

## FIVE THINGS TO KNOW ABOUT ...

## Thyroid nodules

Sami P. Moubayed MD, Mark L. Urken MD

**The appropriate evaluation for a thyroid nodule is measurement of thyroid-stimulating hormone (TSH) and neck ultrasonography**

The most recent guideline from the American Thyroid Association recommend serum TSH measurement and neck ultrasonography in all patients with a thyroid nodule.<sup>1</sup> A suppressed TSH level (< 0.3 mU/L) suggests an autonomously functioning nodule, and a thyroid scan with iodine-123 should be performed.<sup>1</sup> If the TSH level is normal or high (> 5 mU/L), fine-needle aspiration (FNA) biopsy should be considered.<sup>1</sup>

**Cytologic findings of FNA biopsy should be reported using the Bethesda System**

Six diagnostic categories exist, with different risks of malignant disease: nondiagnostic or unsatisfactory (I, 1%–4%), benign (II, 0%–3%), atypia or follicular lesion of undetermined significance (III, 5%–15%), follicular neoplasm (IV, 15%–30%), suspicious for malignant disease (V, 60%–75%) and malignant (VI, 97%–99%).<sup>2</sup>

**Resources for clinicians and patients**

- Thyroid Foundation of Canada: [www.thyroid.ca](http://www.thyroid.ca)
- Thyroid Cancer Canada: [www.thyroidcancer.ca](http://www.thyroidcancer.ca)
- American Thyroid Association: [www.thyroid.org](http://www.thyroid.org)
- Thyroid Cancer Care Collaborative tool to record and monitor individual patient records: [www.thyroidccc.org](http://www.thyroidccc.org)

**For Bethesda III nodules, either repeat FNA biopsy or molecular testing should be performed before referring patient for diagnostic surgery**

Repeat FNA biopsy yields a more definitive cytologic diagnosis in up to 90% of cases based on high-quality studies, but it must be performed at least 3 months later to avoid a false-positive result due to reactive or reparative changes.<sup>1</sup> In Bethesda III nodules, a positive result of molecular testing for a panel of mutations was reported to confer an 88% risk of cancer based on high-quality prospective data.<sup>3</sup>

**References**

1. 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.
2. Cibas ES, Ali SZ. The Bethesda System for reporting thyroid cytopathology. *Thyroid* 2009;19:1159-65.
3. Nikiforov YE, Ohori NP, Hodak SP, et al. Impact of mutational testing on the diagnosis and management of patients with cytologically indeterminate thyroid nodules: a prospective analysis of 1056 FNA samples. *J Clin Endocrinol Metab* 2011;96:3390-7.

**Only noncystic nodules greater than 1–2 cm should be biopsied**

Although nodules are present in 19%–68% of individuals, most do not require biopsy.<sup>1</sup> Fine-needle aspiration (FNA) biopsy is recommended for nodules with features on ultrasonography that indicate higher risk of malignant disease (Appendix 1, available at [www.cmaj.ca/lookup/suppl/doi:10.1503/cmaj.160300/-/DC1](http://www.cmaj.ca/lookup/suppl/doi:10.1503/cmaj.160300/-/DC1)).<sup>1</sup>

**Follow-up of benign nodules should be determined by risk stratification based on ultrasound pattern**

The recommendations for follow-up of benign nodules are listed in Appendix 1. After 2 benign cytologic results, ultrasound surveillance is no longer indicated.<sup>1</sup> However, growth or development of symptoms may be indicators for surgical treatment.

**Competing interests:** None declared.

This article has been peer reviewed.

**Affiliations:** Division of Otolaryngology–Head and Neck Surgery, Université de Montréal (Moubayed), Montréal, Que.; Department of Otolaryngology–Head and Neck Surgery (Moubayed, Urken), Mount Sinai Beth Israel, New York, NY; Thyroid, Head and Neck Cancer Foundation (Moubayed, Urken), New York, NY

**Correspondence to:** Sami Moubayed, [sp.moubayed@umontreal.ca](mailto:sp.moubayed@umontreal.ca)

CMAJ 2016. DOI:10.1503/cmaj.160300