

# Examine the Frequency of Thyroid Cancer in Patients with Multinodular Goiter

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## ABSTRACT

**Objective:** To determine the incidence of differentiated thyroid carcinoma in patients with multinodular goiter undergoing thyroidectomy.

**Study Design:** Retrospective/Observational

**Place and Duration of Study:** Shahida Islam Teaching Hospital Lodhran from 1<sup>st</sup> February 2018 to 31<sup>st</sup> March 2020.

**Methodology:** Ninety patients of both genders with ages 20 to 70 years undergoing thyroidectomy for multinodular goiter were enrolled in this study. Patients detailed demographics including age, sex, residence, socio-economic status, smoking history, and family history of thyroid malignancy were recorded after written consent. Ultrasound guided fine needle aspiration cytology and histopathological examination was done to examine the thyroid malignancy.

**Results:** Sixty eight (75.56%) were females while 22 (24.44%) were males with mean age 44.15±13.53 years. 30 (33.33%) patients were smokers and 18 (20%) patients had family history of thyroid malignancy. Sixteen (17.78%) patients found to have malignancy while 74 (82.22%) had benign findings. Among 16 patients 8 (50%) had papillary carcinoma, 5 (31.25%) had follicular carcinoma, 2 (12.5%) had anaplastic and 1 (6.25%) had lymphoma.

**Conclusion:** Thyroid malignancy is highly associated with multinodular goiter. Papillary carcinoma was the most frequent malignancy found in multinodular goiter patients.

**Keywords:** Multinodular goiter, Thyroidectomy, Thyroid Malignancy

## INTRODUCTION

Cancer is becoming a leading cause of death in many countries of the world. Thyroid carcinoma is a relatively rare tumor, but represents the most frequent form of cancer of the endocrine glands. It may present either as a solitary nodule or as a dominant nodule in a multinodular goiter. In Pakistan, thyroid cancer is responsible for 1.2% cases of all malignant tumors<sup>1</sup> and studies from this region have reported papillary thyroid cancer to constitute 57% to 89% of all thyroid malignancies.<sup>2,3</sup> The incidence of malignancy in multinodular goitres has been found to vary from 7.5% to 13%.<sup>4-6</sup> There are no statistically significant differences between incidence of thyroid carcinoma in patients with a solitary nodule and those with multinodular goiter.<sup>7</sup> 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 worldwide rise in the incidence of thyroid carcinoma over the past six decades.<sup>8-10</sup> The presents study was conducted aimed to determine the incidence of thyroid malignancy in patients presented with multinodular goiter.

## MATERIALS AND METHODS

This retrospective/observational study was conducted at Shahida Islam Teaching Hospital Lodhran from 1<sup>st</sup> February 2018 to 31<sup>st</sup> March 2020. A total of 90 patients of both genders with ages 20 to 70 years undergoing thyroidectomy for multinodular goiter were enrolled.

Patients detailed demographics including age, sex, residence, socioeconomic status, smoking history, and family history of thyroid malignancy were recorded. Patients with solitary thyroid nodules, patients with history of thyroid surgery, already diagnosed to have thyroid carcinoma and those with no consent were excluded. All the patients were underwent total thyroidectomy. After surgery ultrasound guided fine needle aspiration cytology and histopathological examination was done to diagnose the thyroid malignancy. Histopathological findings were considered as final results. All the data was analyzed by SPSS 24.

## RESULTS

Sixty six (75.56%) were females while 22 (24.44%) were males with mean age 44.15±13.53 years. Fifty six (62.22%) patients had rural residence while 34 (37.78%) had urban residence. 24 (26.67%) patients had low socio-economic status, 50 (55.56%) had middle and 16 (17.78%) had high socio-economic status. 30 (33.33%) patients were smokers while 60 (66.67%) were non smoker. Eighteen (20%) patients had family history of thyroid malignancy (Table 1).

