CASE REPORT

Restoring Anterior Esthetics with Flapless Implant: A Case Report

Kirti Pal[1], Shweta Bali[2], Aruna Nautiyal[3], Priyanka Thukral[4], Deepali Singhal[5]

Received on: 07 December 2021; *Accepted on:* 05 July 2022; *Published on:* 17 February 2023

Abstract

Background: A congenital abnormality or trauma is the most prevalent cause of tooth loss in the anterior area. A patient with a history of single tooth loss, especially in the anterior region, faces practical and cosmetic challenges. When it comes to replacing a lost canine, there are a variety of alternatives, among which implant dentistry should be the first option.

Method: The current case report highlights the replacement of a lost maxillary right canine using dental implants by punch technique.

Conclusion: Flapless implant technique improves the patient's function and esthetics and hence can be used to achieve a favorable clinical outcome in patients.

Keywords: Anterior esthetics, Anterior restoration, Cemented crown, Flapless surgery, Missing anterior, Single tooth implant.

International Journal of Experimental Dental Science (2021): 10.5005/jp-journals-10029-1231

Aim

The aim of this article is to present a case of the flapless implant, which sheds light on how the flapless technique can be a better option when compared to the conventional flap technique in terms of esthetics and time-saving for the patient.

Background

The most frequent location of tooth loss in the maxillary anterior region can be caused either due to trauma or a congenital defect. This affects the patient's smile by causing both functional and cosmetic concerns. Following tooth extraction, alveolar ridge resorption and loss of tissue morphology are the most common side effects. Lost teeth can be replaced in a variety of ways, including removable partial dentures, resin-bonded bridges, permanent partial dentures, fixed partial dentures, and dental implants can be carried out. The replacement of anterior teeth with implant-supported restorations is a difficult and technique-sensitive procedure.[1] Surgeons have recently been interested in "flapless" implant surgery as it offers several benefits, including the preservation of circulation, soft tissue architecture, and hard tissue volume at the surgery site, as well as reduced surgical time, greater patient comfort, and faster recovery. It also permits the patient, after the operation, to immediately continue with normal oral hygiene routines. This method frequently needs significant clinical knowledge and surgical judgments to be successful. In single-unit restorations, the crown can be placed in a more passive position.[2] The patient and the surgeon both benefit from the flapless implant placement approach. Maintaining a better blood supply to the region by leaving the periosteum intact on the buccal and lingual portions of the ridge, for example, reduces the risk of bone resorption. Furthermore, it lowers intraoperative bleeding, surgical time, and the need for suturing, as well as reducing complications at the patient level, such as swelling and discomfort.

[1]CBS Health Care, Greater Noida, Uttar Pradesh, India

[2,3]Department of Periodontics and Oral Implantology, Santosh (Deemed to be University), Ghaziabad, Uttar Pradesh, India

[4]Department of Prosthodontics and Crown & Bridge, Santosh (Deemed to be University), Ghaziabad, Uttar Pradesh, India

[5]Department of Periodontics and Oral Implantology, Santosh Dental College, Santosh (Deemed to be University), Ghaziabad, Uttar Pradesh, India

Corresponding Author: Kirti Pal, CBS Health Care, Greater Noida, Uttar Pradesh, India, Phone: +9990592323, e-mail: kirti.pal.20@gmail.com

How to cite this article: Pal K, Bali S, Nautiyal A, *et al.* Restoring Anterior esthetics with Flapless Implant: A Case Report. Int J Experiment Dent Sci 2021;10(2):71–73.

Source of support: Nil

Conflict of interest: None

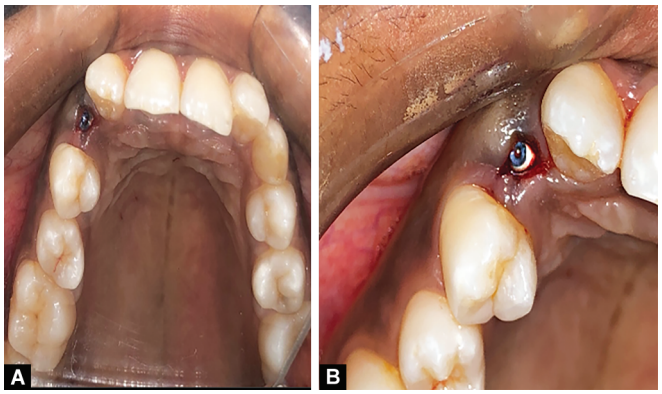
Patient consent statement: The author(s) have obtained written informed consent from the patient for publication of the case report details and related images.

