

Conservative Prosthetic Rehabilitation

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ABSTRACT

Aim: Conservative treatment is one of the main concerns in prosthetic dentistry recently. The aim of this case is to renew the prosthesis and restore the patient class III occlusion to class I by restoring the function and esthetics conservatively.

Case: A healthy 54 year-old male patient with a complaint of loss posterior lower teeth and also the retention and stabilization in maxillary old complete denture with class III occlusion, referred to the Department of Prosthodontics, Near East University, Faculty of Dentistry.

Findings and Treatment: The patient missed all upper teeth and was using complete denture. He had a severe bony prominence on the right and left buccal side of the maxillary alveolar ridge which may due to the prolonged use of the denture, previously done surgical procedures and some infections. Moreover, missed lower posterior teeth were detected during intraoral and radiographic examination. Periodontal and root canal treatments for # 43 and # 34 were applied. Ceramic fused metal crowns were carried out for # 34, # 43 and # 44. Removable partial denture for lower and complete denture for the upper jaws were designed and renewed. The exostosis was not planned to extract surgically for the retention of the denture and protection of the crest for the future implant treatments. Vertical dimension of the final new denture was modified and the class III occlusion was changed to class I relation.

Conclusion: Treatment planning is directly influenced by the clinical and radiographic examinations of the patient. If right conservative treatment decisions were applied the results will be more satisfactory and convenient for both the patient and the dentist.

Keywords

Conservative treatment, Removable partial denture, Complete denture, Prosthodontics, Vertical dimension.

Introduction

Many edentulous individuals are oral invalids and even when provided with optimal complete dentures their chewing efficiency is much lower than in those with natural teeth, fixed prostheses, or Osseo integrated oral implants [1]. The maintenance of a reasonable number of healthy natural teeth is the best guarantee for good masticatory efficiency with increasing age. Conservative treatment is one of the main concerns in prosthetic dentistry recently.

Jainkittivong and Langlais studied on 960 subjects and pointed out that 26.9% of them exhibited exostoses. Exostoses were more common in the maxilla than in the mandible, and most of the exostoses were located on the buccal aspect of the jaws. The prevalence of exostoses increased with age and more common in men than in women (62.4% vs 37.6%). Exostoses were concurrent with torus mandibular is (TM) more frequently than with torus palatinus (TP) (36.2% vs 20.6%). The highest concurrence of them with tori was observed in subjects who had both TP and TM (42.6%). Exostoses may share the same causative factors, and functional influences may contribute. The etiology of exostoses involves interplay of multifactorial genetic and environmental factors [2].

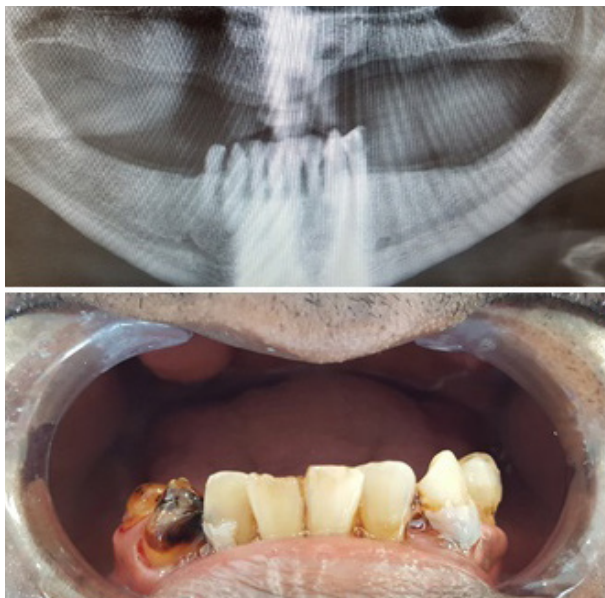
During the planning of oral rehabilitation, the vertical dimension of occlusion (VDO) is one of the first parameters to be measured since its improper restoration can lead to the failure of any prosthetic rehabilitation. To maintain a harmonious craniofacial system, the dental practitioner must establish an appropriate occlusal vertical dimension (OVD). Several methods can be used to determine an appropriate OVD. The patient presenting with decreased OVD represents a particular challenge for the dental practitioner in fabricating conventional dentures [3]. According to the Angle classification, class III malocclusion is defined as the lower molar mesially positioned relative to the upper molar with no specifications in regards to the line of occlusion [4]. The aim of this case is to renew the prosthesis and restore the patient class III occlusion to class I by restoring the function and esthetics conservatively.

