

Full Mouth Rehabilitation of Severely Worn Dentition: A Case Report

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Abstract: *The full mouth rehabilitation of patients with severely worn dentition remains to be a big challenge in everyday practice. Each patient requires precise diagnose and comprehensive treatment plan. Depending of tooth lost different treatment plan is required. In most of the cases the increasing of VDO is essential for achieving functional and aesthetic rehabilitation. This case report emphasizes the complexity of full mouth rehabilitation of a 71-year-old male patient with severely worn dentition.*

Keywords: tooth wear, vertical dimension of occlusion, mandibular occlusal splint

1. Introduction

Most of the prosthodontists agree that full mouth rehabilitation remains one of the biggest challenges in everyday practice. A lot of indications like loss of vertical dimension of occlusion (VDO), repeated fractures of restorations, para functional habits, lack of inter-occlusal space, loss of occlusal function, unacceptable aesthetics, TMJ disorders, require full mouth rehabilitation [1]. Collapsed occlusion due to loss of teeth is still on the top of these indications. When combined with severely worn dentition the challenge is even bigger. Although worn dentition can be produced by various factors the etiology often remains unidentified. Tooth wear has been classified into four types: attrition, abrasion, erosion and abfraction [2]. The excessive occlusal wear can result in pulpal pathology, impaired occlusion, TMJ dysfunction and aesthetic disharmony [3]. Patients with severely worn dentition require extensive restorative treatment.

The objective of this case report is to emphasize the complexity of treatment with full mouth rehabilitation of a patient with severely worn dentition.

2. Case Report

A 71- year old partially edentulous male patient referred to the UDCC Department for removable prosthodontics in Skopje. On the clinical examination was observed severely worn dentition with missing teeth: 22, 24, 31, 36 and 41.



Figure 1: Intraoral view – maxilla



Figure 2: Intraoral view – mandibula



Figure 3: Intraoral view



Figure 4: Decreased VDO

The patient's main complains were about having mastication difficulty and generalized sensitivity of tooth. The patient also suffered from TMJ pain and frequent headaches. The patient's facial appearance shows signs of decreased VDO, with shortened (collapsed) lower third of the face and drooping commissures. Before making any treatment decisions we mounted and analyzed the plaster casts. It was obvious that the patient's VDO had to be increased to a proper, comfortable position. [4,5] . After analyzing the plaster models of the lower and upper jaw, decision for treatment was made. The main goal of the treatment plan

was to establish VDO which would provide good mastication, acceptable aesthetics and TMJ pain relief. The treatment procedure was explained to the patient and with his agreement we continued as it was planned. For correction of the VDO an occlusal mandibular acrylic splint was made. The VDO was increased for 6mm. The patient was suggested to wear the occlusal splint while sleeping and 4-6 hours during the day.



Figure 2: Mandibular splint

In the meantime, the necessary pre-prosthetic treatment was implicated, the old tooth fillings were changed, persisting caries was removed as well as the periodontal treatment required. Regular check up were provided. The occlusal splint usage resulted in decreasing of joint pain. Once the new VOD was approved and accepted, followed for period of three months, the patient was prosthetically taken care of. He received metal ceramic crowns and bridges in the upper and lower jaw. The maxillary and mandibular teeth were prepared simultaneously. The restoration maintained stable centric contacts in the post-canine region and light anterior contact. Before finalizing the metal-ceramic restoration the aesthetics, phonetics, canine guided occlusion, protrusive and lateral disocclusion were verified. After the patient's approval we finally cemented it with glass ionomer cement. To avoid the possibility of ceramic fractures, returning of TMJ pain and allowing muscles relaxation the patient was provided with silicon night guard.



Figure 3: Metal-ceramic restoration



Figure 4: Before treatment



Figure 5: After treatment

3. Discussion

Treatment of severely worn dentition was first classified by the amount of VDO loss and available space to restore in 1984 by Turner [6]. Depending of the degree of tooth wear, restorative treatment can range from placement of bonded composites in a few isolated areas to full mouth reconstruction [2]. The etiology of tooth wear is multifunctional and the lack of evidence regarding the long-term treatment outcome makes clinical decisions difficult [7].

The increasing of the VDO in these patients can cause a severe overload on the teeth and often results in destruction of the restorations or of the teeth themselves [8,9]. Tolerance of changes to vertical dimension of occlusion is usually confirmed with the clinical evaluation of the patient having a diagnostic splint [10,11]. A variety of techniques for prosthetic treatment in patients with worn dentition can be used. After a period of adaptation on the increased VDO final restoration has to be made. When all of the prepared teeth are on a single articulator, there is flexibility in developing the occlusal plane, occlusal theme, embrasures, crown contour and aesthetics [10]. The disadvantages of a quadrant reconstruction include restrictions for achieving ideal occlusion when altering the VD, occlusal plane and embrasure development [12,13] Regardless the chosen technique, the assessment of the VDO is of great importance for managing the problem of severely worn dentition. For each individual case comprehensive treatment plan is required.

In literature the period of adaptation to the increased VDO is different from 3 weeks to 5 months wearing time for mandibular splint to 2-6 months for fixed provisions [9,14,15]. In our case because of economics reasons, on patients request, we skip the provisions and after 3 months of adaptation period with mandibular occlusal splint the final metal ceramic crowns and bridges were made.

4. Conclusion

The full mouth rehabilitation of patients with severely worn dentition remains to be a big challenge in everyday practice. Each patient requires precise diagnose and comprehensive treatment plane. Successful rehabilitation is achievable when done step by step. The increase of the VDO has to be done with caution. It can be achieved by placing a removable

acrylic splint. This approved VDO should be duplicated in the final restoration.

The restoring of the stomatognathic system functions and the successful aesthetic rehabilitation, as well as TMJ pain relief, contribute to improved quality of life.

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