



CLINICAL EVALUATION AND MANAGEMENT OF SOLITARY NODULE OF THYROID IN EUTHYROID PATIENTS

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ABSTRACT

BACKGROUND: Solitary nodules of the thyroid have been the area of focus in research since Warren Colein 1949. It is an area of research with much potential because of its diverse clinical presentation and its wide-ranging etiology and often the risk of malignancy. But the studies assessing the prevalence and clinical profile of solitary thyroid nodules are relatively scarce from India. Hence the current study was conducted with the objective of determining the prevalence of solitary nodule of thyroid in general Population and to determine the proportion of a solitary nodule of thyroid turning out to be multinodular goitre on subsequent evaluation. The study has also assessed the role of FNAC in the management of solitary nodule of the thyroid and estimated incidence of carcinoma as a cause of solitary Nodule of the thyroid to determine the underlying cause of Solitary nodule of thyroid (SNT) by the HPE.

MATERIALS & METHODS: This study was a prospective study conducted in the Department of General surgery in KATURI MEDICAL COLLEGE from November 2016 to May 2018 for a period of 1.5 years. The study population included Solitary Nodule of Thyroid admitted to the Department of General surgery at Katuri medical college were considered as the study population. The prevalence was computed against all the OPD attendees in the defined study period. The findings of ultrasonography, FNAC and HPE were compared using cross tabulation. Since the study did not attempt to test any hypothesis, No statistical test of significance was used. IBM SPSS statistical software version 21 was used for data/analysis.

RESULTS: During the study period, the total number of subjects attending the Outpatient department were 6485. Among all the outpatient attendees, the prevalence of solitary thyroid nodule was 1.23% with 95% CI ranging from 0.96% to 1.5%. Out of 80 clinically diagnosed solitary thyroid nodule cases multi nodular goitre was found in 7 (8.8%) subjects on subsequent evaluation. In USG, 51.3% had Hyper Echogenic Nodule while 23.8% had Mixed Echogenic Nodule. In 8.8%, the nodule turned out to be a part of Multi Nodular Goiter while 7.5% had Suspicious Multi Nodular Goiter. In FNAC, 86.2% of the nodules were benign on FNAC. The majority (32.50%) were Benign Colloid Nodules. 26% were colloid nodules in FNAC. 13.8% of the nodules were malignant in FNAC. Papillary thyroid carcinoma was seen in 12.5% in FNAC. In HPE, the majority (78.5%) were benign nodules. Only 21.5% were malignant. In HPE, 32.5% were a benign follicular adenoma. The proportion of Colloid Nodule was 31.3%, and nodular goitre was 5%. The proportion of Papillary Thyroid Carcinoma, Hashimoto's thyroiditis, Well-Differentiated PTC, Anaplastic ca. of Thyroid was 13.80%, 3.80%, 2.50% and 1.3% respectively.

CONCLUSIONS: The current study had assessed the burden and clinic pathologic profile of solitary thyroid nodule cases. The study findings is an important addition to the existing evidence and guide the clinicians at various levels in evidence based evaluation and management of the patients with solitary thyroid nodule.

KEYWORDS :

INTRODUCTION

"Thyroid nodular disease (TND) comprises a wide spectrum of disorders including a solitary nodule, multinodular goitre (MNG), nodular goitre observed in autoimmune thyroid disease (AITD), i.e. chronic lymphocytic thyroiditis (Hashimoto thyroiditis (HT)) or Graves' disease (GD)[1]. Thyroid origin of the thyroid nodule is attributed to amplification of thyroid heterogeneity resulting from genetic and/or epigenetic mechanisms[2]. Basing on the macroscopic appearance and histopathological findings, thyroid nodules may be classified as adenomas, carcinomas, or hyperplastic lesions[3] The other way of classifying them as per histological findings is hyperplastic, neoplastic, colloid, cystic and thyroiditis nodules[2]. In Indian literature, it has been reported that the incidence of solitary nodule of thyroid is around 9%. Solitary nodules of the thyroid have been the area of focus in research

