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ISSUES REGARDING IMPLANT-PROSTHETIC RESTORATIONS IN THE FRONTAL AREA

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Abstract

Implantology aims at the lasting restoration of masticatory function and also of aesthetics, phonetics and patient comfort. But, at the same time, among the purposes of treatment with dental implants is the stabilization of the peri-implant bone, whose resorption is thus stopped at the time of implant insertion, as well as the peri-implant soft tissues, which are supported by the peri-implant bone and after their collapse, in the event of bone atrophy, it appears an unsightly appearance of the teeth and the contour of the gingival mucosa.

Keywords: *dental implant, prosthetic restoration.*

Introduction

The choice of implant therapy as a method of treatment in edentulous space of the frontal area, requires the completion of the surgical and prosthetic stage. The final prosthetic piece will correctly restore the functional occlusion observing the aesthetic and functional aspects. Implant therapy allows a lasting restoration of the functions of the dento-maxillary apparatus, mainly of the masticatory and phonetic function. From an aesthetic point of view, prosthetic restorations with implant support in the frontal area contribute to the restoration of a normal facial contour. [1]

This occlusal pattern must be in harmony with the functionality of the stomatognathic system. Because occlusal overload is considered one of the main causes in the appearance of the peri-implantitis, we followed the way in which the type of prosthetic restorations can determine the progressive transmission of forces to the supporting bone structures.[2-4]

In the absence of periodontal tissue and receptors in it, the bone integrated implants react differently from the biomechanical point of view than the dental organ. [3,4]

In this paper we aimed to identify the relationship between the optimal occlusal integration of the implant and its longevity. In all clinical cases we aimed to achieve balanced occlusal integration of prosthetic superstructures

Material and method

Three clinical cases are presented in this study. The treatment steps were structured as follows:

1. Regional local anesthesia followed by incision and detachment of the gingival mucosa

2. Insertion of dental implants. The implantology kit containing titanium surgical cutters of different sizes was used. These were chosen according to the caliber of each implant and inserted with the help of the physiodispenser.The parallelism was checked.

3. Bone addition. Bone addition was required in the vestibular area of all three cases. Collagen membrane was applied for maintaining.

4. Wound suture was made with non-absorbable monofilament polyamide suture.

5. Imprinting. Addition silicone of different consistencies was used. For the arch with dental implants, transfer caps were used for the closed impression holder.

6. Registration of intermaxillary relations with occlusion silicone.

7. Prosthetics. Metal-ceramic or zirconium-plated ceramic prosthetic parts were made.

Results and discussions

Case no. 1

The first clinical case was represented by a 20-year-old patientwith an edentulous space in the frontal group resulting from the loss of the upper central incisors 1.1 and 2.1. The absence of the upper central incisors resulted from a trauma.(Fig.1)

For this case, it was chose a prosthetic restoration with implant support, using 2 titanium dental implants with a diameter of 3.5 mm and a length of 10 mm, positioned next to 1.1 and 2.1.

The prosthesis variant chosen was the one with individual zirconium ceramic crowns.(Fig. 2, 3)

Fig. 1 – The patient's initial situation. Highlighting the edentulous space

Fig. 2– Healing abutments

Fig. 3 – Prosthetic abutments

Case no.2

The next patient is 24 years old and came to the dental office with edentulous space in the frontal group resulting from an accident with the following tooth loss 1.2,1.1,2.1,2.2,2.3.(Fig.4) As a treatment option, the prosthetic restoration with implant support was chosen, performed according to the theoretical indications. Dental implants with a diameter of 4 mm and a length of 10 mm were inserted, on the positions of the upper incisors 1.2,1.1,2.1,2.2 as well as of the upper canine 2.3 together with the application of titanium healing abutments.(Fig.5)

After the period of the bone integration of the dental implants, of approximately 3 months, the healing abutments were temporarily removed and the analogous implants were applied in order to impress.

