

## Original Article

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# Pattern of Malignancy in Thyroid Swelling

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### Abstract:

**Background:** Incidence of thyroid malignancy is increasing day by day in thyroid swelling. The exact cause of cancer is not known. But there are few predisposing factors in genesis of thyroid malignancy such as age, sex, geographical distribution, familial predisposition, radiation exposure, pre-existing thyroid disease. Papillary thyroid carcinoma is most common among all thyroid malignancy with high incidence of lymph node metastasis. The aim of this study is to find out the pattern of malignancy in thyroid swelling.

**Methods:** This cross-sectional observational study was done in department of Otolaryngology-Head neck surgery; Dhaka Medical College Hospital for 6 months. 50 Patients with thyroid swelling undergone operative management were included.

**Results:** Results of this study showed that the highest numbers of patients were in 31-40 years of age group numbering 20 (40%). There were 42 females comprising 84% and males comprising 8 (16%) with female to male ratio 5.25:1. Among the thyroid swelling 35 (70%) cases were solid & 15 (30%) cases were cystic and 38 cases were non-neoplastic and 12 cases were neoplastic. Among the 12 cases 7 cases were malignant. Papillary carcinoma was predominant having 6 (85.7%) cases and Follicular carcinoma was in 1 (14.28%) case and out of 7 cases metastatic cervical lymph node was in 1 (14.28%) case which was from papillary carcinoma.

**Conclusion:** Incidence of thyroid malignancy in thyroid swellings is high. Male patients with thyroid swelling has more chance of thyroid malignancy and papillary thyroid carcinoma is the commonest of all thyroid malignancy with cervical neck node metastasis.

**Key words:** Thyroid swelling, papillary thyroid carcinoma, cervical lymph node metastasis.

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**Introduction:**

Thyroid swelling (goiter) is a worldwide problem. Iodine deficiency is the main cause of thyroid swelling. Others cause may be familial, inflammatory, neoplastic<sup>1</sup>.

Thyroid cancer is most common among all endocrine malignancy<sup>2</sup>. It is accounting for 1% of all malignancy<sup>3</sup>. The worldwide prevalence of goiter in general population is estimated at 4-7%. Incidence of malignancy in goitrous thyroid is about 10%<sup>4</sup>. It is postulated that goitrous thyroid is precursor lesion to the development of malignant diseases<sup>5</sup>. An increased incidence of thyroid carcinoma has been noted in endemic goiter zones<sup>6</sup>. Frequency of carcinoma is two times more in solitary thyroid nodules than multinodular goiter. Male patient with solitary thyroid nodules showed high incidence of malignancy<sup>7</sup>.

Exact cause of cancer is not known but there are few predisposing factors which favors in genesis of thyroid malignancy such as age, sex, Geographic distribution, familial predisposition, radiation exposure, pre-existent thyroid disease<sup>8</sup>.

Differentiated thyroid carcinoma e.g. papillary carcinoma and follicular carcinoma are more common. Both are arising from thyroid follicular cell<sup>9</sup>. Papillary carcinoma is about 80% among all thyroid malignancy. It occurs in all age groups and is only thyroid cancer of children<sup>10</sup>. It is firm, encapsulated, multicentric and frequently involves both lobe. It has high incidence of lymph node metastasis<sup>11</sup>. May present as occult carcinoma as lymph node metastasis without palpable thyroid gland<sup>12</sup>. Follicular carcinoma commonly occurs in older age usually between 50-59 yrs. It is accounts for 10-20% of all thyroid malignancy. Lymph node metastasis is less common.

Medullary thyroid carcinoma is about 5% of all thyroid malignancy arise from perifollicular cell (c cell). It may occur as part of MEN syndrome, as familial NON MEN disease or it be sporadic. Lymph node metastasis are common. Anaplastic carcinoma are common in elderly. It is more aggressive and highly metastatic potential. Majority of patient with anaplastic carcinoma usually die within 6 months<sup>12</sup>. Primary thyroid lymphomas are uncommon. Usually high-grade B cell lymphoma tends to occurs middle aged and older patient.

Exact incidence of thyroid cancer in Bangladesh is not known but an estimate of 2.58% of 2,629 patients attending at the Institute of Post-graduate Medicine and Research (IPGMR, Currently BSMMU) from January 1994 to June 1995 were suffering from thyroid carcinoma<sup>13</sup>. Moreover, incidence of malignancy of solitary thyroid nodule is significantly high in Bangladesh (18.65%) as like others country<sup>14</sup>.

**Methods:**

**Study design:** Cross sectional observational study.

**Place of study:** Department of Otolaryngology, Dhaka Medical College Hospital, Dhaka

**Study periods:** Study was conducted from June 2019 to November 2019.

**Study Population:** Patients with thyroid swelling undergone operative management were included. Total 50 cases were selected after careful history taking, thorough general, local examination and appropriate investigations fulfilling inclusion and exclusion criteria.

**Sample size:** 50 samples were taken in this study.

**Sampling:** Purposive sampling.

**Results:**

In this study 50 cases of thyroid swelling were analyzed to find out the incidence of malignancy. The result and observation of the study are shown below.

