



COMPARATIVE STUDY OF VARIOUS THYROID DISORDERS IN PATIENTS WITH SOLITARY THYROID NODULE AND MULTI-NODULAR GOITRE

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ABSTRACT

Background: Thyroid disorders are the most common endocrine disorder seen in clinical practice. Among them thyroid nodules are common in clinical practice. There may be solitary within a normal thyroid gland or dominant within a multi-nodular goitre.

Aims & Objectives: To compare the study of various thyroid disorders in solitary thyroid nodule and multi-nodular goitre. **Materials & Methods:** In this study, cases with 100 clinically palpable thyroid nodules that were admitted in Vishwabharathi Medical College and general hospital, Kurnool were taken. Ultrasound was performed in all cases and results were verified. FNAC was performed in all cases and the results were correlated with subsequent histopathological reports. Indirect laryngoscopy was done for all the cases.

Results: Most of the Nodules are firm in consistency (74%) and Hard (17%), Cystic (9%). Cervical lymph node is absent in most of the cases (76%) and present in less number (24%). Reports showed benign (82%), malignant (18%). Histopathology reports showed most of the cases were Adenomas (24%) and Colloid goiter (52%).

Conclusion: Incidence of solitary nodule and Multi-nodular goiter is more common in females than males. Colloid goiter is the most common type of non neoplastic disease entity noted in our study. Follicular adenoma is the most common neoplasm. Papillary carcinoma is the most common malignancy of thyroid.

KEYWORDS : Thyroid disorders, Adenoma, Fine needle aspiration cytology, Carcinoma, Solitary Thyroid Nodule, Multi-Nodular goiter

INTRODUCTION

Thyroid disorders are the most common endocrine disorder seen in clinical practice and thyroid nodules are one of the common presentations of thyroid disease. There may be solitary within a normal thyroid gland or dominant within a multi-nodular goitre. The solitary thyroid nodule, defined as a palpably discrete swelling within an otherwise apparently normal gland, is usually a benign lesion¹. Goitre is defined as enlargement of thyroid gland². Nodules in are usually multiple, forming a multi-nodular goitre. MNG occurs in up to 12% of population. The incidence of thyroid nodules has been on rise due to Iodine deficiency, Auto immunity, Environmental influences and Neck irradiation. The prevalence of thyroid nodule increases from near zero at 15 years to 50% by about 60 to 65 years on sonography. At most 10% of these nodules are palpable even by experienced clinicians³. The majority of the thyroid nodules are asymptomatic, but because of their size and position can result in obstructive symptoms of trachea and esophagus (dyspnoea and dysphagia)². Nodules in the thyroid gland are important for their malignant potential. About 5% are found to be malignant. It is the highest among the cancer affecting endocrine glands. Cancer of the thyroid gland is most common between 20-40 years of age⁴.

Risk factors include age less than 30 years or over 60 years, male sex (8% in males and 4% in females), history of neck irradiation in childhood, and Family history of medullary carcinoma of thyroid or MEN type 2⁵. A nodule is more likely to be a carcinoma in a man⁶. The major concern relates to the potentiality for malignancy of thyroid nodule. Whether nodule size itself is a risk factor for malignancy is controversial. Evaluation of patient with thyroid nodule received much attention because carcinoma can often present as a solitary nodule. Fine needle aspiration biopsy is the single most important test in the evaluation of patients with thyroid swelling. Ultrasound is helpful for differentiating solid from cystic nodules, and for identifying lymphadenopathy. Occasionally Papillary carcinoma can coexist along side of a thyroid nodule.

Of all the thyroid disorders, the problem of thyroid nodules evoked particular attention and conflicting ideas regarding its understanding.

Aims & Objectives: To compare the study of various thyroid disorders in solitary thyroid nodule and multi-nodular goitre.

Materials & Methods: In this study 100 cases of clinically palpable thyroid nodules (STN and MNG) that were admitted in

Vishwabharathi Medical College and general hospital, Kurnool during the period from Aug 2017 to July 2018 were studied. Toxic nodules as proved by thyroid function test are excluded. Although it is named as a clinical study, pathological study by biopsy (Histopathology) after surgical resection is included.

Results

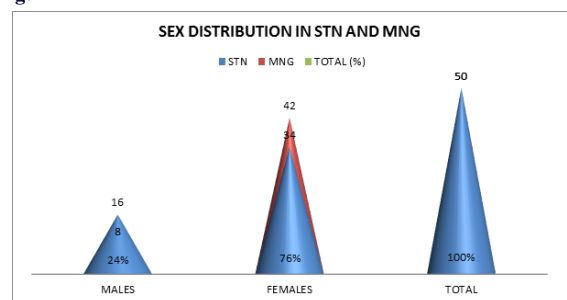
SEX DISTRIBUTION IN STN AND MNG:

Total numbers of patients studied are 100

Table: 1

SEX	Solitary Thyroid Nodule	Multi-nodular goitre	Total (%)
Males	16	8	24 (24%)
Females	34	42	76 (76%)
Total	50	50	100(100%)

Fig: 1



Females have high incidence.

