

UTILITY OF FINE NEEDLE ASPIRATION CYTOLOGY (FNAC) AS A SCREENING TOOL IN DIAGNOSIS OF THYROID LESION IN CORRELATION WITH HISTOPATHOLOGY – A 4 YEARS STUDY

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Abstract

Background: Fine needle aspiration cytology (FNAC) has been proved to be a safe, cost effective, good screening and quick procedure for early diagnosis.

Aim of study:

1. To categorise various thyroid lesions
2. To confirm preoperative suspected malignant cases

Methods: This is a prospective study done over a period of four years from 2015 -2018. A total of 274 thyroid cases attending the outpatient department in Government General Hospital, Kadapa were sent for FNAC to the Department of Pathology, all these cases were categorised based on cyto- morphological features obtained on FNAC and later correlated with Histopathological findings.

Results: 44 (16.08%) cases were categorised as inflammatory lesion. 208 (75.91%) cases were categorised as functional disorders like nodular goitre, nodular goitre with cystic degeneration. 10 (3.64%) cases were categorised as follicular neoplasm. Most common malignancy was papillary carcinoma with 7 (2.55%) cases. Un common malignancy was medullary carcinoma 1(0.36%) case.

Keywords: FNAC, Kadapa, Medullary carcinoma, Papillary carcinoma

INTRODUCTION

The diagnosis of thyroid lesions using aspiration cytology was first reported by Martin and Ellis in 1930. [1] The routine use of fine needle aspiration cytology (FNAC) in the assessment of thyroid nodules has reduced the number of patients subjected to thyroidectomy for benign diseases of the thyroid. [2],[3],[4],[5],[6].

Fine needle aspiration cytology is the first choice of investigation in thyroid lesions, in both screening and symptomatic populations. It is useful in confirmation of clinically obvious thyroid malignancy, in diagnosis of solitary thyroid nodule and diffuse non toxic goitre. The present study was done to describe and categorise various thyroid lesions to confirm preoperative suspected malignancies.

METHODS

This is a prospective study done over a period of four years from 2015 -2018. A total of 274 thyroid cases

attending the outpatient department in Government General Hospital, Kadapa were sent for FNAC to the Department of Pathology, all these cases were categorised based on cyto- morphological features obtained on FNAC and later correlated with Histopathological findings. Thyroid selling were aspirated by using 23-24 Gauze needles with disposable syringes. the aspirated contents in the were expelled on to the glass slides which were wet fixed in Absolute alcohol and were stained with haematoxylin and eosin stains.

RESULTS

44 (16.08%) cases were categorised as inflammatory lesion. 208 (75.91%) cases were categorised as functional disorders like nodular goitre, nodular goitre with cystic degeneration. 10 (3.64%) cases were categorised as follicular neoplasm. Most common malignancy was papillary carcinoma with 7 (2.55%) cases. Un common malignancy was medullary carcinoma 1(0.36%) case.

TABLE 1: DISTRIBUTION OF CASES ACCORDING TO CYTOLOGICAL DIAGNOSIS

S. No	Cytological diagnosis	Number of cases	Percentage of cases
1	INFLAMMATORY LESIONS	44	16.05%
A	Hashimoto’s thyroiditis	29	10.58%
B	Chronic lymphocytic thyroiditis	12	4.37%
C	Dequrens thyroiditis	1	0.36%
D	Thyroglossal cyst	2	0.72%
2	FUNCTIONAL DISORDERS	208	75.91%
A	Nodular goitre	175	63.86
B	Nodular goitre with cystic degeneration	33	12.04%
3	BENIGN TUMOURS		
A	Follicular neoplasm	10	3.64%
4	SUSPICIOUS FOR MALIGNANCY	2	0.72%
5	MALIGNANT LESIONS	10	3.64%
A	Papillary carcinoma	7	2.55%
B	Follicular carcinoma	2	0.72%
C	Medullary carcinoma	1	0.36%

