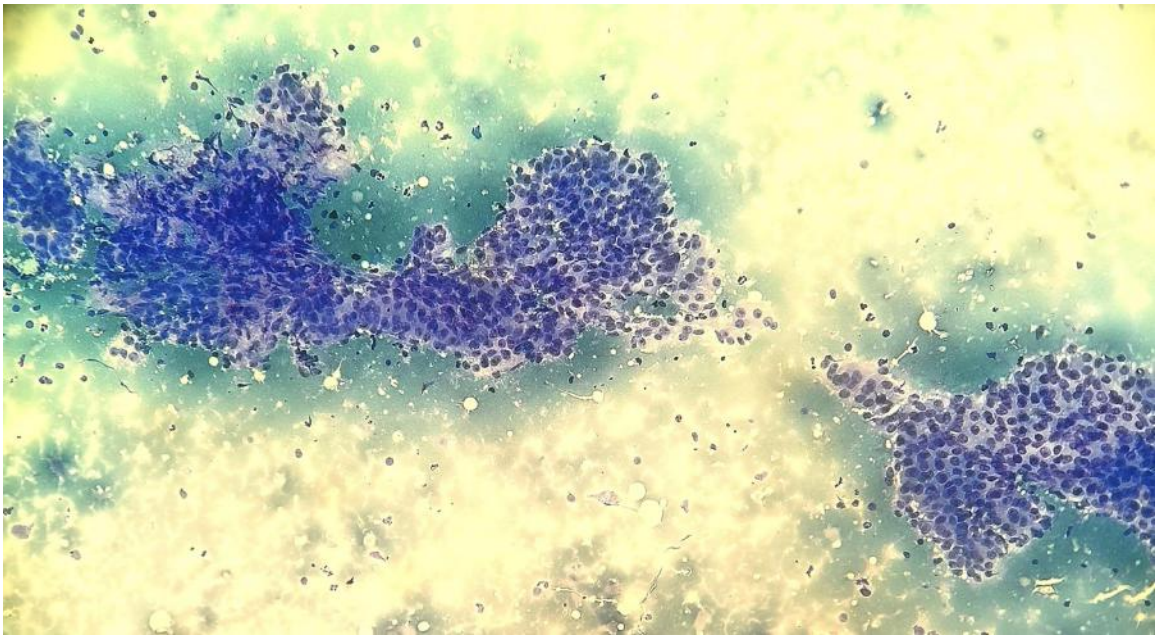
Case Presentation

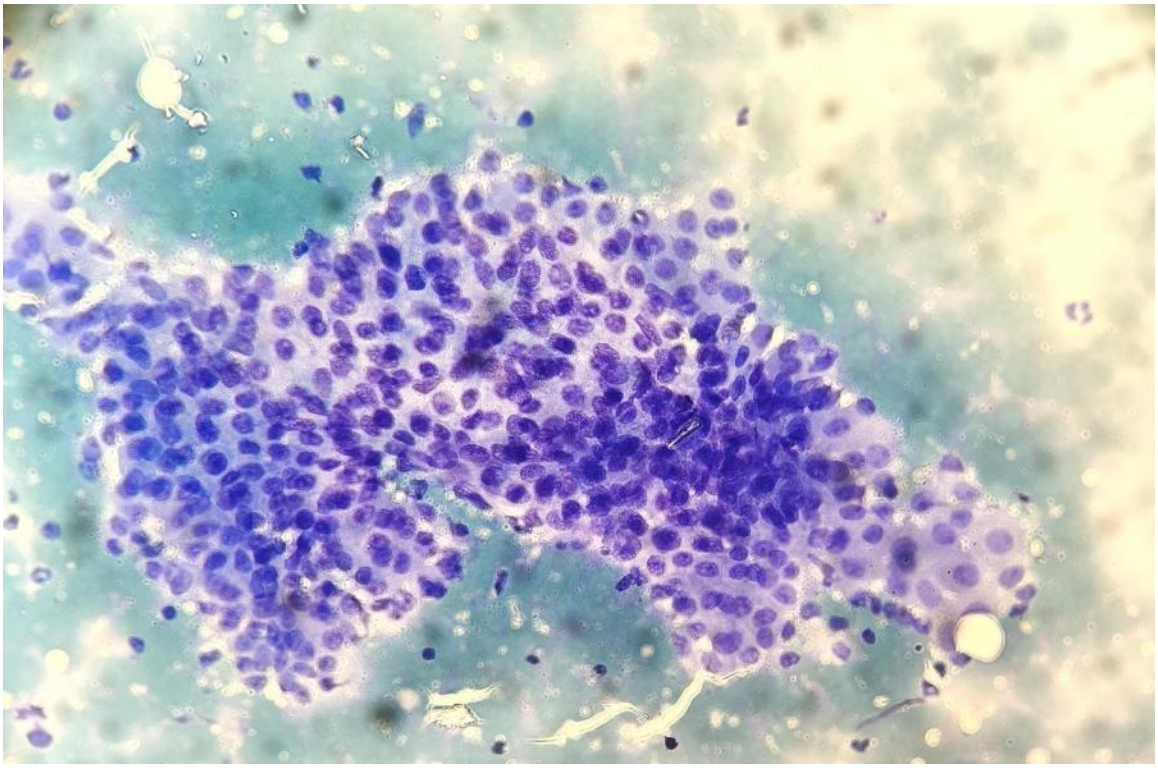
An 80-year-old male patient presented with a hypoechoic, nodular lesion of approximately 21 mm in the right parotid gland. Clinical suspicion was of a pleomorphic adenoma. Cytopathologic assessment via fine needle aspiration (FNA) was performed.

Cytological Report

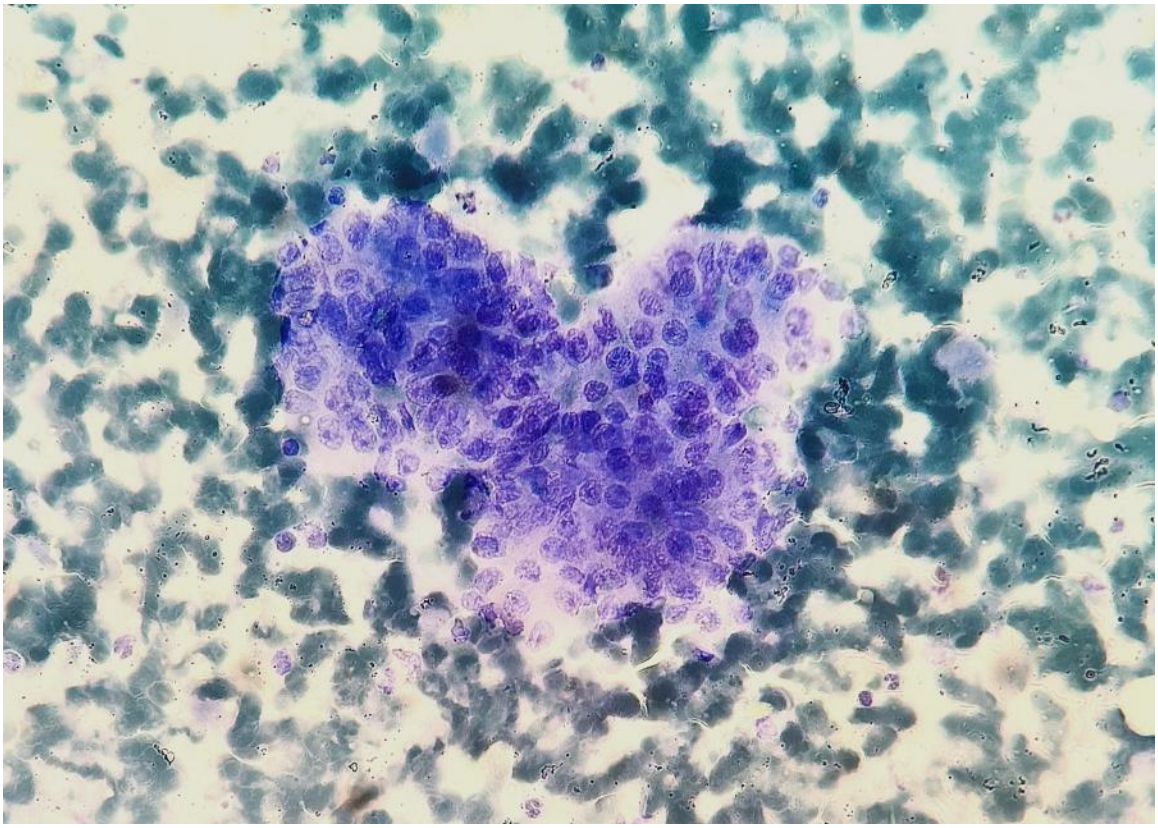
The sample showed numerous clusters of ductal and glandular epithelium with oncocytic characteristics and mild atypia. Some areas exhibited epithelial strips with multinucleated, anisokaryotic cells and prominent nucleoli. A moderate number of lymphocytes and plasma cells were also observed in a mucoid background. The cytological profile suggested a salivary gland neoplasm of uncertain malignant potential (SUMP) per the Milan System. Histological confirmation was recommended.



