

Research Article

Clinical study of multi nodular goitre in a rural hospital

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ABSTRACT

Background: Worldwide, nodular goitre remains a problem of enormous magnitude affecting no less than 5% of the population. Neither a well formulated nor a simple procedure is available for the management of MNG. Hence the need for the present study. The aim was to study the various modes of presentation, the distribution with respect to age and sex, the usefulness of FNAC, and the complications of surgery.

Methods: This was a prospective study of 50 cases of MNG during the period between April 2012 and March 2014, in Chennai medical college hospital with an adequate follow up to look for post op complications.

Results: Majority of the patients were females with an M:F ratio of 15:1, with the commonest age group being 31-40 years. All patients presented with swelling in front of the neck, with other complaints being that of pain, discomfort, and features of hyperthyroidism in 6 patients. FNAC was done in all patients and was found to be 100% accurate. Majority of the patients were treated with total thyroidectomy followed by subtotal thyroidectomy. Complications included wound infection, post op bleeding and RLN palsy.

Conclusion: FNAC is an invaluable and highly accurate tool in the diagnosis of MNG. Surgery - Total thyroidectomy was found to be an adequate and safe treatment for non-toxic MNG with minimal complications.

Keywords: MNG, FNAC, Goitre

INTRODUCTION

Though the thyroid and its diseases were known to the physicians from the time immemorial, the subject still continues to evince great interest even today from the clinician and the pathologist alike. As Willis stated, for the thyroid gland, working in continuous state of interest having alternate periods of cellular activity and quittance in response to an array of exogenous and endogenous stimuli, it is not so surprising that it suffers from a wide variety of disease. A constant supply of thyroid hormones is necessary for growth, development and maintenance of metabolism and functional activity of most organs. Diseases of thyroid are manifested either qualitative and quantitative alterations in hormone secretion or enlargement of thyroid (goitre) or both.

The thyroid gland, reddish brown and highly vascular, is placed anteriorly in the lower neck. Level extends from the 5th cervical to the 1st thoracic vertebra. Its weight is usually 25 grams. The gland is slightly heavier in the female sex and enlarges during pregnancy and menstruation.¹

The thyroid gland functions primarily to produce thyroid hormones. It stimulates the oxygen consumption of most cells in the body, helps regulate lipid and carbohydrate metabolism and are necessary for normal growth and maturation. Nodular goitre is probably the most common endocrine problem in the world today.²

The commonly accepted definition of Goitre "A Thyroid Gland i.e., at least twice its normal size". In general, the

term is applied to the benign enlargement of thyroid gland.³ Worldwide; nodular goitre remains a problem of enormous magnitude. It is estimated that no less than 5% of the world's population have goitres. Depending on the population studies, multinodular goitre occurs in up to 12% of adults. Multinodular goitre is more common in women than men and increases in prevalence with age. The incidence of carcinoma in multinodular goitre has been reported as 5% to 10%.⁴

Neither a well formulated nor a simple procedure is available for the management of patients with MNG. The main reason for such situation to exist is, nodular lesions may represent one of the many different cell types that cannot be distinguished from one another without histological study.⁵ These nodules may be benign or malignant. Ultimately, it is this threat of malignancy that poses a major problem.

FNAC is a diagnostic tool in which cells are extracted from the palpable swelling using FNAC gun, syringe and fine needle. It is simple, quick, safe and cost- effective. FNAC is increasingly being used for evaluation of thyroid swellings.⁶

The study of multinodular goitre is essential, as it is a commonly encountered endocrine problem in clinical practice. The major concern in modern thyroid gland surgery is morbidity. Besides haemorrhage and hypoparathyroidism, damage to the recurrent laryngeal nerve is the complication most feared by both patient and surgeon. It represents a serious complication inducing, when bilateral, serious functional sequelae such as phonatory, respiratory and psychological problems that limit working capacities and social relationships of the patients. Post-operative respiratory complications may need either life-saving endotracheal intubation followed by tracheostomy or immediate tracheostomy.

METHODS

This is a randomized prospective clinical study of multinodular goitre patients admitted in Chennai medical college and hospital. A total number of 50 cases studied from the period April 2012 and March 2014 in a span of 24 months. Complete clinical examination and necessary laboratory investigations were performed.

Inclusion criteria

Patients with enlargement of thyroid gland, with more than one nodule palpable or enlarged thyroid gland with nodular surface. Toxic and non-toxic multinodular goitres were included in the study.

Exclusion criteria

Diffuse hyperplastic goitre, Solitary nodule of thyroid, Thyroid enlargement with the clinical features suggestive

of malignancy and multinodular goitre patients not undergoing surgery were excluded.

The pre-operative treatment in most cases consisted of supportive treatment to control of toxicity in cases of toxic multinodular goitre.

Patients operated after getting medical fitness for surgery. The operated specimen was sent for histopathologic examination in all cases. Movement of vocal cords was noted at the end of the operation in every case.

