

A Study on Histopathological Patterns of Goitre – in A Tertiary Care Hospital

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Abstract

Background: Multi nodular goiter is the most common of all the disorders of the Thyroid gland. Multi nodular goiter is a clinicopathological entity with increased volume of the Thyroid gland and formation of nodules¹. Clinically Thyroid nodules are very common with disparity in the incidence and histopathological patterns in relation to age, sex, dietary and environmental factors². **Aims and objectives:** 1. To study Age wise and Sex wise incidence of Thyroid lesions. 2. To study Histopathological patterns and Clinical presentations of Multi Nodular Goiter. **Materials and Methods:** The present study was a Hospital based cross sectional study at Santiram Medical college and General Hospital, Nandyala in and around the hospital, between March 2022 -February 2024 (2 years). Total number of cases were 144. **Results:** Out of 144 cases, maximum cases noted in age group of 41 to 50 years. Among the non neo-plastic lesions, the common lesion was Multi Nodular Goiter (44.4%) followed by MNG with secondary changes (15.2%), Colloid goiter (12.5%), Hashimoto's Thyroiditis (9%), Lymphocytic Thyroiditis (2%). The most common benign lesion was follicular adenoma (10.4%). The common malignant lesion was papillary carcinoma of Thyroid. **Conclusion:** In the present study most common lesion was Multi Nodular Goiter in females. The Clinical history, Biochemical Tests, Ultrasound and proper Histopathological examination are essential to evaluate and to detect Benign and Malignant lesions. **Keyword:** Multi Nodular Goiter (MNG), Hashimoto's Thyroiditis, Follicular adenoma

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Received Date: 25/02/2024 Revised Date: 28/02/2024 Accepted Date: 20/03/2024

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INTRODUCTION

Thyroid disorders ranges from 4-5 % of general population, clinically present with visible Thyroid enlargement². Majority of swellings are non neoplastic and benign in nature³. Multi nodular goiter is the most common non neoplastic lesion in clinical practice³. The etiopathogenesis of Multi Nodular Goiter is not very clear. Risk factors are iodine deficiency, impairment of hormone synthesis, increased iodide clearance from the kidneys and

the presence of thyroid stimulating immunoglobulin. Goiter may be unilateral or bilateral thyroid enlargement with formation of nodule. Multi Nodular Goitre with nodules can be of varying sizes, from small to large⁵. The common investigative procedures are, USG, clinical radiological finding along with biochemical analysis, followed by FNAC and histopathological examination. The aims and objectives of present study was to find out age wise and sex wise lesions of goiter along with clinical presentation and histopathological patterns of goiter.

METHODS

The present study was a hospital based cross sectional study at Santiram Medical college and General Hospital, Nandyala, in and around the Hospital, between March 2022-February 2024. Total number of cases were 144, all the patients attending the IP and OP and fulfilling the Inclusion and Exclusion criteria were taken for study.

Inclusion criteria:

1. All the patients attending OPD with diffuse nodular swelling of Thyroid gland.
2. Both Genders with age range of 20 – 70 years.

Exclusion criteria:

1. Patient with solitary Thyroid nodule and diagnosed as carcinoma of thyroid.
2. Patient with congenital Thyroid lesion
3. Pregnant and lactating mothers
4. Immunocompromised patients
5. < 15 years and > 75 years of age.

Plan of study:

Patients with clinically diagnosis of Goiter, and undergone investigations like USG, FNAC, TFT, x-ray chest were taken into study.

Statistical analysis:

Data analysis was done using the SPSS (statistical package for the social science) version 20 for windows. The chi-square test was done to find significance and association

between clinical operative and HPE finding. Result with significance level $p < 0.05$ were accepted as the level of statistical significance.

RESULTS

In the present study, total 144 cases were analyzed during the period of March 2022-February 2024 (2 years). All the cases noted in the age range of 20 -70 years. The most common lesion noted was MNG (64 cases), and MNG with degenerative changes (22 cases). Followed by Colloid Goiter (18 cases), Hashimoto's Thyroiditis (13 cases), Follicular adenoma (15 cases), Papillary carcinoma (4 cases), and Medullary carcinoma (1 case). Majority of the cases noted were in the age range of 41-50 years.

