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CASE REPORT

REHABILITATION OF A PATIENT WITH EDENTULOUS MAXILLA AND HYPEREXAGGERATED GAG RESPONSE USING IMPLANT SUPPORTED FIXED CERAMO-METAL PROSTHESIS – A CASE REPORT

Mareeza Zacharia[1], R. Ravichandran[2], K.Harshakumar[3], S.Lylajam[4]

[1]Junior Resident, [2]Professor, [3]Professor and Head, [4]Professor, Department of Prosthodontics, Government Dental College, Thiruvananthapuram, Kerala, India.

ABSTRACT:
Patients with edentulous maxilla opposing the mandibular natural teeth is a common occurrence in dentistry. The major disadvantages of conventional complete denture in such situation are accelerated bone resorption, frequent fracture of the denture and instability and loosening of the denture due to malpositioned opposing teeth. Another major problem is that the posterior extension of conventional denture can trigger gagging in patients with exaggerated reflex. This case report primarily describes the management of such patient with a implant supported fixed ceramo-metal prosthesis. The final treatment result was satisfactory resolving all the previous issues with a removable prosthesis as well as improvement in esthetics and function.
Key words: Ceramo- metal prosthesis; Edentulous maxilla; Implant supported fixed prosthesis.

Corresponding Author: Dr. Mareeza Zacharia, Junior Resident, Department of Prosthodontics, Government Dental College, Thiruvananthapuram, Kerala-695011, India

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INTRODUCTION

The prosthetic treatment of patients with an edentulous maxilla opposing mandibular natural teeth is one of the most challenging endeavors that face clinicians. The treatment options vary from single maxillary complete denture to Implant supported fixed prosthesis[1]. Major disadvantages of removable complete denture prosthesis opposing mandibular natural teeth are frequent fracture of the denture, increased bone resorption and malpositions of the opposing natural teeth decrease the stability and may cause loosening of the maxillary denture. If the patient has got an exaggerated gag reflex or response it may further complicates the treatment using a removable complete denture prosthesis[2]. The patient who gags may present with a range of disturbing reactions, from simple contraction of palatal or circumoral musculature to spasm of the pharyngeal structures, together with vomiting. Overextended borders of a prosthesis, particularly the posterior aspect of the maxillary complete denture can impinge on the ‘‘trigger zones’’ and produce gagging.[3-5]

Dental implants provide an effective rehabilitative treatment for the patients with an edentulous maxilla opposing mandibular natural teeth. With the use of implant-supported prosthesis, improvement in masticatory function, retention and stability, and preservation of the alveolar bone have been reported[6, 7]. Other advantages are minimizing the fracture rate of maxillary prosthesis because of improved chewing efficiency and better distribution of occlusal load. If the patient suffers from frequent gagging sensation which is stimulated by the palatal extension of maxillary denture, this can be completely eliminated by the implant supported fixed prosthesis by providing palatal freedom. This case report describes the utilization of implant supported fixed prosthesis in edentulous maxilla for management of a patient with exaggerated gag response.

CASE REPORT

A woman aged forty five years reported to the Department of Prosthodontics with chief complaint of gagging and difficulties in wearing maxillary complete denture. History

revealed that she had carious lesions affecting majority of the teeth which lead to extraction of complete maxillary teeth and endodontic management and complete rehabilitation of mandibular arch (Figure 1). A removable complete denture was fabricated for her, but the patient reported extreme difficulties in using a maxillary complete denture because of severe gagging and repeated fracture problems and she desired for a fixed dental prosthesis. A clinical examination and a radiographic assessment were conducted and revealed an edentulous maxilla with bilateral sinus cavity enlargement and severe alveolar bone resorption in the posterior region and dentate mandible with rehabilitation using tooth supported metal ceramic prosthesis.(Figure 2). Thus it was decided to fabricate implant supported fixed dental prosthesis.

A cone beam computed tomography was advised (CBCT) (Figure.3) for improved evaluation and planning of implant positions. A two stage surgical protocol was followed. In the first stage, ten implants (Adin Dental Implant System Ltd, Afula, Israel) were placed, one each in incisors, canine, premolar, and first molar region, bilaterally (Figure 4). The second stage surgery was planned 6 months after the placement of implants. Implants were exposed; cover screws were removed, and healing abutment placed. Following 2 weeks, a primary impression was made in irreversible hydrocolloid impression material. An open tray was fabricated using auto polymerized acrylic resin. Healing abutments were removed and impression posts were attached and splinted such that it provided greater accuracy for the impression. An open tray impression was made using silicone elastomeric impression material (Figure 5) and analogs were attached and master cast was poured. A record base and a wax rim were prepared on the prepared maxillary cast.

The maxillomandibular relation was recorded into a semiadjustable articulator by using a facebow transfer (Figure 6 &7). The record base was removed from the cast and abutments were attached and prepared in the established vertical dimension. A ceramo-metal prosthesis was then fabricated. The occlussal adjustments were carried out at the bisque stage and mutually protected occlusal scheme was established. The final prosthesis was cemented on to the abutments using glass ionomer cement (Figure 8). The patient was advised the need for proper oral hygiene and instructions were given. A regular follow up and review was done and gingival was healthy and free of inflammation. The patient is comfortable and satisfied with the prosthesis (Figure 9).

