

A systematic approach to full mouth rehabilitation in worn dentition-A case report

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Abstract

Full mouth rehabilitation is highly individualized treatment. Full mouth rehabilitation is done for the modification of the health of the entire mouth, including the teeth, gums and the occlusion. It is requisite for the replacement or restoration of the all teeth in the mouth using a combination of dental services. It requires proper diagnosis and detailed treatment planning to develop occlusal contacts and harmonious articulation in order to optimize stomathognathic function, health and esthetics which then translates to patient's comfort and satisfaction. Loss of normal occlusal plane and reduction in the vertical dimension of the occlusion caused due to the severe wear of anterior teeth and the collapse of posterior teeth. This case report is of full mouth rehabilitation of a 55 years old patient with missing posterior teeth, anterior attrited teeth with loss of vertical dimension.

Keywords: Occlusal wear, Vertical dimension of occlusion (VD), Crown lengthening, Full mouth rehabilitation, Maximal inter cuspal position (MIP).

Introduction

Restoration of the function and esthetics of the severely worn dentition becomes a challenge to the dentist. Reasons for the tooth wear are erosion, abrasion and attrition. The most important aspect in the tooth wear case includes development of the adequate restorative space for maxillary and mandibular teeth. For long term success of the case depends mostly on the simultaneous fulfilling the functional, esthetics and occlusal harmony.¹Importance should be given for the evaluation of occlusal prematurities preventing condylar seating into the centric position. The main reason for the alteration in vertical dimension is due to severe tooth wear. Tooth eruption and alveolar bone growth helps in maintaining VDO. Alveolar bone undergoes adaptive changes after tooth wear or tooth loss to maintain the VDO. In many cases it is necessary to change the vertical dimension in order to gain the inter arch space for the restoration of the teeth, for improving the esthetics and occlusal harmony. Therefore, while changing the vertical dimension care should be taken.²Restoration of worn dentition in the anterior region becomes a challenging task to the dentist due to reduced space availability for the prosthesis. For improving the esthetics it is necessary for crown lengthening of the anteriors. Therefore in such cases not only replacement of the lost tooth structure but also restoring the lost vertical dimensions besides imparting both the esthetics and function. Full mouth reconstruction is basically a set of procedures that are aimed at correcting an improper bite position as well as restoring chipped or worn out teeth. Once a complete understanding of the etiology of the dentition's present state is appreciated, a treatment plan can be formulated, taking into account the number of teeth to be treated, condylar position, space availability, the vertical dimension of occlusion (VDO), and the

choice of restorative material.³ The following case presentation demonstrates a restoration of severely worn dentition by altering the VDO with metal ceramic crowns and bridges.

Case Report

A 55-year-old female by name Rani reported to the Department of Prosthodontics at Mamata dental college with a chief complaint of difficulty in chewing food, small front teeth, Missing teeth and sensitivity to hot and cold food items. (Fig. 1) The patient gave no relevant medical history and did not report any signs of TMJ disorder or myofascial pain dysfunction. Extra oral examination revealed no facial asymmetry or muscle tenderness. The facial type of patient was oval. The mandibular range of motion was within normal limits. Intraoral examination revealed grossly attrited mandibular anteriors. There was missing mandibular 36, maxillary 16, 17 and 26, 27 and with increased overbite the discrepancy between centric occlusion (CO) and maximum intercuspal position (MIP) was found when she was guided to CR with bimanual technique. The lost vertical dimension was measured by phonetic method, Niswonger's method and facial measurement method. The measurement was 2 mm. TMJ was examined and an increase of 2 mm of vertical dimension was planned occlusal splint given for 4 weeks. During this treatment root canal treatment and crown lengthening was done with respect to 31, 32, 33, 41, 42, and 43. (Fig 2, 3). Various philosophies are present for full mouth rehabilitation. For this case Pankey Mann philosophy was followed. According to Pankey Mann philosophy, treatment is divided into 4 stages. Step 1: Examination, diagnosis, treatment planning and prognosis. Step 2: Harmonization of anterior guidance for the best possible esthetics, function and comfort. Step 3: Selection of acceptable

