

Management of Missing Second Premolar & First Molar with Conventional Implant

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ABSTRACT

Implant therapy is today widely regarded as a reliable treatment option to replace missing teeth, both for function & esthetics.⁹ Dental implant may be used to replace single teeth or multiple teeth. This topic focuses on the placement of dental implants in lower posterior region of jaw to enhance the masticatory forces. This article describes a case report of rehabilitation of missing Mandibular³ left second premolar & first molar using conventional implant. A 50-year-old female patient with missing teeth in left lower second premolar & first molar, reported to BHANAWAT DENTAL & COSMETIC CLINIC, Udaipur. The edentulous ridge was measured. The² adjacent teeth were vital, free from caries & fillings. Radiographic evaluation showed the feasibility of implant placement in the edentulous site.² The implant screw retained crown was used.

Keywords: Missing mandibular second premolar & first molar; Implant supported single crown; Screw retained crown.²

INTRODUCTION

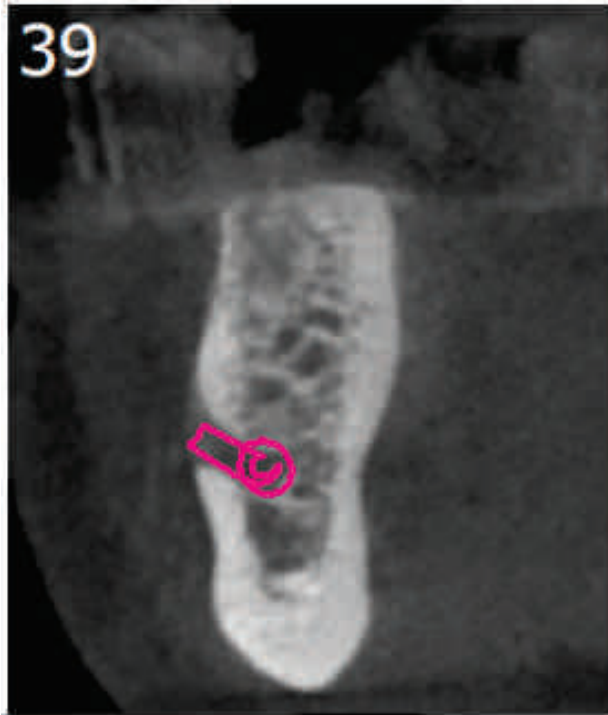
For many years, conventional implants were considered to be the best treatment option for the replacement of missing single tooth.⁸ As ideal treatment approach should be less invasive.² Placing dental implants in the esthetic zone is considered to be the ultimate challenge for many dentists & professionals aimed at creating an implant-supported restoration that replicated natural teeth.⁷ Implant supported restorations is widely proclaimed in the literature. In addition to its high success rate, it leaves the adjacent teeth untouched. Successful use of dental implants depends on optimal conditions of peri-implant tissue around it.² Ideal tri-dimensional positioning of dental implants requires adequate edentulous ridge with sufficient bone thickness. In fact, it has numerous advantages, including preservation of circulation, soft tissue architecture, and hard tissue volume at the site; decreased surgical time; improved patient comfort; and accelerated recuperation.⁵ It offers the potential for higher passivity placement of the crown.³

CASE REPORT

A 50 years old female patient reported to Bhanawat Dental & Cosmetic Clinic with chief complaint of mobile teeth in left lower back region of jaw since 2 years because of that she was having difficulty in chewing food. The first treatment step was careful extraction of lower left second premolar and first molar. The adjacent teeth were vital, free from caries and fillings with a suitable crown volume and height.³ On clinical examination, we planned implant placement in posterior region. All routine blood investigations were prescribed which were normal with negative HIV, HbsAg and HCV. Radiographic evaluation cone beam computed tomography (CBCT) showed the feasibility of implant placement in edentulous site.³ Bone height from crest of alveolar bone to mandibular canal in second premolar region is 12.4mm and width 7.2mm. So, we planned 4x10mm osstem implant & in first molar region

bone height from crest of alveolar bone to mandibular canal is 10.6mm and width 8.3mm. So, we planned 4x8.5mm osstem implant. It revealed thick compact bone and adequate trabecular bone of type 2 quality in the premolar and molar area