On histopathological examination 16 (17.78%) patients found to have malignancy while 74 (82.22%) had benign findings (Table 2)

Among 16 malignant cases, 8 (50%) had papillary carcinoma, 5 (31.25%) had follicular carcinoma, 2 (12.5%) had anaplastic and 1 (6.25%) had lymphoma (Fig. 1)

Table 1: Demographics of all the patients

Variable	No.	%
Age (years)	44.15±13.53	
Gender		
Male	22	24.44
Female	68	75.56
Residence		
Urban	34	37.78
Rural	56	62.22
Socioeconomic status		
Low	24	26.67
Middle	50	55.56
High	16	17.78
Smoking		
Yes	30	33.33
No	60	66.67
Family history		
Yes	18	20
No	72	80

Table 2: Histopathology of the patients

Histopathology	No.	%
Malignant	16	17.78
Benign	74	82.22

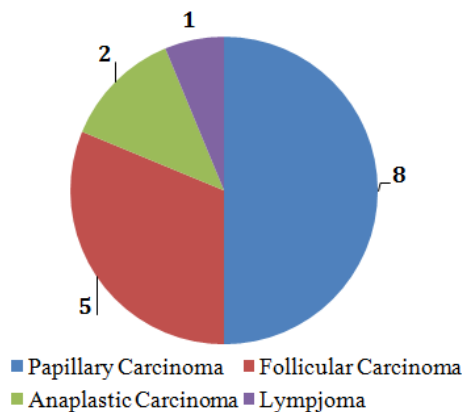


Fig. 1: Frequency of thyroid carcinomas

**DISCUSSION**

Multinodular goiter is one of the common clinical presentations in head and neck settings with high rate of morbidity and mortality. Thyroid malignancy is commonly found in multinodular goiter and accounted 10% to 40%.<sup>11,12</sup> Present study was aimed to determine the incidence of thyroid malignancy in patients with multinodular goiter. In this regard 90 patients were enrolled. Majority of patients 75.56% were females followed by males 24.44% patients with mean age 44.15±13.53 years. These results were similar to many of previous studies in which female patients population was high 65% to 80% as compared to males and majority of patients with multinodular goiter were ages above 45 years.<sup>13,14</sup> In the present study, 56 (62.22%) patients had rural residence while 34 (37.78%) had urban residence. 24 (26.67%) patients had low socio-economic status, 50 (55.56%) had middle and 16 (17.78%) had high socio-economic status. 30 (33.33%) patients were smokers while 60 (66.67%) were non smoker. 18 (20%) patients had family history of

thyroid malignancy. These results were comparable to some other studies.<sup>15,16</sup>

This study showed that 17.78% found to have thyroid malignancy while 82.22% had benign disease. Among 16 malignant cases, 8 (8.89%) had papillary carcinoma, 5 (5.56%) had follicular carcinoma, 2 (2.22%) had anaplastic and 1 (1.11%) had lymphoma A study conducted by Memon et al<sup>17</sup> reported that among 105 multinodular goiter patients 8 (7.6%) had differentiated thyroid carcinomas. Another study by Kunjumohamed et al<sup>18</sup> reported that thyroid cancer was identified in 32.8% (n=23) of patients with hyperthyroidism. Half of these patients 52.1% (n=12) had papillary micro-cancer (intra-thyroidal), and 3 patients with Grave’s disease (13%) had lymph nodes metastasis (loco-regional infiltration).

Basim et al<sup>19</sup> reported that fine needle aspiration test showed that 26 (21.7%) multinodular goiter patients had differentiated thyroid carcinoma, while 94 (78.3%) patients had benign goiter. The histopathology of multinodular goiter patients revealed that 40.8% of them had colloid goiter, 17.5% of them had micro-papillary carcinoma and 37,5% of them had follicular adenoma. Some other previous studies demonstrated that papillary carcinoma and follicular carcinoma were the most frequent type of thyroid cancer among multinodular goiter patients.<sup>20-22</sup>

**CONCLUSION**

The frequency of thyroid malignancy is comparable to other international studies. Papillary carcinoma was the most frequent malignancy followed by follicular and anaplastic carcinoma found in multinodular goiter patients.

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