

Case Report

Rehabilitation of Worn Dentition- A Case Report

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ABSTRACT:

Full mouth rehabilitation seek to convert all unfavorable forces on the teeth, which inevitably induce pathologic conditions, into favourable forces which permit normal function and therefore induce healthy conditions. The favorable forces increase tolerance of the supporting structures to masticatory pressures, a physiologic condition that has far reaching effects. the restoration of normal healthy function of the masticatory apparatus is the ultimate aim of full mouth rehabilitation. This report describes a patient with worn out dentition resulting in severe sensitivity which was managed by rehabilitation of the full dentition with full coverage metal ceramic crowns.

Key words- Disocclusion, full mouth rehabilitation, interocclusal space, occlusal prematurities, parafunctional habits.

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INTRODUCTION

Restoration of the severely worn dentition is one of the most challenging procedures in dentistry. In order to successfully restore and maintain the teeth, one must gain insight into how the teeth arrived at this state of destruction. Tooth wear can result from abrasion, attrition, and erosion¹⁻⁵. Evaluation and diagnosis should account for the patient's diet, history of eating and/or gastric disorders, habits along with the present state of the occlusion. Emphasis must be placed on the evaluation of occlusal prematurities preventing condylar seating into the centric relation position⁶. Behavioral factors that may contribute to parafunctional habits and/or nocturnal bruxism are also important to understand and manage in order to successfully restore and maintain a healthier dentition⁷.

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 material⁸.

There is some debate among professionals as to what constitutes the need to open VDO in the restoration of anterior teeth.⁹ In most cases, clinicians look to alter

vertical dimension for one or all of the following reasons: to gain space for the restoration of the teeth; to improve aesthetics; or to correct occlusal relationships. Understanding what determines the VDO and what the effects of altering it have on the temporomandibular joint (TMJ), muscle comfort, bite force, speech, and long term occlusal stability are prerequisites to restoring the worn dentition. Spear clearly outlines the principles of VDO and concludes that patients can function at many acceptable vertical dimensions, provided the condyles are functioning from centric relation and the joint complex is healthy. He states that "vertical is a highly adaptable position, and there is no single correct vertical dimension." He further concludes that the best vertical dimension is the one that satisfies the patient's aesthetic desires and the practitioner's functional goals with the most conservative approach.⁹ Vertical dimension is developed by the balance of ramus growth and tooth eruption and is affected by the repetitive contracted length of the elevator muscles during growth and development. It is, therefore, generally measured by a point on the maxilla and a point on the mandible at the area of first molars. Often, due to posterior prematurities the muscles of mastication are in a state of imbalance and will close the mandible in a position that is not in alignment

with centric relation due to accommodation of the teeth¹⁰. This position is usually forward of centric relation. When starting from a centric relation position, opening of the anterior teeth by 3 mm will yield a posterior separation of approximately 1 mm and stretch the masseter muscle length approximately 1 mm. If the condyles are not in centric relation and are subsequently seated to a more superior position, every millimeter of vertical seating will reduce the masseter muscle length by 1 mm, thereby eliminating the need for a true opening of vertical dimension. The following case presentation demonstrates a means to obtain the space required for the restoration of severely worn dentition without altering the VDO.

CASE REPORT

A 60 year old male patient, an ex-serviceman, reported to the department of Prosthodontics at Swami Devi Dyal Dental College, Barwala with the chief complaint of generalized sensitivity to cold since one year. Patient was wearing a night guard since six months on the advice of a private dentist but was not aware of any habit of clenching or bruxism. No relevant medical history was reported by the patient. Patient had a habit of brushing once daily by using horizontal strokes. He was a non vegetarian and did not have a habit of consuming acidic or carbonated beverages. Patient did not have any stress or anxiety and was not under any psychiatric medication. In order to properly diagnose the case, a comprehensive examination was conducted.

