



ORIGINAL ARTICLE

Improving Satisfaction of Complete Denture through Clinical Remount Correction of Occlusion

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ABSTRACT

Occlusal interventions are one reason for dentures discomfort. Clinical remount of complete dentures to eliminate occlusal interventions at the time of denture delivery has several advantages. This study aims to determine the effect of the clinical remount method on patients comfort and complete dentures success compared with the intraoral occlusal correction method with articulating paper. Edentulous patients were selected and randomly divided into two groups A and B. They were examined for not suffering from systemic diseases, temporomandibular joint problems and residual ridge poor anatomy. They were similar in terms of jaws and oral conditions, selected from among those who received complete dentures for the 1st time. They ranged from 50 to 85 years of age. Each group included 8 females and 7 males. The dentures were made under the same conditions supervised by a prosthodontist and a technician. Group A received clinical remount occlusal correction and group B underwent intraoral occlusal correction with articulating paper. The dentures were made and delivered to them. In order to check patients comfort, questionnaires indicating 4 factors of patients satisfaction with the dentures, the number of quadrants with sore spots, those with pain and the number of painful temporomandibular joints were filled in within 24 hours and 1 week. Results were analyzed using Mann-Whitney and independent T tests. Patients mean satisfaction was significantly higher within 24 hours and 1 week in group A than in group B ($P < 0.05$). The mean number of sore spot quadrants and of painful quadrants were significantly lower in group A than in group B ($P < 0.05$). The mean number of painful temporomandibular joints equaled 0 in both groups. The result of this study showed that the clinical remount occlusal correction method causes comfort increase in edentulous patients and success in complete dentures compared with the intraoral occlusal correction with articulating paper.

Keywords: complete denture, occlusion, edentulous mouth.

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INTRODUCTION

One of the complete prosthesis objectives in patients is easy mastication which will be effected when the teeth, their bearing tissues and other factors effective on occlusion remain healthy. Besides providing esthetics and phonetics, the establishment of a properly correct occlusion plays an essential role in easy mastication followed by preserving occlusal elements health. Dentists more encountering the treatment of edentulous patients well feel the importance of occlusion in the clinic in such patients [1].

Many causes have been expressed for complete dentures success and failure. There is not a specific occlusal design or model for complete denture patients treatment success or failure. Yet, it has been generally accepted that occlusal interventions and disorders decrease serves treatment success and failure lowering. Besides, occlusal harmony causes less mucosal disorders and preservation of residual ridge and soft tissue [2].

Occlusal disharmony is one reason for dentures discomfort. Elimination of occlusal premature contacts at the time of delivery has several advantages [3].

These errors can decrease using the intraoral occlusal correction with articulating paper, specifying premature contacts and their abrasion. This method causes many errors to be removed. Yet, the clinical remount method can be more satisfactory, and sometimes, less time consuming [4].

Clinical remount can help increase patients comfort, denture compatibility and decrease in number of visit sessions after placement. Besides, it will optimize occlusal harmony and positively influence denture success. But most dentists and dental technicians perform laboratory remount to correct variations due to curing. A few dentists however perform clinical remount at the time of denture delivery [2].

Prosthesis clinical remount simplifies occlusal balance through occlusal disharmony visual assessments, assurance of occlusal coincidence accuracy and decrease of errors made due to the mucosa viscoelastic nature [5,6].

Occlusal errors which may be observed at the 1st time the denture is placed into the mouth may be due to numerous causes which are variations in temporomandibular joints health, presence of error in mandibular relations records recorded by the dentist, errors present in records transfer to articulator relations, inappropriate putting of occlusal rims on the casts, temporal bases record with poor compatibility, changing of the vertical relation on the articulator, incorrect arranging of posterior teeth, muffles incomplete closing and application of overpressure in muffles closing. Errors present in dentures occlusion may be due to inevitable variations in dentures base materials [7].

There are 2 remounting methods to eliminate errors due to prosthesis making:

1. Laboratory remount during which final casts are linked to the mounting gypsum residues in the same form as the cured dentures lie on them and occlusal errors are corrected through selective grinding [7].
2. Clinical remount: When placing the denture, this method allows correcting occlusal errors after repeated recording of maxillomandibular relation or the same central relation [8].

It is very important to know that occlusal correction by selective abrasion is only helpful for small errors, and that compensating large errors is only possible by teeth relocation.

Patient's adaptation with new dentures is often an index for positive or negative treatment results. Prostheses comfort in situ is normally the requirement of positive adaptation with new dentures. In the compatibility period, many factors can cause mucosal irritation and tissue lesions, and finally, causing pain. Many of these factors are however directly controlled by the dentist, including tissue compatibility, extension of denture margins and occlusion. Other factors are yet relevant to patients, including time of application and dietary regimen considerations and habits [8].

Clinical remount is an important service to patients and increases their comfort. It at least decreases their discomfort & optimizes dentures efficiency. Accordingly, clinical remount decreases adaptation time and helps obtain patients satisfaction and acceptability.

This study aims to compare 2 methods of clinical remount and intraoral occlusal correction with articulating paper to specify whether or not clinical remount is effective on comfort increase and patients adaptation with dentures.

