

Case Report

Full mouth rehabilitation of a patient exhibiting generalized attrition - A case report

Sriram Balaji¹, Vinaya Bhat²

¹Senior Lecturer, Department of Prosthodontics, Sri Ramakrishna Dental College and Hospital, Coimbatore, ²Professor, Department of Prosthodontics, A.B. Shetty Memorial Institute of Dental Sciences, NITTE University, Mangalore.

*Corresponding Author : Vinaya Bhat, Professor, Department of Prosthodontics, A.B. Shetty Memorial Institute of Dental Sciences, NITTE University, Mangalore.

Received : 10.03.2017

Review Completed : 27.07.2017

Accepted : 29.07.2017

Keywords : teeth attrition, full mouth rehabilitation, dental reconstruction

Abstract

Tooth wear is multifactorial and its way of presentation is complex. Many factors are to be considered before arriving at a final treatment plan. Time tested philosophies of dental reconstruction must be taken as a basic foundation to which modifications can be done as per individual needs of the patient. The ultimate aim of any treating dentist is to arrive at a solution which lays emphasis on the comprehensive oral health of the patient. This case report describes one such case of management of a patient with generalized sensitivity.

Access this article online

Quick Response Code



Introduction

Tooth wear is a process which occurs continuously throughout the life time of the patient. In few subjects tooth wear occurs so severe that it results in pulpal and periodontal symptoms. It may be difficult to arrive at a diagnosis as other wasting diseases of the teeth also exhibit many common features¹. If it is associated with loss of vertical dimension, the complexity of treatment increases manifold. In few cases dento alveolar compensation occurs which compensates for the loss of vertical dimension². In such cases space available for restoration decreases. Few cases need a conservative approach and few need aggressive approach. The severity of the presenting condition, expectations of the patient, aesthetics, vertical dimension and dento alveolar compensation are the major factors which determine the course of treatment. Treatment plan must be decided keeping the above mentioned factors in mind for the success of the entire procedure of rehabilitation. This paper describes one such

patient and the treatment for full mouth rehabilitation.

Case Report

A 55 year old female patient reported to the Department of Prosthodontics, AB Shetty memorial Institute of Dental Sciences, Mangaluru, with the chief complaint of generalized sensitivity in the upper and lower teeth. A complete case history was recorded and full mouth radiographs were made. Patient gave a history of clenching and grinding the teeth. A comprehensive oral examination was carried out for the patient. Extra oral findings revealed no abnormality. Intra oral findings revealed generalized attrition of maxillary and mandibular teeth (figure 1). TMJ evaluation was done which revealed normal mouth opening, range of motion and no pathologic joint sounds. A thorough periodontal consultation was done to assess the periodontal condition of the teeth. Freeway space was found to be adequate which ruled out the necessity of interfering with existing vertical

dimension. Vertical dimension pre operatively was measured using vernier caliper and noted down for further reference³. The approach in this case was divided into two phases. Initial consultation phase and treatment phase.

During the initial consultation phase the expectations of the patient was clearly noted down and analyzed. A flowchart of the proposed treatment plan was explained to the patient. The time involved and the number of visits involved in such a colossal treatment protocol was also informed to the patient. Alternative treatment protocols were also proposed to the patient during the initial consultation phase. Once the final treatment plan was arrived at, informed and written consent was obtained.

Full arch maxillary and mandibular impressions were made using irreversible hydrocolloid and diagnostic casts were poured using type III dental stone. Intra oral records were made using aluwax and facebow transfer was done. Casts were mounted in whipmix articulator and the articulator was programmed using the interocclusal records (figure 2). Pankey Mann schuyler philosophy was planned to be implemented for rehabilitating this patient. Broadrick analysis of the occlusion was carried out.

Esthetic wax mock up of anterior teeth was done and custom guide table was fabricated on the articulator (figure 3). Canine guided occlusion was achieved and an index of the mock up was made using putty elastomeric material.

Crowns of all teeth were prepared to receive the prosthesis (figure 4), (figure 5). Gingival displacement was done and impression of the prepared tooth was made using elastomeric impression material. Type IV stone casts were poured in the impressions of the prepared tooth. Die sectioning was done and the cast with the dies were mounted.

