



Case Report

Implant supported overdenture: A case report

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ABSTRACT

Edentulism has been a long standing concern in the field of dentistry. Implant supported overdentures has been proved to be one of the best option in prosthetic rehabilitation of various cases of edentulism and satisfies patient's expectations, improve quality of life with their long term serviceability and predictable outcomes. There are many practical advantages of the implant supported overdentures over conventional complete dentures and removable partial dentures. These advantages include decreased bone resorption, reduced prosthesis movement, better esthetics, improved tooth position, better occlusion, increased occlusal function and maintenance of the occlusal vertical dimension. The implant supported overdenture is much simpler, affordable and minimally invasive procedure to treat majority of the patients. In this current case report discussed the management of complete edentulous patient with implant supported overdenture is discussed.

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1. Introduction

The transition of a patient from a dentulous to an edentulous state imposes various challenges to a patient as well as clinician, especially in mandible where bone resorption is crucial to be considered while prosthodontic rehabilitation. Implant supported overdentures has been proven to be an effective alternative as they have many beneficial effects like preservation of bone volume, improved retention, stability, function, proprioception and comfort. An implant supported overdenture is a type of overdenture that is supported and attached to implants differing from the regular denture that rests solely on the gingiva.¹ Randomized and non-randomized clinical trials with the observation period from six months to nine years have confirmed better performance of implant supported overdenture to conventional removable prosthesis.² They provide facial support, and are relatively simple to construct. They restore both the dental and alveolar tissues and are esthetically more satisfactory.

Implant-supported overdentures increase patient satisfaction and quality of life. It has been suggested that an overdenture with 2 implants is the first choice of treatment in the edentulous mandible.³ Ball attachments, magnetic attachments, bar attachment systems, and telescopic crowns have been used to anchor the overdenture. Among these systems, bar attachment system has the greatest retention overdentures aid to provide better comfort and long term serviceability to the patient.⁴ This case report depicts a step by step procedure in which a team approach was undertaken to meet up the expectations of the patients to provide a highly functional and esthetically promising implant retained maxillary and mandibular overdenture.

2. Case Report

A 66 year old male patient reported to prosthodontics department for replacement of missing teeth in both the upper and lower jaws. His dental history included extraction of the periodontally involved teeth 5 years back. Clinical examination revealed completely healed maxillary and

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mandibular edentulous ridges. Edentulous Maxilla and edentulous Mandibular ridge exhibited a moderate degree of alveolar ridge resorption and the Overlying mucosa was healthy and normal. Temporomandibular joint examination was found to be normal. Orthopantomograph was advised to evaluate bone availability and architecture. The inter-ridge distance was assessed. Routine blood examination revealed no abnormal findings. Advantages and disadvantages of different treatment options were discussed and patient was convinced for an implant supported overdenture for maxillary and mandibular edentulous arches.

2.1. Treatment Procedures

2.1.1. Denture fabrication

Primary impression was done and primary cast was retrieved. Special tray was fabricated on primary cast. After border molding, secondary impression was taken and master cast was retrieved. Waxocclusal rim was fabricated and Jaw relation was taken. Facebow was recorded and transferred on Hanau wide-view articulator. Wax-up Teeth arrangement and try-in done. Denture curing, finishing polishing and denture insertion was done. Patient was recalled periodically for follow-up. Patient was fully satisfied with both upper and lower dentures. Patient was recalled for implant placement. (Figures 1, 2, 3, 4 and 5)

2.1.2. First stage surgery (Implant placement)

Two alfabio ICE implants were placed in maxillary arch and two alfabio ICE implants were placed in mandibular arch according to standard protocols. (Figures 6, 7 and 8)

2.1.3. Second stage surgery and loading

After 4 month period of implant placement, second stage surgery was planned. Gingival former was placed during second stage surgery for 1 week. Male attachment was tightened on all implants placed on maxilla and mandible. Latex glove separator was placed on male attachments and housing with o ring placed above it. Sufficient relief was made on the impression surface of both dentures. Auto-polymerizing resin was mixed and o ring with housing was picked-up on both dentures. During pickup both dentures were closed in centric relation. After occlusal adjustment, post insertion and oral hygiene instructions was given to patient. During 6 month follow-up period patient was satisfied with form, function and esthetics. (Fig. 9-13)

