

Evaluation of Cyto-Histopathological Correlation in Thyroid Lesions at a Tertiary Care Centre

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ABSTRACT

Background: The diseases of thyroid gland are among the most abundant endocrine disorders worldwide, second only to diabetes. The present study was conducted to study cyto-histopathological correlation in thyroid lesions at rural tertiary care hospital.

Materials & Methods: All the patients were clinically examined in detail according to the proforma and a careful palpation of the thyroid was done to guide precisely the location for doing aspiration. FNAC was performed. Smears were prepared and FNAC smears were carefully studied and categorized into non neoplastic and neoplastic lesions. Results were analysed.

Results: A total of 100 patients with thyroid lesions were subjected to fine needle aspiration cytology. Of these 60 patients underwent surgery subsequently and the excised specimens were sent to histopathological examination. The total number of cytological diagnoses was 100. Amongst them 92% were non-neoplastic and 7% were neoplastic. Of total 7 neoplastic cases, majority of the cases were suspicious for follicular carcinoma and follicular adenoma (2 cases each). The cytology - histopathology concordance rate for non-neoplastic lesions was 96.22% and neoplastic lesions was 100%.

Conclusion: The study concluded that the concordance rates between FNAC and histopathology diagnoses. The study highlights the importance of cyto-histopathological correlation for accurate diagnosis and subsequent appropriate management of thyroid lesions.


Keywords: FNAC, Cyto-Histopathological, Thyroid Lesions.

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INTRODUCTION

The thyroid gland is present in the neck which is enclosed by the pretracheal fascia. The pretracheal fascia is a part of the deep cervical fascia. It is located in front of the 2nd, 3rd, and 4th tracheal rings and weighs around 20–25 g.¹ The diseases of thyroid gland are among the most abundant endocrine disorders worldwide second only to diabetes and are one of the common problems encountered in clinical practice. The main diseases of thyroid are simple goiter (diffuse and nodular), hypothyroidism, hyperthyroidism, thyroiditis and neoplasms.² According to WHO, 7% of the world population is suffering from clinically apparent goiter. Majority of these patients are from developing countries where the disease is attributed to iodine deficiency.³ FNAC is a simple, quick, inexpensive method to detect thyroid swelling pathology. FNAC provides the most direct and specific information about thyroid. The use of FNAC reduces the number of thyroidectomies by approximately 50%.^{4,5} FNAC may fail when the gland is too small or fibrotic and biopsy may be needed in such

cases. FNAC may also fail in distinguishing between follicular adenoma and follicular carcinoma for which histopathology is necessary to distinguish between the two.⁶ The present study was conducted to study cyto-histopathological correlation in thyroid lesions at rural tertiary care hospital.

MATERIALS AND METHODS

The present observational study was conducted in the Department of Pathology, Meenakshi Medical College Hospital and Research Institute, Kanchipuram, Tamil Nadu (India) to study cyto-histopathological correlation in thyroid lesions at rural tertiary care hospital.

All the patients coming to the hospital with thyroid lesions irrespective of age and sex were included in present study. All the patients were clinically examined in detail according to the proforma and a careful palpation of the thyroid was done to guide precisely the location for doing aspiration. Details of the procedure

were explained to the patients. Aspiration was done with the patient lying comfortably in a supine position and the neck was extended with a pillow under the shoulder so as to make the thyroid swelling appear prominent. FNAC was performed under all aseptic precaution, with help of 23 gauge needle and disposable 5ml/10ml syringes. Whenever needed USG guided FNAC was done. Smears were prepared, fixed in 95% ethyl alcohol and stained with hematoxylin & eosin stains. FNAC smears were carefully studied and categorized into non neoplastic and neoplastic lesions. Descriptive statistics, such as frequencies and percentages, are used to summarize the patient demographics and diagnostic outcomes. The concordance rates are calculated using appropriate statistical methods.

RESULTS

A total of 100 patients with thyroid lesions were subjected to fine needle aspiration cytology. Of these 60 patients underwent surgery subsequently and the excised specimens were sent to histopathological examination.

A correlation between FNAC and histopathological study was done. The total number of cytological diagnoses was 100. Amongst them 92% were non-neoplastic and 7% were neoplastic. In the present study, of total 7 neoplastic cases, the majority of the cases were suspicious for follicular carcinoma and follicular adenoma (2 cases each). In the present study the cytology - histopathology concordance rate for non-neoplastic lesions was 96.22% and neoplastic lesions was 100%.