RESULTS

In the present study the maximum age recorded was 65 years and minimum age recorded was 17 years with the mean age 36.36 years. Highest incidence was observed in the age group 31-40 years (34 percent).

Table 1: Age distribution.

Age (years)	Total No. of patient	Percentage
0-10	0	0
11-20	2	4
21-30	14	28
31-40	17	34
41-50	13	26
51-60	2	4
60 and above	2	4
Total	50	100

Table 2: Sex distribution.

Sex	Number of cases	Percentage
Female	47	94
Male	3	6
Total	50	100

In the present study, out of 50 cases, 47 were females and 3 were males, with a female to male ratio 15.7:1.

Table 3: Age and sex distribution.

Age (years)	Males	Females	Total No. of cases	Percentage
0-10	0	0	0	0
11-20	0	2	2	4
21-30	0	14	14	28
31-40	0	17	17	34
41-50	2	11	13	26
51-60	0	2	2	4
60 and above	1	1	2	4
Total	3	47	50	100

Table 4: Symptomatology.

Symptoms	Number of cases	Percentage
Swelling in front of neck	50	100
Pain and discomfort	10	20
Palpitation	5	10
Dysphagia	1	2
Dyspnoea	1	2
Increased sweating	4	8
Increased appetite	3	6
Weight loss	3	6

Table 5: Physical signs.

Physical signs	Number of cases	Percentage
Mobility with deglutition	50	100
Left lobe enlargement	7	14
Right lobe enlargement	13	26
Both lobe enlargement	30	60

Table 6: Distribution of secondary thyrotoxicosis.

Type of goitre	Number of cases		Total	Percentage
	Male	Female		
Nontoxic multinodular goitre	3	41	44	88
Toxic multinodular goitre	0	6	6	12

Table 7: Types of surgery done.

Type of surgery done	Number of cases	Percentage
Total thyroidectomy	42	84
Subtotal thyroidectomy	8	16
Total	50	100

Table 8: Post-operative complications.

Type of complications	Number of cases	Percentage
Recurrent laryngeal nerve palsy (Bilateral)	1	2
Parathyroid insufficiency	0	0
Wound infection	2	4
Primary Haemorrhage	1	2
Mortality	0	0

Investigations

Fine needle aspiration cytology was done in all cases. Majority reported as nodular colloid goitre, 7 cases as Hashimoto's thyroiditis and 1 case had a nodular goitre with cystic changes. Indirect laryngoscopy was done in

all the cases, and bilateral vocal cord movement was normal. Thyroid function tests (T₃, T₄, and TSH) were done in all patients. In 6 cases, thyrotoxicosis was confirmed by thyroid function tests. Sleeping pulse rate were within normal limits in all patients except in 6 who had secondary thyrotoxicosis.

Treatment

All cases were operated. Surgery was advocated for reasons of cosmesis, pressure symptoms and secondary thyrotoxicosis. In toxic cases, the toxicity was controlled with carbimazole 10mg, 3- 4 times daily for a period ranging from 4- 12 weeks and Propranolol 40 mg, 3 times daily along with carbimazole.



Figure 1: MNG.



Figure 2: Raising the flap.

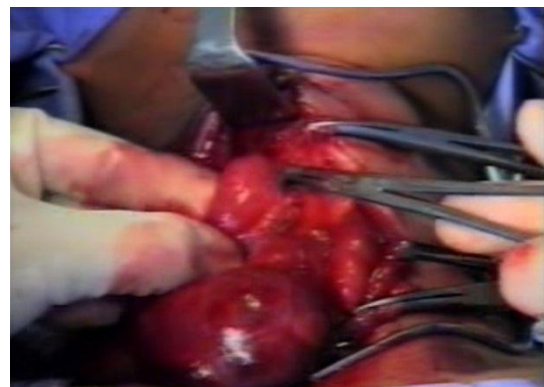


Figure 3: Ligation of superior pedicle.

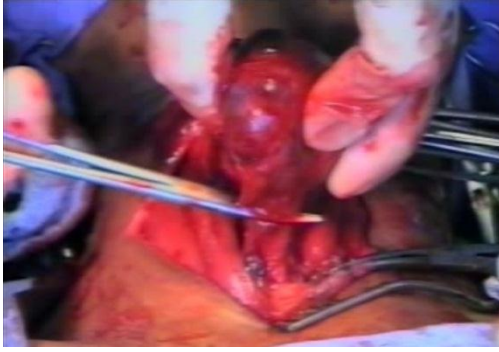


Figure 4: Ligation of inferior pedicle.

Histopathological analysis

According to histopathological analysis in present study of 50 cases, 37 cases (76 percent) showed features of benign goitre, toxic goitre showed sec toxic changes in 6 cases (12 percent), 7 Hashimoto's thyroiditis.

Follow up

Follow up ranged from 2 months to 24 months.

