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## Well-differentiated squamous cell carcinoma associated with a maladapted total dental prosthesis: Case report

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### Abstract

**Introduction:** The frequency of oral cancer in the Mexican population has increased in recent decades. Squamous cell carcinoma of the oral cavity is the most common, accounting for 90% of oral cancers.

**Objective:** This paper aims to report a case to highlight the importance of timely oral screening and diagnosis, as well as to raise awareness among patients about self-examination of the oral cavity and seeking medical attention for any unusual lesion that appears in the mouth.

**Clinical Case:** An 86-year-old female patient presented to a dental consultation reporting a poorly appearing oral lesion that had been present for 9 months and had increased in size, causing maladaptation of her total dental prosthesis. The patient has a history of hypertension for 30 years. Oral examination revealed total edentulism, as well as an elevated plaque-like lesion extending from the right cheek at the level of the occlusal line to the ipsilateral upper alveolar ridge, with an uneven surface and irregular segments, including white papillary projections that did not detach upon scraping.

**Auxiliary Diagnostic Tests:** Incisional biopsy of the lesion in the palate and right cheek, compatible with well-differentiated squamous cell carcinoma similar to verrucous type.

**Clinical and Histological Diagnosis:** Well-differentiated oral squamous cell carcinoma with ipsilateral neck lymph node metastasis, which is a poor prognostic factor despite the reported histological grade.

**Treatment:** Considering the patient's age, the decision was made not to perform excisional surgery, but to treat exclusively with intravenous chemotherapy.

**Conclusion:** In elderly patients, it is important to establish a protocol for self-examination of the mouth and regular dental appointments to detect the presence of oral lesions, especially in those who wear partial or complete dentures. Poor oral hygiene, coupled with improper adjustment of the prosthesis that causes friction and/or injury to adjacent tissues, are predisposing factors that could be associated with the development of epithelial dysplasia, such as the one that led to this carcinoma.

**Keywords:** Well-differentiated squamous cell carcinoma, complete denture, edentulism, incisional biopsy

### Introduction

Any irritation of the oral mucosa caused by friction from a total or removable prosthesis can lead to a precancerous lesion if the causative factor is not eliminated. This may involve wear on the prosthesis in the affected area, or in cases of improper adaptation, a relining may be necessary. It is essential to address these issues in a timely manner.

Regarding oral cavity cancer, it is considered a public health problem, particularly in developing countries, where it ranks first among head and neck neoplasms, eleventh in terms of frequency, and thirteenth in terms of mortality<sup>[1]</sup>.

Squamous cell carcinoma of the oral cavity (OSCC) is the most common carcinoma, representing 90% of oral cancers. It is more frequent in male adults between the ages of 50 and 60. Its etiology is multifactorial, with the most significant factors being smoking and alcohol consumption, which increase the risk by up to 50%. Other risk factors include poor oral hygiene, poorly fitting dental prostheses, diet, HIV, HPV, genetics, among others<sup>[2]</sup>.

It is a neoplasm originating from epithelial tissues. It begins as epithelial dysplasia, which proliferates and acquires malignant characteristics, destroying the underlying connective tissue.

It is the second most common type of skin cancer, after basal cell carcinoma. Survival rates for this neoplasm are low (50%), especially compared to other cancers [3].

It is characterized by being aggressive and invasive, with a tendency to metastasize to cervical lymph nodes [4]. Lesions that precede this carcinoma include leukoplakia and erythroplakia, which can evolve into invasive carcinoma. However, this cancer can also arise spontaneously in healthy mucous membranes, affecting the gums, lateral border of the tongue, and floor of the mouth [5, 6].

The prognosis of this carcinoma depends on the stage at which it is diagnosed. Treatment typically includes surgery for resection of the primary tumor, followed by radiotherapy and, in some cases, chemotherapy or targeted therapies [7]. In recent years, new therapies have emerged, such as immune checkpoint inhibitors and photodynamic therapy, which offer hope for advanced or recurrent cases [8, 9].

The Mexican Ministry of Health has developed programs focused on the prevention and control of oncological diseases, with special attention to oral cancer, which has shown a significant increase in incidence in recent years. Through these programs, various strategies have been implemented for early detection and timely treatment of these conditions, aiming to reduce the progressive impact of this type of cancer in the Mexican population [10]. The objective of this clinical case is to highlight the importance of performing timely screening for early diagnosis and to raise awareness among patients about the importance of self-examination and seeking

medical attention for any unusual lesion that appears in their oral cavity.

### Case Presentation

An 86-year-old female patient visited the dental clinic at the end of January 2024, reporting a lesion with increased volume in the palate, as well as noticing a poorly appearing lesion. She mentioned that the lesion started 9 months ago and has progressively increased in size to the point where her total denture no longer fits. She stated that she had received a new total denture in November 2022, but it never fit properly, had movement during chewing, and was easily dislodged.

In the medical history, the patient reported being hypertensive for 30 years, and denied smoking or drinking alcohol. She had no other significant medical history.

On clinical examination, total edentulism was noted, as well as an elevated plaque-like lesion extending from the right cheek at the level of the occlusal line to the ipsilateral upper alveolar ridge. The anterior limit of the lesion was identified at the floor of the right upper sulcus, extending to the right retromolar area. The affected area showed an irregular surface with an uneven texture, including white papillary projections that did not detach upon scraping (Figure 1).

Since the lesion did not respond to conventional treatments for oral infection, a surgical approach was decided upon, involving an incisional biopsy. Two fragments of the lesion were obtained for microscopic analysis.



