

Squamous Carcinoma after Dental Implants: A Clinical Case

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Resumo: Relatos recentes têm salientado melhorias dramáticas atingidas pelos implantes dentários e a detecção precoce de cancro oral. Numerosos relatos nos últimos anos tem descrito a utilização de implantes orais para a reabilitação de pacientes que estão a ser sujeitos a tratamento para o cancro oral. Apenas 5 destes relatos (o primeiro publicado em 1983 e o ultimo publicado em 2004) descrevem o aparecimento de cancro oral após a inserção de implantes dentários. Baseados em estudos previos, tentamos correlacionar ambos os conceitos, usando um caso clínico como evidencia experimental. O caso clínico relatado aqui refere-se a uma mulher de 62 anos, ex-fumadora moderada, consumidora moderada de alcool nos dois anos prévios a cirurgia e que deixou de fumar à 10 anos. Poucas semanas após a inserção dos implantes na zona 41 e 31 começou a desenvolver-se rapidamente uma lesão exofítica a volta de ambos. O estudo histopatológico revelou que a lesão era um carcinoma de células escamosas moderadamente/bem diferenciado. O tratamento consistiu numa mandibulectomia parcial e na remoção dos gânglios linfáticos direito e esquerdo. Este caso sugere a necessidade da recolha exaustiva de dados, e o uso de instrumentos complementares de diagnostico (imagiologia, biopsia) prévio a qualquer tratamento de reabilitação com implantes de modo a prevenir resultados semelhantes a este.

Palavras-Chave: Cancro oral; Carcinoma de células escamosas; Implante dentario osteointegrado; Cancerização da área

Abstract: Recent reports have highlighted the dramatic improvements achieved in dental implants and early detection of oral cancer. Numerous reports in the last few years have described the use of oral implants for rehabilitation of patients undergoing treatment for oral cancer. Only five of these reports (the first one published on 1983 and the last one on 2004) seem to describe the onset of oral cancer after the insertion of dental implants. Based on previously reported studies, we have tried to correlate both concepts, using a clinical case as experimental evidence. The clinical case reported here is a case of a 62-year-old woman, moderate ex-smoker, who quit tobacco 10 years ago; she consumed moderate amounts of alcohol for two years before the surgery. A few weeks after the implants were inserted in positions 41 and 31, she began to develop a fast-growing exophytic lesion around them. A histopathologic study revealed that the lesion was a moderately well-differentiated squamous cells carcinoma. Treatment consisted of partial mandibulectomy and removal of both right and left lymph nodes. This case suggests the need for exhaustive collection of data; and use of complementary diagnosis tools (imaging, biopsies) before any rehabilitation treatment with implants to prevent similar developments.

Key-words: Oral cancer; Squamous cells carcinoma; Osseointegrated dental implant; Field cancerization

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INTRODUCTION

Rehabilitation with oral implants to replace lost teeth is now a common practice, which is useful for surgeons, dentists, etc. Aesthetics as well as healthcare needs have led to the development of different kinds of implants to respond to the needs of different clinical cases.

Evidence-Based Odontology (EBO) is becoming a useful tool to a better practice. This tool enables professionals to have access to multiple literature sources in which they can gain access to answers to clinical questions that can arise daily in their clinical practice⁽¹⁾.

Multiple references in the literature show a steady increase in the use of oral implants. This has been accompanied by improvements in early detection of oral cancer. Many studies over the

last few years have addressed the use of oral implants for rehabilitation of patients being treated of oral cancer. A few of these have reported the onset of oral cancer after insertion of dental implants^(2,7).

CASE REPORT

The clinical case reported here is the case of a 62-year-old woman, moderate ex-smoker, who quit tobacco 10 years ago; she consumed moderate amounts of alcohol for two years prior to surgery. A few weeks after the implants were inserted in positions 41 and 31, a fast-growing exophytic lesion around the implants was detected. A histopathologic study showed that the lesion was a moderately well-differentiated squamous cells carcinoma (Figures 1-3). In response to this diagnosis, treatment consisted of partial mandiblectomy and removal of both right and left lymph nodes.

DISCUSSION AND CONCLUSIONS

This case poses several questions that need to be addressed: i) the possibility of the existence of an undetected lesion prior to the insertion of the implants; ii) whether the composition of the implants or fragments of manipulated bone behaved as foreign bodies in the surgical bed, triggering the onset of cancer; iii) whether the manipulation of the tissue stimulated cancer development in the affected area.

