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ORAL SQUAMOUS CELL CARCINOMA AROUND IMPLANTS: CASE REPORT AND LITERATURE REVIEW

CARCINOMA ESPINOCELULAR ORAL AO REDOR DE IMPLANTES: RELATO DE CASO E REVISÃO DE LITERATURA

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ABSTRACT

Introduction: oral squamous cell carcinoma (OSCC) is the most common histological subtype of oral cancer, and can be diagnosed through a detailed clinical evaluation, complementary imaging exams, biopsy and anatomopathological evaluation. **Materials and Methods:** this article describes a clinical case report of an OSCC that initially presented as traumatic ulceration, erroneously diagnosed, due to the use of a lower removable denture. After surgery to install implants, the lesion showed a significant increase in size, and when biopsied, the diagnosis was OSSC. After five years of diagnosis, the patient is alive and without signs of lesion recurrence. **Conclusion:** when detecting ulcerations in the mucosa, attempts to establish the cause and treatment, otherwise, a biopsy must be performed and the specimen referred for anatomopathological examination. Patients who have dental implants should be evaluated periodically. Dental surgeons play an important role in the prevention and early detection of oral cancer.

Keywords: biopsy; dental implants; oral cancer; pathology; oral medicine.

RESUMO

Introdução: o carcinoma espinocelular oral (CEC) é o subtipo histológico mais comum de câncer bucal, podendo ser diagnosticado por meio de avaliação clínica detalhada, exames complementares de imagem, biópsia e avaliação anatomopatológica. **Materiais e Métodos:** este artigo descreve um relato de caso clínico de CEC que inicialmente se apresentou como ulceração traumática, erroneamente diagnosticada, devido ao uso de prótese removível inferior. Após cirurgia para instalação de implantes, a lesão apresentou aumento significativo de tamanho e, ao ser biopsiada, o diagnóstico foi CEC. Após cinco anos do diagnóstico, o paciente encontra-se vivo e sem sinais de recidiva da lesão. **Conclusão:** ao detectar ulcerações na mucosa, tenta-se estabelecer a causa e o tratamento, caso contrário, deve-se realizar biópsia e encaminhar a peça para exame anatomopatológico. Pacientes que possuem implantes dentários devem ser avaliados periodicamente. O cirurgião-dentista desempenha um papel importante na prevenção e detecção precoce do câncer bucal.

Palavras-Chave: biópsia; implantes dentários; câncer oral; patologia; medicina oral.

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INTRODUCTION

Oral cancer, including lip cancer, is among the top ten cancers in several countries, with an estimated 377,713 new cases in 2020, being, therefore, one of the most common cancers in the world.[1-3] Oral squamous cell carcinoma (OSCC) is the most common histological subtype, corresponding to 90% of all oral cancers. This subtype

predominantly affects men between the ages of 50 and 60, at a 2:1 male-to-female ratio.[4] When affected, female are usually a decade older than males.[5]

The main risk factors for oral cancer include tobacco and alcohol use, previous history of malignancies and/or potentially malignant diseases.[4,6] There is a synergistic effect of tobacco and alcohol on the carcinogenesis of oral cancer, due to an increase in the permeability of the epithelium that alcohol can cause, facilitating the penetration specific carcinogens.[7] There is no evidence in the scientific literature that demonstrates a cause-effect relationship between trauma and oral carcinogenesis.[8] The use of platelet-rich plasma or similar may be an additional risk factor for the development of OSCC, as they increase the rate of cell proliferation.[9] Lateral border of the tongue and floor of the mouth are the most frequent sites of OSCC, while the palate, retromolar region and gingiva are less common sites of manifestation. Although ulcers and tumors with elevated exophytic margins are the most common clinical presentation of OSCC, manifestations in the form of leukoplakia, leukoerythroplakia, and erythroplakia can be observed.[4]