Table 1: Cytological diagnosis

Cytological diagnosis	N(%)
Non-Neoplastic	92(92%)
Neoplastic	7(7%)
Inadequate	1(1%)
Total	100(100%)

Table 2: Neoplastic Lesion on histopathology

Histopathological Diagnosis	N(%)
Follicular adenoma	2(28.57%)
Follicular carcinoma	2(28.57%)
Papillary carcinoma	1(14.28%)
Medullary carcinoma	1(14.28%)
Undifferentiated (anaplastic) thyroid carcinoma	1(14.28%)
Total	7(100%)

Table 3: Cyto-Histopathological correlation of neoplastic and non-neoplastic thyroid lesions

Histopathological diagnosis	Number of patients	Cytological diagnosis	
		Correlated n(%)	Non-coorelated n(%)
Non-Neoplastic lesions	53	51(96.22%)	2(3.77%)
Follicular Neoplasms	4	4(100%)	
Medullary carcinoma	1	1(100%)	
Papillary carcinoma	1	1(100%)	
Anaplastic caricoma	1	1(100%)	
Total	60	58(96.66%)	2(3.33%)

DISCUSSION

Diseases of the thyroid are of great importance because most are amenable to medical or surgical management. Today thyroidectomy is a routine procedure because of the introduction of safe anesthesia, antiseptics, fine surgical instruments and developments of new techniques, offering the chances of cure to many patients.⁷

A total of 100 patients with thyroid lesions were subjected to fine needle aspiration cytology. Of these 60 patients underwent surgery subsequently and the excised specimens were sent to histopathological examination. The total number of cytological diagnoses was 100. Amongst them 92% were non-neoplastic and 7% were neoplastic. Of total 7 neoplastic cases, majority of the cases were suspicious for follicular carcinoma and follicular

adenoma (2 cases each). The cytology - histopathology concordance rate for non-neoplastic lesions was 96.22% and neoplastic lesions were 100%.

In a study conducted by Tsegaye and Ergete adenoma constituted for 12.8% of the cases and 60.97% of neoplastic lesions, leading to the 2nd commonest lesion and most common neoplastic lesion.⁸

Bukhari and Sadiq (n=998), where papillary carcinoma accounted for 90% of malignant neoplasms and 13.82% of cases studied. The second most common malignancy was follicular carcinoma, amounting for 2% of cases studied, followed by anaplastic carcinoma constituting 1% of the cases studied.⁹

In the study conducted by Tsegaye and Ergete, adenomas were the second most common lesion encountered accounting for 12.8% of cases, preceded only by adenomatous goiter.⁸

Cautious histopathological examination is necessary to differentiate a follicular adenoma from follicular carcinoma. Regarding malignant lesions, papillary thyroid carcinoma was seen in 3.75% of the cases followed medullary carcinoma (2.5%). Papillary carcinoma appears histopathologically as colloidfilled follicles with papillary projections. Psammoma bodies may be present in calcified lesions. Young females are commonly affected in the age group of 20–40 years. Lymph nodes in the lower deep cervical region may be involved frequently.¹⁰

CONCLUSION

The study concluded that the concordance rates between FNAC and histopathology diagnoses. The study highlights the importance of cyto-histopathological correlation for accurate diagnosis and subsequent appropriate management of thyroid lesions.

REFERENCES

1. Shenoy R. Manipal Manual of Surgery with Clinical Methods. 2nd ed. Vol. 20. New Delhi: CBS Publishers and Distributors Pvt. Limited; 2010. p. 311.
2. Tsegaye B, Ergete W. Histopathologic pattern of thyroid disease. *East Afr Med J*. 2003;80(10):525–8.
3. Bukhari U, Sadiq S. Histopathological audit of goiter: A study of 998 thyroid lesions. *Pak J Med Sci*. 2008;24(3):442–6.
4. Korum N, Ascii C, Yilmazlar T, Duman H, Zorluoglu A, Tuncel E, et al. Total thyroidectomy: changing trends in surgery. *Int Surg*. 1997;82:417–419.
5. Mazzaferri EL. Management of a solitary thyroid nodule. *New Engl J Med*. 1993;328:553–559. doi: 10.1056/NEJM199302253280807.
6. Watters AK, Ahiya AT. Role of USG in the management of thyroid nodules. *AMJ Surg*. 1992;162:654–657. doi: 10.1016/S0002-9610(05)80728-7.
7. Bouq YA, Fazili FM, Gaffar HA. A current pattern of surgically treated thyroid diseases in the Medinah region of Saudi Arabia. *JK Practitioner*. 2006;13:9–14.
8. Tsegaye B, Ergete W. Histopathologic pattern of thyroid disease. *East Afr Med J* 2003;80:525-8. doi: 10.4314/eamj.v80i10.8755, PMID 15250625
9. Bukhari U, Sadiq S. Histopathological audit of goiter: A study of 998 thyroid lesions. *Pak J Med Sci* 2008;24:442-6.
10. Hu MI, Vassilopoulou-Sellin R, Lustig R, Lamont JP. Thyroid and parathyroid cancers. In: *Cancer Management: A Multidisciplinary Approach*. 11th Edn. London: CMP United Business Media; 2008.

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