



STUDY OF CORRELATION BETWEEN CLINICAL DIAGNOSIS, PREOPERATIVE FNAC AND FINAL HISTOPATHOLOGICAL DIAGNOSIS OF THYROID SWELLINGS

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KEYWORDS :

INTRODUCTION

Thyroid diseases are frequently encountered endocrine disorders in clinical practice. Majority of these are benign, of which goitre is the commonest. Only a few are malignant. The magnitude of the problem in South East Asia is evident by the recent estimates that 172 million people are affected by goitre in this region, and another 600 million are at risk for developing iodine deficiency disorders¹. In Andhra Pradesh, it is more prevalent in Kurnool District. Presence of swelling causes much anxiety and cosmetic embarrassment, especially for females who are affected more than males, in addition to the morbidity associated with hypo or hyperthyroidism.

Clinical evaluation helps in diagnosis but it has limitations. Nevertheless, it is difficult to distinguish the early malignant lesions from the more prevalent benign goitres. A radionuclide scan with radioactive Iodine or Technetium delineates the functional status of nodules, but fails to establish its accurate histological nature of the currently available diagnostic armamentarium.

Since, most of the swelling being benign and some due to cysts and inflammatory lesions, indiscriminate surgery is obviously unjustified. Hence, an alternative approach other than operative is called for.

Fine needle aspiration cytology (FNAC) is a simple and safer procedure, devoid of any serious complications. It can be carried out in the outpatient department or in the laboratory with minimum equipment. It does not require any anaesthesia, has a good patient compliance and results can be known quickly within one hour. This study aims correlating the cytological diagnosis with the final histopathological diagnosis to evaluate the sensitivity, specificity and predictive values of positive smears. Thereby its role in preoperative diagnosis of thyroid swellings is assessed in planning proper management.

AIMS AND OBJECTIVES

1. To correlate clinical diagnosis, preoperative FNAC and Postoperative HPE of a thyroid swelling.
2. To evaluate the sensitivity, specificity and positive predictive value of FNAC.
3. To guide the clinician in establishing the preoperative diagnosis and in the mode of management of thyroid problems encountered in surgical practice.

PATIENTS AND METHODS

1. The study group involved 40 patients who underwent thyroid surgery at Government General Hospital, Kurnool.
2. In all the 40 cases of thyroid swellings a clinical diagnosis for arrived at and Fine Needle Aspiration Cytology was done.
3. In the 40 cases who required surgery, postoperative histopathological diagnosis was established.
4. A Correlation was arrived by comparing the clinical diagnosis, cytology and histopathological examination.

INCLUSION CRITERIA

Those patients presenting with thyroid swellings to the Government General hospital, Kurnool during the study period and underwent surgery for the same were included in the study.

EXCLUSION CRITERIA

Those patients who either refused to get admitted at the Government

General hospital, Kurnool or those who refused to undergo surgery at this hospital were excluded. All the patients with severe cardiac risk for surgery were excluded.

MATERIALS USED

- 1) SYRINGE: 10 ml disposable plastic syringe
- 2) NEEDLE: 27 G disposable needle
- 3) MICRO SLIDES: 7.5 × 2.5 cm size
- 4) FIXATIVES: 95% Isopropyl alcohol
- 5) SPIRIT SWAB to sterilize the skin
- 6) STAINS: a) Haematoxylin and Eosin stain (H & E)
- 7) Local anaesthesia was not used in any patient

OBSERVATION AND ANALYSIS AGE AND SEX DISTRIBUTION

TABLE – 2: AGE DISTRIBUTION

S. No	Age in years	Female		Male		Total	
		No	%	No	%	No	%
1	10-19	2	5	0	0	2	5
2	20-29	8	20	2	5	10	25
3	30-39	13	32.5	1	2.5	14	35
4	40-49	2	5	1	2.5	3	7.5
5	50-59	3	7.5	2	5	5	12.5
6	60-69	5	12.5	0	0	5	12.5
7	> 70	0	0	1	2.5	1	2.5
8	TOTAL	33	82.5	7	17.	40	100

Inference: 2/3rd of the patients referred in the age group of < 40 years

SEX DISTRIBUTION

Table-3 : Sex distribution

S. No	Patient Gender	No. of Cases	percentage
1	Female	33	82.5%
2	Male	7	17.5%
3	Total	40	100%

DURATION OF COMPLAINTS

S. No	Duration	No. of Cases	percentage
1	3-6 months	10	25%
2	6months -1 year	25	62.5%
3	1-2 years	5	12.5%
TOTAL		40	

PRESENTING COMPLAINTS

	Complaints	No. of Cases	percentage
1	Swelling	40	100
2	Pain	4	10
3	Hoarseness	2	2.5
4	Dyspnoea	0	0
5	Dysphagia	1	2.5
6	Stridor	1	2.5

CLINICAL DIAGNOSIS

S. No	Clinical Diagnosis	No. of Cases	percentage
1	STN	15	37.5
2	MNG	20	50
3	Diffuse Goitre	2	5

4	Malignancy	2	5
5	Toxic nodule	1	2.5
TOTAL		40	100

CYTOLOGICAL DIAGNOSIS

	Cytological Diagnosis	No. of Cases	percentage
1	Adenoma	15	37.5
2	Nodular hyperplasia	6	15
3	Follicular neoplasm	7	17.5
4	Papillary carcinoma	6	15
5	Colloid goitre	5	12.5
6	Hashimoto's thyroiditis	1	2.5
TOTAL		40	100

