

# Management of Narrow Edentulous Space of Two Missing Teeth in Maxillary Aesthetic Zone Using Implant as Abutment with a Cantilevered Tooth - a Case Report

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**Abstract** The need for replacing missing teeth is obvious when comes to anterior segment of the mouth. The use of implants with single crowns may not be always successful in replacing two missing teeth in an insufficient edentulous span. Hence use of single implants with two splinted crowns with a cantilevered tooth is critical for the success of the treatment. This clinical report deals with the treatment using a single implant in management of replacing two missing teeth in a narrow edentulous space in a patient with generalized crowding.

**Keywords:** *implant, cantilever, splinted crowns*

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## 1. Introduction

The need for replacing missing teeth is obvious to the patient when the edentulous space is in the anterior segment of the mouth, but it is equally important in the posterior region [1]. Implant placement and restoration to replace missing teeth in the esthetic zone is an especially challenging area for the clinician, particularly in sites with deficiencies in soft tissue or bone. Preservation or creation of a soft tissue scaffold needed to create the illusion of a natural tooth is often challenging and difficult to achieve [2,3]. The purpose of this paper is to report a case where replacement of two missing teeth was done by using single implant with two splinted crowns with a cantilevered tooth.

## 2. Case Report

A 27 year old lady reported with a complaint of missing lateral and canine in the upper left anterior region of the jaw. On clinical examination she had class-I molar relation with crowding in anterior region. On radiological examination (CBCT Maxilla) we determined that the mesiodistal space is insufficient to place two implants. Sufficient bone width and height were present in between missing 22 and 23 with a bone defect in mid labial cortical plate [Figure 1]. A diagnostic wax up was made to evaluate the final outcome [Figure 2 a & Figure 2 b]. Finally we decided to perform placement of a single implant in between 22 and 23 with the correction of bone

defect using bone graft and in rehabilitation, a bridge of 2 units with a cantilevered tooth.

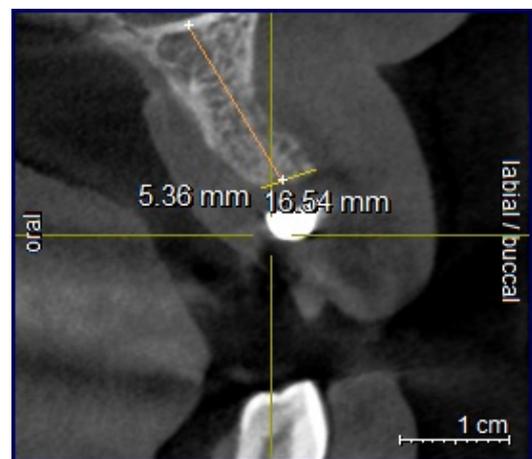


Figure 1.



Figure 2.

### 2.1. Surgical Phase

Blood investigations were evaluated before placement of implant began. Mid crestal incision followed by flap

elevation done in 22, 23 region [Figure 3]. Pilot drill of depth 13 mm was verified by depth gauge. Sequential drilling and bone tapping were done to place 3.8\*13 mm Myriad Plus implant [Figure 4- Figure 7]. Bone defect in mid portion of labial cortical plate was filled with bone graft (Ossifi) covered by collagen membrane (Periocol) and flaps were sutured [Figure 8 a, Figure 8 b, Figure 8 c]. Sutures were removed after a duration of one week.



Figure 3.



Figure 4.



Figure 5.

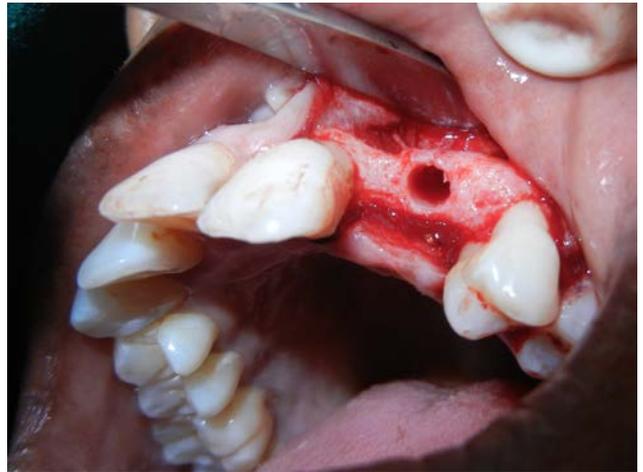


Figure 6.



