Original Article

A comparative study of CT of benign and malignant thyroid nodule with FNAC in rural Maharashtra

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Abstract

Objectives: To study CT of Benign and Malignant thyroid nodule with FNAC in Rural Maharashtra**. Methodology:** This is a record based cross-sectional study in the Patients with thyroid nodule at the Surgical department of Rural health center during the four year From January 2012 to January 2016. All the patients with thyroid nodule were undergone thyroid work up with FNAC and CT neck as per the advice of Surgeon so during 4 year period total 74 patients were undergone work up for thyroid all these diagnosis later on confirmed by histopathological diagnosis. In this Sensitivity, Specificity, Positive Predictive Value, Negative Predictive Value etc. was calculated with respect to Gold standard Histopathological diagnosis. **Result:** In Histopathology Malignant tumors were 41.33% in that Papillary carcinoma was 18.66%, Medullary carcinoma was 10.66% Columnar cell variant of papillary carcinoma was 8% and Hyalinizing trabecular adenoma was 4% and Benign were in 58.66% in that the most common were Adenomas- 20%, colloid nodules-14.66%, Cysts was in 12%, Lymphocytic or granulomatous nodules in 9.33%, Congenitalab normalities in 2.66% . For FNAC the Sensitivity was 93.55%, Specificity 95.45 %, Positive Predictive Value 93.55%, Negative Predictive Value 95.45 %. For CT Scan Sensitivity was 85.29%, Specificity 95.12 %, Positive Predictive Value 93.55%, Negative Predictive Value 88.64 %. **Conclusion:** It can be conclude from our study that in malignant tumor Papillary carcinoma was most common and in Benign Adenomas were most common overall the sensitivity and specificity of FNAC was more than CT scan so CT should not be initial choice in the Thyroid work up.

Keywords: Thyroid nodule, CT Thyroid, FNAC of Thyroid, Histopathology of Thyroid.

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INTRODUCTION

Thyroid nodule is a common clinical finding and it is found in the autopsy of approximately 50% of individuals.[1] Based on clinical examination, its prevalence is about four to seven percent.[2,3] In the past two decades, the widespread use of ultrasonography for evaluation of thyroid and non-thyroid neck diseases has increased the prevalence of thyroid nodes; the prevalence rate has varied among different studies.[4-6] Because of ruling out malignancy, thyroid nodules are clinically important and their role is proved for approximately five percent of nodes.[7]

MATERIAL AND METHODS

This is a record based cross-sectional study in the Patients with thyroid nodule at the Surgical department of Rural health center during the four year From January 2012 to January 2016 . All the patients with thyroid nodule were undergone thyroid work up with FNAC and CT neck as per the advice of Surgeon so during 4 year period total 74 patients were undergone work up for thyroid all these diagnosis later on confirmed by histopathological diagnosis . In this Sensitivity, Specificity, Positive Predictive Value, Negative Predictive Value etc. was calculated with respect to Gold standard Histopathological diagnosis.

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RESULT

Table 1: Distribution of the Patients as per Various Histopathological Diagnosis

Histopathological Diagnosis	No.	Percentage (%)
Malignant	**31**	41.33%
Papillary carcinoma	14	18.66%
Medullary carcinoma	8	10.66%
Columnar cell variant of papillary carcinoma	6	8%
Hyalinizing trabecular adenoma	3	4%
Benign	**44**	58.66%
Adenomas	15	20%
colloid nodules	11	14.66%
Cysts	9	12%
Lymphocytic or granulomatous nodules	7	9.33%
Congenital Abnormalities	2	2.66%
Total	**75**	**100**

In Histopathology Malignant were 41.33% in that Papillary carcinoma was 18.66%, Medullary carcinoma was 10.66% Columnar cell variant of papillary carcinoma was 8% and Hyalinizing trabecular adenoma was 4% and Benign were in 58.66% in that the most common were Adenomas- 20%, colloid nodules-14.66%, Cysts was in 12%, Lymphocytic or granulomatous nodulesin 9.33%, Congenitalabnormalities in 2.66% .

Table 2: Distribution of the patients with respect to FNAC and Histopathology

HP	FNAC (Malignant)	FNAC (Benign)	Total
HP (Malignant)	29	2	31
HP (Benign)	2	42	44
Total	**31**	**44**	**75**

For FNAC the Sensitivity was 93.55%, Specificity 95.45 %, Positive Predictive Value 93.55%, Negative Predictive Value 95.45 %.

Table 3: Distribution of the patients with respect to FNAC and Histopathology

HP	CT Scan (Malignant)	CT Scan (Benign)	Total
HP (Malignant)	29	2	31
HP (Benign)	5	39	44
Total	**34**	**41**	**75**

Sensitivity was85.29%, Specificity 95.12%, Positive Predictive Value 93.55%, Negative Predictive Value 88.64%.

DISCUSSION

Most thyroid nodules (about 67%) have a size smaller than 15 mm.[8] Although previously it was assumed that the nodes smaller than 15 mm are not malignant and do not need further investigations[5], recently a number of studies have rejected this assumption and have shown small nodules can also be malignant and must therefore be investigated further.[8,9] It is widely accepted that Sonography and ultrasound guided FNA Cytology are the modalities of choice for comparison of benign and malignant nodules.[10,11] The diagnostic value of FNA in small nodules is still under study.[8] However, if FNA is done on time when necessary, it can prevent unnecessary surgeries.[12] CT Thyroid have almost no role in the initial evaluation of a thyroid nodule, and are rarely indicated in the initial workup. However, they are both excellent (100% sensitivities) for evaluating the extent of large substernal goiters which may be compressing nearby structures[13.] In our study we found as per Histopathology Malignant tumors were 41.33% in that Papillary carcinoma was most common i.e. 18.66% followed by Medullary carcinoma was 10.66%; Columnar cell variant of papillary carcinoma was 8% and Hyalinizing trabecular adenoma was 4% and Benign were in 58.66% in that the most common were Adenomas-20%, colloid nodules- 14.66%, Cysts was in 12%, Lymphocytic or granulomatous nodules in 9.33%, Congenital abnormalities in 2.66%. This was similar to Burch HB[14]. In our study For FNAC the Sensitivity was 93.55%, Specificity 95.45 %, Positive Predictive Value 93.55%, Negative Predictive Value 95.45 %. This is similar to Boey J they found The overall sensitivity, specificity, and accuracy of FNAC technique is 83%, 92% and 95% respectively. In FNAC,both false positive and negative results occur[15] Also we found in CT Scan Sensitivity was 85.29%, Specificity 95.12 %, Positive Predictive Value 93.55%, Negative Predictive Value 88.64 %. This was not similar to Mazzaferri EL et al[16] they found 100% Sensitivity and 95% Specificificity the low sensitivity in our study may be difference in prevalence of Thyroid tumors as in large tumors the sensitivity of CT scan increases and also the skill of radiologist in the diagnosis.

CONCLUSION

It can be conclude from our study that in malignant tumor Papillary carcinoma was most common and in Benign. Adenomas were most common overall the sensitivity and specificity of FNAC was more than CT scan so CT should not be initial choice in the Thyroid work up.

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