

Oral Rehabilitation with Filling Prosthesis in Bucconasal Communication after the Occurrence of Squamous Cell Carcinoma: Case Report

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Reabilitação Oral com Prótese Obturadora em Comunicação Bucconasal após Ocorrência de Carcinoma de Células Escamosas: Relato de Caso

Rehabilitación Oral con Prótesis Obturatriz en Comunicación Oral tras la Aparición de Carcinoma Epidermoide: Reporte de Caso

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ABSTRACT

Introduction: The treatment of malignant neoplasm may consist in extensive surgical excision. In some cases, due to aggressive treatment in the removal of the tumor, intraoral structures are strongly compromised. Thus, prostheses are used to fill the maxillary cavity, allowing reconstruction of the affected region, together with oral rehabilitation. **Case report:** A 53-year-old female patient, ex-smoker and ex-alcoholic was diagnosed with squamous cell carcinoma in the soft palate region, requiring transoral resection surgery associated with radiotherapy. After approximately one year, the patient returned with a new palatal lesion, also diagnosed as squamous cell carcinoma, requiring further resection surgery. After two years, the patient returned to the Dentistry Department to receive the rehabilitative treatment, as she had only a temporary removable upper partial denture, where all the missing teeth were not replaced and there was poor adaptation to bucconasal communication. A final rehabilitative treatment was performed with upper partial removable denture and total prosthesis in the inferior residual ridge. **Conclusion:** The need for dental follow-up in cases of oral squamous cell carcinoma as well as the importance of rehabilitation treatment and its techniques contribute for the patient's self-esteem and quality of life.

Key words: squamous cell carcinoma of head and neck; mouth rehabilitation; denture, partial, removable; mouth neoplasms; palatal obturators.

RESUMO

Introdução: O tratamento de neoplasia maligna pode consistir em ampla excisão cirúrgica. Em alguns casos, em razão do tratamento agressivo na remoção do tumor, há grande comprometimento das estruturas intrabucais. Assim, próteses são utilizadas para a obturação da cavidade maxilar, possibilitando a reconstrução da região afetada, juntamente com a reabilitação oral. **Relato do caso:** Paciente de 53 anos de idade, sexo feminino, ex-tabagista e ex-etilista, apresentou diagnóstico de carcinoma de células escamosas na região de palato mole, sendo necessária cirurgia de ressecção transoral associada à radioterapia. Após aproximadamente um ano, a paciente retornou com nova lesão em palato, que novamente evidenciou carcinoma de células escamosas, sendo necessária nova cirurgia de ressecção transoral. Após dois anos, a paciente retornou ao Departamento de Odontologia a fim de receber o tratamento reabilitador, pois a prótese parcial removível superior era provisória, não substituiu todos os dentes ausentes e não obtinha adaptação adequada à comunicação bucconasal. Foi realizado tratamento reabilitador definitivo com prótese parcial removível superior e com prótese total no rebordo residual inferior. **Conclusão:** A necessidade do acompanhamento odontológico nos casos de ocorrência de carcinoma de células escamosas oral bem como a importância do tratamento reabilitador e suas técnicas contribuem para a autoestima e a qualidade de vida do paciente.

Palavras-chave: carcinoma de células escamosas de cabeça e pescoço; reabilitação bucal; prótese parcial removível; neoplasias bucais; obturadores palatinos.

RESUMEN

Introducción: El tratamiento de las neoplasias malignas puede consistir en una exéresis quirúrgica extensa. En algunos casos, debido a un tratamiento agresivo para extirpar el tumor, existe un gran compromiso de las estructuras intraorales. Así, las prótesis se utilizan para rellenar la cavidad maxilar, permitiendo la reconstrucción de la región afectada, junto con la rehabilitación oral. **Relato del caso:** Paciente femenina de 53 años, exfumadora y exalcohólica, que presentó el diagnóstico de carcinoma epidermoide en la región del paladar blando, que requirió cirugía de resección transoral asociada a radioterapia. Después de aproximadamente un año, la paciente regresó con una nueva lesión en el paladar, en la que también se le diagnosticó un carcinoma epidermoide, requiriendo una nueva cirugía de resección transoral. A los dos años, la paciente volvió al Departamento de Odontología para recibir tratamiento reabilitador, ya que la prótesis parcial superior removible era temporal, no reponía todos los dientes faltantes y no obtenía una adecuada adaptación a la comunicación bucconasal. El tratamiento de rehabilitación definitivo se realizó con una dentadura postiza parcial removible superior y una dentadura total en el reborde residual inferior. **Conclusión:** La necesidad de seguimiento odontológico en los casos de carcinoma epidermoide oral así como la importancia del tratamiento reabilitador y sus técnicas contribuyen a la autoestima y calidad de vida del paciente.

Palabras clave: carcinoma de células escamosas de cabeza y cuello; rehabilitación bucal; dentadura parcial removible; neoplasias de la boca; obturadores palatinos.