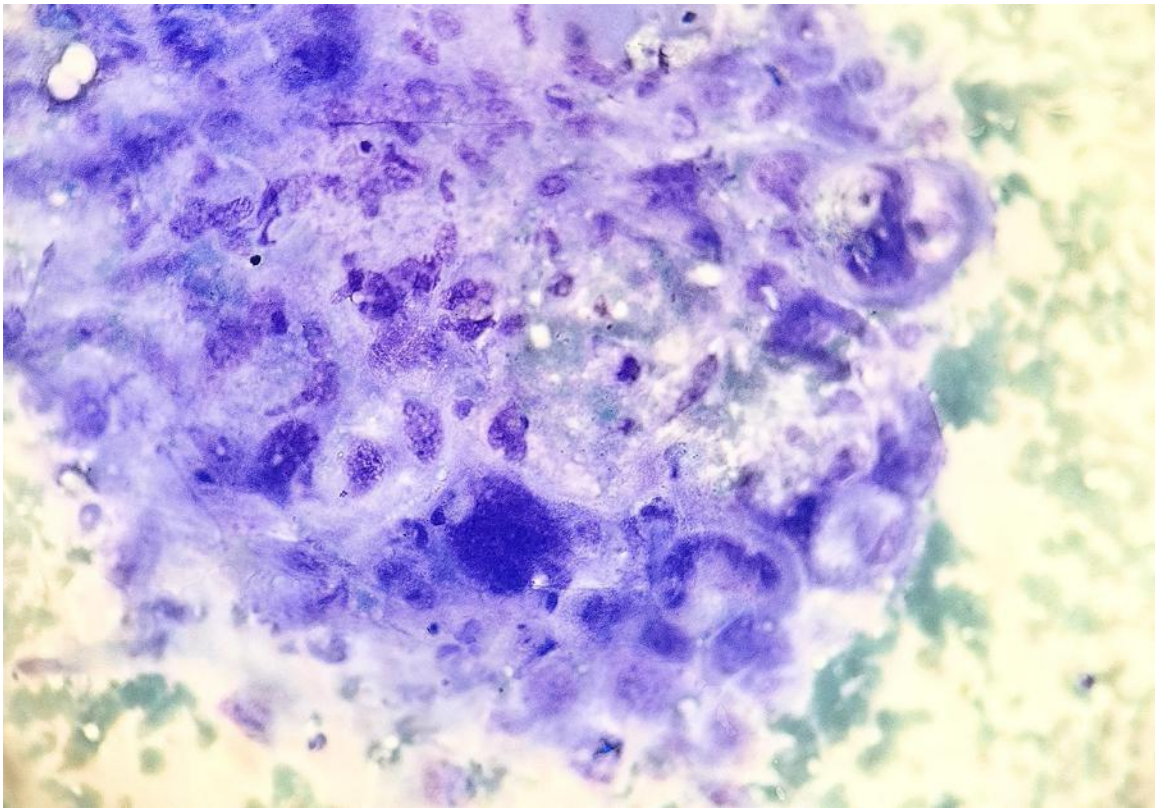
Oncocytic cells arranged in sheets and exhibiting mild nuclear atypia in a lymphoplasmacytic background. (direct smear, May Grunwald-Giemsa stain, 200x)