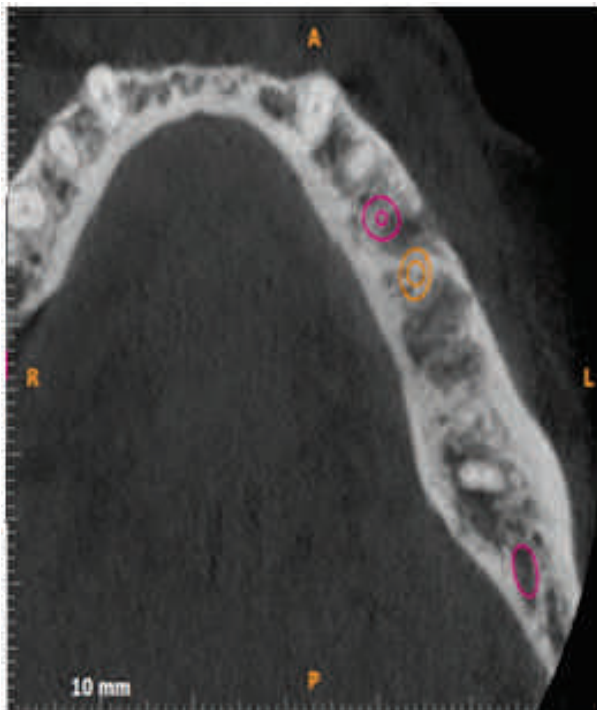
based on the classification of Lekholm and Zarb.² After routine oral prophylaxis, administration of local anaesthesia with a 2% Lidocaine hydrochloride solution containing epinephrine in left inferior alveolar nerve.³



Edentulous area of 35 region



Edentulous area of 36 region



Axial view



Stimulated implant

Full thickness incision was made on crest of edentulous ridge and the flap was raised, bone width was measured.¹ For implant placement sequential osteotomy were drilled with different bur given in implant kit. Parallel sided, threaded, rough surface implant was then placed, and primary stability was achieved. Cover screw was placed on top of the implant (Figure 1) and flap was closed with silk 3.0 suture.¹ Appropriate Antibiotics(Amoxicillin 500mg + clavulanic acid 125mg) TID x 5 days and Analgesics (Diclofenac 50mg + Paracetamol 325 mg + Serratiopeptidase 15 mg) BD x 3 days were prescribed and post-operative instructions were given. Patient was recalled after one week for suture removal. During healing period, patient does not express discomfort or neurological symptoms.

After sixteen weeks of osseointegration period we placed neck & removed the cover screw. Osseointegration was excellent, and no bone resorption was seen around the implant in

radiograph.³ Then the healing abutment of 4.5x 4mm on each implant was placed. After one week of placement of healing abutment we remove healing abutment & two transfer coping were placed (Figure 2) followed by Additional silicon, open tray impression to capture the position of implant. The impression coping was removed, healing abutment was replaced & shade was also recorded. The case was then sent to the laboratory for temporary crown and custom abutment fabrication.¹

Final restoration was delivered at 18th week after implant placement.¹ The temporary crown was removed and the final crown was then tried in (Figure 3). The proximal contacts and occlusion was checked. The patient was very much satisfied with the final esthetic and functional outcome.¹ Patient is recalled every 6 months in first year and every 12 months in subsequent years.³

Implant placement and radiological evaluation of Osseo-integration

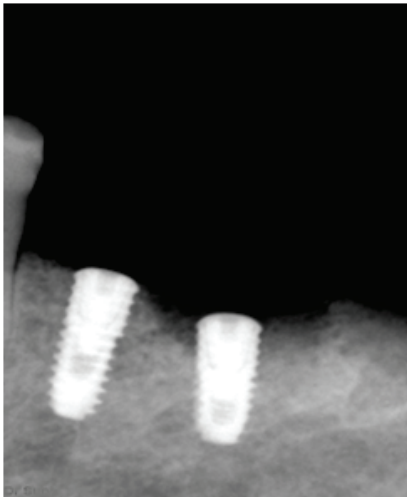


Figure 1 :
Implant with cover screw.

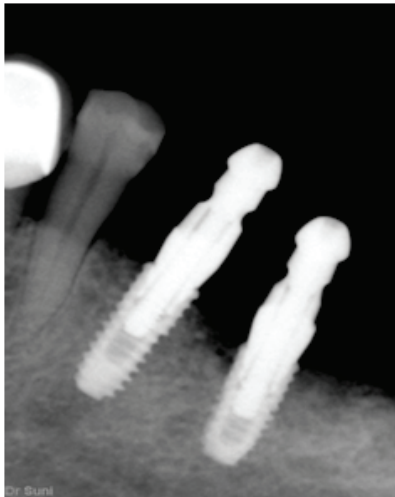


Figure 2:
Implant with transfer coping.

