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Squamous Cell Carcinoma Arising from a Plemorphic Adenoma of the Parotid Gland: A Case Report and Literature Review

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Abstract

Introduction: The term "carcinoma ex pleomorphic adenoma" (CXPA) is used to denote the malignant transformation of a preexisting pleomorphic adenoma. This condition is uncommon, with an incidence ranging from 2% to 15% of malignant salivary gland tumors. The transformation of the lesion into squamous cell carcinoma is an exceptional histological variant. We present a rare case with a particularly prolonged course and complex multidisciplinary management in a setting with limited resources. **Observation:** A 74-year-old patient with no significant past medical history was admitted for a large, ulcerated, and nodular mass in the right parotid gland that had been present for more than 40 years. Imaging studies revealed a locally advanced tumor associated with cervical lymphadenopathy. The initial biopsy revealed a diagnosis of squamous cell carcinoma. Subsequent to the administration of neoadjuvant chemotherapy, a parotidectomy was performed in conjunction with a neck dissection and reconstruction utilizing a pectoralis major flap. A final histological examination confirmed the presence of squamous cell carcinoma arising from a pleomorphic adenoma. The patient underwent adjuvant treatment, which included radiation therapy and chemotherapy. The subsequent one-year follow-up revealed no evidence of recurrence. **Conclusion:** This case exemplifies the potential progression of overlooked pleomorphic adenomas and underscores the significance of a comprehensive histological diagnosis and early multidisciplinary management.

Keywords

Carcinoma Ex Pleomorphic Adenoma, Squamous Cell Carcinoma, Parotid, Malignant Transformation, Histopathology

1. Introduction

Salivary gland tumors account for about 5% of head and neck neoplasia and are characterized by great histological diversity [1]. Pleomorphic adenoma is the most common benign parotid tumor, with an estimated risk of malignant transformation of between 3% and 6% [2].

Ex-pleomorphic adenoma carcinoma (Ca ex AP) is a malignant tumor that has developed on top of a pre-existing, usually old, pleomorphic adenoma. Among its histological variants, squamous cell carcinoma is rare and accounts for less than 15% of cases [3]. Preoperative diagnosis is often difficult due to the coexistence of benign and malignant components, which can lead to misdiagnosis of limited biopsy. The definitive diagnosis is based on histological examination of the operative specimen, revealing remnants of pleomorphic adenoma [4].

Management is based on a multidisciplinary approach combining surgery, radiotherapy and, in some cases, chemotherapy. In resource-limited countries, diagnostic delays and technical constraints worsen the prognosis of these tumors.

We report an exceptional case of ex-pleomorphic squamous cell carcinoma with a prolonged course of more than four decades.

2. Clinical Observation

This is a 74-year-old patient with no significant medical history, consulting for a budding right parotid ulcerative mass that has been evolving for more than 40 years. Initially painless and small in size, this mass was located in the right parotid region. The lesion had received traditional empirical treatment, before recently progressing, marked by an increase in volume and persistent skin ulceration, which prompted a consultation at a local health center from which he was referred.

Clinical examination revealed a firm, exophytic tumor of about 6 cm, bleeding on contact, without facial paralysis or palpable lymphadenopathy (**Figure 1(A)**). Computed tomography imaging objectified a heterogeneous parotid mass infiltrating the superficial lobe, associated with jugulo-carotid lymphadenopathy, without distant metastases (**Figure 2**).

The incisional biopsy revealed a moderately differentiated invasive squamous cell carcinoma. The initial stage was T4N1M0. After four cycles of neoadjuvant chemotherapy with docetaxel and cisplatin (CDDP), the patient underwent a subtotal parotidectomy with facial nerve dissection, combined with unilateral cervical dissection. Reconstruction was performed by a pedicled musculocutaneous flap of

the pectoralis major (Figure 1(B)).

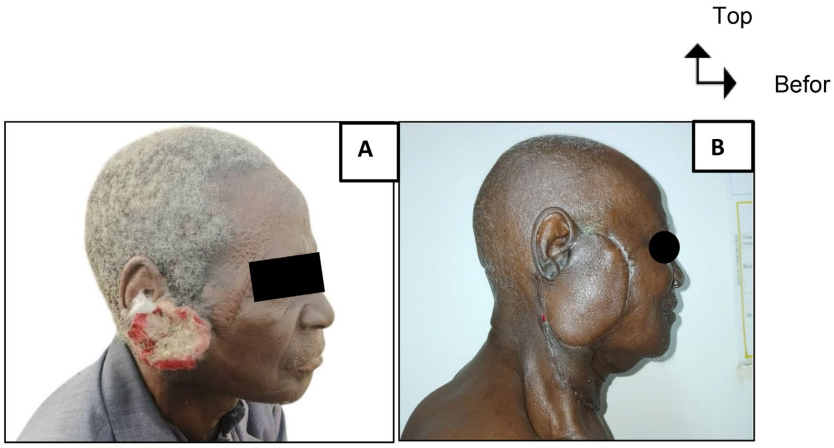

Figure 1. (A) Appearance of the parotid tumor before chemotherapy; (B) Image showing the appearance of the pectoral major flap at 1 month postoperatively.

