

Clinical Study of Solitary Thyroid Nodule

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Abstract

Introduction: Solitary thyroid nodule (STN) presents a challenge in their diagnosis, evaluations, and management. Often, these abnormal growths/lumps are large in size and develop at the edge of the thyroid gland so that they are felt or seen as a lump in front of the neck.

Materials and Methods: The study is carried out in upgraded Department of General Surgery, Kakatiya Medical College and Mahatma Gandhi Memorial Hospital, during the period of February 2017–October 2018.

Results: Among the 62 patients studied in this research, 52 were female and there were 10 males. Females accounted for 83.9% of the cases while males accounted for 16.1%. The male-to-female ratio was 5.2:1.

Conclusions: Incidence of STN is common in the age group of 18–30 years. Hemithyroidectomy was commonly performed on maximum cases.

Key words: Malignancy, Solitary thyroid nodule, Swelling

INTRODUCTION

Solitary thyroid nodule (STN) presents a challenge in their diagnosis, evaluations, and management. Often, these abnormal growths/lumps are large in size and develop at the edge of the thyroid gland so that they are felt or seen as a lump in front of the neck. The prevalence of these nodules in a given population depends on a number of factors such as age, sex, diet, iodine deficiency, and even therapeutic and environmental radiation exposure. Prevalence increases with age, with spontaneous nodule occurring at a rate of 0–0.8% per year, beginning early in life and extending into the eighth decade.^[1,2]

True STN occurs in 4–7% of the adult population. They are present in 5% of persons at an average of 60 years. They are more common in females (6.4%) as compared to males (1.5%) and this predisposition exists throughout all age groups. Many palpable thyroid nodules, thought to be

solitary, are actually part of a multinodular thyroid gland. In general, a nodule could be adenomas or neoplasms. Most thyroid nodules are benign hyperplastic lesions, but 5–20% of these nodules are true neoplasms in nature. STN first seen can be due to asymmetrical enlargement of one lobe as in chronic lymphocytic thyroiditis (i.e., Hashimoto's thyroiditis), simple goiter.

STNs can be classified into benign and malignant nodule. In general, most (90%) thyroid nodules are benign and can be classified as adenomas, colloid nodules, cysts, infectious nodules, lymphocytic or granulomatous nodules, hyperplastic nodules, thyroiditis, and congenital abnormalities.^[3]

Predisposing pathological features increase clinical important of thyroid nodule(s). A significant feature is nodule size. A palpable thyroid nodule at physical examination, especially >2 cm of diameter, carries a considerable risk of annoying disorder.^[4] Another main feature is structural (solid and cystic) nature of the nodule. Especially, management of a larger solid nodule merits a distinct importance.^[4] A third feature is functional status of the nodule. The activity of a nodule may be established by chemical-hormonal analysis and nuclear imaging method. A hyperactive or hypoactive nodule significantly influences clinical outcome of a patient.^[5] A fourth important characteristic of the nodule is its solitary features. A solitary nodule carries greater

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clinical importance than multinodular formation.^[6] Based on clinical, chemical, and image characteristics, the thyroid nodule which possesses all these four pathological features (“large size,” “solitary,” “solid,” and “hypo or hyperactive”) is generally treated by surgical intervention.

The ultimate aim of the study of STN is to find out the incidence of malignancy. At present, many investigations including diagnostic imaging studies, serologic and cytogenetic tests, as well as histopathological techniques are available to evaluate STNs. Out of all these investigations, fine-needle aspiration cytology (FNAC) has become the important diagnosis tool of choice for the initial evaluation of STNs.^[3] It can be done by clinician himself. It does not require costly instrument setup. It can be easily repeated. There is patient tolerance as it is very less painful. Furthermore, there are neither reports of needle track deposit nor any significant complications.

Due to the above-said reason, the usefulness of FNAC was evaluated in center like ours in cases of STN. In addition to investigation with available history of patients and clinical examination, we have tried to put clinical diagnosis and we have correlated clinical findings with histopathological examination and patients were managed accordingly.

For the long time, the solitary nodule in thyroid gland due to its malignant potential and possibility of toxicity in the nodule, it has become more sensitive topic for the research worker. Majority of these are localized, hyperinvolvement, colloid containing tumefactions, but a small significant group of about 25–30% is comprised carcinoma, true adenoma, and toxic nodule. This important group needs very different management for hyperinvolvement nodules and has, in recent times, dominated the philosophy of therapeutic approach to the management of thyroid nodule, due to this I had considered to study the said topic for the present study.

