

## **A Study of A etiological, Clinicopathological and Surgical Management of Thyroid Swellings**

<sup>1</sup>Vallabh Vijay Jane, Senior Resident, All India Institute of Medical Sciences, Nagpur

<sup>2</sup>Niteen N. Chate, Professor and HOD Surgery, SRTR Govt. Medical College, Ambajogai

<sup>3</sup>Satish Gireboinwad, Associate Professor, SRTR Govt. Medical College, Ambajogai

<sup>4</sup>Wellborn Shylla, Senior Resident, HBTMC and Dr RN COOPER Hospital, Mumbai

**Corresponding Author:** Vallabh Vijay Jane, Senior Resident, All India Institute of Medical Sciences, Nagpur

**Citation this Article:** Vallabh Vijay Jane, Niteen N. Chate, Satish Gireboinwad, Wellborn Shylla, “A Study of A etiological, Clinicopathological and Surgical Management of Thyroid Swellings”, IJMSIR- November - 2023, Vol – 8, Issue - 6, P. No. 12 – 17.

**Type of Publication:** Original Research Article

**Conflicts of Interest:** Nil

### **Abstract**

**Background:** Thyroid disease is common and yet the management of both thyroid swellings and functional abnormalities remains controversial. Aim of present research was to study the cases of thyroid swelling, its classification, various modes of clinical presentation, various treatment modalities and their complications.

**Method:** Total 100 patients (age 20-70 years) with thyroid swellings and who were euthyroid were enrolled in the study. Data was collected by using a pre designed questionnaire which consisted of standard questions were interviewed. Clinical examination, diagnosis and all relevant investigations were done. Patients were followed up till they were discharged.

**Results:** Average age of patients was 36.58±8.89 years with female predominance (88%). All cases had swelling (100%) followed hoarseness of voice (19%), 15% had pain in swelling, 12% dysphagia and 8% had cervical lymphadenopathy. The mean duration of goitre was 5.79±2.97 years and 60% of cases had all lobes involved. Majority of cases were clinically and histopathologically diagnosed for multinodular goitre (52%), followed

solitary goiter (31% vs 29%), ( $p<0.0001$ ). The majority of cases (57%) had malignancy and 43% had benign swelling. Most common surgery performed was total thyroidectomy (43%) and common postoperative complication seen was hemorrhage (11%).

**Conclusion:** Thyroid swellings were common in females they occur in 3rd and 4<sup>th</sup> decade most commonly. Clinical findings and histopathological findings are very useful in the diagnosis of thyroid swelling. Early detection and treatment are very important.

**Keywords:** Thyroid swelling, Euthyroid, Dysphagia, Lymphadenopathy, Goitre, Histopathology, Thyroidectomy

### **Introduction**

Thyroid diseases are, arguably, among most common endocrine disorders worldwide. India too is no exception. According to a projection from various studies on thyroid disease, it is estimated that about 42 million people in India suffer from thyroid diseases [1]. As world advances, nuclear incidents increase, leading to increase in exposure to radiations and therefore in thyroid swellings [2, 3]. 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 [4].

Moreover, the incidence of goitre, diffuse and nodular, is very much dependent on status of iodine intake of the population. In areas of iodine deficiency, goitre prevalence may be high and especially in goitres of longstanding, multilocularity develops frequently [5]. The clinically solitary nodule may not always be a real solitary nodule but just a dominant nodule of a multinodular goitre (MNG). At times, it may be impossible to clinically differentiate malignancy in thyroid, especially in cases of thyroiditis. Furthermore, previously benign adenoma or MNG can have malignant transformation [6]. The accurate diagnosis and appropriate management of thyroid swellings hence assume importance. A careful physical examination along with relevant investigations such as fine-needle aspiration cytology (FNAC) and ultrasonography (USG) may be required to reach an exact diagnosis and plan management accordingly [].

The present study was undertaken taken to study the cases of thyroid swelling, its classification, various modes of clinical presentation, incidence of malignant and benign swellings, various treatment modalities and their complications.

