

Salivary Gland Cytology Case presentation

M. S. Aziz MD
Senior Director
Division of Cytopathology
North Shore-LIJ Health System

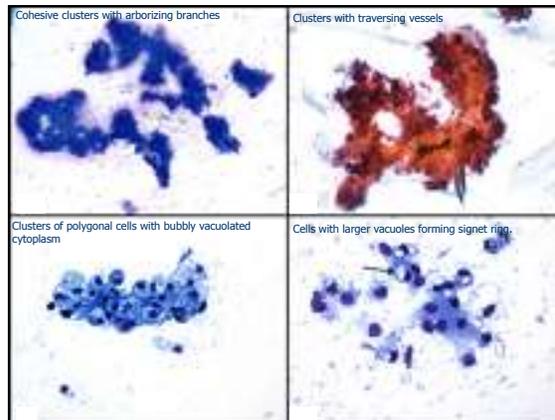
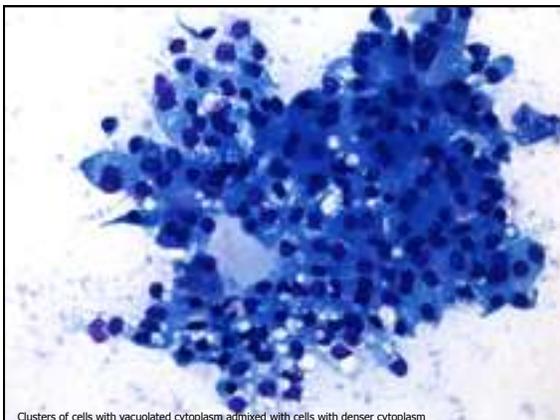
CME FACULTY DISCLOSURE

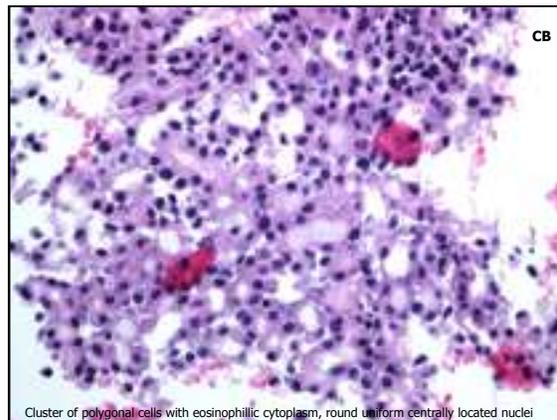
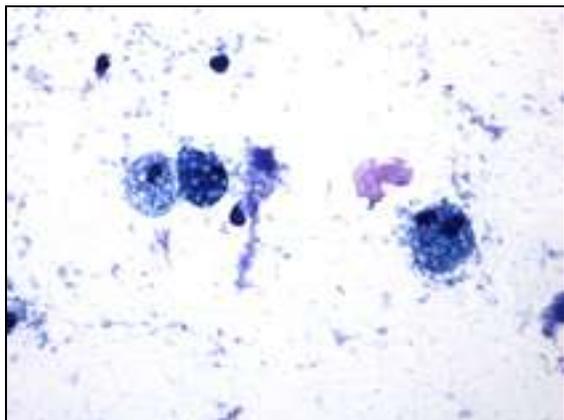
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Case presentation

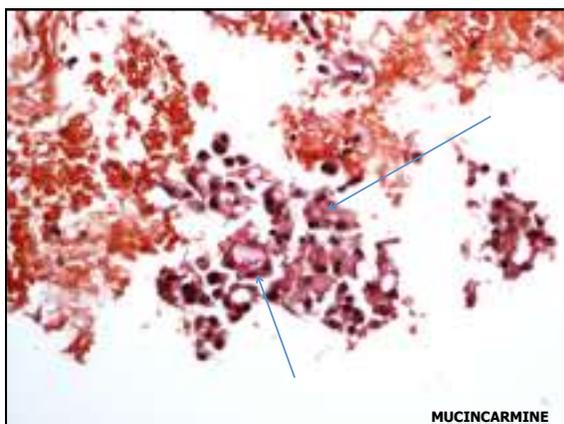
History:

A 23-year-old female presented with a slowly enlarging left parotid mass. Ultrasound examination demonstrated a 2.2 x 2.0 x 1.6 cm heterogeneous hypoechoic nodule without significant internal vascularity in the superficial portion of the left parotid gland. No other parotid lesions were identified. The patient underwent an ultrasound-guided fine needle aspiration biopsy.

