



From Benign Lesion to Aggressive Carcinoma: Lessons from a Misdiagnosed Case

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Abstract

Introduction: Undifferentiated squamous cell carcinoma (USCC) is a rare and aggressive variant of squamous cell carcinoma, with a higher capacity for dissemination and recurrence. Its prevalence in the head and neck region is low, accounting for approximately 1% to 2% of all squamous cell carcinoma cases.

Case Report: A case of USCC in the genian region with extension to the parotid gland and cervical lymph nodes is presented. The patient underwent extensive surgical resection, including parotidectomy and lymph node dissection. Despite the treatment, tumor recurrence was observed during follow-up, highlighting the aggressiveness and high recurrence rate of this tumor type.

Discussion: USCC is characterized by a high rate of perineural invasion, lymph node dissemination, and local recurrence. The genian region, due to its constant sun exposure and proximity to critical structures like the parotid gland and lymph nodes, is considered high-risk. Treatment should be aggressive, involving wide surgical resection, lymph node dissection, and adjuvant radiotherapy, especially in cases of undifferentiated carcinoma.

Conclusions: Early diagnosis and appropriate treatment are crucial for improving the prognosis of USCC. Postoperative follow-up must be thorough due to the high recurrence rate. The genian region presents complex surgical and prognostic challenges, requiring a multidisciplinary approach.

Keywords: Benign Lesion; Malignant Tumor; Aggressive Carcinoma; Malignant Transformation

Introduction

Squamous cell carcinoma (SCC) is one of the most common skin cancers, especially in areas exposed to the sun, such as the face and neck. In the facial region, it is common for malignant lesions to be confused with benign conditions, which complicates early diagnosis. This type of diagnostic error is not uncommon, with studies suggesting that between 10% and 20% of squamous cell carcinomas may initially be misdiagnosed as benign lesions. The most common benign lesions that can be mistaken for squamous cell carcinoma include seborrheic keratosis, actinic keratosis, and so-

lar lentigo, which typically occur in sun-exposed areas of the face, such as the middle third of the face, the dorsal nasal region, and the genian region, with the latter being the most affected.

The delay in diagnosis due to confusion with these benign lesions can allow the disease to progress, becoming an aggressive squamous cell carcinoma, as occurred in the clinical case presented [1-3].

The patient, initially diagnosed with a benign lesion, rapidly developed an aggressive form of SCC, which even led to the spread

of cancer through the skin (cutaneous carcinomatosis). The consequences of an incorrect diagnosis include greater tumor extension, surgical complications, and an unfavorable prognosis, with an increased likelihood of recurrence and metastasis.

This case highlights the importance of early diagnosis, thorough histological analysis, and appropriate treatment to avoid severe complications. Rigorous follow-up is essential, especially in high-risk areas such as the face.

Objective

To explore the critical factors associated with oral squamous cell carcinoma (OSCC) in the buccal mucosa, focusing on its etiology, clinical features, and treatment options, with an emphasis on the implications of misdiagnosis.

Reference search methods

A comprehensive literature search was conducted using the following keywords and Medical Subject Headings (MeSH) in English: "oral squamous cell carcinoma," "buccal mucosa," "oral cancer," "risk factors," and "treatment of oral cancer." Studies published in peer-reviewed journals, along with systematic reviews and meta-analyses, were selected to provide a broad and well-rounded evidence base for understanding OSCC.

Analysis strategy

The analysis focused on the clinical characteristics of OSCC in the buccal mucosa, examining risk factors such as tobacco and alcohol use, human papillomavirus (HPV) infection, and dietary influences. The review also assessed various treatment strategies, including surgical resection, radiation therapy, and the role of early detection in improving patient outcomes. Additionally, the challenges and outcomes of reconstructive surgery following tumor removal were examined, highlighting the impact of timely diagnosis and the risks of delayed or incorrect diagnoses, as well as the importance of a comprehensive, multidisciplinary approach to treatment.

Case Report Description

A 73-year-old male patient, with no significant medical history, initially consulted another institution for a lesion in the right genian region. In the first evaluation, the lesion was interpreted as benign, and local treatment was prescribed without histopatho-

logical study. Despite the management, the lesion persisted, and after a period of observation, it was decided to perform a surgical excision without biopsy.