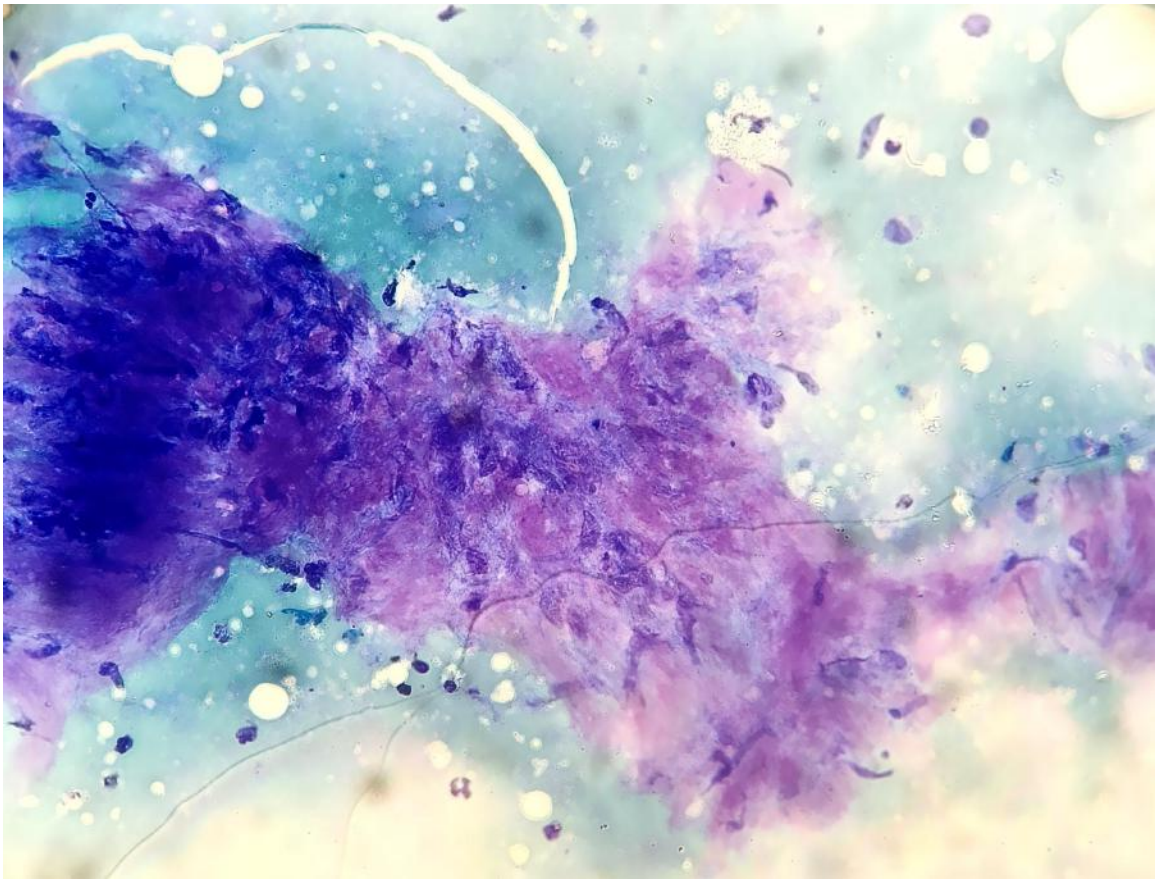
Cluster of oncocytic/ocncocytoid epithelial cells with granular eosinophilic cytoplasm and mild nuclear atypia. (direct smear, May Grunwald-Giemsa stain, 400x)