for thyroidologists since Warren Cole in 1949[4] In his study he concluded that on comparison with MNG, the prevalence of malignancy is higher in SNT[4]. It is an area of research with much potential because of its diverse clinical presentation and its wide-ranging aetiology. The conditions of the thyroid which can present as a solitary nodule include adenoma, carcinoma of the thyroid, a thyroid cyst and nodule which is palpable in an evolving MNG. Hence, almost all of the conditions involving the thyroid can present as a solitary nodule. The major portions of thyroid nodules are likely to be asymptomatic. Majority of them are euthyroid, with less than 1% presenting with clinical or subclinical hyperthyroidism or thyrotoxicosis [5]. With regards to diagnosis, FNAC has become the single most important tool for evaluating thyroid swellings. In a thyroid swelling, the risk of cancer is 12 times high compared to normal thyroid. Uni-nodular goitre presents

a significant problem with regards to making a decision for surgery, because of the variation in the proportion of subjects with malignancy in such cases [6]. So, we carried out our study to determine the prevalence of solitary nodule of thyroid and the proportion of SNG turning into MNG. We also wanted to compare its prevalence in euthyroid, hyperthyroid and hypothyroid subjects and also determined the underlying causes by HPE.

METHODOLOGY:

This "clinical evaluation and management of solitary nodule of thyroid in euthyroid patients" has been carried out in department of general surgery, Katuri Medical College and Hospital, Guntur. This was a prospective study.

The data collection for the study was done from November 2016 to May 2018 for a period of 1.5 years. Patients admitted to surgical wards with features of solitary thyroid nodule were included in the study. Patients with diffuse enlargement of the thyroid, Patients presenting with MNG clinically were excluded from the study. Descriptive analysis was carried out by the mean and standard deviation for quantitative variables, frequency and proportion for categorical variables.

RESULTS:

During the study period, the total numbers of subjects attending the Outpatient department were 6485.

Table 1: Prevalence of Solitary thyroid nodule among OPD population (N=6485)

Diagnosis	Number	Percentage	95% C.I.	
			Lower	Upper
Solitary thyroid nodule	80	1.23	0.96	1.5
Other conditions	6045	98.77	98.5	99.05

OBSERVATION:

Among all the outpatient attendees, the prevalence of solitary thyroid nodule was 1.23% with 95% CI ranging from 0.96% to 1.5%. For subsequent analysis, the 80 subjects with Solitary thyroid nodule were included in the study.

Table 2: proportion of multinodular goitre among clinically diagnosed SNT

PARAMETER	FREQUENCY	PERCENTAGES
Multi nodular Goiter	7	8.80
No Multinodular Goiter	73	91.2

OBSERVATION:

Out of 80 clinically diagnosed solitary thyroid nodule cases multi nodular goitre was found in 7 (8.8%) subjects on subsequent evaluation.

Table 3: Descriptive analysis of age in study population (N=80)

Parameter	Mean ± SD	Median	Min	Max	95% C.I.	
					Lower	Upper
Age	44.05 ± 11.93	44.00	21.00	76.00	41.40	46.70

OBSERVATION:

The mean age was 44.05 ± 11.93 in the study population, the minimum age was 21 years, and the maximum age was 76 years (95% CI 41.40 to 46.70).

Table 4: Descriptive analysis of age group in the study population (N=80)

Age Group	Frequency	Percentages
Up to 30	13	16.3
31 to 40	17	21.3
41 to 50	33	41.3
51 to 60	10	12.5
61 and above	7	8.8

OBSERVATION:

Among the study population, 13 (16.30%) participants were aged up to 30, 17 (21.30%) were aged from 31 to 40, 33 (41.3%) were aged between 41 to 50, 10 (12.50%) were aged between 51 to 60 and 7 (8.8%) were aged 61 and above.

