

CASE REPORT

Mucoepidermoid Carcinoma of the Lower Labial Mucosa: A Case Report

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ABSTRACT

Mucoepidermoid carcinoma (MEC) represents the most common malignant salivary gland neoplasm, yet its occurrence in the lower labial mucosa remains exceptionally rare. Early detection is challenging due to frequent mimicry of benign conditions. A 68-year-old male tobacco user presented with a 1-month history of painful ulceration on the lower right labial mucosa. Clinical examination revealed a 1 cm irregular, indurated ulcer with keratotic changes. Toluidine blue staining showed dysplasia, and histopathology confirmed intermediate-grade MEC. The lesion was successfully excised with clear margins. This case highlights the diagnostic challenges of minor salivary gland malignancies in atypical locations and emphasizes the importance of histopathological confirmation for persistent oral ulcers in high-risk patients.

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INTRODUCTION

Salivary gland neoplasms constitute approximately 3-6% of all head and neck tumors, with mucoepidermoid carcinoma (MEC) being the most prevalent malignant subtype (1). While 50-70% of MECs originate in the parotid gland, minor salivary gland involvement accounts for only 10-15% of cases, with the palate being the most frequent intraoral site (2). The lower labial mucosa represents an exceptionally rare location, comprising less than 1% of all minor salivary gland MECs (3). The diagnostic complexity of MEC stems from its variable clinical presentation, which often mimics benign ulcerative or inflammatory conditions (4). This diagnostic challenge is compounded in tobacco users, where clinical suspicion typically favors squamous

cell carcinoma over salivary gland malignancies. Current literature emphasizes the critical role of histopathological examination in definitive diagnosis, particularly given the prognostic significance of tumor grading (3). We present a rare case of MEC in the lower labial mucosa of a chronic tobacco user, highlighting the diagnostic pitfalls and management considerations. This report adheres to the CARE guidelines for case reports and contributes to the limited literature on this unusual presentation.

CASE REPORT

Patient History

A 68-year-old male presented with a chief complaint of persistent painful ulceration on the inner aspect of the lower right lip for one month. The pain intensified during mastication but showed no diurnal variation. His medical history revealed well-controlled hypertension managed with amlodipine 5 mg daily for 15 years. Notably, he reported chewing tobacco 5 times daily for

10 years and maintained minimal oral hygiene (brushing once daily with a medium-hard toothbrush).

Clinical Examination

On extraoral examination, the patient presented with a symmetrical facial appearance, with no evidence of lymphadenopathy. The lower lip vermilion border was intact, and there were no observable fasciculations or motor deficits. Intraorally, a single ulcer measuring approximately 1 X 0.8 cm was identified on the lower right labial mucosa. The lesion was located 3cm posterior to the vermilion border and 1cm anterior to the buccal vestibule. It exhibited irregular, raised borders with surrounding induration, and the surface demonstrated white keratotic patches (Figure 1). No palpable submucosal extension was detected.



Figure 1: Clinical presentation showing ulcer with keratotic surface

Diagnostic Assessment

The provisional diagnoses included a traumatic ulcer, considering the presence of sharp cusps on tooth 43 as a potential source of local irritation; a malignant ulcer, specifically squamous cell carcinoma; and a salivary gland neoplasm.

Toluidine blue vital staining showed intense uptake, Score 3 on Epstein's scale (Figure 2) suggesting dysplastic changes. An incisional biopsy was performed under local anesthesia.

Histopathological Findings

Microscopic examination revealed proliferating glandular epithelial cells arranged within a fibrovascular stroma, displaying a characteristic triphasic pattern composed of epidermoid, intermediate, and mucous cells. Duct-like structures lined by cuboidal epithelium were evident, and mucinous cells demonstrated positivity with periodic acid-Schiff (PAS) staining (Figure 3). The tumour showed moderate nuclear pleomorphism with