Figure 1: Preoperative intraoral view

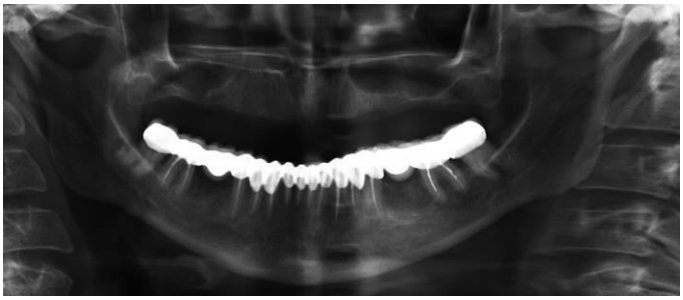

Figure 2: Preoperative OPG

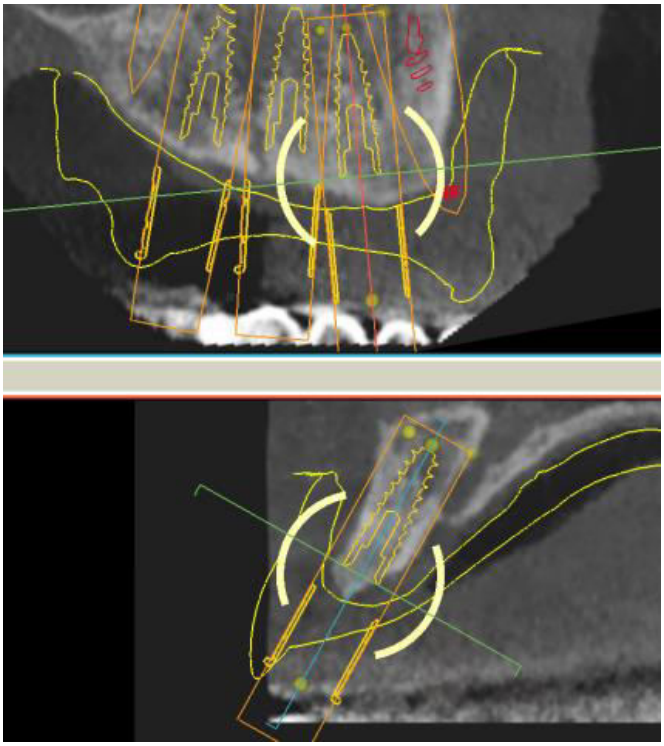

Figure 3: Virtual implants planned in edentulous maxilla using CBCT

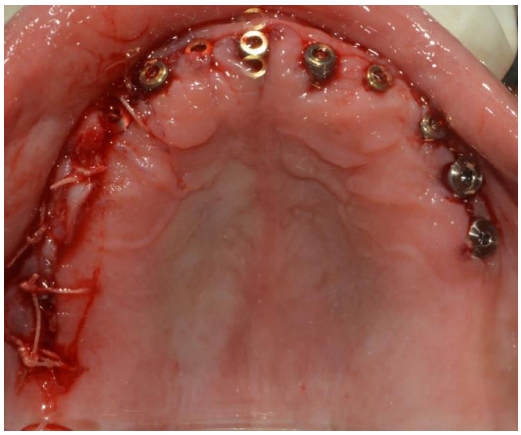

Figure 4: Implants placed in the edentulous maxilla

Figure 5: Open tray impression

Figure 6: Face bow transfer

Figure 7: Maxillomandibular relation mounted on semi adjustable articulator

Figure 8: Implant supported ceramo- metal fixed prosthesis

Figure 9: Postoperative view of the patient

DISCUSSION

The maxillary implant supported fixed prosthesis offers many advantages compared to a conventional complete denture. A primary reason to consider dental implants in edentulous maxilla is the maintenance of alveolar bone. An endosteal implant can maintain bone width and height as long as the implant remains healthy. When restoring the edentulous maxilla with dental implants, the most important decision to make is whether the patient should be restored with a fixed or removable prosthesis[1,7]. A fixed restoration provides the psychological advantage of acting and feeling similar to natural teeth, whereas overdentures, even fully implant supported remain as a removable prosthesis. Implant overdentures requires greater maintenance and exhibits more prosthetic complications than a fixed prosthesis[8]. In the present case report, the fixed prosthesis option was considered because of extreme gag reflex and fracture of the removable denture.

A ceramo-metal prosthesis is similar in design to conventional FPDS used to restore partially edentulous arch. It can be either cement retained or screw retained. The major indication of ceramo –metal fixed implant supported prosthesis is when the inter arch distance is reduced such that a hybrid prosthesis or implant supported overdenture cannot be employed[9]. In the present case the inter arch distance was less than 12mm and here in, a ceramo – metal fixed prosthesis was the ideal option. In order to distribute the masticatory load and overloading of implants, an increase in the number of implants was recommended in the edentulous maxilla[10]. Thus, it was decided to increase the number of implants and fabricate fixed prosthesis for the present patient. The provided treatment enabled the patient with self confidence improved function due to palatal freedom.

CONCLUSION

Maxillary full arch fixed implant assisted prosthesis may be as predictable as mandibular restorations when biomechanical consideration specific to the maxilla are incorporated in the treatment plan. In this case a previous complete denture patient with extreme gag reflex and instability of maxillary denture was treated using implant supported fixed ceramo metal prosthesis. The outcome was satisfactory with improvement in function and esthetics as well as elimination of gagging.

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