



“A STUDY OF DEMOGRAPHIC AND CLINICAL PARAMETERS AND ROLE OF FNAC AS PRIMARY MODALITY IN DIAGNOSING PATIENTS WITH THYROID SWELLINGS”

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ABSTRACT

Background: Thyroid swellings are one of the commonest presentations in ENT. Fine needle aspiration cytology (FNAC) is now accepted as a cost effective, minimally invasive, non-operative diagnostic procedure for most of the thyroid lesions. **Materials And Methods:** 30 patients presenting with thyroid swellings to the otorhinolaryngology outpatient department during the period February 2022 – August 2022 who were willing to participate in this study were included. FNAC was performed followed by thyroidectomy and the thyroid specimen was sent for histopathological examination. **Results:** Out of 30 cases, as per FNAC, benign cases reported were 76.66% and malignant cases were 23.33%. Based on histopathology 70% were benign and 30% were malignant. Sensitivity of FNAC was 77.7 percent while specificity was 100 percent. **Conclusion :** FNAC can be used as the primary modality of investigation in a patient with a thyroid swelling as it is cheap, cost effective, easily performed.

KEYWORDS

Thyroid swellings, FNAC, HPE

INTRODUCTION

With a prevalence rate of 4-6% in the general population, disease of thyroid gland is a common clinical presentation.¹ Nowadays obtaining the proper diagnosis and management for thyroid swellings becomes a great challenge. In addition to cosmetic deformity, neck swelling may also cause various pressure symptoms related to trachea, esophagus and major blood vessels according to its size and histopathological type.² FNAC is widely recognized as the gold standard initial diagnosis tool in the differential diagnosis of thyroid nodules.³ The primary objective of nodule evaluation by FNAC is to identify nodules with malignant potential and obtain prompt management of them in light of the limitations of open biopsy.⁴ The limitation of FNAC includes false negative and false positive results.

AIM AND OBJECTIVE

1. To describe the demographic features (age, sex) among the thyroid swelling patients.
2. To describe the clinical presentations in patients with thyroid swellings.
3. To compare the preoperative FNAC with postoperative histopathology and to determine the sensitivity and specificity of this test.

MATERIALS AND METHODS

It is a retrospective study in which 30 subjects presented with thyroid swellings to the otorhinolaryngology outpatient department of KVG medical college, Sullia, Karnataka during the period February 2022 – August 2022 who were willing to participate in this study were included. Study was carried out after obtaining approval from research ethics committee. Patient's history was taken and was evaluated by thorough clinical examination. FNAC was done with 21-23 gauge needle attached to the 10 ml plastic disposable syringe. The aspirate was air dried and stained with Haematoxylin and Eosin and May-Grunwald-Giemsa stain and ethyl alcohol fixed smears will be stained by Papanicolaou. Following the FNAC all patients were subjected to surgery. Thyroid specimen which was excised during thyroidectomy was sent for histopathological examination. The report of FNAC was then compared with HPE and validity of FNAC was assessed in terms of sensitivity and specificity.

RESULTS

Table 1: Age And Gender Of The Patients Studied

Age	Gender		Total(30)
	Female	Male	
21-30 yrs	5	3	8
31-40 yrs	9	2	11
41-50 yrs	3	1	4

51-60 yrs	3	1	4
61-70 yrs	2	1	3
Total	22	8	30

Table 2: Laterality Distribution

Laterality	Number of patients(30)	Percentage
Right lobe	18	60
Left lobe	3	10
Bilateral involvement	9	30

Table 3: Chief And Other Complaints Of The Patients Studied

COMPLAINTS	NUMBER OF PATIENTS(30)
Chief complaint	
Neck swelling	26
Pain over the swelling	4
Other complaint	
Pressure symptoms	5
Cold intolerance	2
Hair loss	2
Constipation	1
Fatigue	1
Menorrhagia	3
Palpitations	2
Weight gain	2

Table 4: Thyroid Swelling By FNAC And HPE

Diagnosis of thyroid swelling	Number of cases	Percentage
Benign		
Colloid goiter	FNAC 9 HPE 9	30 30
Nodular colloid goitre	FNAC 1 HPE 0	3.3 0
Nodular goiter	FNAC 2 HPE 2	6.6 6.6
Hyperplastic nodule	FNAC 1 HPE 0	3.3 0
Multi nodular goiter	FNAC 5 HPE 5	16.6 16.6
Hashimotos thyroiditis	FNAC 3 HPE 3	10 10
Ectopic thyroid	FNAC 1 HPE 1	3.3 3.3
Dequervains thyroiditis	FNAC 1 HPE 1	3.3 3.3
Malignant		