HISTOPATHOLOGICAL DIAGNOSIS

	Histopathology diagnosis (60)										
	Benign Lesions					Carcinoma Lesions					
	CG	HT	MNG	AN	RT	FC	PC	HC	TL	AN	MC
	5	1	4	19	0	4	7	0	0	0	0
Total	29					11					
Percentage	72.5					27.5					

Comparison between Clinical Diagnosis, Cytological Diagnosis & Histopathological Diagnosis

	Benign	Malignant	Total
Clinical Diagnosis	38	2	40
FNAC	34	6	40
HPE	29	11	40

Pvalue=0.022

TABLE -10: CORRELATION BETWEEN HISTOLOGY AND CYTOLOGY

Cytology	Histology		Total Cytology
	Benign	Malignant	
Benign (no malignant cell)	29	5	34
Malignant (malignant cells)	0	6	6
Total histology	29	11	40

DISCUSSION

This study mainly attempts to analyze the efficacy of correlation between clinical diagnosis, preoperative FNAC and final histopathological diagnosis of thyroid swellings and its discussion in relation to clinical, cytological and demographic composition using the recent 2 yr data. This study includes only prospective (40) cases. 40 cases of thyroid swellings who were admitted during the study period of which 29 cases confirmed to be benign and 11 case were malignant on HPE.

Accurate diagnosis of cancer has been a diagnostic dilemma since long. Thyroid is an important and popular site for fine needle aspiration cytology. FNAC has been proven a very useful tool in diagnosis of various thyroid diseases. There is an increasing tendency to confirm the diagnosis of various thyroid cancer at first consultation by image guided FNAC. This allows better investigations and wiser preoperative discussion and preparation. The present study aims at assessing the various clinical presentation of thyroid swelling and assessing the validity of image guided FNAC in diagnosis of the malignancy of thyroid swelling.

AGE DISTRIBUTION:

The age of the patients varied from 18 to 70 years in the present series with the mean age of 44 years.

SEX DISTRIBUTION:

The sex ratio (Female: male) in the present study group was 4.7:1 with 33 women and 7 men

INCIDENCE OF MALIGNANT HISTOLOGIC TYPES

Among the malignant lesions on histopathology, papillary carcinoma comprising of 54.6% and follicular carcinoma 24%.

ACCURACY RATE

The Overall accuracy of FNAC was more than 75% in the 19 series on the subject reported by various authors and more than 85% in 8 series.

SENSITIVITY AND SPECIFICITY:

Sensitivity and specificity ranged from 55% to 100%. More false

negatives decreases the specificity and sensitivity. More false positives decrease the predictive value of a positive result and also the value of the study.

Ultrasound criteria for FNAC of palpable nodules:-

The risk of cancer is not significantly higher for palpable solitary thyroid nodule than for multi-nodular glands or nodules embedded in diffuse goiters. More over, in 50% of thyroid glands with a solitary nodule on the basis of palpation have other small nodules which are discovered by ultrasound. For MNGs, the cytological sampling should be focused on lesions with suspicious ultrasound features rather than a large or clinically dominant nodule.

US characteristics of metastatic nodes:-

- The presence of enlarged lymph node with
- No hilum
- Cystic changes, and
- Micro-calcifications
- Rounded appearance
- Chaotic hyper-vascularity are more common but less specific findings.
- Such nodes and any coexistent thyroid nodules, whatever their size, always warrant US guided FNAC biopsy.

CONCLUSION AND SUMMARY

40 patients with thyroid swellings were subjected to clinical examination and Fine Needle Aspiration over a period of 24 months in Government Medical College. Of the 40 cases underwent surgery, histopathological diagnosis was established in all and it was correlated with cytological diagnosis. The study group of 40 patients had ratio of F:M 4.7:1, comprising 33 women and 7 men. The mean age was 44 years and their age ranged from 18-70 years.

Whereas only 1 case was diagnosed as Hashimoto's thyroiditis cytologically, and proved to be thyroid lymphoma histopathologically.

Out of 34 (27+7) cases reported cytologically as benign histopathologically 29 cases proved to be so. The remaining 5 cases were established 3 as follicular carcinoma, 1 as Hurthle cell carcinoma and 1 as thyroid lymphoma.

In the benign lesions the accuracy of diagnosis was 85% Out of the 11 cases diagnosed as malignant histopathologically, 6 cases were correctly identified on cytological study, 5 cases were diagnosed as benign lesions (nodular hyperplasia) and adenoma.

For the malignant lesion the accuracy on histopathology 100%. In thyroid diseases the overall accuracy was 87.5% with cytology

FNAC is of great help in the preoperative diagnosis of thyroid swellings because of high accuracy.

In conclusion preoperative Fine Needle Aspiration Cytology is effective when used in diagnosis and planning for surgery for thyroid lesions. The present study demonstrates the feasibility and applicability of pattern analysis in diagnosing thyroid lesions clinically and by Fine Needle Aspiration Cytology, which could be easily reproducible.

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