

## **Frequency of Malignancy in Multinodular Goiter in a Tertiary Level Hospital in Bangladesh.**

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### **Abstract:**

**Objectives:** To determine the frequency of thyroid malignancy in clinically or sonographically multinodular goiter in patients undergoing thyroidectomy in Cumilla Medical College Hospital, Bangladesh.

**Methods:** A cross sectional study was carried out at the department of Otolaryngology and Head Neck Surgery of Cumilla Medical College Hospital during the period from January 2016 to January 2019. This study includes all patients admitted and undergoing surgery with multinodular goiter.

**Results:** Out of 146 patients 118 patients were female and 28 patients were male with female male ratio is 4.2:1. Out of 146 patients 13 patients were found histologically thyroid malignancy. Among them 8 patients were male and 5 patients were female. Papillary carcinoma was found in all cases.

### **Introduction:**

Multinodular goiter is a common disease in our country. Iodine deficiency is the main cause. Though fortification of salt with iodine is mandatory in our country, lack of monitoring fails its purpose. Fluctuation of iodine level in blood in growing age and pregnancy causes abnormal stimulation to follicular cells which results in multinodular goiter. Raise of incidence of thyroid malignancy is due to radiation hazard in occupation, X-ray and CT scan<sup>1-2</sup>.

Occasionally in macroscopically solitary nodule may present microscopic nodule throughout the gland. Worldwide incidence of thyroid carcinoma is about 3.7 per 100000 populations per year<sup>3</sup>. There is a female preponderance of approximately 3:1<sup>4</sup>. Nodules in the thyroid gland are important for their malignant potential. It is the highest among the cancer affecting endocrine glands.

Cancer of the thyroid gland occurs at earlier ages in most part of the world. It is commonest between 20-40 years of age<sup>5</sup>.

Frequency of malignancy in thyroid nodule varies among different study in our country and worldwide. One study in our country shows percentage of malignancy in multinodular goitre is 8.1% and in solitary thyroid nodule is 21.44%<sup>5</sup>. One study in abroad shows incidence of malignancy in thyroid nodule is 9.89%<sup>6</sup>. Another study shows 5%<sup>7</sup>.

Purpose of this study was to find out the relative frequency of malignancy in multinodular goitre in our region.

### **Methods:**

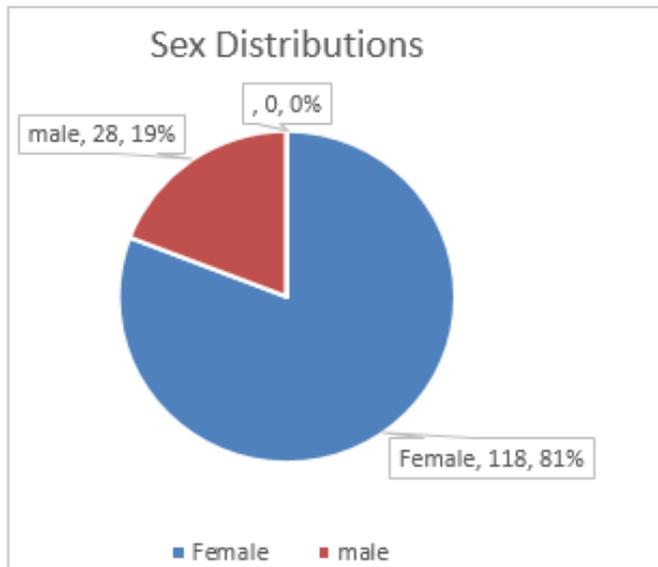
Simple random sampling of prospective cross-sectional study was done. The study was carried out

at Cumilla Medical college Hospital during the period from January 2016 to January 2019. This study includes all the patients admitted with clinically and sonographically diagnosed as multinodular goiter. All the patients treated surgically, and histopathological examination carried out. Data were analyzed by standard statistical methods. Results were analyzed by proper test of significance.

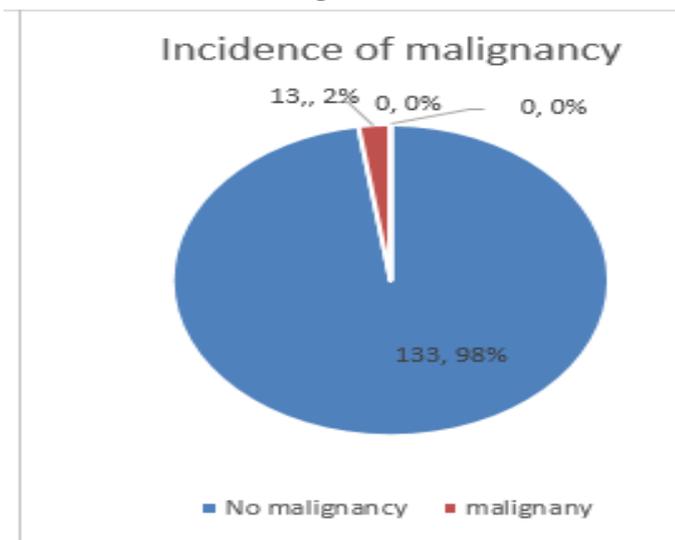
**Results:**

**Table-1 Age distribution (n=146)**

Age	Number of patients	Percentage
1-10	0	
11-20	6	4
21-30	9	6
31-40	54	36
41-50	36	24
51-60	27	18
61-70	14	12



