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A Clinico-Pathological Presentation of Solitary Thyroid Nodule

Dr. Nicola C Lyngdoh[1], Dr. Ishank Jaiswal[2] and Vidhiya Veeran[3]

[1] Regional Institute of Medical Sciences

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Abstract

Background: Thyroid nodules represent a difficult diagnostic problem. They are quite common in the population, while clinically apparent thyroid cancer the principal concern of both patient and physician is comparatively rare. Materials and method: We prospectively evaluated the clinical and pathological profile of 50 consecutive patients presenting with solitary thyroid nodule. Results: Most common age group was 30-39 years (4th decade) with a female: male ratio=6:1. Overall malignancy rate was 32

Index terms— solitary thyroid nodule, fine needle aspiration cytology (FNAC), histopathological examination (HPE).

1 I. Introduction

solitary thyroid nodule is a palpable discrete swelling within an otherwise apparently normal thyroid gland. Though it is a common disorder of the thyroid gland, it is less prevalent among children. Childhood thyroid nodules need special attention due to higher incidence of malignancy as compared to adults. Differential diagnosis of a thyroid nodule is crucial as malignancy necessitates surgery; while strict follow up is necessary in benign cases. 1 Fine needle aspiration cytology (FNAC) is a cost effective procedure that provides specific diagnosis rapidly with minimal complications. Our objectives were to study the demographic descriptions, clinical, cytological, histopathological profile and correlation of cytological finding with that of histological, of patients with solitary thyroid nodule attending our tertiary referral centre.

2 II. Materials and Methods

Fifty consecutive patients irrespective of age, sex, religion and socio-economic status with solitary thyroid nodule admitted in the department of Otorhinolaryngology, Regional Institute of Medical Sciences, Imphal between August 2015 to September 2017 were prospectively studied.

Every patient was meticulously worked up with a thorough history taking and clinical examination followed by routine laboratory investigations and investigations specific to thyroid like thyroid hormone assay, Fine needle aspiration cytology (FNAC) and Ultrasonography (USG) of the thyroid. Post operatively the thyroidectomy specimens were sent for Histopathological Examination (HPE).

3 III. Results and Observation

The age of the patients ranged from 15 to 70 years. The youngest patient was a 15 year old male while the oldest was a 70 year male. The female to male ratio was 6.1:1.25; (50%) cases presented with swelling with duration of less than 1 year while 3(6%) cases had duration of 9-10 year. The shortest duration of swelling was 2 months which was diagnosed as follicular adenoma, while the longest was for 10 years which was diagnosed as colloid goiter.

All the 50 patients came with chief complaint of swelling in front of the neck of whom 46(92%) had a gradual increase in size while in 4(8%) cases there was rapid increase in size. There was Dysphagia in 2(4%) cases. Associated pain, difficulty in breathing, hoarseness, decreased appetite, weight loss and cervical lymphadenopathy were seen in a 70 year old male patient who was diagnosed as papillary carcinoma. Firm consistency was observed

in 38(78%) cases of which maximum were of colloid goiter while other varieties of consistency (soft/cystic) in follicular adenoma, papillary carcinoma, hashimoto's thyroiditis and Hurthle's neoplasm were also seen. One case had hard consistency with metastatic lymphadenopathy.

In FNAC 30 (60%) cases were found to be colloid goiter while papillary carcinoma was seen in 9 (18%) cases. There were 7 (14%) cases with follicular neoplasm, 2 (4%) cases of Hurthle's neoplasm and 1 (2%) each of Hashimoto's and Lymphocytic thyroiditis. On Ultrasonography 30 (60%) cases were of cystic nature while 12 (24%) were solid and 8 (16%) cases were of suspicious malignancy. On Histopathological examination of the operated tissues 27 (54%) cases were colloid in nature, 11 (22%) cases were papillary carcinoma while 3 (6%) cases were of papillary-follicular variant. There was also a case of squamous carcinoma in a female patient of 26 years who was diagnosed as colloid nodule on FNAC. Most of the solid findings and suspicious cases of malignancy on ultrasonography were found to be papillary carcinoma and follicular adenoma on HPE. Majority of cystic findings on Ultrasonography were colloid goiter in nature. Out of 30 patients of colloid nodule on FNAC, 27 cases were found to be colloid goiter on HPE. The remaining turned out to be papillary carcinoma and squamous cell carcinoma in 1 case. All cases of papillary carcinoma on FNAC were diagnosed to be the same on HPE.

Hashimoto's and Hurthle's cases were almost same in both examinations. All except one case of follicular neoplasm on FNAC turned out to be follicular adenoma on HPE. There was significantly more occurrence of malignancy at both the extremes of age, a rate of 42.85% below 20 years and 33.33% above 60 years. The youngest patient was a 15 year old male and the oldest 70 year old patient and both were diagnosed as papillary carcinoma.