Case Description

A female patient, aged 24 years, reported missing to the Department of Periodontics and Oral Implantology, Santosh (Deemed to be University), Santosh Dental College, Ghaziabad, with a complaint of a missing right upper front tooth. She expressed her wishes for a minimally invasive treatment approach. As a part of the investigative procedure, radiographic assessments, including intraoral periapical radiographs and orthopantomography, were performed after the initial clinical assessment. An intraoral examination revealed that the right canine was missing (Fig. 1).

Diagnostic impressions of both the arch were taken, and diagnostic casts were prepared. Following a thorough medical history, a complete hemogram was performed, and the implant

Fig. 1: Preoperative picture with missing right canine



Figs 2A and B: (A and B) Implant fixture placed

location was mapped out in bone. A Nova Implant system with dimensions of 3.3 × 11.5 mm by flapless surgical procedure was chosen as a fixture for the restoration of a lost tooth. A tissue punch was utilized to perforate the gingival tissue to provide access to the bone without raising the flap; the entire surgery was conducted under local anesthesia with 2% lidocaine (1:80000) under aseptic techniques under abundant irrigation, osteotomy was started with a pilot drill at the punch location, and the final osteotomy was constructed by successive drilling after bone mapping was done (Figs 2A and B).

A depth gage and intraoral radiographs were used to assess the correct angulations and depth of the osteotomy. The implant was inserted with a final torque of 45 N/cm^2 by a torque measuring wrench with satisfactory primary stability parallel to the roots of the surrounding teeth after final osteotomy preparation. An abutment for healing to aid in the establishment of a correct gingival emerging profile for the planned restoration was inserted on the implant, and also temporization was done with no occlusal contact. The advantages of immediate placement of healing abutment include fewer surgical interventions, reduction in overall treatment time, reduced soft and hard tissue loss, and psychological satisfaction for the patient (Fig. 3).

Antibiotics (augmentin 650 mg twice a day) and analgesics (zinase D twice a day) were prescribed to the patient for 3 days to control postoperative discomfort. After 2 days, the patient was summoned back for a regular checkup. It was observed that there was no significant extraoral edema in the operative site. When the

Fig. 3: Healing abutment placed

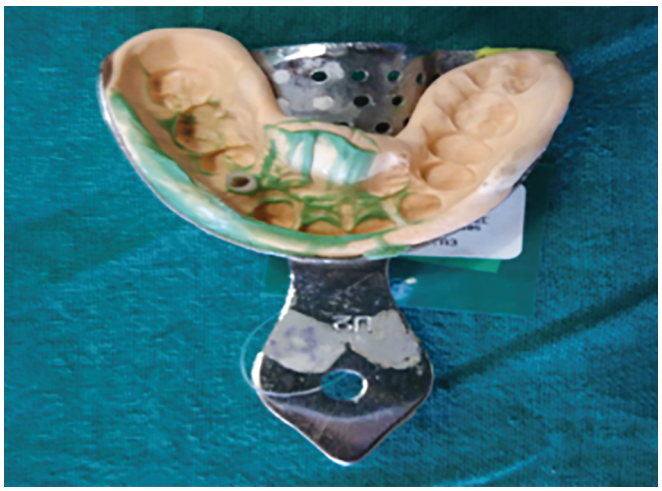


Fig. 4: Open tray impression technique with putty and light body

Fig. 5: Final prosthesis *in situ*

gingival abutment was removed after 1 week, a smooth, healthy gingival cuff developed around it. One week later, as the patient did not report any discomfort in the operated area, a definite impression was obtained with polyvinyl siloxane impression material (putty and light body, Dentsply) open tray impression to capture the position of the implant (Fig. 4).

The healing abutment was replaced, and shade selection of "A2" was done. The impression was poured using a type IV die stone with transfer coping and implant analog in place. Three weeks following implant insertion, the complete prosthesis was delivered with excellent cosmetic and functional outcomes, and the patient was very happy with the final esthetic and functional outcome (Fig. 5). Oral hygiene instructions were given to the patient and recalled after 3 months for a regular checkup.