Figure 7.



Figure 8.

## 2.2. Restorative Phase

After a follow up of 6 months duration, healing cap was placed and sutured [Figure 9 a & Figure 9 b]. Suture removal done after one week followed by taking final impression with rubber base impression material (Aquasil, Denstply) having implant abutment and transfer cap in place [Figure 10 a, Figure 10 b, Figure 10 c, Figure 10 d]. Customized angulated abutment was casted in the lab and metal trial for Porcelain fused metal (PFM) crown was verified [Figure 11 a & Figure 11 b]. After the final fabrication of PFM crown a bisque trial was done to remove interferences and final glazing was done. Final seating of the abutment with the crown was verified with an IOPA. Once seating is verified the abutment was tightened in the patient's mouth with a torque wrench calibrated to 30 N torque. After adequate isolation restoration was cemented with temporary luting cement (IRM) [Figure 12, Figure 13 a, Figure 13 b]. Proper oral hygiene instructions were given. The patient was reviewed after 2 weeks [Figure 14].



Figure 9.

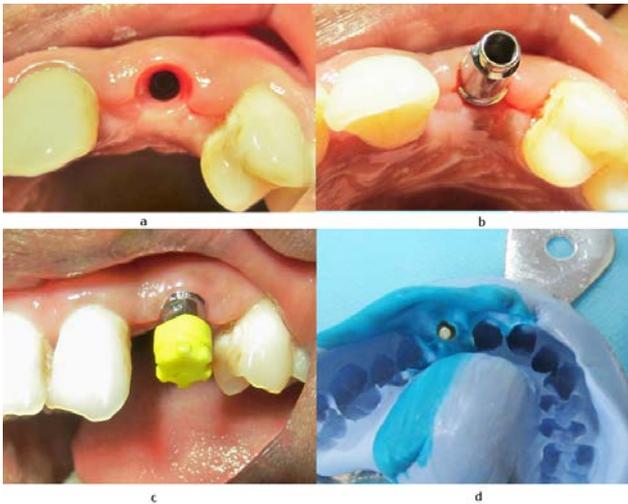


Figure 10.



Figure 11.



Figure 12.



Figure 13.



Figure 14.

### 3. Discussion

The Prosthetic treatment plan is definitely critical for the success of each case of rehabilitation, with the help of diagnostic wax up, we can determine the available space in mesio-distal and interocclusal regions, besides of the size of the teeth to be restored in the edentulous area. According to the study by Tarnow et al compared the presence or absence of papilla between 2 teeth, using the distance from the crest of the bone to the contact point between the teeth [4]. When a distance of  $\leq 5$  mm was achieved, the papilla filled the embrasure space 100% of the time. At 6 mm, the papilla filled the embrasure space 55% of the time; at 7 mm, the papilla filled the space 25% of the time. When an implant was placed adjacent to a natural tooth with  $< 5$  mm between the contact point and the crest of the bone, the papilla was maintained [4]. It appears that the key to maintaining the interdental papilla is the bone level of the adjacent tooth, rather than the interproximal bone level of the implant [5]. In many clinical situations, implants have to be placed with buccal inclinations because of the dictates of bone morphology. This necessitates the use of angled abutments to axially realign abutments and to avoid unaesthetic buccal access apertures [6,7]. In two-stage angulated screw systems, custom castings are usually cumbersome and difficult to fabricate [8]. Prefabricated abutments often do not fit the clinical situation and have weak coping screws. Permanent cementation does not allow for retrievability. However a serious disadvantage if loosening of the abutment implant screw, porcelain fracture, or superstructure fracture occurs [9,10,11,12]. The occlusal equilibration was done with articulating paper in 22, 23 region to minimize the forces in the cantilevered tooth.

### 4. Conclusion

Placing a single tooth implant with a cantilevered tooth in the esthetic zone is a challenging task. This clinical

report discusses the treatment done for restoring missing lateral incisor and canine using a single implant in a narrow edentulous space in a patient with generalized crowding.

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