The patient remained under follow-up until, two years later, he presented with local recurrence in the operated area, with clinical characteristics suggesting malignancy. On this occasion, a new surgical resection was performed, and histopathological study confirmed the diagnosis of undifferentiated squamous cell carcinoma.

Given the diagnosis, an integrated oncological treatment was carried out, which included

- Surgical excision of the lesion with oncological margins.
- Cervical lymph node dissection of levels Ia and Ib.
- Adjuvant radiotherapy to improve local control.

After completing radiotherapy, five months after surgery, the patient came to our institution with the appearance of a firm, solitary, deep mass in the parotid region, with infiltration of the deep lobe of the parotid gland. An incisional biopsy was performed, which again confirmed undifferentiated squamous cell carcinoma, without specifying whether it was a metastasis.

Due to tumor progression, total parotidectomy without facial nerve preservation was performed, along with selective cervical lymph node dissection of levels I, II, and III.

However, 60 days after surgery, the patient presented multiple disseminated nodular lesions in the hemineck and hemi-face, suggesting cutaneous carcinomatosis.

Discussion

Undifferentiated squamous cell carcinoma (USCC) is a rare and aggressive form of squamous cell carcinoma. Although squamous cell carcinoma accounts for 5% to 10% of all skin cancers, cases of undifferentiated squamous cell carcinoma are even less frequent. In the head and neck region, the prevalence of USCC is estimated at approximately 1% to 2% of all squamous cell carcinoma cases. This tumor type is characterized by its aggressive biological behavior, making it a diagnostic and therapeutic challenge [3-5].



Figure 1: Lesion in the parotid region.

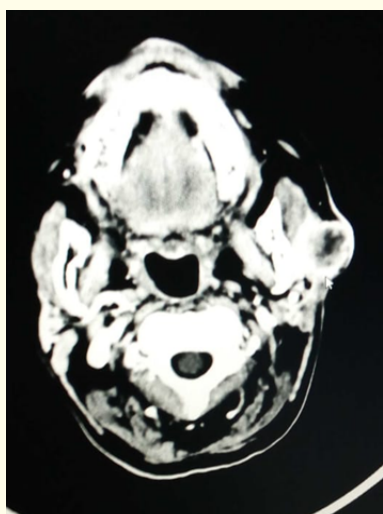


Figure 2

Relation between histopathological study and aggressive biological behavior

Undifferentiated squamous cell carcinomas are distinguished by their greater aggressiveness compared to well-differentiated carcinomas. They have a higher capacity for infiltration and invasion, especially perineurally, favoring spread to neighboring areas such as cervical lymph nodes or deep structures like the parotid gland. Their ability to spread rapidly is related to minimal or no keratin formation and a high mitotic index, which promotes uncontrolled proliferation. This is reflected in a high recurrence rate, justifying the need for thorough postoperative follow-up. In the presented case, despite the initial treatment, local recurrence was observed, highlighting the importance of continuous monitoring.

Anatomical relationship of the genian region and parotid gland with tumor dissemination

The genian region, an area of the face constantly exposed to the sun, is prone to malignant lesions. Its proximity to lymphatic and nerve structures, as well as its relatively thin skin, facilitates the dissemination of the tumor to nearby lymph nodes and structures like the parotid gland. In this case, the presence of a mass in the parotid region indicated that the squamous cell carcinoma had already infiltrated this anatomical area. The invasion of the deep lobe of the parotid gland, in particular, increases the surgical complexity, as it may involve nerve structures such as the facial nerve [5].

Perineural invasion is a frequent phenomenon in aggressive squamous cell carcinomas. Tumor infiltration along the facial nerves can spread to nearby and even distant regions, which was evidenced by the appearance of new nodular lesions in the hemi-neck and hemi-face of the patient [5,6].