Follicular carcinoma	FNAC	4	13.3
	HPE	6	20
Papillary carcinoma	FNAC	2	6.6
	HPE	2	6.6
Anaplastic carcinoma	FNAC	1	3.3
	HPE	1	3.3

Table 5: Comparison Of FNAC And HPE Diagnosis In Detecting The Malignant Nature Of Thyroid Swellings

FNAC diagnosis	HPE diagnosis		TOTAL
	Malignant	Benign	
Malignant	7 (TP)	0 (FP)	7
Benign	2 (FN)	21 (TN)	23
Total	9	21	30

Statistical Result

SENSITIVITY: $TP \times 100 / TP + FN = 77.7\%$

SPECIFICITY: $TN \times 100 / TN + FP = 100\%$

DISCUSSION

Due to the relatively superficial areas where they are frequently palpable, thyroid enlargement is easily assessable. A series of tests are performed when there is thyroid enlargement, whether it is diffuse or takes the form of a nodule, mostly to rule out the possibility of cancer. The initial investigation used in the diagnosis of thyroid swellings is FNAC which can be considered as the gold standard investigation. This technique aids in preoperatively choosing patients for surgery because it is quick, easy, and safe with a low risk of complications.¹

In the present study, patient's age ranges from 20 to 70 years (Table 1). Majority of the patients were in the fourth decade (36.6%) followed by third decade (26.6%). Females outnumbered males with a ratio of 3:1 (Table 1). Attia et al², in her study of 80 patients were female predominant, represented by 73 (91.25%) with mean age of 33 years.³ In the study conducted by Rout et al on 76 patients 53 were females and 23 were males with peak age of incidence was in second and third decade of life.⁶

Most of the patients in our study had unilateral thyroid enlargement. Right lobe is commonly involved in 18 cases (60%) than left lobe in 3 cases (Table 2). Diffuse enlargement of the gland was seen in 9 cases (30%). In the study conducted by Arun Sengupta et al², it was observed that 43.3 % of the patients had swellings in the right lobe followed by left lobe of thyroid gland.

Majority of the patients (86.6 %) in our study came with the complaints of swelling in front of the neck and 4 patients (13.3%) had pain over the swelling (Table 3). 18 patients had other associated symptoms. 5 patients had pressure symptoms like difficulty in swallowing and breathing. Bhansali et al⁷ in his study of 600 patients reported that pain and dysphagia were noted in 13 % and 12 % of cases respectively. Our study backs up the findings of Ananthakrishnan et al⁸, who found out that 90 % of patients presented with complaints of swelling in front of neck and 10 % with pain.

In our study, out of 30 cases, benign FNAC's reported were 76.66% and malignant FNAC's were 23.33% (Table 4). In benign lesions 30% were colloid goiter, whereas in malignant FNAC's 13.33% were follicular carcinoma of thyroid. In a study by Kumar A et al⁹ 81.01% of 295 thyroid FNACs were cytologically benign and colloid goitre comprised 65.4%.

Among 30 cases of thyroid swellings which underwent surgery and subsequent histopathology study, 28 cases showed positive correlation between FNAC and HPE. There was a difference in 2 cases where diagnosis by FNAC proved otherwise. In this study 1 case of each nodular colloid goiter and hyperplastic nodule as diagnosed by FNAC was diagnosed to be follicular carcinoma in histopathology (Table 4). Rest of the swellings was correctly diagnosed by FNAC.

In our study **Sensitivity** of FNAC was 77.7 % while **Specificity** was 100 % (Table 5). Babu SBK et al¹⁰, in his study of 200 patients with thyroid swellings, sensitivity of FNAC was found to be in the range of 80-100 % and specificity was 100%. Agarwal et al⁴ in their study of 100 thyroid swelling cases, FNAC demonstrated a sensitivity of 76.5 % and a specificity of 95.9%.

CONCLUSION

The use of FNAC has reduced the number of patients with solitary

thyroid nodules who needlessly undergo surgery and has improved surgical planning in cases of malignancy. Given its cheap, cost effective, easily performed, FNAC can be used as the primary investigatory modality in patients with thyroid swellings. Although there were no false positive results, there were a small percentage of false negative results that HPE must validate.

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