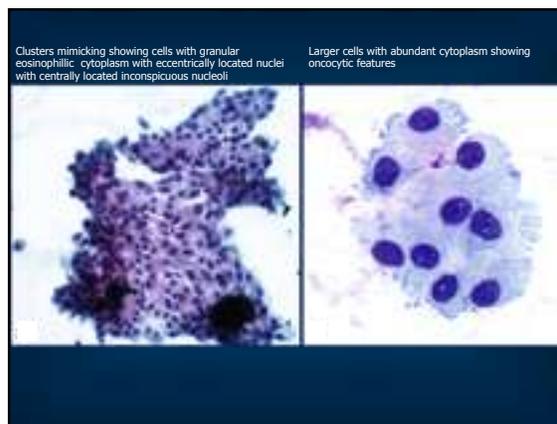




Cluster of polygonal cells with eosinophilic cytoplasm, round uniform centrally located nuclei

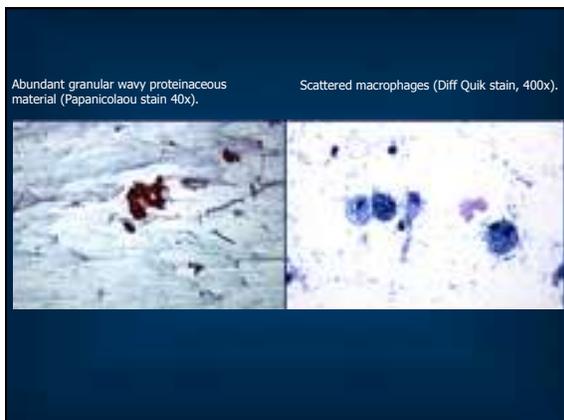


MUCINCARMINE



Clusters mimicking showing cells with granular eosinophilic cytoplasm with eccentrically located nuclei with centrally located inconspicuous nucleoli

Larger cells with abundant cytoplasm showing oncocytic features



Abundant granular wavy proteinaceous material (Papanicolaou stain 40x).

Scattered macrophages (Diff Quik stain, 400x).

Summary of cytological findings

- Abundant sheets, complex branching clusters, some with traversing vessels, and single intermediate sized polygonal cells with abundant vacuolated cytoplasm
- Occasional clusters composed of cells with vacuolated cytoplasm admixed with cells with denser cytoplasm
- Clusters of cells with granular eosinophilic cytoplasm with eccentrically located nuclei and inconspicuous nuclei

Summary of cytological findings

- Background with granular proteinaceous material
- No dense or fibrillar matrix material or significant inflammation. Numerous macrophages present
- Cell block shows clusters of polygonal cells with eosinophilic cytoplasm and round uniform centrally located nuclei with smooth nuclear contour. Pale blue luminal secretory material present
- Mucicarmine shows intracytoplasmic mucin positive cells

Cytological Differential diagnosis

- Benign Salivary Gland Epithelium
- Low Grade Mucoepidermoid Carcinoma
- Acinic Cell Crcinoma
- Mucinous Metaplasia in a Pleomorphic Adenoma
- Mucinous Metaplasia in a Warthin's Tumor
- Other

Table 1. Original cytologic diagnosis of the 23 cases reported in literature

Cytologic Diagnosis	Number of Cases
MGAC	1
LGMEC	13
Low grade mucoepithelioma	1
High grade mucoepithelioma with extensive necrosis	1
ACC	1
PA	1
PA versus MEC	1
Benign salivary epithelium	1
ACC versus MEC in submandibular gland complex	1
Not specified	1

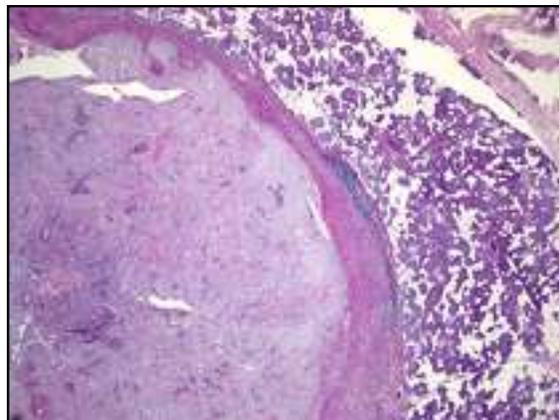
MGAC: Mucinous Glandular Adenoma; MEC: Low grade mucoepidermoid carcinoma; ACC - acinar cell carcinoma; PA - Pleomorphic adenoma.

