



Making wise decisions for completion thyroidectomies

Vegard Heimly Brun^{1,2^}, Katrin Brauckhoff^{3,4}

¹Department of Breast and Endocrine Surgery, University Hospital of North Norway, Tromsø, Norway; ²Institute of Clinical Medicine, UiT The Arctic University of Norway, Tromsø, Norway; ³Department of Breast and Endocrine Surgery, Haukeland University Hospital, Bergen, Norway; ⁴Department of Clinical Science, University in Bergen, Bergen, Norway

Correspondence to: Vegard Heimly Brun. Department of Breast and Endocrine Surgery, University Hospital of North Norway, Sykehusvegen 38, 9019 Tromsø, Norway. Email: vegardbrun@gmail.com.

Comment on: Choi SM, Kim DG, Lee JE, *et al.* Thyroid lobectomy is sufficient for differentiated thyroid cancer with upgraded risk after surgery. *Gland Surg* 2022;11:1451-63.

Submitted Sep 27, 2022. Accepted for publication Oct 11, 2022.

doi: 10.21037/gs-22-559

View this article at: <https://dx.doi.org/10.21037/gs-22-559>

Unilateral differentiated thyroid cancer (DTC) <4 cm can be treated with thyroid lobectomy or total thyroidectomy (TT), depending on the presence of high-risk features. Information about some of these features, such as micrometastasis in lymph nodes or microscopic extrathyroidal extension (ETE), are usually incidental findings that only become available after histological assessment from the first surgery. If such features or risk factors are present, physicians face the dilemma of suggesting completion thyroidectomy or not. There is often considerable room for clinical judgement in these cases, even though thyroid cancer guidelines generally say that completion thyroidectomy should be offered as if the information were available before the initial surgery.

In this issue of *Gland Surgery*, Choi and coworkers (1) provide data that may help clinicians making their wise decisions when faced with this situation. The authors looked at patients whose American Thyroid Association (ATA) risk classification was upstaged from low to intermediate after incidental findings of lymph node micrometastasis or microscopic ETE. The authors present data from 2,830 patients treated for assumed low risk DTC with lobectomy and prophylactic ipsilateral central compartment neck dissection (CCND). Patients with lymph node metastasis >2 mm or gross ETE of the cancer were treated with TT and not included in the study. Thus, patient selection included only “the better part” of intermediate risk patients. The presence of micrometastasis or microscopic ETE,

two features that according to ATA guidelines (2) would add to the argument for completion thyroidectomy, did not change the treatment strategy at the author’s clinic. This allowed the unique opportunity for the authors to compare long-term oncological outcomes for patients with micrometastasis in the central lymph nodes or microscopic ETE, to those who had not, without further surgical or radioiodine treatment.

As expected from the patient selection, the total incidence of recurrences during the 10-year average follow-up was extremely low. Only 1.9% of the 1702 patients that the authors were able to follow had a recurrence. There were no statistical differences in the number of recurrences when comparing the patients without any lymph node metastasis (pN0) to those who had 1–5 micrometastasis, nor to the group with microscopic capsular invasion, nor when comparing the two latter. For clarification, the group predominantly defined by microscopic capsular invasion (535 of the 543 patients in this group) also included 14 patients with more than five micrometastasis.

The data suggest that completion thyroidectomy is not warranted when micrometastasis or microscopic ETE is incidentally found upon histological examination. As always, the conclusions must be interpreted with some caution. First, we do not know if the diagnostic workup was made according to ATA guidelines. If very small cancers that could have been safely overlooked or followed without surgery were included, the patient selection could be biased

[^] ORCID: 0000-0002-4136-3073.

towards the very low risk group. The argument of avoiding overtreatment in this group is less valid if there were overdiagnosis during patient selection. Second, 40% of the patients were lost to follow-up, a common weakness in many retrospective studies. We know from other countries that patients with recurrence often get their redo surgery at another clinic, however this may not be the case in Korea. Third, the average follow-up time of 10 years is relatively short for small DTCs, as the authors point out in the discussion. In fact, the Kaplan-Meier curves in the paper may even suggest that the drop in recurrence-free survival only starts to display after more than 10 years. Whether or not to chase this possible effect more than 10 years ahead by more aggressive treatment is another question.

Choi *et al.* touches upon several of the questions currently under debate in thyroid cancer surgery: the indication of prophylactic lymph node dissection, the indication for TT in patients with unilateral disease and thereby the use of radioactive iodine therapy. It is important to acknowledge that TT carries a heavier burden on the patient as compared to unilateral surgery, and weigh this against a possible benefit. The benefits of both TT and radioiodine therapy for low to intermediate risk cancers are not well documented. While Choi *et al.* conclude that TT can be avoided if patients are treated with lobectomy and CCND, the necessity for CCND is disputed in T1-2 cancers, and not recommended by ATA guidelines. Lobectomy alone may have been enough. A clinical randomized trial underway (ESTIMABL3) may help us answer this controversy.