MATERIALS AND METHODS

The present study is carried out in the upgraded Department of General Surgery, Kakatiya Medical College and Mahatma Gandhi Memorial Hospital, during the period of February 2017–October 2018.

Study Type

This was a prospective study

Study Population

The study population was 62 cases.

Inclusion Criteria

The following criteria were included in the study:

1. Age groups – 18–60 years

2. Single, visible, or palpable nodule in one lobe or at the junction of one lateral lobe and the isthmus
3. Single nodule with whatever pathology on FNAC
4. Single nodule with features of toxicity (toxic nodule) or hypothyroidism.

Exclusion Criteria

1. Visibility or palpability of the opposite lobe
2. Multinodularity
3. Those patients who refused to give an informed consent to be a part of the study.

Clinical presentation was studied in detail with respect to their history symptoms (presenting complaints) followed by clinical examination. History obtained and included details of swelling such as onset, duration, and rate of growth, whether patient had any obstructive symptoms due to swelling. Symptoms and signs of thyrotoxicosis and hypothyroidism were also looked for in detail. Local examination of gland included.

METHODOLOGY

Inspection

Gland was inspected from front. In short-necked individuals, Pizzillo’s method was used. The inspection of thyroid gland was rendered easier by patient throwing her/his head backward and pressing his/her occiput against his/her clasped hands movement with protrusion of tongue and retrosternal extension if any noted.

Palpation

Palpation of each lobe was carried out by Lahey’s method. In Lahey’s method, examiner stands in front of patient. To palpate the left lobe properly, the thyroid gland is pushed to left from right side by the left hand of the examiner. This makes the lobe more prominent so that examiner can palpate thoroughly with his right hand. During palpation, patient is asked to swallow and size, surface, consistency, and mobility, to get below the swelling is noted. Kocher’s test is done to rule out tracheomalacia. In Kocher’s test, slight push on lateral lobe will produce stridor suggestive of positive Kocher’s test.

Investigations

Besides routine investigations, specific investigations include:

Thyroid function test

Thyroid function test is done in every patient to assess functional status. Triiodothyronine (T₃), tetraiodothyroxine (T₄), and thyroid-stimulating hormone were done regularly and free hormones (FT₃) and (FT₄) obtained in selected cases.

Ultrasound examinations

Ultrasound examination of thyroid accurately measures

the size of the gland, the number of nodules within, and dimensions of the nodule. Most of the solitary nodule on clinical examination turns out to be multinodular goiter on ultrasound, which can be managed conservatively.

Conventional B-mode or gray scale ultrasound can classify nodules as solid, cystic, or mixed and cystic lesions with accuracy of more than 90%. A cystic lesion is usually characterized by sonolucent pattern with well-defined walls. Solid nodules have characteristic ultrasonic echo.

Cystic lesions can again be classified as purely cystic which are rarely malignant and complex cyst where there is solid component within the cyst. The presence of echogenic component in nodule increases chances of malignancy. Ultrasound also aids in FNAC of complex cystic lesion. High-resolution ultrasonography with real-time capability visualizes nodules as small as 5 mm. Purely cystic lesions >4 cm can be managed by aspiration.

However, it cannot differentiate between a benign and a malignant nodule.

FNAC

Material for needle aspiration cytology:

- a. 10 or 20 cc disposable syringe
- b. 22 or 23 gauge disposable needle (1.5 inches)
- c. Slides and coverslips
- d. Fixative in Koplík jar, 95% alcohol
- e. Methylated spirit
- f. Cotton swabs
- g. Stains papanicolaou stain
- h. Microscope.

Method for Needle Aspiration

The technique is described by Lowhagen Torsten *et al.*, in 1979. The skin over anterior part of the neck is cleaned with spirit. The puncture of thyroid nodule is performed with patient in supine position, neck moderately extended. No anesthesia is required. The aspiration is performed with proper aseptic precaution using 10–20 cc syringes and 23 gauge needle. The needle is introduced into the lesion with the handle in resting state. The plunger is retracted to create a vacuum in the syringe. The needle is moved back and forth in different directions under constant suction to detach the tissue fragments.

