

Original Article

Frequency of Malignancy in Multinodular Goitre

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Abstract

Objectives: To determine the frequency of thyroid carcinoma in clinically or sonographically multinodular goitre in patients undergoing thyroidectomy

Setting: This is a cross sectional study was carried out at the Department of Otolaryngology and Head-Neck Surgery, Bangabandhu Sheikh Mujib Medical University during the period from January 2012 to June 2012.

Methods: This study includes all the patients admitted in Otolaryngology and Head-Neck surgery department of Bangabandhu Sheikh Mujib Medical University having diagnosis of multinodular goitre & underwent thyroidectomy. All patients with non-toxic multinodular goitre (clinically or sonographically) irrespective of age, sex was included.

Results: Out of 50 patients, 41 patients (82%) were female, and 9 patients (18%) were male with a female to male ratio 4.5: 1. This shows female preponderance of multinodular goitre. Out of 50 patients, 5 patients had histologically proven thyroid malignancy (4 females and 1 male). In this study overall incidence of carcinoma in multinodular goitre was 10% and female to male ratio 4:1 with the incidence in female was 9.75% and in male 11.11. The incidence of malignancy under 21 years was 50% and above 21 years was 8.33%. Regarding the types of malignancy in this series, papillary carcinoma was the most common variety (80%) followed by follicular carcinoma (20%).

Key words: Malignancy, Multinodular Goiter.

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Introduction

Thyroid gland is one of the most common endocrine gland to be affected by various disease processes. It is the largest gland in endocrine family.

Goitre meaning throat (French) and English scientists described goitre in 1625¹. Thyroid cancer was first described in 1811 by Burn. Interest in the etiology and prevalence of thyroid cancer arose around 1940 when high incidence of thyroid cancer was found in post thyroidectomy patients.²

Thyroid carcinoma is a relatively rare tumor, but represents the most frequent form of cancer of the endocrine glands. It may either

as a solitary nodule or as a dominant nodule in a multinodular goiter. It represents 1% of human neoplasias and its annual incidence is estimated world wide from 0.5 to 10 :100,000 subjects in the world population²

Exposure to ionizing radiation, changing levels of iodine nutrition and increased pathologic diagnosis of clinically unimportant thyroid neoplasia have all been proposed as explanations for a world-wide rise in incidence of thyroid carcinoma over the past six decades.³⁻⁴ The annual incidence of thyroid carcinoma varies considerable in different registries and is increasing in some European countries, USA and Canada.⁵

So, multinodularity of the goitre should not be considered as low risk of malignancy and delay for surgical intervention .Changes in the size of gland, the appearance of new and hard nodules or cervical lymphadenopathy may indicate malignant change and prompt indication for surgery .

Methods

Simple random sampling of prospective cross-sectional study. The study was carried out at Otolaryngology and Head-Neck surgery department of Bangabandhu Sheikh Mujib Medical University during the period from January 2012 to June 2012. This study

includes all the patients admitted in Otolaryngology and Head-Neck surgery department of Bangabandhu Sheikh Mujib Medical University having diagnosis of clinically or sonographically multinodular goitre & underwent thyroidectomy.

All patients with non-toxic multinodular goitre (clinically or sonographically) irrespective of age, sex will be included. The detailed history, clinical examination related investigation than underwent thyroidectomy data were analyzed by using standard statistical methods. Results were evaluated by using proper tests of significance.

Results

Table I
Age distribution (n=50)

Age	Number of patients	Percentage (%)
1-10	0	0
11-20	2	4
21-30	3	6
31-40	18	36
41-50	12	24
51-60	9	18
61-70	6	12

Table- II
Age distribution

Age groups (years)	Male (n=9)		Female (n=41)		Total number of patients
	Number	Percentage (%)	Number	Percentage (%)	
11-20	0	0	2	4.88	2
21-30	1	11.11	2	4.87	3
31-40	3	33.33	15	36.58	18
41-50	2	22.22	10	24.39	12
51-60	2	22.22	7	17.07	9
61-70	1	11.11	5	12.19	6

Table- III
Clinical presentation

Symptoms	Number of patients
Neck swelling(painless)	50
Pressure symptoms (Dysphagia, Breathlessness)	3
Voice changes	0
Cervical lymphadenopathy	0
Hyperthyroidism	0
Hypothyroidism	0
Bone pain	0
Bone swelling	0

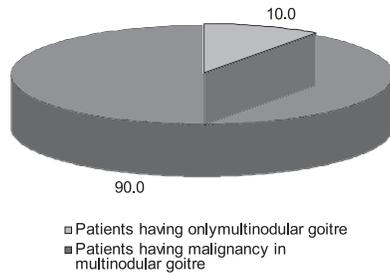


Fig.-1: Incidence of malignancy in multinodular goitre

Table-IV
Prevalence of malignancy (Age relation)
n=50

Age groups (years)	Total number of patients	Number of malignant patients	Percentage (%)
11-20	2	1	50
21-30	3	0	0
31-40	18	0	0
41-50	12	1	8.33
51-60	9	2	22.22
61-70	6	1	16.66

