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Case Report

Full Mouth Rehabilitation Of The Patient With Severely Worn Dentition: A Case Report

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ABSTRACT:

Full mouth rehabilitation seeks to restore the impaired occlusion, enhancement of esthetics, preservation of the remaining teeth and maintenance of a healthy periodontium. We, hereby have presented a case report showing the treatment procedure of a patient with generalized attrition in a simple and systematic manner to improve the function as well as aesthetics. 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.

Key words: Attrition, Esthetics, Full mouth rehabilitation, Group function occlusion.

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INTRODUCTION

The gradual wear of the occlusal surfaces of teeth is a customary process during the lifetime of any person. However, excessive occlusal wear can result in pulpal injury, occlusal disharmony, impaired function and aesthetic deformity. Tooth wear can be classified as attrition, abrasion, and erosion depending on its cause.¹ A differential diagnosis is not always possible because, in many situations, there exists a combination of these processes. Therefore, it is important to identify the factors that contribute to excessive wear and to evaluate alteration of the VDO caused by the worn dentition. Full mouth rehabilitation continues to be the biggest challenge to any clinician in restorative dentistry. It requires efficient diagnosis and elaborate treatment planning to develop ordered occlusal contacts and harmonious articulation in order to optimize stomathognathic function, health and esthetics which then translates to patient's comfort and satisfaction.²

The word rehabilitate implies 'To restore to good condition or to restore to former privilege'. The term 'full mouth rehabilitation' is used to indicate extensive and intensive restorative procedures in which the occlusal plane is modified in many aspects in order to accomplish "equilibration". The modification of plane is characterized by full coverage, multiple crowns, multiple splinting of teeth, modification of arch form by labial or lingual positioning of crowns and various procedures for 'repositioning' the mandible.³ Full mouth rehabilitation seeks to convert all unfavorable forces on teeth which invariably lead to periodontal conditions, into favorable forces which permit normal function and therefore induce healthy condition. Thus it entails the performance of all the procedures necessary to produce a healthy, esthetic, well functioning, self maintaining masticatory function. It implies the restoration of impaired occlusion, enhancement of esthetics, preservation of the remaining teeth and

maintenance of a healthy periodontium. Treatment plan must result in healthy maintain ability of the teeth and their respective supporting structures in harmony with the muscles, bones, joints and ligaments of the mouth and jaws. This current article presents the treatment procedure of a patient with generalized attrition in a simple and systematic manner to improve the function as well as aesthetics.^{4,5}

CASE REPORT

A 39 years old male patient reported to our clinics with the complaint of unaesthetic appearance from past three years. Complete medical and dental history of the patient was obtained. Patient gave a history of accident three years ago cause of the fracture of the anterior teeth. Extraoral examination revealed no facial asymmetry or muscle tenderness. The mandibular movements were normal. Intraoral examination revealed generalized severely worn dentition with severe attrition and abrasion in anterior region(Figure-1). Class III Elli's fracture in upper anteriors. Anterior openbite with posterior crossbite is present with protruded mandible. Grade II mobility present in lower anteriors. Patient maintain their vertical dimension in rest as well as in occlusion. The upper first molar and lower second molar maintain the occlusion, so there is no need to change the vertical dimension.

Radiological investigations were also performed and accordingly full mouth rehabilitation to restore function and esthetics was planned for the patient. The patient was explained about the treatment plan. The aim of the treatment was to improve esthetics and restore occlusion so as to achieve optimum oral health for the patient. A thermoplastic occlusal splint was given to the patient and instructed to wear for a period of two months to avoid occlusal interference, remove the muscle engrams and also compensate for the loss in vertical dimension. Mobile mandibular anterior were extracted and remaining maxillary and mandibular teeth subjected to intentional RCT as they were fractured as well as severely attrited. Maxillary and mandibular impressions were made with irreversible hydrocolloid and study models were poured with dental stone for the purpose of diagnosis and treatment planning. Anterior deprogramming device was used to guide uninterfered movement of mandible to centric relation by bilateral manipulation A face bow transfer was done and maxillary cast was mounted on a semi-adjustable articulator, the mandibular cast was mounted using a centric interocclusal bite record. The study models were analyzed, diagnostic wax-up was done and the treatment plan was formulated. Putty index of the diagnostic wax-up was made section-wise which will help in fabricating the provisional restorations later.