- He had a straight profile with lip competency
- He had undergone extraction with respect to mandibular left first molar because of endodontic failure 4 months back.
- No joint sounds, signs or symptoms of instability were evident.
- On intraoral examination; labial, buccal, and tongue mucosa were normal.
- Generalized attrition was seen with reduced clinical crown length.
- Gingiva was pale pink in color, scalloped and stippled in appearance.
- Generalized recession (grade 1) was seen.
- Sign of dehiscence was seen with respect to 33 but bone support was sufficient.
- Missing tooth: 36
- Pit and fissure caries: 16,17,18,27,28,37,38,48
- Radiographic examination revealed no bony lesion or any other pathology
- 31 was found to be endodontically restored.
- Occlusion was found to be Class 1 (Angle's classification)
- Diagnostic impressions were taken with the help of irreversible hydrocolloid (septodont plastalgin) to make the study casts. Facebow transfer was done to mount the maxillary cast. Interocclusal record was made at centric relation. patient was recalled

for second appointment. Casts were mounted on semiadjustable articulator

Treatment planning

After a comprehensive examination, treatment was planned. Patient was advised to get his missing tooth replaced but he didn't want to undergo any kind of surgical procedure for implant. Full mouth rehabilitation of attrited teeth with individual full coverage crowns (PFM) and canine guided occlusion was planned. For long-term predictability, porcelain-fused-to-metal (PFM) restorations were selected. In the posterior region (2nd and 3rd molar) full metal crowns were planned because of less interocclusal space. Patient was informed about the whole treatment plan and after receiving his consent treatment was started. Diagnostic wax up was done. After this putty matrices were made in sextants for the fabrication of provisional restorations.

Tooth preparations

During the second visit teeth preparations were done in sextants. Final impressions were made with addition silicon impression material. A new facebow transfer was done and interocclusal records were made in centric as well as in protrusive position. Provisional restorations were made with self cure acrylic by using putty matrices with indirect technique. Then the provisional restorations were tried in patient's mouth. Occlusal adjustments were done with posterior disocclusion during lateral excursions. Canine guided occlusion was given in these restorations. Once the provisional restorations were equilibrated and aesthetics and phonetics were deemed satisfactory, restorations were cemented. Patient was recalled after two weeks. Dies were made from final impressions and casts were again mounted on semiadjustable articulator and were sent to the laboratory. In laboratory high resolution 3 D Printer was used for scanning and fabrication of wax patterns in which a laser beam is used to draw on the surface of a liquid plastic resin that hardens when exposed to a certain wavelength of light.

After two weeks, during the third visit, provisional restorations were removed and metal try in was tried in patient's mouth and interocclusal space was verified. Then the provisional restorations were again cemented and patient was recalled for bisque trial. In the fourth visit during bisque try in all the occlusal adjustments were done and the restorations were evaluated for aesthetics, occlusion and phonetics. After this bisque try in was sent to the laboratory for final glazing.

Definitive restorations

Following the fourth week, definitive restorations were cemented in patients's mouth with type 1 glass ionomer cement. Patient was given instructions for the maintenance of oral hygiene.

PREOPERATIVE INTRAORAL FRONTAL AND LATERAL VIEW



MAXILLARY AND MANDIBULAR OCCLUSAL VIEW



PANORAMIC VIEW



DIAGNOSTIC WAX-UP



SILICON PUTTY MATRICES



FULL MOUTH TOOTH PREPARATIONS



BITE REGISTRATION



WAX PATTERNS



METAL TRY IN



RESTORATIONS IN MOUTH



DEFINITIVE RESTORATIONS

CONCLUSION

Most patients with severe wear of teeth can be managed by restoring the occlusion and without increasing the vertical dimension. According to literature, a limited increase in vertical height can be tolerated and well adapted. The amount of vertical height to be increased is best judged by placing removable splint/denture and fixed provisional restorations. The final restoration should mimic the OVD, function, and esthetics that have been developed in the fixed provisional restoration.

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