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Original Research

Periodontal Health Status in RPD Wearing Patients Visiting to Dental Hospital in Azamgarh.

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ABSTRACT

Background: Disease of Periodontium is a group of inflammatory disorders; the pathophysiology of this disease is associated with accumulation of microbial plaque on the teeth and the response of the host to those accumulations. Hence; the present study was undertaken for assessing the effect of removable partial denture (RPD) on periodontal health of teeth. **Materials & Methods:** A total of 50 patients who reported to the department of prosthodontics with the chief complaint of missing mandibular first and second molar and were prosthetically rehabilitated with RPD. Follow-up as done in all the patients' upto a time period of two years. Natural unrestored teeth of the opposite side of the jaw were taken as control. Clinical attachment level (CAL), gingival index (GI) of Löe and Silness and Silness and Löe plaque index (PI) were used for assessment of periodontal health. **Results:** Mean PI of the RPD group was significantly higher in comparison to the control group. Non-significant results were obtained while comparing the mean GI among the patients of the RPD group and control group. Mean CAL of the RPD group was significantly higher in comparison to the control group. **Conclusion:** Improper oral hygiene maintenance might result in loss of abutment. Therefore; adequate and careful prosthetic treatment planning and oral hygiene maintenance protocols can lead to decrease in incidence of periodontal pathologies related to RPD.

Key words: Periodontal health, Removable partial denture.

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INTRODUCTION

Disease of Periodontium is a group of inflammatory disorders; the pathophysiology of this disease is associated with accumulation of microbial plaque on the teeth and the response of the host to those accumulations. The name periodontal disease mostly refers only to plaque related inflammatory disease of the periodontal tissues.[1, 2]

The placement of a removable partial denture [RPDs] in the oral cavity appears to affect both the quality and quantity of the bacteria by increasing the accumulation of plaque on the remaining teeth. A number of investigators have suggested that the insertion of RPD into the oral cavity promoted changes in both the quantity and quality of the plaque and as a consequence increased the gingival inflammation or caries status as observed on the supporting teeth.[3, 4]

Hence; the present study was undertaken for assessing the effect of RPD on periodontal health of teeth.

MATERIALS & METHODS

The present study was undertaken for assessing the effect of RPD on periodontal health of teeth. Ethical approval was obtained from institutional ethical committee and written consent was obtained from all the patients after explaining in detail the entire research protocol. A total of 50 patients who reported to the department of prosthodontics with the chief complaint of missing mandibular first and second molar and were prosthetically rehabilitated with RPD. Follow-up as

done in all the patients' upto a time period of two years. Inclusion criteria for present study included

- Rpd wearing patients who visited our department from February 2018 to May 2019 were included in the study.
- Patients wearing RPD for a minimum of two years
- Patients with absence of any bone pathology
- Patients with negative history of any other systemic illness

Natural unrestored teeth of the opposite side of the jaw were taken as control. Clinical attachment level, gingival index (GI) of Löe and Silness and Silness and Löe plaque index were used for assessment of periodontal health.[5- 7] All the results were recorded in Microsoft excel sheet and were analyzed by SPSS software. Chi- square test, Mann Whitney u test and student t test were used for assessment of level of significance.

RESULTS

In the present study, a total of 50 patients were analyzed. Mean PI among the RPD teeth and control teeth were found to be 1.61 and 1.29 respectively. Mean PI of the RPD group was significantly higher in comparison to the control group. Mean GI among the RPD teeth and control teeth were found to be 1.48 and 1.37 respectively. Non-significant results were obtained while comparing the mean GI among the patients of the RPD group and control group. Mean CAL of the patients of the RPD group was 4.96 mm while mean CAL of the patients of the control group was 4.08 mm. Mean CAL of the RPD group was significantly higher in comparison to the control group.

Table 1: Comparison of GI and PI

Periodontal parameter	RPD	Control teeth	p- value
Mean PI	1.61	1.29	0.00 (Significant)
Mean GI	1.48	1.37	0.39

Graph 1: Comparison of periodontal parameters

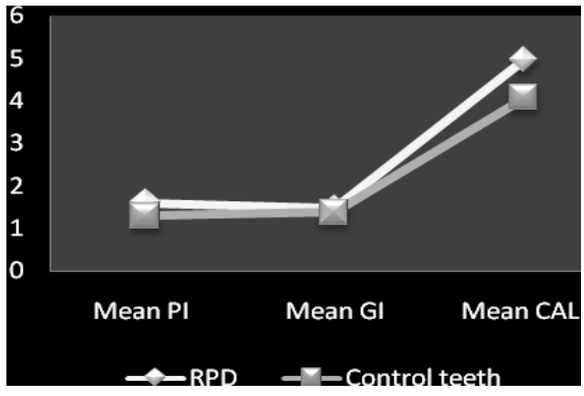

Table 2: Comparison of CAL

Parameter	RPD	Control teeth	p- value
Mean CAL	4.96	4.08	0.01 (Significant)