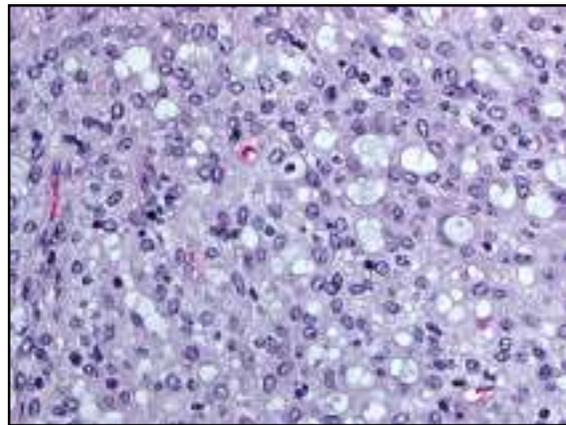
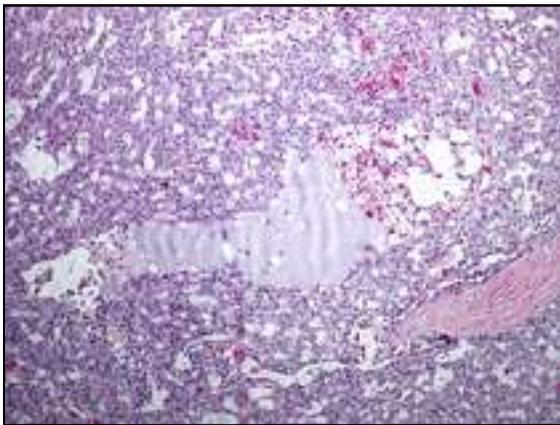
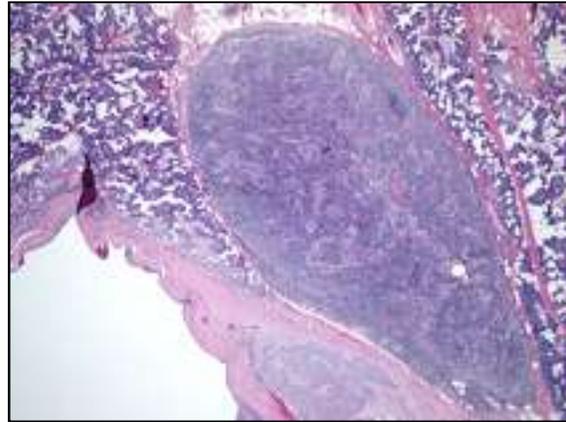
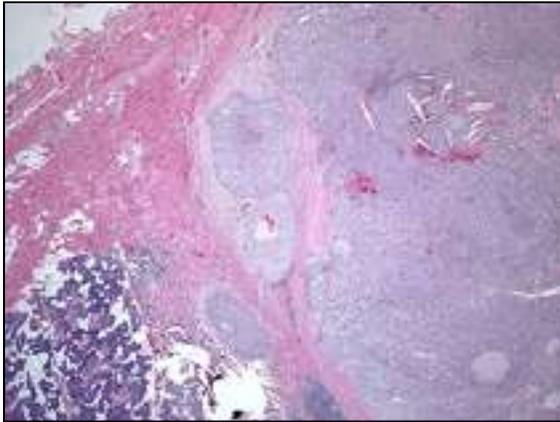
Cytological diagnosis

Based on the positive mucin staining and lack of matrix material, the cytologic diagnosis rendered was "suspicious for low grade mucoepidermoid carcinoma". However, as there were no definitely identifiable squamous and intermediate cells, a differential diagnosis including mucinous metaplasia in benign neoplastic or chronic inflammatory processes was also suggested

Surgical excision

The patient underwent a left superficial parotidectomy, which revealed a 2.5 x 2.0 cm solid-cystic mass.