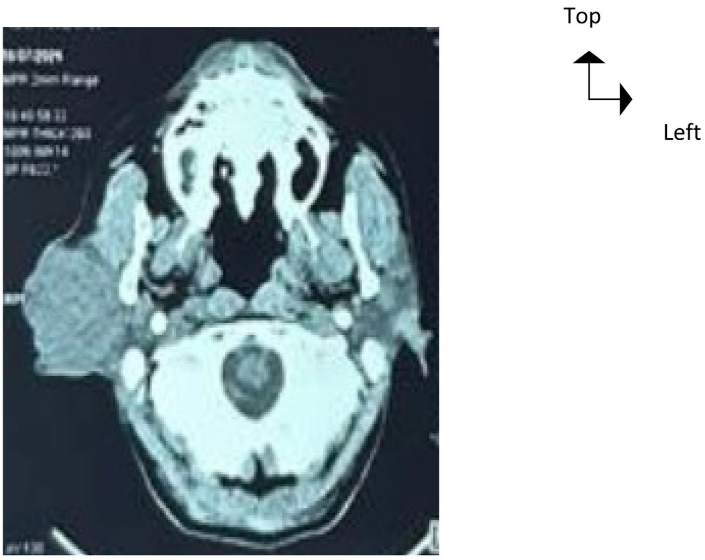

Figure 2. Cervicofacial CT showing a right parotid tissue mass.

The histopathological examination of the operative specimen revealed under microscopy, a carcinomatous proliferation of epithelial cells at the periphery of large, dense hyaline areas with calcifications. The surgical sections were clear. Histology confirmed an invasive squamous cell carcinoma developed on a pleomorphic adenoma, with lymph node invasion (3 positive lymph nodes), corresponding to a pT4N2bM0 R+ stage (Figure 3).

Adjuvant treatment combining radiotherapy (60 Gy) and additional chemotherapy was administered after consultation with the multidisciplinary team, based on the TNM stage of the histopathological examination of the final specimen.

At 12 months of follow-up, no local or metastatic recurrence was observed.

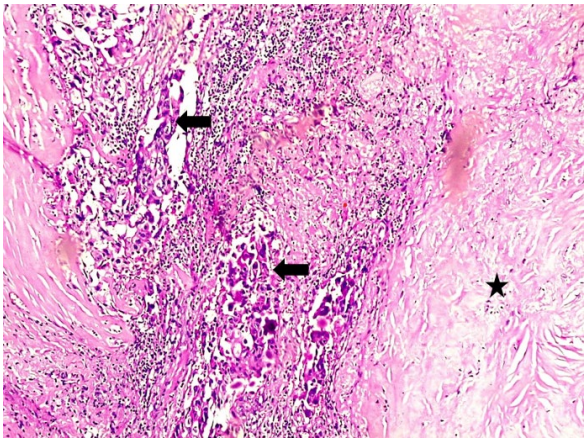

Figure 3. Microscopy (HE ×100), infiltrating glanduliform structures with angular and irregular contours with marked cytonuclear atypia (black arrows), in an abundant hyaline collagen fibrous tissue (black star) rearranged by a moderate lymphocytic chronic inflammatory infiltrate.

3. Discussion

Ex-pleomorphic adenoma carcinoma is a rare entity, accounting for approximately 11% of malignant salivary gland tumors [3]. It occurs preferentially in elderly subjects after a long evolution of a pleomorphic adenoma, as illustrated in our observation.

Malignant transformation is favored by the duration of tumor evolution, which explains the frequency of advanced forms in contexts of diagnostic delay. The parotid is the most commonly affected site, although all salivary glands may be affected [5] [6].

Diagnostically, fine needle aspiration is widely used but has limited sensitivity (29% - 50%), especially for mixed lesions [7]. Biopsies may misrecognize the benign component, leading to a misdiagnosis of primary carcinoma. Thus, only the exhaustive histological examination of the operative specimen allows a definitive diagnosis.

Histologically, Ca ex AP is classified into non-invasive, minimally invasive and invasive forms according to the degree of capsular and tissue infiltration. In our case, the infiltrating nature with lymph node involvement conferred an unfavorable prognosis.

Treatment is mainly based on cancer surgery with complete excision. The extent of the parotidectomy depends on the degree of invasion, with preservation of the facial nerve when possible. Lymph node dissection is indicated in cases of lymph node involvement or advanced tumor [2] [3] [8].

Adjuvant radiotherapy improves locoregional control, while the role of chemotherapy remains debated. Innovative approaches, including immunotherapy combined with antiangiogenic drugs, have recently shown promising results in advanced forms [9].

At the molecular level, Ca ex AP carcinogenesis involves progressive chromosomal alterations and genetic abnormalities such as PLAG1 rearrangements, MYC

overexpression and p53 mutations. COX-2 expression is also involved in tumor angiogenesis [4] [10] [11]. These advances open up targeted diagnostic and therapeutic perspectives.

The prognosis depends mainly on the tumor stage, the degree of invasion and the lymph node status. 5-year survival rates vary widely across series, reflecting the biological heterogeneity of this entity [8] [12].

4. Conclusions

Ex-pleomorphic squamous cell carcinoma remains a rare but highly aggressive entity, resulting from a late malignant transformation of benign lesions of long evolution.

This case highlights a major double issue: the risk of preoperative underdiagnosis related to limited sampling and the impact of diagnostic delays in resource-limited settings.

Although this is a single case and the relatively short follow-up period, which is a limitation, this case nevertheless highlights the need for comprehensive histological analysis and early multidisciplinary management, while opening up prospects for targeted therapeutic approaches based on recent molecular advances.

Conflicts of Interest

The authors declare that there is no conflict of interest.

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