**Table I:**  
*Age distribution of patients with thyroid swelling (n=50)*

Age	Total	Percentage (%)
<20	03	06%
21-30	15	30%
31-40	20	40%
>40	12	24%

**Table II:**  
*Sex distribution of patients with thyroid swelling (n=50)*

Sex distribution	Total	Percentage (%)
Female	42	84%
Male	8	16%

**Table III:**  
*Clinical presentation (n=50)*

Symptoms	Number of patients	Percentage %
Neck swelling	50	100
Pain	3	6
Dysphagia	4	8
Dyspnea	1	2
Voice change	0	0
Cervical lymphadenopathy	1	2

**Table IV:**  
*Ultrasonographic study of thyroid swelling (n=50)*

USG findings	Number of cases	Percentage
Solid	35	70%
Cystic	15	30%

**Table V:**  
*FNAC report (n=50)*

FNAC report	Number of cases	Percentage (%)
Non-neoplastic lesion:		
Colloid goitre	38	76%
Neoplastic		
Follicular neoplasm	6	12%
Papillary carcinoma	6	12%
Medullary carcinoma	0	0%
Anaplastic carcinoma	0	0%

**Table VI:**  
*Histological pattern of malignant lesions (n=7)*

Histological type	Number	Percentage
Papillary carcinoma	06	85.71%
Follicular carcinoma	01	14.28%
Medullary carcinoma	0	0%
Anaplastic carcinoma	0	0%

**Table VII:**  
*Metastasis to regional lymph node (n=7)*

Metastasis	Number	Percentage
Without metastasis	06	85.71%
With metastasis	01	14.28%

**Table VIII:**  
Incidence of malignancy in relation to age (n=50)

Age groups	Total number of patient	Number of malignant patient	Percentage (%)
<20	3	1	33.33%
21-30	15	3	20%
31-40	20	2	10.52%
>40	12	1	8.3%

### Discussion:

The aim of this study was to find out the incidence of malignancy among thyroid swellings in hospitalized patients and 50 cases of thyroid swelling were studied in Dhaka Medical College Hospital during study periods.

In this study highest number of patients were in the 31-40 years of age group numbering 20 (40%) followed by 15 (30%) in the 21-30 years age group. Age distribution of this series more or less in general agreement with similar reports in literature<sup>15,16</sup>. The youngest patient of our series was a girl of age 11 years, suffering from papillary carcinoma. The oldest patient of our series was a male of age 59 years, a case of follicular carcinoma.

The extreme of ages shows more chance to be malignant and less chance to be benign thyroid disease<sup>17</sup>. The youngest and oldest patient of our study have been suffering from malignant thyroid disease that correspond to that study.

In this study out of 50 cases, 42(84%) were female and 8(16%) were male. Female to male ratio is 5.25:1. It is due to thyroid disorder is more common in female than male<sup>18</sup>.

In our study, we have detected one case with cervical lymphadenopathy along with goitre which was diagnosed as malignancy. In this study we have found 4 cases suffering from dysphagia and 1 case suffering from

dyspnoea, all are diagnosed as multinodular goitre. Multi-nodular goitre with large swellings may be associated with difficulty in respiration or rarely in deglutition which is due to pressure on trachea or oesophagus<sup>19</sup>.

In this study we found solitary thyroid nodule in 30%, multinodular goitre in 68% and diffuse goitre in 2%. All solitary thyroid nodule is not a single clinical entity<sup>16</sup>. So, it is very difficult to comment regarding the nature of solitary nodule purely on the basis of clinical ground<sup>20</sup>. But hoarseness of voice, hard irregular nodule, palpable cervical lymph node, extreme of ages, male sex is always suspicious for malignancy in solitary nodule<sup>21</sup>.

Solid nodules are the commonest form of solitary thyroid nodule. In this series solid nodules were 70%, 30% were cystic as revealed by USG<sup>22</sup>.

Fine needle aspiration cytology (FNAC) is very important, specific, most sensitive, minimally invasive preoperative diagnostic tool<sup>23</sup>. In this study 76% cases were colloid goitre 12% papillary carcinoma and 12% were follicular neoplasm. FNAC cannot-distinguished follicular carcinoma and follicular adenoma. FNAC diagnosis of this series is supported by postoperative histopathological reports.

Final diagnosis of this study was on the basis of histopathological confirmation. Out of 50 cases, 37 cases (74%) are proven as colloid nodular goitre on histopathology and it is

compatible with other studies<sup>18</sup>. Here neoplastic lesion was found in 12 cases out of total 50 cases. In neoplastic lesion 5(10%) cases were benign (follicular adenoma) and 7(14%) cases as malignant. Among malignant lesion most common 6 cases 85.72% were papillary carcinoma and 1 case 14.28% was follicular carcinoma. The present incidence of malignancy is similar to another study Hussain n et al where incidence of thyroid malignancy was 14.3% and out of them 77.89% cases were papillary carcinoma, 12.63% were follicular carcinoma<sup>24</sup>. whereas another Bangladeshi study found a higher incidence of 21.11%<sup>25</sup>. It can be explained by the fact that our study was carried out in only hospitalized patients in a short span of time.

#### Conclusion:

In this study, incidence of thyroid malignancy among thyroid swellings in hospitalized patients was 14% .Incidence was higher in male 25% than female 11.9% and also higher in age below 20 and above 50 years. Papillary carcinoma was most common pattern. It can be concluded that as significant proportion of thyroid swellings (in this study 14%) may be malignant. Chance of malignancy is higher in extreme age groups, male sex with goitre. So, it should get serious medical attention.

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