

Prosthetic Rehabilitation Of Severely Worn Dentition Of A Patient With Bruxism:A Case Report

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Abstract

“The mandible is considered to be in its physiologic rest position when all the muscles that close the jaw and all the muscles that open the jaws are in a state of minimal tonic contracture sufficient only to maintain posture.” The physiologic rest position is a postural relationship and is often referred to as the rest vertical dimension (VDR). The occlusal vertical dimension (VDO) on the other hand, is the vertical dimension of the face when the teeth are in contact in centric occlusion. Some prosthodontists believe that physiologic rest position tend to remain constant for reasonable period of time. The evaluation and establishment of the occlusal vertical dimension (OVD) is considered particularly important in treatment of patient with collapsed vertical dimension of occlusion in cases of bruxism.

Keywords: Vertical Dimension of Occlusion, Bruxism

Introduction

Ideal occlusion can be defined as an occlusion compatible with the stomatognathic system, providing efficient mastication and good esthetics without creating physiological abnormalities. Vertical dimension at rest is the postural position of mandible when an individual is resting comfortably in an upright position and the associated muscles are in a state of minimal contractural activity. Vertical dimension collapse can be seen due to attrition of teeth, intracapsular disorders, congenital

anomalies; eg amelogenesis imperfect which can lead to adaptive responses can occur within temporomandibular joint (TMJ), Periodontium & Dental Occlusion. Prolonged strain causes alteration of the architecture of the collagen and non-collagen proteins and ultimately a change in tissue morphology.

Turner & Missirlian classified vertical dimension loss as:

Category-1: Excessive wear with loss of VDO

Category-2: Excessive wear without loss of VDO but with space available

Category-3: Excessive wear without loss of VDO but with limited space

Patients with severe tooth wear may need extensive restorative procedures to achieve appropriate function, esthetics, and comfort. The existing vertical dimension of occlusion (VDO) has to be assessed and need of alteration of vertical dimension should be considered if it falls within Turner & Missirlian categories I & II. The contributing factors for excessive wear of teeth are evaluated and should be removed or reduced if possible.

Case Report

A 55-year female patient presented with an advanced wear of teeth. The patient provided the history of bruxism. On examination, the closest speaking space was found to be 4 mm. On examination, the patient had generalized attrition in maxillary and mandibular teeth with missing natural teeth (16,23,26,46,36) According to Turner and Missirlian

classification, this is a class-1 situation (excessive wear with loss of VDO) No major systemic diseases or drug allergies were reported. The patient rejected any surgery and implant therapy, Metal-ceramic complete veneer crowns were planned for the entire dentition. Restoration of vertical dimension was planned, by replacing the posterior teeth with Porecelain fused to metal crown.



Procedure

Diagnostic maxillary and mandibular impressions made, Facebow transfer was done and diagnostic cast mounted on Hanau wide view articulator. Increasing VDO by 2 mm, occlusal splint was provided to the patient for 4 weeks. After 4 week observation of no discomfort, anterior guidance was planned and patient was given with anterior maxillary and mandibular individual PFM crowns. Splint was maintained for the posterior region, and according to Broadrick's occlusal plane analysis patient's tooth preparation was done for mandibular posterior teeth and wax pattern was made for PFM bridge with respect to 44,45,46,47 and 34,35,36,37 and provisional restorations were provided. After final cementation of posterior mandibular bridge, maxillary bridge was cemented restoring occlusion with protrusive and lateral movements. Patient was given night guard for prevention due to bruxism.



Figure: Occlusal splint provided to patient for 6 weeks.



Figure: Diagnostic wax up done.