Cluster of oncocytic epithelial cells with granular eosinophilic cytoplasm and mild nuclear atypia. (direct smear, May Grunwald-Giemsa stain, 400x)



Epithelial aggregate with multinucleated, anisokaryotic cells and prominent nucleoli. (direct smear, May Grunwald-Giemsa stain, 400x)



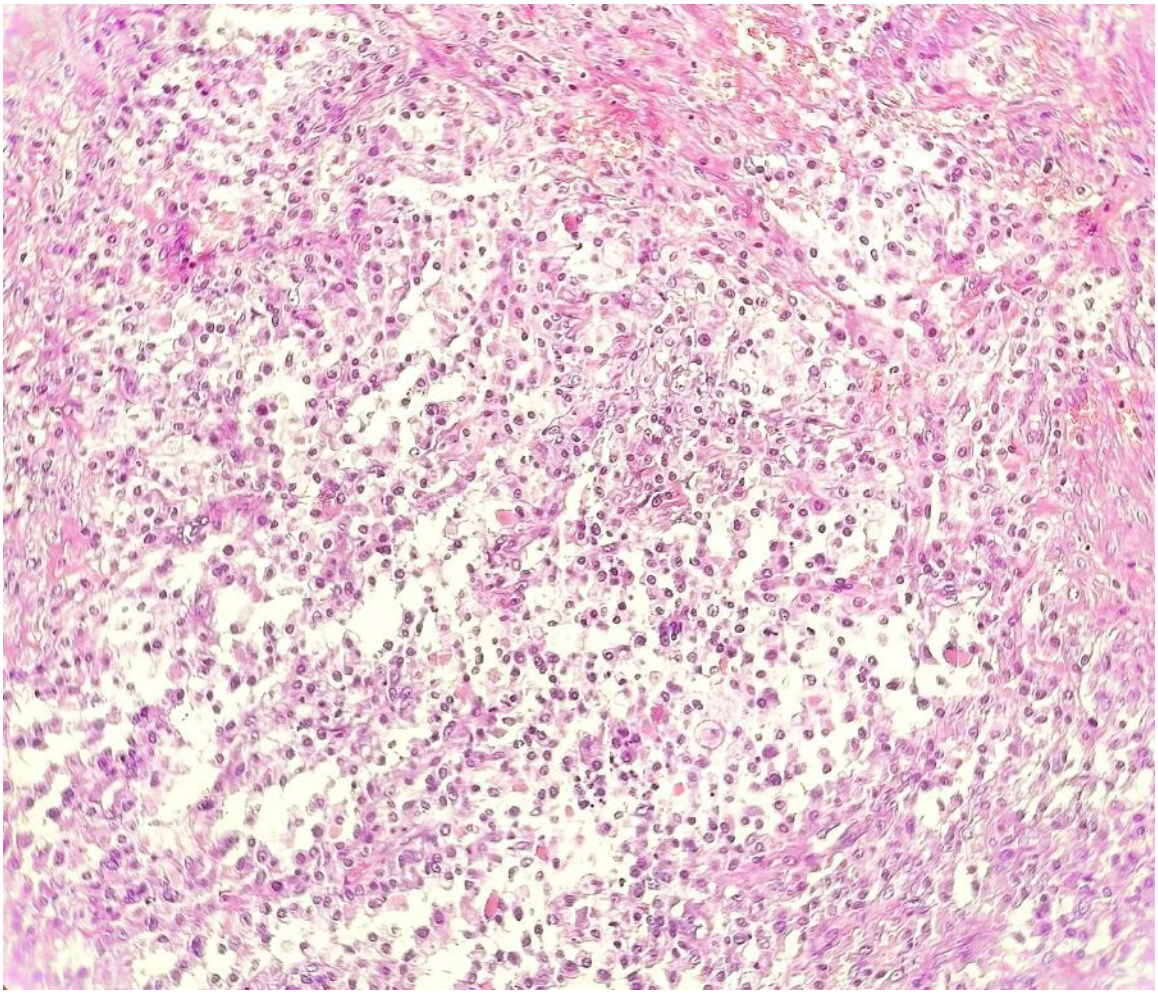
Another epithelial strand with prominent anisokaryotic cells (direct smear, May Grunwald-Giemsa stain, 400x)

