

**SOLITARY THYROID NODULE –CLINICAL STUDY OF 100 CASES**

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**ABSTRACT****INTRODUCTION**

Thyroid disorders (TD) are endocrine disorders which are commonly encountered in the ENT out-patient department these days. These cases usually present with solitary neck swelling. In the present study done at Government ENT Hospital, Hyderabad we have selected 100 cases of only Solitary Thyroid Nodule (STN) over a period of 2 years from September 2013 to August 2015.

**AIM**

Aim of this study is to find out the incidence of thyroid disorders in general population which required surgical intervention, and to find out the incidence of thyroid disorders in relation to age and sex. To find out incidence of thyroid hormonal status in cases of STN and correlate the findings of FNAC, SQUASH and final HPE report of these patients.

**MATERIALS AND METHODS**

The present study has been conducted by utilizing cases admitted and managed in the Department of ENT at Govt. ENT Hospital, Hyderabad over a period of 24 months from Sept 2013 to Aug 2015. Cases presented with only Solitary nodule were included and malignancies and multinodular goiter are excluded.

**RESULTS**

Incidence of thyroid disorders in general population which requires surgical intervention is 0.11%. Peak age of incidence is between 30 to 50 years i.e. 60%. Mean age of presentation is 37 years. There is a female preponderance with M:F ratio is 1:6.14. Majority of the patients are euthyroid. The correlation between FNAC, SQUASH and HPE report is around 96%.

**CONCLUSION**

The following conclusions are: The incidence of thyroid disorders in general population is increasing and in our study shows it as 0.11%. Solitary nodule of thyroid is more common in females (86%) and the incidence is rising in males (14%) M:F 1:6.14. Solitary nodule of thyroid is more common in the age group of 20-50 years and the mean age of presentation is 37 years. Most of the solitary thyroid nodules are benign (79%) after final HPE report. Most of the patients with solitary nodule of thyroid are in euthyroid (94%) state. The correlation between FNAC and SQUASH is around 97% in our study. The correlation between SQUASH and HPE is around 98% in our study. The correlation between FNAC and HPE is around 96% in our study.

**KEYWORDS**

STN, FNAC, HPE.

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**INTRODUCTION: Definition of STN:** The solitary thyroid nodule, defined as a palpably discrete swelling within an otherwise apparently normal gland, is usually a benign

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lesion.<sup>1</sup> However, patient and physician alike are typically concerned about the possibility of thyroid cancer.

Solitary nodule of Thyroid is the most frequent of the various thyroid diseases and it is only a descriptive term and does not refer to any specific pathological entity. In literature the terms adenoma thyroid and solitary nodule of thyroid are used interchangeably. But this is not accurate. Though every adenoma is a solitary nodule, not every solitary nodule is an adenoma.<sup>2</sup>

It is difficult on clinical examination to give any final opinion regarding the nature of the solitary nodule because

a nodule, which on clinical examination is solitary, may reveal itself to be a cyst, multinodular goitre or it may come as a histological surprise as thyroiditis or malignancy, when they are least suspected. This is the inherent problem faced by the surgeon confronted with a solitary nodule to decide whether it is benign or malignant. This problem occurs not only in diagnosis but also in treatment.

There is divided opinion regarding the management of solitary nodule. At present the majority view is that the correct line of treatment of the solitary nodule of the thyroid is surgical only, as there is possibility of the nodule harbouring malignancy which may not have the typical clinical features of malignancy in early cases.

In the present series a detailed study of 100 cases of solitary thyroid nodule which were admitted and treated at Govt. E.N.T. Hospital, Hyderabad has been done during the period of 24 months from Sept 2013 to Aug 2015.

**AIMS AND OBJECTIVES:**

1. To determine the incidence of thyroid disorders in general population which require surgical intervention.
2. To determine the incidence of solitary thyroid nodule in relation to age.
3. To determine the incidence of solitary thyroid nodule in relation to sex.
4. To study the incidences of euthyroid, hyperthyroid or hypothyroid (thyroid hormonal status) states in patients presenting with solitary nodule of thyroid.
5. To study correlation of FNAC, SQUASH and final HPE report in the management of solitary thyroid nodule.

**MATERIALS AND METHODS:**

- The present study on "Solitary Thyroid Nodule-Clinical Study of 100 cases" has been conducted by utilizing cases admitted and managed in the Department of E.N.T at Govt. E.N.T Hospital, Hyderabad over a period of 24 months from Sept 2013 to Aug 2015.
- **Inclusion Criteria:** All patients who presented clinically as solitary nodule (by definition).
- **Exclusion Criteria:**
  - Clinically multinodular goitre.
  - Nodule with palpable lymph nodes.
  - Nodules with vocal cord paralysis on indirect laryngoscopy.
  - Swelling with previous history of surgery.

Prospective analysis of 100 cases of solitary nodule thyroid in the specified period done. These cases were selected by random sampling method and studied in detail clinically and recorded as per the proforma.