3. Discussion

The complete denture patients frequently report problems with oral function, typically caused by retention and stability problems of the mandibular prosthesis. An alternative to the conventional denture would be implant supported fixed bridges, hybrid prosthetic dentures and removable overdenture prosthesis. In this case report patient

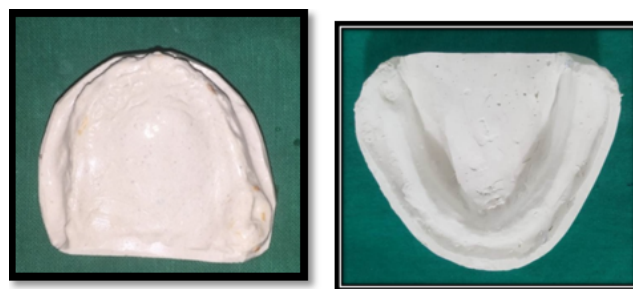


Fig. 1: Maxillary and mandibular diagnostic cast



Fig. 2: Pre- Operative Orthopantomograph

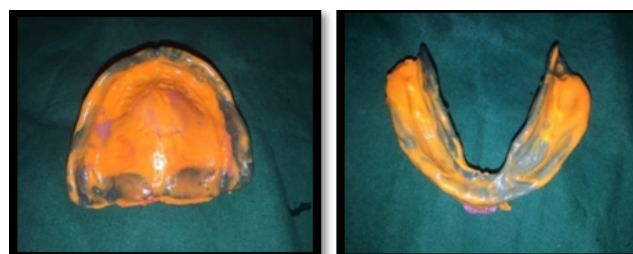


Fig. 3: Border moulding and secondary impression

was not satisfied with the retentive qualities of denture so Implant supported overdentures was planned as it proved to be the most efficient of all. Oral function improved after providing maxillary and mandibular implant supported overdenture. Crum and Rooney have found that the reduction in the anterior part of the mandible in those patients wearing complete upper and lower dentures amounted to 5.2 mm as compared to 0.6 mm for the overdenture patient.^{5,6} Implant supported overdenture patients not only enhances overall satisfaction and nutritional status, but also eases the fabrication and cost effectiveness over conventional removable prosthesis.⁷⁻¹²



Fig. 4: Facebow record and transfer



Fig. 5: Denture insertion

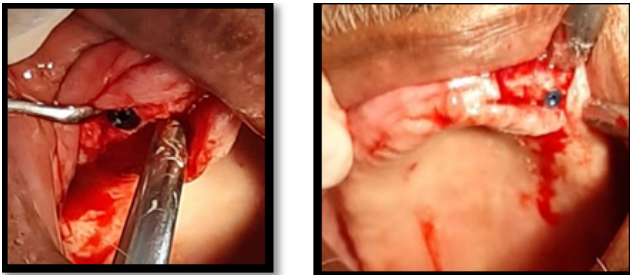


Fig. 6: Implant Placement Maxillary



Fig. 7: Implant placement Mandibular arch



Fig. 8: Post operative implant placement orthopantomograph



Fig. 9: O ring attachment

4. Conclusion

This clinical report described the successful management of edentulous patient with implant supported overdentures with stud attachment technique. It can become an excellent and profitable addition to every prosthodontic practice. Implant dentures provide the benefits of improved esthetics, phonetics, bone preservation, comfort, all resulting in an improved quality of life for the patient. These restorations



Fig. 12: Check for occlusion



Fig. 13: Post-op view



Fig. 10: O ring attachment in mandibular arch and housing



Fig. 11: Pick-up

exhibit high implant and prosthesis survival rates and a limited incidence of any complications making them a treatment of choice for edentulous patients.^{11,12}

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6. Conflict of Interest

The authors declare they have no conflict of interest.

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