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Dr. Jaswinder Kaur
Reader, Department of
Prosthodontics Baba Jaswant
Singh Dental College, Hospital
and Research Institute,
Ludhiana, Punjab, India.

Implant supported overdenture – An economic solution for resorbed ridge

Jaswinder Kaur

Abstract

The use of implant supported overdentures is a well-documented and successful clinical concept with excellent long term results. In this article management of completely edentulous patient with greatly resorbed mandibular ridge has been discussed where patient's existing mandibular complete denture is converted into implant supported overdenture.

Keywords: Ball abutment, Edentulous mandible, Implant, Overdenture, Nylon ring

Introduction

Lack of retention and stability of complete dentures in patients with resorbed ridges is a common complaint among complete denture patients. The continued advancements in dental implant treatment made easier to provide treatment which can effectively meet with functional economic and social expectations of such patients. It has been demonstrated that patients whose denture lacks stability particularly with mandibular prosthesis, benefit significantly from even slight increase in denture retention. Implant retained prosthesis improves retention stability and support [1] Implant supported overdentures shows statistically significant increase in patient's satisfaction as compared to conventional complete dentures with strong preference for O ring attachment system [2].

Case Report

A 45 year old male patient sought treatment to improve retention and chewing efficiency of his lower complete denture. Patient gave a history of losing his teeth 2 years back. He got one denture made few months back but there was problem in retention of lower denture. Patient was also using denture adhesive. By intraoral examination completely edentulous maxillary and mandibular arches with smooth ridges were observed but mandibular ridge was greatly resorbed (fig.1). Maxillary and mandibular diagnostic casts were made and an OPG was taken to evaluate underlying bone. Radiograph examination showed dense compact bone in mandibular anterior region. Patient was in good health. Blood reports of patient were checked. Implant overdenture and implant supported fixed treatment options were explained to the patient but the patient opted for implant overdenture due to economical constraints.

Existing denture of patient was found to be satisfactory in occlusion, stability and esthetics. So same prosthesis was planned to be converted into implant supported overdenture prosthesis. Dentascan was used to identify sites for implant placement and two implants were placed in the interforaminal region. Denture was relieved from area of implant placement and patient was allowed to use existing denture for 3 months. After 3 months of implant placement, OPG was taken to confirm osseointegration. Healing screws were placed after the second surgery and patient was recalled after a week. Patient prosthesis was examined carefully to ensure passive fit. Tissue surface of the denture was marked with the help of indelible pencil and relieved to accommodate the nylon rings and abutment. Ball abutments were tightened to the implants (fig.2). A very small amount of light body material was placed into the nylon rings and the nylon rings were then placed on the abutments. Self cure acrylic was placed into the relieved space and denture was seated into patient's mouth and allowed to cure within the patient biting in centric relation (fig.3). After the acrylic is set, dentures were removed and modified surface was finished and polished (fig.4). The patient was instructed for the use of soft brush and floss for maintenance of area around the implant abutments. The patient was

Correspondence
Dr. Jaswinder Kaur
Reader, Department of
Prosthodontics Baba Jaswant
Singh Dental College, Hospital and
Research Institute, Ludhiana,
Punjab, India.

recalled at 1 week, 1 month, 3 month, 6 month follow up appointments. The patient was highly satisfied with the retention comfort and function of the prostheses after 2 years of use.



Fig 1

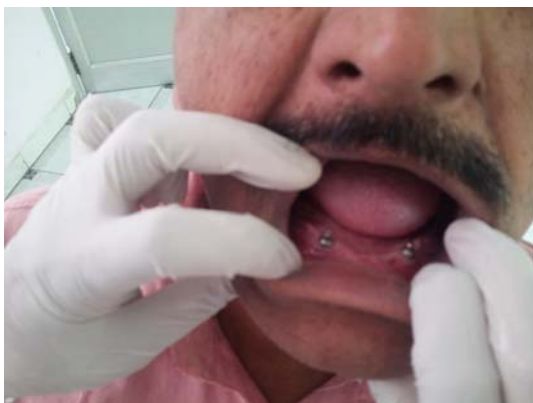


Fig 2



Fig 3



Fig 4

Discussion

In patients with severely resorbed ridges where retention of denture is extremely difficult or impossible, placement of two or more implants that retain and support an overdenture allows optimal results with patient satisfaction and function. In this article patient's mandibular conventional denture is converted into implant supported overdenture. Moreover when implants are placed, bone gets stimulated by the forces transmitted from implants resulting minimal bone loss. Two implants in the mandible and four implants in the maxilla is normal minimum requirement [3]. Two implants usually provide sufficient stability, although the support is shared by the tissues covered by the denture base [4]. Often economics dictates a patient's choice of treatment. Implant supported overdenture requires two implants as compared to six implant supported fixed prosthesis so the cost is reduced with this option. A particular advantage of complete overdenture is the provision of a labial flange which compensates the reduction in volume of a resorbed ridge. Esthetics can be improved when soft and hard tissue defects exist by modifying the dimension of the acrylic resin [5]. The retentive implant overdenture remains in place during mandibular movement. The tongue, oral and perioral musculature may resume a more normal position because they are not required to limit mandibular movement. Hygiene condition and home maintenance procedures are improved with an overdenture. [6] For all these reasons mandibular two implant overdenture has been described as a standard of care for edentulous mandibles [7]. The most common design calls for an overdenture supported by two implants, splinted or free standing. Solitary attachments as compared to other attachments are less costly, less technique sensitive, less dependent on implant position, easier to clean, easier to replace and adjust and are better to distribute functional forces [8]. Naertt I *et al* conducted a long term study and observed no differences in crestal bone level changes and excellent prognosis of the implants in a 2 implant supported overdentures irrespective of the attachment system used (resilient bars, single ball anchors and magnets). [9]

Conclusion

Dental implants have become an increasingly accepted replacement for missing dentition. The implant supported overdenture has become the standard of care. Economic condition is often the main reason for excluding edentulous patients for treatment with implant supported fixed treatment. The overdenture has become a preferred treatment modality, particularly for elderly and maladaptive patients with resorbed ridges.

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