Elmira Vaziri Fard, MD, MPH, Manju Ambelil, Suhair Al Salih, Christine Liang, Hui Zhu, MD, PhD, Jing Liu, MD, PhD, Peisha Yan, MD, Jaiyeola Thomas-Ogunniyi, MBBS, FRCPath, FWACP, FMCPATH, and Songlin Zhang, MD, PhD, FASCP; University of Texas Health Science Center at Houston

**Objectives:** Accurate diagnosis of some salivary gland neoplasms by cytology specimen may be challenging due to the overlapping cytomorphology. Some recent developments in salivary gland pathology, including specific chromosome rearrangement in some tumors, make it possible to diagnose specific tumor types using cytology specimens. The aim of this study was to review the current practice and evaluate the usefulness of immunohistochemistry (IHC) in FNA diagnosis of salivary gland lesions in our institute.

**Methods:** A 7-year (2011–2017) retrospective review was performed on the salivary gland FNA cytology archives of our institution. IHC was performed on 51 of the total 285 (17.9%) FNA cases, and the IHC cases were grouped based on the cytomorphology patterns as basaloid neoplasm, oncocytoid neoplasm, lymphoid lesion, metastatic, and other.

**Results:** Among the 51 cases, 42 (82.3%) had a definitive diagnosis, 8 (15.7%) had neoplasm of uncertain malignant diagnosis, and 1 (2%) had atypical diagnosis. Twenty-four of 51 cases had surgical resections. Cytology with IHC accurately classified 20 of 24 (83.3%) lesions. For the basaloid neoplasm group, IHC markers for ductal epithelium (CK7 and EMA) and myoepithelial cell (p63, SMA, GFAP, and S100) were often used for the differential diagnosis. For oncocytic neoplastic group, DOG1 was often used for acinic cell carcinoma and androgen receptor was used for salivary ductal carcinoma. The malignant tumors had significantly higher Ki-67 than the benign neoplasms and nonneoplastic lesions (P = .00009).

**Conclusion:** Our study shows that IHC is very helpful in salivary gland neoplasm cytology. Besides some newly developed IHC markers such as PLAG1 for pleomorphic adenoma, MYB for adenoid cystic carcinoma, and DOG1 for acinic cell carcinoma, some classic IHC markers such as myoepithelial markers are still very useful. Ki-67 proliferative index is a very valuable marker for differentiating malignant from benign.

Is Flow Cytometry Alone Enough in the Assessment of Lymph Node Fine-Needle Aspirations?

Alexandria Smith-Hannah, MD, and Rana Naous, MD; SUNY Upstate Medical University

**Objectives:** Flow cytometry is becoming increasingly more used and relied on in making a conclusive diagnosis of lymph node fine-needle aspiration (FNA) in cytopathology. To some, it is a pseudo-gold standard to compare and assess the accuracy of morphological findings. The present study was designed to further assess the role that flow cytometry has in lymph node FNAs and to determine if morphology is necessary in those cases where the final diagnosis is intended to only be made after reviewing flow cytometry results.

**Methods:** Cytospins and touch imprints of lymph node FNAs performed between May 2017 and June 2017 were cytologically evaluated by two pathologists, blinded to the flow cytometry results. Categorized as positive, negative, or suspicious, the cytologic assessments were then compared to the flow cytometry results and to the signed-out diagnosis.

**Results:** A total of 37 FNA cases were evaluated (27 cytospins, 10 touch imprints), obtained from peripheral (29) and mediastinal (8) lymph nodes. The patients’ ages ranged from 6 to 90 years (mean of 50) and included 24 females and 13 males. The overall concordance rate of both pathologists’ cytologic interpretations with flow cytometry results, when suspicious cases were grouped in with reactive cases, was 84.51%. Discordance was predominantly found in Hodgkin lymphoma cases and in florid reactive cases, in which the cytology showed a few large atypical cells with a high N:C ratio and slightly irregular nuclear contours, but was determined to be polyclonal by flow cytometry. Assessment of lymphocyte monomorphism was the main cytologic challenge in cytospin specimens.

**Conclusion:** Based on our case series, cytology of lymph node FNA has a good correlation with flow cytometry with a discordance rate of 15.49%. Flow cytometry should not be used alone or in replacement of cytology, particularly in cases with high suspicion for Hodgkin lymphoma.