HHS Public Access

Author manuscript

Cancer Cytopathol. Author manuscript; available in PMC 2021 February 01.

Published in final edited form as:

Cancer Cytopathol. 2020 February ; 128(2): 87–88. doi:10.1002/cncy.22207.

Diagnosis and Grading of Basaloid Salivary Gland Tumors Using the Milan System for Reporting Salivary Gland Cytopathology

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INTRODUCTION

Fine-needle aspiration (FNA) of salivary gland lesions represents a particularly challenging area of nongynecologic cytopathology. A variety of factors contribute to this challenge, including the remarkable heterogeneity of salivary gland tumors, the cytomorphologic overlap between many benign tumors and low-grade salivary gland carcinomas, and the rarity of many salivary gland lesions. In 2018, an international group of cytopathologists from 15 countries published the Milan System for Reporting Salivary Gland Cytopathology (MSRSGC).[1–3] The system, sponsored by the American Society of Cytopathology and the International Academy of Cytology, was quickly adopted by many institutions in the United States and around the globe, as well as being endorsed by head and neck surgeons.[4] The MSRSGC provides a long overdue standard reporting system that, similar to its thyroid FNA predecessor, The Bethesda System for Reporting Thyroid Cytopathology, links each diagnostic category with a risk of malignancy. The MSRSGC, which is evidence based, promotes clearer communication between the cytologist and treating clinician, as well as enhances interinstitutional communication. Therefore, the MSRSGC leads to improved patient care.[1–4]

In this issue of *Cancer Cytopathology*, Gargano et al have described their experience using the MSRSGC for the diagnosis and grading of a subset of salivary gland tumors with basaloid features.[5] Among salivary gland tumors, this subset of basaloid tumors is considered by many to be the most problematic to classify cytologically. This group of tumors includes cellular pleomorphic adenoma, basal cell adenoma, basal cell adenocarcinoma, adenoid cystic carcinoma, and metastatic basaloid cancers, among others. The MSRSGC recommends that salivary gland lesions diagnosed by FNA as malignant should be subclassified as a specific cancer type when feasible as well as graded as low-grade versus high-grade.[1] This is recommended because there are significant potential implications for clinical management based on tumor grade. In their article, Gargano et al have demonstrated that certain cytologic features, including necrotic debris, mitotic activity,

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CONFLICT OF INTEREST DISCLOSURES

The author made no disclosures.

cellular discohesion, and anisonucleosis, alone or in combination, are useful for classifying basaloid salivary gland tumors as high-grade.[5]

Although not specifically addressed by Gargano et al,[5] the increasing availability of immunohistochemical and molecular markers for many of the most common salivary gland tumors also has the potential to significantly increase the accuracy of salivary gland FNA for subclassifying tumors. For example, among basaloid salivary gland tumors as studied by Gargano et al,[5] most adenoid cystic carcinomas can be identified using molecular analysis for their characteristic rearrangement involving MYB or MYBL1, whereas in contrast, basal cell adenomas often are associated with mutations in the *CTNNB1* gene.[6,7] Given the impact of the recent MSRSGC combined with the results of studies such as that by Gargano et al, as well as the continual discovery of new ancillary markers for salivary gland neoplasia, the future for salivary gland cytopathology is very bright!

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