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Editorial

Thyroid Cancer in Graves Disease: Incidental Cancer Versus Clinical Cancer

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In this issue of *Annuals of Surgical Oncology*, Chao, Lin, and Chen analyzed a series of 61 patients who underwent thyroidectomy for concurrent Graves disease and thyroid cancer.[1] They concluded that most of these cancers are smaller than 1 cm and subtotal thyroidectomy is adequate for cancers that are 1 cm or smaller. The concepts of "incidental thyroid cancer" and "papillary microcarcinoma" are useful to help us interpret their results and conclusions.

Graves disease concurrent with cancer in the same thyroid gland is not common. The 61 patients in this series accounted for about 2% of all patients who underwent thyroidectomy for Graves disease and about 3% of all patients who underwent thyroidectomy for thyroid cancer at their institution. When both Graves disease and thyroid cancer occur in a patient who has undergone or will undergo a thyroidectomy, two clinical questions come to mind. Is the type of thyroid operation adequate for treating both conditions? What additional treatments may be required? Because the surgical treatment for Graves disease is almost always adequate in these patients, these questions are mainly related to the treatment for the concurrent thyroid cancer.

There are two distinct clinical situations in which Graves disease and thyroid cancer occur together. In one situation (incidental cancer), Graves disease is the only clinical diagnosis before the operation. The thyroid cancer is incidentally found in the resected specimen. These are almost always papillary thyroid cancers that are smaller than 1 cm and are considered an incidental finding of minimal clinical significance. In the other situation (clinical cancer), a patient with Graves disease is found to also have a thyroid nodule or cancer during the preoperative work up. These thyroid cancers are usually larger than 1 cm and are treated surgically as cancers. In this series, two-thirds of the patients had incidental thyroid cancers and one-third had thyroid nodules or clinically suspected cancer before thyroidectomy.

Papillary thyroid cancers that are smaller than 1 cm are classified as papillary microcarcinoma. There is a significant overlap of the clinically defined incidental papillary thyroid cancer and the pathologically defined papillary microcarcinoma. Most incidental thyroid cancers are microcarcinomas.

In general, microcarcinomas that are found incidentally do not need to be treated as clinical cancers. In this situation, we agree with Chao et al. that the subtotal thyroidectomy performed for Graves disease would be an adequate treatment for the incidental microcarcinoma. We do not recommend routine completion thyroidectomy to remove remnant thyroid tissue or postoperative radioiodine treatment for such patients.

On the other hand, patients with clinically apparent thyroid cancers or cancers that are larger than 1 cm should be treated for thyroid cancer, regardless of the presence or absence of Graves disease. Because we routinely perform total thyroidectomy for thyroid cancer, we recommend the same operation for these patients if they have been identified preoperatively. If an incidental cancer larger than 1 cm is unexpectedly found in a pathology specimen, we would also treat it as clinical cancer. A completion total thyroidectomy may be necessary if there is a large thyroid remnant. A small remnant can be ablated with radioiodine. We also recommend therapeutic radioiodine application and postoperative TSH suppression with thyroid hormone in such patients.

Total thyroidectomy is gradually replacing subtotal thyroidectomy in our own surgical practice for treatment

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of patients with Graves disease. Whereas 10 years ago only one-third of operations for Graves disease were total thyroidectomies and two-thirds were Dunhill procedures (lobectomy with contralateral subtotal lobectomy, leaving 4 to 6 g of thyroid tissue), currently the proportion is the reverse: two-thirds are total thyroidectomies.

This trend toward total thyroidectomy has occurred for several reasons. The most important reason is the significant number of patients who developed recurrent disease after a subtotal thyroid resection. The other reason is the selection of patients who are best treated by total thyroidectomy. In the United States, in contrast to Asian countries, proportionally fewer patients with Graves disease undergo thyroidectomy. But patients who undergo thyroidectomy in the United States tend to have conditions that make total thyroidectomy a better choice than subtotal thyroidectomy. A disadvantage of total thyroidectomy is the need for postoperative thyroid hormone replacement. This is balanced against the lower risk of recurrent Graves disease and the absence of residual thyroid tissue that is immunogenic. Common indications for thyroidectomy for Graves disease in the United States are reluctance to undergo radioiodine treatment (young patients and women who are of child-bearing age or wish to be pregnant soon), very large goiter, allergy to antithyroid medicine, concomitant severe eye disease, and concomitant thyroid nodules or cancers.

Certain factors suggestive of thyroid disease in patients with Graves disease can be noted during preoperative evaluation. Patients with Graves disease who have palpable nodules are best treated with total thyroidectomy. Although preoperative fine needle aspiration (FNA) biopsy for cytology is helpful, false-negatives can occur. If the patient prefers to have remnant thyroid tissue to potentially avoid the need for thyroid replacement, a Dunhill procedure can be performed, leaving the thyroid remnant on the normal contralateral side without residual thyroid nodule.

With the increasing use of thyroid ultrasonography, more thyroid nodules are found that are not palpable. Patients with Graves disease are no exception. Ultrasonography can identify nodules that are suspicious for cancer on the basis of their irregularity, vascularity, or calcification. Total thyroidectomy is a better choice for these patients.

In conclusion, we agree with Chao et al. that it is important to distinguish between incidental cancer and clinical cancer in these patients with concurrent Graves disease and thyroid cancer, so as to avoid overtreatment of incidental cancer and undertreatment of clinical cancer.

REFERENCE

1. Chao T-C, Lin J-D, Chen M-F. Surgical treatment of thyroid cancers with concurrent graves disease. *Ann Surg Oncol.* 2004;11: 407–12.