### Materials and Methods

This prospective observational study was carried out in the Department of Surgery at Tertiary Care Hospital during a period of two years from November 2017 to October 2019. Total 100 patients with thyroid swellings

in age group of 20 to 70 years and patients who are euthyroid, have given written consent for the procedure and for complications associated with it were included in the study. The study was started after obtaining Institutional Ethical Committee approval and written informed consent from all the patients. Patients with hypothyroid, hyperthyroid disorder, physiological goiter, age below 20 years and above 70 years, patients who are unmarried, unwillingness of the patients; uncooperative subjects were excluded from the study.

The basic information was noted especially with respect to clinical findings, sociodemographic factors, and all other investigations (Hematological: Hb, TLC, DLC, ESR, Rena; parameters: blood urea, serum creatinine, Blood sugars, Chest X ray, x ray neck AP lateral, ECG, Blood grouping and cross matching (when required), serostatus, thyroid profile test, FNAFC, indirect laryngoscope, serum calcium, serum electrolyte, serum calcitonin, USG Neck) were done. Data was collected by using a predesigned questionnaire which consisted of standard questions related to clinical condition, socio demographic factors, addiction among family members, and so on, were interviewed. In addition, questions related to past and present medical history and health seeking behavior were also studied. Clinical examination, diagnosis, investigations details of previous operative procedure was done. Thus, all patients enrolled were followed up in Surgery department till they were discharged. The data collected was analyzed to study the a etiological, clinicopathological and surgical management of thyroid swellings.

### Statistical analysis

The results of continuous (quantitative data) measurement were presented on Mean  $\pm$  SD (min-max) and result on categorical (qualitative data) measurements was presented in percentage and proportions (%).

Comparison of qualitative variable was analyzed by chi-square test. Wherever necessary between groups, comparison of quantitative variables was analyzed by independent student t test according to distribution. A p value of 0.05 was taken as level of significance and was considered statistically significant. Data analysis was done using RStudio and open epi version 2.3.1.

**Observations and Results**

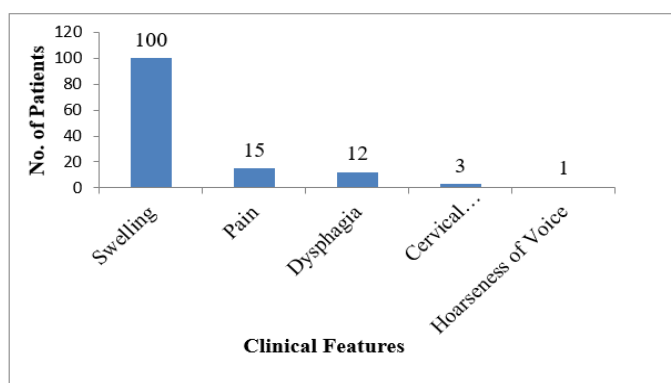
Among total 100 patients, 88 were females and 12 were males. The majority of cases were in age group of 31 to 40 years (68%) and average age of patient was 36.58±8.89 years, ranged from 22 to 67 years. P value was >0.05 showing no statistical significance, (Table 1).

Table 1: Age and Gender distribution among the study population

Age group (years)	Male	Female	Total
21-30	01	13	14
31-40	10	58	68
41-50	00	10	10
51-60	01	03	04
>60	00	04	04
Total	12	88	100

All cases had swelling (100%) and other clinical features are depicted in figure 1. As one person had one or more than one clinical presentation hence the total exceeds 100.

Figure 1: Clinical features among the study population



The majority of cases (56%) had duration of goitre between 1 to 5 years, 35% had more than 5 years and only 9% had duration one or less than 1 year. Average duration of goiter in years was 5.79±2.97 ranged from 1 to 13 years. Among 100 cases, majority 60% of cases had all lobes involved, followed by 22% had right lobe involved, 12% had left lobe and only 6% had isthmus involved.

The most common surgery performed was total thyroidectomy (43%), followed by hemithyroidectomy 29% and other surgeries performed are shown in table 2.

Table 2: Surgeries performed.

