ORIGINAL RESEARCH PAPER

Pathology

SPECTRUM OF THYROID LESIONS IN FNAC IN SHYAM SHAH MEDICAL COLLEGE, REWA

KEY WORDS: FNAC, Medullary carcinoma.

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ABSTRACT

Introduction: In my study 70 patients on OPD basis in Sanjay Gandhi memorial hospital underwent FNAC in Department of Pathology in Shyam Shah Medical College were studied. Fine needle aspiration cytology of the thyroid gland is now an increasingly used, first line diagnostic test as it is quick, non invasive for the evaluation of diffuse thyroid lesions as well as of thyroid nodules with the main purpose of confirming benign lesions and thereby, reducing unnecessary surgery.

Material & Method: In my study Thyroid swellings were aspirated using (23/24) gauge disposable needles using standard procedures. The aspirated contents of the needle were expelled onto glass slides. Four slide smears were made for each case and immediately fixed in 95% ethyl alcohol for about 30 min. All the slides (aspirated in our unit and received as US guided material) were stained with giemsa stain. Diagnosis of cytological smears was done according to standard criteria defined by various authors.

Observation and result: FNAC results were interpreted as benign in 30 cases (44%), follicular lesion of undetermined significance in 10 cases (14%), follicular neoplasm in 12 cases (17%) suspicious in 7 cases (10%), malignant in 14 cases (20%), and unsatisfactory in 5 cases (7%). The benign diagnoses included 27 cases (90%) of nodular colloid goiter, and 3 cases (10%) of Hashimoto's thyroiditis. The malignant diagnoses were 4 cases (72%) of papillary carcinoma 2 cases (23%) of medullary carcinoma. In my study maximum cases were females (85%) and males were 15% and the result obtained during FNAC, prevalence of benign cases were 44% and malignant cases were 8%.

Conclusion: Fine-needle aspiration cytology has greatly improved the clinical management of thyroid nodules. In present study, 44% were benign lesion and 8% were malignant lesion which implies, maximum cases were benign in nature. So, the Bethesda system is essential guiding tool to differentiate between malignant and benign lesion to guide the further management and prevent unnecessary surgeries and costly investigations for poor patients.

INTRODUCTION

Thyroid nodules are common clinical findings and have a prevalence of 4–7% of adult population. However, less than 5% of thyroid nodules in adults are malignant, and most of them are non-neoplastic lesions or benign neoplasms (1).

Fine needle aspiration cytology of the thyroid gland is now an increasingly used, first line diagnostic test as it is quick, non invasive for the evaluation of diffuse thyroid lesions as well as of thyroid nodules with the main purpose of confirming benign lesions and thereby, reducing unnecessary surgery (2). To avoid unnecessary surgeries distinction between benign and malignant lesions is essential to protect patient from possible injury of the recurrent laryngeal nerve, hypoparathyroidism, and thyroid hormone dependence in patients with benign thyroid nodules. The distinction of these benign lesions from malignant lesions cannot be based reliably on the clinical presentation alone (2)

It has various drawbacks, such as a high rate of incomplete aspiration, an inability to distinguish follicular adenoma from follicular carcinoma, and a risk of false negatives and false positives [3,4].

Different imaging techniques are now used for diagnosing thyroid nodules like radionucleotide scanning, high-resolution ultrasonography, etc. However, FNAC is still regarded as the single most accurate and cost-effective test, particularly if ultrasound is used as a guide for better sample collection, especially for cystic lesions [5].

MATERIAL METHOD

This is a retrospective study of 70 diagnosed cases of thyroid nodules referred to cytology unit, Pathology Department, Shyam Shah Medical College, in the period between May 2016 to Dec 2016. The cases notes were retrieved and information about the age, sex, ultrasound findings, cytological and histological diagnosis was reviewed.

Thyroid swellings were aspirated using (23/24) gauge disposable needles using standard procedures [6]. The aspirated contents of the needle were expelled onto glass slides. Four slide smears were made for each case and immediately fixed in 95% ethyl alcohol for about 30 min. All the slides (aspirated in our unit and received as US guided material) were stained with giemsa stain. Diagnosis of cytological smears was done according to standard criteria defined by various authors.

FNAC results were then compared with the definitive histological diagnosis which was considered the gold standard. Cases with cyto-histological disparity were selected and re-evaluated for the detection of possible causes. Some patients with benign diagnosis who did not underwent surgery were followed up with repeated clinico-radiologic assessment, and nodules showed significant growth, or cases showed recent clinical features of progression (hoarseness of voice, pressure symptoms) underwent a repeat FNAC.

