CASE REPORT

Mucoepidermoid Carcinoma: Presentation at an Uncommon Site

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ABSTRACT

Introduction: Mucoepidermoid carcinoma represents about 15% of salivary gland tumors. They occur mainly in the parotids (60–70%) but they account for a large fraction of salivary gland tumors in the minor salivary glands. Overall they are the most common form of primary malignant tumor of the salivary glands. Our report exemplifies the need to evaluate swellings of the neck region meticulously as it might not be just an inflammatory swelling but an indication of malignancy.

Case report: A 36-year-old male patient was referred to our hospital for evaluation of a swelling in the upper neck which gradually progressed over a span of 3 months. It was painless, firm in consistency, and ovoid in shape. The blood and urine investigations were normal. Fine needle aspiration cytology (FNAC) was performed and the findings were correlated with IHC and the mass was confirmed to be a mucoepidermoid carcinoma.

Discussion: Mucoepidermoid carcinomas show variability in their behavior. The prognosis is dependent on the clinical stage, site, grading. Duration before diagnosis ranges from months to years. The cure is possible in low and intermediate grades of tumors. Characteristically, it shows t[11;19](q21;p13) with MET1–MAML2 fusion in other cases it occurred in the parotid gland and palate. This is probably the first case reported to occur in a submandibular gland in a patient in the third decade of his life, with its incidence normally common in the 5th to 6th decade.

Keywords: Case report, Mucoepidermoid carcinoma, Salivary gland.

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BACKGROUND

Salivary gland tumors represent <5% of head and neck tumors with their annual incidence being <1/100,000 population.1

Most of the salivary gland tumors that arise from major glands gradually increase in size. Loss of tongue functions coupled with facial paralysis indicates malignant involvement of salivary glands.

Minor salivary glands tumors commonly present as painless, gradually enlarging swellings under the cheek, hard, and soft palate.

Most of the major salivary gland tumors are often painless and non-tender.2

Mucoepidermoid carcinoma is the most common malignant of the salivary gland. The parotid gland is the most common site of mucoepidermoid carcinoma.3,4

The mucoepidermoid carcinoma is <10% of all salivary tumors but accounts for 30% of salivary gland malignancies.5

It is believed to arise from pluripotent cells of the excretory ducts of the gland. It has three different types of cells which include mucous, intermediate, and epidermoid cells. Histopathologically, the tumor is classified into three grades, low, intermediate, and high. The intermediate grade is least common while the low grade is most common.6,7

Fine needle aspiration cytology (FNAC) is an important diagnostic and planning tool along with immunohistochemistry (Figs 1 to 6).

The present report describes a 36-year-old male patient presenting with mucoepidermoid carcinoma in the submandibular gland.

CASE DESCRIPTION

A 36-year-old male patient presented to our outpatient department with a solitary swelling in the left submandibular region, extending along the body of the mandible. It was 5 × 3.5 cm swelling, ovoid in shape with an even surface. He reported pain that was insidious in onset, progressive in nature, and of dull aching type. The pain was non-radiating and not referred. The past medical, dental, social, and family history of the patient was unremarkable.

Fig. 1: Highly cellular smear shows discohesive cells in sheets, pap 10x magnification
On examination, the swelling was found tender, firm to hard in consistency. It was on mobile, arising from plane deep to muscle.

The swelling was bidigitally palpable. Regional lymph nodes not palpable (Table 1).

### Table 1: Expression of biomarkers on IHC

| Markers for mucoepidermoid carcinoma | Expression |
|--------------------------------------|------------|
| t(11;19)(q21;p23) creating fusion product MECT1-MAML | + |
| P63 | + |
| CK14 | + |
| BCL-2 | + |
| STAT-3 | + |
| PIM1 | + |
The hematological evaluation revealed normal values after which an FNAC was performed. Pap and MGG-stained smears showed highly cellular aspirate comprising poorly cohesive cells arranged in sheets. The majority of the cells were of the intermediate type with pleomorphic nuclei. Squamous differentiation was evident. Occasional mucin secreting cells were seen. Mitotic activity was present. The background was necrotic and showed acute inflammatory infiltrate.

To confirm the diagnosis, IHC was performed and biomarkers for mucoepidermoid carcinoma were found to be positive.

CONCLUSION

MEC is a common malignant tumor of the salivary gland but morphological heterogeneity makes diagnosis difficult. Not all diagnostic features are found in the fine needle aspiration, especially in the low-grade lesions. Hence, the diagnosis of mucoepidermoid carcinoma may be missed and confused with other benign and malignant lesions.

When the epidermoid constituent predominates, the histological appearance of the tumor may closely resemble that of squamous cell carcinoma, and is considered to be a high-grade MEC. The tumor is considered to be low grade when mucin-secreting cells are predominant with the cystic background. The morphological appearance of MEC shares similarities to metastatic clear cell renal adenocarcinoma and clear cell bronchogenic squamous carcinoma. Hence, appropriate work-up of the patient must also include imaging of the lungs and kidneys.

Cell proliferation of the MEC serves as one of the most important criteria for measuring its biological behavior and aggressiveness.

Mucoepidermoid carcinoma is very rarely found in the submandibular gland. IHC can help in the diagnosis of salivary gland tumors, by supporting the histological assessment. The confirmatory diagnosis must be made after comparing both the IHC and morphological findings. This case report exemplifies the FNAC findings and adds to the existing literature on the same.

The patient was referred to the surgery department for a further course of management.

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