

## **Thyroid carcinoma in multi-nodular goiter**

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### **Abstract**

**Background:** The incidence of malignancy in toxic multi-nodular goiter (TMNG), non-toxic multi-nodular goiter (nTMNG) and Graves' disease (GD), has historically been thought to be low (5% to 10%). Many authors have claimed that hyperthyroidism protects against thyroid cancer and also believed that multi-nodularity does seem to be a certain indicative factor of benign disease. Recent studies have suggested a much higher rate of malignancy within toxic and nontoxic MNG (10% to 22%). We designed this study to determine the prevalence of incidental cancer in patients undergoing thyroidectomy for presumed benign disease.

**Methods:** The aim of this study is to evaluate the incidence of thyroid carcinoma in multi-nodular goiters (MNG) and the pathological pattern of these cancer nodules. It is a retrospective review of cases operated from January 2010 to December 2012, at "Mother Teresa" University Hospital Center, Tirana, Albania. Patients undergoing thyroidectomy for MNG, TMNG, or GD performed by members of the Department of General Surgery, were included in the study. Histology reports of patients treated surgically with a preoperative diagnosis of toxic and non-toxic multi-nodular goiter were reviewed to identify the thyroid cancer incidence. Patients having a history of neck irradiation or radioactive iodine therapy were excluded from the study. Patients with preoperative FNA results that were malignant or indeterminate were excluded. The cancer rate was calculated and univariate and multivariate analyses were performed to identify predictors of malignancy.

**Results:** We operated on 545 patients for MNG, out of whom 98 patients presented to us in a toxic state (15 GD and 83 toxic MNG) and the remaining 447 in a non-toxic state. Of the patients operated for MNG 7.7% were found to have associated thyroid cancer. The incidence of thyroid cancer in toxic MNG patients was 13.25% whereas in non-toxic MNG patients it was 6.9%. The malignant nodules detected were papillary cancers of the thyroid in 76% of cases, follicular cancers in 9.5% of cases, oncocytic type in 7.3% of cases, insular carcinoma in 2.5% and anaplastic cancer in 4.7%. The median age at surgery was 44.6 years, 8.6% of the cohort had thyroiditis and 68% underwent preoperative FNA biopsy. Male patients represented 15.04% of the entire cohort, but 23.8% of cancers were in men. The risk of cancer was higher in nodular goiter than diffuse goiter. The highest rate of cancer was found in TMNG (13.25%) and the lowest was in GD (0%).

**Conclusion:** There was a higher than expected rate of incidental cancer in TMNG (13.25%), n-TMNG (6.9%), and GD (0%). Thyroid cancers can coexist in toxic MNG despite the suppression of thyroid stimulating hormone (TSH). Given this high rate of incidental cancer, a total thyroidectomy should be the preferred approach for patients undergoing surgery for bilateral nodular disease.

### **Biography**

Rovena Bode completed Medicine from University of Tirana, Albania in 2003. She has been graduated as General Surgeon in 2009 in the General Surgery Department of "Mother Tereza", University hospital Center, Tirana, Albania. She has taken Medical Emergency Training in Torino, Italy in 2010. During 2011, she has taken fellowship in Laparoscopic Surgery and breast surgery (oncology surgery) in Naples, Italy. Currently, she is a General Surgeon in the Surgery Department of "Mother Teresa" University Hospital Center of Tirana, Albania.

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