Discussion and Conclusion

In the case report, the fundamental principles of treatment planning, implant surgery, and prosthetic rehabilitation needed to achieve cosmetic success in the maxillary anterior area were reviewed. There are several treatment choices for replacing a lost canine, whereby the most feasible option is that of placing an implant by the flapless technique.[3] There have been many reports in recent years that flapless implant surgery is a predictable procedure with high success rates if patients are willing and an appropriate width of bone is available for implant placement.[4–6] When implants are placed without flap elevation, both the amount of osseointegration and bone height around the implants are significantly higher than when the flap was elevated.[3] Flapless implant surgery has been recommended as a therapeutic option for improving implant esthetics and is a simple procedure to do. Because it is impossible to evaluate alveolar bone shapes and angulations when executing this blind surgery, there is always a danger of implant deviation. Therefore implant placement without raising a flap necessitates a particular amount of experience, fine motor skills, and surgeon's dexterity.[7] In our current case, we were looking for a quick, esthetic, and fulfilling treatment option for our patient, hence the choice of flapless implant was made. According to a study done by Oh et al. and Flanagan[8,9], flapless implant surgery produces esthetic soft tissue outcomes in single tooth implants loaded either immediately or later and has been found to be less painful and time-consuming, with fewer problems and faster soft tissue recovery, as well as having the advantage of being more esthetic and restoratively suitable.

Clinical Significance

As far as rehabilitation of lost single teeth is concerned, implant insertion by flapless surgery appears to be the most suitable and viable alternative. However, flapless surgeries should be restricted to only well-selected cases in which proper clinical and radiological planning has been done. Patients treated with anticoagulant drugs or medically compromised equally can also benefit from this minimal invasion technique.[10] In the current case report, the importance of a good case selection and an accurate understanding of the right treatment choice aided us in achieving improved outcomes. Hence making the replacement of missing anterior teeth with flapless implants is a well-known and well-accepted therapeutic technique in recent years. Flapless approach is a predictable procedure when patient selection and surgical technique are intended, and it could offer advantages over the classic protocol and should have the potential to increase the patient's acceptance of the procedure.

References

1. Khanal A, Basnet BB, Parajuli PK, et al. Replacement of missing tooth in anterior maxilla with implant-supported fixed prosthesis: a case report. J Nepal Dent Assoc 2018;18(1):47–49.
2. Daouahi N, Hadyaoui D, Khlifa MB, et al. Management of missing second premolar with single-tooth implant using flapless surgery. Open Dent J 2015;2(4):121–124. DOI: 10.17140/doj-2-122
3. Jeong SM, Choi BH, Li J, et al. Flapless implant surgery: an experimental study. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2007;104(1):24–28. DOI: 10.1016/j.tripleo.2006.11.034
4. Thukral P, Bali S, Bhatia N, et al. Rehabilitation of atrophic maxilla with basal implant: a case report 2016. Int J Curr Res 2016;8(3):28601–28604.
5. Thukral P, Bali S, Arora S, et al. Single piece implant placement with immediate loading in esthetic zone—case series. Int J Curr Res 2019;11(10):7567–7571. DOI: 10.24941/ijcr.36847.10.2019
6. Aggarwal P, Mele RE, Bali S, et al. A comparative evaluation of immediate implant placement in fresh extraction socket with and without the use of platelet-rich fibrin: a clinical and radiographic study. Int J Oral Implantol Clin Res 2016;7(3):48–58. DOI: 10.5005/jp-journals-10012-1154
7. Jain D, Gaur G. Flapless implant placement: a case report. J Oral Implantol 2014;40(3):321–324. DOI: 10.1563/AAID-JOI-D-12-00026
8. Oh TJ, Shotwell JL, Billy EJ, et al. Effect of flapless implant surgery on soft tissue profile: a randomized controlled clinical trial. J Periodontol 2006;77(5):874–882. DOI: 10.1902/jop.2006.050169
9. Flanagan D. Flapless dental implant placement. J Oral Implantol 2007;33(2):75–83. DOI: 10.1563/0.797.1
10. Romero-Ruiz MM, Mosquera-Perez R, Gutierrez-Perez JL, et al. Flapless implant surgery: a review of the literature and 3 case reports. J Clin Exp Dent 2015;7(1):e146–e152. DOI: 10.4317/jced.51985