

Removal, regeneration and reinstallation of osseointegrated implant in the esthetic zone: a case report

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Abstract: *The aim of this case report is to describe a treatment to correct a malpositioned maxillary anterior implant with poor aesthetic outcome and patient complaint. A 39-year-old woman was attended to Implantology Clinic of the Latin American Institute of Dental Research and Education (ILAPEO) reporting dissatisfaction with the fixture of the 22 region that “appeared to smile.” After evaluation, has been found that the implant was buccally positioned there was bone loss, soft tissue involvement. The treatment consisted of removal of the implant, followed by autogenous bone graft in the region. After 5 months of healing a new implant was installed and bone graft with GenOx Inorganic (Baumer - São Paulo, Brazil) was performed on the buccal face to improve the contour. After implant healing the provisional crown was positioned concomitant to a soft tissue manipulation. Given the case features a form of treatment performed proved to be effective, since resolved the aesthetic complaint of the patient with predictability and functionality.* **Keywords:** Dental implants. Dental prosthesis. Bone transplantation.

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* Patients displayed in this article previously approved the use of their facial and intraoral photographs.

INTRODUCTION

For over 20 years, dental implants are used to replace missing teeth.¹ Earlier Implantology bothered to achieve biological stability and longevity of implants, but with less attention to the future prosthesis. There is now a need for aesthetic results as well as clinically healthy dental implants.²

The increase in the achievement of implants is accompanied by complications related to the planning and execution of the cases.³ The poor positioning of implants in aesthetic region is one of these complications. Although the use of implants in the aesthetic area is well documented in the literature with several works^{4,5,6,7} prosthetic resolution in the anterior maxilla is a great challenge for professionals. Improper position of the implant may preclude rehabilitation even with the large amount of prosthetic options.³ Moreover, it can affect the aesthetics, phonetics and function.

The implants can be installed improperly for several reasons, including: reduced bone density, low bone quality, patient with limited mouth opening, planning mistakes, and little work experience.⁹ Treatment options for misplaced implants include: leave the implant submerged and restore the edentulous space through fixed prosthesis; remove the implant and install new implant in the correct position after bone healing; and perform osteotomy segment and reposition the block with the implant properly.^{9,10} The treatment should be defined

by evaluating each case individually. Therefore, the aim of this case report is to show a possible treatment to the management of a patient with an aesthetic complaint due to a misplaced implant in the anterior maxilla.

CASE REPORT

Female patient, 39 years old, ASA I, came to the Implantology Clinic of the Latin American Institute of Research and Dental Education (ILAPEO) reporting that the "implant appear to smile" (Fig 1). On clinical examination and tomographic evaluation (Fig 2) it was found: the clinical crown of the #22 was greater than #12; the implant was buccally positioned; commitment of the soft tissue and severe bone loss. The proposed treatment plan consisted of removal of the implant, defect regeneration and new implant installation with appropriate three-dimensional positioning.

The first surgical procedure was performed under local anesthesia. A Newman incision was used consisting of a sulcular incision in the region of teeth #21 to #23 and a oblique incision in the distal of tooth #23. The flap debridement allowed to identify the implant and the vestibular defect. A small groove was performed on the buccal aspect of the implant using a small round bur, decreasing the bone/implant contact and allowing it to be removed using dental extractors. The donor site was prepared (mandibular ramus) and the autogenous block was removed via trephine (Neodent, Curitiba, Brazil) already in the format to

default (half moon). The receiver site was also prepared, the graft adjusted and fixed, and the areas of gaps filled with crushed autogenous bone. Finally, to allow the flap to be repositioned and sutured without tension, a periosteum incision and a buccal tissue division were performed, enabling greater mobility of the flap. There was some difficulty to achieve first intention coaptation when suturing due to lack of

quantity and quality of soft tissue in the area where the implant was exposed. During the healing period was maintained denture adhesive in place (Fig 3).

After five months was carried out the second surgical procedure to install the new implant. Proceeded a supracrestal incision associated with intra-sulcular flap debridement, graft fixation screw removal followed by implant installation, Titamax

