Is Less More? Adoption of Treatment Guidelines for Low-Risk Papillary Thyroid Cancer

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The debate over the appropriate extent of surgery for low-risk papillary thyroid cancer (PTC) has been ongoing for years. Early data studying long-term outcomes in patients with PTC established total thyroidectomy as the treatment of choice to reduce the risk of recurrence and improve overall survival.¹ However, in understanding that the majority of thyroid surgery in the USA is performed by low-volume surgeons,² the first set of guidelines released by the American Thyroid Association (ATA) in 1996 deemed the optimal extent of surgery to be controversial; total thyroidectomy may result in decreased recurrence and allows for radioactive iodine treatment (RAI) and use of thyroglobulin for surveillance, but there is a risk of increased complication rates for those less experienced surgeons.³ Later, population-level data showing improved recurrence rates and overall survival in low-risk patients undergoing total thyroidectomy resulted in a recommendation in the 2009 ATA guidelines for total thyroidectomy for all patients with PTC larger than 1 cm.^{4–6}

In November 2015, an updated set of guidelines were released by the ATA. The greatest shift from previous recommendations was that, for patients with intrathyroidal tumors between 1 and 4 cm and without other high-risk features, either total thyroidectomy or thyroid lobectomy could be performed.⁷ This shift was largely based on data showing no difference in overall survival for patients with tumors who fit these criteria when treated with either

thyroid lobectomy or total thyroidectomy when adjusted for comorbidities and aggressive pathologic features,⁸ as well as an understanding that recurrences in patients undergoing lobectomy were salvageable without any negative impact on overall survival.⁷ Furthermore, they again noted that over 80% of thyroid resections are performed by low-volume surgeons, who may have higher complication rates after total thyroidectomy. All of this, in addition to the decreased utilization of RAI treatment for low-risk PTC, presents a strong case for consideration of thyroid lobectomy in appropriately selected patients.

Early responses to the guidelines expressed concerns about preoperative selection of patients for thyroid lobectomy and that many characteristics that would necessitate total thyroidectomy or RAI would only be evident on final pathology. These studies suggested that completion thyroidectomy would be necessary in 19–43% of patients to facilitate appropriate treatment.^{9,10} Despite these data, several studies have shown an increase in the use of thyroid lobectomy as sole treatment for patients with thyroid cancer. Ullmann et al. examined the National Surgical Quality Improvement Program (NSQIP) database between 2009 and 2017 and found an increase in the use of thyroid lobectomy for patients with thyroid cancer from 17.3% before 2015 to 22.0% after release of the guidelines without a concomitant increase in completion thyroidectomies.¹¹ Recently, Toumi et al. examined IBM MarketScan data, which showed a similar increase in use of thyroid lobectomy from 17% of all thyroid cancers to 28% by the end of 2018 that was also associated with release of the 2015 ATA guidelines.¹² Single-institutional studies have also shown increasing rates of thyroid lobectomy for thyroid cancer with declining completion thyroidectomies.^{13,14}

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Nevertheless, the reported safety and efficacy of thyroid lobectomy in treating low-risk PTC may not be widely accepted. In this issue of *Annals of Surgical Oncology*, McDow et al. report the results of a survey distributed to members of the American Medical Association who perform thyroid surgery, with the goal of evaluating surgeons' beliefs and recommendations for surgical treatment of low-risk PTC measuring 1–4 cm.¹⁵ This population was chosen as it was thought to represent both low- and high-volume surgeons more completely than other subspecialty societies with special interests in thyroid cancer. The majority of respondents were low-volume surgeons (fewer than 25 thyroidectomies annually) who worked in a nonacademic setting.

Respondents were given a stem question of a 45-year-old woman with a solitary intrathyroidal PTC of gradually increasing size and asked to choose their recommended surgical therapy. Recommendation for thyroid lobectomy was greatest for the smallest tumor size (1.1 cm), and gradually decreased as tumor size increased. High-volume surgeons were more likely to consider thyroid lobectomy, but overall, a minority of surgeons recommended lobectomy for any PTC larger than 1 cm. Among low-volume thyroid surgeons, nearly 28% were unaware that thyroid lobectomy was an appropriate treatment option for low-risk PTC. The majority of both low- and high-volume surgeons thought the risk of complications following total thyroidectomy was greater than for thyroid lobectomy, and nearly half of respondents believed that the risk of cancer recurrence was decreased following total thyroidectomy.

Ultimately, those surgeons performing total thyroidectomy for low-risk PTC are providing their patients with appropriate guideline-adherent care. The decision for extent of surgical treatment of low-risk PTC has to result from an informed conversation between the patient, surgeon, and endocrinologist, discussing the risks and benefits of both types of procedure. Total thyroidectomy enables more convenient follow-up of thyroglobulin levels, especially if RAI is used, and may decrease recurrence rates, but has higher morbidity, while thyroid lobectomy allows for less extensive surgery and the preservation of some intrinsic thyroid function. If the ultimate goal of the 2015 ATA guidelines was to promote less extensive surgery, especially for patients without access to a high-volume thyroid surgeon, these timely data show that more work needs to be done to ensure widespread distribution of and confidence in the newer recommendation.

DISCLOSURES

The authors declare no conflict of interest.

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