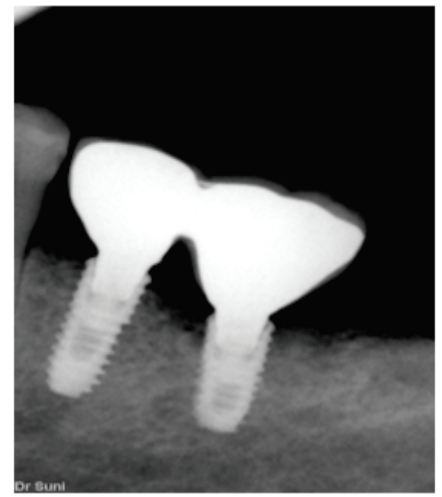


Figure 3 :
Final restoration
(Screw retained bridge)

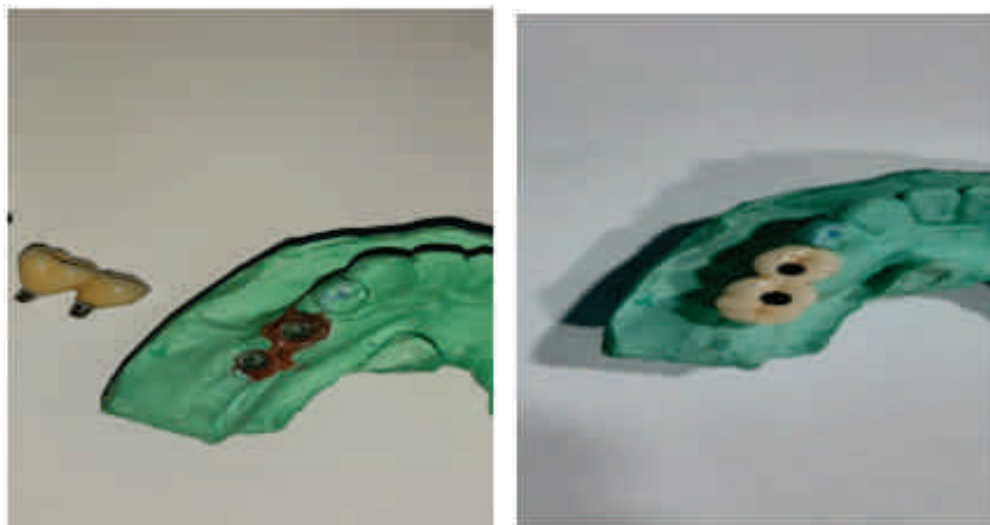


Figure 4 : Laboratory procedure

DISCUSSION

The use of dental implants in the rehabilitation of missing teeth after extraction has become well established and accepted contemporary method. There are many benefits of fixed dental implant- supported prosthetics versus traditional crown and bridge or removal tooth-borne prosthetics. Maintenance of residual bone, ease of oral hygiene increased longevity.⁴ This technique has numerous advantages, including preservation of circulation, soft tissue architecture , and hard tissue volume at the site , decreased surgical time ,improved patients comfort. It also allows the patient to resume normal oral hygiene procedures immediately after the surgery.⁵ Unless the position of the final prosthesis is visualized prior to the surgery the placement of dental implants may not allow the desired end result to be achieved.⁴

Alternate treatment modalities to our treatment plan included removal partial denture, fixed partial denture and resin bonded bridges. Removal partial dentures while option can contribute to the loss of alveolar bone on both abutment and non-abutment teeth along with that the dissatisfaction rate of removal partial dentures is high. Fixed partial dentures would require unnecessary destruction of adjacent teeth to prepare them as abutment and loss of pristine tooth structure. Another option would be resin bonded bridge, which would reduce the amount of adjacent tooth destruction but with high incidence of pontic failure and debonding.¹

The approach has some drawbacks including lack of proper drilling depth assessment and inability to correct peri implant defects because they are not exposed during surgery.

CONCLUSION

Placing dental implant in the mandibular posterior region requires precise planning, surgery and prosthetic treatment.⁴ The screw-retained prosthesis was originally more popular because its simplified retrieval of supra structure it has become well established and accepted contemporary clinical method.³This case report has discussed the importance of the comprehensive and interdisciplinary approach to treatment planning, surgery, and restoration of dental implants in mandibular posterior region of mouth.⁴

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