

Thyroid Swellings and their Management: A 3 Year Analysis at a Tertiary Care Centre

Kabir Rajkhowa¹, Gurukeerthi. B², Pradip Kumar Tiwari³, N.J. Saikia⁴

ABSTRACT

Introduction: Goiter is the most commonly used term related to swelling in front of neck refers to enlargement of thyroid gland. In some cases person notices a nodule in his own neck, while in other cases a health care provider will feel a nodule during a routine examination of the neck. Thyroid surgery has been traditionally a general surgical practice, but recently more otolaryngologists are offering thyroid services. Study aimed to analyse the variations in anatomical structures precisely and check for any complications.

Materials and methods: The study was conducted on thyroid surgeries performed from June 2013 to June 2016. The principal complaint of all 107 patients was neck swelling. Patients underwent lobectomy, hemithyroidectomy, near total thyroidectomy, total thyroidectomy and the specimens sent for definitive histopathological diagnosis.

Results: Out of 107 cases 63 cases (58.8%) were diagnosed as colloid goiter. Others were multinodular goiter (12.1%), thyroid cyst (10.2%), Follicular adenoma (9.3%), papillary carcinoma (2.8%), undifferentiated carcinoma (0.9%). From above observations it was obvious that among the thyroid swellings 87% cases were benign and 13% cases were malignant. Lobectomies were performed in 4 (3%), Hemithyroidectomies 75 (70%), Near Total thyroidectomies were performed in 22 (20.5%).

Conclusion: It is concluded that even though the number of malignant goiters are increased recently, still benign thyroid swellings are more common. It is also observed thyroid swellings more commonly seen in female population. Similar to previous studies, we have found that papillary carcinoma is the most common type of thyroid malignancy.

Keywords: Thyroid Swellings, Thyroid Swellings Management:

INTRODUCTION

Goiter is the most commonly used term related to swelling in front of neck refers to enlargement of thyroid gland. These swellings are mostly nodular or show a smooth enlargement of thyroid gland. All swellings move on swallowing unless it is fixed to underlying structures due to malignancy.

In some cases person notices a nodule in his own neck, while in other cases a health care provider will feel a nodule during a routine examination of the neck.

Thyroid nodules are clinically noted in 4% to 7% of adult population and are incidentally found in 25% of adult population on ultrasound examination.¹ In a study of 300 sequential autopsies those were malignant neoplasms in 2.33% but occult carcinoma comprised 1% of the cases. This represents a higher incidence as in this study females comprised one third of total autopsies.²

In India, according to latest ICMR report available of 2009-2011 age adjusted incidence rate of thyroid swellings in females is 0.6. According to one more report related to Dibrugarh district, thyroid malignancy incidence was less, and it was not at all a

most common site of cancer. Present study is a review of our experience with thyroid swellings and their management at a tertiary care centre.

Pre operative diagnosis was obtained by FNAC, ultrasound depending on the nature of thyroid nodules. Among them FNAC was easily available, economical and of high diagnostic value. Thyroidectomy is the most common endocrine surgery done worldwide. Current indications for surgery are compression induced symptoms, malignancy, suspected malignancy, hyperthyroidism and cosmesis. Thyroid surgery has been traditionally a general surgical practice, but recently more otolaryngologists are offering thyroid services. In UK data from department of health showed that in 1998-99 83% of thyroid surgeries were performed by general surgeons and 15.4% by ENT surgeons with an average of case load of 19.1/year. This data is not available for India.

Study aimed to analyse the variations in anatomical structures precisely and check for any complications

MATERIALS AND METHODS

The study was conducted on thyroid surgeries performed from June 2013 to June 2016. Out of 107 cases 103 cases were females and only 4 cases were males. Majority of them were in second to fourth decade. The principal complaint of all 107 patients was neck swelling. Some of them complained dysphagia proportionate to the size of goiter. All patients had ultrasound neck, FNAC, T3, T4, TSH levels done. All the patients underwent thyroid surgery under general anaesthesia. Patients underwent lobectomy, hemithyroidectomy, near total thyroidectomy, total thyroidectomy and the specimens sent for definitive histopathological diagnosis.

