

Dental Implants: A Novel way to Replace Missing Teeth

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ABSTRACT

A dental implant is an artificial tooth root replacement and is used to support restorations that resemble a tooth or group of teeth. Although a removable prosthesis or fixed bridge restoration is a viable treatment option in certain situations, many feel the most natural method to replace a tooth is to use an implant. This article presents a series of dental implant surgery cases restoring the edentulous areas where the removable prosthesis proved ineffective in providing comfort to the patient during function.

Key Words: *Dental implants, Missing tooth, Conventional implants, Fixed restoration, Implant-supported prosthesis, Tooth loss*

INTRODUCTION

A dental implant is an artificial tooth root replacement and is used to support restorations that resemble a tooth or group of teeth^[1]. The first Osseointegrated titanium implant was inserted into the human jaw by Brånemark in 1965^[2,3]. Since then numerous advances have been made which has made the implant treatment a predictable success. End Osseous implants, like natural teeth, protrude through the oral mucosa, establishing a transmucosal connection between the oral cavity and the inner part of the body. This form of restoration is gaining popularity. Implant-supported prostheses have been used for fully edentulous, partially edentulous, and single-tooth implants. Surgical and restorative approaches for implant prostheses have greatly improved in the past 40 years^[4].

In the past, the conventional choices to replace a missing tooth were Fixed Partial Denture (FPD) and Removable Partial Denture (RPD). The primary reasons for suggesting the FPD were its varied clinical applications and reduced treatment time. A removable prosthesis being inexpensive and requiring less number of visits and chair time, however, has been completely surpassed by the upcoming fixed treatment modalities. Although fixed bridge restoration is a viable treatment option in certain situations, but the most natural method to replace a tooth is to use a dental implant, rather than preparing and sacrificing adjacent tooth structure for supporting a prosthesis^[5]. The primary reason to suggest or perform a treatment should not be related to treatment time or ease or difficulty of the procedure, but should be considered the best possible long-term solution for each individual.

Implant supported prosthesis allows normal muscle function and also simulates the tooth root form. They are retentive and stable without the efforts of the musculature, unlike a removable prosthesis.

Today, partially edentulous patients represent the majority of patients seeking treatment with implant supported prostheses. This article presents a series of dental implant surgery cases restoring the edentulous areas where the removable prosthesis proved to be ineffective in providing comfort to the patient during function.

CASE STUDIES

Case#1:

A 42-year-old female patient reported to the outpatient Department of Prosthodontics, Santosh Dental College and Hospital, Ghaziabad, with a chief complaint of ulceration in the lower jaw and difficulty in eating. She presented with missing mandibular right and left first molars and wore removable prosthesis with respect to the same since 6 months. The antagonist teeth were fixed natural teeth. The treatment plan called for restoration of mandibular right and left molars with a fixed prosthesis since present removable prosthesis were posing problems for the patient. After various clinical and radiographic investigations, placement of conventional dental implants was selected as the final treatment option. The implant diameters and lengths were determined using both radiographs and a bone caliper that engaged the facial and lingual bone. Following proper surgical protocol, the implants were then placed. Postoperative radiographs were taken. The patient was then followed up about a week after surgery and thereafter at 3 and 6 months after surgery.

Radiographic examination confirmed that the implants were well integrated. The soft tissue around the cervical margins was firm and healthy in appearance. Direct impressions were recorded with addition silicone impression material. Inter-occlusal bite registrations were taken, and the impressions were sent to the laboratory for fabrication of a ceramic-metal fixed prosthesis. Three-and-a-half months after implant placement, the final restorations were placed.



Fig. A: Edentulous site in mandibular right first molar region



Fig. B: Cemented metal ceramic implant-supported prosthesis



Fig. C: Post-operative x-ray of the implant-supported prosthesis



Fig. D: Edentulous mandibular left first molar region



Fig. E: Cemented metal ceramic implant-supported prosthesis



Fig. F: Post-operative x-ray of implant-supported prosthesis

Case #2:

A 35-year-old male patient presented with missing mandibular right and left first molar. The patient was not satisfied with his existing removable prosthesis and demanded a fixed treatment. A treatment plan was formulated and called for placement of implant supported prosthesis on both sides.

Under local anesthesia, osteotomy was carried out on the both sides on the same day and implants were placed. Postoperative radiographs were taken. The patient was then followed up about a week after surgery and thereafter at 3 and 6 months after surgery.

After 3 months, radiographic examination confirmed that the implants were well healed; an impression was made with addition silicone material and sent to the laboratory for fabrication of metal-ceramic restorations. Three days later, the final restoration was delivered and checked for marginal integrity, fit, and occlusion.



Fig. A: Edentulous mandibular right first molar region



Fig. B: Metal ceramic implant supported prosthesis



Fig. C: Post-cementation x-ray of integrated implant



Fig. D: Pre-operative image of the edentulous site in mandibular left first molar region



Fig. E: Cemented implant supported prosthesis



Fig. F: Post-operative x-ray of the implant supported prosthesis

CONCLUSION

Advances in technology have altered our treatment philosophy for the replacement of missing teeth. Replacing missing teeth using dental implants is a good treatment option with a high degree of success. Also the adjacent teeth are not prepared as in FPD, thereby making them susceptible to sensitivity and later decay. Therefore, implant dentistry has become an optimum treatment option for the dentist to provide high cosmetic and functional prosthesis to the patients.

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