Acta Scientific MEDICAL SCIENCES (ISSN: 2582-0931)

Volume 10 Issue 2 February 2026

Case Report

A Curious Case of Buccal Mucosal Mass

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DOI: 10.31080/ASMS.2026.10.2210

Received: December 01, 2025

Published: January 30, 2026

Abstract

Myoepithelial carcinoma (MC) is an uncommon malignant tumour arising primarily from salivary gland myoepithelial cells. It constitutes fewer than 1% of all salivary gland neoplasms, most of which are benign. Malignant myoepitheliomas may appear de novo or evolve from a pre-existing pleomorphic adenoma or benign myoepithelioma. Involvement of the buccal mucosa is exceptionally rare.

We report the case of a 36-year-old female presenting with a three-month history of a painful swelling in the right buccal mucosa. MRI suggested a malignant neoplastic lesion arising from the buccal mucosa.

Histopathological analysis showed a circumscribed spindle-cell lesion forming epithelioid nests. Immunohistochemistry demonstrated positivity for EMA, PanCK, P53, P40 and Calponin, with S-100 negativity and a low Ki-67 index (4–5%), confirming myoepithelial carcinoma.

Given its rarity and morphological heterogeneity, diagnosing MC is challenging. A high degree of clinical suspicion and confirmatory immunohistochemical profiling are crucial for accurate diagnosis.

Keywords: Myoepithelial Carcinoma; Minor Salivary Gland Tumour; Buccal Mucosa Tumour; Oral Malignancy

Introduction

Myoepithelial carcinoma (MC) is a rare malignant neoplasm of the salivary glands, accounting for <1% of salivary gland tumours [1]. It is more frequently reported in females, typically in the seventh decade of life [2].

Recognized by the World Health Organization in 1991 as a distinct pathological entity [3], MC most commonly arises in the parotid gland, whereas involvement of the buccal mucosa is remarkably uncommon [4].

Extra-salivary occurrences have been documented in unusual sites, including the larynx [5], skin [6], and nasal septum [7]. Benign myoepithelial lesions tend to occur in the extremities or head-neck region, while malignant variants predominantly arise from major salivary glands.

Although generally considered a low-grade tumour, MC shows variable behaviour with potential for local recurrence and occasional nodal or hematogenous spread [8]. It may present as a de novo malignancy or arise via malignant degeneration within a

benign precursor lesion [9-11]. Clinical manifestations depend on the anatomical site, and the differential diagnosis includes tumours with myoepithelial or clear-cell morphology, such as pleomorphic adenoma, myoepithelioma, mucoepidermoid carcinoma, and adenoid cystic carcinoma.

Histologically, MC exhibits diverse cellular patterns—clear, spindle, epithelioid, plasmacytoid or stellate cells—within myxoid to hyalinized stroma. Imaging modalities such as CT and MRI are non-specific, making histopathology and immunohistochemistry essential for definitive diagnosis.

Given the diagnostic complexity and the unusual buccal mucosal origin, we present this rare case of MC in a 36-year-old woman.

Case Presentation

A 36-year-old female with a history of hypothyroidism and diabetes mellitus presented with a three-month history of swelling and discomfort in the right buccal mucosa near the angle of the mouth. The patient gave no history of tobacco or smoking habits.

On intraoral examination, a 2.5 × 1 × 1 cm purplish, polypoid lesion was seen near the right oral commissure. There was no facial asymmetry, and mouth opening was normal. The lesion was firm, tender, and indurated, with inflamed overlying mucosa but no active bleeding.

Ultrasonography revealed a nodular lesion deep to the muscle layer of the right cheek, suggestive of a benign mass. A local excision under local anaesthesia was performed.

Histopathology

Gross examination showed a 2.3 × 1.1 × 0.7 cm grey-white, well-circumscribed nodule. Microscopy revealed a circumscribed tumour composed of loose fascicles of spindle-shaped cells with focal epithelioid nests. The cells displayed eosinophilic cytoplasm, oval to elongated nuclei, mild atypia, and vacuolated cytoplasm mimicking lipoblast-like morphology. The stroma was loose, basophilic, and myxoid, with delicate vasculature.

Mitotic figures were inconspicuous.

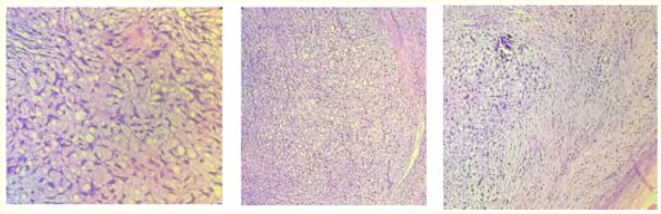

Figure 1

Immunohistochemistry IHC demonstrated:

- EMA: Positive
- Pan CK: Positive
- P53: Positive
- P40: Positive
- Calponin: Positive
- S-100: Negative
- Ki-67: Low (4–5%)

The features were consistent with myoepithelial carcinoma.