In recent years, dental implants (DI) have gained great popularity in dentistry, as they restore the patient's aesthetic appearance and masticatory functionality, improving quality of life.[10] In 1983 the first case of OSCC adjacent to DI was reported. However, it is considered a rare manifestation.[11,12] Peri-implant malignancy represents only 1.5% of oral cancer cases.[13] In terms of gingival swelling and alveolar bone loss, the initial clinical manifestations of OSCC around the DI are similar to those of peri-implantitis. Nonetheless, even with similar initial manifestations, these two conditions differ significantly in terms of treatment and prognosis.[13-15] Malignancy should be suspected when peri-implantitis does not respond to treatment, and histopathological evaluation should be performed so that the diagnosis is established precociously.[16] Most patients with OSCC around DIs were women with no known risk factors. It is important to emphasize that the clinical and radiographic similarity with peri-implantitis can lead to a delay in diagnosis and further treatment. OSCC around DIs appears to be in the spectrum of classic OSCC and should be considered in cases of persistent lesions.[17]

This article describes a clinical case report of an OSCC that initially presented as traumatic ulceration due to the use of a lower removable denture. After surgery to install implants, the lesion showed a significant increase in size, and when biopsied, the diagnosis was OSSC.

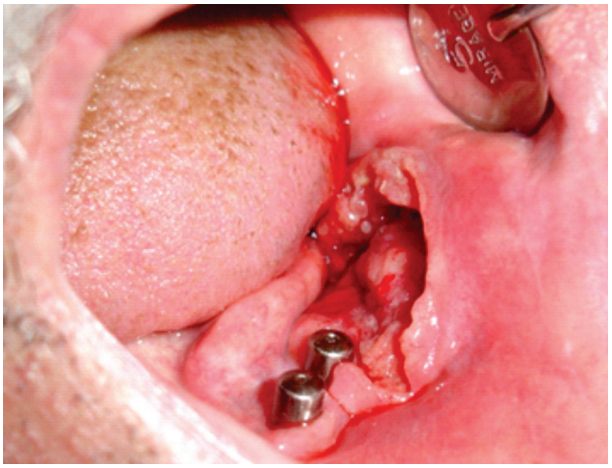
MATERIALS AND METHODS

A 71-year-old male patient, white, retired, moderate drinker and former smoker, who had stopped smoking 25 years ago, was referred to the Stomatology Outpatient Clinic of the Federal University of Alfenas, in Brazil, by his dentist for evaluation of injury to oral mucosa. During the anamnesis, the patient reported having type 2 diabetes, using Glifage® (Merck S.A). He also reported that he was a user of complete removable maxillary and mandibular dentures and that he noticed the appearance of ulceration on the left mandibular alveolar ridge. In consultation with the dentist, the replacement of removable prostheses with implant-supported prostheses was suggested, and the patient underwent surgery to install osseointegrated implants in the maxilla and mandible, which occurred two months before this consultation. After the installation of the prostheses, the ulceration did not disappear and in the last 15 days it showed a significant increase in size and intense painful symptoms. There was a mistake regarding the clinical diagnosis of the initial injury. We believe that the professional thought it was a traumatic ulceration due to the detachment of the lower removable complete prosthesis, and thus suggested replacement with an implant-supported prosthesis.

On extraoral examination, slight facial asymmetry was observed due to the presence of swelling in the lower third of the face on the left side. The patient had trismus and, upon palpation, the submandibular lymph nodes were enlarged, fixed and painful, indicating regional metastasis. Oroscopy revealed the presence of an infiltrative ulcer, with raised and hardened edges on the lower alveolar ridge, in the region corresponding to teeth

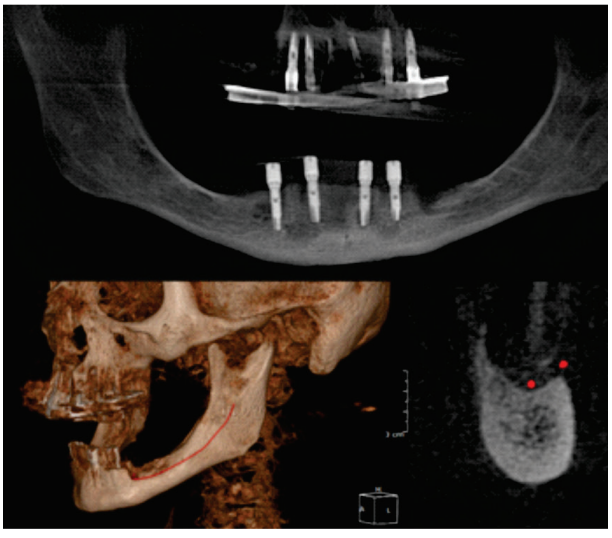
33 to 38, extending to the retromolar triangle and left buccal mucosa, also involving the two osseointegrated implants installed on the left side of the mandible (Figure 1).