Surgery	Number of patients	Percentage
Total thyroidectomy	22	22%
Right Hemithyroidectomy	29	29%
Left Hemithyroidectomy	27	27%
Subtotal thyroidectomy	07	7%
Near total thyroidectomy	05	5%
Total thyroidectomy with lymph node removal	03	3%
Isthmusectomy plus lobectomy	06	6%
Incision and drainage	01	1%

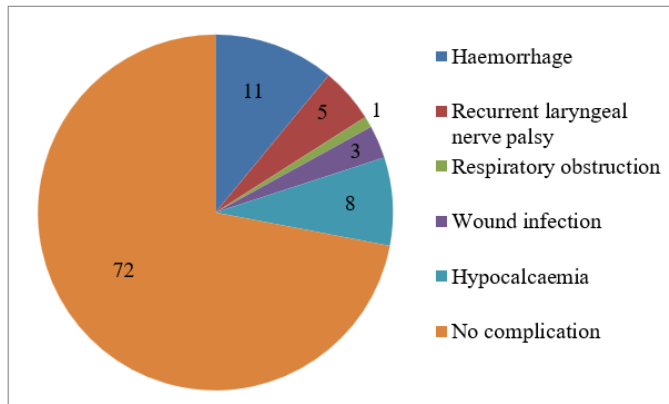
The maximum numbers of cases (52%) were clinically and histopathologically diagnosed for multinodular goitre (52%), followed by for solitary goiter (31% vs. 29%). In comparison of clinical diagnosis with histopathological findings p value <0.0001 had high statistical significance, (Table 3). The majority of cases (57%) had malignancy and 43% had benign swelling.

Table 3: Comparison of clinical diagnosis with histopathological findings

Clinical Diagnosis	Histopathological Findings						
	Multinodular Goitre	Solitary Goitre	Neoplastic Goitre	Adenoma	Retrosternal Goitre	Thyroid Abscess	Total (Clinical Diag.)
Multinodular Goitre	52	0	0	0	0	0	52
Solitary Goitre	0	28	0	3	0	0	31
Neoplastic Goitre	0	0	10	0	0	0	10
Colloid Goitre	0	1	0	3	0	0	4
Retrosternal Goitre	0	0	0	0	2	0	2
Thyroid Abscess	0	0	0	0	0	1	1
Total (Histopathological)	52	29	10	6	2	1	100

Maximum number of patients (72%) had no post-operative complication among those had common complication seen was hemorrhage 11%, followed by hypocalcemia (8%) as shown in figure 2.

Figure 2: Post-operative complication



**Discussion**

Thyroid lesion usually presents with swelling of thyroid gland with or without hyper or hypofunction of thyroid gland [7]. Thyroid nodules are clinically noted in 4% to 7% of adult population and are incidentally found in 25% of adult population on ultrasound examination [8]. However, the incidence of thyroid lesions is increasing in recent years. In India, according to latest ICMR report available of 2009-2011 age adjusted incidence rate of thyroid swellings in females is 0.6 [4]. In the present study it was seen that majority of cases were females (88%) as compared to males (12%) with a female to male ratio of 7.3: 1. The age of patients ranged from 22 to 67 years, with maximum in the age group of 31 to 40 years (68%) and average age was 36.58±8.89 years. Similar findings were seen in previous studies [9-13].

All the patients clinically presented with swelling in from of neck. As one person had one or more than one clinical presentation hence the total exceeds 100. The majority of

cases (56%) had duration of goitre between 1 to 5 years with average duration of goitre was 5.79±2.97 and range was 1 to 13 years. Among 100 cases, 60% of cases had all lobes involved, followed by 22% had right lobe involved, 12% had left lobe and only 6% had isthmus involved. These findings are comparable with the study done by Halbhavi et al [9], Haque et al [11] and Phillipot et al [13]. The multinodular goitre was the most common clinical and histopathological findings followed by solitary, neoplastic, colloid and retrosternal goiter; this finding is in accordance with the earlier studies [9, 11-13].

Management of thyroid nodule depends on cytology report. Benign nodule with normal thyroid function test does not require surgery. Surgery is indicated when there is a pressure symptom. Toxic nodules are treated by antithyroid drugs, radioiodine and occasionally surgery. Malignant nodules are treated surgically by means of total thyroidectomy [14]. In current study majority of cases (90%) had benign swelling and 10% had malignancy as reported in Halbhavi et al study [9]. The most common surgery performed was total thyroidectomy (43%) and next common was hemithyroidectomy 29% and left hemithyroidectomy 27% which is correlated with other studies [11-13].

