SURGICAL AND PROSTHETIC RESOLUTION OF DENTAL IMPLANTS INSTALLED ON UNFAVOURABLE POSITION AT UPPER JAW AESTHETIC REGION

RESOLUÇÃO CIRÚRGICA E PROTÉTICA DE IMPLANTES DENTÁRIOS INSTALADOS EM POSIÇÃO DESFAVORÁVEL EM REGIÃO ESTÉTICA DAS MAXILAS

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ABSTRACT

The oral rehabilitation through installing dental implants is a common procedure nowadays and well-founded in the current literature, and often performed in the dental clinic with success. However, flaws in the planning or execution of the surgical technique can lead to disastrous cases that despite the good stability and osseointegration the implant will not provide viable means for satisfactory prosthetic restoration due to improper positioning. This paper describes the clinical patient case V. B. C. female, 43 years old, who attended the clinic Specialized Clinic in Implantology APCD Bauru/SP complaining of the failure of their implants. Was observed the implants in anterior-upper region with wrong placement for prosthetic rehabilitation. It was decided to perform the removal of the implants with the Retriever remover, immediate installation of new implants with surgical guide in a favorable position, and simultaneously was performed bone grafting with Bio-Oss and Bio-Gide membrane filling order and gain volume. After four months the patient returned for follow-up and prosthesis installation.

RESUMO

A reabilitação oral através da instalação de implantes dentários é hoje um procedimento ordinário e bem fundamentado na literatura vigente, sendo realizado frequentemente na clínica odontológica com sucesso. Porém, falhas no planejamento ou na execução da técnica cirúrgica podem levar a casos desastrosos, que apesar da boa estabilidade e osseointegração, o implante não proporcionará meios viáveis para a restauração protética satisfatória devido ao seu posicionamento inadequado. O presente trabalho relata caso clínico da paciente V. B. C. do gênero feminino, com 43 anos de idade, que compareceu à Clínica de Especialização em Implantodontia da APCD Regional Bauru/SP/Brasil, queixando-se do insucesso de seus implantes. Foram observados implantes na região ântero-superior em posição desfavorável para reabilitação protética. Foi decidido realizar a remoção dos implantes com o removedor Retriever, instalação imediata de novos implantes com o auxílio de guia cirúrgico e, simultaneamente, foi realizado enxerto ósseo com Bio-Oss e membrana Bio-Gide com intuito de preenchimento e ganho de volume. Após quatro meses a paciente retornou para acompanhamento e instalação da prótese.

UNITERMS: Mouth Rehabilitation; Dental Implants; Osseointegration.

UNITERMS: Reabilitação; Implantes dentários; Osseointegração.

INTRODUCTION

In oral rehabilitations, possibly one of the biggest challenges for the DDS is the restitution of the missing dental elements so that this replacement restore the aesthetic, functional and biological questions of most natural way (VIDAL; PACTARUK; NACONECY et al., 2005 and MARZOLA, 2008). These goals are facilitated by the possibility of using dental implants, which will enable a firm and durable support serving pillar for support and installation of the prosthesis, the recovery of the stomatognathic system of maimed patients, they total edentulous or partial (SKALAK, 1983 and MARZOLA, 2008).
The longevity and success of prosthetic implants depend directly on thorough preoperative evaluation for the purpose of promoting the integration of implants in appropriate locations and positions, in order to facilitate prosthetic procedures, assisting in the correct distribution of forces to the prosthesis implantation set bone (MARZOLA, 2008 and MISCH, 2009).

The correct positioning of the implant is achieved by careful clinical examination, with attention to soft tissue and bone regions with purpose of making correct diagnosis of the area where the implant will be inserted. The DDS must request specific imaging tests, such as panoramic x-rays, CT scans and, if necessary, prototyping models for proper planning of each case (NASCIMENTO NETO; RIVERA; LIMA et al., 1997; CHIVAQUER; OLESKOVICZ; VEDOVATO, 2007 and MARZOLA, 2008).

The relationship with the prosthodontist should be very close, to be able to perform a careful reverse planning in order from the prosthesis prior to surgery and the fabrication of surgical guide acrylic stable and rigid, in order to accurately determine the position of surgical instrumentation and implants emergence of the prosthesis (JARDIM, 2000).

