



Research Article

INCIDENCE OF MALIGNANCY IN THYROID LESIONS REPORTED AS FOLLICULAR NEOPLASM PREOPERATIVELY

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ABSTRACT

Background: Fine-needle aspiration (FNA) is the most important method for determining a diagnosis in the evaluation of a thyroid nodule. Frequently it is reported as follicular neoplasm and cannot differentiate between a benign and a malignant lesion.

Methods: We prospectively studied 75 patients who underwent FNA for diagnostic evaluation of a thyroid nodule and had their results reported as a follicular neoplasm, during one year period in Govt Medical college, Kozhikode. The objective of the study was to analyse the incidence and histopathologic types of malignancy in these cases.

Results: Total 75 patients reported as follicular neoplasm underwent thyroidectomy. The final histopathologic profile was as follows: Sixty three (84%) patients had benign pathology while 12 (16%) patients were diagnosed with malignant lesions. Most common benign conditions reported were colloid goiter (n=36; 57.1%) and follicular adenoma n=21; 33.3%). The malignant lesions included 9 cases of papillary carcinoma (75%) and 3 cases of follicular carcinoma (25%). Among 12 patients who turned to have malignancy, there were 2 (16.6%) males and 10 (83.3%) females. Those patients with malignancy were in the age between 21 and 40 years. Both male patients with malignancy had PTC. Among females, 3 patients had follicular carcinoma and 7 patients had PTC, 5 of them being FVPTC. All the malignant nodules were more than 2cm size.

Conclusions: This study observed a 16% incidence of thyroid cancer in the nodule designated as follicular neoplasm. So this data support considering total thyroidectomy in a patient with the FNAB diagnosis of follicular neoplasm when the age is below 40 years and nodule size more than 2cm.

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INTRODUCTION

Thyroid nodules increase in prevalence with age and are present in 10% of adult population.(1) Autopsy studies reveal the presence of thyroid nodule in 50% of population and they are fairly common. Only about 5% of thyroid nodules are malignant.

Fine needle aspiration biopsy cytology (FNA) is a safe, cost-effective and easy way to determine the need for surgical resection versus conservative management, in a patient with a dominant nodule. This has led to a decrease in the number of patients who undergo unnecessary thyroid surgery and an increase in the number of patients found with cancer at the time of surgery. Even though FNA is the most routinely used technique, sometimes the results can be inconclusive, being reported as indeterminate or follicular neoplasm. The Bethesda 2007 Thyroid Cytology Classification defines follicular neoplasms a category of lesions with cellular specimens showing abundant follicular cells arranged in microfollicular

pattern with little or no colloid. Patients diagnosed with follicular neoplasm have to undergo surgery for further characterization.(2) The current recommendation for the management of these cases are lobectomy.

Previous studies have explored the frequencies of different pathologies in cases reported preoperatively as follicular neoplasm.(3,4) To the best of our knowledge there are no published studies on this aspect of thyroid nodule from our population. We aimed to assess the frequencies of different pathologies in cases reported as follicular neoplasm on FNA and to identify the features that may help in predicting the malignant potential and thus planning the type of surgery in our patients.

MATERIALS AND METHODS

We conducted a prospective, observational study in the Department of Surgery, Government Medical College, Kozhikode, Kerala for a period of one year. Patients who had a pre-operative report of follicular neoplasm after FNA of thyroid nodule were included in the study. We collected data including age, gender, size of the thyroid nodule and the post-

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operative histopathological type. The study was approved by the Institutional Ethics Committee. We performed statistical analysis using SPSS version 22.0.

RESULTS

Out of the 1128 patients who had FNA of the thyroid nodule, during the study period, 75 (9.29%) cases were reported as follicular neoplasm. All of the 75 patients underwent surgery. Out of the 75 patients, 66 (88%) were females and 9 (12%) were males. The age of these persons ranged from 13 to 74 years. 58 (77.3%) patients were in the age group of 11-40 years and the remaining 17 (22.7%) were above the age of 40 years. Seventy three (97.3%) patients were euthyroid; two (2.7%) patients had hyperthyroidism and they were treated to restore euthyroid state before surgery.

