

There Is a High Rate of Incidental Thyroid Cancer in Surgical Series of Toxic and Nontoxic Multinodular Goiter

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Smith JJ, Chen X, Schneider DF, Broome JT, Sippel RS, Chen H, Solórzano CC. Cancer after thyroidectomy: a multi-institutional experience with 1,523 patients. *J Am Coll Surg* 2013;216:571-9. Epub February 8, 2013.

SUMMARY ●●●●●●●●●●●●●●●●

Background

The likelihood of malignancy in Graves' disease (GD), multinodular goiter (MNG), and toxic multinodular goiter (TMNG) has historically been thought to be quite low (5% to 10%) (1-3). Recent studies have suggested a much higher rate of malignancy within toxic and nontoxic MNG (10% to 22%) (4-6). The authors designed this multiinstitutional study to determine the prevalence of incidental cancer in patients undergoing thyroidectomy for presumed benign disease.

Methods

This retrospective study examined cases from prospectively collected databases at three institutions in the United States. Patients undergoing thyroidectomy for MNG, TMNG, or GD performed by members of the Departments of Surgery at Vanderbilt University, the University of Wisconsin, and the University of Miami were included in the study. Cases from 2000 to 2011 were included; the time spans were different at each institution. Patients with preoperative FNA results that were malignant or indeterminate were excluded. The total number of thyroidectomies was 1523. The incidental cancer rate was calculated and univariate and multivariate analyses were performed to identify predictors of malignancy.

Results

The overall cancer rate was 15.6%. There was no statistically significant difference in cancer rates among the three institutions in the study. The median age at surgery was 49 years, 18% of the cohort had lymphocytic thyroiditis, and 43% underwent preoperative FNA biopsy. The mean cancer size was 1.1 cm (range, 0.1 to 9.0). A total of 39% of cancers were larger than 1 cm. Younger age, male sex, and the presence of nodules were associated with a higher risk of thyroid cancer. Male patients represented 16% of the entire cohort, but 21% of cancers were in men. The risk of cancer was significantly higher in nodular goiter than diffuse goiter (odds ratio, 4.1). The highest rate of cancer was found in TMNG (18.3%) and the lowest was in GD (6.1%).

Conclusions

There was a higher than expected rate of incidental cancer in TMNG (18.3%), MNG (17.5%), and GD (6.1%) across all three institutions. The risk factors for incidental thyroid cancer were male sex, thyroid nodules, and young age. Given this high rate of incidental cancer, a total thyroidectomy should be the preferred approach for patients undergoing surgery for bilateral nodular disease.

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ANALYSIS AND COMMENTARY ● ● ● ● ●

The rate of incidental thyroid cancer in this group of patients with presumably benign disease is alarmingly high. Nearly one in five patients with MNG or TMNG was found to have an incidental thyroid cancer. Despite the fact that these patients appear to have met the standard of care for preoperative thyroid assessment (all patients underwent a thyroid ultrasound and 43% had nodules interrogated by FNA), 15.6% of the overall group harbored an unsuspected malignancy, and 39% of the incidentally discovered

cancers would be considered clinically significant (i.e., >1 cm). The strengths of this study are in its multi-institutional nature and large number of patients. In support of these findings, previously published single-institution series have also demonstrated a nontrivial incidence of incidental thyroid cancer in patients undergoing thyroidectomy for presumably benign thyroid disease ranging from 12 to 16% (2-6). In light of these findings, total thyroidectomy by an experienced surgeon should be more strongly considered when managing nodular goiter, particularly in younger patients and males.

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