



## “DISTRIBUTION OF THYROID LESIONS IN FNAC SAMPLES RECEIVED IN CYTOPATHOLOGY LABORATORY, SIR T HOSPITAL, BHAVNAGAR”

### Pathology

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### ABSTRACT

**Background:** FNAC is safe, sensitive and specific technique in the initial evaluation of thyroid nodules. Clinically solitary thyroid nodules are common, being present in up to 50% of the elderly population. FNAC as a procedure has a central role in the management of thyroid swellings and is recommended as an excellent screening test for thyroid swellings. **Aim:** To assess distribution of thyroid lesions in FNAC samples received in cytopathology laboratory, Sir T hospital, Bhavnagar. **Objectives:** To estimate proportion of cytopathological diagnosis of various thyroid disease. To assess age and gender wise distribution of causes of thyroid enlargement. **Material And Method:** A record based observational study of FNAC of thyroid lesion collected between 1st January 2020 to 31st December 2020 in cytopathology laboratory Sir T hospital, Bhavnagar, Gujarat. **Result:** Majority of patient with thyroid swelling is female having benign thyroid lesion mainly nodular colloid goiter. 3% of cases having suspicious for follicular neoplasm. **Interpretation & Conclusion:** 95 cases among 100 cases were presented with benign thyroid lesions, which were diagnosed on basis of Bethesda system. FNAC is relatively simple, reliable, economical and complication free technique for the evaluation of mass lesion.

### KEYWORDS

FNAC, TBSRTC, benign, malignant

### INTRODUCTION

The thyroid gland is among the most significant organs of endocrine system. The critical issue in the management of patients with thyroid disease, therefore, FNAC is safe, sensitive and specific technique in the initial evaluation of thyroid nodules.

Clinically solitary thyroid nodules are common and majority of solitary thyroid nodules are benign; the incidence of malignancy being only 5-20%. of surgically excised thyroid nodules on histopathology. Percentage of malignancy is rare in hot nodules. Overall incidence of malignant hot nodules is 0.2%<sup>(1)</sup>.

A major advance in the diagnosis of thyroid nodule has been achieved with the perfection and common use of fine needle aspiration cytology which can obviate a lot of unnecessary surgery in thyroid lesions<sup>(2)</sup>.

TBSRTC is a uniform, 6 tiered reporting system has been widely used for the assessment and interpretation of thyroid swellings.

FNAC is easily performed, accepted by the patients and has low cost benefit ratio. Moreover, fine needle aspiration cytology is also safe and highly accurate. The main purpose of this study was to know the results of FNAC in evaluating thyroid swelling in Sir T hospital, Bhavnagar.

### MATERIAL & METHOD

The record based observational study includes the data of patients with thyroid swelling who underwent FNAC in Sir T Hospital, Bhavnagar during the period of one year, from 1st January 2020 to 31st December 2020.

### Inclusion Criteria

Reports of all those patients having thyroid lesions, irrespective of their age and sex, referred for cytological study from ENT, Surgery OPD and admitted to ward were selected.

Representative sample of all thyroid FNAC and biopsies between 1<sup>st</sup> Jan 2020 to 31<sup>st</sup> December 2020 were collected.

### RESULTS

In the present study, the most common clinical symptom in patients with thyroid lesion was swelling in the neck which moved with deglutition was present in total 100(100%) cases, followed by symptoms of hyperthyroidism were present in 6(6%) cases, symptoms of hypothyroidism were present in 5(5%) cases, dysphagia were present in 3(3%) cases and pain in 2(2%) cases.

Out of 100 cases the maximum number of cases 30(30%) were presented within duration of 6- 12 months followed by 1-6 months.

Minimum number of cases had the duration of symptoms more than 1 year. Female preponderance 78% against only 22% patients being males with male to female ratio (M:F – 1:3.5).

Majority of patients were between age group 21-40 years (48%), followed by age group 41-60 years (29%) and least number of patients were age group of >60 years.

Maximum lesions were in the benign category (category II) (95) consisting 95% and affecting mostly the age group between 21-40 years. 45 cases were diagnosed as category II and 3 cases were diagnosed as category IV in age group between 21-40 years.

Major cases were seen in category II in which 77 cases were female and 18 cases were male out of 95 total cases followed by category IV in which 3 cases were female out of total 3 cases.

Out of total 100 cases 2 cases were non satisfactory and 98 cases were satisfactory. Adequacy rates have been given according to The Bethesda System for Reporting Thyroid Cytology (2017) – CAT – I. Out of 98 samples 95 (96.93%) were non neoplastic and 3 (3.06%) were neoplastic lesions.

Out of total 95 cases of Cat II, 81 cases were of Nodular colloid goiter, 8 cases were acute thyroiditis, 4 cases were Hashimoto's thyroiditis and 2 cases were Hyperplastic nodule.