Table 5: Descriptive analysis of gender in the study population (N=80) Gender Frequency Percentages

Gender	Frequency	Percentages
Male	7	8.80
Female	73	91.30

OBSERVATION:

Among the study population, 7 (8.80%) participants were male and remaining 73 (91.30%) were female.

Table 6: Descriptive analysis of duration of swelling (in months) in the study population (N=80)

Parameter	Mean ± SD	Median	Min	Max	95% C.I.	
					Lower	Upper
Duration in months	30.99 ± 16.02	24.00	2.00	72.00	27.42	34.55

OBSERVATION:

The mean duration of swelling (in months) was 30.99 ± 16.02 in the study population, ranged between 2 to 72 months (95% CI 27.42 to 34.55).

Table 7: Descriptive analysis of duration (in months) in the study population (N=80)

Duration (in months)	Frequency	Percentages
Upto 12 months	16	20.0
13 to 36 months	48	60.0
37 to 60 months	13	16.3
61 and above	3	3.8

OBSERVATION:

Among the study population, 16 (20%) participants were up to 12 months duration, 48 (60%) were 13 to 36 months, 13 (16.30%) participants 37 to 60 and 3 (3.8%) were 61 and above months.

Table 8: Descriptive analysis of pain and duration of pain in the study population (N=80)

Parameter	frequency	percentages
Pain		
Yes	10	12.5%
No	70	87.5%
Duration of pain (N=10)		
<30 days	7	70%
1 to 2 months	1	10%
3 months or more	2	20%

OBSERVATION:

Among the study population 10 subjects had pain. Among 10 people with pain 7 people had pain for less than 30 days, 1 subject had pain for 1 to 2 month, 2 people had pain for 3 months or more.

Table 9: Descriptive analysis of Ultrasonography in the study population (N=80)

Ultrasonography	Frequency	Percentages
Hyper Echogenic Nodule	41	51.30
Mixed Echogenic Nodule	19	23.80
cystic	7	8.80
Multi Nodular Goitre	7	8.80
Suspicious Multi nodular Goiter	6	7.50

OBSERVATION:

Among the study population, 41 (51.30%) participants had Hyper Echogenic Nodule, 19 (23.80%) participants had Mixed Echogenic Nodule, 7 (8.80%) participants had Cystic, 7 (8.80%) participants had Multi Nodular Goiter, and 6 (7.50%) participants had Suspicious Multi Nodular Goiter.

Table 10: Descriptive analysis of Fine Needle Aspiration Cytology in the study population (N=80)

Fine Needle Aspiration Cytology	Frequency	Percentage
Colloid Nodule	26	32.50
Follicular Neoplasia	23	28.70
Benign Cystic Lesion	6	7.50
Hyperplastic Thyroid Nodule	6	7.50
Nodular Goiter	6	7.50
Solitary Nodule	2	2.50
Undifferentiated Carcinoma	1	1.30
Papillary Thyroid Carcinoma	10	12.50

OBSERVATION:

Majority of 32.50% participants had Colloid Nodule. The proportion of follicular neoplasia, papillary thyroid carcinoma and the benign cystic lesions was 28.70%, 12.50% and 7.50% respectively.

Table 11: Descriptive analysis of Benign lesions on FNAC in the study population (N=69)

Benign lesion	Frequency	Percentage
Nodular goitre	6	8.70
Colloid Nodule	26	37.70
Benign Cystic Lesion	6	8.70
Hyperplastic Thyroid Nodule	6	8.70
Follicular Neoplasia	23	33.30
Solitary Nodule	2	2.90

OBSERVATION:

Majority of 37.70% participants were Colloid Nodule Benign lesions on FNAC. The proportion of Follicular Neoplasia, Solitary Nodule, Nodular Goiter, Benign Cystic Lesions and Hyperplastic Thyroid Nodule was 33.30%, 2.90% and 8.70% for each respectively.