Reverse planning becomes essential for the clinician and the patient to see the end result of the work to be performed and as a result develop excellence treatment plan for best results functional, aesthetic and phonetic. Surgical guide made based on reverse engineering is essential for the installation of implants in ideal three-dimensional position, respecting the mesial distal spatial planes, the lingual vestibule and apicocoronal (CARVALHO; GONÇALVES; GUERRA et al. 2006).

With the research in bioengineering emerged new implants with surfaces that accelerate osteo integration and, with its anatomical design, favoring primary stability (PADOVAN; SARTORI; THOMÉ et al., 2008). Other studies based on prospective radiographic evaluation presented together with the revised literature, concluded that the Morse taper connection implants can maintain or even increase the density and height of the alveolar bone crest, helping to ensure superior aesthetics (MANGANO; MANGANO; PIATELLI et al., 2009).

During insertion of the implants must be respected medial distal minimal distance between tooth and implant 1.5mm and 3mm between two implants, for the maintenance of crystal bone, and hence the interdental papillae (SAADOUN; LEGALL; TOUAIT, 1999). The implant should be installed, on average, 3 mm apical to the cervical margin of the planned restoration. Such positioning is required to be room for the transition of the cylindrical implant profile for a square triangular or oval profile prosthetic crown (JANSEN; WEISGOL, 1995).

The vestibule palatine position must maintain at least 1.5 mm of bone around its entire circumference, so that the occlusal load can be distributed in its long axis (RISSOLO; BENNETT, 1998). If you cannot obtain such bone thickness, bone regeneration techniques must be applied before or during the installation of the implant. If this buccal bone thickness is not maintained, part of this bone plate will undergo resorption, which may cause buccal recession of the mucosal tissue (GRUNDER; GRACIS; CAPELLI, 2005).

The use of membranes as barriers and graft material have been proposed to treat peri defects. The reason for the use of regenerative processes is to prevent cell migration from connective and epithelial tissue in the space between
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the implant surface and around the bone walls, favoring osteogenic cells in the regenerated bone (PAOLANTONIO; DOLCI; SCARANO et al., 2001).

The mini pillar Morse Taper is an intermediate used for rehabilitations with multiple prostheses in aesthetic areas your brace height must remain 1 to 2 mm sub gingival (SARTORI; BERNARDES; MOLINARI et al., 2013). The gingival etching with provisional, guided by compression of the rim allows the formation of buds and better accommodation of the final prosthesis, optimizing esthetics and phonetics (QUESADA; RIZZARDI; FRANCISCATTO et al., 2014).

At the moment there neglect any of the clinical stages or due to anatomical deficiencies, particularly in the anterior maxilla due to injury, periodontal disease or early tooth loss leading to intense bone resorption occurs a situation in which the implants. They may not be installed properly for the preparation and adaptation of the prosthesis thus provided an unsightly situation of failure for the patient (ZIELAK; ARAÚJO; ORNAGHI et al., 2009).

In situations of prostheses installed on implants with an improper positioning, the patient, and great dissatisfaction, present other problems related to hygiene, diction and function (VIDAL; PACTARUK; NACONECY et al., 2005).

Some cases of malposition may have the possibility solving the use of some prosthetic components to achieve good final aesthetic result. These components can be the solution for situations where the positioning of implants placed is disastrously, preventing rehabilitation patient (PEREIRA; DEL PINO; SERRA SILVA et al., 2011).

However, in more severe cases of improper positioning, the return of the patient's oral health will be achieved with the removal and reinstallation of the implant in appropriate location (ZANI; BERTON; RIVALDO et al., 2009).

Justified so the preparation of this work to describe the case of failure of implants installed in cosmetic region of the jaws, in addition to demonstrating the clinical resolution with proper planning.

REPORT OF CASE

Patient V. B. C. female, 43 years old, attended the Clinic of Specialization in Implantology of APCD Regional Bauru / SP / Brazil, complaining of implant failure. implants were observed in the upper anterior region in an unfavorable position for prosthetic rehabilitation (Figures 1, 2 and 3).

Following treatment plan was made surgical guide being tried in his mouth (Figures 4, 5 and 6). He went to the surgical procedure, starting with incision and mucoperiosteal detachment (Figure 7). Retriever remover was placed in position on the malpositioned implants and removed (Figures 8, 9 and 10). After it is noted aspect of the jaws, reducing facial bone (Figure 11).

