

**Original Research Article**



**“Cytological spectrum of non-neoplastic and neoplastic lesions in Goitre: A retrospective study in and around Kadapa district, Andhra Pradesh”**

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**INTRODUCTION:**

Thyroid gland is an important endocrine gland which secretes hormone thyroxine. Thyroxine controls basal metabolic rate and body growth. The hormonal imbalance may lead to hypo or hyperthyroidism with or without Goitre. Goitre is any swelling of thyroid gland which can be neoplastic or non-neoplastic condition. This study was undertaken to study the prevalence of pathological conditions, age and gender distribution associated with goiter by the procedure of FNAC in people in and around Kadapa.

**OBJECTIVE:** To study the prevalence of pathological conditions, age and gender distribution associated with goiter by the procedure of FNAC

**MATERIAL & METHODS:** This is a retrospective study. The data was collected from cytology registers of Pathology department of FIMS Hospital, Image diagnostics and Seetha Diagnostics, Kadapa during the two-year period from January 2021 to December 2022. The data collected as above was systematically analysed and reviewed for age and sex distribution, clinical presentation and cytological diagnosis.

**OBSERVATIONS & RESULTS:**

In 2 years, from January 2021 to December 2022, Total of 344 cases were reported. Majority of the patients were females accounting for 324 cases (94.18%) and only 20 patients (5.81%) were males.

**Table 1: Age distribution of the study population**

| Age range in years | Number of Patients |        |       | Percentage of Patients |        |       |
|--------------------|--------------------|--------|-------|------------------------|--------|-------|
|                    | Male               | Female | Total | Male                   | Female | Total |
| 10 - 20            | 0                  | 23     | 23    | 0                      | 6.68   | 6.68  |
| 21 - 30            | 3                  | 74     | 77    | 0.87                   | 21.51  | 22.38 |
| 31 - 40            | 5                  | 80     | 85    | 1.45                   | 23.25  | 24.70 |
| 41 - 50            | 6                  | 76     | 82    | 1.74                   | 22.09  | 23.83 |
| 51 - 60            | 6                  | 38     | 44    | 1.74                   | 11.04  | 12.79 |
| 61 - 70            | 0                  | 24     | 24    | 0                      | 6.97   | 6.97  |
| 71 and above       | 0                  | 9      | 9     | 0                      | 2.61   | 2.61  |
| Total              | 20                 | 324    | 344   | 5.81                   | 94.15  | 99.96 |

Table 1 shows the maximum incidence is in young females between 31 – 40 years age group (24.70%) followed by 41 -50 yrs age group (23.83%) and then in 21 – 30 years age group (22.38%). All together, the overall maximum incidence is seen in females between 21 – 50 years age group (70.91 %).

**Table 2: Pathological features of goiter in the study population**

| S. No | Pathological Condition   | No of Patients |        |       | Percentage of Patients |        |       |
|-------|--|----------------|--------|-------|------------------------|--------|-------|
|       |  | Male           | Female | Total | Male                   | Female | Total |
| 1     | Thyroglossal cyst  | 0              | 2      | 2     | 0                      | 0.58   | 0.58  |
| 2     | Colloid Nodule   | 5              | 81     | 86    | 1.45                   | 23.5   | 25.0  |
| 3     | Nodular Goitre   | 10             | 119    | 129   | 2.90                   | 34.5   | 37.5  |
| 4     | Hashimotos thyroiditis + Lymphocytic thyroiditis +Autoimmune thyroiditis | 1              | 76     | 77    | 0.29                   | 22.09  | 22.38 |
| 5     | Sub-acute granulomatous thyroiditis                                      | 0              | 1      | 1     | 0                      | 0.29   | 0.29  |
| 6     | Follicular Neoplasm  | 1              | 17     | 18    | 0.29                   | 4.94   | 5.23  |
| 7     | Papillary Carcinoma  | 5              | 26     | 31    | 1.45                   | 7.55   | 9.01  |
| 8     | Total  | 22             | 322    | 344   | 6.39                   | 93.60  | 99.99 |

Table 2 shows that in this area, the most common pathological disease is nodular goitre followed by colloid nodule, both being iodine deficiency Goitres. Both together constitute

62.5% of cases among which 15 are males and 200 cases are females constituting 4.35% and 58% of total cases respectively.

Together 78 cases of thyroiditis (Hashimotos thyroiditis, lymphocytic thyroiditis and subacute granulomatous thyroiditis) are reported. Among these, one case of subacute granulomatous thyroiditis was reported based on cytological findings and clinical features. Thyroiditis cases constitute 22.67% of total cases.

Two cases of thyroglossal cyst were reported, both in females constituting 0.58% of total cases.

Total of 49 cases of neoplasms were reported constituting 14.24 % of cases. Among them 18 cases (5.23 %) were follicular neoplasms, one case (0.29%) being male and remaining 17 (4.94 %) were females. All the follicular neoplasms were later proved as follicular adenomas by histopathological examination. The Follicular adenomas constituted 5.23 % of cases. The carcinomas are seen in 31 cases constituting 9.01% of cases. Among them 5 cases (1.45 %) were males and 26 cases (7.55 %) were females. All the cases of carcinomas are papillary carcinomas by cytology and later proved as the same by histopathological examination.

