



A MULTIDISCIPLINARY APPROACH TO RESTORATION OF SEVERELY WORN DENTITION: A CASE REPORT

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ABSTRACT

Severe caries, attrition and developmental anomalies of anterior teeth lead to loss of anterior guidance. This in turn causes attrition of posterior teeth and loss of occlusal vertical dimension of occlusion. To gain the space for esthetic rehabilitation in these cases is a challenging task. The required space can be achieved by crown lengthening and increasing the vertical dimension of occlusion within physiologic limits. We, hereby have presented a case report showing the treatment procedure of a patient with severely worn dentition in a simple and systematic multidisciplinary approach to improve the function as well as aesthetics, that also remains in harmony with the entire gnathostomatic system.

KEYWORDS: decreased vertical dimension, attrition, esthetics, full mouth rehabilitation, amelogenesis imperfecta

INTRODUCTION

Severely worn dentition cases are one of the most difficult cases to manage in dental practice. This is because such cases involve not only replacement of the lost tooth structure but also restoring the lost vertical dimensions. Full mouth reconstruction is basically a set of procedures that are aimed at restoring chipped or worn out teeth and correcting an improper bite position. Improper jaw position is implicated in various neuromuscular problems. Correcting the jaw position not only restores proper function, but

also helps in enhancing the appearance of the patient.

Full mouth fixed rehabilitation is one of the greatest challenges in the field of prosthodontics. Apprehensions involved in the reconstruction of debilitated dentitions are increased by widely divergent views concerning the appropriate procedures for successful treatment.

The existing vertical dimension of occlusion (VDO) has to be assessed extra orally and intraorally before considering increasing the VDO. Sometimes the vertical dimension has to be restored or increased. The

contributing factors for excessive wear of teeth are evaluated and should be removed or reduced if possible. These assessments reveal the merits of changing the VDO and permit the dentist to evaluate suitable treatment options. It is critical to verify loss of VDO before the reconstruction of an increased VDO. The different techniques that can be used are use of phonetics method, evaluation of interocclusal distance and the evaluation of soft tissue contours.

This article discusses a multidisciplinary approach in a severely worn dentition by restoring esthetics and function.

CASE REPORT

A 60 year old male patient was referred to the department of prosthodontics Kannur Dental College, Anjarakandy with a chief complaint of inability to chew, and poor dental esthetics. The general medical condition was satisfactory, intraoral examination revealed generalized attrition in all mandibular teeth, maxillary posterior teeth and chipping of enamel in maxillary anterior teeth. Teeth numbers 26, 27, 37, 46 and 47 were missing. Joined crown was noticed on 15, 16, 17, 18, and tooth number 21 was prepared for crown (Figure 1A and B).

Figure 1A. Preoperative photograph and OPG.



Figure 1B. Panoramic radiography image.



On the basis of clinical and radiographic examination, diagnosis was made as amelogenesis imperfecta with reduced vertical dimension of occlusion. Full mouth rehabilitation of the mouth was planned to restore the function, aesthetics, speech and comfort of the patient. The patient was informed of the diagnosis, the treatment planning and his consent was taken before start of the

procedure.

Reduction in vertical dimension were confirmed using different methods like: use of phonetics, the use of interocclusal distance, use of facial measurements and the evaluation of soft tissue contours.

Due to the presence of decreased VD (Figure 1), an increase in VD was first considered. By giving occlusal splint. But because of severely attrited mandibular teeth with inadequate clinical crown and pulp exposure it is difficult to place a occlusal splint on mandibular arch.

From clinical and radiological examination, endodontic treatment of teeth 35, 34, 32, 31, 41, 42, 43 and 44 were planned and performed (Figure 2). Extraction of 36 done because of unrestorable condition. Then the crown lengthening procedure of mandibular teeth were done to increase the clinical crown height (Figure 3).

Figure 2. Post endodontic OPG.

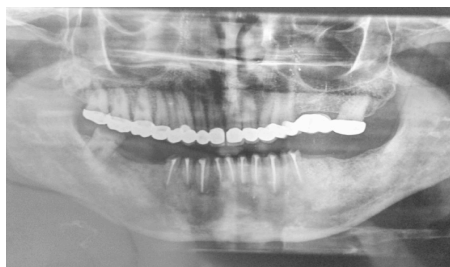


Figure 3. Crown lengthening procedure.



Restoration of lost vertical dimension 6mm planned. First vertical dimension was increased by 2mm using

an occlusal splint which was fabricated using self cure clear acrylic resin. At centric relation, which was cemented to mandibular teeth for a period of 6 weeks. After 6 weeks height of splint was raised to 4mm placed back to patient mouth. At the end of 6th week no abnormal findings were noted and as the patient was comfortable, 2mm increase in the VDO as planned earlier was performed.

After establishing the vertical dimension prosthetic rehabilitation started. Since there were no pulp exposure maxillary teeth were restored with fixed partial denture. Post core were done on mandibular teeth 35, 34, 32, 31, 41, 42, 43, 45 and 46 to attain favorable clinical crown for FPD (Figure 4 to 6). Patient was very much concerned about esthetics replacement of lower posterior with cast partial denture with out visible clasp assembly was made (Figures 7 to 10).

DISCUSSION

Reconstruction of severely attrited dentition is a challenge to a dentist's skill and capabilities. It demands rehabilitation and reconstruction within the physiological and functional harmony of the stomatognathic system. For occlusal rehabilitation two occlusal philosophies are present. One advocates simultaneous reconstruction of both arches and the other advocates complete restoration of one segment in a programmed sequence before proceeding to the next.

The concept of complete mouth rehabilitation is basically depends 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. Thus the aim of rehabilitation includes the health of the periodontium, vertical dimension, interocclusal distance, functional balanced occlusion and esthetics.

Figure 4. Post space prepared.



Figure 5. Post and core impression made.



Figure 6. Cast post and core fabricated and cemented.



The presence of caries, restoration, attrition or a combination of these conditions can cause teeth to have little intact coronal tooth structure remaining, resulting in loss of vertical dimension of 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. 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.

Figure 7. Try in of FPD with extra coronal attachment done.



In our case the patient was presented with a couple of other treatment options. One of the options was to remove all the teeth and prepare a full denture for lower arch FPD for upper arch. Another treatment option was saving all the anterior and premolars teeth in lower arch and extracting all the

other teeth and making a normal cast partial denture after increasing vertical dimension by crowns. Third option was extraction of some teeth followed by over denture. Fourth option was to restore the entire dentition with porcelain fuse to metal crown by increasing the vertical dimension and lower posterior with clasp less RPD.

Figure 8. FPD with clasplless RPD.



Figure 9A. Post treatment view.



Figure 9B. Post treatment view.



Fifth option was restoration of missing teeth with implant prosthesis. The patient refused to get his teeth

extracted. He was interested on saving all the teeth which are possible and was prepared to undergo any amount of extensive treatment to achieve the end result. And he was apprehensive about implants and he want to avoid metal display of RPD. So the patient was planned to restore the entire dentition with porcelain fuse to metal crown by increasing the vertical dimension of occlusion by 6mm with clasplless RPD.

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