Surgical guide is placed in the correct position to assist emergence of the morse taper implant Alvim 3.5 x 13 mm at a satisfactory position with the covers (Figs. 12 and 13). Due to the bony defect caused by removal of the implant and the deficient bone volume held Guided Bone Regeneration with the bone graft used, xenogeneic smal inorganic bone (particles of 0.5 to 1mm) Geistlich Bio-Oss and resorbable collagen membrane Geistlich bio-Gide Biooss. The surgical wound was closed with absorbable wire Vycril 4-0 (Figure 14).

After 4 months of osseointegration period it held the second phase by minimal tissue manipulation with installation of mini pillar Morse taper in the area of
the element 11 and micro pillar Cone Morse implant element 22 region, making the prosthesis for conditioning gum, may be displayed correct emergency implants and satisfactory aesthetics (Figures 15, 16 and 17). Periapical radiograph was performed to verify the correct settlement of the pillars (Figure 18).

The final prosthesis porcelain demonstrated success in the treatment and the patient proved extremely satisfied with the result (Figures 19 and 20). Lastly, tomography was performed cone bean with reconstruction in three dimensions, observing the excellent position of the implants and bone satisfactory integration (Figures 21 and 22).

Figure 1 - Initial photo with misplaced implants.
Source - Collection of Specialization in Clinical Implant of APCD Regional Bauru / SP.

Figure 2 – Initial photo with misplaced implants.
Source – Collection of Specialization in Clinical Implant of APCD Regional Bauru / SP.
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Figure 3 – Initial photo with misplaced implants.  
Source – Collection of Specialization in Clinical Implant of APCD Regional Bauru / SP.

Figures 4 e 5 – Surgical Guide  
Source – Collection of Specialization in Clinical Implant of APCD Regional Bauru / SP.

Figure 6 – Proof of surgical guide in the mouth.  
Source – Collection of Specialization in Clinical Implant of APCD Regional Bauru / SP.

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Fig. 7 – Removal of the implants with the Retriever remover, incision and mucoperiosteal detachment. Source – Collection of Specialization in Clinical Implant of APCD Regional Bauru / SP.

Figure 8 – Retriever in Position. Source – Collection of Specialization in Clinical Implant of APCD Regional Bauru / SP.

Figure 9 – Retriever in Position. Source – Collection of Specialization in Clinical Implant of APCD Regional Bauru / SP.
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Figure 10 – Retriever adaptation after implant removal.
Source – Collection of Specialization in Clinical Implant of APCD Regional Bauru / SP.

Figure 11 – Jaw Appearance after implant removal.
Source – Collection of Specialization in Clinical Implant of APCD Regional Bauru / SP.

Figure 12 – Surgical guide assisting in the correct emergency implants
Source – Collection of Specialization in Clinical Implant of APCD Regional Bauru / SP.

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Figure 13 – Covers in Position
Source – Collection of Specialization in Clinical Implant of APCD Regional Bauru / SP.

Figure 14 – Final appearance suture with resorbable wire Vicryl 4-0 occlusal view.
Source – Collection of Specialization in Clinical Implant of APCD Regional Bauru / SP.

Figure 15 – Correct emergence of implants prosthesis.
Source – Collection of Specialization in Clinical Implant of APCD Regional Bauru / SP.

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Figure 16 – Temporary aspect of prosthesis.
**Source** – Collection of Specialization in Clinical Implant of APCD Regional Bauru / SP.

Figure 17 – Temporary aspect of prosthesis.
**Source** – Collection of Specialization in Clinical Implant of APCD Regional Bauru / SP.

Figure 18 – Periapical demonstrating proper settlement of the pillars.
**Source** – Collection of Specialization in Clinical Implant of APCD Regional Bauru / SP.
Figure 19 – Appearance permanent prosthesis.
Source – Collection of Specialization in Clinical Implant of APCD Regional Bauru / SP.

Figure 20 – Appearance permanent prosthesis.
Source – Collection of Specialization in Clinical Implant of APCD Regional Bauru / SP.

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*Figure 21 – Final tomography.*

*Source* – Collection of Specialization in Clinical Implant of APCD Regional Bauru / SP.

*Figure 22 – Final tomography.*

*Source* – Collection of Specialization in Clinical Implant of APCD Regional Bauru / SP.
DISCUSSION

The foregoing clinical case shows that there may be great difficulty in prosthetic resolution patients who had bone integrated implants installed without correct planning, preventing a prosthetic aesthetic and functional rehabilitation. Thus, reverse planning becomes essential for the clinician and the patient looking the end result of the work to be performed and as a result develop an excellent treatment plan for best results functional, aesthetic and phonetic. Surgical guide made based on reverse engineering is essential for the installation of implants in ideal three-dimensional position, in which respects the median distal space plans, bucco lingal and apex coronal (CARVALHO; GONÇALVES; GUERRA et al. 2006 and MARZOLA, 2008).