4 IV. Discussion

In the present study, the maximum number of cases occur in the age group of 30-39 years, i.e. 4 th decade of life. Other studies also reported a higher incidence in the 3 rd and 4 th decade age group. 2,3,4 Several studies have highlighted the greater risk of malignancy in thyroid nodules in younger age group and older age-group people. 5,6 Several studies have highlighted the greater risk of malignancy in thyroid nodules in younger age group and older age-group people. Similar findings noted in our study. Female: Male ratio was 6.1:1, comparable to other literature. 2,3,7 The overall malignancy rate was 32%, similar to older literature. 8,9 The diagnostic assessment by FNAC in this study produces a sensitivity of 92.71%, specificity of 78.26%, a positive predictive value of 83.33% and negative predictive value of 90%.The accuracy of FNAC found to be 86%. This finding was comparable to other studies. 6,12 Histopathological examination (HPE) revealed a colloid occurrence in 54%, papillary carcinoma in 28%, follicular adenoma in 12%, 2% each in Hashimoto's and Hurthle's. These findings tally with that of other studies. The percentage of malignancy in our study was 29% whereas other series reported 8-37%. 12,13 The most common finding in FNAC in our study is colloid goiter which accounts for almost 60%, which is consistent with the other studies. **??**4 Out of total 14 cases of papillary carcinoma cases diagnosed from HPE, almost 9(64.3%) cases were identified in FNAC also. This shows there is a chance of false negativity for papillary carcinoma, should always be kept in mind. It is consistent with the

5 V. Conclusion

The incidence is highest in the 4 th decade of life. The rates of malignancy in extremes of age group are significantly higher than other general population. The incidence of a solitary thyroid nodule is much higher in female (F: M-6.1:1).

The most common mode of presentation is swelling in the neck with a majority of (92%) patients giving a history of gradual progression of size. Location of the nodule was slightly more on the right (44%) as compared to the left lobe and isthmus and most nodules presented with a firm consistency.

FNAC was found to be not only an easy and inexpensive mode of diagnosis but, also a highly accurate means of investigation with an accuracy of 86% in this study. Histopathological examination remains the gold standard for the final correct diagnosis of a solitary thyroid nodule. [1] [2]

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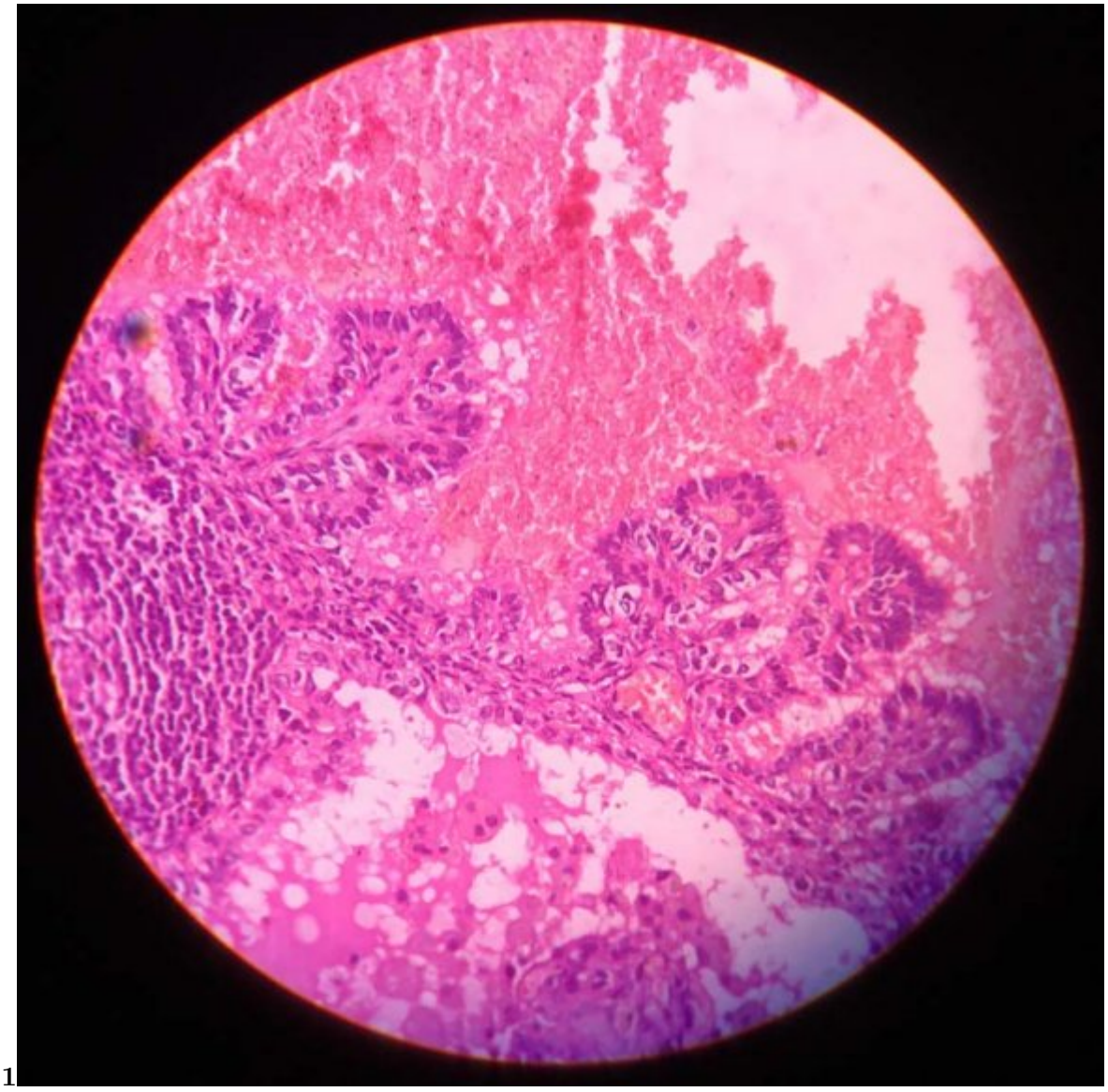

