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# Esthetic Management of Malpositioned Maxillary Anterior Implant by using Patient Specific Abutment: A Clinical Case Report

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***Abstract:***
*Implant positioning plays a vital role for providing estheticsas well as for appropriate functioning of the prosthesis. Accuratediagnosis and treatment planning are essential for successfulimplant treatment. Improper positioning of implant createsestheticsandfunctionalchallengefortheprosthodontist. This case report describes the use of customized abutment to give esthetics, proper functioning and emergence profile in Malpositioned implants. This article also describes the problem faced while rehabilitating the case. For that clinician should try to provide esthetics by applying basic clinical knowledge, experience and advanced technique.*

***Key Word:*** *Maxillary Anterior Implant, Customized abutment, Esthetics, Malpositioned Implant*

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## I. Introduction

Dental Implants have become a popular choice of treatment in replacing individual lost teeth with adding a quality of life. Implants offer significant functional and biological advantages over conventional prosthetic approach.[1] Good result in implant dentistry is based on adequate training, proper patient selection, precise surgery, thorough treatment planning, and comprehensive post operative care.[2]

Improper surgically placed implants are one of the most frequently encountered clinical complication in anterior region. Accurate implant positioning in relation to bone and adjacent teeth plays a significant role in maintaining health of the surrounding soft tissue and esthetics in anterior region. The esthetic restoration of implants in anterior maxilla may be complex because of excessive alveolar ridge and soft tissue loss following tooth extraction.[3]Thus, the contours and fit of the prosthesis made by the customized abutment is almost similar. At the time of healing prosthesis will properly adhere to soft tissue of custom abutment. Also, the final abutment margins of these restoration support the soft tissue immediately after the placement.[4]

In this case report, we examined the replacement of a maxillary central incisor implant with labially inclined opening for optimal aesthetics and function.

## II. Case Description

A 21-year-old male patient reported to the Department of Prosthodontics, Geetanjali Dental & Research Institute, Udaipur, with the chief complain of fracture tooth in upper front region of mouth since 2 months. No significant medical history was found. On intraoral examination, it was found that left central incisor was fractured.

The patient was given the option of extraction followed by immediate placement of endosseous implant and he opted for the same. The treatment plan was thoroughly explained to the patient and a written consent was obtained before the commencement of the treatment. The patient revealed no relevant medical history and routine investigation were within normal limits. Cone Beam Computed Tomography was done to evaluate the bone volume, based on which an endosseous internal hex 2-stage implant of dimension 5.0mm * 11.5 mm (ADIN Touareg S) was planned for surgical placement.

On the day of surgery, extraction of maxillary left central incisor was done followed by placement of endosseous implant, as the buccal cortical plate was found insufficient, implant has to be placed more labially inclined. Medications were prescribed for 5 days. Post-operative healing is uneventful.

After a 6 months period of healing, second stage surgery was done, cover screw was retrieved and healing abutment is placed. After 7 days gingival former was removed and final impression of maxillary arch was made using Addition polyvinylsiloxane impression material (Aquasil, Dentsply) with the closed tray impression copings.

The impression coping was screwed with implant analog and secured in their place in the impression and cast were poured in type IV gypsum (Kalabhai, Kalrock).

The maxillomandibular relationship was obtained by using facebow and from bite records. Casts were mounted on a semi-adjustable articulator.

Straight abutment was tried and found excessively in labial position that would not allow proper crown placement. However, even angulated abutment was not able to eliminate the labial emergence.

So only treatment possible was to use custom abutment & hexed UCLA type plastic burnout pattern sleeve (Adin) in this case. Hence, patient was educated about the case and suitable treatment plan. Model was sent to lab with instruction to achieve ideal prosthetic position. The angulation of the sleeve was adjusted by molding and trimming. Incremental addition of inlay casting wax was done to obtain a framework similar to central incisor. Casting so obtained was tried on implant in patient mouth and checked for angulation, fit and clearance from adjacent tooth (Fig-2).

Abutment were attached to the implant, screwed into them and tightened to 35 Nm using ratchet and motorized hex driver.

For this patient cement retained PFM crown was chosen as final prosthesis which was shade matched properly. Trial seating of the prosthetic crown was done for verification of fit, angulation, esthetics and interferences. On conformation, final glazing was done. Then, the prosthetic PFM crown was cemented using Zinc Phosphate cement. (Fig-3)

Patient was informed on oral hygiene and instructed the specific care for his new restoration including tooth brushing and flossing. Radiographs were taken at baseline after 6 and 12 months in order to control the bone level around implant. Follow-ups was done at monthly intervals for 3 months and then once every 6 months for 2 years.

Fig. 1: Intraoral view showing labially oriented implant

Fig. 2: Intraoral View showing improved emergence profile with custom abutment

Fig. 3: Intraoral view of final prosthesis

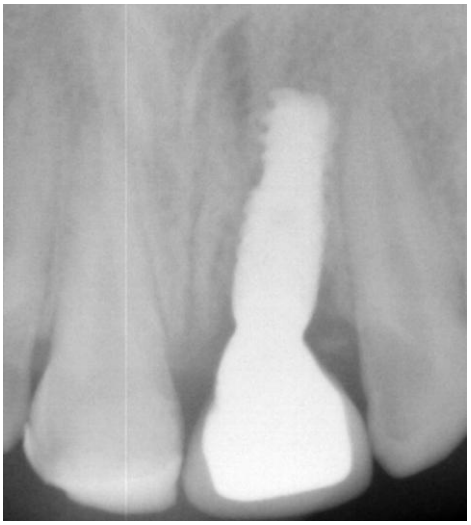

Fig. 4: Intraoral periapical radiograph showing Final prosthesis on custom abutment

## III. Discussion

This case report describes the treatment of a buccally placed implant in maxillary anterior region. Placement of an endosseous implant in anterior esthetic zone require careful diagnosis and treatment planning.

A number of procedures for restoring a malposed implant have been previously reported in literature. These included the use of prefabricated angulated abutments, customized abutments and UCLA type abutments.[5]

Surgical procedure such as sub apical osteotomy and segmental osteotomy are reserved for severe mal-positioning. These procedures enhance the ease for restorability of the definitive prosthesis.

The ideal position of two-stage implant is similar to the ideal bone level after natural tooth is loss, which is about 2 mm below the Cementoenamel Junction of the adjacent natural tooth. But sometimes on the basis of the availability of the bone for placing implant, surgical phase is done against the ideal protocol which makes the prosthetic phase challenging for the prosthodontist.[7]Also, after final restoration the abutment should be able to transfer the forces along the long axis of the implant body.

The cases like this can be easily managed by the custom abutment as described in this clinical case report, which in turn helps to achieve the proper esthetics, optimal emergence profile and function.

## IV. Conclusion

Most of all the patient have a sensitive response regarding the missing anterior teeth then the missing posterior teeth.

Anteriortoothlossusuallypromisesidealbonevolumeandpositionforproperimplantplacement.Implantdiameter,compared with that of natural teeth, results in challengingcervical esthetics.[8] To overcome this problem the customized abutment is used. In spite of facing problems in restoring it a single tooth anterior implant it is the treatment of choice to replace a missing anterior maxillary tooth**.**

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