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INTRODUCTION

Oral cavity cancer is one of the most incident worldwide. In 2018, more than 354 thousand individuals (2%) of the world population were affected, ranking 18th among all cancers¹. In Brazil, the incidence is one of the world's highest². It is classified in two groups when oral cavity is affected: squamous cells carcinoma (SCC), corresponding to most of the cases and salivary glands carcinoma³.

SCC arises from the epithelium lining, also known as epidermoid carcinoma or spindle cell carcinoma⁴. There is no isolated carcinogenic factor clearly defined, but a set of intrinsic or extrinsic factors which, associated, lead to the onset of oral cavity cancer⁵. The two main risk factors are smoking and abusive use of alcohol, however, other factors are being associated with its development, including biological agents as human papilloma virus (HPV), poor oral hygiene, history of aerodigestive tract cancer and excess exposure to ultraviolet light⁵, in case of SCC of the lip.

Clinically, SCC has distinct presentations such as erythroplakia, leukoplakia or a combination of both (erythroleukoplakia). In addition, may present great volume (exophytic) or crateriform and/or ulceration (endophytic)⁶. In its initial period, either by innervation or local anatomy, it is asymptomatic most of the times. In addition, the individual's illiteracy and resistance to self-exam makes early diagnosis difficult⁷. Thus, late diagnosis can result in more complex and invasive treatment⁸.

The treatment of oral SCC must be oriented by the disease's clinical staging, intrabuccal location, bone involvement and patient's overall health status⁹. It may consist in wide surgical excision with safety margins, radiotherapy/chemotherapy or combination of both¹⁰. In some cases, because of the aggressive treatment to remove the tumor, there is great compromise of intrabuccal structures, impairing the speech and feeding. Therefore, the restorative treatment should be multiprofessional for the benefit of the patient's quality-of-life and psychological health¹¹. In these cases, prostheses are utilized as obturator of maxillary cavity, favoring the reconstruction of the region affected together with oral rehabilitation of the patient¹².

The objective of the present study is to report a clinical case of prosthetics rehabilitation post hemimaxillectomy surgery to treat localized SCC at the palate which caused bucconasal communication.

CASE REPORT

Female patient, 53-years-old, Black, ex-smoker and ex-alcoholic referred to dental clinic for oral rehabilitation

due to teeth losses and bucconasal communication post multiple relapses of SCC.

Based in her history, the initial lesion presented as erythroleukoplakia, limited and located in the anterior soft palate. After incisional biopsy and diagnosis of SCC, the treatment adopted was resection of the lesion.

The patient was in periodic follow-up at the stomatology clinic, but three years after the initial treatment, relapse signals of the lesion appeared with the following characteristics according to the chart: presence of a single lesion at the soft palate, slightly sore as a reddish-pinkish color plaque-like, normal consistency, flat edges, moriform surface, irregular contour and format, resubmitted to biopsy whose histopathology confirmed high-grade SCC. The patient was again submitted to transoral resection which led to bucconasal communication. Radiotherapy treatment developed along two months and ten days. She tolerated the treatment well. However, with some side effects as taste alteration, reduction of salivary flow, masticatory difficulties because of dentin sensitiveness, presence of foamy and viscous saliva, candidosis and loss of body weight.

In a further visit, a new lesion at the hard palate was detected close to the alveolar ridge and to the area of bucconasal communication. Per the chart, the altered region was more reddish with discreet edges, suggestive of SCC relapse confirmed by histopathology. The patient was referred again to the oncologist for new treatment, which led to a second bucconasal communication. All the oncologic treatments were conducted after the adequacy of the oral mean to avoid the risk of osteoradionecrosis. The patient was instructed to utilize artificial saliva to minimize the side effects of oral cavity radiotherapy.

The patient was in waiting list since after the second surgery there was no skilled professional to perform the procedure at the institution. Approximately two years and four months after the last oncologic treatment, the patient returned to the dental clinic to continue the oral rehabilitation treatment as its quality-of-life dropped due to bucconasal communication in the soft and hard palate, which make feeding and speech difficult. She complained of esthetic problems because of face asymmetry at the left with visible depression in the area caused by hemimaxillectomy.

At the anamnesis, the patient reported she quit smoking two years ago, had no health problems and was not using any medication. At the clinical examination, cervical palpation was normal and xerostomia, presence of two bucconasal communications, absence of SCC relapse and total absence of lower teeth without prosthesis were detected. At the upper dental arch, teeth 17, 13, 11, 22 and 23 were present in addition to unsatisfactory

removable partial denture (RPD), because of the prolonged use. This prosthesis should be used for a short period for better esthetics and function during treatment and further replaced by the definitive. In addition, the RPD replaced two anterior teeth lost and covered the area of the buconasal communications (Figure 1). Teeth 17, 11 and 22 were diagnosed with deep destruction by caries and great loss of bone insertion while the 23 had extensive caries and pulpal necrosis.