A considerable number of various complications were observed during the procedure of thyroid surgery. The mentionable postoperative complications like hemorrhage, recurrent laryngeal nerve damage, thyroid crises etc depends on an extent of surgery. But these crucial postoperative complications could be minimized if surgery of thyroid gland performed safely in the majority of patients. A thorough knowledge of various thyroid surgery and potential surgical complications are mandatory for the thyroid surgeon. Successful surgical management of thyroid disease is also based on a sound

knowledge of normal and pathologic anatomy and an unhurried, gentle operative technique. Long-term follow up is essential to assess recurrence and development of hypothyroidism. It is therefore recommended that health education should be given to community not only about the cause and prevention but also about the treatment options so that patients could seek medical attention earlier. The importance of follow up clinics should also be emphasized.

### Conclusion

Thyroid swellings were more common in females they occur in 3rd and 4<sup>th</sup> decade most commonly. Multinodular goiter was the most common clinical and histopathological finding. Clinical findings and histopathological findings is very useful in the diagnosis of thyroid swelling. Early detection and treatment is very important. The main indications of surgery are pressure effect symptoms and suspicion of malignancy.

### References

1. Kochupillai N. Clinical endocrinology in India. *Curr Sci* 2000; 79:1062-7.
2. Stsjazhko VA, Tsyb AF, Tronko ND, Souchkevitch G, Baverstock KF. Childhood thyroid cancer since accident at Chernobyl. *BMJ* 1995; 310:801.
3. Brenner AV, Tronko MD, Hatch M, Bogdanova TI, Oliynik VA, Lubin JH, et al. I-131 dose response for incident thyroid cancers in Ukraine related to the Chernobyl accident. *Environ Health Perspect* 2011; 119:933-9.
4. 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.
5. Charib TGH, Thyroid incidentalomas: management approaches to non-palpable nodules discovered

incidentally on thyroid imaging. *Ann Int Med* 1997; 126:226-231.

6. Raniwala A, Wagh D D, Dixit-Shukla A, Shrikhande N, Padmawar M. Study and correlation of clinical, radiological, cytological, and histopathological findings in the diagnosis of thyroid swellings. *J Datta Meghe Inst Med Sci Univ* 2017; 12:138-42.
7. Hariprasad S, Teerthanath S. Clinicopathological study of thyroid swellings - a two year prospective study. *Indian Journal of Basic and Applied Medical Research*; 2017;6(3):152-160.
8. Mackenzie E.J, Mortimer R H. Thyroid nodule and Thyroid cancer, *Medical Journal of Australia MJA*. 2004;180:242-247.
9. Halbhavi SN, Ganjigatti M, Kuntoji SB, Karikazi MA. Clinicopathological study of thyroid swellings in HSK hospital in Karnataka, India. *Int Surg J* 2018;5:420-5.
10. Sengupta A, Pal R, Kar S, Zaman FA, Sengupta S, Pal S. Fine needle aspiration cytology as diagnostic tool in thyroid enlargement. *J Nat Sci Biol Med*. 2011;2(1):113-8.
11. Haque GHMS, Farid N, Islam SS. Incidence of Complications of Thyroid Surgery. *Medicine today*. 2016;28 (02): 62-65.
12. Rahman MM, Rabbani SMG, Rashid RA, Chowdhury MA, Nihar F, Kamal MS. Assessment of morbidity and mortality of thyroid surgery. *AKMMC J* 2015 : 6(2): 15-19.
13. Phillip L. Chalya, Peter Rambau, Joseph B. Mabula, Emmanuel S. Kanumba, Godfrey Giiti, Alphonse B. Chandika And Japhet M. Gilyoma. Patterns and outcome of surgical management of goiters at Bugando Medical Centre in northwestern Tanzania. *Tanzania Journal of Health Research*. 2011;13(3):1-6.

14. Mandal N, Kuiri SS, Nandi MM, Ghosh BC, Ghosh G, Sharma Y. A study of clinical profile and management of dominant thyroid nodule in a tertiary care hospital of West Bengal. *Asian Journal of Medical Sciences* 2017; 8(4):11-15.