Figure 1: Pre-operative view

The first step crown preparation done in anterior region for metal ceramic crown. The anterior guidance was established using anterior plane and esthetics as guide. Provisional restorations were fabricated with autopolymerizing resin using the putty index and were shaped to achieve ideal contour and cemented using eugenol free temporary luting cement. After the anteriors, the focus was shifted to reinstate the posterior occlusion. Wait for 20 days and then start preparation of posterior teeth. A putty index was fabricated for the wax-up in each quadrant which served not as a guide during posterior tooth preparation in each quadrant and also in the fabrication of provisional restoration The posterior quadrants were prepared for full coverage metal ceramic crowns. Mandibular posteriors were prepared followed by the maxillary posteriors. After gingival displacement , impressions were made with condensation silicone material. Impression



Figure 2: Facebow

Transfer poured with type IV die stone. The working casts were articulated using facebow transfer and interocclusal centric record at previously determined vertical dimension (Figure-2). The provisional restorations were fabricated using putty index by the indirect technique and luted with temporary luting cement (Figure-3).



Figure 3: Provisional Restorations



Figure 4- Metal ceramic crown fabrication

The patient was analysed for and optimum functional harmony and satisfactory aesthetics. Metal ceramic crown build up on the Bioart articulator (Figure-4) and trial in patient mouth. After a detailed assessment the final restorations were fabricated and cemented glass ionomer cement (Figure-5). Group function occlusion was the scheme of occlusion given to the patient. Oral hygiene instructions were given to the patient and regular six month recall and check up was advised.

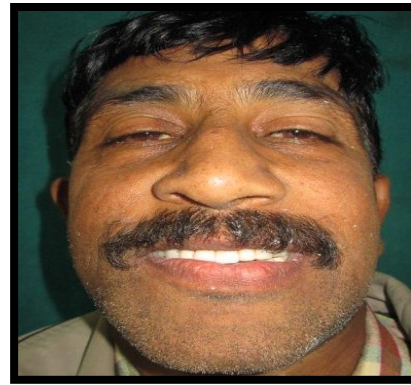


Figure 5: post operative image

DISCUSSION

Full mouth rehabilitation cases are one of the most difficult cases to manage in dental practice. This is because such cases involve not only replacement of the lost tooth structure but also restoring the lost vertical dimensions.⁶ Assessment of the vertical dimension is important for the management and careful comprehensive treatment plan. Vertical dimension is not lost in all cases with generalized wear. In most instances, any reduction in the heights of natural teeth is compensated for by the stimulated growth of alveolar bone and tissue and the continual eruption of the teeth. In the present case there was excessive wear of anterior and posterior teeth. The vertical dimension was evaluated to be maintained with posterior teeth and it was not increased in the patient.⁷ An occlusal splint for a period of two months has given to adapt the patient to restored vertical dimension and check his tolerance. The main objectives while restoring anterior teeth were achieving adequate esthetics, proper phonetics and non-interference in the posterior teeth so as to achieve posterior disclusion. Anterior guidance is the dynamic relationship of the lower anterior teeth against the upper anterior teeth through all ranges of function. Anterior guidance plays a very important role in full mouth rehabilitation following centric relation. The anterior guidance forms the anterior control to provide posterior disclusion.⁸ The job of anterior guidance is to protect the posterior teeth from lateral or protrusive stresses. To correctly obtain this it is necessary to perform a facebow transfer so as to relate the anterior guidance with the opening and closing axis. Obtaining the correct plane of occlusion while restoring posterior teeth holds prime importance. In the present case the plane was determined using Broadrick's occlusal plane analyser. It was developed by Dr. Lawson Broadrick in 1963 as an instrument to provide a guide to the most suitable position and orientation of the posterior occlusal plane. The Broadrick flag is a useful tool in prosthodontic and restorative dentistry, as it identifies the most likely position of the center of the curve of Spee. Its purpose

is to permit reconstruction of the curve of Spee in harmony with the incisal and condylar guidance.^{9,10} 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. The patient had severely worn down anteriors and wear facets on the canine. Hence group function occlusion was followed 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 particular tooth. Lateral pressure is distributed to all working side teeth in order to prevent overloading of the canine. This helped in distribution of forced over more number of teeth thus protecting the canines.^{11,12}

CONCLUSION

Planning and executing the restorative rehabilitation of a decimated occlusion is probably one of the most intellectually and technically demanding tasks facing 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. We must also remember that not all patients can be successfully treated with a single preconceived treatment philosophy. Satisfactorily restoring a patient to a state of physiologic health is a challenge that requires that the clinician not only be an acute

diagnostician but also having adequate knowledge of a wide range of treatment modalities.

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