



CASE REPORT

PROSTHETIC REHABILITATION OF A PERIODONTITIS CASE WITH MAXILLARY SINGLE COMPLETE DENTURE AND MANDIBULAR SEMI PRECISION ATTACHMENT: AN INTERDISCIPLINARY APPROACH

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ABSTRACT

The treatment of choice for a specific prosthesis is multifactorial. It depends on the systemic conditions, the underlying residual bone, the economic conditions of the patient etc. The artificial prosthesis should meet the patient's expectation for comfort, function and aesthetic harmony along with stability and retention. This case report describes prosthetic rehabilitation of periodontitis case with single complete denture and semi precision attachment.

Key words:

Periodontitis,

Resorbed ridge, Emi Precision Attachment.

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INTRODUCTION

There are various prosthodontic treatment options available for restoring the completely or partially edentulous conditions (Zarb *et al.*, 2013; Charyeva, 2012). These prosthesis aids in proper functioning, aesthetics and phonetics of the patient. In a completely edentulous condition if the ridges are resorbed, restoring maxillary arch with complete denture serves as an option but for mandibular arch to attain retention and stability is challenging at times (Zarb, 1983). Periodontitis is a serious gum infection that damages the soft tissue and destroys the bone that supports your teeth. Periodontitis can cause teeth to loosen or lead to tooth loss. In such cases as many teeth possible should be preserved to provide better retention and prevent further bone loss (Thayer, 1980). In such situations Implants can be the treatment for choice.

If the systemic conditions or economical conditions are not favouring for implant dentistry, precision attachments have been considered advantageous as it combines fixed and removable prosthesis. The extra coronal precision attachment is one of the type of attachment which provides retention and stability to the prosthesis (Preiskel, 1995). Studies have shown that the survival rate of attachment retained partial denture for 5 years is 83%, for 15 years is 67% and for 20 years is upto 50% (Owal, 1991; Owal, 1995). This article describes an interdisciplinary approach for prosthetic rehabilitation of periodontitis case with single complete denture and mandibular semi precision attachment.

Case History: A 45yrs old male patient reported with a chief complaint of loose teeth, missing teeth past 5 years and wanted replacement for the same. Past medical history revealed the patient was diabetic past 11 years and on medication. Past dental history revealed extraction of mobile teeth. On examination the teeth missing were 16, 13, 12, 11, 21, 26, 34, 32, 31, 41 and 42. Grade III mobility with 15, 14, 22, 24, 25, 33 and 43.

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Grade II mobility with 17, 27 and 44. The patient was advised for orthopantomogram (OPG) which revealed generalized horizontal bone loss and periapical lesion with 14 and 23 (Figure 1). The Grade mobile teeth were suggested for extraction and various treatment options were told to the patient were fixed prosthesis with implant, implant overdentures, removable complete denture and single denture with mandibular semi precision attachments. Due to the economic consideration the patient was not willing for implant prosthesis. So it was decided to fabricate maxillary single complete denture and mandibular with semi precision attachments. Extraction was done with maxillary teeth. Periodontal flap surgery was done later (Figure 2), followed by extraction of mandibular teeth and the patient was recalled for root canal treatment (Figure 3). After a month and half intraorally the healing was satisfactory but there was bone resorption with maxillary arch and more with mandibular anterior region. Maxillary impression was made with elastomeric impression material (3M ESPE PUTTY) and the cast was poured with type II gypsum product (Kalabhai Kaldent). Custom tray was fabricated using self cure acrylic resin (DPI) border modeling was done using low fusing impression material (DPI). Final impression was made using zinc-oxide eugenol impression paste (DPI). The cast was poured using type III gypsum product (Kalabhai Kalstone Dental Stone). Denture base was fabricated on obtained master cast using self-cure acrylic resin (DPI). Occlusal rim was fabricated using modelling wax (Hindustan). Tentative jaw relation was recorded and face-bow transfer was done using Hanau spring bow to orient maxilla to cranium base and avoid interference in the final prosthesis, the maxillary cast was mounted to semi adjustable articulator (Hanau wide view) Once the occlusal plane was established it was decided to proceed with the mandibular prosthesis first, followed by maxillary complete denture. Tooth preparation was done with 35, 36, 37, 45, 46 and 47 (figure 4). Impression was made with lower arch using elastomeric impression material (3M ESPE) and the vertical and centric jaw relation was recorded. The obtained cast was mounted to the articulator. Two Rhein'83 attachments were used in fabrication of prosthesis (figure 5). Metal Trial was done in patient's mouth to check for the marginal fit of the crowns and the soft tissue contact of the attachments (Figure 6). Ceramic build up was done and the attachments were cemented using type I GIC luting cement (GC) (Figure 7). Wax trial was done for mandibular anterior prosthesis (Figure 8). Teeth arrangement was done with the maxillary arch and wax trial was carried out (Figure 9). Acrylization was done by injection moulding technique (Ivoclar). The prosthesis was inserted in patient's mouth (Figure 10).



Figure 1. OPG Showing Periodontally Compromised And Missing Teeth



Figure 2. Periodontal Flap Surgery Was Performed On Indicated Teeth



Figure 3. Root-Canal Treatment Was Carried Out



Figure 4. Tooth Preparation Done With Abutment Teeth



Figure 5. Rhein'83 Attachments Were Used In Fabrication Of Prosthesis



Figure 6. Checking Of Marginal Fit Along With Soft Tissue Contact Of Attachments



Figure 7. Ceramic Build Up Done And Prosthesis Were Cemented



Figure 8. Wax Trial For Mandibular Anterior Prosthesis



Figure 9. Teeth Arrangement And Wax Trial With Maxillary Teeth



Figure 10. Final Prosthesis Inserted In Patient's Mouth

DISCUSSION

In this particular case the patient was a known case of diabetes Mellitus. There is a strong connection between diabetes and periodontitis (Salvi *et al.*, 2008). Due to periodontitis the bone loss happens and leads to ridge resorption. The various treatment options could have been fixed implant prosthesis in which the conventional implant placement with hybrid prosthesis or all on four concept (Malo, 2003). An implant overdenture (Treatment of the mandibular compromised ridge, 1989) could serve as an option but due to the economic conditions implant prosthesis was not considered. Maxillary arch has greater surface area (Jacobson, 1983) and other anatomical factors which provide retention, so conventional complete denture can be fabricated. Face-bow transfer becomes necessary as to orient maxilla to the cranium base and mandible to the opening axis of temporomandibular joint. This eliminates the interferences in the final prosthesis (Thorp, 1978). When Implants not an option in resorbed ridges, the retention and stability of prosthesis can be provided by tooth supported overdentures or precision attachments. For mandibular arch tooth supported over denture could had been

an option but that needed extraction with few firm teeth other than overdenture abutments, so precision attachment was preferred extracoronal semi precision attachments (Rhein'83) provide better retention and stability. The detachable acrylic component provided optimal aesthetics in complete denture. This interdisciplinary treatment approach of extraction with grade mobility teeth, periodontal flap surgery and endodontic treatment aided in the better prognosis of prosthetic rehabilitation.

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