No direct comparison to patients treated with more extensive treatment (TT and radioiodine ablation) was performed in the study. However, the large group sizes should allow sufficient statistical power to detect clinically relevant differences between the groups. Any additional benefits from more extensive treatment would have to outweigh its side-effects. This is where the debate about wise decisions starts. Awareness of the complications from TT is increasing and should make us save more thyroids (3). Completion thyroidectomy and primary TT share the same amount of risk (4,5). When compared to unilateral surgery, TT has a significantly higher risk for vocal fold paralysis, because both recurrent nerves are exposed. Permanent hypoparathyroidism, a virtually non-existent complication after unilateral surgery, is recently reported in about 10% of patients after TT, even in benign disease (6-8). Voice and swallowing problems in the absence of obvious nerve damage are common (9). Total thyroidectomy requires life-

long hormone replacement therapy, which may reduce quality of life (10).

There are many drivers that generate overdiagnosis and overtreatment in modern health care (11). In breast cancer surgery, overtreatment can be driven by patients that request prophylactic surgery or mastectomy when a breast-conserving approach would be equally safe. In thyroid cancer, patient demands are unlikely to influence the extent of the surgery strongly, leaving more influence on the physician's advice. A recent survey study in the United States compared the recommendations of thyroid cancer specialists to ATA guidelines and found that 64% suggested overdiagnosis and 40% suggested overtreatment (12). A common argument to overtreat thyroid cancer is that less extensive surgery may require higher diagnostic quality and closer follow-up, to the price of patients feeling insecure. In Europe, about two thirds of patients with T1-2 differentiated thyroid cancers are treated with TT (European Registry for Endocrine Surgery, personal communication). A cost-benefit analysis including complications and quality of life is challenging to communicate to the patient who wants to be cured for cancer. Guidelines have a large responsibility for staking out the course.

Acknowledgments

Funding: None.

Footnote

Provenance and Peer Review: This article was commissioned by the editorial office, *Gland Surgery*. The article did not undergo external peer review.

Conflicts of Interest: Both authors have completed the ICMJE uniform disclosure form (available at <https://gs.amegroups.com/article/view/10.21037/gS-22-559/coif>). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Open Access Statement: This is an Open Access article distributed in accordance with the Creative Commons Attribution-NonCommercial-NoDerivs 4.0 International

License (CC BY-NC-ND 4.0), which permits the non-commercial replication and distribution of the article with the strict proviso that no changes or edits are made and the original work is properly cited (including links to both the formal publication through the relevant DOI and the license). See: <https://creativecommons.org/licenses/by-nc-nd/4.0/>.

References

1. Choi SM, Kim DG, Lee JE, et al. Thyroid lobectomy is sufficient for differentiated thyroid cancer with upgraded risk after surgery. *Gland Surg* 2022;11:1451-63.
2. Haugen BR, Alexander EK, Bible KC, et al. 2015 American Thyroid Association Management Guidelines for Adult Patients with Thyroid Nodules and Differentiated Thyroid Cancer: The American Thyroid Association Guidelines Task Force on Thyroid Nodules and Differentiated Thyroid Cancer. *Thyroid* 2016;26:1-133.
3. Welch HG, Doherty GM. Saving Thyroids - Overtreatment of Small Papillary Cancers. *N Engl J Med* 2018;379:310-2.
4. Rafferty MA, Goldstein DP, Rotstein L, et al. Completion thyroidectomy versus total thyroidectomy: is there a difference in complication rates? An analysis of 350 patients. *J Am Coll Surg* 2007;205:602-7.
5. Sena G, Gallo G, Innaro N, et al. Total thyroidectomy vs completion thyroidectomy for thyroid nodules with indeterminate cytology/follicular proliferation: a single-centre experience. *BMC Surg* 2019;19:87.
6. Annebäck M, Hedberg J, Almquist M, et al. Risk of Permanent Hypoparathyroidism After Total Thyroidectomy for Benign Disease: A Nationwide Population-based Cohort Study From Sweden. *Ann Surg* 2021;274:e1202-8.
7. Almquist M, Ivarsson K, Nordenström E, et al. Mortality in patients with permanent hypoparathyroidism after total thyroidectomy. *Br J Surg* 2018;105:1313-8.
8. Chadwick DR. Hypocalcaemia and permanent hypoparathyroidism after total/bilateral thyroidectomy in the BAETS Registry. *Gland Surg* 2017;6:S69-74.
9. Borel F, Tresallet C, Hamy A, et al. Self-assessment of voice outcomes after total thyroidectomy using the Voice Handicap Index questionnaire: Results of a prospective multicenter study. *Surgery* 2020;167:129-36.
10. Yaniv D, Vainer I, Amir I, et al. Quality of life following lobectomy versus total thyroidectomy is significantly related to hypothyroidism. *J Surg Oncol* 2022;126:640-8.
11. Kale MS, Korenstein D. Overdiagnosis in primary care: framing the problem and finding solutions. *BMJ* 2018;362:k2820.
12. Dedhia PH, Saucke MC, Long KL, et al. Physician Perspectives of Overdiagnosis and Overtreatment of Low-Risk Papillary Thyroid Cancer in the US. *JAMA Netw Open* 2022;5:e228722.

Cite this article as: Brun VH, Brauckhoff K. Making wise decisions for completion thyroidectomies. *Gland Surg* 2022;11(11):1741-1743. doi: 10.21037/gS-22-559