

Is there an association between dental implants and squamous cell carcinoma?

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In brief

Highlights that oral squamous cell carcinoma (OSCC) is a rare complication of dental implants, but something very important to consider.

Demonstrates that prior to inserting implants, it is necessary perform a correct examination and know the patient's risk factors in order to try to control them.

Shows that the clinical appearance of OSCC in the peri-implantary mucosa is very similar to peri-implantitis, so in these cases it is necessary to do a differential diagnosis.

Introduction The complications associated with dental implants are numerous, most of them of an inflammatory nature; nevertheless, some isolated cases of oral squamous cell carcinoma (OSCC) have been found in the vicinity of the implants. The objective of the present article is to know whether there is an association between dental implants and the development of OSCC.

Method and materials A search was carried out in Medline, Tripdatabase and Cochrane with the keywords 'dental implants' AND 'squamous cell carcinoma', and 'dental implant complications' AND 'squamous cell carcinoma.' The criteria for inclusion were articles published in English that dealt with the possible carcinogenic effects of implants and the possible malign transformation of oral lesions after the insertion of the implants. For the analysis, cases were used in which an OSCC had appeared in the peri-implantary mucosa. **Results** After an initial search, 269 articles were selected, of which 197 were excluded as not being directly related to the subject. Finally, 45 articles were selected, with 23 of them being used in the analysis. In these, 46 cases of OSCC in the vicinity of implants were discussed. **Discussion** Chronic inflammation in itself can lead to a malign transformation of the oral tissue, while in other cases it is caused and modulated by carcinogens, genetic factors or inherent factors in the patient, or by the dental implants. **Conclusions** It is not possible to establish a cause-effect relation between the implants and the development of OSCC. Its presence can be confused with peri-implantitis, so that in the cases where it appears suddenly, does not respond to conventional treatment and/or there is anaesthesia or paresthesia, it is advisable to do a biopsy. It is important to make an adequate selection of the patient and reduce or eliminate the risk factors. The findings of the present review are based on case study level of evidence, so meta-analysis is needed to further draw from these results.

Introduction

Oral cancer is the sixth most frequent cancer in the global population according to the World Health Organisation (WHO). Between 3% and 5% of the malign tumours are located in the area of the head and neck, and approximately half of them are in the oral cavity.¹⁻⁴ Oral squamous cell

carcinoma (OSCC) represents 90% of the total and is defined as a malign neoplasm originating in the stratified epithelium.^{1-3,5} It is more prevalent in men older than 60 and is associated with certain risk factors. In this sense it has been related to certain habits such as tobacco and/or alcohol and oral hygiene, to certain nutritional deficiencies, exposition to ionising radiation, viral (human papillomavirus) or bacterial infections, immunosuppression, potentially malignant disorders such as leukoplakia or oral lichen planus, and irritants of dental or implantary origin and genetic origin.^{1,2,5-8}

Dental implants are not only one of the most advantageous options in the replacement of dental absences, but in certain specific cases they constitute the only alternative. The increment in treatments with implants in recent decades has also caused a series of

related complications to appear. Most of these complications are of an inflammatory nature, but other more serious but less frequent ones have also been described. Thus, cases have been observed in which the insertion of implants was related to the appearance of an OSCC, but furthermore, in patients who have suffered intraoral carcinomas and who after surgical treatment have needed rehabilitation with endosseous implants in order to restore lost function and esthetics, cases of recurrence and development of new primary tumours have been described.⁹⁻¹⁷

The pathogenesis of the OSCC occurs in two stages: the first consists of the action of a carcinogenic agent on the oral mucosa. After a quiescent period, the initiation would be produced by traumatic or irritating factors. A study has been done of the possibility that the factors acting

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