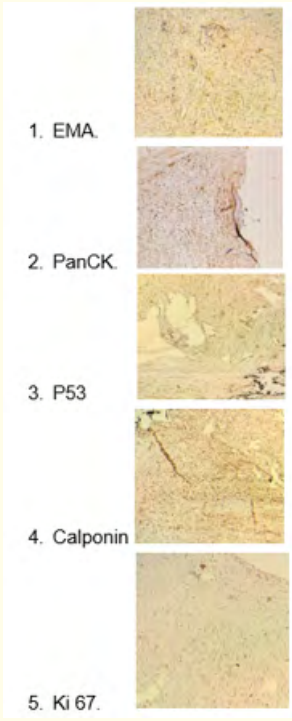

Figure 2

Further evaluation

Oncology review recommended MRI to assess residual disease and nodal involvement. Contrast-enhanced MRI revealed a subtle area of STIR hyperintensity with mild enhancement along the right upper alveolar process. No discrete mass or cervical lymphadenopathy was identified except for multiple small, non-necrotic lymph nodes.

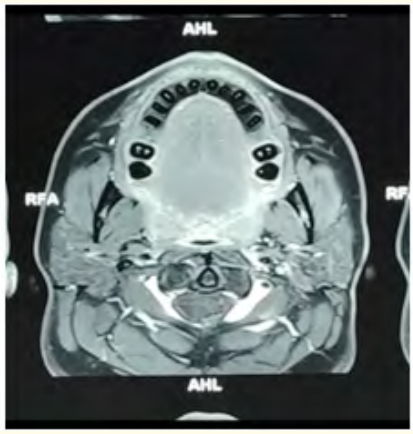

Figure 3: AXIAL MRI : Right buccal mucosa.

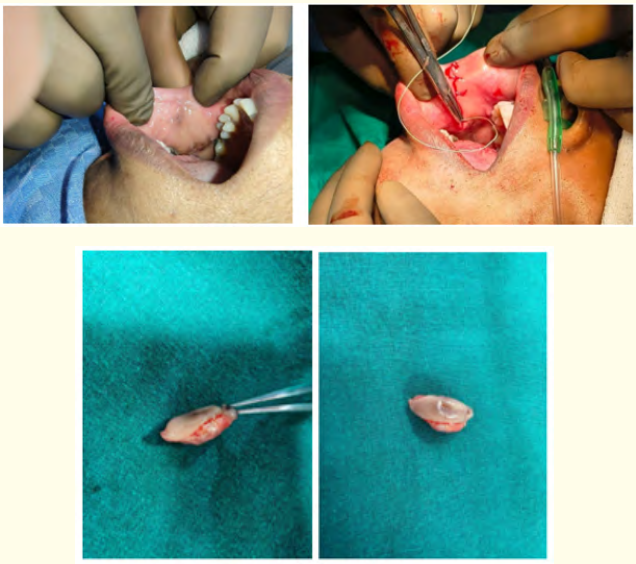

Figure 4

Given inadequate margins from the initial excision, revision surgery was performed. The re-excision specimen demonstrated clear margins with no residual tumour.

Discussion

Myoepithelial carcinoma is an uncommon malignant salivary gland tumour, with documented cases involving the lacrimal gland [13], external auditory canal [14], floor of the mouth [15], hard palate [16], larynx [17], nasopharynx [18], tongue base [19], and occasionally buccal mucosa [20]. First described in 1972, MC is characterized by malignant proliferation of myoepithelial cells [21,22].

Prognostic behaviour varies widely and is influenced by tumour growth pattern, nuclear atypia, necrosis, lymphovascular invasion, DNA aneuploidy, and Ki-67 index [23].

MC displays extensive morphological diversity, including spindle, plasmacytoid, epithelioid, stellate, and clear-cell patterns, often within a myxoid or hyalinized matrix. Immunohistochemistry is vital for diagnosis, with vimentin, calponin, SMA, GFAP, P63, and cytokeratins commonly used [1,6,7]. S-100, although not always specific, is frequently positive in neoplastic myoepithelium.

Diagnostic criteria include predominant myoepithelial differentiation with malignant cytological features such as nuclear atypia, infiltrative growth, necrosis, high mitotic activity (>7/10 HPF), or Ki-67 >10% [8,9].

In our case, the tumour exhibited low-grade myxoid spindle-cell morphology with focal epithelioid nests and positive staining for P53, EMA, PanCK, P40, and Calponin, supporting the diagnosis of MC.

Regional or distant metastases are uncommon (<5%) [25]. Surgical excision with wide margins remains the standard treatment. Due to the rare involvement of the buccal mucosa, documentation of such cases adds to existing literature.

Conclusions

Diagnosing myoepithelial carcinoma is challenging due to its rarity and wide morphological spectrum. A strong clinical suspicion supported by a comprehensive immunohistochemical panel is essential, especially in tumours with spindle-cell or plasmacytoid

features. Emerging diagnostic tools, including molecular profiling and targeted therapies, may enhance the management and prognosis of this uncommon tumour in the future.

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