# MEDULLARY THYROID MICROCARCINOMAS HAVE SIGNIFICANT RATES OF POOR PROGNOSTIC FEATURES AND REQUIRE APPROPRIATE SURGICAL MANAGEMENT

Kazaure HS, Roman SA, Sosa JA. **Medullary thyroid microcarcinoma: a population-level analysis of 310 patients. Cancer.** June 29, 2011 [Epub ahead of print]. doi: 10.1002/cncr.26283.

## **SUMMARY** • • • • • • • • • • • • • • •

#### **BACKGROUND**

Medullary thyroid cancer (MTC) makes up about 5% of thyroid cancers but causes 13% of thyroid cancer deaths. The treatment is thyroidectomy with at least central-neck lymph-node dissection. Medullary thyroid microcarcinoma (microMTC) is defined as MTC <1 cm. The prevalence of microMTC in autopsy series is 0.14% (1). There is debate about the surgical management of microMTC with regard to whether the surgery should be as aggressive as that in MTC >1 cm. The purposes of the current study were to describe the incidence and the demographic, clinical, and pathologic characteristics of microMTCs and to determine the likelihood of lymph-node metastases.

#### **METHODS**

The data source for this study was the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) database; the regions used were those with the most complete data sets for this study. Multiple demographic, clinical, and pathologic variables were analyzed. Disease stage was categorized as localized if the tumor was confined to the thyroid without lymph node metastasis, regional if the tumor extended beyond the thyroid into surrounding tissues or metastasized to regional lymph nodes, and distant if metastases to extracervical lymph nodes or organs was present.

### **RESULTS**

A final sample of 310 patients was analyzed. Pediatric patients made up only 8% of the group. The incidence rate of microMTC was 4.2 per 10 million population in 1997, about one fifth of all MTC, and the annual increment was 4.2%. Mean (±SD) tumor size was 5.7±0.2 mm; 92% of tumors were intrathyroidal and 31% were multifocal.

Lobectomy alone was performed in 11% of patients. Lymph nodes were removed in 57%. Approximately 37% of patients whose lymph nodes were examined had metastases; almost 12% had more than 10 positive lymph nodes. More than 5% of patients with microMTC had distant metastases at the time of diagnosis. The overall 10-year survival rate was 91.6%. The causespecific mortality rate was 3.5%. Survival decreased with higher disease stages. The 10-year survival rates for patients with localized, regional, and distant disease were 96%, 87%, and 50%, respectively (P<0.001). Tumor size and extrathyroidal extension were the only factors associated with lymph-node metastases. A 5-mm microMTC was associated with at least a 23% risk of lymph-node metastases, independently of other risk factors, and this increased with tumor size to 37% for a 10-mm tumor.

### **CONCLUSIONS**

The results indicate that microMTCs have significant rates of poor prognostic features that can reduce survival. They require appropriate surgical management.

## COMMENTARY • • • • • • • • • • • • • •

This is a unique retrospective study based on the SEER database. Unfortunately, the database does not provide the method of diagnosis of the microMTC. Since only 8% were pediatric cases, the diagnosis of small tumors is probably not related mainly to family

screening. In fact, there are no data about family history, about fine-needle aspiration of small nodules, or about calcitonin levels. Nevertheless, the results indicate that microMTC constitutes a dangerous disorder that is similar in its spread and potential lethality to that of ordinary MTC.

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## MEDULLARY THYROID MICROCARCINOMAS HAVE SIGNIFICANT RATES OF POOR PROGNOSTIC FEATURES AND REQUIRE APPROPRIATE SURGICAL MANAGEMENT

The study raises the question of screening small nodules by measuring serum calcitonin in order to detect MTC at an early stage. This is a debatable topic because elevated serum calcitonin detected a 0.5 to 1.5% incidence of microMTC in several large European series of patients who were going to have surgery for nodular goiter, but not for small nodules. The data are summarized well in an editorial by Hodak and Burman, who concluded that calcitonin screening without evidence of a family history of

MTC yielded too many false positives associated with thyroiditis (1). In a review by Valle and Kloos of 24 autopsy series published from 21 countries, the average prevalence of occult microMTC was 0.14% (2). Finally, the current ATA guidelines "cannot recommend either for or against the routine measurement of serum calcitonin" for evaluation of thyroid nodules (3).

— Jerome M. Hershman, MD

#### **References**

- 1. Hodak SP, Burman KD. Editorial: The calcitonin conundrum—is it time for routine measurement of serum calcitonin in patients with thyroid nodules? J Clin Endocrinol Metab 2004;89:511-4.
- 2. Valle LA, Kloos RT. The prevalence of occult medullary thyroid carcinoma at autopsy. J Clin Endocrinol Metab. 2011;96:E109-E113.
- 3. Cooper DS, Doherty GM, Haugen BR, Kloos RT, Lee SL, Mandel SJ, Mazzaferri EL, McIver B, Pacini F, Schlumberger M, et al. Revised American Thyroid Association management guidelines for patients with thyroid nodules and differentiated thyroid cancer. Thyroid. 2009;19:1167-214.