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A Clinicopathological Study of Thyroid Swellings

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Abstract:
BACKGROUND: *The diseases of thyroid form a major share of head and neck surgery. Clinical examination although very accurate in most cases, is inadequate in some areas especially in staging of thyroid malignancies and in detecting the multinodularity of the gland. The incidence of thyroid diseases are increasing in recent years due to goitrogens and changing food habits.Diseases of thyroid gland, especially multinodular goiter due to deficiency of iodine is prevalent in India.*
AIMS AND OBJECTIVES
To determine the prevalence of goitrogenous and neoplastic thyroid masses.To assess the clinical features of thyroid masses..To evaluate and assess the role of FNAC in the management of thyroid masses.To correlate FNAC report with histopathology report of thyroid masses.
Methods: *A prospective study conducted on patients attending the E N T outpatient department of Govt ENT Hospital, from August 2019-January 2020.Patients with neck swelligs between the age group of 20-55years were in the inclusion criteria..The clinical presentations of patients were tabulated and analysed by descriptive statistics*
Results: *A total number of 45 patients with neck swelling were evaluated.The incidence most common in 46-55years, and most prevalent among females 91.1%,males being 8.9%most common clinical feature being anterior neck swelling followed by fatigue, dysphagia, palpitation, pain, dyspnoea, hoarseness of voice,tremors, weight gain ,duration ranged from 1 week to 8 years.Most common FNAC finding being colloid goitre.*
Conclusion: *The present study was undertaken to evaluate the usefulness of clinical examination,FNAC and USG of thyroid in management of thyroid swellings and compare the efficacy of each investigation.*
KEYWORDS: *Thyroid, goiter, USG, FNAC, benign lesion, suspicious lesions, malignancy*

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I. Introduction

The diseases of thyroid form a major share of head and neck surgery. Clinical examination although very accurate in most cases, is inadequate in some areas especially in staging of thyroid malignancies and in detecting the multinodularity of the gland. The advancements in management of thyroid pathology has been possible due to application of ultrasound in the preoperative evaluation

The incidence of thyroid diseases are increasing in recent years due to goitrogens and changing food habits. Around 55 million cases are estimated to be suffering from endemic goiter in India. Currently, no less than 140 million people are estimated to be living in goiter endemic regions of the country[1]. Ultrasonologists have laid down some ultrasonologic features that will help in management in thyroid disorders. There are certain features that will help to identify benign from malignant lesions.

The study is undertaken to know the most common age group in which thyroid swellings present, to study the most common clinical feature, to study the pattern and nature of thyroid lesion and plan the type of thyroidectomy and their outcome in rural background.

II. Materials And Method

A prospective study was carried out on 45 patients of thyroid swelling between 20-55 yr age group, attending department of ENTatGovt ENT Hospital, Osmania medical college, Hyderabad during the period of August 2019-January 2020.

Study Design: Prospective study

Study Location: This was a tertiary care teaching hospital based study done in Government ENT Hospital,Osmania Medical college,Hyderabad.

Study Duration: August 2019-January 2020.**Sample size:** 45 patients

Inclusion criteria

- Patients of age 22 – 55 years. -Both males and females. -Patients willing for follow up.

Exclusion criteria

- Swellings in the neck other than thyroid, Vascular swellings of thyroid,TuberculosisAsthmaChronic granulomatous disorders

Procedure methodology

After informed written consent was obtained ,all patients were examined clinically after taking a detailed history. Then, they were investigated with FNAC and USG of the thyroid. High resolution 7.3 MHz probe is used. The results of FNAC were interpreted as benign, malignant, suspicious and inadequate aspirate. Sonographically, the nodules were evaluated for size, location, echotexture, margins, presence of halo, calcification, vascularity, accessory nodules, associated cervical lymphadenopathy and consistency (solid, cystic or mixed) in order to differentiate between benign and malignant nodules. Then, all the patients were subjected to surgery and histopathological examination (HPE) of the specimen obtained. Finally, the histopathology reports were correlated with the findings of FNAC and USG in order to evaluate their sensitivity and specificity by statistical methods.