All 7 cases of Hashimoto's thyroiditis and majority of other cases who underwent subtotal thyroidectomy were put on tablet Levothyroxine 0.15 mg once daily.

DISCUSSION

The present study was conducted during April 2012 to March 2014 with aims of assessing clinical presentation, age, sex distribution and Symptomatology indication and complications of surgery and comparison of FNAC with histopathological analysis of 50 cases of MNG admitted to chennai medical college and hospital. All cases were evaluated clinically and cytologically before the surgery followed by histopathological analysis.

Age distribution

In the present study, the maximum age recorded was 65 years and a minimum of 17 years, out of 50 cases 17 belong to age group 31-40 (36%) years. Maximum distribution was observed in 3rd and 4th decade and least was seen in 7th decade onwards.

In the study conducted by Ahuja⁷ majority of cases belong to the 3rd and 4th decades, least was in the 7th decade. Kapoor MM⁸ reported that out of 226 cases. The majority 145 (64%) cases were in the age group of 21-40 years with maximum distribution in the third decade and least in the 7th decade, 12 (5.3%) cases. The present study is comparable to the above studies.

The MNG is common in 3rd-4th decades the reason being more TSH fluctuation noted during adolescence and in reproductive age group.⁹

Sex distribution

It was observed in the current study out of 50 cases 47 (94%) were females and 3 (6%) were males with a sex ratio of female to male is 15.7:1. Nygaard B¹⁰ reported that out of 69 cases, 62 cases (89.9%) were females and 7 cases (10%) were males with sex ratio 8.8:1.

Study by Antonio Alfonso¹¹ showed a female to male ratio of 7:1. In the study conducted by Ahuja, out of 205 cases 160 (78.1%) were females and 45 (21.9%) were males with a sex ratio of 3.5: 1. In all above studies there is a female preponderance. The result of the recent study is comparable to the above studies.

Almost all the thyroid related disorders are common in women and MNG is not an exception, the reason being more TSH fluctuation seen in women during adolescence, pregnancy, child birth and so on.

Symptomatology

All patients were presented with swelling in front of the neck (100 percent). Other symptoms were Pain and discomfort in 10 cases (20 percent), palpitation in 5 cases (10 percent), dysphagia in 1 case (2 percent), Dyspnoea in 1 case (2 percent), increased sweating in 4 cases (8 percent), increased appetite in 3 cases (6 percent) and weight loss in 3 cases (6 percent).

In majority of patient the duration of swelling prior to presentation was 1-3 months in 11 (36.67%) cases. In 5 (16.67%) patients presented with duration more than 5 years.

Involvement of both the lobes was seen in majority of patients 30 (60%). Predominant right lobe involvement was seen in 13 cases (26%). Left lobe involvement was seen in only 7 (14%) case.

Investigation

FNAC was found to be very useful in the evaluation of MNG. In majority of the cases where the FNAC was benign it proved to be benign MN G on postoperative histopathological examination.

This shows that FNAC is 100% accurate. FNAC is an invaluable, minimally invasive, highly accurate and cost effective procedure for pre- operative assessment of patients with thyroid lesions.

One of the cases was reported as thyroid cyst on ultrasound on scan and it was finally diagnosed as MNG.

Patient with vocal cord palsy diagnosed on indirect laryngoscopic examination and positive neck lymph nodes associated with thyroid swelling were excluded in this study.

Surgical treatment

The main indication for surgery in our series was the swelling itself either due to cosmetic reasons or fear of malignancy on the part of the patient. Subtotal thyroidectomy was done 8 (16%) cases and Total Thyroidectomy in 42 (84%) were carried out when there was high suspicion of malignancy.

Postoperative complications

We encountered post-operative bleeding in one patient on the same day and exploration was done and bleeder from strap muscle was identified and ligated. Irritation of the throat in early postoperative periods was present in almost all patients, which subsided without any active management. The average duration of stay in the hospital was 8 days.

Histopathology

According to histopathological analysis in the present study of 50 cases, 37 (74%) cases showed features of benign goitre, 7 (14%) cases of Hashimoto's thyroiditis, and 6 (12%) case of toxic multinodular goitre. Ahuja⁷ reported 9% distribution of Hashimoto's Thyroiditis. The present study with 14% is comparable to above studies.

Follow up

It was done in all the patients and any complications treated appropriately.

CONCLUSION

FNAC is an invaluable, minimally invasive highly accurate and cost effective procedure for preoperative assessment of patients with thyroid lesions.

The main indications for surgery in MNG are cosmetic problem and pressure effects. Total thyroidectomy is the ideal treatment of MNG. FNAC had very large correlation. Whereas Hashimoto's thyroiditis, were negatively correlated as per the Goodman-Kruskal Gamma coefficient.

FNAC is very useful in the diagnosis and management of MNG.

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Conflict of interest: None declared

Ethical approval: The study was approved by the institutional ethics committee

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