Table 12: Descriptive analysis of malignancies on FNAC in the study population(N= 11)

Malignancies on FNAC	Frequency	Percentage
Papillary Thyroid Carcinoma	10	90.90
Un Differentiated Carcinoma	1	9.10

OBSERVATION:

Among the malignancies on FNAC, 10 (90.90%) participants had papillary Thyroid Carcinoma and remaining 1 (9.10%) had Undifferentiated Carcinoma.

Table 13: Descriptive analysis of Surgery in the study population (N=80)

Surgery	Frequency	Percentage
Hemithyroidectomy	61	76.30
Total thyroidectomy	10	12.50
Total thyroidectomy+ nodal dissection	6	7.50
Subtotal thyroidectomy	3	3.80

OBSERVATION:

Among the study population, 61 (76.30%) participants had hemithyroidectomy, 10 (12.50%) participants had a total thyroidectomy, 6 (7.50%) participants had total thyroidectomy + nodal dissection, and 3 (3.80%) participants had a subtotal thyroidectomy. Among the 80 patients 6 (7.5%) patients had lymph nodal enlargement on ultrasonography.

Table 14: Descriptive analysis of Histopathology Report in the study population(N=80)

Histopathology Report	Frequency	Percentage (%)
Benign follicular adenoma	26	32.50
Colloid Nodule	25	31.30
Papillary Thyroid Carcinoma	11	13.80
Nodular Goiter	4	5.00
Hashimoto's Thyroiditis	3	3.80
Well Differentiated PTC	2	2.50
Anaplastic carcinoma of thyroid	1	1.30
Benign Cystic lesion	1	1.30
Follicular variant of PTC	1	1.30
Hobnail variant of PTC	1	1.30
Hurthle cell adenoma	1	1.30
Hurthle cell type BFA	1	1.30
Minimally invasive Follicular ca.	1	1.30
Multinodular goitre	1	1.30
Thyroiditis	1	1.30

OBSERVATION:

Majority of 32.50% participants were reported benign follicular adenoma. The proportion of Colloid Nodule, Papillary Thyroid Carcinoma, Nodular Goiter, Hashimoto's thyroiditis, Well-Differentiated PTC, Anaplastic ca. of Thyroid, Benign Cystic Lesion, Follicular variant of PTC, Hobnail variant of PTC, Hurthle cell Adenoma, Hurthle cell type BFA, Minimally Invasive follicular ca., Multinodular goitre and Thyroiditis was 31.30%, 13.80%, 5%, 3.80%, 2.50% and 1.30 for each respectively.

Table 15: Comparison of the benign lesions in FNAC and histopathology report (N=69)

FNAC	NO. of cases	Histopathology Report	N(%)
Benign cystic lesion	6	Benign cystic lesion	1(16.7)
		Benign Follicular adenoma	5(83.3)
Colloid nodule	26	Benign Follicular adenoma	1(3.8)
		Colloid nodule	24 (92.3)
		Hashimoto's thyroiditis	1(3.8)
Follicular Neoplasia	23	Benign Follicular adenoma	14(60.9)
		Follicular variant of PTC	1(4.3)
		Hurthle cell adenoma	1(4.3)
		Minimally invasive follicular	1(4.3)
		Nodular goitre	1(4.3)
		Papillary carcinoma of Thyroid	5 (21.7)
Hyperplastic Thyroid Nodule	6	Benign follicular nodule	4 (66.7)
		Colloid nodule	1(16.7)
		Hurthle cell type BFA	1 (16.7)
Nodular Goiter	6	Hashimoto's Thyroiditis	2 (33.3)
		Multinodular Goiter	1(16.7)
		Nodular Goiter	2 (33.3)
		Thyroiditis	1(16.7)
Solitary Nodule	2	Benign Follicular adenoma	2(100)

OBSERVATION:

Among the benign cystic lesions on FNAC, 1 (16.7%) participant was reported in benign cystic lesions on histopathology and 5 (83.3%) were reported in benign follicular adenoma. Among the benign colloid nodule on FNAC, 1 (3.8%) participant was reported in benign cystic lesions on histopathology, 24 (92.3%) were reported in colloid nodule, and 1 (3.8%) was reported in Hashimoto's thyroiditis. Among the benign follicular neoplasia on FNAC, 14 (60.9%) participants were reported in benign follicular adenoma on histopathology, 1(4.3%) was reported in follicular variant of PTC, 1 (4.3%) was reported in Hurthle cell adenoma, 1 (4.3%) was reported in minimally invasive follicular carcinoma, 1

(4.3%) was reported in nodular goitre and 5 (21.7%) were reported in papillary thyroid carcinoma. Among the benign hyperplastic thyroid nodule on FNAC, 4 (66.7%) participants were reported in benign follicular adenoma on histopathology, 1 (16.7%) was reported in colloid nodule, and 1 (16.7%) was reported in hurthle cell type BFA. Among the benign nodular goitre on FNAC, 2 (33.3%) participants were reported in Hashimoto's thyroiditis on histopathology, 1 (16.7%) was multi nodular goitre, 2 (33.3%) were reported in nodular goitre and 1 (16.7%) was reported in thyroiditis. Among the benign solitary nodule on FNAC, 2 (100%) participants were reported in benign follicular adenoma on histopathology.

Table 16: Comparison of the malignancies on FNAC and histopathology report

FNAC	NO.of Cases	Histopathology report	N(%)
Papillary Thyroid Carcinoma	10	Hobnail variant of PTC	1(10)
		Nodular Goitre	1(10)
		Papillary Thyroid carcinoma	6(60)
		Well differentiated PTC	2(20)
Un differentiated Carcinoma	1	Anaplastic ca.of Thyroid	1(100)

OBSERVATION:

Among the Papillary Thyroid Carcinoma on FNAC, 1 (10%) participant were reported in Hobnail variant of PTC on Histopathology 1 (10%) was reported in Nodular Goiter, 6 (60%) were reported in Papillary Thyroid Carcinoma, and 2 (20%) were reported in Well Differentiated PTC. Single case of Undifferentiated Carcinoma on FNAC, 1 (100%) was reported as anaplastic ca. of Thyroid on Histopathology also.

Table 17: Comparison of benign lesions and malignancies on FNAC and ultrasonography (N = 80)

FNAC	No. of cases	Ultrasound	N(%)
Benign	69	Cystic	7(10.1)
		Hyperechogenic nodule	41(59.4)
		Mixed echogenic nodule	12(17.4)
		Multinodular goitre	6 (8.7)
		Suspicious Multinodular goitre	3(4.3)
Malignancies	11	Mixed Echogenic Nodule	7(63.6)
		Multinodular goitre	1 (9.1)
		Suspicious Multinodular goitre	3 (27.3)

OBSERVATION:

Among the 69 benign lesions on FNAC, 7 (10.1%) participants were reported as cystic on Ultrasound, 41 (59.4%) were reported as Hyper Echogenic Nodule, 12 (17.4%) were reported as Mixed Echogenic Nodule, 6 (8.7%) were reported as Multi Nodular Goiter and 3 (4.3%) were reported as Suspicious Multi Nodular Goiter. Among the malignancies on FNAC, 7 (63.6%) participants were reported as Mixed Echogenic Nodule on Ultrasound, 1(9.1%) were reported as Multi Nodular Goiter, and 3 (27.3%) were reported as Suspicious Multi Nodular Goiter.

Table 18: Comparison of HPE and ultrasonography (N = 80)

Ultrasound	No.of cases	Histopathology	N (%)
Cystic	7	Benign Cystic Lesion	1 (14.3)
		Colloid nodule	6(85.7)
Hyper Echogenic Nodule	41	Benign Follicular adenoma	19(46.3)
		Colloid nodule	19(46.3)
		Follicular variant of PTC	1(2.4)
		Hurthle cell adenoma	1(2.4)
		Hurthle cell type BFA	1(2.4)