III. Results

Age and SexDistribution

The age of the patients was between 20-55yrs, the incidence is more prevalent in the age group of 46-55yrsThe incidence of thyroid swellings is predominant among females being 91.1% and males being 8.9%

Table no 1Table no 2: Showing Sex distribution

AGE	PERCENTAGE
20-35yrs	26.6%
36-45yrs	33.3%
46-55yrs	40%

AGE	**MALES**	**FEMALES**
20-35YRS	**1**	**12**
36-45YRS	**1**	**14**
46-55YRS	**2**	**15**

Tab 3: clinical features

CLINICAL FEATURES	**NUMBER OF PATIENTS**
NECK MASS	41(91.1%)
PAIN OVER THE MASS	7 (15.5%)
DYSPNOEA	6 (13.3%)
DYSPHAGIA	11 (24.4%)
HOARSENESS OF VOICE	5 (11.1%)
WEIGHT LOSS	5 (11.1%)
WEIGHT GAIN	6 (13.1%)
PALPITATIONS	10 (22.2%)
TREMORS	4 (8.8%)
FATIGUE	20(44.4%)
CONSTIPATION	2 (4.4%)

Among the clinical features ,predominant presenting clinical feature being neck swelling followed by Fatigue .

Table 4: Duration of Complaints

SI. No.	Duration of complaints	No. of cases
1	Less than 6 months	14
2	6 months – 3 years	19
3	> 3 years	12

The duration of complaints ranged from 1 week to 8 years. Majority of the patients presented between 6 months to 3 years.

FINE NEEDLE ASPIRATION CYTOLOGY

Table 5 : Distribution of lesions on FNAC

SI.No.	Classification	FNAC lesions	
		Category	No
1	Benign (n=27)	Colloid goiter	15
		Nodular goiter	10
		Benign cystic lesion	2
		Total	27
2	Suspicious (n=10)	Follicular neoplasia	10
3	Malignant (n=8)	Carcinoma	8
4	Inadequate (nil)	Nil	Nil

FNAC REPORTS OF GOITROGENOUS MASSESFNAC REPORTS OF NEOPLASTIC MASSES

Table 6 showing fnac reports of goitrogenous massesTable 7: Showing fnac reports of neoplastic masses

FINDINGS	PERCENTAGE
COLLOID	33.33%
NODULAR	22.2%
CYSTIC	4.4%

AGE	ADENOMA	CARCINOMA
20-35YRS	1	-
6-45YRS	3	2
46-55YRS	6	6

The most common being benign occupying about 60%, followed by suspicious occupying about 22.2%, followed by ca occupies 17.7%.

HISTOPATHOLOGICAL DIAGNOSIS

Table 8. Results of histopathological diagnosis

SI. No.	Histopathological diagnosis	n=45
1	Colloid nodule	19
2	Nodular goiter	12
3	Autoimmune thyroiditis	2
5	Benign follicular adenoma	6
6	Carcinoma	6

The most common lesion is benign colloid goiter (42.2%) and the least common is autoimmune thyroiditis (4.4%).

CORRELATION OF FNAC LESIONS WITH HISTOPATHOLOGY

Table 9: Correlation of FNAC lesions with Histopathology

	FNAC	**Histopathology**	
Benign (N = 27)	Nodular goiter (N = 10)	Nodular goiter	08
		Benign follicular adenoma	0
		Colloid	02
		Papillary Ca	0
	Benign cystic lesion (N = 2)	Colloid nodule	01
		Nodular goiter	01
		Benign cystic lesion	0
		Benign follicular adenoma	0
		MNG	0
	Colloid nodule (N = 15)	Colloid nodule	15
		Thyroiditis	01
		Adenoma	01
Malignant (N = 8)	Carcinoma (N = 8)	Colloid	01
		Carcinoma	06
		Nodule	01
Suspicious (N = 10)	Neoplasia (N = 10)	Benign follicular adenoma	05
		Atypical thyroiditis	01
		Colloid goiter	02
		Nodular	02

TABLE SHOWS CORRELATION BETWEEN MALIGNANT FNAC LESION WITH BIOPSY

A 27 cytologically diagnosed benign cases, all proved to be benign. All the 10 cases of suspicion were subjected to surgery and correlated with histopathology,in which all the 10 cases proved to be benign

Table 10 COMPARISION OF FNAC, USG AND HISTOPATHOLOGY

SI.NO	USG DIAGNOSIS	FNAC	Histopathology
1	STN	Colloid goiter	Colloid goiter
2	Multinodular goiter	Adenoma	Adenoma
3	STN	Colloid goiter	Adenoma
4	STN	Adenoma	NG
5	Cystic nodule	NG	NG
6	Thyroidits	Ca	Colloid
7	Thyroiditis	Colloid	Colloid
8	Nodular goiter	Nodule	Colloid
9	Cyst	Colloid	Cyst
10	Colloid	NG	NG
11	MNG	Colloid	Colloid
12	STN	NG	NG
13	Cyst	Cyst	NG
14	STN	Colloid	Colloid goiter
15	Colloid	NG	NG
16	STN	Colloid	Colloid
17	Ca	Ca	Ca
18	Colloid	Colloid	Colloid
19	Thyroiditis	Ca	Ca
20	STN	Adenoma	Colloid
21	Thyroiditis	Carcinoma	Carcinoma
22	MNG	Nodule	NG
23	STN	Adenoma	NG
24	Colloid goiter	Colloid goiter	Colloid goiter
25	Nodule	NG	NG
26	Colloid	Adenoma	Adenoma
27	Ccinoma	Carcinoma	Carcinoma
28	STN	Nodule	Nodule

