

FNAC is a Primary Diagnostic Tool in Thyroid Swelling

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Fine needle aspiration cytology (FNAC) is regarded as the gold standard investigation in diagnosis & management of thyroid swellings , also distinguish benign and malignant lesions, especially to rule out need of surgery. To study role of FNAC in Thyroid lesions.2) To correlate the cytological findings with histopathological diagnosis. A Total of 79 patients with Thyroid swellings submitted for fine needle aspiration cytology at GMERS Medical College and hospital Valsad, between January 2012 to December 2013 were studied. Out of 79 cases,female patient outnumbered male patients , majority of cases were non neoplastic 74 cases (93.68%), whereas 5 cases (6.32%) were neoplastic. Tissue examination was available for subsequent histopathological correlation in 19 cases. Fine needle aspiration cytology of thyroid swelling provides a reliable diagnosis and is an excellent first line method for investigating the nature of lesion.FNAC show good histopathological correlation.

Keywords: FNAC, Solitary Thyroid Nodule,Histopathology.

Thyroid diseases are a common clinical problem worldwide. The incidence of Thyroid Cancers is approximately 122,000 new cases per year worldwide1.

Fine Needle Aspiration Cytology (FNAC) is widely accepted as a simple and minimally invasive investigation in the assessment of nodular thyroid disease and has shown to have a high sensitivity in diagnosing malignancies as well as in the evaluation of thyroid nodules2.

FNAC is well-established out-patient procedure used in primary diagnosis of thyroid swelling and assumed dominant role in the management mainly to rule out need of surgery3,4.

The aim of this study was to determine the

role of FNAC in evaluation of thyroid swelling and to correlate the finding with tissue biopsy results.

MATERIALS AND METHODS

This study was carried out at GMERS Medical College and hospital,Valsad between January 2012 to December 2013.79 cases of Thyroid Swelling were retrieved from file of the cytopathology in the department of pathology.The details of the cases like age,sex,provisional clinical diagnosis,FNAC diagnosis and histopathological report were noted.

The procedure involved aspiration of the Thyroid by a 10ml syringe attached to a fine needle (23-25 gauged). Tissue sludge, tissue fragments and blood were aspirated and smeared on glass slides and promptly fixed in a fixative containing 95% ethyl alcohol for about 15 minutes.The slides were stained with Haematoxylin and Eosin and

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examined with light microscope. Ideally the aspirations were performed by a pathologist who then read the smears^{5,6,7}.

In the case of Cystic Nodules, the cyst content were aspirated, centrifuged and slides made from the sediment for cytological examination. If residual mass felt, re-aspiration was done.

Tissue examination was available for subsequent histocytological correlation in 19 cases. In 19 patients histopathological study was made and cyto-histopathological correlation was done.

RESULTS

FNAC was performed on 79 patients having thyroid swelling which included 65 (82.23%) females and 14 (17.77%) males as shown in table 1. Age-wise distribution of cases is shown in table 2.

The FNAC results revealed 74 cases (93.68%) as non neoplastic and 5 cases (6.32%) as neoplastic (Table 3).

Out of 79 patients, histopathological diagnosis was available in 19 patients. Comparison

Table 1. Gender-wise distribution of diagnosis

FNAC diagnosis	Male	Female	Total(%)
Non-neoplastic lesion	12	62	74 (93.68)
Neoplastic lesion	02	03	05 (6.32)
Total(%)	14 (17.77)	65 (82.23)	79

Table-2 Age wise distribution of diagnosis

FNAC diagnosis	0-10	11-20	21-30	31-40	41-50	51-60	>60	Total
Non neoplastic								
Colloid goitre	0	4	10	14	10	4	5	47
Nodular colloid goiter	0	1	2	4	3	1	0	11
Colloid goitre with cystic changes	0	1	3	2	3	0	2	11
Thyroiditis	0	0	0	1	0	0	0	1
Thyroglossal cyst	1	1	1	0	0	0	1	4
Neoplastic								
Papillary carcinoma	0	0	1	0	0	0	0	1
Follicular neoplasm	0	0	0	1	0	2	0	3
Medullary carcinoma	0	0	0	1	0	0	0	1
Total	1	7	17	23	16	7	10	79

Table 3. FNAC finding in 79 patients.

FNAC diagnosis	Number of patients(%)	Total(%)
Non- neoplastic lesion		
Colloid goitre	47 (59.49)	74 (93.68)
Nodular colloid goiter	11 (13.92)	
Colloid goitre with cystic changes	11 (13.92)	
Thyroiditis	1 (1.26)	
Thyroglossal cyst	4 (5.06)	
Neoplastic lesion		
Papillary carcinoma	1 (1.26)	5 (6.32)
Follicular neoplasm	3 (3.79)	
Medullary carcinoma	1 (1.26)	
Total	79	

between FNAC finding and histopathological findings is shown in Table 4.

In our study two cases were false negative, one case was colloid goitre which was diagnosed follicular adenoma on histopathology,

one case was colloid goitre with cystic change which was diagnosed follicular adenoma.

By comparing the result of histopathology and FNAC, it is evident that two cases were falsely diagnosed as non-neoplastic.

Table 4. Results of 19 patients of FNAC with histopathological correlation

FNAC diagnosis	Histopathological diagnosis		Total
	Neoplastic	Non- neoplastic lesion	
Non- neoplastic lesion	2	16	18
Neoplastic	1	0	1
Total	3	16	19

Out of 79 patients, histopathological diagnosis was available

DISCUSSION

Thyroid enlargement is a common occurrence in most regions of the world. India has the world's biggest goiter belt including south Gujarat region.

FNAC-based detection of solitary thyroid lesions remains challenging, despite tireless efforts to establish cytologic and clinical criteria for diagnosing follicular neoplasms and distinguishing between benign and malignant lesions. Nonetheless, it is widely accepted that at present, FNAC is the best and most reliable diagnostic tool for use in the preoperative management of patients with such lesions⁸. Thyroid nodule is more common in female than male and in our study 65(82.23%) female and 14(17.77%) male, which is comparable to the studies conducted by Lumachi F and Khanzada TW 9,10. Similar female preponderance was noted by Unnikrishnan et al 11.

The most common cytological diagnosis was Colloid Goitre (59.49%) in present study. Similar findings were observed Unnikrishnan et al 11. Goitre is one of the most common types of thyroid lesion in developing countries.

In this study most of the patients presented in 3rd and 4th decade of life which is also in accordance to the study of Bukhari et al 12.

In present study out of 79 cases surgical biopsy were available in 19 cases. Histopathological findings were consistent with cytological findings except in two cases where it

revealed follicular adenoma which were reported as colloid goitre and colloid goitre with cystic change in FNAC, correlation of cytological findings with histopathological findings are accordance with the study of Mehdi et al (2003) (13).

FNAC is the first line of investigation and other investigations like ultrasonography, thyroid function test, thyroid scan and antibody levels are done subsequently for appropriate management¹⁴.

CONCLUSION

It is concluded that FNAC is a primary diagnostic tool for solitary thyroid nodule because it is simple, safe, quick, reliable, minimally invasive, and cost effective. It can differentiate non neoplastic condition from neoplastic one and can be performed as outpatient procedure. It can be repeated and having good patient compliance.

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