RESULT

We included 70 cases, 11 cases (15%) were males and 59 cases (85%) were females, with female to male ratio of 6.3:1. The age ranged from 14 to 80 years. FNAC results were interpreted as benign in 30 cases (44%), follicular lesion of undetermined significance in 10 cases (14%), follicular neoplasm in 12 cases (17%) suspicious in 7 cases (10%), malignant in 14 cases (20%), and unsatisfactory in 5 cases (7%) (Table 1). The benign diagnoses included 27 cases (90%) of nodular colloid goiter, and 3 cases (10%) of Hashimoto's thyroiditis. The malignant diagnoses were 4 cases (72%) of papillary carcinoma 2 cases (23%) of medullary carcinoma.

The FNAC results were compared with their corresponding histo-pathological diagnosis in all cases of follicular lesion of undetermined significance, cases of follicular neoplasm, suspicious and malignant cases, and some benign diagnosed cases. 22 cases of colloid nodular goiter who undergone surgery, 17 cases (80%) were diagnosed as nodular goiter, 4 cases (18%)

as follicular adenoma, and 1 case (2%) as carcinoma. The remaining 5 cases that did not undergo surgery and followed clinically showed no significant increase in size or pressure symptoms.

In our study 10 out of 70 (14%) cases were diagnosed as Follicular neoplasm of undetermined significance, pathologic diagnosis was follicular adenoma in 8 out of 10 cases (76%), and nodular goiter in 2 cases (22%). Single case (8%) of follicular neoplasm was diagnosed as colloid goiter, 4 cases (28%) as follicular carcinoma, 8 cases (60%) as follicular adenoma, and single case (4%) as follicular variant of papillary carcinoma. Of the included 7 cases suspicious for papillary carcinoma, 6 cases (96%) were confirmed after resection, while the remaining case (4%) was proved to be nodular goiter. 9 out of 10 cases (95%) of papillary thyroid carcinoma were confirmed histologically, while single case (5%) was diagnosed as papillary hyperplasia.

TABLE-1 CASE DISTRIBUTION ACCORDING TO FNAC REPORT

S.No.	Cytological diagnosis	No. Of Cases	Percentage (%)
1.	Benign	30	44
2.	Follicular lesion of undetermined significance	10	14
3.	Follicular neoplasm	12	17
4.	Suspicious of malignancy	7	10
5.	Malignant	06	8
6.	Unsatisfactory	5	7

DISCUSSION

Fine needle aspiration cytology, being an OPD procedure, is simple, quick and safe with a low complication rate. FNAC is the most accurate, cost effective screening test for rapid diagnosis of thyroid swellings [7]. Fine-needle aspiration cytology has greatly improved the clinical management of thyroid nodules. However, FNAC has limitations related not only to inadequate sampling but also, most importantly, to its inability to distinguish between benign and malignant follicular lesions in the absence of nuclear features of papillary carcinoma and vascular and capsular invasion. In present study, maximum 85% of cases were female patients. As reported in other literatures, age and gender were associated factors of thyroid lesions [8]. A study by EA Sinna, there was a female predominance giving a female-to-male ratio of 5.2:1. The age of patients ranged from 14 to77 years, with median of 44 years, being slightly higher in neoplastic lesions (45 years) than in non-neoplastic lesions (40 years).[9]

In present study, 44% were benign lesion and 8% were malignant lesion which implies, maximum cases were benign in nature. In other literature, the benign cases represented the majority of cases (33.1%). [8] In a study by EA Sinna, nodular hyperplasia constituted the majority of benign lesions (89.8%). Papillary carcinoma was the most frequent malignant lesion, with an incidence of (72.4%), while medullary carcinomas (27.6%) were the second most common malignant lesions, respectively.[9]

Every thyroid FNAC must be evaluated for adequacy. Inadequate samples were reported as ''nondiagnostic'' or ''unsatisfactory''. This category applies to specimens that were unsatisfactory owing to obscuring blood, overly thick smears, air drying of alcohol-fixed smears, or an inadequate number of follicular cells. For a thyroid FNA specimen to be satisfactory for evaluation, at least six groups of benign follicular cells are required, each group composed of at least 10 cells. Published data suggest inadequate sample range between 2% and 20% [10]. In a study by EA Sinna, the inadequate sample rate was 7.1%.[9] In present study, 7% cytological smears were unsatisfactory.

CONCLUSION

FNAC from thyroid nodule is a quick, safe easy, cost effective and OPD based screening procedure if done by expert hands, but it requires a unified system of interpretation, reporting language and guidelines for proper categorization and management. Bethesda System for Reporting Thyroid Cytopathology is a comprehensive system for cytopathological diagnosis of thyroid nodule and with strict diagnostic criteria for each category for predicting risk of malignancy and guidelines for planning of further management.

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