Histological Evaluation

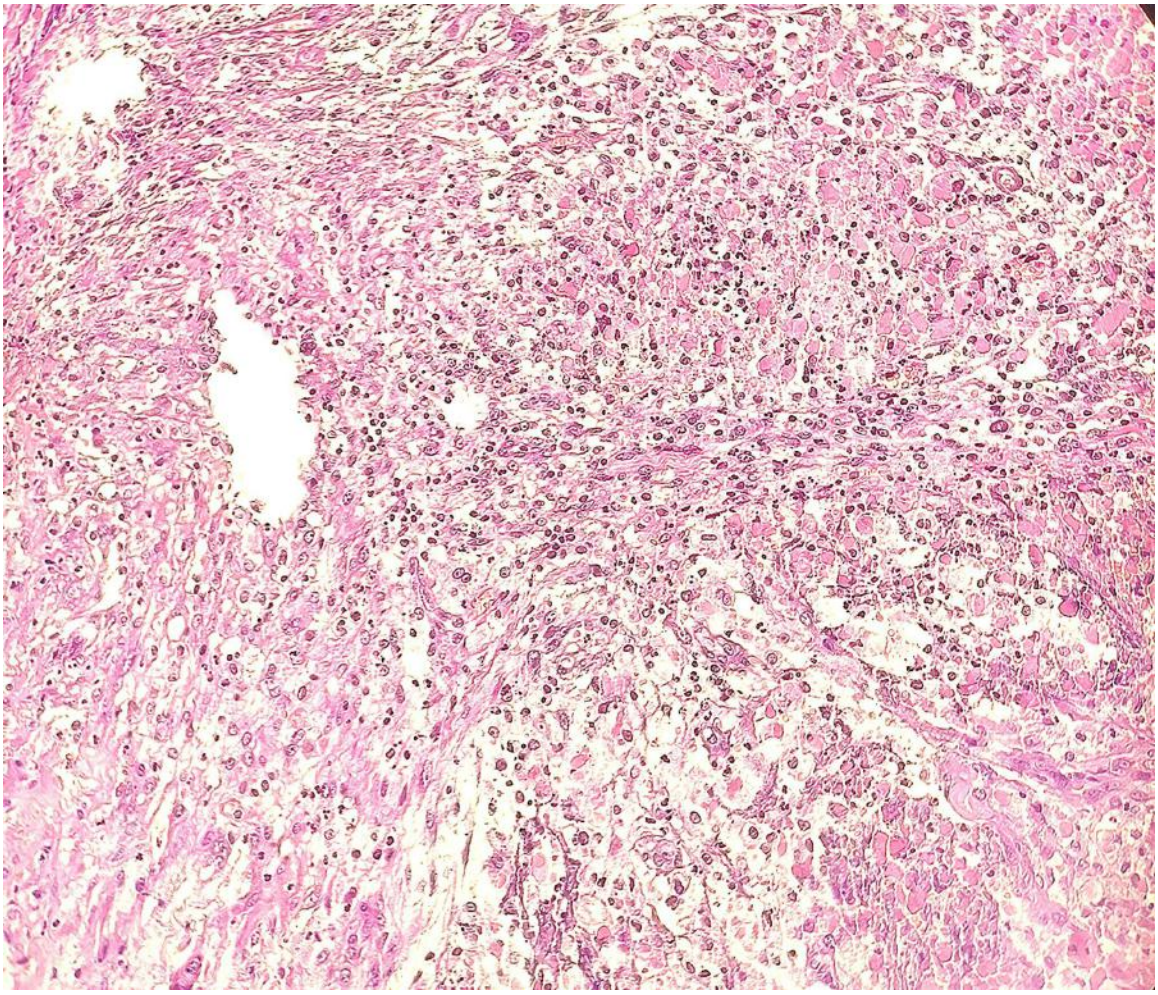
A right parotidectomy was performed. The parotid gland measured 5 × 2.8 × 1.8 cm with a total weight of 13.2 grams. A lobulated, solid neoplasm with sclerotic-hemorrhagic areas measuring 1.8 cm in maximum diameter was observed.

