

Enhancing Anterior Maxillary Esthetics: A Case Report

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Abstract

Implant therapy is today widely regarded as a reliable treatment option to replace missing teeth, both for function and aesthetics. Dental implants may be used to replace single teeth, replace multiple teeth, or provide abutments for complete dentures or partials. This topic focuses on the placement of single-tooth dental implants. The correct surgical placement of a dental implant is mandatory to obtain the ideal aesthetic result. Only through proper treatment planning can the correct position and number of implants be determined. Before surgical placement of a dental implant, the adequate hard and soft tissue must be available. The clinician must consider the time needed for implant integration and soft-tissue healing, creation of emergence profiles, occlusal forces in relationship to progressive loading, and occlusal forces on the final restoration.

Keywords-Implant, Aesthetic Zone, Abutment, Prosthesis

Introduction

Rehabilitation of esthetic zone with dental implants is a venerable challenge. Compared to traditional methods, implants offer distinct advantages. Implants allow for the creation of restorations that closely mimic natural teeth, enhancing both aesthetics and functionality¹.

Previously, limited bone availability, especially in the anterior mandible, impeded implant placement. Today, prosthetic requirements primarily guide implant positioning, reflecting the evolving approach of implant dentistry in addressing esthetic concerns in the anterior zone².

Advancements in dental implant therapy have led to consistent success rates, ensuring predictable treatment outcomes. These innovations represent a significant evolution in the field, characterized by improved techniques and materials. Patients can now confidently opt for implant treatment, knowing they can rely on dependable results. This progress underscores the growing trust in dental implants as a reliable solution for tooth replacement, marking a significant milestone in modern dentistry's quest for excellence^{3,4}.

The importance of anterior maxilla is amplified due to its prominent visibility. With a high lip line, the smile becomes more

exposed, heightening the demand for esthetic perfection. Certain experts highlight the necessity of balancing the function and esthetics in this area. Achieving an ideal outcome here not only restores functionality but also significantly enhances the individual's confidence and overall quality of life^{5,6,7,8}.

Developing and optimal emergence profile for implant supported prosthesis in aesthetic zone necessitates employing bone regenerative materials, soft tissue augmentation and appropriate abutments.

This case report underscores the ideal implant positioning in the maxillary aesthetic region yielding enhanced structural integrity and prosthetic appearance that integrate with the natural dentition.

Case Report

A 70-year-old female patient presented to clinic with chief complaint of loss of upper front teeth due to trauma since 2 year back. On detailed intra oral examination revealed that missing teeth on 21 regions. Patient was

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wearing removable partial denture for last 2 years. The patient was in good health with non-contributory medical history, normal oral hygiene and a strong desire to restore the area with a permanent fixed prosthesis. Implant Swiss implant w.r.t 21 was planned.(Fig. 1)



Figure 1: Pre-operative IOPA

Surgical Procedure

The surgical procedure was performed in sterile surgical field. Preoperative decontamination of oral cavity with chlorhexidine 0.2% mouth rinse for 1 min and perioral skin disinfection with 5% povidone-iodine solution was done. Site was anesthetized using 2% Lidocaine with 1:80000 adrenaline.

Flapless surgery was carried out. Meanwhile, one Implant Swiss implant was placed on 21 of size 3.7 X 12 to restore that segment with fixed prosthesis. Around 30 NCM Insertion torques was achieved. ISQ measurements was in range of 80-82, thereafter cover screw was placed. Patient was asked to



wear RPD again. Post operative instructions were given to the patient.(Fig. 2a, 2b, 3c)



Figure 2 :Implant Placement



Post-operative after 2 months ISQ test was done again, which showed excellent biological stability with reading measuring in between 84-87 ,thereby showing excellent secondary stability or osseointegration. Thereafter healing abutment was placed.(Fig. 3)Crown cutting was also done w.r.t 11



Figure 3: Post-operative IOPA

Digital impression was made by CEREC Workflow (PRIMESCAN). CEREC scan bodies were used & it was planned to give screw retained crown by using Implant Swiss implant Ti-Base. E-max MESO block of A3 shade was used in PRIMEMILL machine. Crystallization and glazing of MESO done using SPEEDFIRE. (Fig. 4a, 4b, 4c)



4a

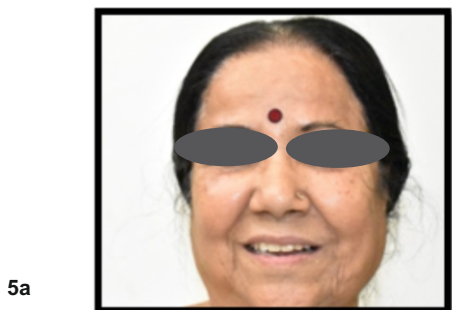


4b



Figure 4a,4b,4c: Screw Retained Crown

Now Implant Swiss implant Ti -Base Swiss was cemented extraorally with resin-based cement to prepared crown. OPG showed Implant & Prosthesis in perfect 3-D position ensuring very good prognosis. Occlusion & proximal contacts were verified. (Fig. 5a, 5b, 5c)



5a



5b



5c

Figure 5: Post -Operative OPG & Photographs

Discussion

This report highlights the importance of meticulous planning and precise execution in achieving esthetic perfection in maxillary anterior region⁹. Opting for dental implants in this region offers significant benefits, with fixed implant-supported prosthetics showcasing multiple advantages over conventional crown and bridge or removable tooth-supported options¹⁰.

Among the treatment options considered were removable partial dentures, fixed partial dentures, and resin-bonded bridges, each with drawbacks. Removable dentures risked bone loss and dissatisfaction, fixed options posed threats to adjacent teeth, and resin-bonded bridges had a higher failure rate. Consequently, implant placement emerged as the most advantageous solution. Adhering to correct prosthetic principles aimed to enhance implant-supported restoration success. Thus, implant placement offered superior functional and aesthetic outcomes while preserving adjacent dentition integrity^{11,12,13,14}.

Conclusion

Placing dental implants in the maxillary anterior region demands meticulous planning, precise surgery, and expert prosthetic treatment. This study outlines steps for optimal aesthetics, emphasizing comprehensive treatment planning and collaborative efforts between surgeons and dentists. Achieving desired aesthetics relies on careful prosthetic design. The report underscores the importance of a holistic approach to treatment in the anterior maxillary region.

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