occlusal plane and restoration of lower posterior occlusion in harmony with anterior guidance in a manner that will not interfere with condylar guidance. Step 4: Restoration of upper posterior occlusion in harmony with anterior guidance and condylar guidance. (Fig. 4) The patient's casts were mounted on a semi-adjustable articulator (Hanau™ Modular Articulator ;) using a face-bow record and an interocclusal record that was made with the aid of a Lucia jig and polyvinyl siloxane occlusal registration material. Anterior guidance was established. In this case, root canal treatment was done for lower anteriors then lower anteriors were restored and temporary crowns were given on the day of crown lengthening procedure. Esthetics, function and comfort of the patient were assessed for 2 weeks. The fabrication of a full-mouth diagnostic waxup, which would be completed with the understanding that the 15,16,25,26 and 36 were to be replaced and the heights of the teeth to be waxed up with desired raised vertical dimension. By using broadrick's flag occlusal plane was analysed. (Fig. 4) Anterior guidance was established following the posterior disocclusion of posterior teeth. After the tooth preparation temporization was given for 1 month and evaluated for one month (Fig. 6). The patient's TMJ, mastication, mandibular movements, speech were evaluated. Patient was recalled every week and evaluated. In provisional restoration as per the wax up improvement in facial esthetics, mastication, speech. Confirmed the patient's tolerance to the new mandibular position with the increased VDO. The anterior guidance and posterior disocclusion on excursive movement were established once the patient was comfort with the new b then Porcelain fused to metal restorations were cemented with Glass ionomer cement.

Discussion

Full mouth rehabilitation cases are one of the most difficult cases to manage in dental practice. Full mouth rehabilitation involves restoration of missing teeth, lost tooth structure and restoring the lost vertical dimension. Inappropriate jaw position causes numerous neuro muscular disorders. By rectifying the jaw position improves the proper function and also helps in enhancing esthetic appearance of the patient.³Clinical assessment plays a major role in the full mouth rehabilitation. Various jaw relation techniques have been proposed for determining the correct vertical jaw relations, such as phonetics, interocclusal distance, swallowing, and patient comfort. Interocclusal rest space can be generated by the following methods: 1. Occlusal adjustment if necessary. 2. Reduction of the opposing teeth, periodontal crown lengthening surgery can increase the clinical crown height, thereby allowing further tooth reduction. 3. Increasing the VDO by restoring the posterior teeth in one or both jaws.4. Elective endodontic treatment followed by dowel-retained restorations. 5. Orthodontic movement of teeth

to create interocclusal space. It is necessary to know the cause of wear before intervention to help improve the effectiveness of any preventive and restorative care. There are many philosophies to follow for an occlusal rehabilitation; most important among them is Hobo's philosophy and Pankey Mann Schuyler philosophy. Pankey Mann Schylur philosophy is one of the most practical philosophies for occlusal rehabilitation. It is well organized logical procedure that progresses smoothly with less wear and tear on the patient operator and technique.⁴ Proper oral health should be the prime objective of the rehabilitation procedures, because the ultimate goal is to achieve the proper function, esthetics and to preserve this status throughout life of a patient. Pankey and Mann introduced an instrument for occlusal plane analysis; in this case we used broad rick flag analyzer. This broad rick analyzer helps in establishment of the tooth morphology that compensates with the curve of speewhen posterior restorations are designed. Proper evaluation during temporization assures minimal corrections in the definitive restorations and a greater long-term predictability of the case.⁵



Fig. 1:Pre-operative view



Fig. 2: Crown lengthening of 31,32,33,41,42,43



Fig. 3: Lower anteriors crown preparation (31,32,33,41,42,43)



Fig. 4: Temporization given for lower anteriors (31,32,33,41,42,43) crown preparation done (11,12,13,21,22,23)



Fig. 5: Crown preparation done with respect to (24, 27,28) 27,28,34,35,36,37,38)



Fig. 6: Pre and Post-operative view

Conclusion

Full mouth rehabilitation is a treatment modality which not only focuses on the esthetics and functional aspect of the dentition but also improves upon the health of the whole stomatognathic system. A detailed diagnosis and treatment planning is very important to achieve predictable success.

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