The plunger released to eliminate vacuum to reach pressure equilibrium in the system. Then, the needle is withdrawn from the lesion avoiding aspiration of material into the syringe. Thyroid aspirates often consist of gelatinous, semisolid material, or drops of blood or tissue fluids mixed with the cell or very tiny tissue bits. The needle containing sample is detached from the syringe, plunger is withdrawn to allow air into the syringe, needle reattached

to syringe, and content blown out on slide by pushing down the plunger. Thus, smears are prepared with the help of another slide by spreading gently to avoid trauma to cellular architecture.

Fixation is done by ethyl alcohol 95%. Staining is performed by papanicolaou and hematoxylin and eosin staining methods.

X-ray Neck and X-ray Chest

It was done to rule out tracheal shift. Soft tissue extension in the retrosternal was noted in lateral view. X-rays were also done to rule out any cervical spine pathology to prevent injury to cervical spine in hyperextended position during operation.

Indirect Laryngoscopy (IDL)

It is done as routine in all cases preoperatively and postoperatively to know the vocal cord status. Asymptomatic vocal cord palsy can be encountered in about 3% of patients, and hence, pre-operative IDL was carried out for medicolegal record. In all patients, postoperatively, IDL was done to rule out recurrent laryngeal nerve injury.

After this, provisional diagnosis was made and patients were subjected to surgery. Any intraoperative/post-operative complication, if any, was noted. Final diagnosis was settled with histopathology. Post-operative medication after discharge if needed was advised. Follow-up was kept in patients who reported after specific period outpatient department (OPD).

OBSERVATIONS AND RESULTS

Patient Demographics

Among the 62 patients studied in this research, 52 were female and there were 10 males Table 1. Females accounted for 83.9% of the cases while males accounted for 16.1%. The male-to-female ratio was 5.2:1.

Most of the cases were seen in the 18–30 years age group Table 2. About 50% of the cases were in this age group accounting for 31 cases. The 31–40 age group accounted for 25.8% of the cases. Only 8.1% of the cases were in the 51–60 age group.

Aims and Objectives

The aims of this study were as follows:

1. To study the incidence of STN according to age and sex
2. To study the role of FNAC in STN
3. To study the incidence of malignancy in STN
4. To study the management of STN
5. To study post-operative complication.

Clinical Features at Presentation

All 62 cases presented with swelling in the anterior part of the neck. There was pain associated with the swelling in eight cases. Five cases had dysphagia. Five of these 62 cases had dyspnea. Four cases had tremors and palpitations. Two of the cases had a history of weight loss while three cases had a history of sweating.

Distribution According to Site

A solitary nodule was seen in the right lobe in 40 of the 62 cases while it was present in the left lobe in 22 cases. The right lobe was involved in 64.5% of the cases while the left side in 35.5% of the cases Table 3.

Distribution According to Duration of Swelling

Majority of the cases presented within the first 6 months after noticing the swelling. This group accounted for 34 of the 62 cases (54.83%). Another 8 cases (12.90%) in this study had noticed their swelling between 6 months to a year earlier. Only 2 cases (3.22%) in this study had swelling for more than 5 years.

Correlation between Ultrasound and Histopathological Diagnosis

There were 57 cases that were diagnosed as a benign lesion on ultrasound examination Table 4. Of these 55 were confirmed to be benign on histopathology examination. Two of these cases were found to be malignant on histopathology study. Of the three cases diagnosed to be suspicious on ultrasound study; one case turned out to be malignant. Both the cases diagnosed to be malignant on ultrasound turned out to be malignant on histopathology.

Thyroid Function Tests

Of the 62 cases in this study, 54 cases (87.1%) had a normal thyroid function as assessed by thyroid function tests Table 5. Four cases (6.45%) had subclinical hyperthyroidism while two cases (3.22%) had subclinical hypothyroidism. There was one case of hypothyroidism and one case of hyperthyroidism.

Sensitivity of FNAC

Among the 62 cases, in 55 cases (88.7%), the FNAC report tallied with the histopathology study Table 6. The sensitivity of FNAC was 88.7%. In 11.3% of the cases, the FNAC study and the histopathology study did not tally.