Figure 1: Fig. 2 : 1 JAFig. 1 :

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	Age Distribution	
Age in years	No. of cases	Percentages (%)
0-9	0	0%
10-19	7	14%
20-29	8	16%
30-39	17	34%
40-49	8	16%
50-59	4	8%
60-69	5	10%
70 & above	1	2%
	Sex Distribution	
Sex	No. of cases	Percentage (%)
Male	7	14%
Female	43	86%
	Duration of Swelling	
Duration (months)	No. of cases	Percentage (%)
0-12	25	50%
13-24	10	20%
25-36	6	12%
37-48	4	8%
49-60	1	2%
61-72	1	2%
73-108	0	0%
109-120	3	6%
	Symptoms of Patient	
Symptoms	No. of cases	Percentage (%)
Swelling	50	100%
Gradual progression	46	92%
Rapid progression	4	8%
Associated pain	1	2%
Dysphagia	2	4%
Difficulty in breathing	1	2%
Hoarseness	1	2%
Decrease appetite	1	2%
Weight loss	1	2%
Lymphadenopathy	1	2%
	Location of Swelling	
Location	No. of cases	Percentage (%)
Right lobe	22	44%
Left lobe	18	36%
Isthmus	10	20%
	Consistency of Swelling	
Consistency	No. of cases	Percentage (%)
Cystic	3	6%
Soft	8	16%
Firm	38	76%
Hard	1	2%

Figure 2: Table 1 :

2

FNAC Results		
Cytology	No. of cases	Percentage (%)
Colloid Goiter	30	60%
Papillary Carcinoma	9	18%
Follicular Carcinoma	7	14%
Hashimoto's Thyroiditis	1	2%
Hurthle's Neoplasm	2	4%
Lymphocytic Thyroiditis	1	2%
Ultrasound Results		
Ultrasound	No. of cases	Percentage (%)
Cystic	30	60%
Solid	12	24%
Suspected Malignancy	8	16%
Histopathological Results (HPE)		
HPE	No. of cases	Percentage (%)
Colloid Goitre	27	54%
Papillary Carcinoma	14	28%
Follicular Adenoma	6	12%
Follicular Carcinoma	0	0
Hashimoto's Thyroiditis	1	2%
Hurthle's Carcinoma	1	2%
Squamous Cell Carcinoma	1	2%

Figure 3: Table 2 :

3

Type	FNAC (%)	Subdivision	HPE	%
Colloid Goitre	30 (60%)		27	54%
Papillary Carcinoma	9 (18%)		14	28%
Follicular Neoplasm	7 (14%)	Follicular Adenoma	6	12%
		Follicular Carcinoma	0	
Hashimoto's Thyroiditis	1 (2%)		1	2%
Hurthle's Neoplasm	2 (4%)	Hurthle's Carcinoma	1	2%
Lymphocytic Thyroiditis	1 (2%)			
Squamous Carcinoma			1	2%

Figure 4: Table 3 :

4

Female	No. of cases	Percentage %	Male	No. of cases	Percentage %
Malignant	13	30.2%	Malignant	3	42.8%
Benign	30	69.8%	Benign	4	57.2%
Age group		Total cases	Malignancy		Percentage
< 20 years		7		3	42.85%
>60 years		6		2	33.33%
20-60 years		37		6	16.21%

Figure 5: Table 4 :

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