

A Case Report of a Magnetic Attachment Denture by Use of an Immediate Denture to Maintain the Optimum Mandibular Position

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Introduction

To reconstruct a harmonious craniofacial system, it is essential to maintain an appropriate occlusal vertical dimension(OVD). This clinical report describes the use of a magnetic attachment denture that improved an immediate denture to maintain appropriate OVD and the optimum mandibular position.

Clinical History

The patient, a 63-year-old female, complained of masticatory dysfunction. The patient had received a maxillary fixed bridge from tooth #3 to tooth #11 in 1989, but the restoration failed, having a marginal discrepancy and damage by caries (Fig.1). We did not diagnose intraocclusion by analysis of OVD. Finally, we suggested that a removable maxillary overlay denture with a coping type of magnetic attachment as a definitive prosthesis by use of an immediate denture to maintain the optimum mandibular position was fabricated, which the patient found acceptable.



Fig.1 Intraoral view at the initial examination

Treatment Procedure

As the first therapy, the incompatible fixed bridge in a marginal portion was removed, and tooth #3 was extracted. Then an immediate maxillary denture was set on the portion of the missing teeth. With the immediate denture, the patient obtained an adequate occlusal relationship and maintained the optimum mandibular position (Fig.2).



Fig.2 Intraoral view with immediate denture

As a definitive prosthesis, the reinforcement structure of the framework for preventing denture base fracture was made to cover about three quarters of the circumference of the magnetic attachment, and protrusion of the labial side was avoided (Fig.3). The magnetic attachment in this case report was supplied by GIGAUSS C600® (GC, Japan) and applied to tooth #6. The keeper of the magnetic attachment and magnetic assembly were fixed with adhesive resin cement (Multilink® Automix, Ivoclar Vivadent, Liechtenstein) (Fig.4).



Fig.3 Reinforcement structure of framework



Fig.4 Keeper of the magnetic attachment

A removable maxillary overlay denture was fabricated and included a coping type of magnetic attachment, wire clasps, and a horseshoe plate as the major connector. This denture was fabricated with the existing occlusal height and the optimum mandibular position (Fig.5). Figure 6 is an intraoral view of the definitive prostheses.



Fig.5 Removable maxillary overlay denture



Fig.6 Intraoral view with definitive prostheses

Conclusions

A removable overlay denture with a magnetic attachment was provided to maintain an OVD. The patient was satisfied and had comfortable mastication. It is difficult to maintain ideal hygiene and functionality because the design of a final prosthesis is complex. Therefore, continuous follow-up is necessary for occlusal adjustment and relining of the denture base to prevent reduction of the OVD. In addition, periodontal management and forced control of the remaining dentition should be evaluated during the maintenance program.

References

1. Hasuike T, Ohkawa S, Prognosis for the overdentures with magnetic attachment : Cases with the reinforcement structure, J J Mag Dent 17(2):3-8, 2008.