### **DISCUSSION:**

Nonneoplastic and neoplastic lesions of thyroid are common with varying prevalence which is attributed to Iodine deficiency and other environmental factors <sup>(1)</sup>. In the present study, there are more number of nonneoplastic lesions compared to neoplastic lesions constituting 295 cases (85.75%) and 49 cases (14.24 %) respectively. Similar observation of incidence of nonneoplastic thyroid lesions was observed in various studies which has been reported as to range from 62.5% to 84% <sup>(2-7)</sup>.

Nodular colloid goiter is the commonest of non-neoplastic thyroid lesions with incidence ranging from 56.93% to 76% <sup>(2-5, 7-9)</sup>. In the present study also, nodular goiter was the commonest nonneoplastic lesion in the 2<sup>nd</sup> to 5<sup>th</sup> decade of life accounting for 244 (70.935) cases. Some of the other non-neoplastic lesions in the present study include thyroiditis (Hashimotos thyroiditis + autoimmune thyroiditis + Subacute granulomatous thyroiditis) with 78 cases (22.67 %) and thyroglossal cyst with 2 cases (0.58%) while in other studies, thyroiditis was reported with incidence from 9.1% to 14% <sup>(4,8,9)</sup>.

Among the benign neoplastic lesions, we reported 18 cases (5.23%) of follicular Adenoma. In other studies, the reported percentage of follicular adenoma ranged from 12.5% to as high as 56.67 % <sup>(1,4,7,8,10)</sup>.

Papillary carcinoma was the most common malignant neoplastic lesion of thyroid in our study constituting 31 cases (9.01%). In other studies, the papillary carcinoma incidence ranged from 10% to as high as 72.97% <sup>(6-10)</sup>.

### **CONCLUSIONS:**

The present study revealed a distinct female dominance in all thyroid lesions. Nodular (colloid) Goitre was the most prevalent nonneoplastic lesions followed by autoimmune thyroiditis, while papillary carcinoma of thyroid was the most commonly encountered neoplastic lesion of thyroid.

### **REFERENCES:**

1.Histopathological spectrum of nonneoplastic and neoplastic lesions of thyroid: A Descriptive cross - sectional study. Dilasma Ghartimagar, Arnab Ghosh and OP Talwar.

2. PadmavathiM, Jyothi AR. Histopathological spectrum of Non neoplastic and Neoplastic lesions of Thyroid; A 5 – year Prospective Study in a tertiary Care Hospital. J Med Sci.2017 Jul;3(3); 63-8.doi;10.5005/jp-journals-10045-00599(Cross Ref) (Google Scholar)
3. Prabha V, Bhuvanewari MG. A study of Histopathological Spectrum of Thyroid Lesions. Int J Sci Study. 2019;7(1);1-4. (Google Scholar)
4. Urmiladevi P, Sravani P, Atla B, Kumar SS, Reddy ks, Lavanya L, Lahari MV. Clinico-histopathological study of thyroid lesions in a tertiary care center over a period od one year. I Evid Based Med Healthc. 2018;5932): 2374-9.doi;10.18410/jebmh/2018/490. (Cross Ref) (Google Scholar)
5. Solomon R, Iliyasu Y, Mohammed AZ. Histopathological spectrum of thyoid lesions in Kano, Nigeria; A 10 –year retrospective review(2002-2011) Niger J Basic Clin Sci. 2015 Jan 1;12910; 55.doi;10.4103/0331-8540.150474. (Cross Ref) (Google Scholar)
6. Albasri A, Hussainy AS, Alhujaily A, Sawaf Z. Histopathological patterns of thyroid disease in Al-Madina region of Saudi Arabia. Asian Pac J Cancer Prev. 2014; 159140:5565-70. Doi:10.7314/APJCP.2014.15.14.5565. (PUBMED) (Cross Ref) (Google Scholar).
7. Singh SR and Iyengar S. Histopathological Spectrum of Thyroid Gland Lesions in A Tertiary Care Centre – A Five Year Retrospective Study. J Dent Med Sci. 2019; 18920:70-3. (Google Scholar)
8. Sreedevi AR, Sheela KM. Histopathological spectrum of Non Neoplastic and Neoplastic Lesions of Thyroid- 2 Year Study in a Tertiary Care Teaching Hospital. J Med Sci Clin. Res.2018=:696):514-9. Doi; 10.18535/jmscr/v6i6.86.9Cros Ref) (Google Scholar)
9. Fatima A, Tolnur RA, Patil BV, Dombale VD. Histopathological spectrum of thyroid lesions. Indian J Pathol Oncol. 2018;5(2):298-301. Doi;10.18231/2394-6792.2018.0056. (Cross Ref) (Google Scholar)
10. Beigh A, Amin J, Junaid S, Wani LA, Farooq S, Farooq S. Histopathological study of thyroid neoplastic lesions in a tertiary care hospital – a 5-year study. Int J Contemp Med Res. 2018;594): D4-7.doi:10.21276/ijcmr.2018.5.4.10. (CrossRef) (Google Scholar).