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# Benign Parotid Myoepithelioma: A Diagnostic Chameleon Masquerading as Pleomorphic Adenoma and the Critical Role of Immunohistochemistry

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**Abstract** | **Case Report**

Myoepithelioma is a rare benign salivary gland tumor (<1%) that poses a significant diagnostic challenge by perfectly mimicking pleomorphic adenoma on imaging. We report a case of a 56-year-old male with a slow-growing, painless left parotid mass. MRI findings were typical for pleomorphic adenoma. The patient underwent superficial parotidectomy. Histopathology revealed a proliferation of myoepithelial cells, and immunohistochemistry (p63+, CK7+, S100+, EMA−) was crucial for the definitive diagnosis of benign myoepithelioma. A Ki67 index of 5–10% suggested a need for long-term surveillance. The postoperative course was uneventful with no recurrence at two years. This case highlights that myoepithelioma is a diagnostic chameleon and underscores the critical role of immunohistochemistry in achieving the correct diagnosis to guide appropriate management and follow-up.

**Keywords:** Myoepithelioma, Parotid gland, Salivary gland tumor, Pleomorphic adenoma; Immunohistochemistry, Case report.



## INTRODUCTION

Myoepitheliomas are rare benign salivary gland tumors characterized by proliferation of myoepithelial cells without ductal differentiation. They represent less than 1% of all salivary gland neoplasms and occur predominantly in the parotid gland [1,2]. According to the WHO 2022 classification, the reported incidence is approximately 0.7% of all salivary tumors [3]. These tumors were previously classified as a variant of pleomorphic adenoma but have since been recognized as a distinct entity [3]. Clinically and radiologically, myoepitheliomas often mimic pleomorphic adenomas, making histopathology and immunohistochemistry essential for diagnosis [4]. Proper identification is crucial due to differences in prognosis, recurrence risk, and potential malignant transformation. We report a rare case of benign myoepithelioma of the parotid gland in a 56-year-old male, initially suspected to be a pleomorphic adenoma.

## CASE REPORT

A 56-year-old male, chronic smoker and alcoholic, presented with a painless left preauricular swelling evolving progressively over seven months. Clinical examination revealed a 4 cm firm, mobile, non-tender mass in the superficial lobe of the left parotid gland. Facial nerve function was intact. [Figure 1]

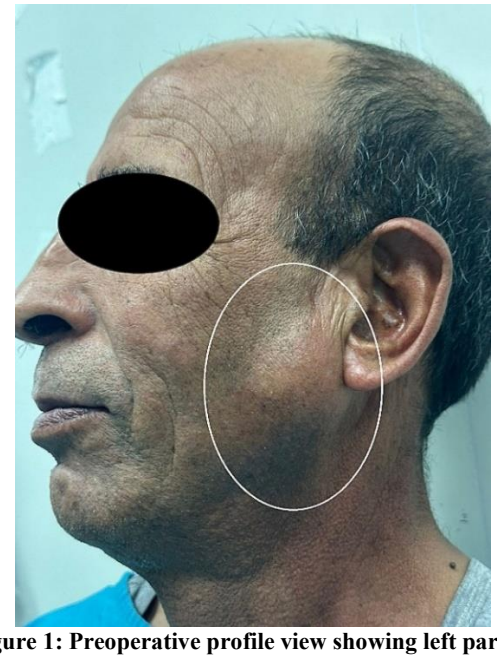

**Figure 1: Preoperative profile view showing left parotid swelling**

Cervical ultrasound revealed a well-circumscribed hypoechoic lesion. MRI confirmed a lobulated mass in the superficial parotid, isointense on T1 [Figure 2], hyperintense on T2, and homogeneously enhanced post-contrast [Figure 3], suggesting pleomorphic adenoma.

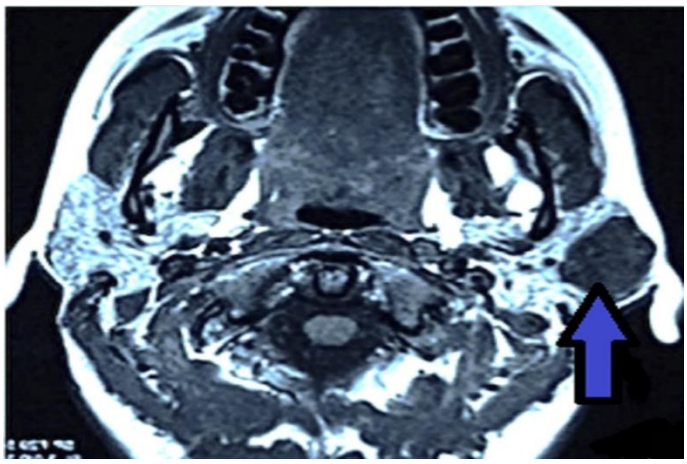

**Figure 2: Axial T1-weighted MRI without contrast showing a well-circumscribed isointense mass (blue arrow) in the superficial lobe of the left parotid gland**