Histologically, the neoplasm exhibited a solid structure with a peripheral trabecular pattern composed mainly of oncocytic cells. Central areas showed necrotic and hemorrhagic material, consistent with ischemic changes and post-FNA phenomena. Reparative features included squamous metaplasia (confirmed by CK-AE1/3 and p63 positivity, and absence of S-100 and SOX10 staining). No perineural or vascular invasion was found. The tumor reached the glandular capsule but did not infiltrate it.

Final Diagnosis: Parotid oncocytoma with ischemic-infarctual changes.



A solid neoplastic architecture composed predominantly of oncocytic cells arranged in trabecular and sheet-like patterns is observable (H/E, 200x).



Central areas demonstrate necrosis, hemorrhage, and metaplastic squamous epithelium. (H/E, 200x)

Discussion

Salivary gland tumors are diagnostically challenging due to their histologic variety. This case was initially placed under the SUMP (Salivary gland neoplasm of uncertain malignant potential) category, according to the Milan System for Reporting Salivary Gland Cytopathology.

SUMP includes tumors with cytologic features that raise concern for malignancy but lack definitive criteria. The sample showed a monotonous oncocytic epithelial proliferation with mild atypia—worrisome but not overtly malignant. The aggregates with anisokaryotic cells were more consistent with reparative changes.

Recent updates to the Milan System, validated by Hang et al. (2022), propose subdividing SUMP cases into “low-risk” and “high-risk” groups based on architectural patterns, cellular atypia, and background elements to refine management strategies. Notably, oncocytic

tumors with mild atypia, particularly in a mucoid or lymphoid-rich background, as seen here, tend to fall into the low-risk SUMP subcategory. Hang et al. demonstrated that the risk of malignancy (ROM) in this subcategory is significantly lower (~12%) than in the high-risk SUMP group (>50%) .

Histologic examination in this case confirmed an oncocytoma with infarctual changes, no perineural or vascular invasion, and a capsular contact without infiltration. These findings, alongside the cytologic background, reinforce the value of SUMP subcategorization in predicting outcomes and guiding decision-making.

Key Learning Points

- Oncocytomas may mimic malignancies cytologically and are part of the SUMP diagnostic category.
- Infarctual-ischemic changes can alter histologic appearance.
- SUMP requires careful surgical and histopathologic correlation to confirm benignity.

Author of the Case

Pietro Tralongo, MD, MIAC, University of Messina, Italy. Special thanks to Prof. Guido Fadda and to Dr. Anna Bonanno for their support in developing this case report.

References

1. Rossi, E. D., Baloch, Z., Barkan, G., Foschini, M. P., Kurtycz, D., Pusztaszeri, M., Vielh, P., & Faquin, W. C. (2024). Second edition of the Milan System for Reporting Salivary Gland Cytopathology: Refining the role of salivary gland FNA. *Journal of the American Society of Cytopathology*, *13*(1), 67–77. https://doi.org/10.1016/j.jasc.2023.08.004
2. Hang, J. F., Lee, J. J. L., Nga, M. E., Higuchi, K., Hirata, Y., Wu, H. H., Allison, D. B., Gilbert, J. D., Lin, O., Saieg, M., de Arruda, A. F., Chen, Y. A., Huang, E. C., & Manucha, V. (2022). Multi-institutional validation of a modified scheme for subcategorizing salivary gland neoplasm of uncertain malignant potential (SUMP). *Cancer cytopathology*, *130*(7), 511–522. https://doi.org/10.1002/cncy.22593