

# FULL MOUTH REHABILITATION OF A WORN OUT DENTITION TO A FUNCTIONAL AND ESTHETIC HARMONY

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## Introduction:

**P**atient with tooth wear may require restorative procedures to achieve appropriate function, esthetics and comfort. Occlusal rehabilitation requires a correlation of biological factors, mechanical principles and esthetic requirements with treatment procedures<sup>1</sup>. A combination of new generation materials along with improved clinical procedures works in tandem to produce an esthetic, long lasting and functional outcome, satisfying both the clinician as well as the patient.

## Case Report

A healthy 67 year old male patient reported to department of Prosthodontics Surendera Dental College & Research Institute with chief complaint of unpleasant smile, generalized sensitivity and difficulty in chewing. The patient gave a personal history of betel nut chewing past 40 years. The patient denied any symptoms of TMJ disorders or MPDS. The patient was hypertensive and on regular antihypertensives.

An intraoral examination revealed generalized discoloration and attrition of all teeth. Left mandibular second premolar and first molar were previously endodontically treated and restored with metal crowns. Left mandibular second molar was missing (Figure I & II).

## Treatment Goals

1. To rehabilitate the entire dentition in esthetic and functional harmony with the stomatognathic system.
2. Full coverage metal crowns with porcelain facing for maxillary teeth and complete metal-ceramic crowns for mandibular teeth.
3. To raise vertical dimension and establish centric occlusion with maximum number of tooth contact.
4. To develop a mutually protected occlusion.

## Case Report

A thorough oral prophylaxis was carried out and patient was strictly instructed to discontinue betel nut chewing habit.

The vertical dimension of the patient was determined and his 5 to 6 mm of interocclusal space needed to be modified. An occlusal splint with an increased vertical dimension of 3 mm was placed for one month in order to assess the acceptability of the new vertical dimension. The patient was asymptomatic and tolerated the new vertical dimension well.

Diagnostic casts were made, as were face-bow and protrusive records. Casts were mounted in centric relation in a semi-adjustable articulator (Hanau™ Wide-View Arcon Articulator, Waterpik, Fort Collins, USA). A diagnostic wax

up was done and the articulator was set for condylar and incisal guidance. Later, preparations of all teeth were done to receive metal-ceramic restorations (Figure III). Impressions were taken using polyvinyl-siloxane impression material (ReprosilR; Dentsply Caulk, Dentsply International Inc.) using custom trays and interocclusal relationships were recorded. The vertical dimension was increased by 3 mm in the premolar region in order to restore a favorable occlusal relationship. All prepared teeth were restored with provisional crowns cemented with Provicol (Voco GmbH, Germany). The occlusal records were transferred to a semi-adjustable articulator with a facebow, and the final casts were mounted. Metal frameworks were fabricated (Bellabond plus, Bego, Germany) and were evaluated intraorally to determine the marginal fit (Figure IV & V), followed by the ceramic firing. Definite restorations with porcelain fused to metal crowns exhibiting a vital and a natural appearance with proper contour, shade and optimal incisal translucency were designed (DENTSPLY Ceramco, Dentsply International Inc., Germany). Prior to glazing of the ceramic material a trial insertion was performed, again to enable final occlusal refinement (Figure VI). The patient's natural occlusal scheme (canine-protected occlusion) and anterior guidance were preserved in the definitive restorations to decrease lateral forces on the posterior dentition. The crowns were then completed in the laboratory and cemented with glass ionomer cement (GC, luting & lining cement, GC Corporation, Tokyo, Japan). The patient was highly satisfied with the treatment results (Figure VII). Oral hygiene instructions were reviewed emphasizing brushing habits and the use of dental floss.

## Discussion

Treatment plan is designed to meet biologic, restorative and esthetic requirements. Several materials are available to the dental practitioner as far as restorative modalities are concerned. However several limitations may exist. For instance in the present patient we could use ceramic laminates to restore esthetics as ceramic crowns require more aggressive removal of tooth structure. But ceramic laminates fail to raise vertical and restore proper occlusal intercuspation. Also laminates cannot withstand high masticatory loads. Though All ceramic crowns offer better esthetics they fail to resist high masticatory loads and also require more extensive tooth preparation. So metal ceramic crowns were chosen in this patient.

Cuspid protected occlusal scheme was adopted as it prevents destructive occlusal forces by decreasing lateral and torquing forces on posterior teeth as suggested by D'Amico<sup>2</sup>. Stuart and Stellard<sup>3</sup> in 1957 proposed the scheme of mutually protected occlusion in occlusal rehabilitation.

## Conclusion

An important aspect of restoring worn out teeth is the protection of remaining tooth structure. Teeth already weakened by loss of large amounts of tooth structure are ill-equipped to withstand occlusal forces unassisted. Protection can best be provided by capping them all<sup>4</sup>. Crowns also restricts further wear and tear of teeth. In this patient enhanced esthetics and improved function was possible because the clinical crowns and root forms were favourable for complete coverage restorations. A post operative follow up revealed meticulous hygiene maintenance by patient. He also discontinued his betel nut chewing habit.

## References:

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