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CASE REPORT

Parotid Metastasis from Squamous Cell Carcinoma: Surgical Resection and Microsurgery Reconstruction: a case report

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ABSTRACT

Introduction and importance: Squamous cell carcinoma (SCC) accounts for approximately 20% of nonmelanoma skin cancers, with a significant proportion arising in the head and neck region. Up to 5% of these lesions' present nodal metastases, particularly to the parotid gland, attributed to the extensive lymph nodes in and around the gland. Treatment typically involves surgical resection, including cervical lymph node dissection, with adjuvant radiation therapy recommended in select cases. Reconstruction using a microsurgery-assisted free anterolateral thigh flap is valuable in complex cases such as SCC with parotid metastasis, providing optimal reconstruction outcomes and improving patient quality of life.

Case presentation: We presented a 68-year-old woman with squamous cell carcinoma (SCC) in the left parotid gland and metastasis. The patient had a history of SCC in the left zygomatic region. The parotid lesion exhibited rapid growth and was associated with various symptoms, including eye pain, hearing loss, tinnitus, and headache.

Discussion: Treatment involved left extended total parotidectomy, ipsilateral supraomohyoid neck dissection, and reconstruction with a microsurgery-assisted free anterolateral thigh flap.

Conclusion: Comprehensive care, from early diagnosis to skilled surgery, is vital for improving outcomes in squamous cell carcinoma, particularly with parotid metastases.

KEYWORDS: Cutaneous squamous cell carcinoma, parotid metastasis, free flap reconstruction

Introduction

Squamous cell carcinoma (SCC) represents around 20% of nonmelanoma skin cancers, and most of them arise in the head and neck region¹. Up to 5% of these lesions present nodal metastasize, mainly from the cutaneous facial malignancy to the parotid gland². It may be due to the numerous lymph nodes incorporated within and adjacent to the glandular parenchyma.

Risk factors for parotid metastases from SCC include tumor size (>2 cm), thickness (>4 mm), incomplete excision margin (<4 mm), tumor recurrence, proximity to the parotid gland, high grade or desmoplastic lesions, lymphovascular or perineural invasion, advanced age, and immunocompromised status³.

Parotid metastasis may present as a firm, painless lump or swelling in the area in front of the ear or below the jawline⁴. Surgical treatment, including cervical lymph nodes dissection even in cN0 necks are indicated. The NCCN and the American College of Radiation Oncology (ACRO) recommend adjuvant radiation therapy for tumors with extensive perineural or considerable nerve involvement⁵. The aim of this case report is to present a patient with SCC and parotid metastasis treated with surgical resection and microsurgery free flap reconstruction.

Case Report

A 68-year-old woman was referred to the Head and Neck Department due to an arising lesion in the left parotid gland. In three months, she had a progressing enlarging and painful parotid lesion associated with eye pain, hearing loss, tinnitus, and headache (Figure 1a). She denied constitutional

symptoms such as lethargy, unintentional weight loss, or loss of appetite. She has a prior history of left zygomatic SCC resected with a clear margin and without perineural invasion three months ago. There was no family history of malignancy. She did not have social habits of alcohol consumption and tobacco use.

Upon physical examination, there was an ulcerative mass of irregular border and shape, lobulated surface, measuring 12 cm × 8 cm, located at the left angle of the mandible, extending to the left mastoid region. The edge of the ulcer appeared to be everted, and the base was filled with tumor debris (Figure 1b). She had total paralysis of the facial nerve. Lingual and hypoglossal nerve functions were intact. Systemic examination was unremarkable.

The computed tomography (CT) scan revealed an expansive tumor with 50 x 42 mm dimensions in the left parotid gland. The tumor adhered to the lateral surface of the mandibular ramus without bone destruction (Figure 2). There were neither ipsilateral enlarged lymph nodes on the neck nor distant metastases.



Figure 1.

- a) Initial lesion three months ago.
- b) Pre-operative examination revealed an ulcerative mass of irregular border, shape, and lobulated surface.

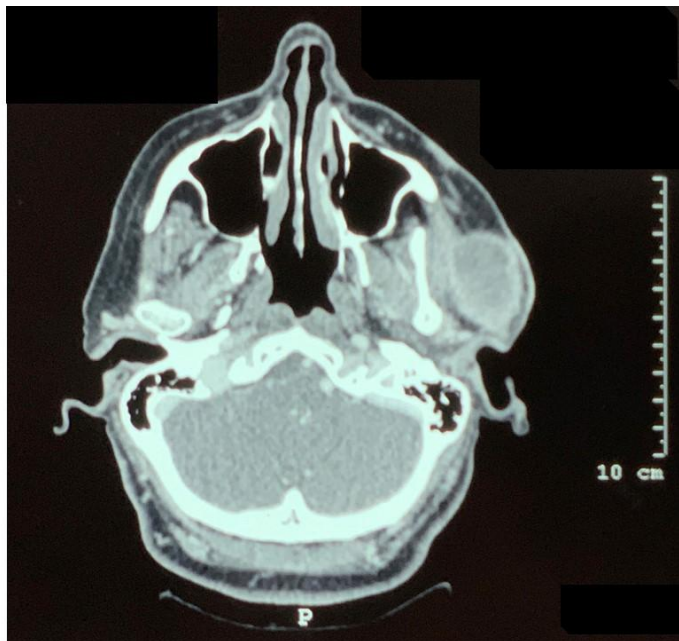


Figure 2 - Axial view demonstrated an ill-defined, enhancing, lobulated, heterogeneous, hypodense lesion at the left parotid gland.

