Clinical THYROIDOLOGY



# Radioiodine Lobe Ablation May Be an Effective Alternative to Completion Thyroidectomy in Selected Patients with Minimally Invasive Follicular Thyroid Cancer

Barbesino G, Goldfarb M, Parangi S, Yang J, Ross DS, Daniels GH. Thyroid lobe ablation with radioactive iodine as an alternative to completion thyroidectomy after hemithyroidectomy in patients with follicular thyroid carcinoma: long-term follow-up. Thyroid. December 27, 2011 [Epub ahead of print].

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#### Background

Follicular thyroid cancer constitutes about 10% of thyroid cancers and is difficult to diagnose on fineneedle aspiration biopsy (FNAB). Many patients with FNAB diagnosis of follicular lesions undergo hemithyroidectomy, and only a small proportion of these lesions turn out to be follicular carcinomas. Subsequent treatment is usually a completion thyroidectomy, or uncommonly, <sup>131</sup>I ablation of the residual lobe. The latter procedure may be used in patients who have recurrent laryngeal-nerve palsy from the surgery or in those who refuse further surgery. The purpose of the current retrospective study was to review the outcome of patients who underwent radioiodine ablation after hemithyroidectomy (RAI-L-ABL) and compare them with patients who had completion thyroidectomy (C-Tx) and those who had initial total thyroidectomy (T-Tx) for follicular thyroid cancer.

#### Methods

The study included patients who were followed at the Thyroid Unit of the Massachusetts General Hospital. There were 37 patients in the RAI-L-ABL group treated, from 1983 through 2007, with 30 to 32 mCi<sup>131</sup>I to ablate the remaining lobe; there were 68 patients in the C-Tx group and 29 in the T-Tx group, followed from 1993 through 2007. In this retrospective study, follow-up procedures were not uniform over time. Patients were followed using clinical observation, radioiodine scans, and thyroglobulin measurements.

# Results

Seven patients in the RAI-L-ABL group reported mild to moderate neck tenderness after the ablative dose. After thyroid hormone withdrawal, the mean  $(\pm$ SD) radioiodine uptake in the RAI-L-ABL group  $(0.6\pm0.8\%)$ 

was lower than those of the C-Tx  $(2.0\pm3.3\%)$  and T-Tx  $(1.3\pm1.8\%)$  groups. Based on radioiodine scans showing residual thyroid tissue, 12 of the 37 patients in the RAI-L-ABL group received an additional dose of about 100 mCi <sup>131</sup>I. Radioiodine remnant ablation was given to 86% of the other two groups.

Anti-Tg antibodies were present in 46.5%, 13%, and 17% of the RAI-L-ABL, C-Tx, and T-Tx groups, respectively (P<0.05). After withdrawal of thyroid hormone, serum Tg concentrations did not differ between the three groups and were elevated in 27%, 24%, and 14% of the RAI-L-ABL, C-Tx, and T-Tx groups, respectively. The mean withdrawal serum TSH in the RAI-L-ABL group was 83 mU/L and TSH was >25 mU/L in all patients, indicating a lack of functional thyroid tissue. At last follow-up, detectable serum Tg was found in 38% of the RAI-L-ABL group, 14% of the C-Tx group, and 28% of the T-Tx group.

Median follow-up was longer (95 months) in the RAI-L-ABL group than in the C-Tx (47 months) and T-Tx (53 months) groups. One disease-specific death of a patient known to have distant metastatic disease before surgery occurred in the RAI-L-ABL group. Another death occurred in a patient in the T-Tx group due to pulmonary metastases. Two additional C-Tx patients and two T-Tx patients were alive with distant metastatic disease at the end of follow-up. The staging of patients at the last available clinical observation did not differ between groups.

# Conclusions

Radioactive remnant iodine ablation, completion thyroidectomy, and total thyroidectomy result in similar long-term outcomes in the treatment of follicular thyroid cancer.

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#### ANALYSIS AND COMMENTARY • • • • •

For minimally invasive thyroid carcinoma without significant vascular invasion, lobectomy may be sufficient. Unlike papillary thyroid carcinoma, follicular carcinoma is rarely bilateral. In instances in which the follicular carcinoma is widely invasive, removal of all thyroid tissue is clearly indicated and radioiodine lobe ablation is considered to be far less desirable than completion thyroidectomy, usually without node dissection. The ATA guidelines recommend against radioiodine lobe ablation (recommendation 30) but do not distinguish between papillary and follicular thyroid carcinoma in this recommendation (1). Because follicular thyroid cancer results in vascular invasion and distant metastases and has a higher mortality than papillary thyroid cancer (2), total thyroidectomy is recommended (2). This is followed by radioiodine ablation of remnant tissue.

The current retrospective study shows that radioiodine remnant ablation is effective; unfortunately, the groups are not truly comparable because the RAI-L-ABL group was treated in an earlier time period. The higher proportion of detectable Tg may be related to treating fewer of this group with a subsequent ablative dose of <sup>131</sup>I; the basis for this was lower thyroid uptake of a diagnostic dose of <sup>131</sup>I after the lobe ablation in this group. Although the authors state that more of the RAI-L-ABL patients had anti-Tg antibodies, possibly induced by the <sup>131</sup>I therapy for ablation of the lobe, they do not provide data on the final proportion with antibodies.

When patients refuse to have completion thyroidectomy or when the surgeon is reluctant to perform it because of recurrent laryngeal-nerve palsy, radioiodine ablation may be an effective alternative. The outcome data with regard to mortality are reassuring in this respect when these three groups were compared.

— Jerome M. Hershman MD

# References

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