



Importance of fine needle aspiration cytology in thyroid lesions- A study of 51 cases

KEYWORDS

Thyroid nodule, follicular neoplasm, follicular hyperplasia, carcinoma thyroid, lymphocytic thyroiditis

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ABSTRACT

Fine-needle aspiration cytology (FNAC) is a simple and cost-effective method in the diagnosis and early management of thyroid lesions. As this procedure provides rapid results, still is a diagnostic method of choice. The aim of the current study was to evaluate the role of FNAC in the diagnosis of thyroid lesions. In this study, 51 cases of thyroid were considered and FNAC findings were classified according to the Bethesda system. Maximum cases were found to be of benign nature (76.4%), 3.9% were malignant and 1.9% were non diagnostic. The evaluation of thyroid FNAC samples provides immediate results and helps in the accurate plan of management of the patients. Furthermore crucial evaluation of FNAC smears of thyroid nodules reduces the need of surgical treatment and also decreases the apprehension of the patient for the disease.

Introduction

Role of FNAC in the thyroid lesions is vital and has been used since the 1950s and is one of the cost effective methods in the diagnosis [1]. The thyroid lesions are more common in females in the form of nodules with male to female (M:F) ratio ranged from 1.2 to 4.3 [2,3,4]. These nodules can be detected with ultrasonography (USG) in 19 to 67% cases and by palpation in 5% of cases only [2]. As the thyroid nodules may cause hormonal imbalance, cosmetic problems and also have the malignant potential. So they should be treated as early as possible to reduce the complications [5]. In this study, the usefulness of FNAC was evaluated in all the thyroid lesions and results found were discussed.

Materials and methods

Total of 51 cases were evaluated retrospectively. A cytological diagnosis was made as per Bethesda classification [6]. According to the Bethesda 2007 classification results were categorized as benign, atypia of undetermined significance (AUS)/follicular lesion of undetermined significance (FLUS), follicular neoplasm (FN)/suspicious for follicular neoplasm (SFN), suspicious for malignancy, and malignant ones. Benign lesions were further categorized in to colloid nodules, multinodular goitre, toxic goitre and lymphocytic thyroiditis.

Results

Out of 51 patients, 41 were females (80.3%) and 10 were males (19.7%). The mean age was 42.8 ± 16.8 with age range of 15-82 years. The mean age of male patients was greater than the mean age of female patients (58.2 ± 15.8). The cytological diagnosis made as per Bethesda system was further distributed with gender and mean age (Table 1).

	Total cases	M:F ratio	Mean age \pm SD (M)	Mean age \pm SD (F)	Percentage
Benign	39	1:4.5	59,16.5	37.4, 11.6	76.4%
AUS,FLUS	1	--	Nil	50	1.9%
FN, SFN	7	--	Nil	32, 11.5	13.7%
Suspicious for Malignancy	1	--	Nil	82	1.9%
Malignancy	2	--	65,5	Nil	3.9%
Non diagnostic	1	--	Nil	37	1.9%

Table 1: Distribution of cases as per diagnosis on FNAC with gender and mean age of the patients

Benign 39/51 (76.4%) cases were further categorized as per FNA

findings and were correlated with clinical details, hormonal profile and imaging studies. One case (2.5%) out of 39 benign cases showed disturbed serum thyroid profile (raised serum T3, T4 levels and reduced TSH levels) along with consistent findings on FNA smears. FNAC in eight (20.5%) cases with diffuse thyroid lesions revealed lymphocytic infiltrate destroying the follicular sheets, hence diagnosed as lymphocytic thyroiditis. Three cases showed FNA findings consistent with clinical as well as radiological findings, and were diagnosed as multinodular goitre.

Discussion

Although histopathological examination is the gold standard method for the definitive diagnosis of any lesion. But FNAC also provides high diagnostic value and being an easy method with low rate of complications, it is still a cost-effective tool in the diagnosis of thyroid lesions [6,7,8]. FNAC also provides immediate results and relieves the apprehension of the patient and currently is the preferred diagnostic method for the evaluation of thyroid lesions [8].

In the current study thyroid lesions were found more common in females with lesser mean age at presentation than males [2,3,4]. The studies done in the past emphasized that most of the thyroid lesions are of benign nature. As maximum numbers of lesions were found to be benign (76.4%) in the current study, these findings were in concordance [5]. It is mentioned in the literature that FNAC of the thyroid has resulted in a decreased number of surgeries by 25-50%. In our experience also 23.0% cases of the benign thyroid lesions diagnosed on FNA were managed by non surgical methods only. [10]

The Bethesda System for Reporting Thyroid Cyto-pathology group has recognized six diagnostic categories in which the risk of malignancy increases respectively. These categories are benign with <1%, AUS/FLUS with 5-10%, FN with 20-30%, suspicious for malignancy with 50-75% and malignant with 100% malignant potential [10]. It was noticed that the percentage of malignant cases has been increased in the operated group of patients due to this type of reporting [9]. But the thyroid lesions presenting a solitary thyroid nodules are less likely to be malignant so FNA played an important role in the initial step of management and helps in the early diagnosis [10,11].

Although incidence of carcinoma of thyroid is very low, accounts for 1% of all the carcinomas. In the current study conducted carcinoma was found in 3.9% of cases on FNA. Keeping in view the slow progressing rate of carcinoma, early diagnosis still maintains its importance in the low malignant potential thyroid nodules [5]. In the

present study, malignant cytology results as well as mean age were higher in male patients rather than females. As per reported in the previous studies, higher malignancy rates were seen in older patients [2,3].

The non diagnostic test rates ranges from 1.6% to 20% with this reporting of thyroid lesions. The reason for high non diagnostic rate may be inadequate sampling, or difficulty in differentiation of benign and malignant lesions [7,8, 11]. In our study, we found the rate of non diagnostic tests as 1.9% only. It is suggested in the literature that the rate of non diagnostic tests should be kept below 10% [12]. The lesion may be arising in very suspicious single zone so multiple aspirations from different areas of the lesion should be done for better results [7, 13].

The diagnosis of "AUS/FLUS," "FN/SFN" and "suspicious for malignancy" are accounted for 12.1% in one study and in the current study this diagnosis was made in 17.6% of the cases [7, 12, 14]. The diagnosis of "suspicious for malignancy," "AUS/FLUS" and "FNS" represents a large proportion of cases in thyroid lesions so in addition to FNAC other molecular techniques should be done to reach at accurate diagnosis [11, 12, 15].

Conclusion

It was concluded from that FNAC still plays an important role in the diagnosis of the thyroid lesions. If reported as Bethesda system, lesions can be further categorized and treatment plan can be done without any delay.

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