



USING A SINGLE-TOOTH IMPLANT TO REPLACE A MISSING TOOTH IN THE AESTHETIC ZONE: A CLINICAL REPORT

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ABSTRACT Dental implant placement is a surgical technique in which an implant component connects with the jaw or skull bone to support a dental prosthesis such as a crown, bridge, or denture. Because of the functional and cosmetic results, placing implants in the anterior maxilla remains a difficulty for surgeons. Case report: A 27-year-old female patient came with chief complaint of upper front tooth loss owing to trauma since 2 years back. After careful examination, an endo-osseous implant was placed in the region of 21. Conclusion: The case report includes the planning, execution and outcome stages of an Implant in the anterior maxilla. The clinician must consider the time needed for Implant Osseo integration (total integration of Implant within the Bone) and soft-tissue healing around the implant, creation of emergence profiles, and occlusal loading forces in relationship to progressive masticatory forces on the final restoration.

KEYWORDS : Implant, Esthetic Zone, Abutment, and Prosthesis.

INTRODUCTION

For many oral and maxillofacial surgeons, implant placement in the aesthetic zone is one of the most difficult procedures. Because of aesthetic concerns and undesirable bone shape, implant placement in the aesthetic region might be difficult. One of the most significant considerations for effective implant placement is the state of the hard and soft tissue architecture. Professionals attempted to create a natural-looking implant-supported restoration¹. As a result, implant-supported anterior restoration remains a difficulty². Patient acceptance of dental implants in the aesthetic zone is growing as a consequence of a variety of factors, including the fantastic results that have been displayed in the media.

Previously, implant placement in places like the anterior region was generally limited by available bone density. The placement of dental implants is now, to a large measure, determined by prosthetic requirements. Dental implant survival rates have improved as a result of advancements in the field of implant treatment³. Aesthetic factors are now included in the current definition of success, in addition to long-term predictability, function, and implant integration⁴. The visibility of the front maxilla makes this more important, and if a high lip line is present, the smile line is more visible, enhancing the requirement for an aesthetic outcome. Some writers consider function and aesthetics in the anterior maxillary area of equal importance. This case report shows the restoration of a lost anterior tooth in a challenging location using Dental Implants and bone transplants for better function and aesthetics⁵.

CASE REPORT

A 27-year-old female patient presented to the Department with symptoms of upper front tooth loss owing to trauma since 2 years back. A thorough intraoral and radiographic examination found single missing teeth in 21 areas (Figure.1). The patient's periodontal health was good. The patient was given several therapy choices to choose from, and after reviewing the benefits and drawbacks of each, the following treatment option was selected: implant insertion in the missing region. After careful preparation, an endo-osseous implant (Adin threaded, Life Care Devices Private Limited, Israel) measuring 3.2 × 11mm was chosen for the area 21.

A palatally positioned full-thickness incision was performed and the flap was raised following an injection of 2 percent lidocaine with 1: 80,000 anesthetic agents in the missing region (Figure 2). An osteotomy was drilled with the use of a pilot drill to follow the manufacturer's protocol for implant placement. The flap was then closed with the help of 3.0 black braided silk non resorbable sutures after a parallel sided, threaded, rough surface implant was implanted and primary stability was attained at 35N along with healing abutment (Figure 3). Antibiotics (Amoxicillin 500 mg three times daily

for seven days) and analgesics (Ibuprofen 800 mg every four to six hours as needed) were recommended, as well as postoperative instructions. After a week, the patient was examined for suture removal, and no adverse signs or symptoms were seen.

The healing abutment was removed six weeks after the implant was put in, and an impression coping was inserted, followed by a Poly Vinyl Siloxane (Aquasil, Dentsply/Caulk, Milford, DE) open-tray imprint to record the implant's position. The healing abutment was restored after the imprint coping was removed, and the shade was recorded. After that, the case was submitted to the laboratory for a ceramic crown and wax pattern preparation, bespoke abutment manufacture, and a metal try. After that, the ceramic crown was bonded. Patient recalled after 5 years for follow up and radiograph were taken which show proper union between bone and implant surface (Figure 5). The patient was given oral hygiene guidelines and was reminded every year for a check-up.

DISCUSSION

The important idea of effective treatment technique, implant surgery, and prosthetic rehabilitation for loading was presented in this case study in order to get outstanding cosmetic results. It is a potential therapeutic option to place an implant in the anterior aesthetic area. The use of dental implants in the aesthetic zone has a number of advantages, including the preservation of residual bone, improved oral cleanliness, enhanced lifespan, and reduced changes in the anatomical structure of neighbouring teeth. Clinical requirements must be satisfied for successful implant implantation in the cosmetic region. This is especially true in the front maxilla, where the teeth and supporting tissues are exposed, and where patients have the highest aesthetic demands. Implant placement in the anterior aesthetic zone is determined by preoperative implant selection, which includes size, form, and a particular surgical plan, and prostheses are then built with function and soft tissue support in mind⁶. It's also necessary to have technical knowledge.

Certain clinical conditions must be satisfied to deliver successful and cosmetic dental implant therapy. This is especially evident in the front maxilla, where the teeth and supporting tissues are prominent. Preoperative planning and a particular surgical plan are required for successful implant therapy to replace lost teeth in the front maxilla, and prostheses are designed with function and soft tissue support in mind⁷. Although the placement of dental implants in the anterior maxilla and mandible were the same, the failure rate in the anterior mandible was greater, and the problems in the anterior maxilla were more severe⁸. Although fixed dental prosthesis (FPD) is a valid therapeutic option for tooth replacement, dental implant restoration offers distinct advantages. The survival rates for tooth replacement with single tooth implants were observed to be greater⁹. The use of dental implants in the

aesthetic zone is widely established in the literature, and the survival and success rates are comparable to those reported in other controlled clinical studies for other jaw segments¹⁰. According to Prof. Branemark, the minimum period necessary for rehabilitation is 4 to 6 months. In comparison to alternative loading procedures, the conventional loading technique is a well-known and well-accepted therapy option¹¹ (Abichandani, 2013).

CONCLUSION

Although anterior implant cases are among the most difficult to recover, doctors can obtain a predictable outcome by carefully examining patient anatomy and following a set of therapeutic recommendations. Implants can be placed in a way that maximizes the final prosthetic outcome while still meeting the aesthetic desires of the patients, using existing diagnostic tools and restorative-driven therapy planning. This case report details the steps required to achieve optimal aesthetics and functionality in the maxillary anterior area.



Figure: 1. Preoperative Radiograph



Figure: 2. Flap exposure



Figure: 3 Implant Placement



Figure: 4. Post Operative Radiograph (after 5 Years)



Figure: 5. Final prosthesis

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