Routine investigations and specific investigations including FNAC of the nodule, Thyroid profile, IDL, Plain X-ray neck, USG neck were done in all cases. CT scan of neck was also done in specific cases. Special investigations like radio-isotope scanning was not performed as the facilities were not available.

All the patients were managed by surgery and identification of recurrent laryngeal nerve was made mandatory in all cases and diagnosis was confirmed by histo-pathological examination.<sup>3,4</sup>

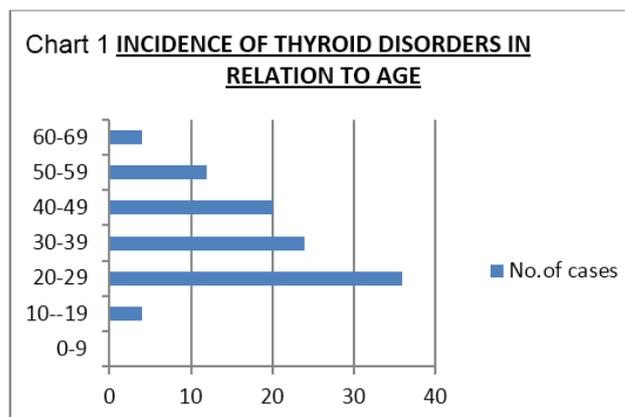
**RESULTS:**

- 1. Incidence of thyroid disorders in general population:** During our study period of 24 months the total number of out-patients who attended the hospital for various ailments of ENT and Head and Neck are 4,56,473 (Four lakhs fifty-six thousand four hundred and seventy-three). Out of these 518 patients were suffering from thyroid disorders and are managed surgically in this Hospital. Incidence of thyroid disorders in general population which requires surgical intervention is 0.11%.<sup>5,6,7</sup>
- 2. Incidence of thyroid disorders in relation to age:** In our study the incidence if thyroid disorders in relation to age range from 18 years to 65 years. Peak age of incidence is between 30 to 50 years i.e. 60%. Mean age of presentation is 37 years. (Table I & Chart I).

Age	No. of Cases
0-9	0
10-19	4
20-29	36
30-39	24
40-49	20
50-59	12
60-69	4

**Table I**

N=100.



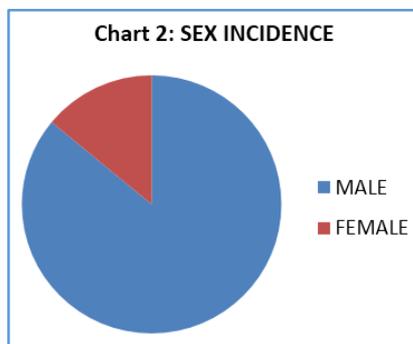
N=100.

- 3. Incidence of thyroid disorders in relation to sex:** In our study out of 100 cases 86 patients were females and 14 were males and the ratio M: F is 1:6.14. (Table II & Chart II).

Sex	No. of cases
Female	86
Male	14

**Table II**

N=100.  
M:F - 01:06.1.



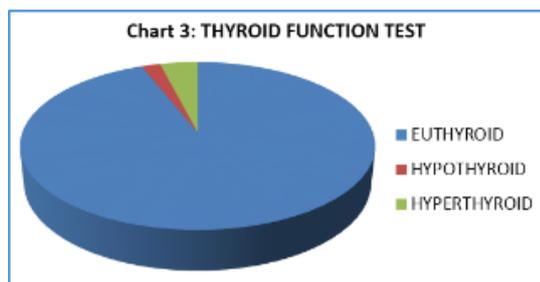
N=100.

**4. Incidence of Thyroid Hormonal Status:** In our study 94 cases presented with euthyroid state, 4 were hyperthyroid and 2 were hypothyroid. (Table. III & Chart. III)

Thyroid Status	No. of Cases
Euthyroid	94
Hypothyroid	2
Hyperthyroid	4

**Table III: Thyroid function test**

N=100.



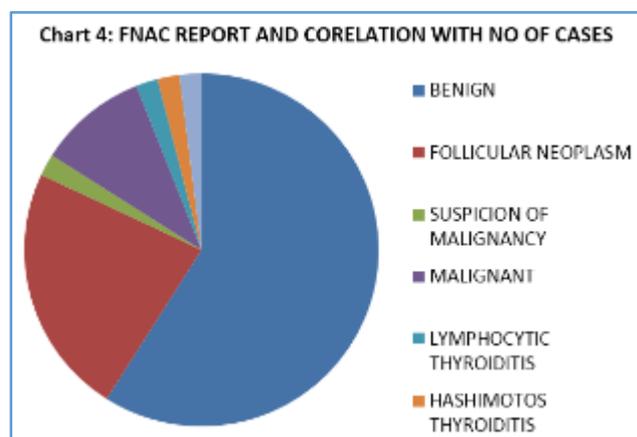
N=100.

