ISSN: 2395-6429

INTERNATIONAL JOURNAL OF CURRENT MEDICAL AND PHARMACEUTICAL RESEARCH

IJCMPR

Available Online at http://www.journalcmpr.com

DOI: http://dx.doi.org/10.24327/23956429.ijcmpr20170053

RESEARCH ARTICLE

FULL MOUTH REHABILITATION OF A COMPLETELY EDENTULOUS PATIENT WITH MANDIBULAR IMPLANT SCREW RETAINED FIXED PROSTHESIS OPPOSING MAXILLARY REMOVABLE COMPLETE DENTURE

Mohit Raghuvanshi[1]., Kushaldeep[2] ., Viram Upadhyaya[3] and Prachi Jain[4]*

[1]Department of Prosthodontics, BBDCODS, Lucknow
[2]Consultant Prosthodontist Pharma Apartment Patparganj, New delhi
[3,4]Department of Prosthodontics, JN Kapoor, DAV (C) Dental College Yamunanagar

ARTICLE INFO

Article History:

Received 24th January, 2017
Received in revised form 8th February, 2017
Accepted 5th March, 2017
Published online 28th April, 2017

Key words:

Edentulism, Dental implants, Hybrid prosthesis

ABSTRACT

Choice of prosthetic rehabilitation in a completely edentulous patient is influenced to a great extent by the underlying residual bone. Although conventional dentures provide reliable service, their use in severly resorbed alveolar ridges present a challenging situation to a prosthodontist in terms of achieving retention and stability along with patient satisfaction. Implant retained hybrid denture in such cases offer a viable treatment modality. In this article, a clinical case has been presented where rehabilitation of a completely edentulous patient with resorbed mandibular ridges was done using implant retained mandibular hybrid prosthesis opposing conventional maxillary complete denture.

INTRODUCTION

Rehabilitation of masticatory efficiency in a completely edentulous patient with compromised ridges particularly in the mandible is a major challenge. Implant supported hybrid prosthesis can be a treatment alternative in such cases. This prosthesis was first advocated by Zarb and Symington[1,2]. It is fabricated over a metal framework and retained by screws threaded into the implant abutments. The anterior part of the denture is fixed on implants whereas the posterior part is cantilevered from the implants[2,3].

Different authors have suggested different length of the cantilevered section. Some believe that the extension must not exceed 15mm from the midpoint of the most distal implant. Others are of the view that the distal extension must not go beyond the first molars. In general, hybrid denture is fabricated with fewer posterior teeth than the conventional denture[3]. These prosthesis significantly enhance the quality of life of edentulous patients when compared with conventional dentures as they provide functional, aesthetic and psychological benefits[4,5]. In this case report, mandibular implant retained hybrid prosthesis has been fabricated opposing conventional maxillary complete denture for a completely edentulous patient with compromised mandibular ridge.

Case Report

A 57 year old female patient reported to the Department of Prosthodontics with the chief complain of difficulty in chewing food and loose lower complete denture prosthesis. Intraoral examination revealed completely edentulous maxillary and mandibular arches. The maxillary ridge was found to be suitable for conventional denture construction but the mandibular ridge was found to be moderately resorbed (Figure 1,2). Orthopantomographic examination of the patient showed dense bone in the mandibular anterior region without any pathology (Figure 3).

Fig 1 Pre- Rehabilitation intraoral view: Maxilla

Fig 2 Pre- Rehabilitation intraoral view: Mandible

Fig 3 Pre Rehabilitation Orthopantomograph

A treatment plan was formulated taking into consideration the patient's chief complaint, desires, treatment alternatives and treatment costs. The plan included fabrication of conventional complete denture for the maxillary arch and screw retained implant tissue supported hybrid denture for the mandibular arch.

Clinical procedure

Surgical phase

A total of five implants were placed in the mandibular arch in the interforaminal region according to the availability of bone. Sutures were given and patient was recalled after 1 week for suture removal. A second stage surgery was carried out to place healing abutments 3 months after the primary implant surgery. Healing abutments were fastened to the implants to allow undisturbed soft tissue healing (Figure 4, 5).

Fig 4 Intraoral view after implant placement

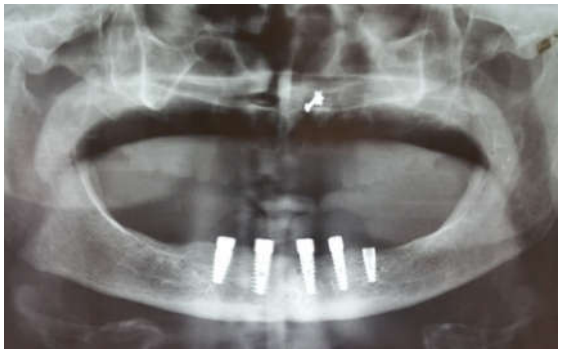

Fig 5 Orthopantomograph after implant placement

Prosthetic phase

Three weeks after placement of healing abutments, maxillary and mandibular primary impressions were made using irreversible hydrocolloid impression material. A conventional tray was fabricated for the maxillary arch and a custom open tray was fabricated in acrylic resin for the mandibular arch. Conventional border molding was performed using green stick compound in the maxillary arch followed by secondary impression with zinc oxide eugenol impression material.

The mandibular impression was made using monophase polyvinyl siloxane impression material (Aquasil Lv Ultra, Smart Wetting Impression Material, Dentsply, Detrey Gmbh, Konstanz, Germany). For this, first the healing abutments were removed and impression copings were connected to the implants for the open tray impression technique (Figure 6).

