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## Clinical Evaluation and Management of Multi Modular Goitre at A Tertiary Care Hospital

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### ABSTRACT

An endemic goitre is one in which more than 10% of the population has thyroid enlargement. Thyroid gland diseases, particularly multinodular goitre caused by iodine insufficiency, are common in India. Present study aimed to assess the clinical pattern, presentation and management of multi nodular goitre. The present prospective observational study was conducted at Trir institute of medical sciences, Patancheru for the period of one year during June 2021 to May2022, among patients attending surgery department with evidence of multinodular goitre. The patients were included after obtaining the informed consent, and underwent clinical evaluation. The patients diagnosed with MNG were subjected to investigations and surgical management. Data were entered in excel sheet and analysed using SPSS v26.0 operating on windows 10. A  $p < 0.05$  was considered statistically significant. Result: A total of 100 patients with multinodular goitre were included with 86% female patients and 14% male patients. The Chief complaint in our patients (100 %) was swelling in front of the neck. There was family history of goitre in 4 cases. There were four reports of retrosternal goitre. On FNAC, the majority of the patients (78%) had colloid goitre. With a complication incidence of 18%, 32 patients received complete or near total thyroidectomy while the remaining 68 instances got partial thyroidectomy. In our study, there was no death recorded. MNG is the commonest thyroid disease in our hospital, more common in females, with chief complaints of swelling in front of the neck. FNAC is very useful in the diagnosis and management of MNG.

## INTRODUCTION

The thyroid gland is an endocrine gland that is located in the lower front and sides of the neck<sup>[1,2]</sup>. Its primary job is to regulate the basal metabolic rate, as well as to drive somatic and cognitive development and to play an essential part in calcium metabolism<sup>[3]</sup>. The name thyroid is derived from the Greek word meaning shield (Thyros-shield, eidos-form)<sup>[4-6]</sup>.

The normal thyroid gland is impenetrable. The most prevalent sign of thyroid illness is thyroid gland enlargement<sup>[7,8]</sup>. The enlargement might be universal or localised and it can also be poisonous or benign. Nontoxic goitre is further classified etiologically as endemic goitre and sporadic goitre. An endemic goitre is one in which more than 10% of the population has thyroid enlargement<sup>[9]</sup>. Thyroid gland diseases, particularly multinodular goitre caused by iodine insufficiency, are common in India.

Thyroid lesions are 5:1 more common in females, which has been ascribed to changes in thyroid hormone throughout female reproductive function and physiological processes such as puberty, pregnancy, and breast-feeding. The prevalence of nodular goitre increases with age. MNG can progress to cancer, however this is uncommon<sup>[10,11]</sup>. Present study aimed to assess the clinical pattern, presentation and management of multinodular goitre. Also focused to compare and correlate the findings of investigation with histopathology results.

## MATERIALS AND METHODS

The present prospective observational study was conducted at Trir institute of medical sciences for the period of one year during June 2021 to May 2022, among patients attending surgery department with evidence of multinodular goitre. The patients were included after obtaining the informed consent and underwent clinical evaluation. The patients diagnosed with MNG were subjected to investigations included complete blood count, urine analysis, random blood sugar, serum urea, creatinine, blood grouping and Rh typing, serum cholesterol, x-ray of the neck-AP and lateral views and chest X-ray and ENT examination. All patients were investigated for Thyroid profile and some patients for Thyroid Isotope scan before surgery and submitted for FNAC of the thyroid swelling. All patients underwent surgery and all the excised thyroid specimen were sent for Histopathological examination.

**Statistical analysis:** Data were entered in excel sheet and analysed using SPSS v26.0 operating on windows 10. The data were summarised as mean, standard deviation, frequency and percentage. The summarised data were represented using tables, figures and bar diagram. A  $p < 0.05$  was considered statistically significant.

## RESULTS

Present study total of 100 patients with multinodular goitre were included after obtaining the informed consent.

## DISCUSSIONS

Hundred patients presenting with Multinodularity of the thyroid gland without obvious evidence of malignancy were studied and evaluated in terms of history, clinical examination and subjected for relevant investigations, taken up for surgery with prior FNAC and histopathology of operated specimen done post operatively. Of the hundred cases studied, 14 were males (14 %) and 86 were females (86%) with a female to male ratio of 6:1. Antonio Rios et al. (2005) showed that 90% were females<sup>[12]</sup>. In the study conducted in Tsan et al., female to male ratio was 7:1<sup>[13]</sup>.

Table 1 shows the age and sex distribution of the patients studied. 43.2% (6 cases) of the males presented in the age group of 51 yrs and above. Where as among females 28% presented in the age group of 21-30 and 31-40 yrs equally. Majority of the females 56%, (56 cases) presented in the age group between 21-40 years. But in the western literature quoted by "Bremer and Moll Night" in analysis of 1280 cases of Multinodular goitre, the age incidence was maximum between 40-49 yrs. Hence the average age incidence in our study is low compared to western series. In our study maximum age of presentation was 70 yrs and minimum age was 18 yrs with an average age incidence of 35 yrs.