In all cases of our thyroid surgeries performed, skin flaps were raised in a subplatysmal plane superiorly to the thyroid notch and inferiorly to the sternal notch. Always anterior jugular vein and its tributaries were identified and maximum effort was taken to preserve it until the end of the surgery. Strap muscles were opened in midline and raised by blunt dissection, following division of the strap muscles middle thyroid vein and branches were identified and carefully ligated. Superior thyroid pedicle

¹Associate Professor, Department of Surgery, ²ENT Postgraduate Student, AMC, ³ENT Postgraduate Student, ⁴Associate Professor, Department of Otorhinolaryngology and Head and Neck Surgery, Assam Medical College, Dibrugarh, India

Corresponding author: Pradip Kumar Tiwari, Resident, Department of Otorhinolaryngology and Head and Neck Surgery, Assam Medical College, Dibrugarh, Assam, India

How to cite this article: Kabir Rajkhowa, Gurukeerthi. B, Pradip Kumar Tiwari, N.J. Saikia. Thyroid swellings and their management: A 3 year analysis at a tertiary care centre. International Journal of Contemporary Medical Research 2016;3(11):3397-3400.

Thyroid surgeries	Identification of Superior parathyroid		Identification of Inferior parathyroid		Intraoperative RLN Identification	
	Yes	No	Yes	No	Yes	No
Lobectomy	Yes	0	Yes	4	Yes	0
	No	4	No	0	No	4
Hemithyroidectomy	Yes	70	Yes	70	Yes	53
	No	5	No	5	No	22
Near Total Thyroidectomy	Yes	60	Yes	22	Yes	46
	No	15	No	0	No	29
Total Thyroidectomy	Yes	2	Yes	4	Yes	1
	No	4	No	2	No	5

Table-1: Variation of structures

Hypocalcemia	Total thyroidectomy	4
	Near total thyroidectomy	3
Vocal cord paresis/palsy	Total thyroidectomy	5
	Near total thyroidectomy	6
Tracheomalacia	Total Thyroidectomy	1
Wound infection	Hemithyroidectomy	5
Keloid	Hemithyroidectomy	1

Table-2: Postoperative complications

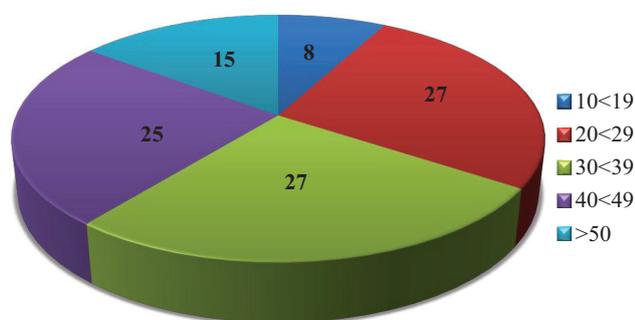


Figure-1: Age wise distribution of the thyroid cases

was accessed laterally and ligated. Dissection was performed closed to the thyroid gland to sleeve off from its capsule, thus respecting the integrity of recurrent laryngeal nerve which lies below the pretracheal fascia. The hemi thyroid specimen was removed with the isthmus in all cases. Hemostasis was done with bipolar coagulation diathermy.

The patient's larynx was assessed at the time of extubation and on post operative visits. The surgical specimens were sent for histopathological examinations and the results were reviewed. During follow-up, skin discoloration, wound healing, wound dehiscence, post operative swelling around the skin incision, cosmetic appearance were assessed. There were no anesthesia related complications.

STATISTICAL ANALYSIS

Descriptive statistics like mean and percentages were used to interpret the results. Microsoft office 2007 was used for making tables and graphs.

RESULTS

Figure-1 shows the age wise distribution of the thyroid cases. Of the 107 cases during a period of 3 years, most of the thyroid swellings were diagnosed in the age group of 20-39yrs i.e 54 cases (50.4%) and least occurrence diagnosed in the age group of above 50 (7%). Figure-2 shows the different surgical pathologies and procedures of thyroid obtained during the