Histopathological Correlation with FNAC Study

Of the 62 cases, the FNAC study showed a benign morphology in 55 cases (88.7%) Table 7. Among these benign studies, on histopathological examination, 35 cases had colloid goiter, 11 had follicular adenoma, 6 had chronic lymphocytic thyroiditis, 1 was a hemorrhagic cyst, 1 case had papillary carcinoma, and 1 case had follicular

Table 1: Distribution according to sex

Sex	Number of cases	Percentage
Female	52	83.9
Male	10	16.1

Table 2: Distribution according to age

Age	Number of cases	Percentage
18–30	31	50
31–40	16	25.8
41–50	10	16.1
51–60	5	8.1

Table 3: Distribution according to site

Lobe involvement	Number of cases	Percentage
Right	40	64.5
Left	22	35.5

Table 4: Investigations

USG	Number of cases	Histopathological diagnosis	
		Benign	Malignant
Benign	57	55	2
Suspicious	3	2	1
Malignant	2	0	2
Total	62	57	5

Table 5: Thyroid function tests

Cases	Number of cases	Percentage
Euthyroid	54	87.1
Subclinical hypothyroidism	2	3.22
Clinical hypothyroidism	1	1.61
Subclinical hyperthyroidism	1	1.61
Clinical hyperthyroidism	4	6.45

Table 6: Sensitivity of FNAC

FNAC	Number of cases	Percentage
Correlated with HPE	55	88.70
Did not correlate with HPE	7	11.30

carcinoma. Of these 55 cases, 53 cases were found to be benign on histopathology. Two cases were malignant on FNAC study which was confirmed by histopathology.

Among the five cases, where FNAC study was inconclusive and an opinion was not possible, four cases were benign and one case had follicular carcinoma. One case had colloid goiter, one case had follicular adenoma, one case had hemorrhagic cysts, and one case had chronic lymphocytic thyroiditis.

Table 7: Correlation of fine-needle cytology with histopathological diagnosis

Histopathological Diagnosis	Fine-needle aspiration cytology			Total (%)
	Benign	Malignant	ONP	
Colloid goiter	35	0	1	36 (58.06)
Follicular adenoma	11	0	1	12 (19.35)
Chronic lymphocytic thyroiditis	6	0	1	7 (11.3)
Hemorrhagic cyst	1	0	1	2 (3.22)
Papillary carcinoma	1	1	0	2 (3.22)
Follicular carcinoma	1	0	1	2 (3.22)
Medullary carcinoma	0	1	0	1 (1.61)
Total	55 (88.7%)	2 (3.22%)	5 (8.06%)	62 (100)

ONP: Opinion not possible

Histopathological Analysis Study

Among the 62 cases, 36 cases were diagnosed as colloid goiter accounting for 58.1% of the cases Table 8.

Follicular adenoma was the second most common cause for thyroid swelling in this study. There were a total of 12 cases (19.4%).

There were 7 cases (11.3%) of chronic lymphocytic thyroiditis.

Hemorrhagic cysts were seen on histopathological examination in 2 cases (3.2%).

Incidence of Malignancy

There were five malignant lesions detected in this study Table 9. Follicular carcinoma was diagnosed in 2 cases (3.2%). Papillary carcinoma was seen in 2 cases (3.2%). There was 1 case (1.6%) of medullary carcinoma of the thyroid.

Among the 62 cases, 5 cases (11.3%) had malignant lesions. Fifty-five cases had benign lesions.

Management of STNs

Hemithyroidectomy of the side of the nodule was the preferred course of management in this study Table 10. There were a total of 57 hemithyroidectomies done (91.93%). In 5 cases (8.06%), total thyroidectomy was done. In two cases, completion thyroidectomies were done after histopathology.

Complications

The major complication was recurrent laryngeal nerve palsy which was seen in 2 cases (3.2%) Table 11.

The most common complications seen post-surgery in this study were wound infection (four cases) and hypocalcemia (three cases). One case had both.

Hypothyroidism was seen in 1 case (1.6%) and wound hematoma was seen in one case.