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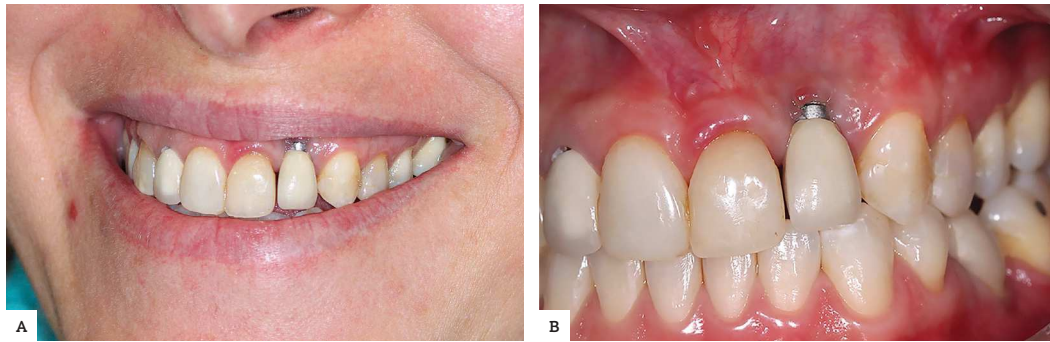


Figure 1. A) Clinical aspect smile showing the recession on the buccal mucosal surface of the implant in the region of 22 (A). Intraoral image showing disfigurement (B).

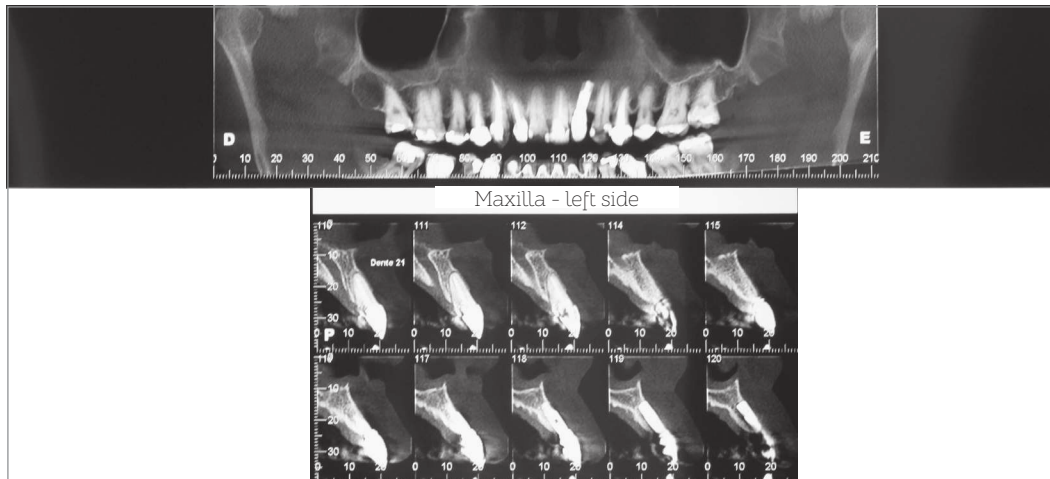


Figure 2. Tomography showing the absence of the vestibular wall around the implant.

