

# CASE REPORT

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## FULL MOUTH REHABILITATION IN A CASE OF SEVERELY ATTRIDED DENTITION- A CASE REPORT

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**ABSTRACT: PATIENT:** A 48 year old patient reported with complaint of food lodgement in wearfacets because of severe worn out teeth. Pankeymann- Schuyler philosophy was followed for the rehabilitation as it is a well organized procedure, where anterior guidance is first established followed by restoration of the posterior teeth. **DISCUSSION AND CONCLUSION:** The goal of full mouth rehabilitation should be the restoration and maintenance of the health of the entire oral mechanism. It demands rehabilitation within the physiological and functional harmony of the stomatognathic system. Careful evaluation of the etiology, history and factors relative to occlusal vertical dimension are essential to appropriate treatment planning. The complexity in treating full mouth rehabilitation cases is not only because of its long treatment time but also at times the lack of clarity in the treatment objective.

**KEY WORDS:** Full Mouth Rehabilitation, Vertical Dimension, Anterior guidance.

**INTRODUCTION:** Full mouth rehabilitation is a challenging treatment modality that improves the appearance of the patient and corrects imperfections in the occlusion. Vertical dimension, centric relation, speech and muscle tone are essential fundamentals of full mouth rehabilitation. There is a need to analyze each aspect carefully with regard to existing natural dentition and its relationship with the stomatognathic system. Full mouth rehabilitation tends to create smile that is not only esthetic but also functionally comfortable.<sup>[1]</sup>

A case has to be treated not only by correcting worn out, broken or discolored teeth but also requires treating the oral cavity holistically. Every patient with extreme tooth wear has unique treatment needs.<sup>[2]</sup> The steps in treatment of these patients include a comprehensive examination, diagnostic mounting, careful planning and sequencing of various steps, discussion with the patient of the different treatment alternatives and careful execution of the treatment plan.<sup>[3]</sup>

**OUTLINE OF THE CASE:** A 48 year old man with good general health reported to the department of Prosthodontics crown and bridge dentistry, Ahmedabad dental college, Gujarat with a chief complaint of food lodgement and worn out teeth. No significant systemic history was reported. Patient was having habit of betel nut chewing since 15 years.

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Clinical and radiographic examination revealed generalized attrition with reduced vertical dimension of occlusion and Loss of anterior guidance. (Fig. 1) Full mouth rehabilitation of the mouth was planned to restore the function, esthetics and comfort of the patient. The patient was informed regarding the diagnosis, treatment planning, and expenses. Consent from the patient was taken before the initiation of the procedure.

## **TREATMENT SEQUENCE:**

**I. OCCLUSAL SPLINT FABRICATION:** As there was loss of Vertical dimension, restoration of the Vertical dimension was first considered. Diagnostic impression was taken with irreversible hydrocolloid. Maxillary cast was mounted on Hanau Wide vue (ARCON) articulator, using Facebow transfer and mandibular cast was mounted using centric relation record. All the deflective contacts were checked and removed from the cast as well as from mouth. Occlusal splint was fabricated by using self cure acrylic resin (DPI RR Cold cure, India). Vertical dimension was raised by 2 mm in the occlusal splint (Fig. 2) The patient was asked to wear the occlusal splint for the maximum possible time in a day except while eating and in the night for a period of 6 weeks and was asked to report after 6 weeks. After one week, the patient reported that he did not have any difficulty adapting to the new position. The patient was asked to visit every alternate week for six weeks. The acceptance of restored vertical dimension by the patient initiated the further treatment.