Table 8: Histopathological diagnosis

Diagnosis	Number of cases	Percentage
Colloid goiter	36	58.1
Follicular adenoma	12	19.4
Chronic lymphocytic thyroiditis	7	11.3
Hemorrhagic cyst	2	3.2
Follicular carcinoma	2	3.2
Papillary carcinoma	2	3.2
Medullary carcinoma	1	1.6
Total	62	100

Table 9: Incidence of malignancy

Lesion	Number of cases	Percentage
Benign	57	91.94
Malignant	5	8.06

Table 10: Management

Management	Number of cases	Percentage
Hemi thyroidectomy	57	91.93
Total thyroidectomy	5	8.06
Completion thyroidectomy	2	3.22

Table 11: Complications

Complications	Number of cases	Percentage
Recurrent laryngeal	2	3.2
Nerve palsy	0	0
Respiratory distress	0	0
Wound hematoma	1	1.6
Thyroid storm	0	0
Wound infection	4	6.4
Hypothyroidism	1	1.6
Hypocalcemia	3	4.83
	0	0

DISCUSSION

The present study is a hospital-based prospective study done in the Department of General Surgery at Kakatiya Medical College and Mahatma Gandhi Memorial Hospital, from the period of February 2017 to October

2018. Sixty-two cases of STN were selected from surgery OPD.

Sex Incidence

Thyroid enlargement is commonly seen in females; in the present study, female-to-male ratio was 5.2:1 suggestive of female predominance and contributing almost 83.9% of the total study population.

Age Incidence

The age group for the highest incidence of thyroid swelling was in the 41–60 years age group with 371 cases (45.2%), followed by 352 cases (42.9%) in the 21–40 years age group, 66 cases (8.1%) in the >60 years age group, and 31 cases (3.8%) in the group of <21 years.

In the present study, maximum number of 31 cases, i.e., 50% were seen in 18–30 years age group, while the only five cases, i.e., 8.1% were seen in 51–60 years age group.

Clinical Presentation

The majority of both benign (91%) and malignant (84.6%) solitary nodule presented with lump in neck. Pain in swelling was not a prominent feature in the benign or malignant group. Change of voice noted in 17 cases, of which benign condition was 11 and malignant account in six cases.

Side of Involvement

STNs involved the right side of the thyroid more commonly than the left. In the present study, STN was more common in the right lobe of thyroid (64.5%) followed by the left lobe (35.5%).

Duration

In the present study, maximum 24 cases, i.e., 54.83% presented within 1–6 months after appearance of swelling while eight cases, i.e., 12.90% presented after 1–2 years, one case was seen in 4–5 years after the appearance of swelling, and only two cases were seen after 5 years.

Size of Swelling

In the present study, the size of swelling varied from 1–6 cm. This is supported by Ananthakrishnan *et al.*, Kovacevic *et al.*, and Cappelli. However, histological type and local aggressiveness were largely independent of nodule size.

Consistency

In the present study, of 62 operated cases, the most common consistency encountered was firm in 59 cases, cystic in two cases (one case was papillary carcinoma and one hemorrhagic cyst) and one hard in consistency which was follicular carcinoma.

Thyroid Function Test

In the present study, thyroid function test was used to evaluate the functional status of thyroid. All patients underwent thyroid function test and it was found that maximum 54 cases, i.e., 87.1% were euthyroid, while four cases, i.e., 6.45% were hyperthyroid and only one case was hypothyroid.

Ultrasonography

In the present study, of 57 cases diagnosed as benign lesion on USG, 55 were confirmed to be benign on histopathology and three cases were suspicious on USG, of which one case was malignant on histopathology, all the two cases of malignant tumor were confirmed on histopathology.

FNAC

In the present study on FNAC, 55 cases were benign, of which 53 cases (35 colloid goiter, 11 follicular adenoma, 6 chronic lymphocytic thyroiditis, and 1 hemorrhagic cyst) were confirmed to be benign on histopathology and rest of two cases (one case each of papillary carcinoma and follicular carcinoma) were malignant of histopathology.

Two cases were malignant on FNAC, of which one case is papillary carcinoma and one is medullary carcinoma which were confirmed malignant on histopathology.

Opinion was not possible in five cases on FNAC, of which one was confirmed colloid goiter, one case was of hemorrhagic cyst, one was chronic lymphocytic thyroiditis, one was follicular adenoma, and one was follicular carcinoma on histopathology.

FNAC is very precious diagnostic tool which is also easy minimally invasive, inexpensive, and simple which can be done in OPD basis. Using FNAC diagnosis of colloid goiter, thyroiditis, papillary carcinoma, medullary carcinoma, and anaplastic carcinoma are possible. Follicular carcinoma cannot be differentiated from benign follicular neoplasm by FNAC as differentiation depends on histological and not on cytological criteria, i.e., capsular and vascular invasion.

