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ORIGINAL RESEARCH

A Comparison of FNAC and Histopathology of Thyroid Swellings

[1]Dr. Manjushree Ghadi, [2]Dr. Ashwini S. Khadatkar, [3]Dr. Supriya Joshi, [4]Dr. Renuka Ghatale, [5]Dr. Chetana Bagul

[1,4,5]Assistant Professor, [2,3]Associate Professor, Department of Pathology, SMBT IMSRC, Medical College, Nandi Hills, Igatpuri, Nashik, Maharashtra, India

Correspondence:
Dr. Ashwini S. Khadatkar
Associate Professor, Department of Pathology, SMBT IMSRC, Medical College, Nandi Hills, Igatpuri, Nashik, Maharashtra, India
Email: drashwinini5apr@gmail.com

Abstract
When not treated effectively, neck swelling may cause considerable morbidity and even death. It is a typical clinical presenting symptom in the field of ENT. Since thyroid swelling is the most frequent form, we did prospective research to evaluate the usefulness of FNAC in thyroid swelling diagnosis and compare its findings with histopathology findings. It was shown that the FNAC test is very trustworthy and has excellent sensitivity and specificity for thyroid enlargement.
Keywords: Thyroid swellings, FNAC, Histopathology

Introduction
The significant majority of patients have been diagnosed with enlarged thyroid glands. When the swelling is not caused by the thyroid, arriving at an accurate diagnosis and finding an effective treatment becomes more difficult. In addition to causing aesthetic deformities, a swollen neck may also induce a variety of pressure symptoms relating to the trachea, the esophagus, and the main blood arteries, depending on the size and the histological type of the swelling. A biopsy may be necessary in certain situations, particularly those with adenoma, in order to rule out the possibility of cancer.
In the year 1870, Rugu [1] and his collaborator Joham vent were the first people to propose the use of surgical biopsy as an important diagnostic technique.At the moment, this method is used all over the globe, and it is the examination of choice in cases involving enlargement of the breast, thyroid, or lymph nodes. Both false negative findings and false positive results are included in the FNAC's list of limitations. Bloch [2] conducted research that compared FNAC to histopathology and discovered that FNAC had a higher accuracy of 91.6% than histopathology. Similar research was conducted by Mundasad et al. [3], who came to the conclusion that FNAC had a sensitivity of 52.6%, a specificity of 86.6%, and an accuracy of 79.1% for detecting thyroid cancer. A similar research was conducted by Handa et al. [4], and the results showed that FNAC had a sensitivity of 97%, a specificity of 100%, a positive predictive value of 96%, and a negative predictive value of 100%.

Aim and Objectives
The clinical evaluation of the various forms of thyroid swelling and the link between FNAC and the histology of those thyroid swellings**.**

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Materials and Methods

From Jan 2018 to Dec 2018, 100 patients in the ENT—Head & Neck Surgery and Pathology departments of the institute participated in the current research, which is a prospective study (Table 1). Following a comprehensive history gathering, several neck swellings brought to the ENT department were clinically investigated. They received FNAC, and this research only included thyroid swelling cases that were hospitalized in an indoor facility and afterward had surgery. They were compared to the preoperative FNAC report after the HP research. Patients with further neck swelling were not included in this investigation. Prior to surgery, informed permission was obtained. The quantity, size, consistency, mobility on palpation and deglutition, surface texture, and discomfort of the palpable thyroid swellings were recorded. In all cases of thyroid enlargement, a thyroid ultrasound and a thyroid hormone profile were performed. Sending all FNAC cases and HP study specimens to the pathology department.

Results

Thyroid enlargement was associated with colloid goiter most often (48.0%), followed by colloid goiter with Cystic degeneration (14.5%) (Table 1).