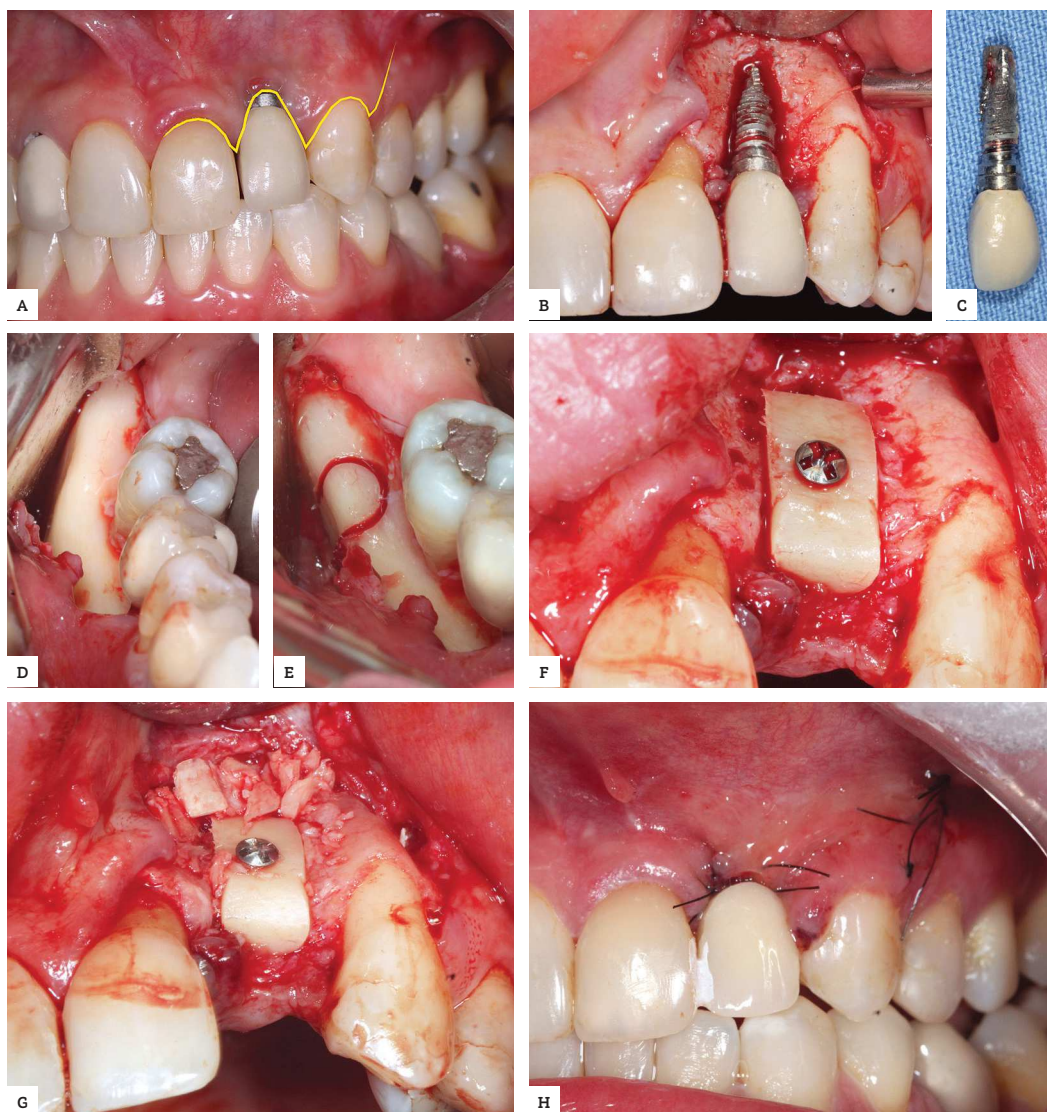


Figure 3. Steps of the surgical procedure. Incision Planning (A). Exposure of the implant (B). Implant removed (C). Retail in the donor area (D). Delimitation of the graft to be removed after use of trephine (E). Recipient site prepared with perforations and block fixation (F). Filling the spaces with autogenous bone chips (G). Without use of membrane repositioned flap and sutured (H).

Cortical CM 3.5x11 (Neodent - Curitiba, Brazil), according to the recommendations of the manufacturer and in the center of the flange. In order to improve facial contour was performed with a graft GenOx Inorganic (Baumer - São Paulo, Brazil) (Fig 4). The implant was kept submerged during the healing period.

In return for the reopening procedure, five months later, the patient presented a point of eliminating graft beads, all excess was removed. The reopening was

through soft tissue manipulation, roller technique¹¹, for increasing the thickness of the keratinized buccal tissue. The intermediate 3.3x4x5.5, was selected (Munhão CM, Neodent, Curitiba, Brasil) and installed enabling the fabrication of temporary crown (Fig 5). For better adaptation of the soft tissue was performed microincision technique Palacci¹² and coaptation suture of the edges. In control consultation and suture removal the patient was already satisfied with the outcome of treatment (Fig 6).

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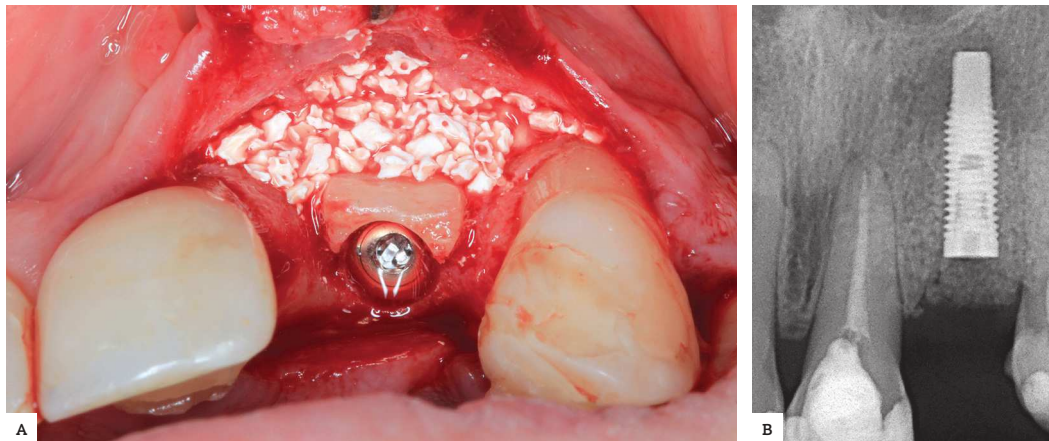


Figure 4. Buccal implant already installed and filled with biomaterial (A). Periapical X-ray on the day of implant installation (B).