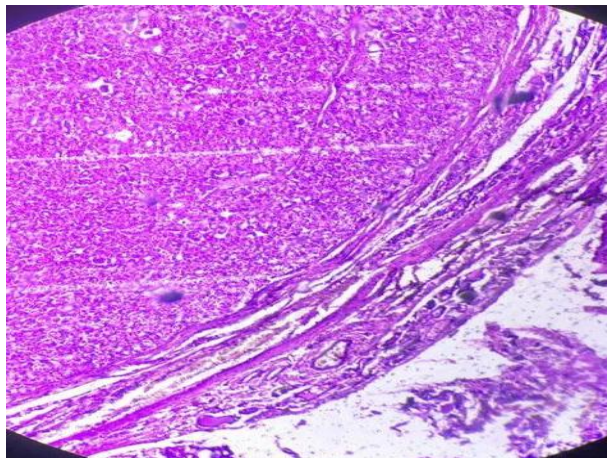


Figure 1: Follicular Adenoma

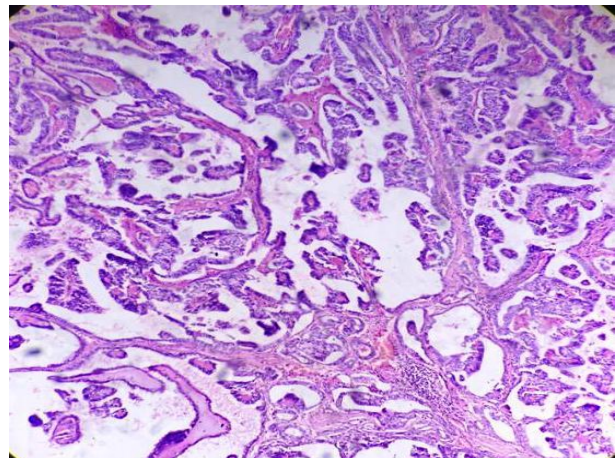


Figure 2: Papillary carcinoma

TABLE 2: CYTOLOGICAL AND HISTOPATHOLOGICAL CORRELATION

S.No	Cytological Diagnosis	No of cases	Histopathological diagnosis		TOTAL
			Consistent %	Inconsistent %	
1	INFLAMMATORY LESIONS	44	16.05%	0%	44
A	Hashimotos thyroiditis	29	10.58%	0%	29
B	Chronic lymphocytic thyroiditis	12	4.37%	0%	12
C	Dequrens thyroiditis	1	0.36%	0%	1
D	Thyroglossal cyst	2	0.72%	0%	2
2	FUNCTIONAL DISORDERS	208	75.91%	0%	208
A	Nodular goitre	175	63.86	0%	175
B	Nodular goitre with cystic degeneration	33	12.04%	0%	33
3	BENIGN TUMOURS			0%	
A	Follicular neoplasm	10	3.64%	0%	10
4	SUSPICIOUS FOR MALIGNANCY	2	1 Case - 0.36%	1 Case - 0.36%	2
5	MALIGNANT LESIONS	10	3.64%	0%	10
A	Papillary carcinoma	7	2.55%	0%	7
B	Follicular carcinoma	2	0.72%	0%	2
C	Medullary carcinoma	1	0.36%	0%	1
	TOTAL	274	273(99.63%)	1 (0.36%)	274