All the 75 patients reported as follicular neoplasm underwent thyroidectomy. The post-operative histopathological diagnoses of these lesions are summarized in Table 1. Sixty three (84%) patients had benign pathology while 12 (16%) patients were diagnosed with malignant lesions. Most common benign conditions reported were colloid goiter (n=36; 57.1%) and follicular adenoma (n=21;33.3%). The male to female ratio of the benign lesions was 1:8.

Table 1 Spectrum of pathologies identified post-operatively in patients with pre-operative diagnosis of follicular neoplasm (n=75)

Category	Number	Percentage
Benign pathology	63	84
Follicular adenoma	21	33.3
Colloid goiter	36	57.1
Lymphocytic thyroiditis	4	6.4
Hurthle cell adenoma	2	3.2
Malignant pathology	12	16
Papillary carcinoma	9	12
Follicular carcinoma	3	4
Total	75	100

Among 12 patients who turned to have malignancy, there were 2 (16.6%) males and 10 (83.3%) females. The malignant conditions included follicular carcinoma and papillary carcinoma (PTC). In the PTC group, 55.5% of cases were of follicular variant of PTC (FVPTC). Both the male patients with malignancy had PTC. Among females, 3 patients had follicular carcinoma and 7 patients had PTC, 5 of them being FVPTC. All patients with malignant lesions were below 40 years of age at diagnosis, 10 patients being in the age group of 20-40 years and the remaining 2 in the age group of 13-20 years. Both the male patients with malignancy were in the age group of 21-30 years. Among females, the youngest patient with malignancy was 16 years old and oldest was 36 years old.

The size of the tumor varied from 1.5 to 5cm. The risk of malignancy was greater in nodules measuring more than 2cm (P-value for Chi-square test <0.05). None of the patients were diagnosed with medullary carcinoma, anaplastic carcinoma or lymphoma post-operatively.

DISCUSSION

The difficulty in achieving a diagnosis for follicular lesions of thyroid using FNA is well documented.(5) The histologic profile of cases reported as follicular neoplasm includes follicular adenoma, follicular carcinoma, FVPTC, Hurthle cell carcinoma, thyroiditis, medullary carcinoma, colloid goiter and

Hurthle cell adenoma.(6) Even though the frequencies of different pathologies observed were different, the most common histologic entities were identified in our series as well.

In a previous study of 122 patients diagnosed as follicular neoplasm, patients aged 40 or more had higher risk of malignancy. But in our series, out of the 75 patients, all of the 12 patients diagnosed as malignancy were of less than 40 years. This may be due to the predominance of papillary carcinoma (9 out of 12) in our series as the prevalence of papillary carcinoma is more in the young.

Malignancy rate is more when the nodule size was more than 2cm when compared with tumour size less than 2cm (P value <0.05). The other variable we analysed was sex of the patient. Malignant tumour is more in males (33%) when compared to females (13%). Previous studies show that malignant tumors are more common in males as compared to females (30% Vs 21%).(7,8) Even though the risk of malignancy in male and female are the same, the percentages are different. This may be due to the difference in the exposure to the risk factors associated the development of thyroid cancer in our population and in Western countries. Contrary to other series, there were no cases of anaplastic carcinoma or medullary carcinoma in our series. The percentage of malignancy in our series was 16% where as in other published data showed frequency ranging from 15 to 37%.

In short a nodule size more than 2cm is associated with higher risk of the lesion being malignant. All patients diagnosed with a malignant lesion were younger than 40 years. So total thyroidectomy may be justified as the initial surgical procedure in cases reported as follicular neoplasm, when the nodule size is more than 2cm especially when the age is less than 40 years.

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