

Case Report

An Economical Approach to an Implant Supported Overdenture - A Case Report

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ABSTRACT

The aim of this study was to ascertain whether simplifying mandibular overdenture treatment by using single-stage surgery and immediate prosthetic loading of a single implant will achieve acceptable implant success rates, functional improvement, and increased patient satisfaction.

Introduction

Demographic growth, in absolute numbers, is projected to outpace the decline in edentulism. Hence, the need for dentures will not diminish over the next quarter century, and those in need of dentures are most likely to be among society's poorest and under privileged. With prolonged life expectancy, chronic illness is the major health care problem in society. Consequently, management rather than the curing of a chronic disorder is the primary challenge facing all health care professions. Edentulism is a chronic condition and therapy is palliative, aimed at improving function and quality of life. Dentures -compensation for edentulism, but function and retention of dentures have always been a challenge for the dentist especially in the mandibular arch.

Many denture wearers suffer substantially from chronic dysfunction, pain, low self-esteem, and

reduced quality of life. For these patients, dentures supported by implants would offer relief, comfort, and optimism, especially if in the mandible.

Dentures have been a source of compensation for edentulism, since time unknown, but the function and retention of dentures have always been a challenge for the dentist especially in the mandibular arch. To overcome the limitations of the conventional denture, mandibular dentures retained or supported by two or more implants have been developed researched and been used.

Why single ?

However, because of the treatment costs of this standard implant therapy, many patients cannot afford treatment with multiple implants or are not willing to



Fig. 1.1

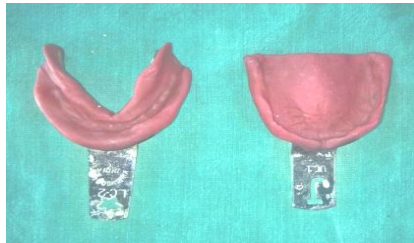


Fig 1.2 Primary Impression

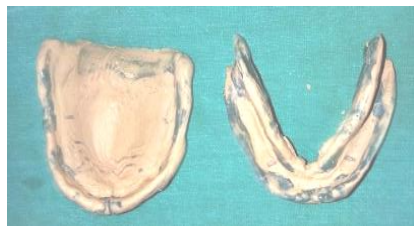


Fig 1.3 Secondary Impression

accept necessary bone augmentation procedures. What if the single implant can provide the sufficient/acceptable retention?? literature suggests that single median implant can retain a mandibular overdenture well for up to 5 years without the implant ailing/failing. The purpose of this case presentation was to ascertain the improved function retention and patient's satisfaction by a single implant retained denture compared to his old conventional dentures.

Case Report

A completely edentulous patient reported to the department of prosthodontics, AL BADAR rural dental college and hospital, Gulbarga, with old dentures complaining of ill fitting instability, sores, and poor phonetics.

Patient was advised for implant supported lower denture with 4 implants. But because of the poor economical conditions patient denied the same.



Fig 1.4 Try in



Fig 1.5 final conventional denture trial



Fig 1.6

Considering patients economical condition, he was advised to go for single implant retained mandibular overdenture. A complete denture construction was done with the conventional method.

Before placement of the implant all the investigations were done. Pre surgical OPG and IOPA of the mid symphysis region was done for investigation of the quality of the bone and presence of any unwanted pathology. Implant size - 3.5mm × 10mm. (bone mapping and OPG). Implant insertion was done under local anaesthesia and was placed 0.5 mm submerged to avoid crestal bone loss. The initial stability of the implant ISQ was assessed to 6. Ball attachment of size 4mm was placed for the prosthetic anchorage with rubber o ring and plastic cap.

Patient was limited to a soft diet for 6 weeks and instructed to leave the denture out at night. Chlorhexidine 0.2% mouthwash was employed for 1



Fig. 1.7



Fig. 1.8

week postoperatively. A soft toothbrush was used for plaque control measures after the first week. After 6 months follow up the patient was highly satisfied and happy with the dentures.

DISCUSSION

In general, implant overdentures have a less controlled loading when compared to fixed prostheses. It may be postulated that forces, both axial and lateral, generated by an overdenture on a single implant have the potential to be greater than those produced by a multiple implant-retained overdenture. A recent study by Maeda et al²⁸ examined the biomechanical rationale of a single implant-retained mandibular overdenture using an in vitro model. The model revealed statistically significantly smaller lateral forces to the ball abutments for single- compared to two-implant overdentures with molar loading. A higher load was observed when the denture was loaded in the midline region.

No significant difference in three-dimensional denture base movement was observed between single- and two-implant overdentures in the midline and molar regions. They concluded that overall, the single-



Fig. 2 after 6 month follow up



OPG

implant overdenture had similar biomechanical effects to a two-implant overdenture in terms of lateral forces to the abutment and denture base movements under molar functional loads. However, the authors did stress the in vitro nature of the model and the need for follow-up studies performed in a clinical setting.

CONCLUSION

Within the limitations of this case presentation, it may be concluded that, Single implant retained overdenture is an economical and therapeutic alternative to a conventional mandibular complete denture showing remarkable improvement in oral comfort, function, health of the peri-implant soft tissues, oral health quality of life and also in the preservation of mandibular alveolar bone.

There is a gap between the less fortunate wearing a conventional complete dentures and privileged who can have multiple implant supported complete dentures, in other words there is a group of people who cannot have multiple implants for supporting and retaining a complete dentures but can afford at least one implant to retain their ill fitting conventional denture. Such patients can be treated by with this option

Under favourable conditions, immediate prosthetic loading of a single implant is considered safe and reliable.

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