To try to answer the first question, we performed an ortopantomography that was taken before the surgery (Figure 4), which suggested the existence of a radiolucid lesion consistent with periodontopathy around position 41. Such periodontal pocket could have been hiding an osteolytic lesion associated with a squamous carcinoma, in that case adjacent to the insertion epithelium. A similar case has been described, in which oral cancer developed a few months after surgery, causing the loss of the surrounding bone support⁽⁸⁾. However, the same patient (an ex-smoker) had been diagnosed and treated 11 years before of a bottom-mouth verrucous carcinoma, thus making it difficult to evaluate the impact of subsequent surgery in the onset of cancer.

Regarding questions ii) and iii) it is possible that, given the initial depth of the periodontal pocket in 41, there was some rest of calculus in the affected area. Its removal, together with the surgery and insertion of the implants may have induced an inflammatory process that might have activated pre-malign cells in the area, or induce malignization by itself. There are many reports suggesting that surgery and the use of different types of



Figure 1 - Squamous carcinoma of the oral mucosa, developed few weeks after insertion of two implants.



Figure 2 - Periapical radiography of the affected area.

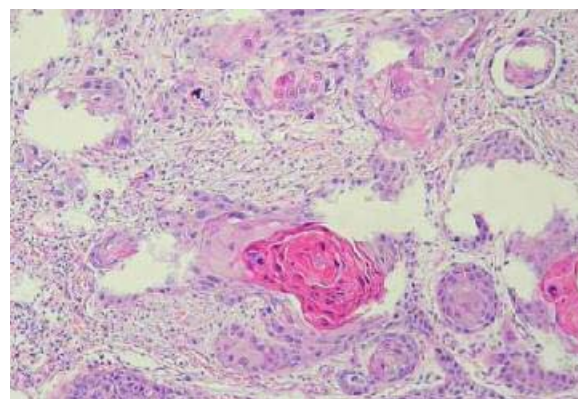


Figure 3 - Histological image of the lesion

materials (such as hydroxyapatite-coated implants, staple-like external implants)^(2,3,4) could promote the development of oral cancer in sensitized tissue^(5,6). On the other hand, there is no report to our knowledge, describing the long-term use of components that favor local tissue regeneration, i.e. Platelet-Rich Plasma (PRP)^(8,9).

Field malignization is induced by carcinogens that act over wide areas of tissue and may cause molecular alterations that are not usually detected as clinical or histological lesions, but



Figure 4 - Orthopantomography one month before surgery

increase the risk of malignant transformation. Alcohol and tobacco are the best-characterized carcinogens that affect the mouth. They affect the mucosa and are clearly associated with the development of oral carcinoma in single or multi-squamous cells originated in or near to malignant lesions, or even in areas devoid of previous lesions. Several types of molecular analysis have proven the existence of early genomic alterations using histological normal epithelium adjacent to human oral carcinomas as model of field malignization⁽¹⁰⁻¹¹⁾.

The patient subject of this study had precedents of consumption of tobacco and alcohol. There is evidence that links the rela-


tionship between tobacco and periodontitis⁽¹²⁾ and between periodontitis and neoplasm development⁽¹³⁾. There is also evidence of the causal link between alcohol uptake and the onset of intra-oral cancer⁽¹⁴⁾. Loss of teeth as an indicator of implant insertions is usually a sign of bad dental hygiene and represents, after alcohol and tobacco, a well-known risk factor for oral cancer⁽¹⁵⁾.

Based in the evidence gathered here, we suggest the following points before considering or performing implant-based rehabilitation:

- 1) Cross-examination of the patient, using questionnaires, to evaluate each and every risk factor, such as consumption of alcohol and tobacco.
- 2) Exhaustive exploration of the oral cavity, paying particular attention to the bone that has to hold the implants. Image diagnosis techniques can be used (conventional radiology and computer-assisted tomography) to evaluate the appearance of reabsorptive changes in the bone structure⁽¹⁶⁾. It is also fundamental to explore the mucosa, performing biopsies of the surfaces that show any alteration, if required.
- 3) Biopsies of bone and mucosa during the process of implant insertion are recommended if there are anomalies present in any of the tissues that can hide any pathology. This is strongly advised to preserve the health and well-being of the patient.

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