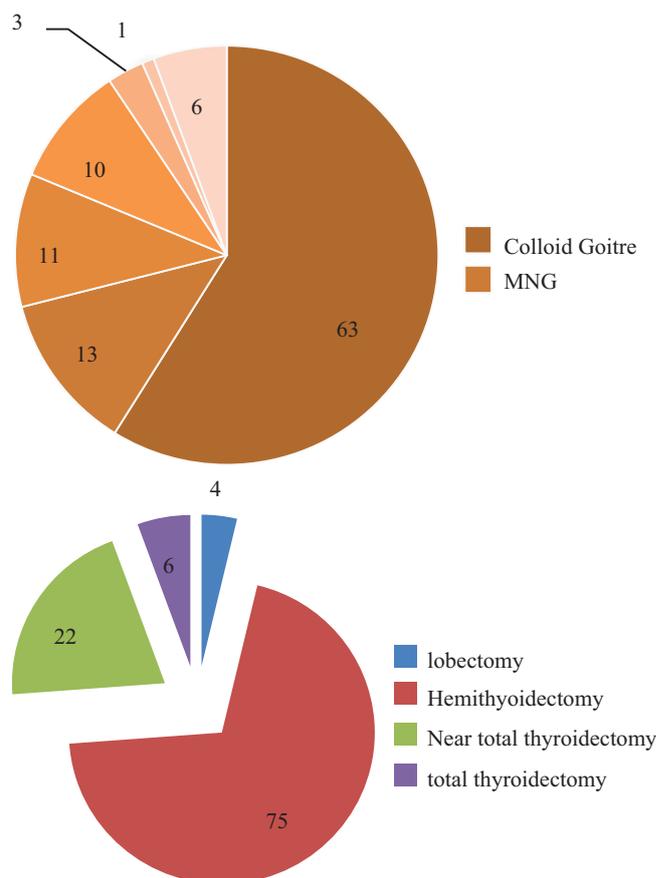


Figure-2: Different surgical pathologies and procedures of thyroid obtained during the study

study. Out of 107 cases 63 cases (58.8%) were diagnosed as colloid goiter. Others were multinodular goiter (12.1%), thyroid cyst (10.2%), Follicular adenoma (9.3%), papillary carcinoma (2.8%), undifferentiated carcinoma (0.9%). From above observations it was obvious that among the thyroid swellings 87% cases were benign, and 13% cases were malignant. Lobectomies were performed in 4 (3%), Hemithyroidectomies 75 (70%), Near Total thyroidectomies were performed in 22 (20.5%). In 6 cases performed total thyroidectomy. Table 1 shows the variation of structures during surgery as identification of superior parathyroid and identification of inferior parathyroid, etc.

Table 2 shows postoperative complications like vocal cord paresis etc. Out of 107 thyroid surgeries, hypocalcemia during postoperative period was observed in only 7 cases. Transient vocal cord paresis was observed in 11 patients who gradually improved over 3 to 6 months of follow up. Wound infection

was noted in 5 patients who were treated accordingly following culture & sensitive report with appropriate antibiotics. Keloid was reported in one patient who was treated with intralesional steroid.

Treatment of early postoperative vocal cord paresis involved steroids, methylcobalamin (1500mcg). Treatment of early post operative tetany included calcium gluconate 50ml in 450ml normal saline started 6 hrs postoperatively continued till Trousseau's sign becomes negative. Then onwards oral calcium had been started.

DISCUSSION

The worldwide prevalence of goiter in the general population is estimated at 4%–7% and the incidence of malignancy in goitrous thyroid is about 10%.³

Among thyroid malignancies, papillary thyroid carcinoma (PTC) is the most common malignant tumor of the thyroid gland, accounting for 85% of all thyroid cancers.⁴

An increased incidence of thyroid carcinoma has been noted in endemic goitre regions such as Columbia and Austria as well as in non-endemic goitre regions such as Iceland and Germany. It was also noted that follicular thyroid carcinoma (FCA) and anaplastic thyroid carcinoma (ANA) occurred more frequently in endemic goitre regions than in goitre-free areas. This implies that highly aggressive thyroid cancer prevails in countries with endemic goitre.^{5,6}

The Universal Salt Iodization programme was meant to be a major slogan to solve this problem. While focusing on this issue, it is the duty and responsibility of healthcare professionals to be aware of the consequences of increased iodine intake which could probably result in either iodine-induced thyrotoxicosis or thyroid cancers.⁷

Thyrotoxicosis is transient and of less significance, while thyroid cancer requires early detection and treatment.⁷ From observation in 2 yrs out of 60 cases of goiters only 9 cases (15%) were malignant.