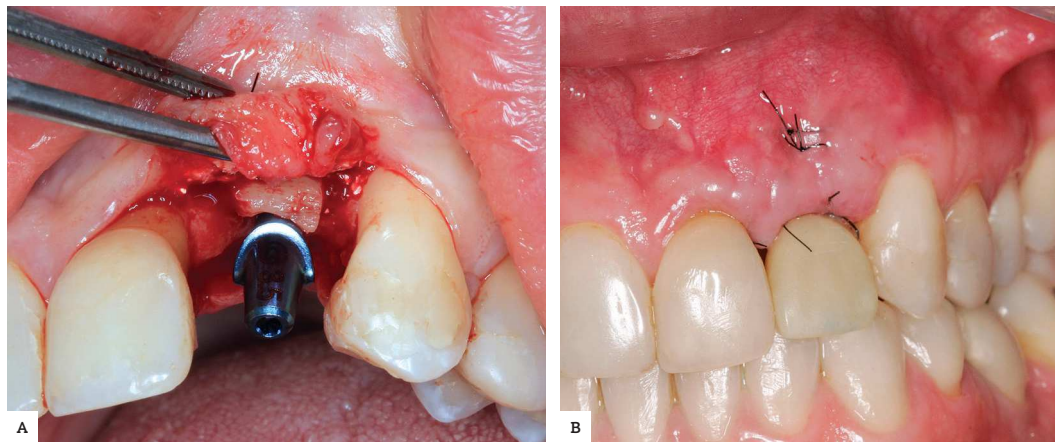


Figure 5. Retain in reopening with roller technique. Intermediate selection with the CM selection kit (Neodent - Curitiba, Brazil) (A). Temporary installed (B).

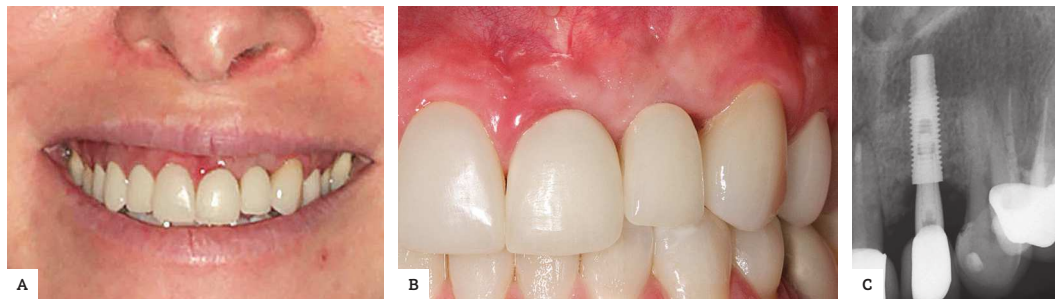


Figure 6. The case finished with 11 months of follow-up after the installation of the prosthesis. Clinical aspect smiling (A). Intraoral point (B). Periapical radiograph (C).

DISCUSSION

In dental clinical practice is common to come across dissatisfied patients or problems / complications in the treatments. The clinical case described is one of these complications, poor positioning of the implant. And, predictably, has offered a solution to the initial complaint of the patient. In order to avoid complications studies^{13,14} recommend

that the implant be installed preserving 2mm bone thickness in the vestibular, far at least 1.5 mm of adjacent teeth (or 3mm of implants) and apical 3mm to amelocemental junction of adjacent teeth or prosthetic margin designed. If the implant is placed too buccally there is the increased risk of loss of hard and soft tissues causing aesthetic commitment and even implant¹³ failure, as

happened in this case. Faced with a complication, the form of treatment should be determined by clinical and radiographic evaluation of the existing commitment.

In the clinical case described the option to bury the implant and fabricate a fixed prosthesis in the region was ruled out because it does not solve the esthetic effect as though eliminate the metal exposed, the clinical crown of the #22 would be greater than the adjacent teeth. By analyzing the osteotomy by treatment option segment was verified that the clinical work^{3,15,16} solved in this way as a point of technical requirements to maintain the peri-implant condition, or the implant may not have undergone bone loss. As there was great buccal bone loss recorded in the tomographic image was understood a counter indication of this technique. Therefore it was decided to implant removal, regeneration of the area and new implant installation.