MATERIALS AND METHODS

In this clinical trial study, the subjects were 30 edentulous patients needing complete dentures, referring to Islamic Azad dental school in Esfahan and receiving dentures for the 1st time. They were examined and selected for not suffering from systemic diseases, temporomandibular joint problems and residual ridge poor anatomy. These Patients ranged from 50 to 85 years of age and included 8 females and 7 males in each of 2 groups. They all had similar oral and jaw conditions, normal oral mucosa and skeletal occlusion class I.

The samples included 15 patients in each group. The lab was requested to perform remounting through splitting cast for all dentures.

The patients were randomly allocated to 2 groups A and B. Group A received clinical remount occlusal correction and group B underwent intraoral occlusal correction with articulating paper.

24 hours and 1 week later, an examiner, unaware of the group's classification, examined the patients. Questionnaires indicating 4 items of patient's satisfaction, the number of quadrants with sore spots and inflammation, of painful quadrants and of painful temporomandibular joints were filled in. The results were analyzed using SPSS statistical software, Mann-Whitney and independent T tests.

Complete dentures success compared with intraoral occlusal correction with articulating paper.

RESULTS

Independent T test showed that patients mean satisfaction with dentures was significantly higher in group A than in group B 24 hours and 1 week after denture delivery ($P < 0.001$ at both times). (Figure 1)

Independent T test showed that the mean number of quadrants with sore spots and inflammation was significantly lower in group A than in group B 24 hours and 1 week after denture delivery (P=0.02 at both times).(Figure2)

Independent T test showed that the mean score of number of painful quadrants in patients was significantly lower in group A than in group B 24 hours and 1 week after denture delivery(P<0.001 at both times).(Figure3)

The mean score of number of painful temporomandibular joints equaled 0 in both groups A & B 24 hours and 1 week after denture delivery.

Meanwhile, Mann-Whitney test confirms the results of independent T test.

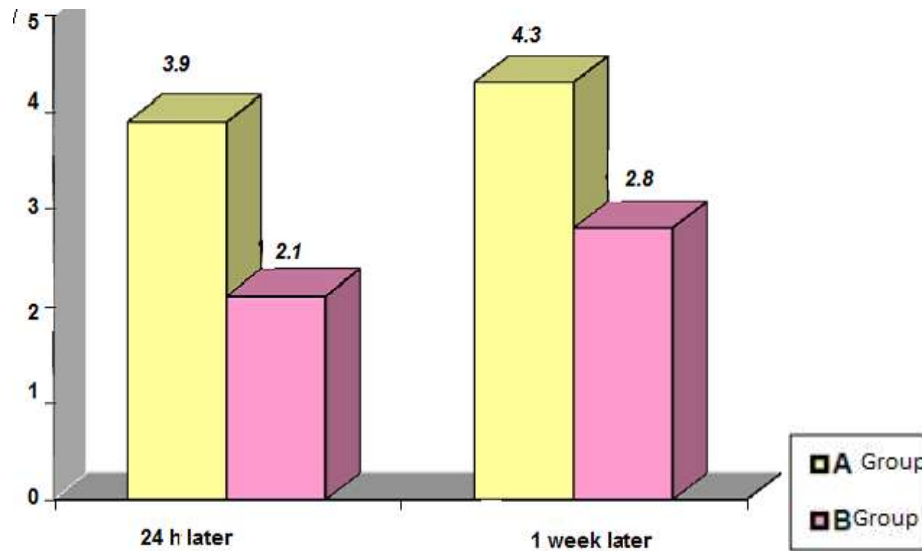


Fig-1: Patients mean score of satisfaction(out of 6) 24 hours and 1 week after denture delivery in both groups A & B.

Fig-2 Mean score of number of quadrants with sore spots and inflammation in patients(out of 4 scores) 24 hours and 1 week after denture delivery in 2 groups A & B.

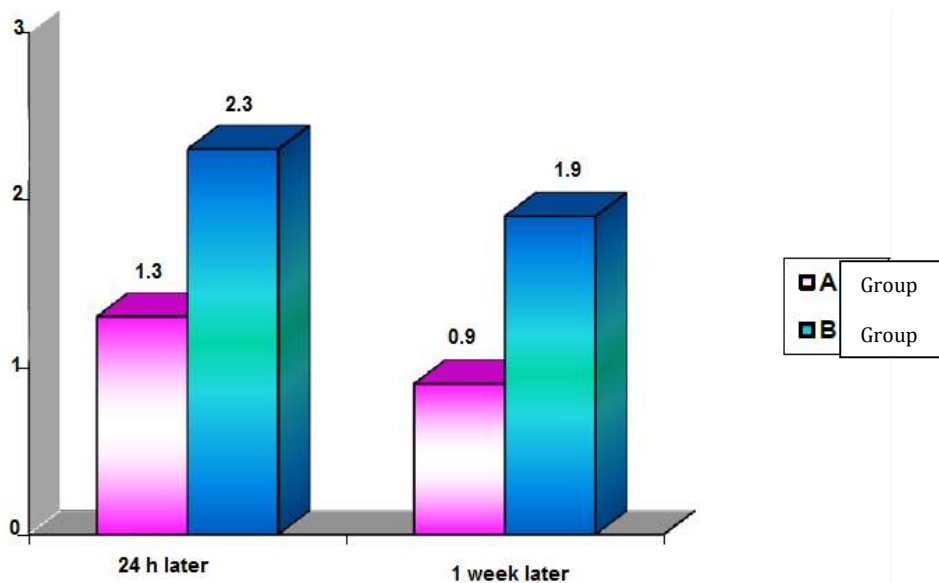


Fig-3: Mean score of number of painful quadrants in patients(out of 4 scores) 24 hours and 1 week after denture delivery in 2 groups A & B.

