ISSN: 2581-5989
PubMed - National Library of Medicine - ID: 101738774

International Journal of Dental Science and Innovative Research (IJDSIR)

IJDSIR : Dental Publication Service

Available Online at: www.ijdsir.com

Volume – 6, Issue – 3, June - 2023, Page No. : 189 – 193

Esthetic rehabilitation of mandibular arch with implant supported overdenture- A case report

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Citation of this Article: Dr. Akshay V. Bhojraj, Dr. Vikas Punia, Dr. Anand Porwal, Dr. Abhijit Sethia, "Esthetic rehabilitation of mandibular arch with implant supported overdenture - A case report", IJDSIR- June - 2023, Volume – 6, Issue - 3, P. No. 189 – 193.

Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Dental professionals have been worried about edentulism for a long time. It has been established that implant-supported overdentures are one of the best options for treating various forms of edentulism with prosthetic rehabilitation because they meet patient needs, enhance quality of life, and have extended service lives. In comparison to traditional complete dentures and detachable partial dentures, the implant-supported overdenture has many practical benefits. These benefits include less bone loss, less movement of the prosthesis, enhanced aesthetics, better tooth positioning, improved occlusion, increased occlusal function, and preservation of the occlusal vertical dimension. The majority of patients can be treated with an implant-supported overdenture since it is far less invasive, more cheap, and complicated than other methods.In this current case report the management of complete edentulous patient with implant supported overdenture is discussed.

Keywords: Implant, Overdenture, Ball Attachments, Prosthetic rehabilitation,

Introduction

Conventional complete dentures are the standard of care for patients who are completely edentulous.[1,2] But there are well-known issues with such prostheses, particularly the mandibular denture, mainly their lack of stability and

retention.[3] The mandibular ridge's height and form can have an impact on this. As alveolar bone continues to deteriorate over time, previously stable dentures may start to fit improperly. More than 50% of people with mandibular complete dentures may experience stability and retention issues.[4,5]

The mandibular denture is more stable and retained with implant-supported overdentures (ISODs), and chewing is improved. A symposium on overdentures was held at McGill University in Montreal, Canada, in 2002, and the results were published as the McGill consensus statement on overdentures.[6] "The evidence currently available suggests that the restoration of the edentulous mandible with a conventional denture is no longer the most appropriate first choice prosthodontic treatment," a panel of pertinent experts in the area opined. A two-implant overdenture should now be considered the first line of treatment for the edentulous mandible, according to the overwhelming evidence. An additional consensus statement was published in 2009 to reinforce and build upon the McGill consensus statement.[7]

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 mandibular overdenture.

Case Report

A 63-year-old male reported to the , Department of Prosthodontics clinic with a chief complaint of ‘‘missing teeth in both upper and lower arch and difficulty to masticate and esthetic problem. The medical history was noncontributory, and the dental history revealed that the patient lost his maxillary teeth and some of her mandibular teeth 1 years earlier due to caries and periodontal problem. Intraoral evaluation revealed that the prognosis for the remaining mandibular dentition was hopeless due to mobility and generalized moderate bone loss. The definitive treatment plan included fabrication of a maxillary complete denture and a mandibular overdenture retained by 2 implants.

The remaining mandibular teeth are extracted and after satisfactory healing of extraction socket treatment denture is fabricated. After a 2 month of healing period, 2 endosseous implants (11×3.5 mm and 10×3.5 mm) measuring dimension with internal connection, were placed parallel to each other in anterior part of the mandible between two mental foramina. Healing abutments were secured on the implants after the evaluation of primary stability. The patient was instructed not to use the existing dentures for 1 week. After a week of healing, the patient’s dentures were relined, and the patient resumed using the dentures for 3 months. The postoperative healing was satisfactory.

Three months after implant placement, definitive impressions were made for the fabrication of a maxillary complete denture and a mandibular implant-retained overdenture. A centric relation record was obtained with record bases. The casts were mounted in a semiadjustable articulator by using an arbitrary face bow and the centric relation record. Prosthetic teeth were arranged for trial insertion, and the arrangement was evaluated intraorally. Overdenture abutments were placed intraorally on each implant with a torque wrench applying 20 Ncm of force.

The dentures were processed conventionally with autopolymerizing resin and the mandibular denture base was relieved to accommodate for the abutments. A bilaterally balanced occlusal scheme was verified clinically, ensuring equal distribution of posterior contacts with no anterior contacts. The dentures were inserted, and adjustments were performed for pressure areas identified with pressure indicating paste. The

attachments, consisting of a metal housing and a plastic resilient retention element, were placed on the abutments and incorporated directly into the denture base with autopolymerizing resin The patient was pleased with the esthetic result and was comfortable with the stability and retention of the dentures after 1 year of use

