Case Report

Management of Alveolar Defect with One-Piece Implant and Index of Gingival Porcelain Shade Selection in a North Indian Youth

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Abstract

Esthetics is a prime demand for patients who seek anterior replacement of missing teeth. Resorption of the alveolar bone of the edentulous area occurs if left untreated for a long time. It further leads to thinning of the labial cortical plate in the maxillary arch. Few other reasons for narrowing of the alveolar crest are anatomic such as congenitally missing teeth and pathologic, that is dental trauma from tooth avulsion. Nowadays, patients always look for a fixed alternative for the restoration of missing teeth. Other than a conventional fixed partial denture, dental implants are the first choice of treatment. It is one of the difficult tasks for the clinician as well as the dental technician to meet the expectation of the patient when the ridge defect is present in the edentulous area. Extensively invasive procedures such as guided bone regeneration for correction of alveolar defects lead to prolong treatment time and induce psychological trauma to the patient.

Keywords: Gingival porcelain, one-piece implant, ridge defect

INTRODUCTION

Application of gingival porcelain can avoid extensive surgical procedure to rehabilitate missing soft and hard tissues. Artificial gingival restorations are better repair tools for managing maxillofacial defects and compensates for the present alveolar defects. Significantly, better esthetics results can be achieved by utilizing gingival porcelain.

This case report describes the use of currently available gingival porcelain to meet the esthetic demands and avoid unnecessary two surgical procedures guided bone regeneration (GBR) and further implant placement.

CASE REPORT

One male patient aged 31 years reported to the Department of Prosthodontics and Crown and Bridge with a chief complaint of missing right lateral incisor (12) since 3 years back [Figure 1a]. The patient presented with a history of extraction of 12 for carious broken tooth and did not get it replaced.

After clinically examining the edentulous segment (12), it was found that the dentoalveolar defect was not that pronounced; however, there is a thinning of labial cortical plate. The tissues were in a clinically healthy state; hence, there is no point of going for a GBR procedure before implant surgery. Tissue deficiencies often needed bone augmentation procedures, which use a simultaneous or staged approach to regenerate lost volumes of bone for adequate implant placement.[1]

Reported ridge defect was classified according to the Seibert’s nomenclature.[2] When an intraoral clinical examination carried out, it was noted that the edentulous segment was not severely resorbed. Minimal deformity can be observed, and that is why it falls into Seibert’s class “n” category.

Hereinafter, we finally develop a treatment plan to first, perform an implant surgery in a conventional manner [Figure 1b]. Consequently, after 3 months of the healing period, the patient recalled for the restorative procedure. All the merits and demerits of the treatment explained to the patient and informed consent taken.

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A diagnostic impression for the maxillary and mandibular arch then made. Further, the diagnostic wax-up has been shown to the patient for simulation purposes. After getting the complete blood profile of the patient, the cast was sent to the laboratory for stent fabrication. Radiographic evaluation of bone height and bone-mapping procedure has followed to get the width of the existing bone. Thereafter, it was decided to place a one-piece implant (ADIN DENTAL IMPLANT SYSTEMS LTD, One™) which was indicated in the maxillary lateral incisor (12) region. After completion of the surgery, postoperative instructions were given to the patient, and prophylactic antibiotics and anti-inflammatory drugs have prescribed. The patient recalled after 7 days for suture removal.

After the recommended healing period, the patient turned up for further restorative procedures. First, we exposed the implant-abutment region (12) with electrocautery. Then, minor preparation of the abutment done by the high torque rotary handpiece, as in a one-piece implant, the abutment continues with the body of the fixture. In the meanwhile, provisional restoration in the right maxillary lateral incisor region fabricated. Little amount of pink acrylic (Lucitone 199, Dentsply international) has been used to cover the ridge defect. The extension margins with pink acrylic were smoothened and polished so that it should not impinge the underlying tissues. After that, it was tried inside the patient’s mouth for verification of marginal fit and occlusion, then cemented using a temporary luting agent (Temp-Bond Kern) [Figure 1a].

The final impression was made using polyvinyl siloxane material (Aquasil Dentsply) and send to the laboratory [Figure 2a]. The mandibular impression was made using alginate impression material (Neocollloid, Zhermack) and bite registration (Zhermack Occlufast Rock) taken for the same. It was planned to give porcelain fused to metal (PFM) crown with gingival pink color porcelain extension to cover the alveolar defect. Coping trial performed and utmost care has given to shade selection so that the final prostheses should be esthetically acceptable [Figure 2c].

Bisque trial has been done inside the patient’s mouth, and the patient consent was taken before the final cementation of the prostheses. After performing all the necessary adjustments for occlusion and adaptation of the definitive crown, the final cementation was done with self-adhesive resin cement (3M ESPE Rely X™ U200) [Figure 2d].

**DISCUSSION**

Replacing an anterior tooth is one of the difficult tasks for the dentist to achieve due to patient’s high esthetic demand. Alveolar bone resorption after tooth loss is an unavoidable outcome. Several studies state that there is a high incidence of residual ridge deformation when bone remodeling takes place. Alveolar ridge resorption enhanced in cases of trauma.[3]

There are lots of many treatment option maxillary alveolar defects. Removable partial dentures (RPD) are the treatment of choice for covering these defects because they provide adequate lip support and simultaneously restoring the lost hard- and soft-tissue support.[4] Although RPD is not the first choice of treatment for patients whose esthetic and functional demands are high.[5] Conventional bridges are other options for replacing missing teeth due to its reduced treatment time.[6]

Some authors have also suggested Andrew’s bridge for anterior tooth replacement, but due to its removable segment, the prostheses becomes uncomfortable to the patient.[7-9]

In a current scenario, dental implants are considered to be the most viable treatment option for better functional as well as the esthetic requirement of the patients.[10] Nowadays, one-piece implants with transmucosal abutments are the clinician’s choice for replacing maxillary incisors areas. Due to its ease of placement and hygiene maintenance studies in the literature suggested for restoring minor ridge defects in the maxillary anterior region. The authors have concluded that flapless implant placement and providing an immediate temporary crown in situations involving the maxillary anterior region represents a viable treatment modality in suitable
understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest
There are no conflicts of interest.

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