TREATMENT

The patient underwent a left total parotidectomy, ipsilateral supraomohyoid neck dissection, and soft tissue coverage with a free anterolateral thigh flap.

Intra-operatively, the ulcerative mass was resected with a margin of 2 cm, including the left external ear. The facial nerve and its rami, great auricular nerve, and external jugular vein were identified and sacrificed due to direct

tumor invasion. Then the superficial and deep lobes of the left parotid gland were removed. During ipsilateral supraomohyoid neck dissection, levels I to level III cervical lymph

nodes were removed (Figure 3). The wound defect was reconstructed using microsurgery with a left free anterolateral thigh fasciocutaneous flap (Figure 4a, b).

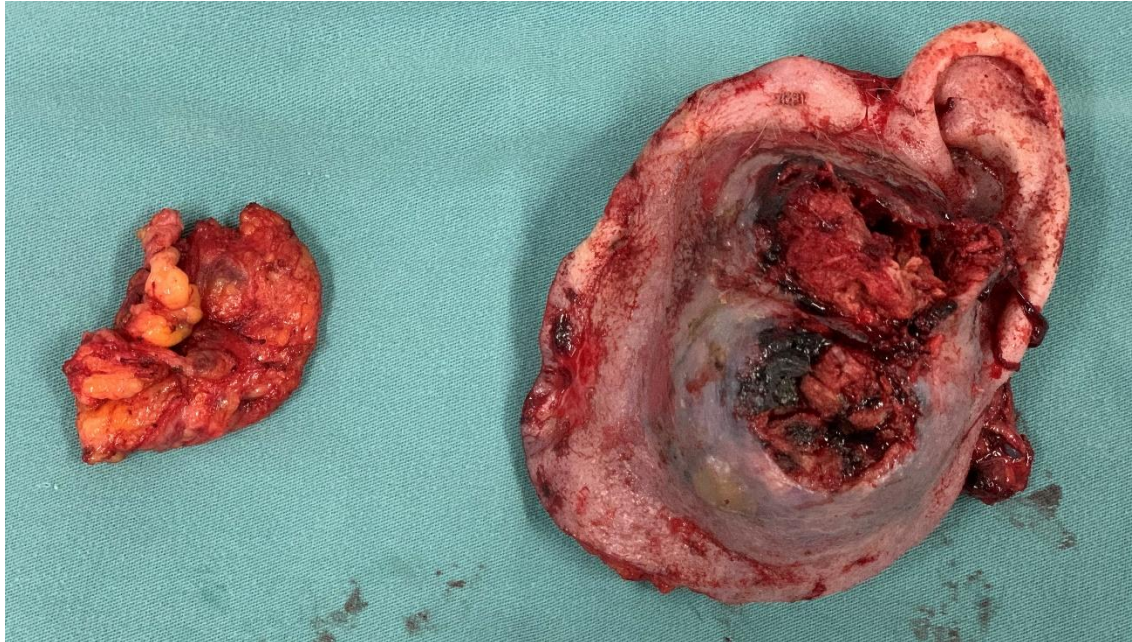


Figure 3 – Resection of the ulcerative mass with a margin of 2 cm, including the left ear. Levels I to level III cervical lymph nodes were removed.



Figure 4.

- a) Left free anterolateral thigh fasciocutaneous flap design.
- b) The wound defect was reconstructed with a microsurgery-free flap.

The pathology supported the finding of margin free and moderately differentiated SCC with perineural invasion. There was no

evidence of lymph vascular invasion or lymph node involvement (0 out of 36 lymph nodes) (Figure 5 a, b).