Provisional crowns were given to all the teeth using the index of prepared mock up (figure 6). They were made in three segments for each arch, one anterior segment and two posterior segments. They were cemented using non eugenol cement. Then the vertical dimension was verified again to ensure that there was no change in free way space.

Full arch impressions of maxilla and mandible were made with provisionals in place and casts were poured (figure 7). Facebow transfer was done and casts were mounted in whipmix articulator (figure 8).

In the next appointment, the provisionals were removed from one quadrant of the mandible and index was made with opposing maxillary segment where provisionals are intact. This procedure was carried out segment wise so that the original vertical dimension is not lost. Once this was completed, the mandibular cast with sectioned dies was mounted against maxillary cast of provisional crowns. The same procedure was repeated in maxilla and mounting of master casts were done (figure 9).

Wax patterns were prepared on the dies and castings were done. Try in of metal copings was done to verify marginal fit and clearance for ceramic build up. After it was found to be satisfactory, ceramic build up was done and bisque trial was carried out. Once bisque trial was found satisfactory entire ceramic build up was completed and verified in patient's mouth for fit, aesthetics and occlusion. Crowns were initially cemented using zinc oxide eugenol cement for two weeks to check for patient's compliance. After it was found satisfactory permanent cementation was done using Glass Ionomer cement. The patient was given post cementation instructions and was kept on regular recall and maintenance program (figure 10).

Discussion and conclusion

The loss of teeth due to wear causes changes in dynamic nature of stomatognathic system as mentioned by Johannson et al⁴. Management of tooth wear always poses complexities to the treating prosthodontist. This is mainly because of the various causative factors which are closely related and the innumerable ways by which the disease presents itself. Due to this kind of presentation, the management of these problems requires a wide approach. An interdisciplinary team has to be established to discuss the best possible treatment plan for the patient.

While performing full mouth rehabilitation the role of vertical dimension must never be overlooked. According to



Figure 1 : Intra oral view



Figure 2 : Mounting



Figure 3 : Esthetic mock up and custom guide table



Figure 4 : Mandibular tooth preparation.



Figure 5 : Maxillary tooth preparation.



Figure 6 : Temporization.



Figure 7 : Impression with temporaries.



Figure 8 : Mounting of provisionals.



Figure 9 : Final mounting.



Figure 10 : post op view.

Turner and Missirlan vertical dimension of occlusion is constant and does not change throughout the individual's life⁵. If the vertical dimension is not to be altered utmost care must be taken to prevent any change in existing vertical dimension. Use of digital caliper helps to maintain vertical dimension during the entire course of treatment. Any negligence to maintain proper vertical dimension may lead to either immediate or delayed treatment failure. Other factors like pre-treatment records, incisor height measurements, phonetics, facial and neuromuscular factors also have to be considered⁶. Also, the expectations of the patient play a major role in deciding the treatment

protocol during rehabilitation of the entire mouth. If the expectations were found to be unrealistic counseling has to be done to the patient by the attending dentist.

There is never a single treatment philosophy which suits all the patients. The treatment plan should always be case and patient specific. Numerous modifications can be made to the existing treatment philosophies so that it provides comprehensive welfare to the oral health of the patient. More than the experience of the treating dentist, the excellence of the dentist in carving out a restorative treatment plan is crucial for the success of any proposed form of treatment.

References

1. Smith BG. Tooth wear: aetiology and diagnosis. *Dent Update* 1989;16:204-212.
2. Dawson PE. *Functional Occlusion- From TMJ to smile design*. 1st ed. New York; Elsevier Inc.; 2008. p. 430-452.
3. Lerner Jay. A systematic approach to full mouth reconstruction of the severely worn dentition. *Pract Proced Aesthet Dent* 2008;20(2):81-87.
4. Johansson A, Johansson AK, Omar R, Carlsson GE. Rehabilitation of worn dentition. *J Oral Rehabil* 2008; 35:548-560.
5. Turner K A, Missirlan DM. Restoration of extremely worn dentition. *J Prosthet Dent* 1984;52: 467-74.
6. Abduo J, Lyons R. Clinical considerations for increasing occlusal vertical dimension: A review. *Aust Dent Journal*;57:2014:2-10.