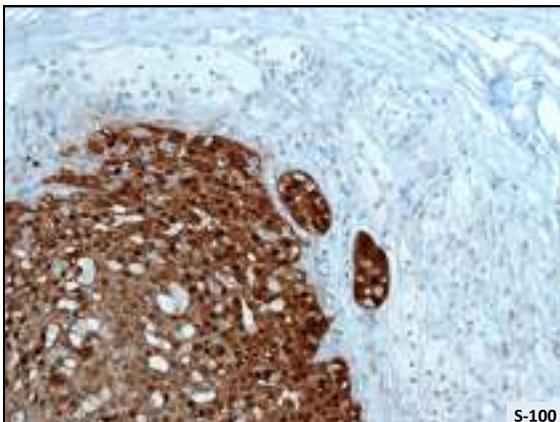
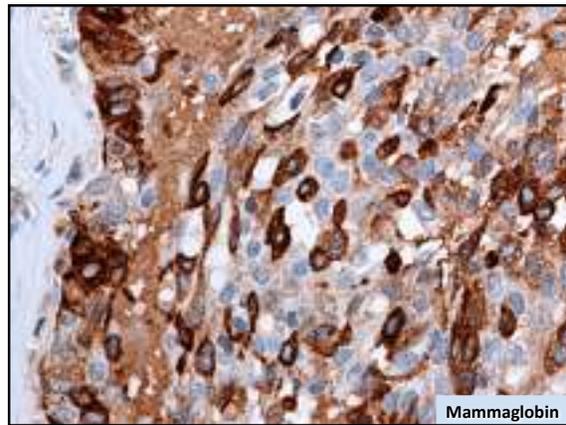
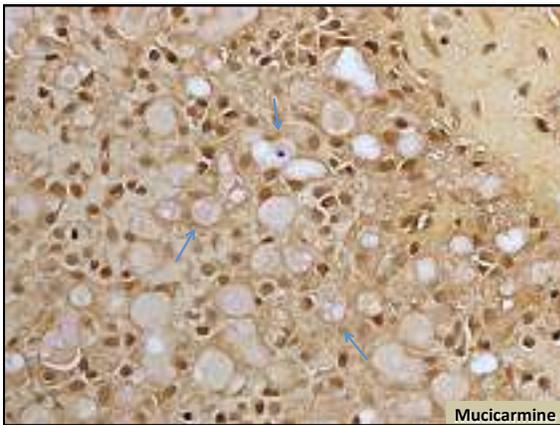
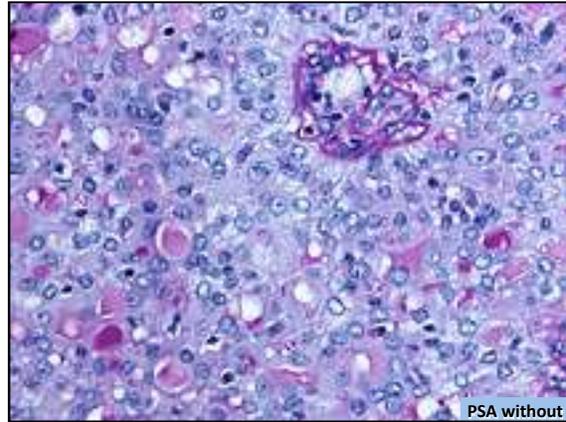
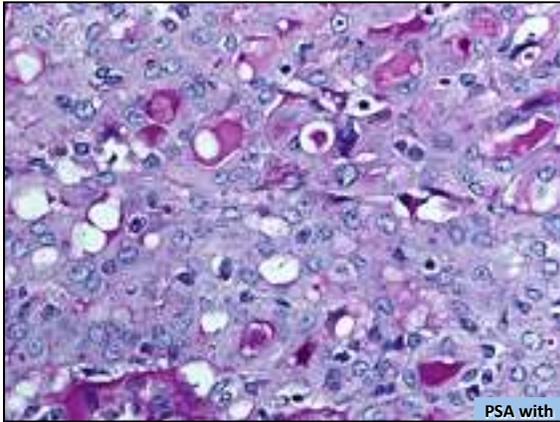


Summary of histological findings

- The tumor was circumscribed, solid, microcystic, macrocystic, and follicular architectural patterns
- The cells contained eosinophilic to focally clear and vacuolated cytoplasm and pale intraluminal secretions
- No significant mitosis or necrosis.
- Tongues of tumor were noted infiltrating peritumoral soft tissue
- Five periparotid lymph nodes examined were negative for tumor.

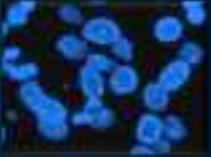
Special stains and Immunohistochemical studies

- PAS, with and without diastase highlighted the intraluminal secretory material
- Mucicarmine stain showed rare intracellular positivity and faint focal staining of the luminal secretory material
- Diffusely positive for **Mammaglobin**, **S-100**, and **AE1/AE3**
- Negative for **P63** and **SMA**



ETV6 FISH analysis (LSI ETV6 Dual-color Break-apart Probe)

- ETV6 FISH analysis (LSI ETV6 Dual-color Break-apart Probe) for the 12q13 cytogenetic location showed 59 of 60 cells analyzed (98.3%) were positive for the translocation, thereby supporting the diagnosis of a low grade MASC



t(12;15) (p13;q25) translocation resulting in ETV6-NTRK3 fusion

Take Home Message

- Application of ancillary studies, with immunohistochemistry for mammaglobin and S-100, helps in differentiating it from morphologic mimics.
- Testing for ETV6 rearrangement may be of potential value in patient treatment, because the presence of the ETV6-NTRK3 translocation may represent a therapeutic target in MASC.