

# Comment on “The Diagnosis and Management of Thyroid Nodules: A Review”

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The authors in this excellent review article have described the current state of evaluation and management of thyroid nodules. They have undertaken an extensive review of the published literature and summarized their evidence-based conclusion in *Journal of American Medical Association (JAMA)* (1). Their major reference is related to the recent published guidelines of the American Thyroid Association from January 2015. The new guidelines are the third version of evaluation and management of thyroid nodules published by the ATA (American Thyroid Association) (2). This article and the ATA guidelines represent the current principles in the management of thyroid nodules. The authors have appropriately discussed the high incidence of thyroid nodules and thyroid cancer and the incidental identification of micropapillary carcinoma. It would be important to re-emphasize some of the current advances in the management of thyroid nodules and thyroid cancer.

Thyroid nodules are fairly common; approximately 50–60% of individuals in the United States have incidental thyroid nodules, and approximately 5–10% have thyroid microcarcinoma. The commonality of thyroid nodules is well recognized in routine head and neck evaluation. These incidentalomas are identified incidentally or accidentally in routine evaluation performed for other medical conditions, including carotid evaluation and cervical spine evaluation, especially related to trauma. The routine evaluation of the thyroid nodule is an ultrasound of the thyroid. In the past 25 years, there has been remarkable progress in the evaluation of thyroid nodules with ultrasound and identification of suspicious versus non-suspicious thyroid

nodules. The recent guidelines recommend against fine needle aspiration biopsy for nodules below 1.5 cm, especially if they are not radiologically suspicious. The suspicious findings of the thyroid nodule on ultrasonography include microcalcification, hypervascularity, and irregular margins. These suspicious findings can be easily identified on routine ultrasound of the thyroid, which is called the Thyroid Imaging Reporting & Data System (TIRADS).

Ultrasound is also helpful in determining which thyroid nodules should be biopsied, and more importantly, for the long-term follow-up of these patients. The general advice has been to repeat an ultrasound in one year for follow-up. The fine needle aspiration biopsy has revolutionized the evaluation and management of thyroid nodules. However, approximately 30–40% of patients will have indeterminate or atypical fine needle aspiration biopsy. There has been considerable interest in the recent evaluation for appropriate molecular testing, including Afirma and Thyroseq. Both investigations have their own limitations, and the interpretation should adhere to the biology of thyroid nodules and the sonographic findings. These molecular tests are also quite expensive and not available routinely around the world. However, most of these tests are more critical to rule out thyroid cancer. Certain molecular markers, such as BRAF and TERT, are more suggestive of thyroid cancer, which may be slightly more aggressive (3).

The management of thyroid cancer revolves around appropriate surgical intervention. Routine practice in the past involved total thyroidectomy and radioactive iodine in almost all patients with thyroid cancer, especially those

above 1 cm. This was described very well in the first and second editions of the ATA guidelines. Our better understanding of the biology of thyroid cancer and several publications around the world showing equally good results with lobectomy compared to total thyroidectomy in select circumstances has helped us to re-visit the subject of extent of thyroidectomy and routine use of radioactive iodine. The new guidelines have emphasized lobectomy as an appropriate treatment for up to 4 cm well differentiated thyroid cancer without aggressive features. The major aggressive features would include extrathyroidal extension, aggressive histology, or multiple positive lymph nodes. There appears to be cautious use of radioactive iodine in selected patients with intermediate or high-risk thyroid cancer. The risk stratification is very critical in the evaluation and management of thyroid cancer, including low, intermediate, and high-risk (4). The high-risk patients would require close surveillance and early detection of recurrent thyroid cancer. With our aggressive follow-up with ultrasound and routine evaluation of thyroglobulin assay in the postoperative period, several patients will be noted to have minute recurrent disease, especially in the nodal sites. However, it should be recognized that these patients do not require active surgical intervention. Some of these patients may develop treatment related complications, such as nerve injuries and temporary or permanent hypoparathyroidism, with aggressive surgical approach. Observation is a good choice in some of these low volume recurrent tumors. Thyroglobulin doubling time is also an important follow-up marker, as described by Miyauchi *et al.* (5).

The current interest in this topic revolves around the philosophy of observation approach in the management of proven micropapillary carcinoma. This is akin to the philosophy of managing prostate cancer. This requires an utmost understanding between the patient, the family, and the physicians. Every patient may not accept the philosophy of observation of proven thyroid cancer. Anxiety and the fear of progression of thyroid cancer always concern the patients and the families. However, there is an ample data in the literature from Kobe, Japan and Memorial Sloan Kettering Cancer Center, suggesting that only a small percentage of patients will progress with these microcarcinomas and could be easily observed (6). The philosophy of deferred intervention is a good choice, since papillary carcinoma of the thyroid seems to be increasing rapidly in its incidence, primarily due to incidental findings

of thyroid nodules. Tuttle *et al.* have followed thyroid nodules for almost a decade with their innovative approach of looking at the volume of the thyroid nodules and overall changes in the thyroid cancer volume (6).

I would like to congratulate the authors of this manuscript for bringing to us the recent advances in the management of thyroid nodules and thyroid cancer, and for their extensive literature review and evidence based approaches.

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## Footnote

*Conflicts of Interest:* The author has no conflicts of interest to declare.

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