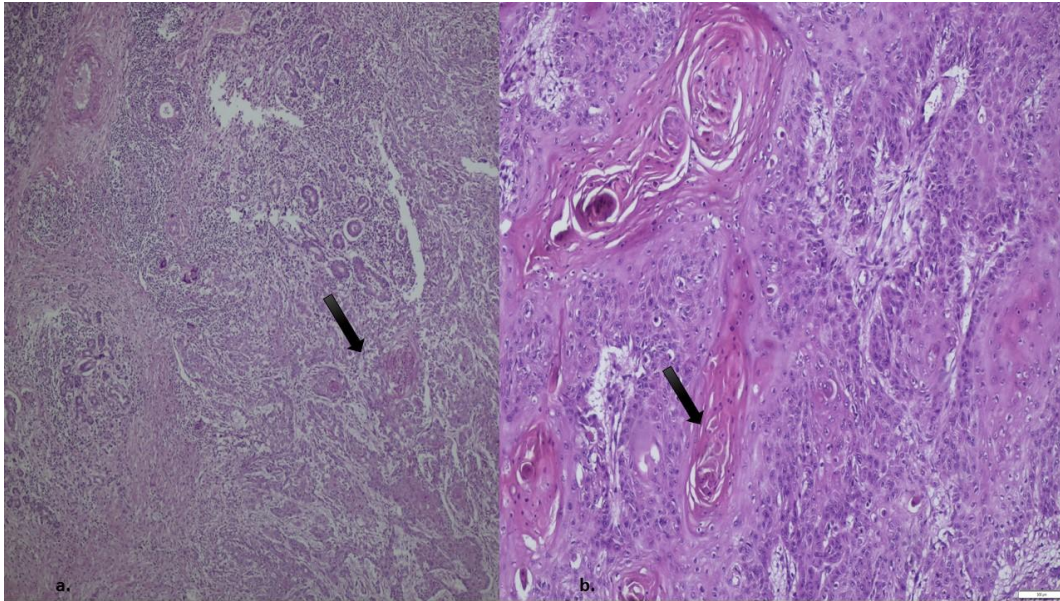


Figure 5.

- a) Moderately differentiated SCC invading deep and superficial lobes of the parotid.
- b) SCC with perineural invasion.

The patient achieved a successful outcome with consistent monitoring and no complications following surgery. The free flap had good perfusion and successful evolution (Figure 6 a,

b). Currently, she is receiving adjuvant radiotherapy. There has been no recurrence reported till date.



Figure 6. One-month follow-up with a free flap with good perfusion and successful evolution.

DIFFERENTIAL DIAGNOSIS

Parotid tumors (PTs) encompass a diverse range of pathological types, necessitating tailored surgical approaches based on the specific tumor type. Identifying ill-defined margins on MRI scans holds significant predictive value for malignancy. This characteristic is especially crucial in determining the aggressiveness and appropriate management of the tumor. Conversely, well-defined margins or the presence of a hypointense capsule are distinct features often associated with benign lesions, such as pleomorphic adenoma.

Discussion

SCC is common in people with fair skin and high solar UV exposure². It induces DNA damage with tumor mutation, playing a role in the carcinogenesis and progression of cutaneous squamous cell carcinoma⁶. Metastatic SCC to the parotid is most common in older male. Recent data from Australia, Germany and East Coast USA have shown an increasing incidence of this disease⁷. We presented a female with SCC with parotid metastases with surgical resection and cervical resection and microsurgery reconstruction.

Among the risk factor on prognostic in the metastatic SCC to the parotid, several studies agree that positive margin are associated with worse survival. An Australian retrospective study of 67 patients showed that the only parameter that significantly correlated with disease-free survival was margin status (close/negative versus positive $P = 0.0348$)⁸. Fortunately, our patient had a margin free after the surgical treatment.

Elective neck dissection remains controversial. In a large retrospective North America study, the rate of occult cervical metastasis in cN0 patients was high (15.8%)⁹. It supports the recommendation of the elective neck dissection in all patients with intraparotid metastatic SCC¹⁰. In this case report, we performed elective neck dissection.

A keystone after radical parotidectomy is the reconstruction. Anterolateral thigh flap is a suitable option. It provides 48% dynamic facial function and 26% spontaneous dynamic movements¹¹. Moreover, a recent retrospective study showed that being a woman and having an intact facial nerve before surgery improved dynamic midface movement ($p = 0.005$ and $p = 0.036$, respectively)¹².

The microsurgical anterolateral thigh (ALT) flap has become a primary tool for reconstructing cutaneous and subcutaneous defects. It provides a long vascular pedicle, the ability to harvest large areas of skin without added donor site morbidity, and easy adaptability with better outcomes¹³.

Conclusion

Although parotid metastasis is relatively rare, certain tumor and patient-related factors increase its likelihood. Treatment typically involves surgical resection, lymph node dissection, and adjuvant radiation therapy. This case report highlights the effectiveness of surgical intervention and microsurgery free flap reconstruction in managing SCC with parotid metastasis, emphasizing the importance of a comprehensive treatment approach and diligent postoperative surveillance.

Patient perspective

The patient experienced a range of emotions and challenges. She brought feelings of fear, uncertainty, and concern to her life. Moreover, the impact of changes in appearance, such as facial asymmetry or difficulty with facial movements. However, emotional support and open communication with the healthcare team were crucial for addressing the patient's concerns and helping her navigate the challenges associated with parotid cancer.

Funding declaration

The authors declare that there is no funding support for this manuscript.

Conflict of interest

The authors declare that there is no conflict of interest.

Ethical standards

All procedures followed were by the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008.

Informed Consent

Informed consent was obtained from the patient to be included in the study.

Author's contribution

Paola Solis-Pazmino, Luiz Osowski, and Virgilio Zanella conceived and designed the work. Paola Solis-Pazmino: wrote the manuscript. Luiz Osowski, Virgilio Zanella, and Daniel Solis: data collection. Paola Solis-Pazmino, Luiz Osowski, and Virgilio Zanella: corrections and final article revision.

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