**5. FNAC REPORT:** In our study FNAC of 100 cases, 59 cases were reported as benign thyroid conditions, 23 cases were reported as follicular neoplasm, 2 cases were reported as suspicious of malignancy, 10 cases were reported as malignant, 2 cases reported as lymphocytic thyroiditis, 2 cases reported as Hashimoto's thyroiditis and 2 cases reported as thyroid cysts. (Table. IV & Chart IV)

FNAC report and correlation with no. of cases	No. of cases
Benign	59
Follicular neoplasm	23
Suspicion of malignancy	2
Malignant	10
Lymphocytic thyroiditis	2
Hashimoto's thyroiditis	2
Cystic lesion	2

**Table IV: FNAC report and correlation with no. of cases**

N=100.



N=100.

**6. BETHESDA METHOD OF FNAC:** The FNAC results were also classified based on Bethesda method. The table below shows the results of the Bethesda method of FNAC in our study. (Table V)

Type	No. of Cases
I	2
II	63
III	0
IV	23
V	2
VI	10

**Table V: Results in bethesda method of FNAC**

N=100.

**7. SQUASH REPORT:** Intra-operative squash reporting of our cases showed the results as mentioned in table VI.

Squash Report	No. of cases
Benign (B)	60
Follicular neoplasm (FN)	19
Malignant	13
Autoimmune thyroiditis (AI)	5
Cystic lesion	3

**Table VI: Squash report correlation**

N=100.

**8. HPE REPORT:** The final HPE reporting of the cases operated presented with the results as shown in the table VII.

HPE Report	No. of cases
Multinodular goitre (MNG)	34
Follicular adenoma	23
Adenomatous goitre	22
Malignant	15
Autoimmune thyroiditis	4
Simple cyst	2

**Table VII: HPE report correlation**

N=100.

In our study the correlation between FNAC and SQUASH report is around 97%. The correlation between SQUASH report and final HPE report is around 98%. The correlation between FNAC and HPE report is around 96%.

**DISCUSSION:** The observations and results of the present study were compared with the available previous similar studies.

Authors	Mean age in years
REHMAN A.U <sup>8</sup> .(2009)	34.7
Khurshid Anwar(2012)	37
Present study	37
<b>Mean age at presentation</b>	

In the study done by psaras et al<sup>7</sup> and shivaji et al, reported the peak incidence in between 3<sup>rd</sup> and 4<sup>th</sup> decade. Khurshid Anwar reported, in 2012, the mean age of presentation as 37years. From the present study, the mean age at presentation found to be 37 years, correlates with the previous studies.

Most of the earlier series reported peak incidence of solitary nodule thyroid in the 3<sup>rd</sup> and 4<sup>th</sup> decades. Bhansali S.K<sup>5</sup> (1982), in his similar study, reported the peak incidence in 4<sup>th</sup> and 5<sup>th</sup> decade. In the present study, the peak incidence found to be 3<sup>rd</sup> to 5<sup>th</sup> decades, which constitutes about 60% of the cases studied.

Authours	Sex incidence M:F
Dorairajan(1996) <sup>10</sup>	1:9
Psaras et al <sup>7</sup>	1:7
Bhansali et al <sup>5</sup>	2:7
Present study	1:6.14
<b>Sex distribution</b>	

In the study done by Dorairajan<sup>8</sup> (1996) and psaras et al<sup>7</sup> reported ratio of sex incidence as 1:9 and 1:7 respectively. In the present study, it is found to be 1:6.14, which correlates with previous studies.

Because of periods of fluctuations in the demands of the hormonal requirement in female in their life cycle (puberty, menstrual cycles, pregnancy, menopause), the chances of thyroid nodule formation are very high as compared with male counterparts.

**CONCLUSIONS:** The present study is a prospective analysis of 100 cases of solitary nodule of thyroid, admitted to Govt. ENT Hospital, Hyderabad, during the period of 24 months from September 2013 to August 2015. Though a large number of patients are required to come to better conclusions, based on the data and results obtained in the present study, the following conclusions can be drawn:

- The incidence of thyroid disorders in general population is increasing and in our study shows it as 0.11%.
- Solitary nodule of thyroid is more common in females (86%) and the incidence is rising in males (14%) M: F 1:6.14.

- Solitary nodule of thyroid is more common in the age group of 20-50 years and the mean age of presentation is 37 years.
- Most of the patients with solitary nodule of thyroid present with swelling alone.
- Most of the solitary thyroid nodule are benign (79%) after final HPE report.
- Most of the patients with solitary nodule of thyroid are in euthyroid (94%) state and only few present with toxicity and hypothyroidism.<sup>9</sup>
- FNAC is the investigation of choice in the evaluation of solitary nodule of thyroid.<sup>10</sup> If FNAC is coupled with USG neck the rate of accuracy increases.<sup>11,12,13</sup> It has few pitfalls. In such situations, intraoperative SQUASH and histopathology can confirm the exact pathology.
- The correlation between FNAC and SQUASH is around 97% in our study.
- The correlation between SQUASH and HPE is around 98% in our study.
- The correlation between FNAC and HPE is around 96% in our study.<sup>14,15,16</sup>
- The incidence of hypo and hyperthyroidism in general population is increasing and we are studying this and we will come out with our report in the next paper.

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