This work was chosen by the removal of dental implants with Retriver drills and insertion of new implants Tapered Cone Morse in proper three-dimensional position. Because of the bone defect caused by the removal of the implant and the bone deficient volume perform Guided Bone Regeneration, such as bone graft was used inorganic xenogeneic small bone (particles of 0.5 to 1mm) Geistlich Bio-Oss and resorbable collagen membrane Geistlich Bio-Gide Biooss. With the research in bioengineering emerged new implants with surfaces that accelerate bone integration as well as its anatomical design favoring primary stability (PADOVAN; SARTORI; THOMÉ et al., 2008).

Current studies indicate high mechanical advantage in the stability of the type Cone Morse implants connections compared to external hexagon connections and contains a satisfactory clinical behavior (VERRI; PONTON; ZIMMER et al., 2012). Other studies based on prospective radiographic evaluation presented together with the revised literature, concluded that the connection Morse Taper implants can maintain or even increase the density and height of the alveolar bone crest, helping to ensure superior aesthetics (MANGANO; MANGANO; PIATELLI et al., 2009), confirming the better option Cone Morse implant that was used.

During insertion of implants must respect a median distal minimum distance of 1.5mm between tooth and implant, and 3 mm between two implants, for the maintenance of crystal bone, and hence the interdental papillae (SAADOUN; LEGALL; TOUAIT, 1999). The implant should be installed, on average, 3 mm apical to the cervical margin of the planned restoration and such position is necessary so that there is room for transition of the cylindrical profile of the implant to a triangular profile, square or oval prosthetic crown (JANSEN; WEISGOL, 1995). The vestibule palatine position must maintain at least 1.5 mm of bone around its entire circumference, so that the occlusal load can be distributed in its long axis (RISSOLO; BENNETT, 1998). If you cannot obtain such bone thickness, bone regeneration techniques must be applied before or during the installation of the implant. If this buccal bone thickness is not maintained, part of this bone plate will undergo resorption, which may generate vestibular recession mucosal tissue (GRUNDER; GRACIS; CAPELLI, 2005).

The use of membranes as barriers and graft materials has been proposed to treat periapical defects. The reason for the use of regenerative processes is to prevent the migration of cells from connective and epithelial tissues, the space between the implant surface and the surrounding walls of the bone,
osteogenic cells favoring the regenerated bone (PAOLANTONIO; DOLCI; SCARANO et al., 2001), as performed in this case.

After 4 months of bone integration period held the second phase by minimal tissue manipulation with installation of mini pillar Morse taper in the area of the element 11 and micro pillar Cone Morse implant in the element region 22 were provisional dental installed for gingival conditioning and then fixed dental porcelain. The mini-pillar Morse Taper is an intermediate used for rehabilitations with multiple prostheses in aesthetic areas your brace height must remain 1 to 2 mm subgingival (SARTORI; BERNARDES; MOLINARI et al., 2013). The gingival etching with provisional, guided by compression of the rim allows the formation of buds and better accommodation of the final prosthesis, optimizing esthetics and phonetics (QUESADA; RIZZARDI; FRANCISCATTO et al., 2014).

CONCLUSIONS

According to the literature consulted and the clinical case found that the implant holding position should be determined by the planning of the future prosthesis (reverse engineering). The rehabilitator planning involves science and clinical practice, aiming to promote health at the individual, longevity of restorations and prosthetics in adequate conditions for preservation and maintenance of the functional structures of the stomatognathic system. The CD communication - TPD - Patient is critical to the ultimate success of rehabilitation. After planning should fabricate a surgical guide in acrylic resin to guide implant placement into position. When bone integration implants are installed in an unfavorable position they prevent satisfactory prosthetic rehabilitation, requiring use of specific abutments to correct its inclination. In extreme cases surgical procedures carried out for repositioning or removal. The Guided Bone Regeneration is performed with absorbable or non-absorbable membranes associated with xenogenous or alloplastic grafts, presenting as a well-founded and appropriate method for some clinical situations of bone reconstruction.

REFERENCES *

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* According the ABNT norms and the Dentistry Review of the Dentistry Tiradent Academy.

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