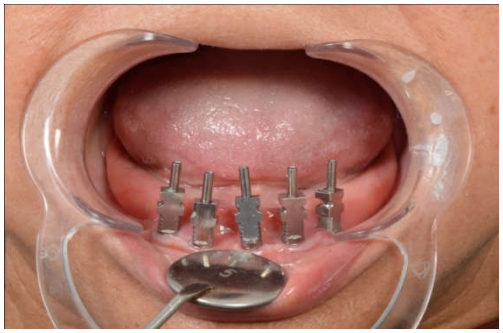

Fig 6 Intraoral view after connecting impression copings to the implants

The custom tray was adjusted in the patient's mouth followed by application of tray adhesive. Thereafter, the tray was loaded with the impression material and seated intraorally. Once the material was set, the retaining screws were unscrewed and the tray was retrieved along with the impression copings in the impression (Figure 7). The implant analogues were then connected to the impression copings and the both the impressions were poured in Type IV Gypsum product.

Fig 7 Definitive Mandibular Impression

Master casts were retrieved and trimmed followed by fabrication of record bases and occlusal rims. The maxillomandibular relationship was recorded and the casts were mounted on a semi adjustable articulator. As the path of insertion deviated considerably, so castable abutments were used to produce the optimal angulations. Wax up for framework fabrication was done for the mandibular arch. After casting, the metal framework was fitted on the master cast. The fit was refined until the framework seated passively on the master cast. It was then tried intraorally for evaluation and verification of the passive fit. After adjustments, abutments were removed from the implant fixtures and healing abutments were reconnected. Teeth setting was then done with the mandibular teeth waxed to the metal framework and a final try

in was performed. Thereafter, the maxillary denture was invested and processed in the conventional manner. For the mandibular denture, first the internal aspect of the casting that fit on the abutments were blocked out with the polyvinyl siloxane impression material and then the prosthesis was invested directly without the master cast and processed.

After deflasking, the dentures were finished and polished. Maxillary conventional acrylic removable denture and mandibular screw retained hybrid prosthesis were inserted. Composite resin was used to cover screw access holes. Instructions were given and the patient was recalled regularly for follow up visits to assess the status of peri-implant tissue and for maintenance of the prosthesis (Figure 8,9,10 and 11).

Fig 8 Finished maxillary prosthesis

Fig 9 Finished Mandibular prosthesis prosthesis

Fig 10 Intaglio surface of mandibular prosthesis

Fig 11 Post Rehabilitation intraoral view

DISCUSSION

Implant supported metal-acrylic resin complete fixed dental prosthesis commonly known as hybrid denture is a fixed prosthesis introduced to address the problems caused by unstable and uncomfortable mandibular dentures[4]. It has the advantage of providing improved retention in such cases which adds to the greater acceptance rate by the patient. It can be removed only by the dentist which allows ease of maintenance if proper periodic recall visit is followed. It reduces the impact force of dynamic occlusal loads and is less expensive[6,7].

In the present case, as the patient was having difficulty in mastication with the conventional lower denture and was not contented with its fit, so implant supported prosthesis was planned. The intra-arch distance was evaluated and as it was found to be more than 15 mm, hybrid restoration was planned. To minimize the risk of framework fracture, cantilever length was also kept minimal and replacement was done upto the first molar. Another important factor considered was obtaining a passive fit of the framework as non passive fit has been found to be associated with mechanical and biological complications such as peri-implant bone loss, screw loosening and fracture of the abutment or implant[7]. Thus, after fabrication of the metal framework, the fit was adjusted extraorally followed by intraoral verification to confirm their passive fit.

At the recall visit, it was observed that rehabilitation with hybrid denture resulted in greater masticatory function and psychological satisfaction than conventional denture as the retention and stability of the prosthesis was improved. There was no peri-implantitis or soft tissue complication related to the prosthesis and patient's oral hygiene was also found to satisfactory.

References

1. Zarb GA, Symington JM. Osseointegrated dental implants: Preliminary report on a replication study. *J Prosthet Dent.* 1983; 50: 271-276.
2. Shankar R, Chauhan M.S, Sharma G, Tyagi P. Rehabilitation of a patient with screw retained metal resin implant tissue supported fixed mandibular complete denture: A hybrid prosthesis (FP-3): A case report. *J Dent Med Scie* 2014 July; 13 (7) Ver III: 73-79.
3. Jain A. R, Nallaswamy D, Ariga P, Philip J. M. Full mouth rehabilitation of a patient with mandibular implant screw retained Fp-3 prosthesis opposing maxillary acylic removable over-denture. *Contemp Cli Dent* 2013 Apr-Jun; 4 (2): 231-235.
4. Esma B GUL, Umit YOLCU, Mustafa HATALA, Bekir ESER. Simple treatment plan for severe atrophic alveolar ridges.: 2 case reports. *Int J Dent Scie Res* 2015, 3 (4): 96-101.
5. Real-Osuna J, Almendros-Marques N, Gay-Escoda C. Prevalence of complications afte the oral rehabilitation with implant supported hybrid prosthesis. *Med Oral Patol Oral Cir Bucal* 2012; 17: e116-e121.
6. Egilmez F, Ergun G, Nagas I. C, Bozkaya S. Implant-supported hybrid prosthesis: conventional treatment method for borderline cases. *Eur J Dent* 2015 Jul-Sep; 9 (3): 442-448.
7. Misch CE.St. Louis, MO: Mosby Elsevier; 2008. Contemporary Implant Dentistry; p. 99. p.100.