The removal of the implant using trephine bur is required when the implant is osseointegrated and this can cause greater deformity in the region and marginal bone loss in the adjacent teeth. Due to large bone loss around the implant of this clinical case, implant removal was easier and the use of a trephine bur was not necessary, thus preserving the surrounding bony structures. Unlike the study of Lacerda et al.² which removed the implant with trephine

repositioned the flap and let the healing freely occur in the case reported to remove the implant has been accomplished an autogenous bone graft in the region. The purpose of the graft was to have greater predictability of adequate bone availability for the new implant installation and also get adequate bone contour because it is an aesthetic area. Compared with other techniques, the downside of the implant removal is longer treatment.^{9,15,16}

The successful resolution of the case described is related to proper planning and technical implementation. Implant removal was performed maintaining the remaining bone and the regeneration was performed using autogenous bone. In addition, there was a concern to reduce the morbidity of the procedure in the bone removal in the retro-molar region using a trephine, thus removing only the amount needed to fill the existing bone defect. The reopening was performed by means of soft tissue manipulation to obtain a good quality tissue, thus ensuring the aesthetic.

CONCLUSION

In conclusion, the clinical solution to correct a malpositioned dental implant in aesthetic zone can be complex, requiring several procedures to recover hard and soft tissue losses. The treatment described was considered effective, since patient was esthetically and functionally rehabilitated.

REFERENCES

1. Lai YL, Chen HL, Chang LY, Lee SY. Resubmergence technique for the management of soft tissue recession around an implant: case report. *Int J Oral Maxillofac Implants.* 2010 Jan-Feb;25(1):201-4.
2. Lacerda EJR, Lacerda HM, Cruz M. Explantação, reimplantação e regeneração tecidual guiada. *ImplantNews.* 2011;8(1):13-7.
3. Cunha HA, Filho HN, Batista JG, Matsumoto MA. Segmental osteotomy for the correction of a malpositioned single implant: an 8-year follow-up. *Quintessence Int.* 2011 Nov-Dec;42(10):817-22.
4. Kan JY, Rungcharassaeng K, Lozada J. Immediate placement and provisionalization of maxillary anterior single implants: 1-year prospective study. *Int J Oral Maxillofac Implants.* 2003 Jan-Feb;18(1):31-9.
5. Lorenzoni M, Pertl C, Zhang K, Wimmer G, Wegscheider WA. Immediate loading of single-tooth implants in the anterior maxilla. Preliminary results after one year. *Clin Oral Implants Res.* 2003 Apr;14(2):180-7.
6. Belser UC, Schmid B, Higginbottom F, Buser D. Outcome analysis of implant restorations located in the anterior maxilla: a review of the recent literature. *Int J Oral Maxillofac Implants.* 2004;19 Suppl:30-42.
7. Misje K, Bjørnland T, Saxegaard E, Jensen JL. Treatment outcome of dental implants in the esthetic zone: a 12- to 15-year retrospective study. *Int J Prosthodont.* 2013 Jul-Aug;26(4):365-9.
8. Uludag B, Celik G, Goktug G. Prosthetic solution for unfavorably inclined maxillary implants: a case report. *J Oral Implantol.* 2008;34(2):111-4.
9. Kim YK, Kim BS, Lee HJ, Hwang JW, Yun PY. Surgical repositioning of an unrestorable implant using a trephine bur: a case report. *Int J Periodontics Restorative Dent.* 2010 Apr;30(2):181-5.
10. Martin RJ, Goupil MT, Goldschmidt M. Single-implant segmental osteotomy: a case report. *Int J Oral Maxillofac Implants.* 1998 Sep-Oct;13(5):710-2.
11. Israelson H, Plemons JM. Dental implants, regenerative techniques, and periodontal plastic surgery to restore maxillary anterior esthetics. *Int J Oral Maxillofac Implants.* 1993;8(5):555-61.
12. Palacci P, Nowzari H. Soft tissue enhancement around dental implants. *Periodontol.* 2000. 2008;47:113-32.
13. Bashutski JD, Wang HL. Common implant esthetic complications. *Implant Dent.* 2007 Dec;16(4):340-8.
14. Belser U, Buser D, Higginbottom F. Consensus statements and recommended clinical procedures regarding esthetics in implant dentistry. *Int J Oral Maxillofac Implants.* 2004;19 Suppl:73-4.
15. Warden PJ, Scuba JR. Surgical repositioning of a malposed, unserviceable implant: case report. *J Oral Maxillofac Surg.* 2000 Apr;58(4):433-5.
16. Tavares RN, Escóssia J Jr, Santos SE, Ferraro-Bezerra M. Bone graft sandwich osteotomy to correct a malpositioned dental implant. *Int J Oral Maxillofac Surg.* 2013 Jul;42(7):901-3.