Discussion

Many patients with conventional complete dentures describe pain when eating and chewing, worry about that the denture will move when they are eating, speaking, or laughing, and how their dentures will affect their social life.[8-10] Patients frequently claim that they have to modify their meal choices due to difficulty consuming items that are difficult to bite or chew because of movement of the denture, particularly when eating out and in social situations. Some folks entirely avoid social interactions.[9,10]

Implant-supported overdentures (ISOD's) offer better stability and retention of the mandibular denture and better chewing function. 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.[11] Patients also report greater satisfaction with aesthetics because the denture is not visibly moving. Implants reduce further bone resorption and the long-term success rate of implants in the lower mandible is at least 95% and there are few serious complications. It has been suggested that an overdenture with 2 implants is the first choice of treatment in the edentulous mandible. Ball attachments, magnetic attachments, bar attachment systems, and telescopic crowns have been used to anchor the overdenture.[12]

Placing two or three implants in the maxilla or mandible will yield the best clinical outcome.[13] Implants should be prescribed based on clinical diagnoses and the need of patients, rather than the preference of the clinician. The implant-supported overdenture is a simple treatment option for both the patient and doctor because it is economical (affordable to most patients) and requires fewer visits to complete the treatment.[14] In this case report, the patient arrived at the department with a completely edentulous maxilla and partially edentulous mandible. On clinical and radiographic examination, the patient has flabby mucosa and clinically well-contoured ridges.

Radiographically, the patient has good bone support in the mandibular anterior and posterior regions through CBCT interpretation. The patient has less bone in the maxilla posterior region because the sinus is close to the crest of the ridge. To avoid all extensive surgical procedures, the patient was advised to have two implants placed in the mandible, followed by an implant supported overdenture and maxillary conventional complete denture.

Two implants were placed in mandible. Thereafter, the patient was recalled after four months for the second stage. During the second stage, implants were checked for stability and healing abutments were fixed in their positions. The patient was recalled after one week and ball attachments were incorporated in place of healing abutments, and the index was made . The index acts as a guide for the preparation of hollow spaces on the tissue surface of a fabricated denture in order to receive metal housings. Upon preparation, metal housings are picked using the chairside pickup technique with a self-cure resin . After chairside pickup and occlusion were evaluated and corrected for occlusal interferences, proper trimming and finishing were done

Conclusions

Although an implant-supported overdenture is a minimum standard treatment option, various clinicians

have used it to overcome clinically compromised situations and the cost of treatment. Implant-supported overdenture provides the patient with good retention and stability for a prosthesis, as well as psychological well-being as a fixed prosthesis.

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Legend Figures

Figure 1: Preoperative opg

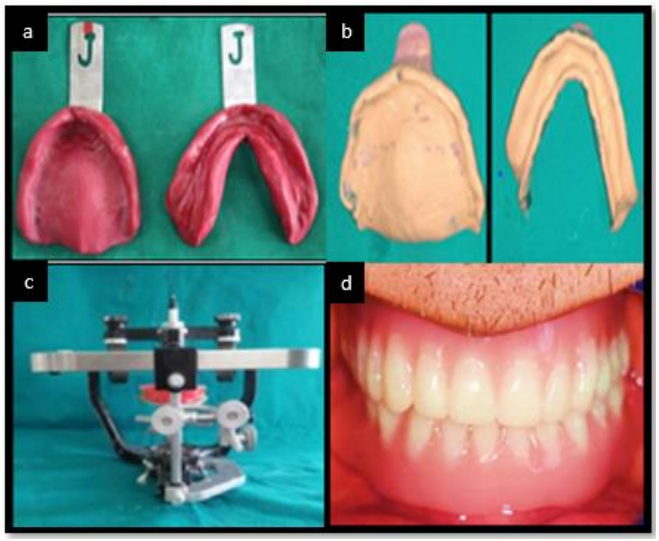

Figure 2: a. Primary impression with impression compound, b. Final impression with zinc oxide eugenol, c. Facebow transfer d. Denture insertion

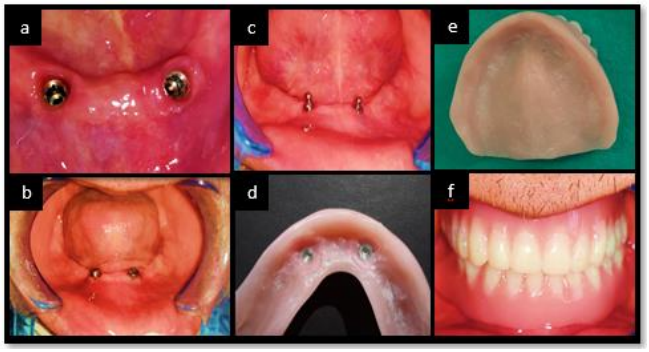

Figure 3: a. Cuff formation around implants, b. Placement of healing abutment, c. Placement of ball attachment, d. Pick up of ball attachment in mandibular denture, e. Intaglio surface of maxillary denture, f. Front view of final implant supported overdenture

Figure 4: a. Preoperative front profile view, b. Post operative front profile view