

Full Mouth Rehabilitation of Severely Worn-Out Dentition: A Case Report

Vaibhav Jain^{1*} and Vishvnaathe Udayshankar²

¹Department of Prosthodontics and Crown and Bridge, INDC Danteshwari, Mumbai, India

²Prosthodontic and Crown and Bridge, MDC Wellington, Tamilnadu, India

*Corresponding Author: Vaibhav Jain, Department of Prosthodontics and Crown and Bridge, INDC Danteshwari, Mumbai, India.

Received: May 08, 2022; Published: June 30, 2022

Abstract

The successful restoration of the severely worn-out dentition requires accurate diagnosis and devising a suitable treatment plan that can be based on number of teeth to be treated, TMJ status, available vertical dimension, and the choice of restorative material. Full mouth rehabilitation cases are one of the most difficult cases to manage in dental practice. This is because such cases involve rehabilitation of lost tooth structure along with restoring the lost vertical dimensions in harmony with the health of stomatognathic system. This case report describes full mouth rehabilitation of a patient with severely worn-out teeth along with loss of vertical dimension (Turner and Missirlian classification-category I). The treatment approach followed was “Pankey-Mann-Schuyler” philosophy which enabled successful rehabilitation of form, function and esthetics.

Keywords: Full Mouth Rehabilitation; Worn-Out Dentition

Introduction

Restoration of the severely worn dentition is challenge faced by every prosthodontist in clinical practice. Excessive loss of tooth structure due to attrition, abrasion. Erosion or parafunctional habits may result in pulpal injury, occlusal disharmony, impaired function and aesthetic deformity [1]. The successful restoration of the condition requires accurate diagnosis and devising a suitable treatment plan can be based number of teeth to be treated, TMJ status, available vertical dimension, and the choice of restorative material. This case report describes full mouth rehabilitation of a patient with severely worn-out teeth along with loss of vertical dimension (Turner and Missirlian classification- category I). The treatment approach followed was “Pankey-Mann-Schuyler” philosophy which enabled successful rehabilitation of form, function and esthetics.

Case Report

A 48-year-old male patient reported to the Dept of Prosthodontics with the complaint of worn off natural teeth resulting in difficulty in mastication and compromised esthetics. History revealed that the patient was a tobacco chewer since last 07 years. Intraoral examination revealed generalized attrition in all anterior and posterior teeth with loss of vertical dimension

(Figure 1). Radiological investigations were done for consideration of need of endodontic therapy in some teeth. Based on clinical and radiographic assessment, the patient was diagnosed as Turner and Missirlian category I (excessive wear with loss of vertical dimension). The treatment plan was to reorganize the patient’s occlusion using “Pankey-Mann-Schuyler” philosophy to restore function and esthetics. A permissive occlusal splint was given to the patient and instructed to wear for a period of three months. Diagnostic impressions were made and mounting was done on a semi-adjustable articulator at planned vertical dimension using interocclusal records (Figure 2). The occlusal plane was established using Broadrick’s occlusal plane analyser and diagnostic wax-up was done (Figure 3).



Figure 1: Pre-operative view.



Figure 2: Diagnostic mounting.

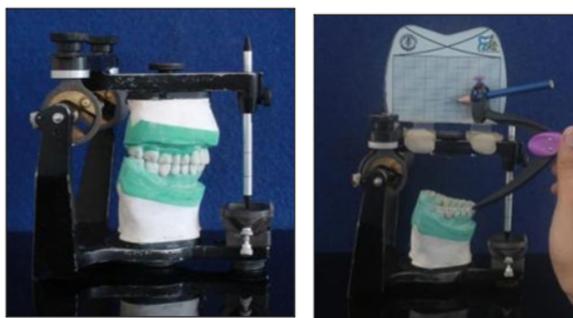


Figure 3: Diagnostic wax-up.

The first phase was replacing the anterior teeth and harmonizing the anterior guidance. The maxillary and mandibular anterior were prepared to receive full coverage metal ceramic crowns. Gingival retraction was done, and impressions were made using two stage putty-wash impression technique using addition silicone elastomeric impression material and casts poured using type IV dental stone. Provisional restorations were fabricated with autopolymerising resin using the putty index and were shaped to achieve ideal contour and cemented using eugenol free temporary luting cement. The anterior guidance was established using customised incisal guide table and esthetics as guide. This guide table was used to fabricate PFM restorations and definitive restorations were luted (Figure 4).

