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## Case Report

# Enhancing anterior maxillary esthetics: A case report

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## ABSTRACT

This case study delves into the complex process of esthetic restoration in the anterior maxilla, highlighting the careful planning and precise execution needed to achieve optimal results. Tarding with a thorough assessment of the patient's dental health, including bone structure and soft tissue condition, a customized treatment plan was crafted through the collaborative efforts of the implant surgeon and restorative dentist. The surgical placement of a single tooth implant was performed with precision, ensuring optimal positioning and angulation to achieve natural-looking results while preserving the surrounding tissues. Prosthetic restoration utilized carefully chosen materials and techniques to integrate seamlessly with the natural teeth. Through interdisciplinary collaboration and precise attention to detail, the anterior maxilla was successfully esthetically rehabilitated, showcasing the transformative capabilities of modern implant dentistry.

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## 1. 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 functionality.<sup>1</sup>

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 zone.<sup>2</sup>

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.<sup>3,4</sup>

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.<sup>5-8</sup>

Developing and optimal emergence profile for implant supported prosthesis in esthetic zone necessitates employing bone regenerative materials, soft tissue augmentation and appropriate abutments. This case report underscores the ideal implant positioning in the maxillary esthetic region yielding enhanced structural integrity and prosthetic appearance that integrate with the natural dentition.

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## 2. Case Report

A young male adult sought care at the department of prosthodontics reporting the loss of his upper front tooth nearly 10 years ago following trauma. Detailed intraoral examination confirmed the absence of teeth in the 21 region (Figure 1).



**Figure 1:** Pre operative

The patient demonstrated good overall periodontal health, despite irregular professional oral hygiene visits. After discussing various treatment options, both parties agreed on implant placement in the missing area. Following thorough treatment planning, a  $4.2 \times 13$  mm endo-osseous implant (AlphaBio tapered self-threaded regular platform spiral) was chosen. Following this, a supracrestal incision was given in the region and full thickness flap was raised which was followed by sequential preparation of osteotomy for placement of implant. After an appropriate radiological assessment, a spiral implant was placed with a primary stability of 35 N, cover screw was placed and primary closure of the flap was done. The patient was provided with antibiotic and analgesic prescriptions, along with postoperative instructions. At the one-week follow-up appointment, no adverse signs or symptoms were observed. (Figures 2, 3 and 4)



**Figure 2:** Flap reflection



**Figure 3:** Implant placed



**Figure 4:** Sutures placed

At 16 weeks post-implant placement, the healing abutment was installed (Figure 5), and two weeks later, the patient returned for impression making for tooth 21 and preparation of tooth 11. Tooth 11 was prepared, and an implant-level open tray impression was taken for tooth 21 using polyvinyl siloxane elastomeric impression material (Figure 6) and the healing abutment was placed back.



**Figure 5:** Healing abutment placed after stage 2



**Figure 6:** Open tray impression

The final restoration was then installed at 20 weeks post-implant placement, involving cleaning of the abutment and trial fitting of the final crown followed by cementation of the prosthesis. The patient expressed satisfaction with both the aesthetic and functional outcomes and received oral hygiene instructions. A recall appointment was scheduled in three months for a routine check-up (Figures 7 and 8).



**Figure 7:** Abutment trial w.r.t. 21 and tooth preparation with 11



**Figure 8:** Final prosthesis w.r.t. 11 and 21

### 3. Discussion

This report highlights the importance of meticulous planning and precise execution in achieving esthetic perfection in maxillary anterior region.<sup>9</sup> 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 options.<sup>10</sup>

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.<sup>11–14</sup>

### 4. 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.

### 5. Source of Funding

None.

### 6. Conflict of Interest

None.

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