A higher incidence of cancer at 26.4% was also observed in a three-year study done in Myanmar. From the Myanmar study, it was observed that there was a high incidence of thyroid cancer in the age range between 21 and 60 years, in both follicular and papillary patterns.⁸

The possibility of a significantly higher chance of malignancy in males should be considered in this situation as there is a disparity between male and female patients with thyroid cancers, according to Machens et al in 2006.⁹

They emphasised that an early diagnosis and treatment of thyroid cancer in male patients are needed because the cancer may behave more aggressively in men than in women, as there is a marked variation in the risk of hormone-dependent cancers found between males and females.⁹

Riccabona in 1980 and Bakiri et al in 1998, that highly-aggressive thyroid cancers like FCA and ANA were more prevalent in countries with endemic goiter.^{5,6}

From our study, we did not observe any case of medullary carcinoma, although existing literature reports its presence in less than 5% of the total thyroid malignancy.¹⁰

Out of 19 patients who underwent near total thyroidectomies 4 patients had, 3 patients had unilateral vocal cord palsy (5%). Primary operations for benign goiter were associated with a

5.3% and 0.3% incidence (3.4% and 0.2% nerves at risk) of transient and permanent nerve palsy.¹¹

In a literature survey, reports with identification of the recurrent nerve had significantly lower primary and permanent palsy rates, when compared with reports without obligatory identification of the nerve ($p < 0.01$).¹²

There are other conflicting reports as regards RLN damage, which say that identification of RLN during subtotal thyroidectomies does not produce a statically significant difference as when it is not identified in subtotal thyroidectomies. But in total thyroidectomies, the incidence of nerve paralysis increases from 3.8% to and %when the nerve is not exposed or identified.¹³

CONCLUSION

It is concluded that even though the number of malignant goiters are increased recently, still benign thyroid swellings are more common. It is also observed thyroid swellings more commonly seen in female population. Similar to previous studies, we have found that papillary carcinoma is the most common type of thyroid malignancy. Recent trend in thyroid surgeries shows a marked reduction in post operative complications related to recurrent laryngeal nerve and parathyroids. Hence we are able to provide a good quality of life for patients with thyroid swellings. Eventhough, newer advances like Intraoperative nerve monitoring technique can be a useful tool, it can't replace keen eyes of an expert thyroid surgeon.

REFERENCES

1. Mackenzie E.J, Mortimer R H. Thyroid nodule and Thyroid cancer, Medical Journal of Australlia MJA. 004;180:242-247.
2. Helio Bisi, Vilma SO Fernandes, Rosalinda Y.Asato De camargo, Leopoldo Koch, Anete H.Tales De Bitto. The prevalence of unsuspected thyroid pathology in 300 sequential autopsies wit special reference to the incidental carcinoma Cancer. 1989;64:1888-93.
3. Pacini F, DeGroot LJ. Thyroid neoplasia. In: DeGroot LJ, Jameson JL, eds. Endocrinology. 4th ed. Philidelphia: WB Saunders. 2001:1541-66.
4. Sugitani I, Kasai N, Fujimoto Y, Yanagisawa A. A novel classification system for patients with PTC: addition of the new variables of large (3cm or greater) nodal metastases and reclassification during the follow-up period. Surgery. 2004;135:139-48.
5. Riccabona G. Thyroid cancer and endemic goiter. In: Stanbury JB, Hatzel BS, eds. Endemic Goiter and Endemic Cretinism. New York: John Wiley and Sons. 1980:333-50.
6. Bakiri F, Djemli FK, Mokrane FA, Djidel FK. The relative roles of endemic goiter and socioeconomic development status in the prognosis of thyroid carcinoma. Cancer 1998; 82:1146-53.
7. Seminar on preparedness for safe and effective universal saltiodization in Myanmar. Yangon: National Nutrition Centre, Department of Health; 1998 August.
8. Htwe TT, Ko M. Thyroid cancers: a three years retrospective histopathological study. J Myanmar Acad Tech. 2001;1:23-30.
9. Machens A, Hauptmann S, Dralle H. Disparities between male and female patients with thyroid cancers: sex difference or gender divide? Clin Endocrinol (Oxf). 2006; 65:500-5.
10. Kumar V, Abbas AK, Fausto N. Robbins and Cotran

Pathologic Basis of Disease. 7th ed. Philadelphia: Elsevier Saunders, 2005.

11. Chung-Yau LO, Ku -Fai Kwok, Po-wing Yuen. A Prospective Evaluation of Recurrent Laryngeal Nerve Paralysis During Thyroidecomy. Arch Surg. 2000;135:204-207.
12. Vipul Yagnik, M.V Mehta. Incidence of Recurrent Nerve palsy with and without Nerve identification during Thyroid surgery. The International Journal of Surgery. 1528-82.
13. Wagner H.E., Seiler C H. Recurrent Laryngeal Nerve Palsy after thyroid gland surgery. 2005;226-228.

Source of Support: Nil; **Conflict of Interest:** None

Submitted: 01-11-2016; **Published online:** 09-12-2016