Clinical Study of Removable Denture in Periodontal Disease with Dentition Defect Repair

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DOI: 10.32629/jcmr.v5i4.3122

Abstract: Objective: To explore the clinical effect of movable denture in periodontal disease with dentition defect repair. Method: 78 patients with periodontal disease with dentition defect admitted to our hospital from March 2023 to March 2024 were randomly divided into two groups. The control group (39 cases) was treated with fixed denture in periodontal disease with dentition defect repair, and the observation group (39 cases) was treated with movable denture. The oral health level (OHIP-14 score) before and after treatment and the effect after treatment were compared between the two groups. Result: The total score of OHIP-14 in observation group was significantly lower than that in control group after treatment ($P<0.05$). The therapeutic effect of observation group was higher than that of control group ($P<0.05$). Conclusion: Movable denture has remarkable therapeutic effect in periodontal disease with dentition defect repair, and can improve the oral health level of patients.
***Keywords*:** removable denture; periodontal disease; dentition defect repair

1. Introduction

Periodontal disease is a common oral inflammatory disease, which has significant adverse effects on oral health and quality of life of patients. Denture defect is a common clinical symptom of periodontal disease with various clinical manifestations, which will affect the health of patients and cause irritability, restlessness and other emotions [1]. Therefore, early oral repair is of great significance to patients. At present, in clinical practice, doctors often use three treatment methods: implant denture, fixed denture and movable denture to meet the needs of patients. Among them, implant dentures are expensive, which increases the treatment cost of patients [2]. Fixed denture and movable denture still occupy an important position in clinical application, and there are differences in therapeutic effect between them. Therefore, this paper mainly takes fixed denture treatment as the control group to study the clinical application effect of mobile denture, so as to provide a solid practical basis for ensuring patients to obtain better curative effect in clinical treatment.

2. Data and methods

2.1 General Information

Ninety-five patients with periodontal disease admitted to the hospital from April 2023 to April 2024 were selected as study samples and randomly divided into two groups. Control group (39 cases) patients were treated with conventional oral care methods, including 21 males and 18 females, aged 24~60 years old, with an average age of (34.22±5.47) years old; Observation group (39 cases) patients were treated with oral health care behavior, including 19 males and 20 females, aged 25-65 years, with an average age of (37.45±5.27) years, including 22 maxillary patients and 17 mandibular patients. There was no significant difference in the general data among the groups ($P > 0.05$).

2.2 Research method

In order to ensure the effectiveness and safety of treatment, the oral conditions of the two groups of patients were thoroughly examined before treatment, and the oral conditions were recorded and evaluated. Based on the severity of the disease and inflammation, the patients are provided with targeted periodontal, pulp and dental treatment. And considering all kinds of oral factors, a personalized repair plan was developed for patients. Patients in the control group were treated with fixed denture. The abutment was prepared first, and then the co-emplacement path was prepared. Then impressions, test records and colorimetric measurements were taken, and the temporary bridge was cemented, and the fixed bridge was tried on and bonded. Patients in the observation group were treated with a removable denture, which consisted of a mold extraction procedure after the abutment was prepared and ensured to fit, followed by the injection of plaster to create the model. On this basis, movable dentures are carefully made, and carefully adjusted, modified and tried on to ensure their

suitability.

2.3 Observation indicators and judgment criteria

(1) The oral health status of the two groups of patients after treatment was observed, and the OHIP-14 score was used for evaluation, including four items, each score was 0~10 points, and the score was inversely proportional to the oral health status.

(2) The therapeutic effect of the two groups was observed. It is divided into obvious effect, effective and ineffective. Obvious effect: The denture status of the patient was good, the abutment was not loose, there was no inflammation, and the language function was normal, and the communication was barrier-free; Effective: The patient's denture was in general condition, with slightly limited function. The abutments were stable and mildly inflammatory. However, the language function was basically normal, and only the articulation was slightly unclear. Ineffective: The denture is not functional and has inflammation.

2.4 Statistical analysis

SPSS 26.0 software was used for data processing, (x ± s) represented measurement data, and T-test was used for comparative analysis among different groups. Counting data was expressed as a percentage (%) and the difference between groups was compared by a 2 test. In this study, if $P < 0.05$, the difference was considered statistically significant.

3. Results

3.1 Oral health status of two groups of patients after treatment

The scores of OHIP-14 in observation group were significantly lower than those in control group ($P<0.05$).

Table 1. OHIP-14 scores (score, x ± s) of the two groups of patients

Group	Number of cases	Oral pain	Body function	Independent ability	Psychological status	Total points
Control group	39	4.33±1.12	4.81±1.72	5.01±1.02	4.03±0.34	25.81±5.22
Observation group	39	3.03±1.24	3.33±1.47	4.13±1.47	3.01±0.25	14.37±5.08
T-value		3.418	2.531	1.667	5.371	4.352
p-value		0.0.43	0.021	0.039	0.018	0.003

3.2 The therapeutic effect of two groups of patients

The effective rate of observation group was significantly higher than that of control group ($P < 0.05$).

Table 2. Comparison of treatment effects between the two groups [n, %]

Group	Number of cases	Remarkable	Effective	In vain	Effective rate
Control group	39	13 (33.33%)	19 (48.71%)	8 (20.51%)	32 (82.05%)
Observation group	39	22 (56.41%)	15 (38.46%)	2 (5.13%)	37 (94.87%)
T-value					4.351
p-value					0.008

4. Discussion

For patients with periodontal disease and dentition defects, the teeth may be twisted, displaced, misaligned and scattered in the space, which will have an adverse effect on the patient's facial beauty and occlusal function. In addition, dental defects may also lead to food impaction, further affecting oral hygiene. Therefore, for such patients, it is necessary to take effective treatment measures in time to restore their oral health. Mobile denture abutments have relatively low requirements, and at the same time have many advantages such as small size, convenient cleaning, high comfort and wide adaptability [3]. In this study, the OHIP-14 scores of patients with periodontal disease combined with dentition defect were significantly lower than those of the control group, and the treatment effective rate was as high as 94.87% ($P < 0.05$). Movable denture is a scientifically verified oral restoration method, which cleverly uses the patient's own natural subdental mucosa, bone tissue and remaining abutment as a stable foundation, and uses the precision-designed denture fixation mechanism combined with artificial teeth to repair the functional and morphological deficiencies caused by tooth loss [4]. In addition, removable dentures can be freely removed, which is convenient for oral cleaning and has a positive effect on maintaining oral health, so its therapeutic effect is remarkable.

To sum up, the application effect of removable dentures in the repair of periodontal disease with dentition defect is superior, and it is worthy of clinical application.

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