The healing abutments were removed and the prosthetic abutments were applied, followed by the final cementation of the individual metal-ceramic crowns.(Fig. 6, 7)

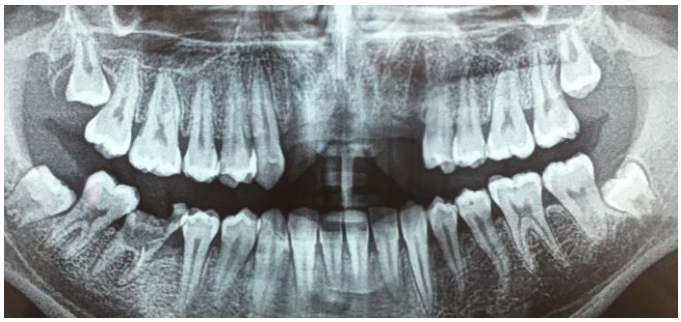

Fig. 4 – Initial situation

Fig. 5 – Titanium healing abutments

Fig. 6 – Application of prosthetic abutments for prosthesis

Fig. 7 – The final result after cementing the metalceramic crowns

Case no. 3

The third clinical case is a 57-year-old periodontal patient who came to the dental office to sanitize the oral cavity. At the level of the lower incisors, there was an increased mobility of the teeth. The presence of gingival recessions is associated with bone resorption. (Fig.8)

The lower incisors with an advanced degree of mobility were extracted.

The insertion of dental implants was performed after odontal and periodontal compromised tooth extraction and the completion of periodontal treatment on the remnant teeth. It was necessary to regularize the bone crest.

As a treatment plan, it was chosen to use two dental implants with a diameter of 3.5 mm and a length of 10 mm, inserted on the position of the lower left lateral incisor 3.2 and the lower right lateral incisor 4.2. (Fig.9, 10)

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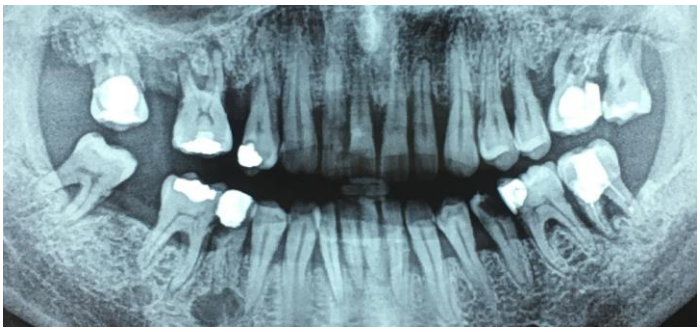

Fig. 8 – Initial stage. Avanced bone resorbtion

Fig. 9 – Application of prosthetic abutments

Fig. 10 – The final look

Following the established treatment, no gingival recessions or bone resorptions were found. We also found good bone integration of the implants and the success of the bone addition.The implant insertion position allowed obtaining a good result from an aesthetic and functional point of view. Prosthetic restorations with implant support improve patients' quality of life by restoring masticatory, phonetic and aesthetic functions. Because there is insufficient evidence for the induction of periimplantitis by the characteristics of the implant surface, we used different types of implants in the treatment of patients.[5]

Bone addition to the vestibular table reduced the risk of subsequent bone resorption. Moderate intermittent forces can have a beneficial effect on bone modeling. The response to this stimulating mechanical pressure will cause an increase in bone density, with a direct effect on the longevity of the implants.[6,7] We thus avoided the insertion of superstructures with great height, maintaining a balance in the ratio of coronary component - root component.[8]

Placing implants in the ideal position ensures aesthetic and functional success and the insertion of the implant will be done in a position as favorable as possible for the prosthesis.

Clinical complications were prevented by respecting the biomechanical principle. [9] A passive assembly of the prosthetic superstructures was achieved by reducing the size of the vestibular-oral, reducing the height of the cusps and avoiding premature contacts or occlusal interferences.[2]

A major objective of the treatment plan was the way in which we can avoid the occurrence of overload and harmful forces exerted on implants in the mandibular dynamics. [10, 11]

The use of angled prosthetic abutments is not recommended because they decrease the resistance of the implant due to the action of pressures at the level of the occlusal surfaces. The ideal occlusal contact is made strictly above the implant, the forces being discharged along it. Occlusal overload is a major cause for peri-implant bone loss, causing bone resorption with the occurence of peri-implantitis.[2]

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The state of oral hygiene was monitored throughout the treatment. Because bacterial plaque and tartar deposits could cause peri-implantitis, a permanent maintenance system has been proposed to the patient. [12]

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