

IMPLANTS IN THE AESTHETIC ZONE: A CASE REPORT

ABSTRACT:

The predictability of aesthetic success depends on the tissue loss present at the initiation of treatment. Replacement of single as well as multiple missing teeth in the aesthetic zone is challenging particularly when the three dimensional architecture of the existing bone and soft tissue is deficient. The bony housing in this instance would require augmentation to provide a configuration that permits placement of implants in optimal positions which in turn would result in pleasing aesthetics. The purpose of this case report is to evaluate the stability and aesthetics of a single tooth implant placed in the anterior maxillary region with a bony defect through grafting of autogenous bone and use of a growth factor.

KEYWORDS: Single tooth implant, autogenous bone graft, platelet rich fibrin, growth factors

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INTRODUCTION:

Achieving aesthetics with implant restorations is significantly more challenging. Diagnosis and appropriate treatment planning are critical in obtaining a successful outcome. It is not the specific implant design, surface characteristics or type of abutment that will guarantee an aesthetic result. It is rather the time spent on data collection in reaching a correct diagnosis that pays dividends in terms of function and aesthetics.¹

Root form cylindrical implants placed following surgical techniques described by Branemark et al. have proven to be a predictable method for anchoring replacement teeth to

the jaw bone.^{2,3}

The successful integration of an implant is not sufficient to declare success; implants placed in poor restorative positions result in unaesthetic restorations that provide little satisfaction for the clinician or the patient. The predictability of the aesthetic outcome of an implant restoration is dependent on many variables including:

- 1) Patient selection and smile line
- 2) Tooth position
- 3) Root position of the adjacent teeth
- 4) Biotype of the periodontium and tooth shape



Figure 1 Clinical examination revealing missing maxillary left central incisor



Figure 2 Radiographic examination revealing inadequate ridge height



Figure 3 Mucoperiosteal flap elevation of bony defect



Figure 4 Autogenous bone graft being harvested from the symphysis menti region



Figure 5 Harvested autogenous bone graft



Figure 6 Bony defect over maxillary central incisor region being grafted with autogenous bone



Figure 7 Donor site of autogenous graft sutured



Figure 8 Platelet Rich Fibrin derived from patient's blood to aid as growth factor



Figure 9 Formation of bone at site of missing tooth grafted with autogenous bone



Figure 10 Implant Surgery performed at grafted site



Figure 11 Implant placed and site sutured



Figure 12 Implant placed along with cover screw



Figure 13 Crown given after 5 months

5) The bony anatomy of the implant site

6) The position of the implant.

CASE REPORT:

A 35 year old male businessman presented to the outpatient department of the department of Periodontology and Oral Implantology of Sri Guru Ram Das Dental College, Amritsar with a missing left maxillary central incisor due to trauma.

General physical examination: Extra oral examination of the patient revealed no gross physical deformities, no extra oral swelling, sinus formation or any asymmetrical features of the face.

Intra oral examination: Intra oral examination of the patient revealed missing maxillary left central incisor. Clinical examination of the alveolar ridge revealed that it was of inadequate width as well as height. No other deformities of the oral cavity were seen.

Radiographic examination: Radiographic examination of the patient was done through orthopantomograph (OPG) and it was ascertained that the alveolar ridge height in the region of left maxillary central incisor was inadequate and ridge augmentation would be performed.

Lab investigations: Lab investigations of the patient revealed normal leukocyte count with normal clotting and bleeding

time and haemoglobin also within normal range.

Discussion: Both clinical and radiographic examination of the patient's maxillary left central incisor region revealed inadequate dimensions for placement of implant. So in this case it was decided to go for grafting of the bone at the site of the missing tooth so as to provide adequate primary stability to the implant.

It was decided upon autogenous bone grafting in this case. Autogenous bone grafting was first pioneered by Hegedus in 1923⁴. The main sites for procuring an autogenous graft are ramus of mandible, symphysis region, edentulous sites, healing extraction wounds, and also regions where osteoplasty and osteotomy has been performed^{5,6}.

Although various studies have shown that intra oral grafts from the mandibular ramus region are more successful as and have less complications as compared to other areas, but grafts from the symphysis region are easy to procure^{7,8}.

During procedure, a crestal incision was given at the site of the maxillary left central incisor and consequently a mucoperiosteal flap was raised. This revealed that a bony defect was present over the buccal plate which required a graft.

For this purpose, a block was harvested from the symphysis area of the mandible and grafted over the defect along with platelet rich fibrin derived from the patient's own blood to serve as a growth factor⁹.

The area was then sutured up and patient recalled after 1 month. After 2 months the grafted site was evaluated and evidence of bone formation was found.

It was then decided to place an implant in the region with the newly formed bone. The implant when evaluated after a period of 5 months was found to have adequate primary stability when percussion test was done. In light of stable placement of implant in the left maxillary central incisor region it was decided to place a crown and complete the restoration.

When evaluated according to Kois's criteria for aesthetic restoration, it satisfied all the requisite conditions¹⁰.

CONCLUSION:

When a patient has a missing anterior tooth and desires replacement some choices for the patient include a conventional fixed partial denture, a resin bonded fixed partial denture or an implant borne restoration. Implants used to replace missing teeth in the aesthetic zone have many advantages from preservation of unrestored adjacent teeth, halting the resorption of edentulous spaces and providing support. At present it has the disadvantages of long

treatment time, requiring a provisional restoration during implant integration, requiring surgical placement of the implant, requiring surgical uncovering of the implant, requiring a provisional restoration after the implant is uncovered and having a higher cost. But in spite of these disadvantages when one or more of the adjacent teeth are unrestored or in need of only a minor restoration, the single tooth implant should be considered the restoration of choice.

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