Among 144 lesions, 103 (71.6%) noted in females, 41 (28.4%) lesion were noted in males. The female:male ratio was 2.5:1

Table 1: MNG, MNG with PTC, Hashimoto's Thyroiditis, lymphocytic Thyroiditis

lesion	Females	Males	Total (percentage)
Multinodular goiter	50	14	64(44.4%)
Mng with secondary degenerative changes	16	6	22(145.2%)
Colloid goiter	12	6	18(12.5%)
Hashimoto's thyroiditis	9	4	13(9%)
Lymphocytic thyroiditis	2	1	3(2%)
Follicular adenoma	10	5	15(10.4%)
, mng with ptc,	2	2	4(2.7%)
Papillary thyroid carcinoma	1	1	3(1.3%)
Medullary thyroid carcinoma	0	1	01(0.69%)
	103	41	144(100%)

Table 2: AGE wise and SEX wise distribution of cases

cases	21-30 years		31-40 years		41-50 years		51-60 years		61-70 years		Total	%
	F	M	F	M	F	M	F	M	F	M		
MNG	3	1	15	3	27	7	4	3	7	-	64	44.4 %
MNG with secondary changes	2	1	3	1	9	4	2	-	-	-	22	13.8 %
Colloid goitre	1	1	6	2	3	3	2	-	-	-	18	12.5 %
Hashimoto's thyroiditis	-	-	2	1	7	1	-	1	-	1	13	9.02 %
Lymphocytic thyroiditis	-	-	1	-	1	1	-	-	-	-	3	2.08 %
Follicular adenoma	1	-	4	2	5	2	-	1	-	-	15	10.4 %
MNG with PTC	-	-	1	1	1	1	-	-	-	-	4	2.78 %

Papillary Thyroid carcinom a	-	-	1	1	1	1	-	-	-	-	4	2.78 %
Medullary carcinom a	-	-	-	-	-	1	-	-	-	-	1	0.69 %
Total	7	3	33	11	55	20	08	05	1	1	144	100

Table 3: Laterality of MNG

MNG with clinical findings	No. of cases	%
Right lobe	26	18.5%
Left lobe	12	8.33%
Diffuse	90	62.5%
Total	128	100%

In the present study, diffuse enlargement were more common 90 cases (62.5%), followed by right lobe involvement 26 cases (18.5%) and left lobe involvement 12 cases (8.33%) (Table 3)

Table 4: Operative procedure wise distribution of cases.(MULTI NODULAR GOITER)

Type of surgery	No. of cases	Percentage
Total thyroidectomy	90	62.5
Hemi thyroidectomy	38	26.3
Right	26	18.5
Left	12	8.33

In our study total thyroidectomy were 90 (62.5%) more common followed by hemi thyroidectomy of 38 (26.3%) with right hemi thyroidectomy 26 (18.5%) and left hemi thyroidectomy 12 (8.33%) cases noted .(table 4)

Table 5: Multinodularity

Gross findings	No. of cases	Percentage
Mlti nodularity	64	50.2%
Cystic change	22	17.2%
Hemorrhagic areas	12	8.33%
Cystic +hemorrhagic areas	17	13.3%
Fibrosis	8	5.5%
Total	128	100

Out of 144 cases ,64 cases were Multinodularity grossly identified, followed by Cystic change 22 (17.2%) and Hemorrhagic areas 12 (8.33%) and cystic with Hemorrhage 17(13.3%), followed by Fibrosis 8 (5.5%).

Table 6: Histopathological finding wise distribution of cases

HPE findings	No. of cases	Percentage
MNG	64	44.4%
MNG with degenerative changes	22	15.2%
Colloid goitre	18	12.5%
Hashimotos Thyroiditis	13	9%
Lymphocytic Thyroiditis	3	2%
Follicular adenoma	15	10.4%
Mng with PTC	4	2.7%
Papillary carcinoma	2	1.3
Medullary carcinoma	1	0.69%
Total	144	100%

In the present study histopathologically the most common lesion was multinodular goiter 64 cases (44.1%), followed by multi nodular goiter with secondary degenerative changes 22 cases (15.2%), colloid goiter 18 cases (12.5%),Hashimotos Thyroiditis 13 cases (9%) ,Follicular adenoma 15 cases (10.4%),Multi nodular goiter with PTC 4 cases (2.7%), Papillary carcinoma 2 cases (1.3%),and Medullary carcinoma 1 case (0.69%) .(table 6)

Table 7: MULTI NODULAR GOITER with Degenerative changes

MULTI NODULAR GOITER with degenerative changes HPE	No. of cases	Percentage
Cystic change	25	19.5%
Hemorrhage	12	8.33%
Cystic with hemorrhage with macrophages	15	10.4%
Fibrosis	08	5.5%
Cystic with fibrosis	01	0.69%
calcification	01	0.69%

Table 7 shows multi nodular goiter with degenerative changes. The common change noted were cystic change 25 (19.5%), followed by Hemorrhage 12 (8.33%), Cyst with Hemorrhage and Macrophages 15(10.4%), fibrosis 8 (5.5%), cystic with fibrosis 1 (0.65%) are noted.