DISCUSSION

Epidemiological studies in both animals and humans have shown that plaque is an essential factor in the etiology of periodontitis. It has also been shown that gingivitis and periodontitis can be satisfactorily treated if plaque control is established. Placement of a removable partial denture (RPD) in the oral cavity seems to influence the existing ecological situation by causing increased plaque formation on the remaining teeth.[5-7]

Mobility of the abutment teeth is influenced by many factors, such as the location of the rests, the contour and rigidity of the connectors, and the extension of the partial denture.[8]Patients who are going to receive RPDs should be carefully motivated and instructed in order to prevent periodontal diseases. A tidy and simple design of RPD will minimize the accumulation of food debris and plaque on teeth and gingival margins.[9- 11]

In the present study, a total of 50 patients were analyzed. Mean PI among the RPD teeth and control teeth were found to be 1.61 and 1.29 respectively. Mean PI of the RPD group was significantly higher in comparison to the control group. Mean GI among the RPD teeth and control teeth were found to be 1.48 and 1.37 respectively. Non-significant results were obtained while comparing the mean GI among the patients of the RPD group and control group. Zlatarić DK et al assessed the effect of removable partial dentures on periodontal health of abutment and non-abutment teeth. A total of 205 patients with RPDs participated in this study. There were 80 males and 125 females aged 38 to 89, with 123 maxillary and 138 mandibular RPDs. Patients were wearing existing RPDs for different periods ranging from 1 to 10 years. A two-part questionnaire was devised for this study. In the first part, patients answered questions on gender; age; smoking habits; denture age; denture wearing habits; mouth odor; and problems with food accumulating under the denture base, on the outside surface of the denture, and on the outside surface of remaining teeth after eating. The Kennedy classification, material, denture support, denture base shape, and number of teeth in contact, number of existing clasps, and occlusal rests were categorized. The quality of denture construction was also evaluated. In the second part of the questionnaire, baseline recordings of plaque (PI), gingival (GI), and calculus (CI) indexes were made, and Tarbet index (TI), as well as probing depth (PD), gingival recession (GR), and tooth mobility (TM) were measured, both on abutment and non-abutment teeth. Significant differences (P <0.01) were noted for PI, Cl, GI, PD, TM, and GR between abutment and non-abutment teeth, with abutment teeth showing more disease. RPD design plays an important role in the state of the periodontium. Appropriate design and good oral hygiene may decrease the appearance of periodontal disease.[12]

In the present study, mean CAL of the patients of the RPD group was 4.96 mm while mean CAL of the patients of the control group was 4.08 mm. Mean CAL of the RPD group was significantly higher in comparison to the control group.Dula LJ et al evaluated the influence of removable partial dentures (RPD) on

the periodontal health of abutment and non-abutment teeth. A total 107 patients with RPD participated in this study. It was examined 138 RPD, they were 87 with clasp-retained and 51 were RPD with attachments. The following periodontal parameters were evaluated for abutment and non-abutment teeth, plaque index (PLI), calculus index (CI), bleeding on probing (BOP), probing depth (PD) (mm) and tooth mobility (TM) index. These clinical measurements were taken immediately before insertion the RPD, then one and 3 months after insertion. The level of significance was set at ($P < 0.05$). The mean scores for PLI, CI, BOP, PD, and TM index, of the abutment teeth and non-abutment teeth were no statistically significant at the time of insertion of RPD. After 1-month, PLI was statistically significant (0.57 ± 0.55 for abutment and 0.30 ± 0.46 for non-abutment teeth). After 3 months, there were significant differences between abutment and non-abutment teeth with regard to the BOP (1.53 ± 0.50 and 1.76 ± 0.43 respectively), PD (0.28 ± 0.45 and 0.12 ± 0.33 respectively) and PLI (1.20 ± 0.46 and 0.75 ± 0.64 respectively). No significant mean difference in TM and CI was found between the abutment and non-abutment teeth ($P > 0.05$). With carefully planned prosthetic treatment and adequate maintenance of the oral and denture hygiene, we can prevent the periodontal diseases.[13]

CONCLUSION

From the above results, the authors conclude that improper oral hygiene maintenance might result in loss of abutment. Therefore; adequate and careful prosthetic treatment planning and oral hygiene maintenance protocols can lead to decrease in incidence of periodontal pathologies related to RPD.

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