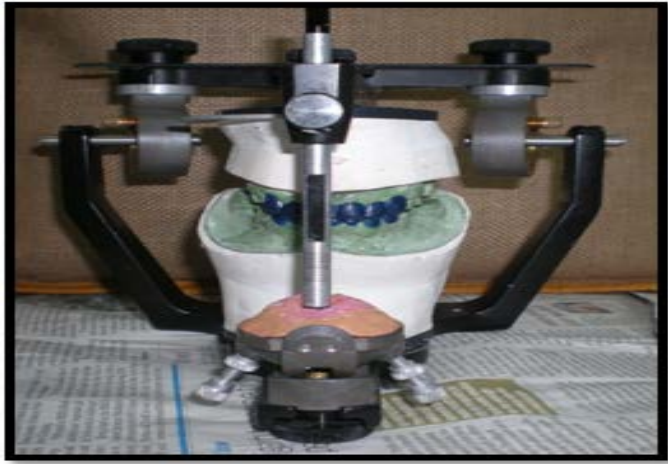


Figure: Tooth preparation done for maxillary and mandibular anterior teeth.

teeth



Figure: Anterior guidance check in the final restoration for anterior maxillary and mandibular crowns.



Figure: Provisional restoration fabricated for maxillary and mandibular anterior teeth.

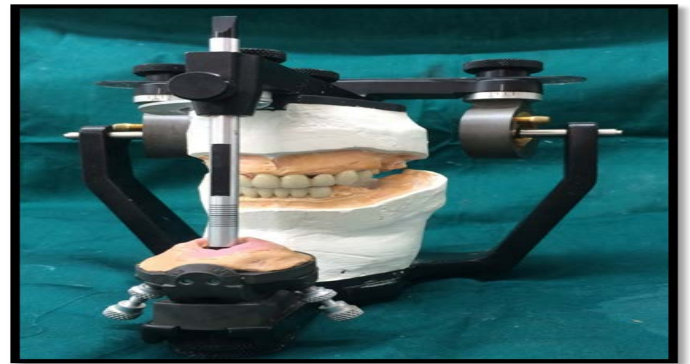


Figure: Cementation of maxillary and mandibular anterior



Figure: Metal trial for maxillary and mandibular anterior



Figure: Tooth preparation done for maxillary and mandibular posterior teeth.



Figure: Wax pattern made for posteriors after Broadrick's occlusal plane analysis



Figure: Provisional restoration fabricated for maxillary and mandibular posterior teeth



Discussion

For the rehabilitation of worn out dentition it is very important to determine the need of increasing the vertical dimension of occlusion without an expense to temporomandibular joint functioning and alteration in physiology of muscles of mastication.

Two Vertical determinants of occlusion are very important for this:

- Anterior controlling factors.
- Posterior controlling factors.

Anterior controlling factors (anterior guidance)

As the mandible protrudes or moves laterally the incisal edges of mandibular teeth touches lingual surface of the maxillary anteriors. The steepness of the lingual surface of maxillary anteriors determine the amount of downward movement of the mandible.



Figure: Final cementation

Posterior controlling factors (condylar guidance):

The rate at which condyles moves down depends on the steepness of eminence. The angle at which the condyle moves away from the horizontal reference plane is referred as condylar guidance angle. It is considered to be a fixed factor.

For full mouth rehabilitation of patient having bruxism and generalized attrition Dr.L.D.Pankey and Dr.Clyde Schulyer gave the most practical philosophies for occlusal rehabilitation Dr L.D.Pankey.

The goals of the technique are:

- Static coordinated occlusal contact of the maximum number of teeth when the mandible is in centric relation
- An anterior guidance that is in harmony with function in lateral eccentric positions on the working side
- Disclusion by the anterior guidance of all posterior teeth on protrusion
- Disclusion of all non working side inclines in lateral excursions
- Group function of the working side inclines in lateral excursion

To accomplish these goals, the following sequence is advocated by the PMS philosophy

- Examination, diagnosis, treatment planning, prognosis.
- Harmonization of the anterior guidance for best possible esthetics, function, and comfort
- Selection of an acceptable occlusal plane and restoration of lower posterior occlusion in harmony with the anterior guidance in a manner that will not interfere with condylar guidance.
- Restoration of the upper posterior teeth in harmony with the anterior guidance and condylar guidance. In the present case report PMS concept has been utilized to provide patient with the best treatment measures.

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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