Considerations for the Genian Region, a High-Risk Zone, and Its Impact on Treatment and Prognosis

The genian region is classified as a high-risk zone due to several anatomical and biological factors that favor tumor aggressiveness and a high likelihood of dissemination

- **High sun exposure:** The genian region is constantly exposed to ultraviolet (UV) radiation, increasing the risk of developing squamous cell carcinoma. Premalignant lesions such as actinic keratosis and solar lentigo are common in this area and may evolve into more aggressive malignant forms [7-9].
- **Proximity to critical structures:** The proximity to regional lymph nodes, facial nerves, and the parotid gland facilitates the local and metastatic spread of undifferentiated squamous cell carcinoma, which has a greater capacity for propagation.
- **Risk of recurrence:** Carcinomas in this region have a high recurrence rate due to the complexity of surgery and proximity to vital structures. This, combined with the ability to spread rapidly to lymph nodes and the parotid gland, increases the risk of metastasis and recurrence [9,10].

Relation of the genian region with treatment

The treatment of carcinoma in the genian region requires a more aggressive and meticulous approach due to the high-risk zone. Treatment implications include:



Figure 3: Recurrence.

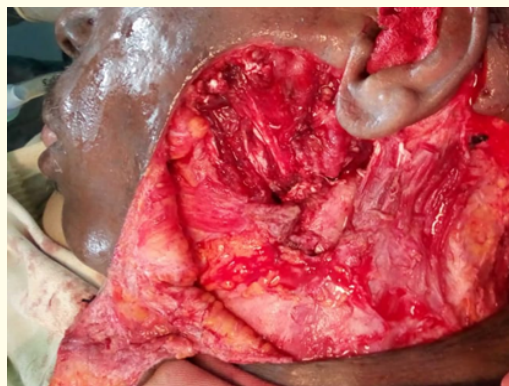


Figure 5: Surgery.



Figure 4: Recurrence.

- **Wide surgical resection:** Since the region is surrounded by vital structures such as lymph nodes, the facial nerve, and the parotid gland, wide surgical resection is essential to ensure tumor-free margins and prevent local spread. In some cases, total parotidectomy, as needed in the described case, is essential to ensure complete tumor removal [10-12].
- **Lymph node dissection:** Lymph node dissection is crucial to prevent metastasis, especially in undifferentiated squamous cell carcinomas, which have a greater tendency to spread to cervical lymph nodes and other nearby areas. Selective dissection of levels I, II, and III is a common procedure in these cases.
- **Adjuvant radiotherapy:** Due to the aggressiveness of undifferentiated squamous cell carcinomas, adjuvant radiotherapy may be required to reduce the risk of local and regional recurrence. This treatment is particularly important in cases with compromised margins or perineural spread [12,13].

Prognostic implications in the genian region

The prognostic implications of squamous cell carcinoma in the genian region depend on several key factors:

- **Tumor type:** Undifferentiated squamous cell carcinoma is biologically more aggressive, which results in a higher recurrence rate, lymph node metastasis, and spread to nearby tissues, such as the parotid gland. In cases like the one described, dissemination to the parotid and lymph nodes can occur rapidly.
- **Late diagnosis:** Early diagnosis is crucial to improving prognosis. In situations where carcinoma is not diagnosed in time, as in this patient's case, the tumor may progress to a more aggressive phase, increasing the risk of metastasis and surgical complications. An incorrect diagnosis at early stages or an incomplete biopsy can delay appropriate treatment, worsening the prognosis. [13, 14]
- **Adequate Treatment:** A correct diagnosis and early treatment can significantly improve the prognosis. Proper surgical resection, followed by radiotherapy in high-risk cases, can control the disease and improve long-term survival rates.
- **Postoperative Follow-up:** Since undifferentiated squamous cell carcinomas have a high recurrence rate, postoperative follow-up must be thorough. Regular surveillance with imaging and periodic biopsies is essential to detect regional recurrences, which may not be immediately visible after surgery [14,15].



Figure 6: End of the surgery.

Conclusion

Undifferentiated squamous cell carcinoma (USCC) is a rare and aggressive tumor, especially in the genian region, presenting a high risk of recurrence and dissemination due to its invasive capacity. Despite adequate treatment, local recurrence is common, emphasizing the importance of early diagnosis, thorough surgical treatment, and rigorous follow-up. Timely intervention and proper postoperative control are essential to improve prognosis and reduce complications in patients with USCC in high-risk areas.

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