Figure 1. Upper removable partial denture utilized by the patient prior to rehabilitating treatment

Before the rehabilitation treatment itself, the oral cavity was submitted to the required dental treatments. Initially, the upper temporary RPD was manufactured as immediate prosthesis after the avulsion of teeth 17, 11 and 22 which were compromised (Figure 2). The molding of the upper arch was made as well as the endodontic treatment of tooth 23. The immediate RPD improved the speech and psychological recovery of the patient, in addition to facilitating feeding and deglutition.



Figure 2. Immediate temporary removable partial denture

Once the treatment of the remaining teeth was completed, the rehabilitating prosthesis treatment proceeded. After the manufacturing of guiding-planes and niches, the mold of the upper arcade was prepared for the confection of the metal structure. Next, the metal structure was tested, it was well adapted at the posterior region, sealing the whole buconasal communication. Full prosthesis was manufactured for the rehabilitation of the lower arch.

The patient was evaluated 24 hours and one month after the prosthesis was placed and well-adjusted (Figure 3).



Figure 3. Definitive partial removable prosthesis. **A** and **B**: Prosthesis ready. **C**: Intraoral clinical aspect without the prosthesis (communications visible). **D**: Clinical aspect with the prosthesis in-place.

The patient signed the Informed Consent Form in order to allow the disclosure of the case. The Institutional Review Board approved the study, number CAAE 45467421.0.0000.5108, report 4.693.720.

DISCUSSION

Resection of malignant tumors is the most common cause of acquired deformity of the palate that can be repaired with reconstructive surgery and/or dental prosthetics, likely preferred to reconstructive surgery instead as it favors the monitoring of the post-surgery residual tissue. In addition, relapse can be identified earlier¹².

Post-surgical-therapy maxillary deformities can cause masticatory function ill-outcomes, food reflux through nasal cavity and hypernasality of the speech¹³. In addition, can present esthetic changes typically interfering in the individual's emotional and social living¹¹. It is crucial that the professional provides the repair through prosthetics called maxillary obturators with the function of reclaiming the esthetics, the speech, the functioning and the mental and physical well-being of the patient¹⁴.

In the present report, RPD was manufactured to correct and minimize oncologic-related sequelae of the patient submitted to hemimaxillectomy. In regard to extractions, more care is essential since the radiotherapy treatment reduces blood flow, increasing the odds of osteoradionecrosis¹⁵. Therefore, before the beginning of radiotherapy, it is necessary to adequate the oral cavity to effectively reduce the complications from infectious or chronic inflammatory processes that can aggravate during and after the oncologic treatment¹⁶. In the present case, two years after radiotherapy, the patient was submitted

to dental treatment and because of the necessity of extractions, prophylactic antibiotic therapy was applied prior to the surgery.

The teeth preserved were essential for better retention and stability of obturator RPD because as short the extent of the bone defect is and more teeth, better is the adjustment of the prosthesis¹⁷. The utilization of canine teeth as pillar in the present case was relevant for better prosthetics stability. The patient remains in follow-up and annual evaluation without complications.

There are scarce studies in Brazil evaluating the economic impact of the treatment and rehabilitation of cancer¹⁸. A systematic review identified that 1.8% only of these studies was related to oral cancer¹⁹ and none of them evaluated the accessibility to dental prosthetics services. However, a recent study with data of the National Health System (SUS) showed that at oral cancer treatment referral clinics the patients have access to rehabilitation with dental prosthesis¹⁸. At “Vale do Jequitinhonha” the Odontology College of “Universidade Federal dos Vales do Jequitinhonha e Mucuri” is the main referral diagnostic, follow-up and rehabilitation clinic for patients with oral cancer as the current case showed. It is noteworthy the necessity of future studies about the accessibility of oncologic patients to dental prosthesis services encompassing the private and public hospitals across every Brazilian region.

The utilization of obturator prosthetics as rehabilitation may or not be an immediate alternative to resection. Recent studies showed that patients receiving immediate obturator prosthetics evolved better in post-operation as it avoids contamination, infections, hemorrhages in addition to facilitating feeding and deglutition and speeding functioning and psychological rehabilitation^{20,21}. Therefore, satisfactory results are achieved if criteria of retention, stability and occlusion are followed²².

CONCLUSION

The clinical success of the case was achieved since it was possible to notice the esthetic and functional rehabilitation of the patient with an obturator prosthetics. The dentist-surgeon plays a key role in following-up oncologic patients, minimizing disease and treatment related sequelae. The technique of obturator prosthetics utilized favors easy visualization of the area compromised, discards invasive procedures for its fabrication, further to reestablishing the functioning and esthetics satisfactorily. All these factors contribute to enhance self-esteem and patient's quality-of-life.

CONTRIBUTIONS

All the authors contributed substantially to the study design, analysis and interpretation of the data, wording

and critical review. All the authors approved the final version to be published.

DECLARATION OF CONFLICT OF INTERESTS

There is no conflict of interests to declare.

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