

A Case Report of a Removable Denture Using Magnetic Attachments for Mandibular Molar Missing with a decreased occlusal vertical dimension

R. Negoro, M. Sone, F. Okutsu, T. Kusano, T. Matsukawa, Y. Toyota, S. Yorichika, K. Okamoto and S. Ohkawa

Division of Removable Prosthodontics, Department of Restorative and Biomaterials Sciences, Meikai University School of Dentistry

Introduction

To maintain a harmonious craniofacial system, it is essential to establish an appropriate occlusal vertical dimension (OVD). This case report describes our establishment of an appropriate OVD for a patient (Eichner B3: mandibular molar missing) with a decreased OVD to restore the aesthetics and function by the use of magnetic attachments.

Clinical History

The patient, a 59-year-old female, complained of aesthetic dissatisfaction and masticatory dysfunction. The patient had a partially edentulous maxilla (Eichner B3: mandibular molar missing). All fixed prostheses were failed restorations with a marginal discrepancy and damaged by caries. The patient refused to wear a mandibular removable partial denture because of dissatisfaction with a visible metal clasp on the anterior teeth. She was diagnosed with intraocclusion by analysis of OVD (Fig.1). Finally, we suggested that a mandibular removable overlay denture with coping-type of magnetic attachments and a maxillary removable partial denture with extracoronal-type of magnetic attachments and porcelain fused to metal crowns were fabricated, which the patient found acceptable.



Fig.1 Intraoral view at the initial examination

Treatment Procedure

At first, the prostheses with the marginal discrepancy were removed (Fig.2), and temporary restorations were placed. The #3 and #12 teeth were extracted because of severe caries. After the preprosthetic treatment, the OVD was increased by the use of the treatment denture, and the patient obtained an adequate occlusal relationship (Fig.3).



Fig.2 Intraoral views of removing the prosthesis with the marginal discrepancy



Fig.3 Intraoral views of inserting temporary restorations and treatment denture

As a definitive prostheses, a maxillary removable overlay denture with coping-type of magnetic attachments and a horseshoe plate as the major connector was fabricated (Fig.4), and a mandibular removable partial denture with an extracoronal-type of magnetic attachment was also fabricated (Fig.5). The magnetic attachments in this case report were used by GIGAUSS C400[®] (GC, Japan). The keepers of the magnetic attachment and magnetic assemblies were fixed with adhesive resin cement (Multilink[®] Automix, Ivoclar Vivadent, Liechtenstein) (Figs.6 and 7). Fig. 8 is an intraoral view of the definitive prostheses.

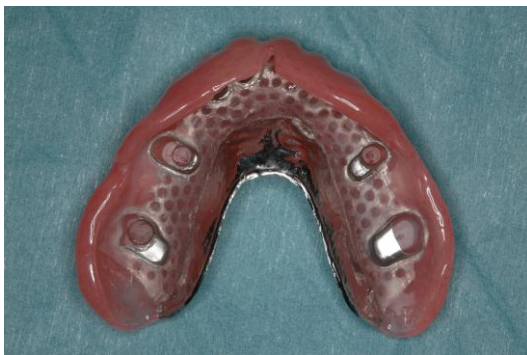


Fig.4 Maxillary removable overlay denture



Fig.5 Mandibular removable denture



Fig.6 Keeper of a magnetic attachments



Fig.7 Extracoronal type of magnetic attachments



Fig.8 Intraoral view with definitive prostheses

Conclusions

A magnetic attachment could be provided as a means for alleviating patient concerns regarding aesthetics and functions. It is difficult to maintain an ideal combination of aesthetics and functionality because the design of a final prosthesis is complex. Therefore, continuous follow-up is necessary with occlusal adjustment and relining of the denture base to prevent any reduction of the OVD. In addition, periodontal management and force control of the remaining dentition should be evaluated during the maintenance program.