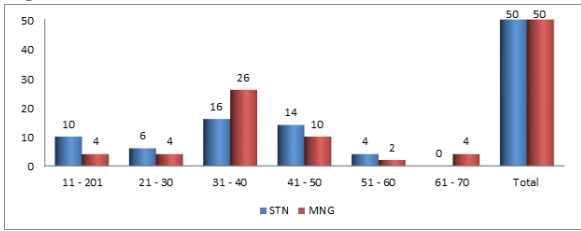
AGE DISTRIBUTION IN STN AND MNG

Total numbers of patients studied are n=100

Table: 2

AGE (years)	STN	MNG	TOTAL (%)
11 – 20	10	04	14 (14%)
21 – 30	06	04	10 (10%)
31 – 40	16	26	42 (42%)
41 – 50	14	10	24 (24%)
51 – 60	04	02	06 (6%)
61 – 70	0	04	04 (4%)
Total	50	50	100 (100%)

Fig: 2



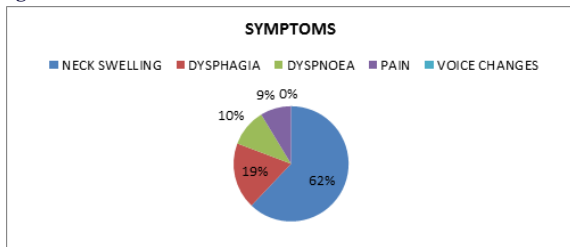
Most of the patients fall in the age group 31-40 years.

CLINICAL PRESENTATION

Table III: SYMPTOMS

MAIN SYMPTOMS	STN	MNG	TOTAL (%)
Neck swelling	17	45	62 (62%)
Dysphagia	09	10	19 (19%)
Dyspnoea	03	14	10 (10%)
Pain	02	07	09(14%)
Voice changes	00	00	00 (0%)

Fig: 3-SYMPTOMS

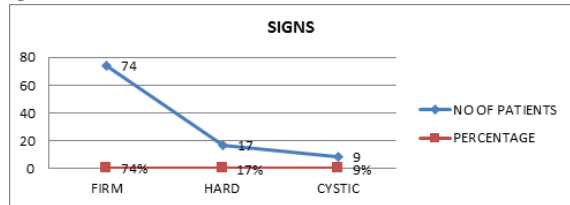


All of them present with swelling in front of neck.

Table IV: SIGNS

CONSISTENCY	NUMBER OF PATIENTS	PERCENTAGE
Firm	74	74%
Hard	17	17%
Cystic	09	9%

Fig: 4



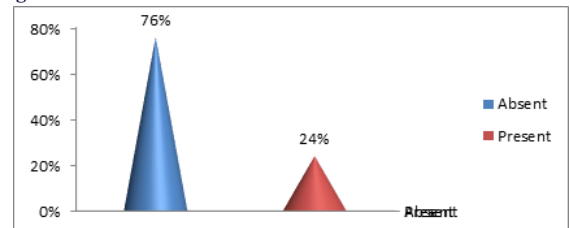
Most of the swellings are firm in consistency (74%).

CERVICAL LYMPHNODE ENLARGEMENT

Table V:

	Number of patients	Percentage
Absent	76	76%
Present	24	24%

Fig:5



Most of the patients don't have enlarged lymph nodes (92%).

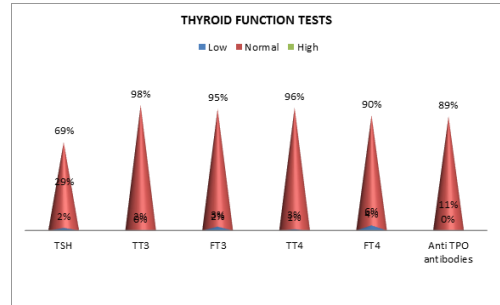
THYROID PROFILE IN STN AND MNG

Table VI: - Thyroid Function Tests

Parameter	Low	Normal	High
TSH (uIU/ml)	2 (2%)	80	69 (69%)
TT3 (ng/ml)	0 (0%)	98	98 (98%)

FT3 (pg/ml)	3 (3%)	95	95 (95%)	2 (2%)
TT4 (ug/dl)	1 (1%)	96	96 (96%)	3 (3%)
FT4 (ng/dl)	4 (4%)	90	90 (90%)	6 (6%)
Anti TPO antibodies (IU/mL)	0 (0%)		89 (89%)	11(11%)

