A case of functional recovery in a patient with rheumatoid arthritis using magnetic attachment overdentues

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Abstract:

【Introduction】

Magnetic attachment is a type of stud attachment that offer the advantage of easy attachment and detachment without directional restrictions. We report a case in which magnetic attachments were applied to an elderly patient with rheumatoid arthritis and reduced finger dexterity, resulting in a high level of patient satisfaction.

【Case report】

The patient is an 82-year-old woman who visited the clinic with the chief complaint of difficulty eating due to the mobility of her maxillary bridge. The fixed bridge in the maxillary anterior region showed mobility in the abutment teeth, which also caused instability in the clasp denture fitted for the missing molar area. The patient complained of difficulty in putting on and taking off dentures due to rheumatoid arthritis. The anterior bridge was removed, and an overdenture was provided to achieve occlusal balance. Additionally, a magnetic attachment was employed, ensuring strong retention and easy handling.

【Discussion/conclusion】

For patients with rheumatoid arthritis who have difficulty inserting and removing dentures, magnetic attachments have proven to be a treatment method that achieves high patient satisfaction.

I. Introduction

Patients with rheumatoid arthritis or hemorrhagic cerebrovascular disorders often experience reduced manual dexterity, making denture attachment and removal difficult. Therefore, careful consideration is required in denture design. Magnetic attachments have no directional constraints during insertion and removal, allowing easy handling even for elderly individuals with diminished manual dexterity. In this study, we report a case in which the application of magnetic attachments improved the oral health-related quality of life (QOL) in a completely edentulous maxillary patient with rheumatoid arthritis.

II. Case report

1 Patient infomation

The patient was a 82-year-old woman who visited our clinic with the chief complaint of mobility in her maxillary anterior teeth. She reported that a hard resin veneered splinted crown had been placed

on her maxillary anterior teeth approximately 10 years ago. A clasp denture was in place in the maxillary molar region (Fig. 1-3). In the mandible, an overdenture with magnetic attachments was fitted, using teeth #43 and #33 as abutments.

Fig.1 Intraoral photograph at the initial visit

Fig. 2 The dentures used by the patient.

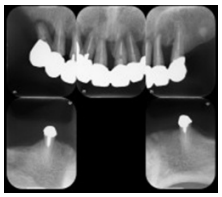

Fig. 3 X-ray image at the initial consultation.

Her medical history included rheumatoid arthritis, which had led to reduced manual dexterity, making it difficult for her to attach and remove her dentures (Fig. 4). The total score for her oral health-related quality of life (QOL) was 32. According to the questionnaire on consumable foods, she was generally able to eat well.

2 Treatment Procedure

In April 2024, teeth 14, 12, 11, and 22 were deemed non-restorable and extracted. Simultaneously, additional artificial teeth were placed. Although magnetic attachments were initially planned for teeth 13 and 23, the prognosis of tooth 23 was uncertain. Therefore, magnetic attachments were placed using teeth 13 and 21 as abutments instead.

Following standard procedures, a denture was fabricated, and in October 2024, a maxillary overdenture was delivered. After a two-week settling period, magnetic components were incorporated into the denture (Fig. 5-6).

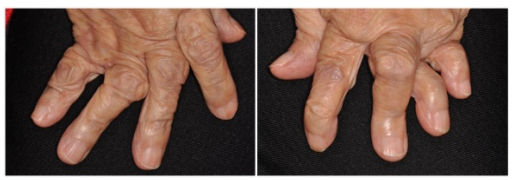

Fig. 4 Photograph of the patient's fingers.

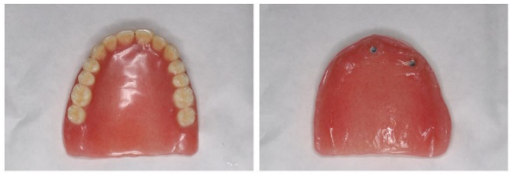

Fig. 5 Definitive denture

Fig. 6 Intraoral view with definitive denture

III. Results

Three months after denture placement, the oral health-related QOL score improved to 15. The patient reported that denture attachment and removal had become easier.

Improvements were observed in all categories of the oral health-related QOL assessment, with particularly notable enhancements in "Physical pain," "Psychological discomfort," "Social disability," and "Handicap."

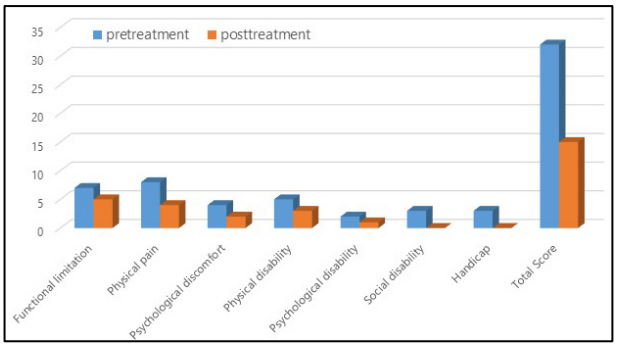

Fig. 7 Result of Oral Health Impact Profile for Edentulous

IV. Discussions/ Conclusions

The questionnaire on consumable foods showed no significant changes. However, in the "Physical disability" category of the oral health-related QOL assessment, the response improved from "occasionally" to "rarely," suggesting a significant improvement in eating-related issues.

Furthermore, the adoption of an overdenture resolved both aesthetic concerns and the difficulty of denture attachment and removal, which likely contributed to maintaining good relationships with those around the patient. This case suggests that using magnetic attachments to address denture attachment and removal difficulties may also have a positive impact on social relationships.

References

1) Ohkubo C, Watanabe I, Tanaka Y, Hosoi T, Application of cast iron-platinum keeper to a collapsible denture for a patient with constricted oral opening: a clinical report, J Prosthet Dent. 2003 Jul;90(1):6-9.