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# Challenges in differentiating parotid oncocytoma from mucoepidermoid carcinoma – a case report

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## BACKGROUND

- Mucoepidermoid carcinoma (MEC) is the most common salivary gland malignancy
- Oncocytes are neoplastic cells characterized by a prominent proliferation of morphologically abnormal mitochondria in the cytoplasm
- Oncocytic metaplasia can be seen frequently in non-oncocytic tumors including MEC, pleomorphic adenomas, and Warthin's tumors
- While fine needle aspiration (FNA) has >90% sensitivity and specificity for most parotid lesions, its diagnostic accuracy is significantly lower for low-grade malignancies[1,2]
- FNA sensitivity for low-grade MEC can be as low as 39%[2,3]
- The oncocytic variant of MEC is rare and can be misdiagnosed as benign lesions with oncocytic changes, such as oncocytomas or Warthin's tumors

## CASE DESCRIPTION

- 71M referred to otolaryngology clinic by PCP for right jaw lesion
- Exam and CT consistent with 1.5cm right parotid lesion
- US-FNA showed cystic salivary gland lesion with oncocytic change
- Patient opted for surgical excision via right superficial parotidectomy
- Pathologic diagnosis was challenging, specimen sent to tertiary care center for confirmation. Pathologists at both sites independently concluded most likely diagnosis was benign oncocytoma
- 5 years later, the patient's tumor recurred and revision right parotidectomy was performed. The mass was noted to be adherent to masseter, so a cuff of muscle was resected along with the tumor.
- Final pathology showed low-grade oncocytic MEC with negative margins and no lymphovascular or perineural invasion. Molecular testing was positive for Mastermind-like transcriptional coactivator 2 *MAML2* (11q21) rearrangement confirming MEC.

## IMAGING

Figure 1: Initial axial CT with contrast shows right anterior parotid gland lesion

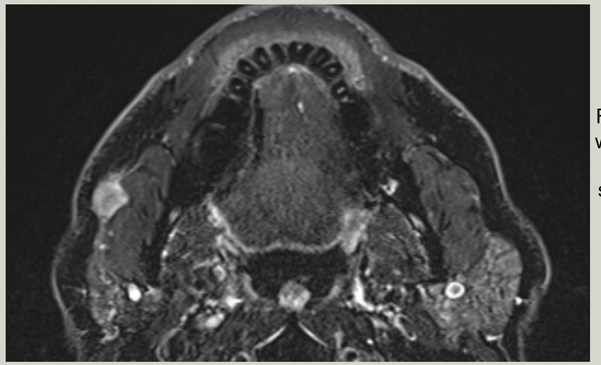

Figure 2: Axial T2-weighted MRI with fat suppression shows recurrence of right parotid gland mass

## DISCUSSION

- Initial FNA and surgical pathology of this oncocytic salivary gland tumor was a diagnostic challenge with resulting in a misdiagnosis of benign oncocytoma
- The tumor's recurrence after five years highlights the importance of a high index of suspicion for oncocytic lesions as they could represent a low-grade malignancy
- Final diagnosis was confirmed by molecular testing revealing a *MAML2* rearrangement

## CONCLUSION

- Oncocytic variants of MEC can be very difficult to distinguish from other oncocytic parotid tumors and should be included in the differential diagnosis for such lesions
- Histology alone may be insufficient for definitive diagnosis of these tumors
- *MAML2* translocations are sensitive (75%) and highly specific (~100%) for MEC[4]
- Molecular testing can aid in supporting the diagnosis of all variants of MEC particularly when there is diagnostic uncertainty

## REFERENCES

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