

A Simple and Segmented Approach to Full Mouth Rehabilitation: A Case Report

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ABSTRACT

Background: Generalized attrition is a probable complication in the patient whose teeth have been held in functional interference over a protracted period of time. It has an impact on vertical dimension, esthetics and stomatognathic system. Restoration of severely worn out dentition is a cumbersome process, which is accomplished with Full Mouth Rehabilitation. Full mouth rehabilitation is a cumulative approach involving all the required dental treatments for a particular patient to restore the balance of the stomatognathic system. This case report describes the segmented approach to simplify full mouth rehabilitation of the patient with partially edentulous severely worn out dentition and uneven occlusal plane with metal-ceramic restorations.

Keywords: Occlusion, Attrition, Full mouth rehabilitation.

INTRODUCTION

Attrition is defined as the mechanical wear resulting from mastication or Para function, limited to contacting surfaces of the teeth. [1] It is a normal physiologic process with advancing age, which turns pathologic when the pace of occlusal wear over rates compensatory tooth eruption and alveolar growth. Consequences of excessive occlusal wear are pulpal pathology, impaired function, occlusal disharmony, loss of occlusal vertical dimension (OVD) and aesthetic disfigurement.[2],[3] Full mouth rehabilitation is a momentous treatment plan to address these problems. This article presents a simple and segmented approach to full mouth rehabilitation.

CASE REPORT

A 43-year-old female patient reported to the Department of Prosthodontics in our college with a chief complaint of missing teeth, contemptible appearance seeking correction of present dentition

for better aesthetics and function. The medical history was inconsequential. Clinical and radiographic examination revealed generalized attrition, missing teeth in relation to 26,41,31,32,33,35,36 (Figure 1: Preoperative view). On examination, temporomandibular joints were found healthy, and the patient reported no parafunctional habits. Oral hygiene measures were reinforced before starting the treatment.

DIAGNOSTIC PROCEDURE:

On the brink, vertical dimension was assessed, which revealed that the following case falls under the Turner and Misserlians class I category [4]. Later, diagnostic casts were obtained from a primary impression (Tropicalgin, Zhermack, Badia Polesine, and Rovigo, Italy) and were mounted on Hanau wide view (Waterpik Technologies, Fort Collins, CO) using Hanau spring bow and interocclusal record (jet bite, COLTENE, WHALE DENT). The incisal pin

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was raised to open bite around 1.5 mm, and then diagnostic wax-up (Maarc, Mock up wax) (Figure:2) was done which helped the patient to visualize the final treatment outcome. It also helped in making a template for provisional crown fabrication. An occlusal splint (cavex, vacuformer sheet) (Figure:3) of thickness 1.5mm was fabricated and delivered to the patient. Later, observed for the signs of pathologic consequences of altering the occlusal vertical dimension over a period of two months.^[6] In the meantime, Occlusal plane analysis using Broadrick occlusal plane analyser (Figure:4) was done to determine the level of tooth preparation, and occlusal plane cutting guide was fabricated.^[7] Endodontic treatment was performed for needful and hopeless teeth were indicated for extraction.

PROSTHETIC PROCEDURE:

The prosthetic procedure was designed in three segments (right, left and anterior) in sequential order.^[8]

Initially, the teeth in first and fourth quadrants were prepared for metal-ceramic crowns using the occlusal plane cutting guide.

Once the gingival retraction was accomplished, final impressions were made with polyvinyl siloxane impression material in a custom made acrylic tray. Casts were poured, and mounting was done on the articulator using centric records.

The occlusal splint was modified to accommodate the provisional restorations on operated site, and the patient was asked to continue with the occlusal splint on the other side.^[9]

A similar procedure was performed on the other segments.

Provisionalisation was done with temporary cement (Temposil 2, COLTENE) and the maxillary occlusal splint was modified by removing the anterior segment.