Mixed Echogenic Nodule	19	Anaplastic ca. of thyroid	1(5.3)
		Benign Follicular adenoma	7(36.8)
		Hashimoto's thyroiditis	1(5.3)
		Hobnail variant of PTC	1 (5.3)
		Minimally invasive follicular	1 (5.3)
		Papillary thyroid carcinoma	6 (31.6)
Multinodular goitre	7	Well differentiated PTC	2(10.5)
		Multinodular goitre	1 (14.3)
		Nodular goitre	4(57.1)
Suspicious Multinodular Goiter	6	Papillary thyroid carcinoma	2(28.6)
		Hashimoto's thyroiditis	2(33.3)
		Papillary ca.thyroid	3(50)
		Thyroiditis	1(16.7)

OBSERVATION:

Among the 7 Cystic lesions as per ultrasound, 1 (14.3%) participant had cystic lesion on Histopathology and 6(85.7%) were reported as Colloid Nodule. Among the 41 Hyper Echogenic Nodules on Ultrasound, 19 (46.3%) participants were reported as Benign follicular adenoma on Histopathology, 19 (46.3%) were reported as Colloid Nodule, 1(2.4%) was reported as Follicular variant of PTC, 1 (2.4%) was reported as Hurthle Cell Adenoma and 1 (2.4%) was reported as Hurthle cell type of BFA.Among the 19 Mixed Echogenic Nodule Ultrasound, 1 (5.3%) participant was reported as Anaplastic ca. of Thyroid on Histopathology, 7 (36.8%) were reported as Benign follicular adenoma, 1 (5.3%) was reported as Hashimoto's thyroiditis, 1 (5.3%) was reported as Hobnail variant of PTC, 1 (5.3%) was reported as Minimally Invasive follicular, 6 (31.6%) were reported as Papillary Thyroid Carcinoma and 2 (10.5%) were reported as Well Differentiated PTC.Among the Multi Nodular Goiter cases on ultrasound, 1 (14.3%) participant was reported as Multi Nodular Goitre on Histopathology, 4 (57.1%) were reported as Nodular goitre and 2(28.6%) were reported as Papillary Thyroid Carcinoma. Among the 6 suspicious Multi Nodular Goiter cases on ultrasound, 2 (33.3%) participants were reported as Hashimoto's thyroiditis on Histopathology, 3 (50%) were reported as Papillary Thyroid Carcinoma, and 1 (16.7%) was reported as thyroiditis.

DISCUSSION:

Among all the outpatient attendees the prevalence of clinically detectable solitary thyroid nodule was 1.23% with 95% CI ranging from 0.96% to 1.5%.In the current study. A community based study by Jiang H et al have reported an age standardized prevalence of 40.1% among the community dwelling adults aged 18 years and above. The key differences between this study and our study were, it is a community based study, as compared to outpatient attendees in our study and all the study participants were screened by ultrasound. In another community based study by Song J et al the prevalence rates of TNs in the whole population, females and males were 27.76%, 34.04%, and 21.60%, respectively. This study also had used ultrasonography for screening of the study population, as compared to clinical examination in our study. As per this study, the proportion of multiple TNs was 8.50%, in subjects aged below 20 years, which then slightly decreased to 8.05% in subjects aged 20-30 years. Then, the prevalence increased to 33.24%. Another recent Indian study by Kishan AM et al has evaluated the patients attending the outpatient department with swelling in the thyroid region. As per this study, the prevalence of solitary thyroid nodule was found to be 19.2% as diagnosed by ultrasound.

FNAC:

In our study, 86.2% of the nodules were benign on FNAC. The majority (32.50%) were Colloid Nodules in our study. In our study only 13.8% of the nodules were malignant. The incidence of malignancy was only 7.46% in the study by Deepthi Met al[7]. In the study by Chakraborty M et al[8]also

FNAC showed that 14% of the nodules were malignant. In their study also similar to our study, 26% were colloid nodules in FNAC. Nodular goitre was seen in 17% of subjects by FNAC in their study compared to 7.5% in our study. 4% were benign cystic lesions in their study compared to 7.5% in our study. The proportion of follicular neoplasia was 16% in their study compared to 28.7% in our study. Papillary thyroid carcinoma was seen in 12.5% in our study compared to 9% in their study.