**Table 1: Distribution of patients according to age and Bethesda system**

| CAT    | Age group (years) |       |       |     | Total |      |
|--------|-------------------|-------|-------|-----|-------|------|
|        | 0-20              | 21-40 | 41-60 | >60 | No.   | %    |
| CAT I  | -                 | -     | 02    | -   | 02    | 2%   |
| CAT II | 14                | 45    | 26    | 10  | 95    | 95%  |
| CAT IV | -                 | 03    | -     | -   | 03    | 3%   |
| Total  | 14                | 48    | 28    | 10  | 100   | 100% |

### DISCUSSION

Fine needle aspiration cytology is now established as a valuable, safe and expedite test in the diagnostic management of various thyroid lesion. The present study was carried out with an aim to evaluate the role of aspiration cytology in diagnosis of various benign and malignant lesions of thyroid.

### Comparison Of Age Incidence Of Thyroid Lesions

In present study majority of patients were between age group 21-40 years (48%) followed by age group 41-60 years (29%) which was in concordance with the study done by Goel N et al.<sup>(3)</sup> (2018) in which maximum number of Thyroid lesion were noted in age group of 41-50

years (33.87%), followed by 31-40 years (21.77%). Similarly Raniwal A et al.<sup>(4)</sup> (2020) also reported 50% of total cases between 41-60 years and age above 60 years and below 20 years had lowest number of cases which was 6.67% of total cases. In our study age range was from 13 to 70 years comparable to Bagga and Mahajan (2010)<sup>(5)</sup>, who observed the incidence of thyroid lesions between 6-75 years.

### Comparison Of Sex Incidence Of Thyroid Lesions

In present study female preponderance 78% against only 22% patients being males with male to female ratio (M:F – 1:3.5), was seen. Both the benign and malignant lesions were common in females. Similar findings was observed by Jeelani T et al.<sup>(6)</sup> (2018), Mandekar et al.<sup>(7)</sup> (1995), Sirpal Y<sup>(8)</sup> (1996) and Al Rikabi et al.<sup>(9)</sup> (1998).

Our study was in concordance with all the above studies and closest to Chaudhary S et al.<sup>(10)</sup> and Ji Hye park et al.<sup>(11)</sup>

### Comparison Of Neoplastic And Non-neoplastic Lesions

In present study out of total 100 patients, 2 samples were non satisfactory hence were not taken. Out of 98 samples, 95 (96.9%) were non neoplastic and 3 (3.06%) were neoplastic lesions. Neoplastic category included category IV, V, VI and non-neoplastic category had category II, and the ratio of non-neoplastic to neoplastic was 31.66:1.

Non neoplastic lesion was common (96.9%) with commonest lesion being nodular colloid goitre (83.15%), on routine cytological reporting in present studies. Similar findings were observed by Gupta C et al.<sup>(12)</sup>.

### Comparison of incidences of Thyroid lesions

In the present study, among 100 cases, category II lesions were the major proportion constituting 95%, category IV were 3%, category I were 2% cases of each.

The incidence of lesion in all categories of present study was comparable with the study of Mondol et al.<sup>(13)</sup>. Incidence of category I lesions were far lower than the studies of Ji Hye Park et al.<sup>(11)</sup> and Vickie Y Jo et al.<sup>(14)</sup>, owing to the repetition of FNA if they were inconclusive. There were no lesions in category III in the present study.

**Table 2: Comparison of incidence of Thyroid lesions**

| Study             | Bethes<br>da I | Bethes<br>da II | Bethes<br>da III | Bethes<br>da IV | Bethes<br>da V | Bethes<br>da VI |
|-------------------|----------------|-----------------|------------------|-----------------|----------------|-----------------|
| Ji hye Park et al | 13.3%          | 40.6%           | 9.1%             | 0.4%            | 19.3%          | 17.3%           |
| Vickie Y Jo et al | 18.6%          | 59%             | 3.4%             | 9.7%            | 23%            | 7%              |
| Mondol et al      | 1.2%           | 87.5%           | 1%               | 4.2%            | 1.4%           | 4.7%            |
| Reddy P et al     | 3.7%           | 89.2%           | 0.02%            | 2%              | 0.6%           | 4.1%            |
| Heider A et al    | 7.0%           | 51.2%           | 14.9%            | 5.0%            | 4.5%           | 17.4%           |
| Anand B et al     | 13.8%          | 75.9%           | 1.2%             | 3.7%            | 2.6%           | 2.8%            |
| Present study     | 2%             | 95%             | 0%               | 3%              | 0%             | 0%              |

### CONCLUSION

FNAC is relatively simple, reliable, economical and complication free technique for evaluation of mass lesion. With improved techniques and expertise, a fine needle aspiration cytology (FNAC) procedure is now considered as sufficient evidence to proceed to definitive surgery. Most common presentation in benign thyroid diseases was nodular colloid goiter in 21-40 years age group of female.

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