The second phase was the rehabilitation of mandibular posterior teeth. Tooth preparation was done for a full coverage metal-ceramic restoration and putty index was fabricated from the wax-up in each quadrant was used to fabricate provisional restoration. The plane of occlusion was verified using Broadrick's occlusal plane analyser on the semi adjustable articulator [2].

Definitive Porcelain fused to metal restorations were fabricated based on the occlusal plane analysis (Figure 5). The third phase was the rehabilitation of maxillary posterior teeth with full coverage restorations using functionally generated path. Tooth preparation was done and impressions were made using putty-wash impression technique. The tooth preparation was performed on vital teeth as no pathology or carious lesion extending to pulp was diagnosed during intraoral evaluation however intentional RCT can be the option if patient complain of pain after removal of provisional restoration. The provisional restorations were fabricated using putty index and luted with temporary luting cement. The working casts were articulated using facebow transfer and interocclusal centric record at previously determined vertical dimension and "Functionally Generated Path" technique was used to establish the "Group function occlusion" (Figure 6).



Figure 4: Definitive PFM restorations.



Figure 5: Mandibular posterior segment tooth preparation and definitive restoration.



Figure 6: Functionally generated path and maxillary posterior definitive restorations in-situ.

The patient was analysed for and optimum functional harmony and satisfactory aesthetics. After a detailed assessment the final restorations were fabricated and cemented using glass ionomer cement (Figure 7). Oral hygiene instructions were given to the patient and regular six-month recall, and check-up was advised.



Figure 7: Post-Rehabilitation.

Discussion

Full mouth rehabilitation cases are one of the most difficult cases to manage in dental practice. This is because such cases involve rehabilitation of lost tooth structure along with restoring the lost vertical dimensions in harmony with the health of stomatognathic system. In the present case there was excessive wear of anterior and posterior teeth. The main objectives while restoring anterior teeth were achieving adequate esthetics, proper phonetics and non-interference in the posterior teeth to achieve posterior disocclusion. Anterior guidance is the dynamic relationship of the lower anterior teeth against the upper anterior teeth through all ranges of function. The anterior guidance forms the anterior control to provide posterior disocclusion [3]. Establishment of occlusal plane is done using Broadrick's occlusal plane analyser. The Broadrick flags used to identify the most likely position of the centre of the curve of Spee. Its purpose is to permit reconstruction of the curve of Spee in harmony with the incisal and condylar guidance. The relevance of recording and maintaining this curve is to minimize posterior protrusive interferences, which in turn prevents abnormal activity of mandibular elevators like temporalis and masseter. Group function occlusion was achieved using Functionally Generated Path technique to avoid functional overload on canines, which can be detrimental to the overall oral health of the patient. Group function refers to the distribution of lateral forces to a group of teeth rather than assigning all forces to one tooth [4]. Lateral pressure is distributed to all working side teeth to prevent overloading of the canine.

Conclusion

Planning and executing the restorative rehabilitation of a decimated occlusion is probably one of the most intellectually and technically demanding tasks faced by a restorative dentist. Several decisions have to be made concerning the complex area of occlusion, before starting occlusal rehabilitation and for this various factors, general and specific recommendations and the case in particular must be analysed in detail. The clinician must be aware of the requirements that a physiologic restoration be made that is not only aesthetic and functional but that also remains in harmony with the entire gnathostomatic system.

Bibliography

1. Turner KA, Misserlain DM. Restoration of the extremely worn dentition. *J Prosthet Dent.* 1984;52(4):467-474.
2. Lynch CD, McConnell RJ. Prosthodontic management of the curve of Spee: use of the Broadrick flag. *J Prosthet Dent.* 2002;87(6):593-597.
3. Dawson PE. Functional occlusion from TMJ to smile design. Mosby St. Louis, Elsevier. 2007:18-26,27-32,75-83,429-452.
4. Lucia VO. Modern Gnathological concept: updated. Quintessence, Chicago, 1983.

Volume 5 Issue 7 July 2022

**©All rights reserved by Vaibhav Jain
and Vishvnaathe Udayshankar.**