

**Research Article**

## **The incidence of thyroid carcinoma in multinodular goiter: retrospective analysis in a Medical College Hospital**

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**Abstract**

**Introduction:** The incidence of carcinoma in multinodular goiter (MNG) has been found to vary from 4% to 17%. Our aim is to determine the incidence of malignancy in multinodular goiter by doing the histopathological examination of thyroidectomy specimens.

**Materials and Methods:** This retrospective, observational study was carried out on patients who are undergone thyroidectomy for clinically diagnosed multinodular goiter in Fr Muller Medical College Hospital during 2012-2013 (2yrs). All the operated specimens were subjected to a histopathological examination to determine the incidence of malignancy.

**Results:** Among the 182 MNG cases which were studied, 15 (8.2%) cases contained malignant foci. Among them, papillary carcinoma was the most common type of malignancy observed.

**Conclusion:** The risk of malignancy in MNG should not to be underestimated. Total/ Near-total thyroidectomy is the preferred operation. All the operated specimens should be sent for histopathological examination.

**Keywords:** Incidence, Multinodular goiter and Thyroid carcinoma

### **1. Introduction**

Thyroid carcinoma is a relatively rare tumor, but represents the most frequent form of cancer of endocrine glands. The incidence of carcinoma in multinodular goiters (MNG) has been found to vary from 4% to 17%<sup>1</sup>.

Epidemiologically ascertained risk factors are ionizing radiation, the presence of thyroid adenoma and multinodular goiter (MNG). Multinodularity of goiter should no longer be considered an indicator of probable benign disease.

The aim of the study is to carry out retrospective analysis of patients who have been operated for normal or hyper functioning MNG, in order to establish the incidence of the histopathologically documented carcinoma or of the occult carcinoma found only after a complete histopathological examination of the total/near total thyroidectomy specimen.

### **2. Materials and Methods**

A retrospective, observational study on patients with clinically diagnosed as benign multinodular goiter who have undergone total/ near total thyroidectomy in Fr Muller Medical College Hospital during 2012 and 2013 (2yrs) were included in the study.

All the patients undergone routine diagnostic work-up including blood investigations, thyroid function tests and fine needle aspiration cytology (FNAC). Only those patients with FNAC reported as benign multinodular goiter or suspicious nodule and operated are included in the study. Patients who are thyrotoxic were treated with anti-thyroid medications and operated after controlling thyrotoxicosis.

Those patients who are not undergone surgery in Fr Muller Medical College Hospital are excluded from the study, as well as those who were undergone subtotal/lobectomy are excluded from the study.

### **3. Results**

In this retrospective observational study of 182 operations performed for benign multinodular goiter in the period from Jan 2012 to Dec 2013 in Fr Muller Medical College Hospital by various units of surgery department. In 15 patients (8.2%) histopathology detected malignancy in operated specimen. The most common malignancy detected was papillary carcinoma of thyroid (10 patients), followed by follicular carcinoma (3 patients). Micro papillary carcinoma; smaller than 1cm has been detected in 2 patients.

**Fig 1: Chart showing Histopathology report of operated specimen**



Fig 2. Hematoxylin-eosin staining showing papillary thyroid carcinoma

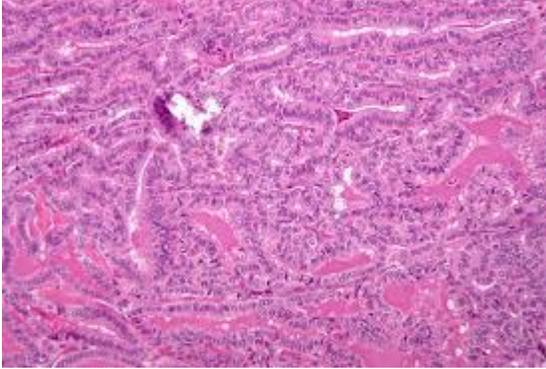


Fig 3. Hematoxylin-eosin staining showing multinodular goiter



#### 4. Discussion

Multinodular goiter (MNG) is defined as the palpation of multiple distinct nodules in the enlarged thyroid gland. Nodules may be colloid or cellular and cystic degeneration and hemorrhage are common, as is subsequent calcification. Nodules appear early in endemic goiter and later in sporadic goiter.

The nodular stage of simple goiter is irreversible. Most patients with MNG are asymptomatic. Operation may be indicated on cosmetic grounds, pressure symptoms and in the presence of suspicion of malignancy.

The surgical treatment of choice is total/ near-total thyroidectomy with immediate and life-long replacement of thyroxine. Sub-total thyroidectomy, leaves behind significant diseased thyroid tissue is not preferred nowadays. All operated specimens are sent for histopathological examination to confirm the disease process and to rule out malignancy.

Epidemiological studies have demonstrated that the incidence of carcinoma in patients with MNG is higher than the incidence of the general population. In our retrospective study, study of the patients operated for MNG, during the definitive histopathological examination, association with carcinoma was evidenced.

It has been believed that fewer than 5% of these nodules are malignant and require surgical treatment and that extensive evaluation or surgical excision is not practical<sup>2</sup>. However, Stoffer *et al*<sup>3</sup> reported that 13% of the glands resected in thyroid operations for any reason contained carcinoma.

FNAC is the most efficient method for detecting malignancy in clinically benign MNG preoperatively. Nevertheless, even if the pre-operation FNAC is negative, it does not exclude with certainty the possibility of a carcinoma, especially in MNG where the error in sampling the right area is greater. When a comparison of the results for FNAC and final histopathology was made, the former had a sensitivity of 80.6% and a specificity of 87.1%<sup>4-9</sup>. The negative rate was only 7%.

Our figures are in line with the findings of Stoffer *et al*<sup>3</sup> and Pelizzo *et al*<sup>10</sup>.

#### 5. Conclusion

We conclude that the risk of malignancy in MNG should not to be underestimated. FNAC should be done from all prominent or dominant nodules to rule out malignancy. Surgery is offered for patients for cosmetic reason, pressure symptoms and suspicious FNAC findings. Total/near-total thyroidectomy is the preferred surgery. The entire operated specimen should be sent for histopathological examination to rule out malignancy and managed properly to improve survival in these patients.

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