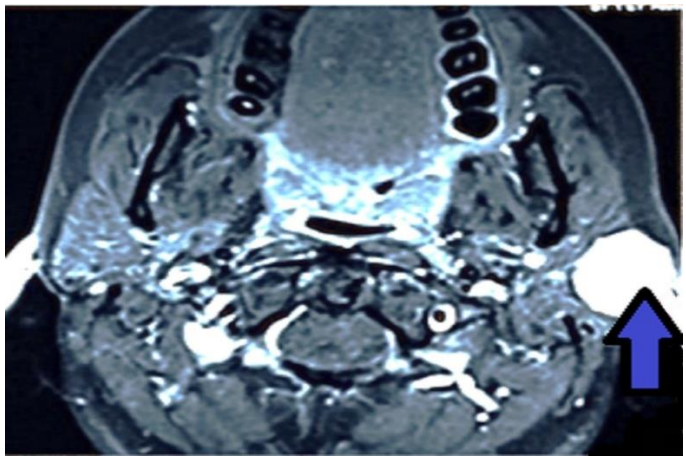

**Figure 3: Axial T1 post-gadolinium MRI showing intense homogeneous enhancement of the lesion (blue arrow)**

The patient underwent left superficial parotidectomy under general anesthesia with facial nerve monitoring. The nerve was preserved, and the SMAS flap was repositioned to reduce Frey's syndrome. Intraoperative findings confirmed a well-encapsulated mass with preservation of the main facial branches [Figure 4].

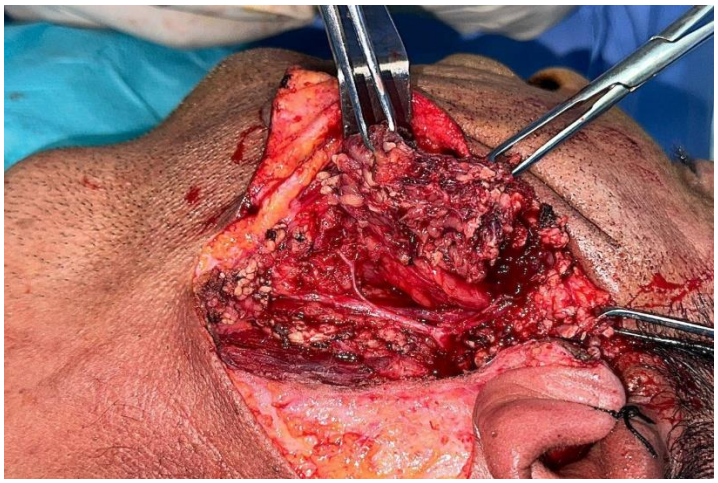

**Figure 4: Intraoperative view showing the tumor and preserved branches of the facial nerve**

Histopathological analysis showed a proliferation of myoepithelial cells arranged in solid nests with clear cytoplasm and focal plasmacytoid features. The cells were separated by collagen stroma in a fascicular nested pattern [Figure 5]. Immunohistochemistry revealed positivity for p63, CK7, and S100, with negative EMA and DOG1. Ki67 proliferation index was estimated between 5 and 10%, suggesting a mildly increased proliferative activity that justifies long-term surveillance.

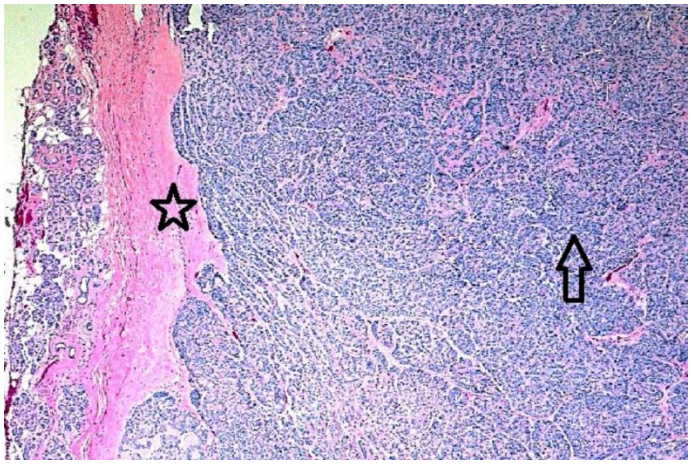

**Figure 5: Hematoxylin and eosin, 40×: myoepithelial cells with plasmacytoid features (arrow) arranged in a fascicular nested pattern separated by collagenous stroma (asterisk).**