Figure 2: Toluidine blue staining showing intense uptake

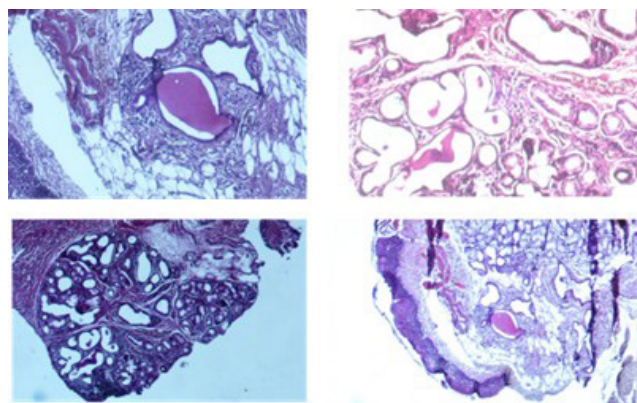


Figure 3: Histopathological sections at various resolutions and staining

approximately two mitotic figures per 10 high-power fields, along with focal perineural invasion. Overall, the histopathological features were consistent with an intermediate-grade mucoepidermoid carcinoma according to the AFIP grading system.

Management and Follow-up

The patient underwent wide local excision with 5 mm margins under general anesthesia. Histopathological examination of the excised specimen showed tumor-free margins. One-month follow-up revealed satisfactory healing with no functional impairment. The patient was referred to prosthodontics for rehabilitation and enrolled in a tobacco cessation program.

DISCUSSION

This case presents three notable clinical challenges: the atypical location, ulcerative presentation mimicking traumatic lesions, and diagnostic confusion with squamous cell carcinoma in a tobacco user. The lower labial mucosa contains only 2-3 minor salivary glands per cm², making this an exceptionally rare site for MEC.

Diagnostic Considerations

The initial clinical presentation shared overlapping features with both traumatic ulcers, particularly pain exacerbation during eating, and squamous cell carcinoma, including induration and surface keratosis. This overlap highlights the importance of adjunctive diagnostic measures, including vital staining such as toluidine blue, which has an estimated sensitivity of approximately 85% for detecting epithelial dysplasia. Definitive diagnosis relies on recognition of the histopathological triad of epidermoid, intermediate, and mucous cells, supported by special stains such as periodic acid–Schiff (PAS) to confirm mucin production.

Grading and Prognosis

In the present case, the tumour was classified as intermediate grade based on the presence of two mitoses per 10 high-power fields, focal perineural invasion, and the absence of tumour necrosis. Prognosis in mucoepidermoid carcinoma is closely related to histological grade, with reported five-year survival rates ranging from 92–100% for low-grade tumours, 62–92% for intermediate-grade tumours, and 0–43% for high-grade tumours (1–5).

Investigations

High-resolution ultrasound (HRUS) is particularly useful for evaluating lower lip lesions, as it can reliably detect hypoechoic masses with associated peripheral vascularity, aiding in preoperative assessment and treatment planning (4).

Therapeutic Implications

Surgical excision remains the gold standard of treatment for mucoepidermoid carcinoma, with clear surgical margins representing the most critical prognostic factor (5). Emerging advances in management include the use of sentinel lymph node biopsy for selected intermediate-grade tumours and molecular-targeted therapies aimed at the CRTC1–MAML2 fusion in recurrent or refractory cases (5).

However, surgery forms the cornerstone of recent treatment protocols for mucoepidermoid carcinoma (MEC) in the lower lip, focusing on wide local excision with 1–2 cm margins to preserve lip function while achieving clear margins, especially for low/intermediate-

grade tumors which are common at this site. Adjuvant radiotherapy follows for high-grade cases, positive margins, perineural invasion, or node involvement, delivering 60–66 Gy to enhance local control without proven survival benefit from added chemotherapy (1–5).

CONCLUSION

This case emphasizes four critical clinical lessons. First, mucoepidermoid carcinoma (MEC) should be considered in patients with persistent labial ulcers, even in the absence of a classic nodular presentation. Second, individuals with a history of tobacco use require thorough evaluation to rule out potential malignancy. Third, intermediate-grade tumors demand vigilant and long-term follow-up to monitor for recurrence or progression. Finally, a multidisciplinary approach to management plays a key role in optimizing patient outcomes.

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