Case Report

A healthy 54 year-old male patient with a complaint of loss posterior lower teeth and also the retention and stabilization in maxillary old complete denture with class III occlusion, referred to the Department of Prosthodontics, Near East University, Faculty of Dentistry.

Clinical and radiographic examination

The patient missed all upper teeth and was using his first complete denture since 8 years. He had a severe bony prominence on the right and left buccal side of the maxillary alveolar ridge which may due to the prolonged use of the denture, previously done surgical procedures and some infections. The exostosis is in half sphere in shape and 1.5×1 cm in size. Moreover, missed lower posterior teeth were observed during intraoral and radiographic examination (Figures 1 and 2). Maxillary complete denture; three porcelain fused to metal crowns and removable partial denture for lower jaw was planned for the conservative prosthetic treatment of patient.



Figures 1 and 2: Intraoral and radiographic examinations.

Treatment

Periodontal and root canal treatments for # 43 and # 34 were applied. Ceramic fused metal crowns were carried out for # 34, # 43 and # 44. Kennedy class I removable partial denture prosthesis for lower and complete denture for the upper jaws were designed and renewed (Figure 3). The exostosis was not planned to extract surgically for the retention of the denture and protection of the crest for the future prosthetic treatments including implants. The goal of treatment planning was the conservation of the situation by adapting the new denture due to anatomical form of upper jaw without any surgical intervention. Vertical dimension of the final new denture was modified to change the occlusion form class III to class I relation (Figure 4).



Figure 3: After treatment.



Figure 4: Patient's profiles before and after.

Discussion

Longitudinal data on untreated subjects with Class III malocclusion are virtually nonexistent. Prosthodontic treatment of class III

malocclusion is challenging in planning the restoration. The prevalence of these type malocclusions varies in different racial groups such as among white people 1 to 4% among black people 5 to 8%; in Asians ranges from 4 to 14% [4,5]. This lack of data is due to at least two factors. The first is the low prevalence of this type of malocclusion, particularly in non-Asian populations. All of the well-known “growth studies” of untreated individuals typically contain a preponderance of subjects with Class I and Class II malocclusion, as well as normal occlusion. Class III subjects are not well-represented in these collections, even in proportion to their occurrence in the general population [6].

A second reason behind the lack of information about the growth of untreated Class III individuals is the well-recognized need for early intervention in such patients. Furthermore, an anterior crossbite and even an edge-to-edge incisal relationship typically are perceived to be abnormal by the lay public, as well as by health care practitioners. Thus early treatment of such conditions with the use of several treatment modalities has been advocated [6]. In our case the vertical dimension of the final new complete denture was modified and the class III occlusion was changed to class I relation.

Removal of the exostosis is not always necessary. The most frequent cause of extirpation continues to be the need for prosthetic treatment or that of being a potential source of autogenous cortical bone for grafts in periodontal surgery, cyst surgery or implant surgery, although long-term stability of the grafts is uncertain. Barker et al. used the bone obtained from the TM of a patient in order to increase the thickness of his upper jaw and allow the placement of implants, in order to replace the lateral incisors and absent canines. They determined that the TM provided a useful and local source of bone in procedures for increasing bone thickness [12].

If dentures and their supporting tissues are to coexist for a reasonable length of time, the dentist must fully understand the anatomy of the supporting and limiting structures involved, as the success of a complete denture depends largely on the relation of the denture to the anatomic structures which support and limit them [7]. Increasing vertical dimension has been a universal treatment for many years [9]. After discussing the signs and symptoms of cases of increased VDO, by using all available data correct diagnosis should be established and the most proper treatment should be served to patient [8].

Increasing VDO is therefore generally a risky procedure in prosthetic treatment. Results of experiments that increased vertical dimension both in subjects with natural teeth and with complete dentures have been interpreted as deranging the function of muscles and joints of the masticatory system. Clinical experience, however, supports the opinion that the masticatory system adapts well to moderate changes in the occlusal vertical dimension [11].

The rehabilitation by providing the most appropriate treatment for patients especially the conservative one is a great challenge for the dentists and being discussed for many years.

Conclusion

There are many ways dentists can restore teeth prosthetically. Depending on its condition of relative integrity or more serious breakdown and the patient’s loss of other teeth, the practitioner can choose from a variety of quite different procedures ranging from the fabrication of a single ceramic crown on a vital tooth to correction of considerable loss of teeth with an implant supported bridge [10]. Treatment planning is directly influenced by the clinical and radiographic examinations of the patient. If right conservative treatment decisions were applied the results will be more satisfactory and convenient for both the patient and the dentist.

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