DISCUSSION

Dentists more encountering the treatment of edentulous patients well feel the importance of occlusion in the clinic in such patients. Prosthesis with a good impression will fail without consideration of occlusion

harmony. A properly optimal occlusion will render the prosthesis inapplicable if complete prosthesis other treatment steps have not been performed in a high quality. For this reason, in some cases, the 1st degree of importance is attached to occlusion. This does not of-course mean that other factors should be ignored (1).

While performing its functions, correct occlusion in natural teeth is also responsible for preserving and protecting the teeth and their bearing tissues. Besides providing esthetics, phonetics and functional aspects in a complete prosthesis, an occlusion is optimal and correct which also undertakes to protect prosthesis bearing tissues and does not cause their destruction [1].

Occlusal disharmony is one of the reasons for dentures discomfort. Elimination of occlusal premature contacts at the time of denture delivery has many advantages [3].

These errors can decrease using the intraoral occlusal correction with articulating paper, specifying premature contacts and their abrasion. This method causes many errors to be removed. Yet, the clinical remount method can be more satisfactory, and sometimes, less time consuming [4].

In the present study, the effect of clinical remount on patients comfort and complete dentures success was studied compared with the intraoral occlusal correction method using articulating paper.

The conducted study showed that the mean score of patient's satisfaction in 24-hour and 1-week visit sessions was significantly higher in the group that had received clinical remount than in the group that had only undergone intraoral occlusal correction with articulating paper.

The mean score of quadrants with sore spots and inflammation and the mean score of number of painful quadrants in 24-hour and 1-week visit sessions were lower in the group that had received clinical remount than in the group that had only undergone intraoral occlusal correction with articulating paper.

The mean sore of number of painful temporomandibular joints was 0 in both groups.

In a study conducted by Firtell *et al.* on the effect of clinical remount on patients comfort and complete dentures success, clinical remount was found to significantly cause pain decrease in patients, balance of occlusal forces and decrease in changing dentures occlusion models [2].

The results of the present study are similar to the above results. Our study also showed that clinical remount significantly causes the number of quadrants with pain and sore spots to decrease compared with intraoral occlusal correction with articulating paper.

In the study conducted by Shigli *et al.*, these results were obtained : remount and occlusal correction significantly causes the number of visit sessions after denture delivery to decrease, pain decrease in chewing and swallowing, decrease in soft tissues irritation, discomfort decrease while chewing and patients comfort increase. In terms of temporomandibular joints pain however, this study did not show any significant difference in the 2 groups.

The results of our study complies also with those of this one, for we have also shown that clinical remount significantly causes decrease in number of painful quadrants and quadrants with lesion and inflammation and the patients satisfaction level increase.

In our study not a significant difference was shown between the numbers of painful temporomandibular joints in the 2 groups, either, perhaps because occlusion displays its effect on the temporomandibular joint within a longer time.

In the study of Al-Quran on the clinical survey of the clinical remount method, clinical remount was found to significantly increase maxillary denture comfort, mandibular denture comfort and suitability and mastication [9].

The results of our study are in parallel with those of this one. Our study also showed a significant increase in patients' satisfaction with the dentures and decrease in number of quadrants with lesion and inflammation and of painful quadrants.

In a study on the comparison of occlusal contacts in 2 methods of intraoral occlusal correction with articulator paper and remount in complete dentures, Wilson *et al.* found out that the remount method significantly decreases occlusal premature contacts compared with intraoral occlusal correction using articulating paper. This study also showed that for complete dentures, intraoral occlusal correction with articulating paper does not enjoy sufficient precision compared with the remount method [10].

Like the above mentioned study, the results of our study accordingly approve the priority and preference of the remount method compared with occlusal correction using articulating paper.

In the study by Atashrazm *et al.* on occlusal disharmonies and relevant causes in complete dentures, a significant relation was shown to exist between occlusal harmony and the clinical remount method [11].

The results of our study comply with those of the above mentioned one, either.

The limitation of this study was the complete dentures making conditions equalization hardness. For this reason, for precision increase in dentures making control and other steps of the study, the samples size was decreased to 15 individuals. Similar studies should be conducted at time intervals more than 1 week in this relation to specify the course of changes made in complete dentures patients.

CONCLUSION

Regarding the results of the present study, clinical remount causes patients comfort increase and complete dentures success compared with intraoral occlusal correction with articulating paper.

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