Figure 1: Initial clinical aspect showing an infiltrative ulcer, with raised and hardened edges on the inferior alveolar ridge, involving the two osseointegrated implants installed on the left side of the mandible.



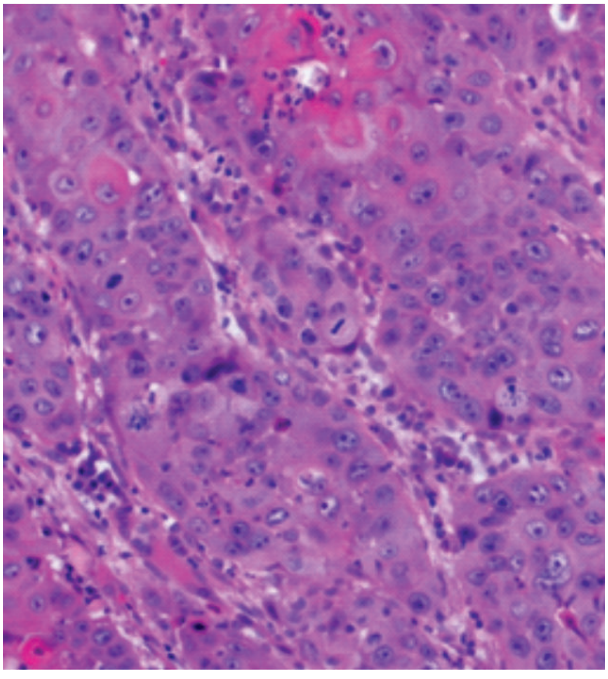
Cone beam computed tomography revealed an image of an osteolytic area in the region of the body of the mandible, extending to near the mandibular canal, but without peri-implant bone resorption (Figure 2).

Figure 2: Cone beam computed tomography revealing an image of an osteolytic area in the region of the body of the mandible, extending to near the mandibular canal, but without peri-implant bone resorption.



In view of the clinical and imaging aspects, the diagnostic hypothesis of OSCC was suggested. After the complete blood count, fasting blood glucose and glycated hemoglobin show normal values in the preoperative period, an incisional biopsy was immediately performed and the specimen was sent to the Anatomopathology Laboratory. Microscopic sections stained in HE revealed a fragment of oral mucosa constituted by squamous, stratified, parakeratinized and hyperplastic epithelium with pleomorphic and hyperchromatic cells, with many mitoses atypical. Infiltration of dysplastic cells was also observed in the lamina propria, sheets and islands, many with dyskeratoses and some forming corneal pearls. There was intense mononuclear inflammatory infiltrate with polymorphonuclear foci, including areas compatible with intraepithelial microabscesses; and dilated and hyperemic blood vessels (Figure 3). These findings confirmed the diagnosis of OSCC.

Figure 3: Microscopic features exhibiting pleomorphic and hyperchromatic cells, with many mitoses atypical. Infiltration of dysplastic cells was also observed in the lamina propria, sheets and islands, many with dyskeratoses and some forming corneal pearls. These findings confirmed the diagnosis of OSCC (HE, X200).



After a week, the suture was removed, the patient was referred to the head and neck surgeon, who proposed as a treatment, surgery complemented by radio and chemotherapy.

Currently, after five years of diagnosis, the patient is alive and without signs of lesion recurrence.