Pressure symptoms were observed in 22% (22 instances) of the participants, compared to 29% in the Antonio rios et al.<sup>[12]</sup> research. In our study, 16 individuals (16%) had difficulties eating and

Table 1: Age wise distribution of patients

Age in yrs	Male	Female	Total	Percentage
11-30	2	32	34	34.0
30-50	6	46	52	52.0
>51	6	8	14	14.0

Table 2: Clinical pattern of the patients with multinodular goitre

		Frequency	Percent
Duration of swelling	1m-1yr	62	62.0
	1-5yr	28	28.0
	5-10yrs	4	4.0
	>10yrs	6	6.0
Progression of swelling	Gradual	88	88.0
	Rapid / Quick	4	4.0
	Stationery	8	8.0
Pain of swelling	Nil	86	86.0
	Present	14	14.0
Pressure symptoms	Yes	22	22.0
	No	78	78.0
Family history of Goitre	Yes	4	4.0
	No	96	96.0
Toxicity	Yes (M/F)	34 (2/32)	34.0
	No	54 (12/54)	66.0
Lower border	Seen	96	96.0
	Not seen	4	4.0
Tracheal position	Central	98	98.0
	Shifted to left	2	2.0
	Shifter to right	0	0.0

Table 3: Distribution of the diagnostic and management outcome of multinodular goitre

		Frequency	Percent
Report of FNAC	Colloid	78	78.0
	Hashimoto's thyroiditis	14	14.0
	Malignancy	0	0.0
	Follicular neoplasm	8	8.0
	In-conclusive	0	0.0
HPE Report	Colloid	78	78.0
	Hashimoto's thyroiditis	6	6.0
	Follicular carcinoma	6	6.0
	Follicular adenoma	6	6.0
	Papillary carcinoma	6	6.0
	Medullary carcinoma with papillary carcinoma	4	4.0
	Wound infection	4	4.0
Complications of surgery	Reactionary hemorrhage	0	0.0
	Hypoparathyroidism (Transient)	8	8.0
	Hypoparathyroidism (Permanent)	0	0.0
	Recurrent laryngeal nerve palsy (Temporary)	5	5.0
	Recurrent laryngeal nerve palsy (Permanent)	0	0.0

6 cases (6%) had trouble breathing. As a result, trouble swallowing was the most prevalent pressure symptom. In four cases, there was a family history of goitre, with the patient's mothers and sisters having multinodular goitre and having had surgery. Toxic symptoms and indications were seen in 34 instances (34%), 32 of which were female (32%) and two were male (2%). Four female patients experienced ocular symptoms, and 30 suffered tremors of the hands and tongue, as well as tachycardia. Toxic symptoms were observed in 49% of the patients studied by Antonio Rios *et al.*[12].

In our investigation, all thyroid swellings moved with deglutition. Both lobes were engaged in 66 instances, with the majority engaging the right lobe and the remaining 34 cases involving the left lobe. According to WHO categorization, the majority of patient's gland size was stage 2, i.e. swelling evident with neck in normal position.

In all instances, an X-ray of the neck, AP and lateral views, and a chest X-ray were taken. There was one example of tracheal shift to the left side owing to a goitre, which mostly affected the right lobe of the thyroid. In all cases, FNAC of the thyroid was performed, and the findings were compared to the histological report of the operated material. Histopathological investigation revealed papillary carcinoma in six instances, medullary carcinoma with papillary carcinoma in four cases, and follicular adenoma in six more. Preoperative FNAC diagnosis of Follicular carcinoma was not achievable because angioinvasion and capsular invasion, which are hallmarks of Follicular carcinoma, were not seen. This demonstrates that FNAC is not a perfect diagnostic tool for follicular cancer.

Of the 100 patients, 32 had complete or near total thyroidectomy, while the remaining 68 had partial thyroidectomy. Following histological testing that revealed papillary cancer in ten patients, complete thyroidectomy was performed. Postoperative problems were quite rare in our research. Transient

hypoparathyroidism was seen in 8 patients (8%) during the first post-operative week, and all recovered fully with oral and intravenous calcium treatment. There was no long-term hypothyroidism. According to T.A. Day *et al.*[14] there was 28% of transitory hypocalcemia and 0.9% of persistent hypocalcemia. There were no mortality in our study.

## CONCLUSION

MNG is the most frequent thyroid illness at our hospital, with the most common complaint being swelling in front of the neck. FNAC is extremely helpful in the diagnosis and treatment of MNG. A radioisotope scan is utilised to determine the working tissue as well as the retrosternal extension. The most common reasons for surgery in MNG are aesthetic issues, pressure effect symptoms, secondary thyrotoxicosis, and malignancy suspicion. MNG is treated by a subtotal thyroidectomy. However, total thyroidectomy is increasingly replacing subtotal thyroidectomy.

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