

Cytopathology In Focus: NIFTP's impact on FNA malignancy risk

Cytopathology in focus

FROM THE CAP CYTOPATHOLOGY COMMITTEE; KRISTEN E. NATALE, DO, EDITOR

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January 2017— What's in a name? As announced in *JAMA Oncology* in April 2016, tumors previously classified as follicular variant of papillary thyroid carcinoma and found to have no invasion on adequate sampling of the tumor capsule have been given a new name: noninvasive follicular thyroid neoplasm with papillary-like nuclear features, or NIFTP.¹ The most commonly encountered pronunciation of the new acronym is “nift” as in “nifty” plus a “P” at the end (“nift-pee”). These tumors previously have been called noninvasive, encapsulated, partially encapsulated, or well-circumscribed follicular variant of papillary thyroid carcinoma.

The name change reflects the very low risk of recurrence and metastasis in these patients as compared with invasive follicular variant of papillary thyroid carcinomas, and the goal is to avoid overtreatment. More conservative therapy may be considered in patients with NIFTP, including surgical treatment with lobectomy rather than total thyroidectomy and forgoing subsequent radioactive iodine therapy.

Reclassifying this noninvasive neoplasm as benign has the potential to affect rates of malignancy of the six major diagnostic categories of the Bethesda System for Reporting Thyroid Cytopathology. Faquin, et al.,² in their study of the impact of this reclassification on cases collected in 2013 and 2014 at five academic centers, report that the most pronounced and statistically significant reductions in the rates of malignancy were seen within the indeterminate categories of the Bethesda System. The atypia of undetermined significance/follicular lesion of undetermined significance (AUS/FLUS), follicular neoplasm/suspicious for follicular neoplasm (FN/SFN, including cases with Hürthle cell/oncocytic features), and suspicious for malignancy (SFM) categories had decreases of 5.2 percent to 13.6 percent, 9.9 percent to 15.1 percent, and 17.6 percent to 23.4 percent, respectively. Results from cases with surgical follow-up and cases with clinical follow-up are reported. Based on this cohort, a diagnosis of SFM still maintains a risk of malignancy higher than that for the FN/SFN category and lower than that of the malignant category. Interestingly, the reduction in risk of malignancy varies from one percent to 19.2 percent among institutions.

Similarly, Strickland, et al.,³ report a study of thyroid FNAs from Brigham and Women's Hospital. The study design differs from that of Faquin, et al., in that this study used only cases with surgical follow-up. Strickland, et al., also report reductions in the rate of malignancy of the Bethesda System indeterminate categories (AUS/FLUS, FN/SFN, and SFM), with the largest reduction in the suspicious for malignancy category.

The papers by Faquin, et al., and Strickland, et al., are recommended reading for understanding the potential impact of this surgical pathology diagnosis reclassification on thyroid FNA outcomes.

How should these changes be handled? For now, communication about the name change and potential rates of malignancy is key. In the long term, it remains to be seen whether changes in cytologic classification, reporting of FNA results, or clinical approach will be necessary. Perhaps cytomorphologic features diagnostic of NIFTP will be identified,⁴ or perhaps immunohistochemical stains or molecular testing may help risk stratify these lesions.

1. Nikiforov YE, Seethala RR, Tallini G, et al. Nomenclature revision for encapsulated follicular variant of papillary thyroid carcinoma: a paradigm shift to reduce overtreatment of indolent tumors. *JAMA Oncol.* 2016;2(8):1023-1029.
2. Faquin WC, Wong LQ, Afrogheh AH, et al. Impact of reclassifying noninvasive follicular variant of papillary thyroid carcinoma on the risk of malignancy in The Bethesda System for Reporting Thyroid Cytopathology. *Cancer Cytopathol.* 2016;124(3):181-187.
3. Strickland KC, Howitt BE, Marqusee E, et al. The impact of noninvasive follicular variant of papillary thyroid carcinoma on rates of malignancy for fine-needle aspiration diagnostic categories. *Thyroid.* 2015;25(9):987-992.
4. Maletta F, Massa F, Torregrossa L, et al. Cytological features of “noninvasive follicular thyroid neoplasm with papillary-like nuclear features” and their correlation with tumor histology. *Hum Pathol.* 2016;54:134-142.

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