29	Colloid	Colloid	Colloid
30	Colloid	NG	NG
31	Colloid	Colloid	Colloid goitre
32	Ca	Ca	Ca
33	MNG	Ca	NG
34	Colloid	Adenoma	Adenoma
35	STN	Colloid goite	Colloid goitre
36	Colloid	Adenoma	Colloid goitre
37	Colloid	Colloid goiter	Colloid goitre
38	STN	Adenoma	Atypical thyroiditis
39	Colloid	Adenoma	Adenoma
40	Cyst	Cyst	Colloid
41	Colloid	Colloid	Thyroiditis
42	STN	Adenoma	Adenoma
43	STN	Nodular goiter	Colloid
44	Ca	Ca	Ca
45	Colloid	Colloid goiter	Colloid goiter

Table11: TYPES OF SURGERIES PERFORMED:

SI. No.	Type of surgery	N=
1	Hemithyroidectomy	28
2	Subtotal thyroidectomy	-
3	Total thyroidectomy	17

The commonest performed surgery was Hemithyroidectomy, which accounts for 28(62.2%) cases.Total thyroidectomy in 17 cases (37.7%)

IV. Discussion

In the present study age of the patient ranged from 20-55 years with a median age of 47.5years.

The number of males in the present study was 4(8.8%), and the females were 41(91.1%) with a male to female ratio of 1:10.2.The commonest clinical presentation is the presence of swelling in front of the neck andmajority presented between 6 months to 3 years.In my study sensitivity of USG was 60%

It has been a consistent observation according to published literature, that the risk of thyroid cancer is less with multiple nodules than with the solitary nodules.FNAC has certain limitations because of suspicious diagnosis. In present series, 10 cases were found to be suspicious, out of which 3were found to be malignant on final histopathology examination. Thus, an overall malignant rate of about 22.2% for the suspicious group was found. Because of this high incidence of malignancy in suspicious lesions, surgical removal of these swellings should be strongly considered in these cases.The present study was conducted to know FNAC accuracy in the diagnosis of thyroid neoplasm. FNAC study of 45cases, Non-neoplastic lesions were 27,Suspicious cases were 10 and Neoplastic were 8 cases, in neo-neoplastic lesions the most common were colloid goiter 15 cases, followed by nodular that is 10 cases,followed by cystic 2 cases. In Neoplastic lesions, papillary carcinoma was the most common.45 cases under went surgical intervention in which most were females. .In our study of 6 cases of thyroid neoplasms, 2 cases were follicular neoplasm, 3 cases were Papillary carcinoma and 1 was anaplastic carcinoma.Among the suspicious cases 5 cases were Follicular Adenoma histopathologicaly, 2 cases were colloid,2 cases nodular and 1 thyroiditis.In our study among 6 cases of Neoplasm 4 cases had similar diagnosis on FNAC, and 2 cases were diagnosed as Non-Neoplastic on biopsy.

In our study 4 cases of Papillary carcinoma on FNAC were confirmed histopathologicaly with the accuracy of 100% which is similar to most of the studies.

In our study sensitivity of FNAC is 75%, specificity 94.4%, false positive rate of 2%, false negative rate of 8% and accuracy of 88.4%, the results are consistent with other studies.In our study no complication were seen except one case which had minimal hematoma.

The sensitivity, specificity, and accuracy of FNAC for malignancy detection have eclipsed the diagnostic utility of other diagnostic methods and this procedure has assumed a dominant role in determining the managements of patients with thyroid swellings

V. Conclusion

- In this study,Thyroid swellings are common in age group 46-55years and females gender with Commonest presenting complaint is swelling in the anterior neck.In our study, the sensitivity and specificity of FNAC was 75% and 94.4% All malignant lesions on FNAC, were confirmed by histopathology indicating its excellence. Therefore FNAC helps in planning the correct management and avoids second surgery.
- In our study, the sensitivity of USG was 60%.Therefore a combination of both FNAC and Ultrasound will give optimal results and avoid mismanagement.All solitary thyroid nodules with euthyroid needs surgery and minimal surgery is Hemi-thyroidectomy. This was undertaken in all cases, which help in establishing the histopathological diagnosis and in comparing the efficacy of above investigations.

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