**Fig 1:** Total edentulism accompanied by an elevated plaque extending from the right cheek to the upper alveolar ridge

**Macroscopic description:** The incisional biopsy specimen consisted of two fragments. The larger fragment measured 0.71 x 0.6 x 0.46 cm, irregularly shaped, with a papillary

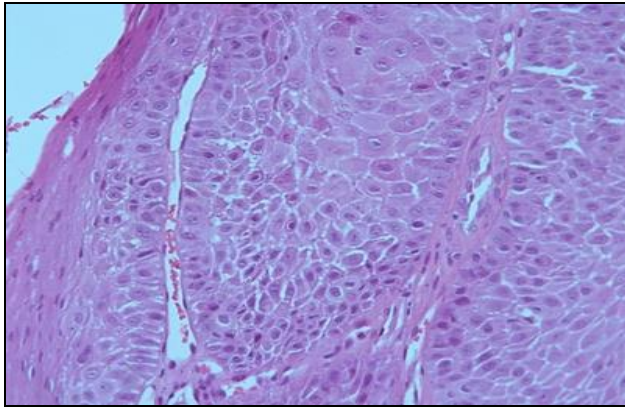
surface, light brown color with dark brown hemorrhagic areas, and a firm consistency. Both fragments were submitted in their entirety for routine processing (Figure 2).



**Fig 2:** Incisional biopsy of two fragments submitted for microscopy study

**Microscopic Analysis:** Upon microscopic examination of the different levels, it was confirmed that all fragments presented the same characteristics, with no evidence of residual tissue from the mentioned areas. Notable findings include extensive epithelial thickening with a papillary projection architecture, exhibiting marked cellular and nuclear pleomorphism, variations in keratinization patterns, visible nucleoli, and other alterations.

Within the connective tissue papillae, identifiable inflammatory tissue of a reactive lymphoid predominance was observed (Figure 3).



**Fig 3:** Presence of inflammatory tissue with a lymphoid predominance in connective tissue papillae

- **Diagnosis:** Incisional biopsy of the lesion in the palate and right cheek, compatible with well-differentiated Squamous Cell Carcinoma similar to verrucous type.
- **Treatment:** Given the patient's age (86 years), it was decided not to perform excisional surgery but to treat her with intravenous chemotherapy only.

The patient was referred to Oncology in March, where she received her first chemotherapy on March 10th. She was administered 5-FU (fluorouracil) 1,000 mg prepared in 0.9% saline solution, infused over 10 minutes for 22 hours, and 300 mg of cisplatin prepared in 0.9% saline solution over 30 minutes. The dose was repeated 21 days after the last administration. Currently, the patient's health condition is in noticeable decline, and she is receiving palliative care to improve her quality of life.

## Discussion

As reported in the literature, several authors state that this carcinoma is commonly found in males between 50 and 60 years old, with the most frequent locations being the lateral border of the tongue and the floor of the mouth, considered the highest risk areas for developing this cancer, while the buccal mucosa is considered a low-risk site. However, this should not limit the suspicion of malignancy to males or individuals under 60 years old, as the disease can also occur in females and those older than 60, warranting suspicion of malignancy in these areas as well [11].

In a study at the Faculty of Dentistry of the University of Chile, the highest percentage of diagnoses were in men and elderly adults. The 5-year overall survival rate was lower than that reported in previous national studies. Adults aged 55 years and older showed a lower overall survival rate [12].

Persistent trauma from a poorly adapted dental prosthesis can induce chronic inflammation and generate reactive oxygen and nitrogen species, released by phagocytes and leukocytes. These species can interact with DNA, potentially causing

permanent genomic damage, which leads to the regeneration and proliferation of malignant cells. Poorly adapted dental prostheses are also associated with deficient chewing function, which can reduce the mechanical cleaning of the oral mucosa, allowing carcinogens to adhere to the mucosa for longer periods [13-15].

The treatment for this type of carcinoma is based on block resection with wide margins. Postoperative radiotherapy can be used to prevent local and regional recurrences that might compromise the patient's life. Even with correct treatment, recurrence can still occur in about 34% of cases. Factors associated with recurrence may be related to demographic variables, such as age, sex, tobacco and alcohol use, or tumor-related factors, including size, location, and the presence of lymphatic disease [16].

Delaying medical consultation is one of the most important factors influencing prognosis. The longer the patient waits, the more advanced the tumor will be, and the chances of successful treatment will be lower.

## Conclusions

The clinical and histological diagnosis was well-differentiated oral squamous cell carcinoma with ipsilateral neck lymph node metastasis, which is a poor prognostic factor despite the reported histological grade. Regarding the epidemiological factors, it is notable that this is not a classic clinical case, as there were no similarities with the literature review, considering that the incidence in females is lower (1.8 times less than in males), as well as the patient's age. Concerning smoking and alcohol consumption, which are determining factors for the development of this neoplasm, both were negative in this patient. A poorly fitting prosthesis that caused friction and injury to the adjacent tissues, as well as poor oral hygiene, are local predisposing factors that could be associated with epithelial dysplasia, which led to the development of this carcinoma.

Regarding the clinical symptoms presented by the patient, as described in the case, including an elevated plaque-like lesion with an irregular, rough surface and even white papillary projections that did not detach upon scraping, these are consistent with the most common clinical manifestations described in the literature for this carcinoma.

Timely diagnosis and treatment should include early identification and the recognition of these risk factors in the patient's medical history. In this context, dentists must have the knowledge and skills to identify the characteristics of this neoplasm in these at-risk groups. Training should be provided so that screening becomes part of their routine practice

## Conflict of Interest

Not available

## Financial Support

Not available

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