Fig 6: - Thyroid Function Tests

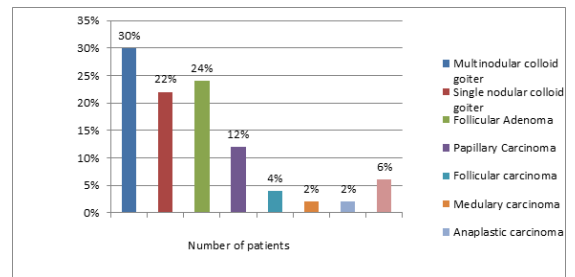


HISTOPATHOLOGY REPORTS

Table VII

Histopathology report	STN	MNG	TOTAL (Percentage)
Multinodular colloid goiter	00	30	30%
Solitary nodular colloid goiter	22	00	22%
Follicular Adenoma	14	10	24%
Papillary carcinoma	12	00	12%
Follicular carcinoma	02	02	04%
Medullary carcinoma	00	02	02%
Anaplastic carcinoma	00	02	02%
Thyroiditis	00	03	06%

Fig 7: - Histopathology Reports

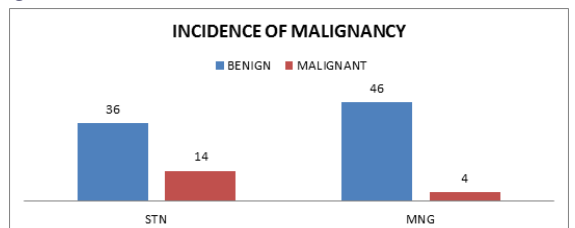


FREQUENCY OF MALIGNANCY IN STN AND MNG

Table 8

TYPES	HISTOLOGY		Total
	Benign	Malignant	
Solitary Thyroid Nodule	36	14	50
Multi nodular goiter	46	04	50
Total	82	18	100

Fig 8:-



DISCUSSION

Hundred patients presenting with thyroid nodules in euthyroid status without obvious evidence of malignancy were studied and evaluated in terms of history, clinical examination. They were subjected for relevant investigations and an appropriate surgery was done. Histopathology of operated specimen was done post operatively.

The results obtained are analyzed and compared with existing literature as follows.

GENDER OF THE PATIENT

Of the hundred cases studied, 24 are males (24%) and 76 are females

(76%) with a female to male ratio of nearly 3:1 (table 1).

AGE AT PRESENTATION

Majority of them presented in the age group between 31 – 50 years, 42 in the age group of 31-40 years & 24 in the age group of 41-50 years (table 2). This is in conformity with other data. Study done by Rahman et al have shown that, the majority of patients were within 31-40 years age group^{6,7}

CLINICAL PRESENTATION

The Chief complaint in our patients was swelling in front of the neck (Table 3) which was present in all (62%). However only few patients had associated local symptoms like difficulty in swallowing (19%) and breathing (10%). The size of the swelling increased gradually in 88 cases (88%), rapidly in 4 cases (4%) and was stationary in 8 cases (8%). Most of the swellings (91%) were not associated with pain and only 9 had pain.

Most of the swellings (74%) are firm (table 4). Not all carcinomas were hard and as some benign swellings (17/78) were also hard, consistency cannot be relied upon in diagnosing thyroid cancers. Similarly only 8 patients out of 22 proven carcinomas (36%) presented with cervical lymph nodes (table 5).

In this series, after operation, histopathological report analysis (Table: 7, Fig: 7) was done and found that nodular colloid goitre was 52% (30% + 22%), follicular adenoma was 24%, papillary carcinoma was 12%, follicular carcinoma was 4% & auto immune thyroiditis was 6%. Among the malignancies papillary carcinoma was 66.66%, follicular carcinoma was 22.22% and anaplastic carcinoma each was 11.11%. It was almost similar to study of zygumt and Meckenzie⁸. In this series, relative frequency of malignancy in solitary thyroid nodule was 28% and in multi-nodular goitre was 8% which co relate with study of Asraf, Rahman and Satter^{6,7,9}. In study of Rahman in solitary thyroid nodule, malignancy was 21.44% and in multi-nodular goitre was 8.1%. Another study shown & chance of malignancy 9.89%⁹. Gandolfi PP et al has studied that found 5% of thyroid nodule was malignant¹⁰. In this study frequency of malignancy differs significantly with age & sex, older patients and male sex are more prone to develop malignancy.

Summary

Clinically nodular goitre is the most common problem of thyroid disease in all ages. Clinical importance of thyroid nodule is exclusion of malignancy. Female was more commonly affected than male. The highest numbers of patients were found in age group 31-40 years. All the patients were in euthyroid state clinically & also biochemically. After operation histopathological examination revealed that nodular colloid goitre is more common, follicular adenoma is most common neoplasm, papillary carcinoma is most common malignancy noted. Relative frequency of malignancy in solitary thyroid nodule and in multi-nodular goitre was 28% and 8% respectively.

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