Table-V

Preoperative fine needle aspiration cytology findings

Cytological findings	Number of patients
No malignant cells	47
Malignant cells	
a) Papillary cell carcinoma	3
b) Follicular cell carcinoma	0

Table-VI

Histological pattern of malignancy (n=5)

Histological pattern	Number of patients	Percentage (%)
Papillary carcinoma	4	80
Follicular carcinoma	1	20
Anaplastic carcinoma	0	0
Medullary carcinoma	0	0
Lymphoma	0	0

Table-VII

Types of thyroidectomy

Name of operation	Number of operation
Hemithyroidectomy	4
Subtotal thyroidectomy	40
Near total thyroidectomy	7
Total thyroidectomy	3

Discussion

In this series fifty (50) patients with nontoxic multinodular goitre been studied prospectively during a period of six month. Though the study was carried out on a limited number of patients in Bangabandhu Sheikh Mujib Medical University over a short period of time, it reflects the pattern of thyroid disease in Bangladesh to some extent.

In this study age of the patients ranged from 16 years to 63 years. 2 patients (4%) were

between 11-20 years age group, 3 patients (6%) were in 21-30 years age group, 18 patients (36%) were in 31-40 years age group, 12 patients (24%) were in 41-50 years age group, 9 patients (18%) were in 51-60 years of age group and 6 patients (12%) was in 61-70 years age group.

Most of the patients (60%) were in between 31-50 years of age group; mean age of the patients were 43.54 year. A study of 539 patients of multinodular goitre, the findings were almost similar where age ranged from 17 years to 78 years; mean age was 41 years.⁶

In this study, out of 50 patients 41 patients (82%) were female and 9 patients (18%) were male, with female to male ratio 4.5:1. Female preponderance also found in other studies that was firmly consistent with this studies.⁷

All the patients in this series presented with neck swelling (painless) of varying durations. Out of them, 3 patients in addition to neck swelling had pressure symptoms (dyspnoea, dysphagia).

Among the indications for thyroidectomies in this series enlarged thyroid (multinodular goitre) is the most common one, 44 patients (88%) were operated upon this indication, 3 patients (6%) were operated for pressure symptoms and 3 patients (6%) were operated for malignancy

In different studies the frequency of malignancy occurs in multinodular goitre varied from 7.5-13%.⁸⁻¹¹

In this series, out of 5 patients of thyroid malignancy, only one patient (female) was below 21 years of age and the other 4 patients (1 male and 3 females) were above 21 years of age. The incidence of malignancy under 21 years was 50% and above 21 years was 8.33%. Another study also found that the incidence of malignancy was 11.7 years under 21 years of age and 7.5% above 21 years.^{12,13}

Malignancies associated with multinodular goitre are usually follicular or papillary carcinoma.¹⁴ In the study, out of 107 patients of multinodular goitre 7.5% harboured foci of malignancy with papillary carcinoma being the most common variety⁸. In another study, 75% of carcinomas occurring in multinodular goitre were of papillary type¹². In another study also found an almost equal ratio of papillary to follicular carcinomas in the patients with malignancy occurring with multinodular goitre (11 papillary to 9 follicular).¹⁰

However the incidence of papillary carcinoma to other carcinomas of thyroid gland is relatively higher in different studies.^{11,15}

In this study, out of 50 patients FNAC positive for malignancy in 3 cases but histopathology positive for malignancy in 5 cases. FNAC sensitivity 71.42%.

Those patients in this series who had malignancy in multinodular goitre, the mean duration of presenting symptoms was 10.2 years (minimum 6 years and maximum 13 years) and those patients who had only multinodular goitre, the mean duration of presenting symptoms was 5.91 years (minimum 2 years to maximum 14 years). In their study found that patient with malignancy in multinodular goitre had neck swelling for a longer period, 9.11 years as compared with a mean of 5.48 years for those with only multinodular goitre¹⁰. It is evident that the longer the duration of multinodular goitre the higher the chance of malignancy. The types of thyroidectomy performed were - subtotal thyroidectomy in 40 cases, hemithyroidectomy in 0 case and near total thyroidectomy in 7 cases and total thyroidectomy in 3 malignant cases.

Conclusion

The association of multinodular goitre and thyroid carcinoma should always be carefully

considered. Multinodular goitre can not be considered as a condition predisposing to cancer but it may harbor cancer. Papillary carcinoma is relatively common variety. Female to male ratio, those with only multinodular goitre is 4.5:1 while in those with carcinoma in multinodular goitre is 4:1. This indicates males with multinodular goitre have higher chance of developing malignancy. Malignant chance is more in earlier age group. Longer the duration of presentation, chances of malignancy is higher.

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