Metal try-in has done for the patient to assess the exact fit. Successive to ceramic build-up a ceramic try-in was done, and occlusal interferences were amended. After glazing, the final restorations were bonded with glass ionomer cement (GC Gold Label, GC Corporation, Tokyo Japan) (Figure: 5 Postoperative view). Occlusion was verified for



Fig 1: Preoperative view.



Fig 2: Diagnostic wax up.



Fig 3: Occlusal splint.

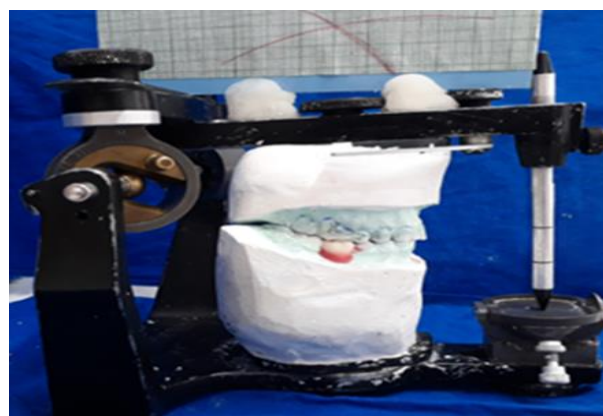


Fig 4: Broadrick occlusal plane analyser.



Fig 5: Postoperative view.

canine guidance, and anterior guidance was also verified with posterior disocclusion. At consequent recall appointments, the occlusion stayed unaltered. The patient reported with no discomfort and extremely pleased with the final results regarding the masticatory performance and aesthetics of the definitive restorations.

DISCUSSION

Increasing the Vertical dimension in full mouth rehabilitation cases, injudiciously had a great impact on the stomatognathic system. [6] An assortment of clinical techniques, for example, phonetics, interocclusal distance, swallowing, and patient preferences, have been proposed to determine the correct OVD. [10] Hence the patient's OVD was verified, and it was observed that there is need for bite raise. On the other hand, it is also important to identify the cause of tooth wear before the intervention to improve the effectiveness of any preventive and restorative care. [11] In this case, deficient or unstable posterior support has been recognized as a causative factor in severe anterior attrition and diminished OVD.

Diagnostic assessment for full mouth rehabilitation involves radiographs, oral tissue examination, periodontal assessment, diagnostic wax-up and occlusal analysis with mounted diagnostic casts. Diagnostic wax-up is an indispensable aid, which provides a primary view of the final restorations for the clinician as well as patient, apart from serving in template fabrication for provisional restorations.[9]Broadrick occlusal plane analyzer developed by Dr.Dawson Broadrick (1963) helps to assess the position, orientation of posterior occlusal plane and allows reconstruction of the curve of Spee in harmony with incisal and condylar guidance.[7] In the present situation, a custom-made Broadrick

occlusal plane analyzer attached to the upper member of the hanue wide vue justified the requisite. Occlusal rehabilitation has two approaches one is the simultaneous reconstruction of both arches and other with complete restoration of one quadrant in a programmed sequence before proceeding to the next. [9] In present case the second approach was considered beneficial as the trial bite position can be correctly transferred to the final bite using a modified splint, which maintains the vertical dimension. This segmental approach also allows the dentist to know tolerance and acceptability of treatment by the patient, which is of utmost importance in occlusal rehabilitation although there are different treatment modalities available which were not planned due to financial constraints.

CONCLUSION

One of the many challenges faced by a restorative dentist is severe attrition along with the requirement to gain space necessary for restorations and the aesthetic desires of the patient. Along with these desires, one has to keep in mind to fulfil the occlusal and functional parameters to obtain a long term success. In order to achieve the desired goals, a segmental approach can be followed. This approach proves advantageous both for the practitioner and the patient, as it allows the doctor to know if the care provided is appreciated and tolerated by the patient, and also helps the patient to achieve his/her desired outcome.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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