Postoperative recovery was uneventful, without facial weakness or Frey's syndrome. At two-year follow-up, there was no evidence of recurrence clinically or radiologically. [Figure 6]

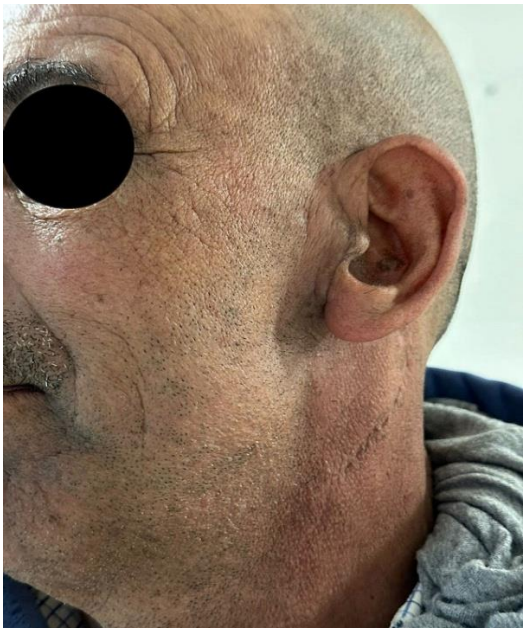

**Figure 6: Postoperative profile view at two-year follow-up**

## DISCUSSION

Benign myoepithelioma of the parotid gland is an uncommon entity with diagnostic challenges. First described by Sheldon in 1943 [5], it remained underrecognized due to its overlap with pleomorphic adenoma until reclassification by WHO in 1991 [3].

Most patients present with a slow-growing, painless mass, and imaging findings often mimic pleomorphic adenoma [6].

On MRI, these tumors typically show T2 hyperintensity and homogenous post-contrast enhancement, features classically seen in pleomorphic adenomas, making radiological distinction difficult [6].

Histologically, myoepitheliomas may present in spindle, plasmacytoid, clear cell, or epithelioid forms [7]. In our case, plasmacytoid and clear cell features were both observed.

Immunohistochemistry plays a key role : p63, S100, and CK7 positivity supports myoepithelial origin, while EMA negativity and low Ki67 index favor benign nature [8]. However, the Ki67 index of 5–10% in this case indicates a moderately increased proliferative activity, suggesting the need for clinical monitoring over at least five years.

Malignant transformation of benign myoepitheliomas is rare, with estimated risk below 5% as reported by Savera *et al.,* (2000) [4,9]. Molecular studies such as PLAG1 or HMGA2 fusions can help confirm diagnosis but are not always accessible, especially in low-resource settings, and are often unnecessary when morphology and IHC are conclusive [9].

Surgical excision with clear margins remains the treatment of choice. Superficial parotidectomy with nerve preservation is curative in benign cases [10].

Long-term follow-up of five years or more is recommended to detect potential recurrence or late transformation [11]. Our patient remained recurrence-free at two years, consistent with outcomes reported in similar cases [12].

Although rare, benign myoepitheliomas should be considered in the differential diagnosis of parotid tumors with clear cell or plasmacytoid features. Their clinical and radiological resemblance to pleomorphic adenomas often leads to misdiagnosis. This case emphasizes the indispensable role of immunohistochemistry in resource-limited settings, where molecular testing is not routinely available. Furthermore, awareness of the full spectrum of benign salivary neoplasms is essential for head and neck surgeons to select the most appropriate surgical approach and avoid under- or overtreatment.

## Conclusion

Benign myoepithelioma of the parotid gland is a rare but distinct salivary tumor that can mimic more common neoplasms such as pleomorphic adenoma. Diagnosis relies on thorough histopathological and immunohistochemical evaluation. In resource-limited settings, immunohistochemistry remains crucial for accurate diagnosis. Complete surgical excision ensures favorable outcomes. Awareness of this entity is essential to avoid misdiagnosis and inappropriate management.

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