Distribution of Various Solitary Thyroid Swellings

In the present study, of 62 operated cases presented for histopathological examination, colloid goiter was most common histopathological diagnosis contributing 36 cases, i.e., 58.1% followed by follicular adenoma 12 cases, i.e., 19.4% and chronic lymphocytic thyroiditis 7 cases, i.e., 11.3%.

Operative Procedure

In the present study, 62 operated cases of STN, hemithyroidectomy was the most common operation performed in 56 (90.32%) of cases followed by total thyroidectomy.

Post-operative Complications

In the present study, wound infection was the most common complication in four cases, i.e., 6.4% while recurrent laryngeal nerve palsy was seen in two cases, i.e., 3.2%, and hypocalcemia and hypothyroidism in 3, i.e., 4.83% and 1, i.e., 1.6% of cases, respectively. In the present study, temporary laryngeal nerve palsy occurred in two patients, i.e., 3.2%, but all of them recovered over the due period. All two cases had undergone total thyroidectomy. No permanent recurrent laryngeal nerve palsy was seen.

CONCLUSIONS

The present study was carried out in upgraded Department of General Surgery, in Kakatiya Medical College and Mahatma Gandhi Memorial Hospital, from February 2017 to October 2018. The study was conducted on selected 62 cases of STN coming to OPD of the department of general surgery.

Incidence of STN was common in females than males. Incidence of STN is common in the age group of 18–30 years. FNAC is an important diagnostic tool which is also easy minimally invasive inexpensive and less painful procedure. It is single most sensitive and specific investigation on STN for etiological diagnosis. Incidence of malignancy of STN was 8.06% as compared to benign incidence. Hemithyroidectomy was commonly performed on maximum cases. Wound infection was common post-operative complication seen.

Fifty-two cases, i.e., 83.9% were female while 10 cases, i.e., 16.1% were male, and female-to-male ratio was 5.6:1; 31 cases, i.e., 50% were seen in the age group of 18–30 years, while only five cases, i.e., 8.1% were seen in the age group of 51–60 years. The right lobe of thyroid is more commonly involved than the left lobe. The most common presenting feature was swelling in the neck seen in 62 cases while sweating was seen in three cases and weight loss seen in two cases. Maximum 34 cases, i.e., 54.83% presented within 0–6 months after the appearance of swelling. While eight cases, i.e., 12.9% presented after 1–2 years and only one case, i.e., 1.6% was seen in 4–5 years after the appearance of swelling. Two cases were seen after 5 years. Of 57 cases diagnosed as benign lesion of USG, 55 were confirmed to be benign and two malignant on histopathology and three

cases which were suspicious on USG, of which one case was malignant and two were benign on histopathology, all the two cases of malignant tumor on USG were confirmed on histopathology. Euthyroid state was seen in 54 cases, i.e., 87.71% while four cases, i.e., 6.45% were clinical hyperthyroid and only one case, i.e., 1.61% was clinical hypothyroid. On FNAC, 55 cases were benign, of which 53 cases (35 colloid goiter, 11 follicular adenoma, 6 chronic lymphocytic thyroiditis, and 1 hemorrhagic cyst) were confirmed to be benign on histopathology and rest of two cases (one case each of papillary and follicular carcinoma, respectively) were malignant on histopathology. Two cases were malignant on FNAC, of which two cases (one each of papillary and medullary carcinoma, respectively) were confirmed malignant on histopathology, while two cases (one each case of follicular adenoma and chronic lymphocytic thyroiditis, respectively) were benign on histopathology. Opinion was not possible in five cases on FNAC, of which one was confirmed colloid goiter, one was chronic lymphocytic thyroiditis, and one case was of hemorrhagic cyst, one was follicular adenoma and one was follicular carcinoma on histopathology. Sensitivity of FNAC of 62 cases, 55 cases, i.e., 88.70% was tallied with histopathology while the rest of seven cases, i.e., 11.30% were not tallied with histopathology. Fifty-five, i.e., 91.94% were benign while five cases, i.e., 8.06% were malignant. Maximum 57 cases (91.9%) had undergone hemithyroidectomy while in 5 cases (8.06%), total thyroidectomy was performed. Two cases underwent completion thyroidectomy. The most common complication was wound infection in four cases, i.e., 6.4% while recurrent laryngeal nerve palsy was seen in two cases, i.e., 3.2%, and hypocalcemia and hypothyroidism in 3, i.e., 4.83% and 1, i.e., 1.6% of cases, respectively.

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