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(CASE REPORT)

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Installation of dental implant in diabetic patient: A case report

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Abstract

Currently, dental implants have been a widely used way to replace missing teeth. On the other hand, diabetes mellitus is a systemic disease that affects a large part of the population and can be considered a complicating factor for implant survival. However, many studies report few complications in these patients, with mucositis being the most common. The objective of this work is to report the clinical case of a 67-year-old insulin-dependent patient who sought the dental office to replace element 21, lost a few years ago, with a dental implant. The patient has been in follow-up for more than 2 years and the implant installed remains intact, without gingival inflammation, which can be considered a successful treatment, since the patient has glucose fluctuations even when using insulin. This follow-up of more than 2 years reinforces safety in rehabilitation with dental implants in diabetic patients who are not compensated or with fluctuations in the glycemic level.

Keywords: Dental implants; Osseointegration; Diabetes mellitus

1. Introduction

Diabetes is a disease that affects about 460 million people on the planet. It is known that it has a direct relationship with periodontal disease, which can lead to tooth loss. The diabetic patient wants to replace lost teeth with dental implants, but is it possible to install implants in patients with high glycemic levels or blood glucose fluctuations? This study follows an insulin dependent patient, with fluctuations in insulin level, who installed a dental implant in the region of tooth 21 more than 2 years ago, without being affected by mucositis or any other change in the peri-implant region.

According to a study carried out in patients with poor glycemic control, implant survival rates exceed 2 years, with few complications such as mucositis, for example [1].

Dental implants can remain healthy and have a satisfactory aesthetic as long as there is glycemic control [2].

Short implants in diabetic patients may have the peri-implant region compromised, as there is a change in bone metabolism compromising the metabolism of calcium and phosphorus and thus a decrease in the formation of collagen fibers, and cell apoptosis may also occur, making bone formation difficult [3].

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Diabetes is a disease that compromises the immune and immune response and oral microflora, being considered a pandemic disease, bringing much expense by the patient and the State, and that can cause a high mortality rate. High glucose levels compromise the vascular system, generating oral manifestations such as periodontitis causing tooth loss, compromising the occlusal, masticatory and temporomandibular joint balance [4].

Diabetes has been considered a contraindication to the installation of dental implants, because in order to be successful with this type of treatment, osseointegration is expected, which could be doubtful since diabetes has the characteristic of delaying wound healing [5].

Glycemic control, periodontal maintenance treatment, mouthwash favor the survival of dental implants in diabetics. A study conducted in 2019 concluded that submerged dental implants in decompensated patients have less bone loss than non-submerged implants in these same patients. The predictability of this type of treatment will depend on hemoglobin A1C levels, the higher the level of glucose in the circulation, the greater the binding of glucose to hemoglobin. The A1C test result is given in percentage of hemoglobin bound to glucose [6, 7, 8].

The installation of implants in diabetic patients is still a controversial topic, however several systematic reviews have concluded that diabetes does not affect the survival of the implant, however there may be loss of marginal bone structure, however not significant [9, 10].

Diabetes can interfere with the healing of the alveolus after extraction, and it is not ideal to install the implant in the same session. This interference is due to the reduction of osteogenic differentiation of mesenchymal stem cells in the alveoli [11].

2. Case report

A male patient P.R.N. seeks dental care to install a dental implant in the region of tooth 21. Figure 1 the patient reported being insulin-dependent and related to a glucose rate has remained high even with medication. After careful anamnesis, a treatment plan was elaborated, opting for surgery to place an external 9 mm long hexagon implant. Figure 2 it was waited for 4 months to place the crown on the implant. Figure 3 the patient is still being monitored clinically and radiographically, and it is possible to observe the complete osseointegration of the implant even with high glucose Figure 4.

3. Discussion

Treatment with dental implants has been increasingly common. It is a simple surgery with a very good prognosis, as long as it is well specified and with periodic maintenance consultations. Patients with high glucose levels, medical care and caution in recommending this treatment, despite many studies with diabetics reporting the success and absence of complications.

Figure 1 Region before implant installation

Figure 2 Region after implant installation

Figure 3 Region with implant installed 1 year ago with cemented dental crown

Figure 4 Region with implant installed 2 year ago with cemented dental crown

A study carried out with systemically compromised patients concluded that diabetes is a systemic condition that most compromised the success of treatment with dental implants [12].

Longer implants have a higher survival rate. The use of prophylactic antibiotic therapy and the use of 0.12% chlorhexidine mouthwashes, reduce the risk of inflammation around the implant in diabetic and non-diabetic patients, with no difference in osteointegration in case of high glucose rates. The surgical protocol being the same for these patients.

Inflammatory reactions can be more severe in diabetic patients [13], although clinically observed to detect or none of these conditions.

4. Conclusion

The literature is broad on the installation of implants in successfully decompensated diabetic patients. However, a careful anamnesis should always be performed, the patient should be advised about implant care, maintenance consultations and periodic radiographic examinations, aiming at the longevity of the treatment.

Compliance with ethical standards

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Disclosure of conflict of interest

We, the authors, declare that there is no conflict of interest

Statement of informed consent

The present study had the consent of the participants

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