DISCUSSION

Oral ulcerations can be caused by several factors, such as mechanical trauma and neoplasms. Edentulous patients who wear complete dentures often develop traumatic ulcerations, which heal without complications within 14 days after the removal of the etiologic.[18,19] Otherwise, a biopsy is required to rule out neoplasms or other conditions.[18] In the present study, the patient underwent surgery to install osseointegrated implants without the behavior of the lesion being observed after the removal of the complete denture. Consequently, a biopsy was not considered. Most patients are usually seen by dentists with little experience in oral cancer or biopsy procedures or immediate access to pathology services.[20]

There are reports in the literature that leaching of titanium particles in peri-implant tissues can occur by friction during implant insertion and induce inflammatory effects due to their immunomodulatory capacity, acting mainly on macrophages, through increased DNA damage, oxidative stress and carbonylation of proteins, resulting in significant immunosuppression. This set of factors disrupt epithelial homeostasis and compromise its protetoral function.[21-24] In this case, after implant placement, the ulceration showed an extremely rapid and expressive growth within a short period of 15 days.

A systematic review of the literature, included a total of 63 patients diagnosed with implant-associated OSCC. 20.6% were former smokers and 88% of the cases were located in the mandible, data compatible with this case report.[17]

In the patient in question, the OSCC presented clinically as an infiltrative ulcer, with raised and hardened edge. Tumors and ulcers with exophytic margins are the most common clinical presentation of OSCC.[4] In a series of 13 reported cases, 46.2% of the clinical manifestations were in the form of ulcers or ulcerated masses, 38,5% red and white plaques and 15.4% exophytic lesions.[6] A recent study showed that in 36.5% of the 63 reported cases, the manifestation of OSCC was in the form of ulceration e 46% were exophytic masses.[17]

In microscopic analysis of an OSCC, the presence of osteoclasts may be observed reabsorbing the alveolar bone irregularly.[14] This irregular bone resorption appears on imaging as a radiolucent/hypodense osteolytic area, with a "moth noise" appearance, and affects approximately 50% of cases.[6] More recent studies show alveolar bone loss in 80.9% of the situations and peri-implant bone loss in 86.2% of the reports.[17] Bone loss around implants is often seen in similar cases of OSCC.[20,25,26] In the present case report, there was no evidence of osteoclasts on microscopic examination. However, tomography revealed an osteolytic area in the body of the mandible, without peri-implant bone loss.

Surgery with a safety margin, followed or not by prosthetic rehabilitation, is the treatment of choice for cases of OSCC.[14,25] Patients with compromised margins or lymph nodes have their treatment complemented by radio and chemotherapy.[6,27] In 31 reported cases, 30 patients underwent surgery alone or in combination with other treatments. 22 patients underwent neck lymph node dissection and 7 had compromised lymph nodes. The authors concluded that patients undergoing surgery and radiotherapy had a longer time to disease recurrence, as well as free and overall survival.[26] In the present work, the patient underwent surgical treatment complemented by radio and chemotherapy. Although the neck lymph nodes present clinical features of involvement, there is no information whether dissection was performed, as well as prosthetic rehabilitation after surgery.

Surgery for implant installation, in the present case report, generated a delay in the diagnosis of the lesion. It is well established in the literature that early diagnosis offers the less aggressive treatment opportunity, which leads to reduced morbidity and mortality rate.[28] When the diagnosis is made in advanced stages, survival after 5 years is 50%.[29] On the other hand, with early stages and absence

of metastases, survival after 5 years rises to 90%.[30]

In a systematic review of the literature, patients were followed for periods ranging from 6 to 86 months, with 78.7% being cured and without signs of lesion recurrence.[17] In a recent study, in which 12099 cases of oral cancer were evaluated, OSCC had one of the worst overall survival rates after 5 years.[31] However, in this report, the patient is in good health, with no signs of recurrence of the disease and in the final phase of treatment after 5 years.

Conclusion: When detecting ulcerations in the mucosa, attempts to establish the cause and treatment, otherwise, a biopsy must be performed and the specimen referred for anatomopathological examination. Patients who have DI should be evaluated periodically due, in most cases, to the clinical similarity between peri-implantitis and OSCC. Dental surgeons play an important role in the prevention and early detection of oral cancer. All patients must undergo a thorough anmnesis and physical examination

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