**Figure 1**



**Figure 2**

**Table 2: Prevalence of Malignancy (Age relation) n=146**

Age groups	Total number of patients	Number of malignant patients	Percentage
11-20	6	0	0%
21-30	9	2	22.22%
31-40	54	5	9.25%
41-50	36	3	8.33%
51-60	27	2	7.4%
61-70	14	1	7.14%

**Table 3: Preoperative FNAC findings**

Cytological Findings	Number of patients	Percentage
No malignancy	137	94%
Papillary carcinoma	6	4%
Follicular adenoma	3	2%

**Table 4: Histopathological Patterns of malignancy (n=13)**

Histological pattern	Number of patients	Percentage
Papillary carcinoma	13	100%
Follicular carcinoma	0	0%
Medullary carcinoma	0	0%
Anaplastic carcinoma	0	0%
Lymphoma	0	0%

**Table 5: Types of Thyroidectomy**

Name of operations	Number of patients	Percentage
Hemithyroidectomy	22	15%
Subtotal thyroidectomy	78	54%
Near total thyroidectomy	37	25%
Total thyroidectomy	9	6%

## Discussion:

In this series 146 patients of multinodular goiter studied prospectively during the period of 3 years who were underwent surgery in Otolaryngology department of Cumilla Medical College Hospital. It is a 500-bed tertiary level hospital. In some extent it represent relative incidence of thyroid malignancy in Bangladesh.

In this study age of the patients ranged from 15 years to 62 years. 6 patients (4%) were in 11-20 years range group. 9 patients 6% were in 21-30 years, 54 patients 36% were in range 31-40 years age group. 36 (24%) patients were in 41-50 years. 27 (18%) patients were in 51-60 years age group. 14 (12%) patients were in 61-70 years age group.

Most of the patients were in 31-40 years range. Mean age of the patients were 32 year. A similar study was done in home and abroad shows similar pattern of age distribution<sup>8-9</sup>.

In this study of 146 patients 118 (81%) were female and 28(19%) were male. Female male ratio is 4.21:1. Goitre is more common in females worldwide. All the patients were present with painless neck swelling. All patients were evaluated clinically, biochemically and sonographically. All patients were euthyroid before surgery. FNAC report shows nodular goitre in 137 (94%) patients, papillary carcinoma in 6(4%) patients and follicular adenoma in 3(2%) patients.

Hemithyroidectomy were done in 22 (15%) patients. In that case only one lobe of thyroid gland was involved and no malignancy was found in FNAC. Total thyroidectomy was done in 9(6%) cases where FNAC report positive for malignancy. Subtotal thyroidectomy was done in 78(54%) cases and near total thyroidectomy were done in 37(25%) cases. Decision were made on preoperative and peroperative evaluations.

All specimen of thyroidectomy sends for histopathological examination. Out of 146 patients of multinodular goitre 13 (8.9%) patients including 9 patients who are previously diagnosed by FNAC were found papillary carcinoma of thyroid. In this study no other variants of malignancy were found. In different study in home and abroad shows incidence of malignancy in multinodular goitre 7.5-13%<sup>8-10</sup>.

Out of 13 patients 8 patients were male and 5 patients were female. Male female ratio is 1.6:1. 2(22.2%) patients were at the age range of 21-30 years out of 9. 5(9.25%) patients were in 31-40 years out of 54, 3(8.33%) were in 41-50 years out of 36, 2(7.44%)

were in 51-60 years out of 27 and 1(7.44%) were in 61-70 years out of 14 age group.

In this series of 146 patients 9 patients were diagnosed papillary carcinoma by FNAC. On histopathological examination including 9 patients 4 more were diagnosed papillary carcinoma. In this series FNAC sensitivity is 69.2%. Follicular carcinoma is uncommon in our country. In this series we have found not a single case of follicular carcinoma in multinodular goitre.

## Conclusion:

Multinodular goitre is very common in our country. Females are most commonly affected. But carcinoma in multinodular goitre is predominantly affect male patients. FNAC and histopathological evaluation is mandatory for proper treatment of every patients. Sample size and study period is not enough to show the complete picture. But with this study we can plan our future strategy for better management of goitre patient in Bangladesh.

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