DISCUSSION

Thyroid disorders were the most common disorders in India⁶. The incidence is variable in relation to gender, age and racial difference.⁷ The common presentation of the disease is diffuse Nodular enlargement of the Thyroid.

Present study Comparison with other authors:

Present study	Studies correlated	Studies deferred
Out of 144 cases	Sudha <i>et al.</i> 2019	Virendra's <i>et al.</i> 2019
125 (87.5%) - females	Abdul kareem <i>et al.</i> 2008.	Anwar ket <i>et al.</i> 2011
19 (12.5) – males	Nzegwa <i>et al.</i> Knggada abdul	Alama gupta <i>et al.</i> 2016
F:M ratio 7:1	Kareem <i>et al.</i> 2005 (7:1,7:1)	Ratio (3.5:1, 3.4:1)
Majority of cases were multi nodular goiter in the age group 4-5 th decade	Latha <i>et al.</i> 2020	Virendra's <i>et al.</i> 2019
	Sridevi e al 2018	(21-30 yrs)
	Jagadale k <i>et al.</i>	Sing p <i>et al.</i> 2000
	Ramesh vl <i>et al.</i> 2014	Documented age range
	(4-5, 3-5 th decade)	(12-80 years)

CONCLUSION

Multi nodular goiter is common in the 4th and 5th decade with Female predominance. Clinical presentation is variable. Histopathological examination of the nodule is most accurate for the diagnosis and to know the secondary changes. The Histopathological report is Gold standard procedure to detect the secondary changes, Benign and Malignant change in Multi Nodular Goiter.

REFERENCES

1. LethaPadmom, Devi Beena, Kiran Sapru. Histopathological Spectrum of Thyroid Lesions- A Two Years Study. J. Evolution Med. Dent. Sci./eISSN- 2278-4802, pISSN- 2278-4748/ Vol. 9/ Issue 07/ Feb. 17, 2020
2. Virendra S. Athavale, Saurabh M. Thakkar*, Debabrata D. Gope, Akriti R. Tulsian, Sree Kumar B., Jyotsna C. Gogineni. A clinicopathological study of multinodular goitre. International Surgery Journal | March 2019 | Vol 6 | Issue 3
3. Anirban Mitra. Thyroid, In: Robbins Pathologic Basis of Disease. Cotran RS, Kumar V, Collins T editors. 8th ed. Philadelphia. WB Saunders Co; 2010. 1107-26
4. Faquin WC. The thyroid gland: recurring problems in histologic and cytologic evaluation. Arch Pathol Lab Med. 2008 Apr;132(4):622-32. doi: 10.1043/1543-2165 (2008) 132[622:TTGRPI]2.0.CO;2
5. Wilson JD, Foster DW. "The Thyroid gland," Williams Textbook of Endocrinology. 1992;8:463- 465
6. Kochupillai N. Clinical endocrinology in India. CurrSci 2000;79 (8):1061-7.
7. Sreedevi AR, Sheela KM. Histopathological spectrum of non-neoplastic and neoplastic lesions of thyroid- 2 year study in a tertiary care teaching hospital. JMSCR 2018;6 (6):514-9
8. Jagadale K, Srivastava H, Nimbargi R. Recent trends in distribution of thyroid lesions in a tertiary care hospital in India. Ejleps 2016;3 (4):234-9
9. Ananthakrishnan N, Rao KM, Narasimhans R, *et al.* The single thyroid nodule: a south Indian profile of 503 patients with special reference to incidence of malignancy. Indian J Surg 1993;55 (10):487-92
10. Abdulkareem FB, Banjo AA, Elesha SO. Histological review of thyroid lesions: a 13 year retrospective study (1989-2001). Niger Postgrad Med J 2005;12 (3):210-4
11. Shalini RS, Sudha I. Title - histopathological spectrum of thyroid gland lesions in a tertiary care center- a five year retrospective study. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) 2019;18 (2):70-3
12. Anwar K, Din G, Zada B, Shahabi I. The frequency of malignancy in nodular goiter-A single center study. J Postgrad Med Inst (Peshawar-Pakistan). 2011 Dec 29;26(1):96-101.

Source of Support: None Declared
Conflict of Interest: None Declared