Research Article

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Prevalence of Gingival Pathologies in Patients Undergoing Orthodontic Treatment

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ABSTRACT

Background: orthodontic treatment is commonly preferred treatment for improvement of esthetics. However along with its benefits it is very well known for its complications faced during treatment.

Aim: To study prevalence of gingival pathologies in patients undergoing orthodontic patients

Materials and Method: 200 patients were selected for the study. Patients were divided into two groups. Group 1 consisted of 100 patients undergoing orthodontic treatment and group 2 consisted of 100 patients treated without orthodontic treatment. The age group selected for the study ranges between 16 to 22 years. Clinical examination was done to know the presence of gingival pathology with orthodontic procedure.

Results: Moderately inflamed gingiva was seen in 20.5% in study group whereas in control group it was observed only in 12% cases. In orthodontic group severe gingival inflammation was seen in 8% cases whereas in non orthodontic group severe inflammation was seen only in 5% cases. The overall result showed that a highly significant difference was observed in gingival condition of orthodontic and non orthodontic group

Conclusion: present study showed high prevalence of gingival and periodontal problem in orthodontic patients. Proper brushing and flossing can prevent worsening of the situation.

Keywords: Gingival health, gingival recession, orthodontic treatment, periodontal tissue.

INTRODUCTION

Orthodontic treatment commonly preferred treatment by patients as well as dentist as it improves dental occlusion and make teeth in proper alignment, which ultimately results in a good functioning of dentition and increases patients self esteem.[1,2] Although, orthodontic treatment, has its own benefits and help to correct simile it always has some disadvantages, placement of an orthodontic appliance in a patient's mouth is often associated with alterations in the oral hygiene habits and periodontal health. Orthodontic fixed appliance leads to accumulation of plaque and are prone to produce local soft tissue response in gingiva.[3,4,5] Patients find it very difficult to maintain oral hygiene in presence of braces. Key element in treatment of orthodontic treatment is plaque control. Good oral hygiene during orthodontic treatment increases the chances of good prognosis.

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According to the literature the periodontal reaction during orthodontic treatment is multifactorial in nature. Host resistance, the presence of systemic conditions and the amount of dental plaque, type of bacteria presence altogether is responsible for worsening gingival health.[6] So we aimed to study the prevalence of gingival pathologies in patients undergoing orthodontic patients.

MATERIALS AND METHODS

A total of 200 patients were selected for the study. Patients were divided into two groups. Group 1 consisted of 100 patients undergoing orthodontic treatment and group 2 consisted of 100 patients treated without orthodontic treatment. The age group selected for the study ranges between 16 to 22 years. This study was carried out in the department of orthodontist. Ethical committee approval was obtained from the Institutional Ethics Committee. A written informed consent was obtained from the parents/guardian. Of the 200 patients 100 were males and 100 were females.

Inclusion Criteria

1) Patients undergoing orthodontic treatment

2) Those willing to participate

Exclusion Criteria

- Patients suffering from any systemic diseases.
- Physically and mentally challenged children

The Performa compiled of four components, the first part pertaining to the questions of demographic variables. The second, third and fourth part recorded information regarding dental caries status, gingival health and periodontal diseases.

Statistical Analysis:

The values obtained during each session will be assessed, tabulated and subjected to appropriate statistical analysis. The levels of significance tested were $P < .05$ and $P < .01$.

RESULT

In present study 200 patients were selected for the study. Patients were divided into two groups group1 orthodontic group consisted of 100 patient's i.e.50% and group 2 which was control group consisted of 100 patients i.e. 50% (Graph 1). Study group consisted of 50 males and 50 females i.e. 50% whereas as control group consisted of 50 males and 50 females i.e. 50%. In present study number of males and females were equal in both the groups (Table 1). In present study result showed that of the 100 patients in study group normal gingiva was observed in 11 patients i.e. 5.5% whereas in control group normal gingiva was observed in 36 patients i.e. 18%. The difference observed was found to be highly significant. Mild inflammation in gingiva was observed in 32 cases i.e. 16% in study group and 30 patients in control group i.e. 15%. The difference observed was not found to be significant. Moderately inflamed gingiva was seen in 41 cases in study group i.e. 20.5% whereas in control group it was observed only in 24 cases i.e. 12%. In orthodontic group severe gingival i9nflammation was seen in 16 cases i.e. 8% cases whereas in non orthodontic group severe inflammation was seen only in 10 cases i.e. 5%. The overall result showed that a highly significant difference was observed in gingival condition of orthodontic and non orthodontic group (Table 2). In current study in study group periodontal status was found to be good only in 28% cases fair in 46% and poor in 26% cases whereas in control group good periodontal status was seen in 56% cases fair in 32% and poor only in 12% cases.