**II. PROVISIONALIZATION:** Tooth preparation for metal ceramic restoration was done with minimal occlusal reduction. (Fig. 3) First, all the anterior teeth were prepared. Impressions of the prepared teeth were made with irreversible hydrocolloid in stock trays (Fig. 4). The maxillary occlusal splint was modified by removing the anterior section and posterior portion was used as a centric relation record. Then impression compound jig was made using posterior portion in place and jig was used to get new centric record using bite registration material (virtual refill cadbite registration material- ivoclar vivadent). Maxillary and Mandibular casts were formed, mounted on Hanau articulator. Provisional anterior restorations were prepared with heat-polymerized hard acrylic resin (DPI-Heat Cure India). Anterior determinant of vertical dimension was checked with anterior provisional in oral cavity. Speaking line, smile line and lower lip line was assessed for optimum visibility of upper and lower anteriors. In addition labiolingual and superior-inferior positioning of anterior teeth was checked using labiodental sound (F& V) and Silverman's closest speaking space. Occlusal plane was established by using Broadrick flag <sup>[4]</sup> (Fig.5). Then posterior teeth were prepared and Provisional restorations were cemented (Fig.6). Lower posterior teeth were restored in harmony with anterior guidance followed by the restoration of the upper posterior teeth. The patient was followed up for another six weeks to further assess adaptation to the proposed vertical dimension before the permanent restorations.

**III. FINAL RESTORATION:** After six week final impressions were made using polysiloxane impression material (Photosil DPI) (Fig.7). Impressions were poured with die stone (Type IV Kalrock, Kalabai Dental Pvt Ltd. Mumbai, India). With anterior provisional in placed, centric and protrusive records were made with bite registration material (virtual refill cadbite registration material- ivoclar vivadent) and facebow transfer and mounting on Hanau wide vue articulator was done. Articulator was programmed using the protrusive record. Wax patterns were fabricated. Casting was done in base metal alloy. The metal frame-works were tried and

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adjusted for fit intraorally (Fig.8). The porcelain build-up was carried out and the bisque bake try-in was taken. The glazed restorations were examined and finally luted with glass ionomer cement (Ketac Cem- 3M ESPE) (Fig. 9). Group function scheme for occlusion was followed (Fig.10). Oral hygiene instructions were given. The patient was followed up after one week. The patient was pleased with esthetics, function, and comfort of the prostheses.(Fig.11)

**DISCUSSION:** Rebuilding of severely attrited dentition has been a challenge to a dentist's skill and capabilities. The concept of complete mouth rehabilitation is dependent basically upon three proved and accepted principles. These are; the existence of a physiological rest position of the mandible which is constant, the recognition of a variable vertical dimension of occlusion and the acceptance of a dynamic, functional centric occlusion.

Many clinical studies indicate that, vertical dimension of occlusion is maintained even with rapid wear. As the occlusal surface wears, compensatory alveolar process elongates by progressive remodeling of the alveolar bone.<sup>[5]</sup> As a result there is no loss of vertical dimension unless tooth loss occurs. However, occlusal wear may occur more rapidly than continuous eruption depending on the etiology of the wear. Therefore, it is critical to verify loss of occlusal vertical dimension prior to restoration at an increased vertical dimension. So combination of methods like phonetics, facial appearance and measuring the interocclusal distance are used to verify the lost vertical dimension. Occlusal splint is used as a means to raise the vertical dimension of occlusion for 6 weeks. Basic function of a splint is referred to as muscle deprogrammer and it helps the condyle in returning to their centric relation position.

The three prime requirements of full mouth rehabilitation are healthy TMJ, harmonious anterior guidance and noninterfering posteriors. These three factors are interrelated and any disharmony between these will affect the stomatognathic system.

The anterior teeth are usually restored first so as to achieve functional and esthetically viable anterior guidance. 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.<sup>[6]</sup> Anterior guidance forms the anterior control to provide posterior disclusion. The job of anterior guidance is to protect the posterior teeth from lateral or protrusive stresses. The facebow transfer is a must to relate the anterior guidance with the opening and closing axis. It is required to reproduce the arc of closure from the patient to the articulator.

