The importance of a multidisciplinary approach to endocrine tumors

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In 2009, the American Thyroid Association published revised management guidelines for patients with thyroid nodules and differentiated thyroid cancer. Current recommendations suggest that “thyroid lobectomy alone may be sufficient for the treatment of small (<1 cm), low-risk, unifocal, intrathyroidal papillary carcinomas in the absence of prior head and neck irradiation or radiologically or clinically involved cervical nodal metastases.”1 In this issue of Surgery, Ogilvie et al evaluated the extent of surgery in patients with well-differentiated thyroid microcarcinomas at their institution; based on their findings, the authors conclude that total thyroidectomy should be strongly considered in patients with a preoperative suspicion or confirmed cytologic diagnosis of well-differentiated thyroid cancer in tumors 6–10 mm in size.2

Typically defined as a focus of papillary thyroid cancer (PTC) ≤1 cm, the clinical significance of papillary thyroid microcarcinomas (PTMC) is unclear, and optimal surgical management continues to be a source of debate in the endocrine oncology literature. Numerous studies have suggested that a minimalist approach to these tumors may be appropriate. Baudin et al3 found that of 281 patients with PTMC, only 11 recurrences (4%) were seen after a mean follow-up of 4.3 years. The 2 parameters that significantly influenced recurrence were the presence of multifocality (number of foci) and the extent of initial surgery; the authors recommend thyroid lobectomy for unifocal tumors and total thyroidectomy for patients with multifocal PTMC. Hay et al4 reviewed the Mayo clinic experience with 900 cases of PTMC in a 60-year period; 20- and 40-year tumor recurrence rates were 6% and 8%, respectively. Higher recurrence rates were associated with multifocal tumors and lymph node metastases. Although the majority (85%) of the 900 patients underwent a near-total or total thyroidectomy, neither more extensive surgery or adjuvant radioactive iodine reduced recurrence.

Most recently, Sugitani et al5 published their results of a prospective clinical trial of nonsurgical observation for asymptomatic PTMC; 300 lesions in 230 patients were observed for a mean of 5 years (range, 1–17). Of these 300 lesions, 269 (90%) were unchanged; only 12 patients underwent subsequent surgery, 9 patients in whom the tumor increased in size and 3 with lymph node metastases. Still, others recommend that nonincidental PTMC be managed similar to any other PTC. Arora et al6 found that of 202 patients with thyroid cancer treated at a single institution, 66 (33%) had PTMC. There were no differences in tumor characteristics between those with PTMC or conventional PTC, including multifocality, extrathyroidal extension, angiolymphatic invasion, and lymph node metastases. Furthermore, disease recurrence was not statistically different between the 2 groups; 17% of patients with PTMC and 21% of patients with PTC >1 cm in size. In the report by Ogilvie et al,2 78 (60%) of 130 patients had surgery based on preoperative cytology findings, including 66 patients (85%) with a fine needle aspiration (FNA) biopsy diagnostic of, or suspicious for, PTMC. Total thyroidectomy was performed in 106 patients, including 39 patients with tumors ≤5 mm in size. On final pathology, adverse pathologic features were found in 61% of patients with tumors 6–10 mm in size and 32% of patients with tumors ≤5 mm in size; the authors confirm that (in retrospect, after complete pathologic assessment of the total thyroidectomy specimen) none of these patients would have met current ATA recommendations for thyroid lobectomy alone.

The findings of these studies are important not only for their influence on the surgical management of patients with PTMC, but also for their broader implications on the pre- and postoperative management of patients with thyroid nodules. Current ATA guidelines recommend FNA evaluation of
thyroid nodules between 5 and 10 mm in diameter only in patients with a high risk history for thyroid cancer and in whom the nodule may have suspicious sonographic features. In the patient cohort described by Ogilvie et al., 66 patients underwent FNA; yet only 3 patients had a history of head/neck irradiation or otherwise met ATA criteria for FNA biopsy. Clearly, some form of selection (or physician) bias was involved in the decision to biopsy such small thyroid nodules. Ultimately, all 66 patients underwent an operative procedure. While the authors emphasize that they are not addressing patient outcomes (complication rates, recurrence rates, or overall survival), it is indeed appropriate, and perhaps even essential, to consider patient outcomes in the context of consensus guidelines and patient management, particularly in an era in which both health care costs and patient outcomes are scrutinized by patients, referring physicians, and those responsible for health care policy decisions. For example, what was the denominator of the 66 patients who underwent FNA biopsy—how many biopsies were done to find these 66 patients?

The treatment of patients with endocrine tumors requires a multidisciplinary approach, one in which all involved are attuned to the ramifications of diagnostic procedures, such as FNA biopsy. In a patient with a 6-mm thyroid nodule with no suspicious sonographic features and no risk factors for thyroid cancer, what are the medical, financial, and psychosocial implications of the diagnosis of thyroid cancer, at both the individual and societal level? Given the abundance of data on the overwhelmingly favorable prognosis for this hypothetical patient, should a biopsy even be performed? This discussion should occur among endocrinologists, radiologists, and surgeons and be guided by the best available data, often as summarized by guidelines and consensus statements. Importantly, guidelines are intended not only for high-volume surgeons/physicians, but also as a reference for all practitioners, including those at lower-volume centers. In the hypothetical case described above, while total thyroidectomy may be safe in the hands of high-volume thyroid surgeons, numerous studies have shown that patient outcomes are related to surgeon volume. It is, therefore, hard to justify a recurrent laryngeal nerve injury or permanent hypoparathyroidism in a patient with a small PTMC who has an excellent prognosis. Therefore, while it is important that guidelines provide flexibility to providers with extensive (expert-level) experience to be provocative and push the boundaries of patient care, it is equally important that guidelines provide flexibility and a reasonable breadth of options to those less experienced, thereby allowing physicians the opportunity to individualize patient care, based on their personal and institutional capabilities.

The management of patients with small (<1 cm) thyroid nodules and particularly the role for FNA biopsy, as described by Ogilvie et al. highlights the importance of institutional multidisciplinary working groups. For those physicians who work in settings where the creation of a multidisciplinary group is not feasible, whether due to volume, geographic or other limitations, staying abreast of current guidelines and consensus statements may be challenging. For such practitioners, attendance and participation at subspecialty society meetings (American Association of Endocrine Surgeons) and institutional postgraduate conferences provides an opportunity to further the dialogue and continued education on such contemporary/controversial topics in the care of patients with endocrine tumors.

REFERENCES