

IMPLANT-SUPPORTED OVERDENTURE USING BALL ATTACHMENTS IN MAXILLA: A CASE REPORT

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ABSTRACT:

Over conventional dentures, implant supported overdentures are preferable because they enhance patient aesthetics and allow for patient retention, stability, ease and psychological wellbeing. Because of the high success rates and reduced costs, it is usual to treat edentulous patients with just two implants and ball attachments for overdenture retention, rather than four implants and a bar. This paper describes placement of two implants in the maxillary anterior region and a simple chairside method for converting an existing conventional denture into an implant supported overdenture by housing the retentive elements directly into the impression surface of the denture.

Keywords: Implant supported overdenture, Ball attachment, Overdenture.

INTRODUCTION

A patient's transition from a dentulous to an edentulous state presents a number of difficulties for both the patient and the clinician, particularly in the mandible where bone resorption is an important factor to take into account during prosthodontic rehabilitation. Overdentures supported by implants have been shown to be a successful alternative because they have a number of positive effects, including better retention, stability, function, proprioception, and comfort, as well as the preservation of bone volume. Unlike a regular denture, which rests entirely on the gingiva, an implant supported overdenture is a type of overdenture that is supported and attached to implants. Clinical studies using randomised and non-randomized designs and an observation period ranging from six months to nine years have verified that implant-supported overdentures perform better than conventional removable prostheses.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. 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.

CASE REPORT

A 66-year-old male patient came to the department of prosthodontics to replace missing teeth in both the upper and lower jaws. His oral history revealed that two years earlier, he had had undergone extraction of all his maxillary due to periodontal disease.

Clinical examination revealed partially edentulousness of the mandibular ridge and complete healed edentulous maxillary arch. The partially edentulous mandibular ridge had modest amount of alveolar ridge resorption. The maxillary ridge showed severe bone resorption in the posterior region. Different treatment options were put forward to the patient including implant therapy which would be best suited for him. After obtaining his consent the treatment that were decided was implant supported overdenture in the maxilla and tooth supported overdenture in the mandible.

Denture fabrication: First, diagnostic impression of the patient was taken using impression compound. Cast models were poured using dental plaster, and custom trays were then made from those models. These trays were used for border moulding with green low-fusing impression sticks and final impression was made using zinc oxide eugenol. Record bases and wax rims were made on the master cast. A facebow transfer was acquired, the patient's jaw relationship and centric relationship were recorded, and this relationship was mounted on an articulator. The interarch space in the patient, which found to be about 15mm, was measured using this mounting as a diagnostic tool.

The implant locations, size, and diameter were identified using this CBCT and digital imaging software, which also assisted in the planning of the implant treatment.

SURGICAL PHASE

Two Osstem implants of measurement 3.5 X 14mm were placed in maxillary arch Stage two surgery was carried out after a four-month healing period and full osseointegration of the surgical site. In order to enable for the development of a proper gingival collar, gingival formers were put on the implants and left to sit two weeks. After two weeks, the patient was recalled back, and the ball attachments were put in place of the healing abutments.



Fig .1. Pre-operative



Fig .2. Suturing of the implant site.



Fig .3. Two implant placed in the pre-maxilla and two root canal treated teeth in the mandible.



Fig .4. Implants parallelism verification using paralleling pins.



Fig .5. Ball attachment placed after 4 months.

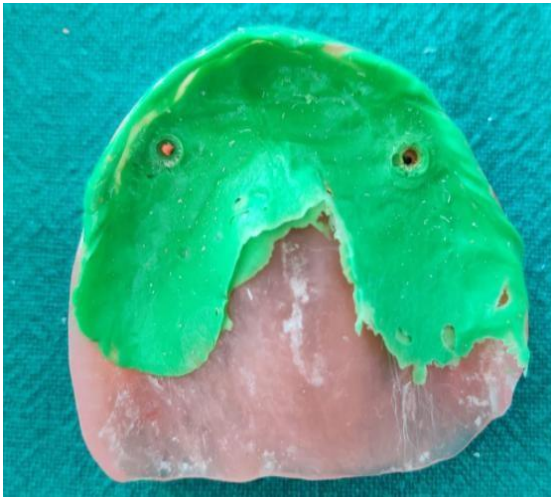


Fig .6. Index created using elastomeric impression.



Fig .7. Holes made to accommodate the female housing



Fig .8. Female housings added on top of the ball attachments



Fig .9. In occlusion

Thus, on the intaglio surface of a denture an index was created using an elastomeric impression on the ball attachment site. Hole was created there to accommodate the female housings.

Both the maxillary and mandibular dentures were replaced inside the patient's mouth, and the patient was instructed to bite in centric occlusion.

The self-cure acrylic resin was mixed and injected into the hollow spaced formed on the tissue surface. After allowing the substance to set for a while, it was taken out of the mouth. Extra materials were completely trimmed, finished, polished before being repositioning intraorally in the same location.



Fig .10. Female housing picked up with the denture



Fig .11. Final prosthesis

DISCUSSION

A predictable treatment option called an implant-supported overdenture gives patients greater retention and stability for the prosthesis. The greatest clinical ⁶ result will be obtained by inserting two or three implants in the maxilla or mandible. Implants to be placed is completely based on clinical diagnoses and patient needs, not on the clinician's personal opinion. Because it is affordable (for the majority of patients) and takes fewer visits to complete treatment, the implant-supported overdenture is a straightforward choice for both the patient and the doctor.

It has been demonstrated that using two implants improved prosthetic stability. The wearing down or disengagement of the attachments is prevented by positioning two separate implants at the same height, equally spaced apart from the midline, parallel to each other, and with the correct angulation.

In this instance, two implants were planned because there isn't much of a difference in the literature between using two implants versus four implants for overdentures.⁴

Furthermore, studies have found no major differences in peril-implant health between two and four implants.⁵ Implant-supported mandibular overdenture patients demonstrated not only improved general satisfaction and nutritional status,^{6,7} but also ease of fabrication and cost efficacy over conventional removable prosthesis. ^{8,9} As a result, the two implant-retained overdenture should be considered as the first treatment choice for mandibular edentulous patients.

CONCLUSION

Implant-supported overdentures and the stud attachment method in the management of edentulous patient's good treatment option. Implant supported overdenture prosthesis proves to be relatively easy due to its innumerable advantages. They offer high esthetic, better maintenance of oral hygiene with low economical difference when compared to fixed implant supported prosthesis.

preferred therapy for edentulous patients because they also offer the advantages of better aesthetics, phonetics, comfort, and bone preservation.

They also have high implant and prosthesis survival rates and a low incidence of any complications.

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