The three main things to be taken care of, while replacing posterior teeth, are achieving posterior disclusion, establishing the plane of occlusion and deciding the type of occlusal scheme. Disclusion refers to separation of opposing teeth during eccentric movements of mandible, as reported by Christensen.<sup>[7]</sup> Posterior occlusion should have equal simultaneous contacts so that it does not interfere with either the TMJs in the back or the anterior guidance in the front. Occlusal interference can be detrimental to the health of the patient. Deflective occlusal interference can cause painful symptoms in the muscle, teeth or other oro-facial structures. A proper plane of occlusion must permit disclusion of all the teeth on the balancing side when the mandible is moved laterally. The reconstruction of vertical dimension of occlusion should be done at the centric relation and it should be acceptable for the patient at the neuro-muscular level <sup>[8]</sup>.

The patient had severely worn down mandibular 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

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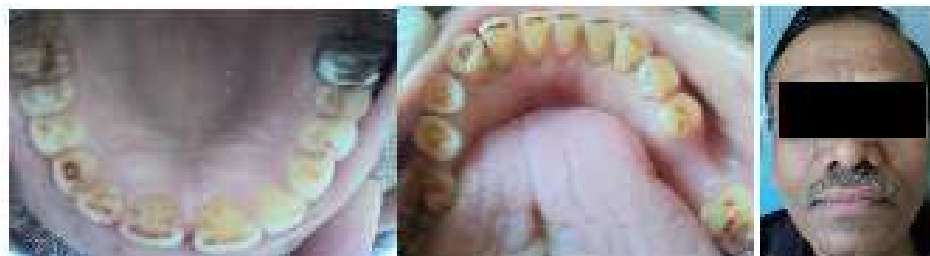
distribution of lateral forces to a group of teeth rather than assigning all forces to one particular tooth. Lateral pressure is distributed to all working side teeth in order to prevent overloading of the canine. Little or no modification was done on the occlusal surface for this patient to preserve the tooth structure for better structural durability.

The provisional restorations play a critical role in the successful treatment of the full mouth rehabilitation patient. The provisional restorations should be esthetic and also fulfill the functions so that the effect can be followed in the temporary before making the final restoration.

**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 necessary to achieve predictable success. The restoration of normal healthy function of the masticating apparatus is the ultimate aim of full mouth rehabilitation. Full mouth rehabilitation by Pankeymann-Schuyler philosophy is successful approach. Patient was satisfied with esthetic and masticatory efficiency.

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**Fig.1: Pre-treatment**

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**Fig.2: Occlusal Splint**

**Fig.3: Tooth Preparation**



**Fig.4 Impression with irreversible hydrocolloid**   **Fig.5: Broadrick Flag**



**Fig.6: Final Impression**

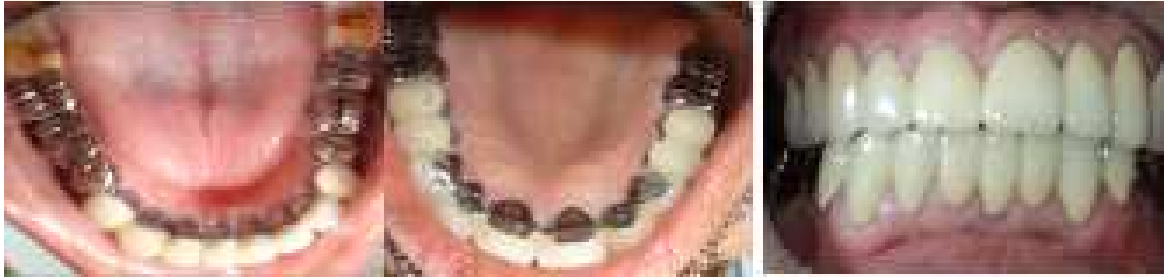
**Fig.7: Provisional Restoration**



**Fig.8: Metal Trial**

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**Fig.9: Final Restoration**



**Fig.10: Group Function Fig.11: Post treatment**