stasis free serum calcium levels were also measured both before operation and on day 1 and day 5 after operation.

OPERATIVE TECHNIQUE:

Within in our department thyroidectomy is performed by use of standard operative technique while patients are under general anesthesia, with muscle relaxation and intubation. With the neck extended, the skin is marked and incised. Flaps are raised, and the strap muscles are divided transversly / retracted. Attention is turned to one lobe where the upper pole is mobilized through the avascular space with individual ligation of vessels to protect the external laryngeal nerve, according to our long standing technique. The lower pole is then mobilized by ligating individual tertiary branches of the veins and arteries on the thyroid capsule, with gradual dissection of the vasculature from the gland by ligation and division of the perforating vessels at the capsule and preservation of the blood supply of the parathyroid glands. These glands may often be preserved on a slender pedicle of artery and vein. Any parathyroid gland that cannot be salvaged because of its anatomic location is minced and placed in sternocleidomastoid muscle.

The remaining lobe is removed by same technique safe guarding the nerve. Hemostasis is secured, the strap muscles and deep fascia & platysma layers sutured, and skin closed with subcuticular sutures without drainage. Main object is to avoid parathyroid and recurrent laryngeal nerve injury by capsular technique and able to recognize and preserve them if they appear in the operative field during dissection.

RESULTS:

Over the period of 2013 to 2016, 94 thyroidectomies were performed for bilateral benign multinodular goiter. These was consistency in the number of cases being performed in the department as shown in Figure1. It can be seen that 28 total thyroidectomies performed in year 2013, 26 thyroidectomies in the year 2014 and 28 thyroidectomies in year 2015 and 12 total thyroidectomies done uptoyear March 2016.

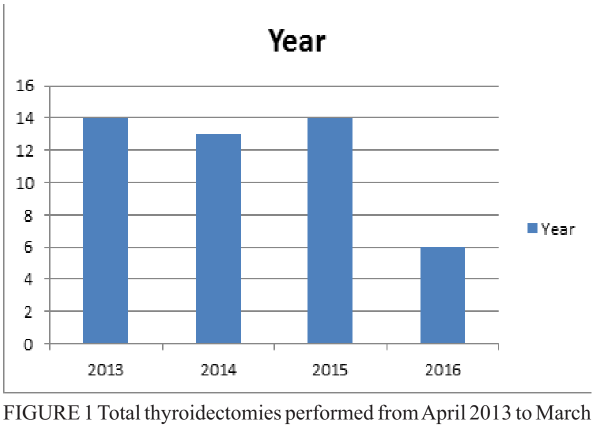


FIGURE 1 Total thyroidectomies performed from April 2013 to March 2016

Age wise distribution of population shown that Multinodular goiter incidence was more among 40-60 years age group. Age wise distribution of population is summarised in Figure 2. Among which,28 patients are noted in both 41-50 and 51-60 years age group. Incidence of MNG is low in below 20 years of age and above 60 years.

In our study it is seen cases were noted among all the female patients. All the pateints were euthyroid as screened by the biochemical analysis i.e Thyroid function tests. All pateints were confirmed to be with Multinodular Goitre by Fine Neddle Aspiration cytology done by individual pathologist. No case with probable suspision of malignancy on FNAC are not taken into the study.

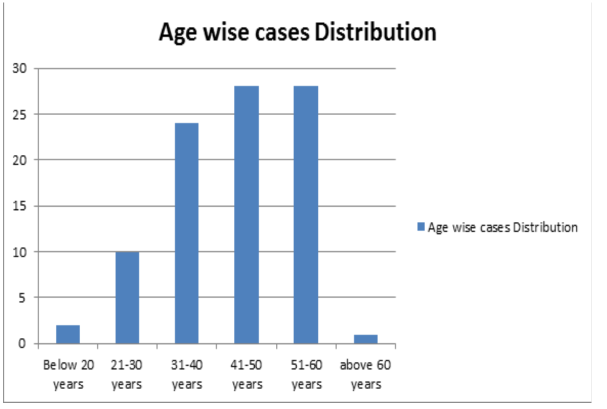


FIGURE 2: Cases distribution according to age groups.

The complications of total thyroidectomy for multinodular goiter are summarised in Table 2 and Table 3. These complications are divided into intraoperative and postoperative complications.It is noted that few patients developed vascular injury intraoperatively but two patients met with injury to reccurrent laryngeal nerve. This patient was followed up postoperatively and reviewed with otolaryngologist and planned for Thyroplasty. On a average 2 to 3 parathyroids are preserved in all the patients. Postoperatively notable complication was seroma formation. 4 patients had postoperative horaseness of voice. As explained previously, two patients reviewed and planned for thyroplasty. Other patient on followup of 2 weeks was healthy and no haorseness of voice was noted. No patient had calcium deficiency in the postoperative period. On followup no cases had recurrence. All the surgical specimens are confirmed with histopathology report with individual pathologist to be benign and multinodular goitre.