DISCUSSION

Patients undergoing orthodontic treatment find it difficult to maintain good oral, patient's inability to clean his or her teeth promotes plaque accumulation that which in turn leads to gingivitis. Accumulations of plaque around orthodontic braces are the prime reasons of gingivitis.[7] Studies in the past have mentioned that increase in aerobic bacteria's like lactobaccilus and Prevotella intermedia, and a decrease in facultative anaerobes are observed.[8,9]

In present study orthodontic group consisted of 50 males and 50 females i.e. 50% whereas as control group (non orthodontic group) consisted of 50 males and 50 females i.e. 50%. In present study number of males and females were equal in both the groups. In present study result showed that of the

100 patients in study group normal gingiva was observed in 11 patients i.e. 5.5% whereas in control group normal gingiva was observed in 36 patients i.e. 18%. Mild inflammation in gingiva was observed in 32 cases i.e. 16% in study group and 30 patients in control group i.e. 15%. Moderately inflamed gingiva was seen in 41 cases in study group i.e. 20.5% whereas in control group it was observed only in 24 cases i.e. 12%. In orthodontic group severe gingival inflammation was seen in 16 cases i.e. 8% cases whereas in non orthodontic group severe inflammation was seen only in 10 cases i.e. 5%. The overall result showed that a highly significant difference was observed in gingival condition of orthodontic and non orthodontic group ($p<0.001$). In orthodontic group majority of the patients showed moderate gingival inflammation. The result of our study is similar to those reported by other authors.[10,11]

Zachrisson and Zachrisson have reported in their study that even after maintaining excellent oral hygiene, patients usually experience mild to moderate gingivitis within 1-2 months after appliance placement.[12] Fatma Boke et al in their study reported that visible plaque, gingival inflammation and gingival recession was found to be significantly increased after treatment.[13] In current study in study group periodontal status was found to be good only in 28% cases fair in 46% and poor in 26% cases whereas in control group good periodontal status was seen in 56% cases fair in 32% and poor only in 12% cases. Overall result in present study showed that fixed orthodontic treatment has significant effect on gingival and periodontal health of patients. Studies have shown that gingival inflammation around orthodontic bands leads to pseudo-pockets, which usually disappear with debanding of the brackets.[14,15]

CONCLUSION

Within the limits of our study we conclude that gingival health is very importance and especially during orthodontic treatment. However due to complex nature of braces it serves as a good place of food accumulation and becomes home for many bacteria's. This situation can be prevented and good gingival health can be maintained by maintain good oral hygiene. Patients should be demonstrated correct method of brushing and use of other brushing aids should be encouraged.

Graph 1: Distribution of Group

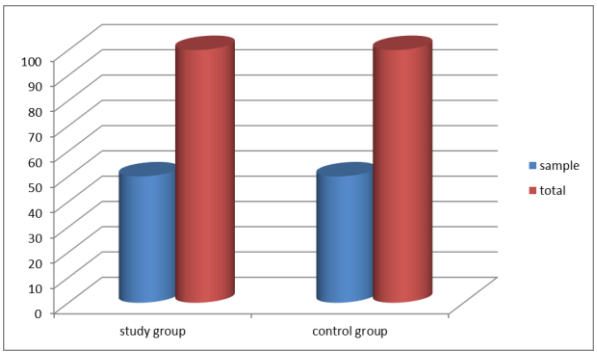

Table 1: Sample distribution based on gender

Gender	Study group	Control group	Percent
Male	50	50	50%
Female	50	50	50%
Total	100	100	100%

Table 2: Gingival Index Observed.

Variables	Orthodontic gp	Non orthodontic gp	P value
Normal	11 (5.5%)	36 (18%)	0.001
Mild	32 (16%)	30 (15%)	0.005
Moderate	41 (20.5%)	24 (12%)	0.001
Sever	16 (8%)	10 (5%)	0.001

Table 3: Periodontal status observed.

Variables	Study group	Control group
Good	28%	56%
Fair	46%	32%
Poor	26%	12%

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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