TYPE OF SURGERY:

In our study, 76.3% had hemi thyroidectomy while 12.5% had a total thyroidectomy. Also, 7.5% had total thyroidectomy with nodal dissection. Deepthi Met al [7] in their study similar to our study observed that hemithyroidectomy was done in 74% of benign STN 65 patients and a total thyroidectomy was done in malignant nodule and MNG patients and followed-up by lifelong L-T4 therapy. They concluded that "Small benign solitary nodules regress with medical therapy alone. In large solitary nodules, and in those nodules not regressing with medical therapy, hemithyroidectomy is adequate. In MNG and malignant nodules, total thyroidectomy is advocated".

CORRELATION BETWEEN FNAC AND HPE:

In the study by Chakraborty M et al[8], FNAC was found to have a sensitivity of 82.4% with a specificity of 100% compared to HPE in detecting benign and malignant lesions with a PPV of 100%. In our study, among the benign cystic lesion, colloid nodule, nodular goitre, solitary nodule, hyperplastic thyroid nodule on FNAC all was benign on HPE. But 21.7% of follicular neoplasia on FNAC was reported as papillary thyroid carcinoma. Among the malignant lesions on FNAC, only one was benign on HPE. Hence, FNAC is more sensitive and specific in malignant lesions compared to benign lesions for diagnosis. In the study by Keh SM et al[9], the malignancy rate in patients with a truly solitary nodule was 34.4 per cent, with a mean age at diagnosis of 53 ± 15 years and a female-to-male ratio of 2:1. Gupta Met al[10] reported that, 15 cases of solitary thyroid nodules were diagnosed as having malignant and the most common malignant lesion detected was papillary carcinoma, 12 out of 15 (80%).

CONCLUSIONS:

A solitary nodule of thyroid can be a truly isolated nodule, or it can be a part of multinodular goitre which may be presenting clinically as a single or malignant nodule. Among all the outpatient attendees the prevalence of solitary thyroid nodule was 1.23% with 95% CI ranging from 0.96% to 1.5%. Out of 80 clinically diagnosed solitary thyroid nodule cases multi nodular goitre was found in 7 (8.8%) subjects on subsequent evaluation.

Solitary nodules of the thyroid are common in females of age group 40 to 50 years. In FNAC, 86.2% of the nodules were benign on FNAC. The majority (32.50%) were Benign Colloid Nodules. 26% were colloid nodules in FNAC. 13.8% of the nodules were malignant in FNAC. Papillary thyroid carcinoma was seen in 12.5% in FNAC. In USG, 51.3% had Hyper Echogenic Nodule while 23.8% had Mixed Echogenic Nodule. In 8.8%, the nodule turned out to be a part of Multi Nodular Goiter while 7.5% had Suspicious Multi Nodular Goiter. USG of thyroid helped us in differentiating benign nodules from malignant nodules, but only with fair accuracy compared to FNAC and HPE. The correlation between HPE and USG was poor as among the subjects detected as benign Multi Nodular Goiter by Ultrasound, 28.6% had Papillary Thyroid Carcinoma in HPE. 76.3% had hemi thyroidectomy while 12.5% had a total thyroidectomy. 7.5% had total thyroidectomy with nodal dissection. In HPE, the majority (78.5%) were benign nodules. Only 21.5% were malignant. In HPE, 32.5% were a benign follicular adenoma. The proportion of Colloid Nodule was 31.3%, and nodular goitre was 5%. The proportion of Papillary Thyroid Carcinoma, Hashimoto's thyroiditis, Well-

Differentiated PTC, Anaplastic ca. of thyroid was 13.80%, 3.80%, 2.50% and 1.3% respectively. A solitary nodule is more likely to be malignant in euthyroid asymptomatic subjects.

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