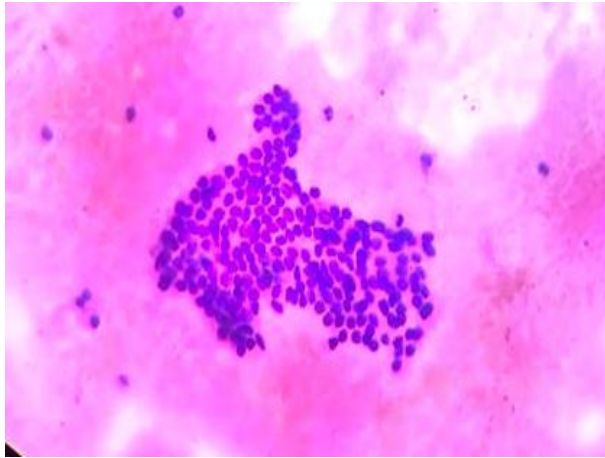


Figure 3: Nodular Goitre

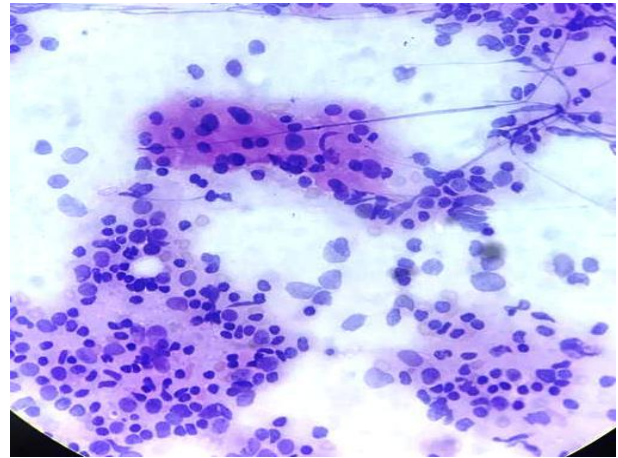


Figure 4: Hashi cytology

TABLE: 3 AGE WISE DISTRIBUTION OF THYROID LESIONS

AGE GROUP	NUMBER OF CASES
0-10	0
11-20	17
21-30	62
31-40	125
41-50	34
51-60	26
61-70	9
71-80	1
TOTAL	274

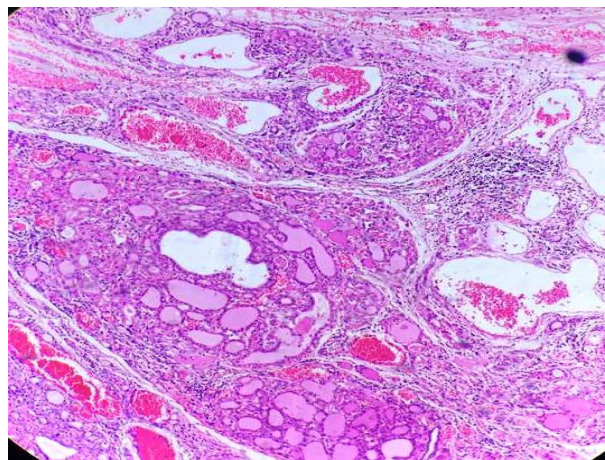


Figure 5: Hashimotos thyroiditis

DISCUSSION

FNAC is a standard primary investigation in diagnosis of thyroid swellings. This method is safe, simple, quick technique with very few complications. Present study shows inflammatory lesions 16.05%, Functional disorders 75.91%, Follicular neoplasm 3.64%,

papillary carcinomas 2.55%, medullary carcinoma 0.36% (Table 1). The overall accuracy of cytological diagnosis in our study was 99.63%, correlated with histopathological examinations. Only one case (0.36%) did not correlate with histopathological examination (Table 2). Present study shows female

predominance i.e. Female to Male ratio is 12:3. The predominate age incidence is around 3rd to 4th decade (Table 3).

FNAC of the thyroid is widely used as it is safe, rapid, inexpensive, and reliable in the diagnosis of thyroid nodules. [11] The sensitivity of the thyroid FNAC ranges from 80 to 98% and its specificity from 58 to 100%.

In the literature, incidence of papillary carcinoma varies from 50% to 80% [8,9]. Brooks et al. found that preoperative FNAC had no direct impact on the selection of the surgical procedure and intraoperative frozen section added very little to surgical management [10].

Cytological diagnostic features of present study were compared with Orell.S.R, Sterrett GF. [11] Cytological diagnosis of follicular neoplasm were compared with Atkinson B, Ernest CS. [12] Cytological features of papillary carcinoma were correlated with histopathology Renshaw AA [13].

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