Table1: Incidence of types of thyroid swelling according to FNAC finding

Types of thyroid swelling	No.ofcases	%
Colloid goiter	45	48.0
Colloid goiter with cystic degeneration	15	14.5
Hashimoto's thyroiditis	10	10.5
Follicular adenoma	10	8.8
PapillaryCa	9	5.6
Thyroglossal cyst	11	12.6
Total	100	100

In this research, the incidence peaked in the second and third decades of life, with 57 female cases and 43 male cases (Table 2).

Table 2: Incidence of types of thyroid swelling according to FNAC finding

Types of thyroid swelling	No.ofcases	Male	Female
Colloidgoiter	45	15	21
Colloid goiter with cystic degeneration	15	8	11
Hashimoto's thyroiditis	10	4	6
Follicular adenoma	10	3	4
PapillaryCa	9	5	6
Thyroglossal cyst	11	8	9
Total	100	43	57

Table 3: Positive correlation of result of FNAC with result of histopathology of different thyroid swelling

Types of neck swelling diagnosed by FNAC	No. of cytological diagnosis	Correlation with result of histopathology		Diagnostic accuracy(%)	Histopathology finding in cases of false cyto diagnosis
		Correct cytological diagnosis	False cyto diagnosis		
Colloid goiter	45	40	5	96.25%	Papillary Ca
CG with CD	15	13	2		
Hashimoto's	10	10	–		

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thyroiditis					
Papillary Ca	10	9	1		
Follicular adenoma	9	06	3		Follicular Ca
Thyroglosalcyst	11	11	–		

Discussion

FNAC is a simple procedure that is safe and has a low risk of complications. The majority of publications advise between 3 and 6 aspirations are required, hence care must be made to collect an appropriate specimen. A satisfactory specimen has at least six well-preserved cell groups that range in size from 10 to 15. They may be classified as benign, ambiguous, suspicious, or malignant based on their outward appearance.With sensitivity and specificity both approaching 100%, the FNAC-based diagnosis of papillary thyroid cancer based on typical nuclear alterations is trustworthy and accurate. It is contradicting with study by Bhansali [5] where it was the fifth decade of life. The female-to-male ratio is 2.3:1.

100instance of thyroid swellings were operated on and then the results of a later histopathological analysis were positively correlated with FNAC. But in some instances, it was different because the FNAC's diagnosis was incorrect. In this series, FNAC has a 96.25% accuracy rate for thyroid adenoma diagnosis. This is close to the results of Handa et al. [4] and Altavilla et al. [6] (92.86%). Only 0.7% of 439 individuals had false-positive results, according to Grant et al. [7]. Papillary carcinoma made up 71.4% of malignant cases, whilst follicular carcinoma made up 28.6%.

The statistics Table 2 illustrates the relationship between the histological and cytological diagnoses made in individuals with thyroid swellings. Thyroid enlargements were compared in this study. In this research, histology results of colloid goiter confirmed the FNAC diagnosis in 45 cases, whereas the FNAC diagnosis of papillary carcinoma in five case contradicted the prior FNAC. FNAC accurately identified the remaining colloid goiter.

While three instances were determined to be follicular carcinoma by histological analysis, three out of six thyroid follicular adenoma detected by FNAC corresponded accurately with their histology findings. FNAC properly identified nine instances of thyroid papillary cancer.

In this study, 96.25% of thyroid enlargement diagnoses were correct. Our results may be contrasted with those of Frable and Frable [8], who stated that the FNAC's diagnostic accuracy was 94%.

After FNAC and histology of Colloid goiter, a discrepancy was found. 45 a goitre with a colloid and cyst ,10 Hashimoto's thyroiditis, 9adenomas in the follicles 10 Thyroglossal cysts, 10 Papillary Ca, and a total of 100.

Conclusion

In order to investigate thyroid disease with high accuracy and specificity, FNAC is a straightforward, safe, and economical modality. It is very beneficial in developing nations like India. The unsettling indeterminate findings reveal a point of doubt that may be cleared up by biopsy and surgical excision.

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