On followup all patients had healthy scar with no residual disease or recurrence. All patients were given postoperative L thyroxine supplementation and insisted the patients for a follow up thyroid function tests every second monthly. Patient education was given regarding the need of throxine supplementation to be taken lifelong. All patients accepted this methodolgy.

Age Groups in years	2013	2014	2015	2016
Below 20	2	0	0	0
21-30	2	2	4	2
31-40	8	6	8	2
41-50	6	10	8	4
51-60	10	8	6	4
Above 60	0	0	2	0

Table 1: Age wise distribution of number of multinodular goiter patients with repect to years of study.

Year	RLN injury	Vascular Injury	Others
2013	Nil	4	Nil
2014	2	6	Nil
2015	Nil	6	Nil
2016	Nil	Nil	2
Total	2(2.12%)	16(17.02%)	2(2.12%)

Table 2: Intraoperative complications following total thyroidectomy for MNG with respect to years of study.

Year	Seroma	Hematoma	Reccurence	Hoarseness	HypoParathyroidism
2013	6	Nil	Nil	Nil	Nil
2014	4	Nil	Nil	4	Nil
2015	2	Nil	Nil	Nil	Nil
2016	2	Nil	Nil	Nil	Nil
TOTAL	14(14.89%)	Nil	Nil	4(4.25%)	Nil

Table 3: Postoperative complications with total thyroidectomy in multinodular goiter pateints.

DISCUSSION:

Total thyroidectomy is an operation that continues to evoke considearble controversy in mangement of bilateral benign thyroid diseases. In one review of 909 total thyroidectomies, less than one –quarter of the procedures were performed for disease. The argument put forward by us is that if total thyroidectomy can be performed as safely as lesser procedures for benign disease, then the indication for its use may be justifiably expanded to those sitautions where recurrent disease is a significant problem.

When dealing with multinodular goiter in particular, the surgeon commonly finds that there is no apparently normal thyroid tissue remaining. He or she must then choose between leaving abnormal thyroid tissue behind or performing a total thyroidectomy. The former approach carrriers with it the risk of reccurent disease, which may require subsequent re-operation, whereas the later approach therotically has the potential hazards of an increased risk of either permanent hypoparathyroidism or recurrent laryngeal nerve injury.

The incidence of permanent complications after total thyroidectomy, varies considerably from center to center. In experienced hands, however the incidence is acceptably low. As reported in Clark1 study where 82 consecutive total thyroidectomies being perfomed with 1% permanent hypoparathyroidism and no permanent recurrent laryngeal nerve injury. Perzik9 reported an incidence of only 0.4% nerve injury and no hypoparathyroidism among 250 total thyroidectomies done for nodular goiter.Other authors have reported that the incidence of comlications increases as the complexity of the procedure increases. Martensson and Terins study showed increase in incidence of nerve injury from 5% for unilateral lobectomy up to 18% for subtotal thyridectomy and 14% for total thyroidectomy.

In this study we have shown that total thyroidectomy for multinodular goiter can be performed with minimal comlpications. We believe that this results from the use of the technique of thyroidectomy as described, whereby dissection and ligaton of the multiple vessels on the thyroid capsule preserves the blood supply of the parathyroids and minimize inadverent injury to recurrent laryngeal nerve.

We recommend, therefore, that total thyroidectomy is the procedure of choice for multinodular goiter where the entire gland is involved. It must be emphasized, however, that protection of the recurrent laryngeal nerve and parathyroid is paramount in dealing with benign thyroid disease. Ensuring such protection will, on occasion, require that remnant thyroid tissue be left when anatomic vagaries render total excision of the gland less than totally safe. Of course, this policy requires that the operation be performed by an experienced surgeon who can guarantee that the procedure will be performed with minimal risk of complication.

References:

1. Mc Henry CR, Pateints volumes and complications in thyroid surgery Br J surg. 2002;89 821-823
2. Hermann M, Alk G, et al Laryngeal nerve injury in surgery for benign thyroid disease, impact of individual surgeon, am Surg J 2002 , 235: 261-268
3. Reeve T.thompson NW. complications of thyrois surgery how to avoid them, how to manage and observations. World J surg: 2000,24:971-975
4. Bergamaschi R. Becouman G. Ronceracy j. Morbidity of thyroid syrgery Am j surgery 1998;176 71-75
5. Gardiner KR, Russell CF, thyroidectomy for large multinodular goiter JR coll surg edin 1995,40 367-70
6. T S Reeve, A Cohen Total Thyroidectomy Amm surg 1987;volume 206
7. Calandra DB,Sha KH, Lawrence AM,Paloyan E,Total Thyroidectomy in irradiated patience Amm surg 1985;202:356-360
8. CLARK.OH. Totalthyroidectomy:the treatment of choice for the patients with differentiated thyroid cancer: Amm surg 1982;196:361-370
9. Perzik SL. The place of total thyroidectomy in the management of 909 patients with thyroid disease. Am Surg J 1976; 132: 480-483.