



Incidence of gingivitis and periodontitis in patients undergoing fixed orthodontic treatment

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Abstract

Background: This study was conducted to assess the incidence of gingivitis and periodontitis in patients undergoing fixed orthodontic treatment.

Material and methods: In this study there were 100 patients who underwent fixed orthodontic treatment. The patients were informed about the procedure and were asked to give consent. the mean age of the subjects was 18.8 years. The subjects who were willing to give consent and those who were willing to participate in the study had been included while those who were unwilling to give consent and who did not want to participate in the study had been excluded. Intraoral examination of these subjects was carried out to assess the prevalence of gingivitis and periodontitis. Statistical analysis was conducted using SPSS software.

Results:In this study, there were total 100 subjects, out of which 25 were females and 75 were males. In this study, 23 subjects had gingivitis and 32 subjects had

periodontitis. Hence, the prevalence of gingivitis and periodontitis was 23% and 32%, respectively.

Conclusion: The incidence of gingivitis and periodontitis was 23% and 32%, respectively.

Keywords: gingivitis, periodontitis, orthodontic treatment

Introduction

Periodontics and Orthodontic treatment interrelationship has been a subject to a lot of theories and investigation over the last decade until today, and still remains debatable. Dental and skeletal malocclusion has over the years shown to affect the gingival and periodontal health directly and indirectly.¹⁻⁵ The main aim of orthodontic treatment is at the betterment of occlusion in order to improve dental health and prolong the health and life of dentition.⁶⁻¹¹

Orthodontic treatment aims at the betterment of dental hygiene and this is mainly done by correcting the dental malocclusion and this helps in reducing the occlusal trauma. Occlusal trauma when reduced helps in reducing the trauma to the gingiva and periodontitis and helps in preventing the inflammation.

As the malocclusion is corrected the reduction in crowding or cross bite or other malocclusion features help in reducing the trauma with the patients able to maintain their teeth better and hence improving dental health.¹²

Plaque composition is greatly dependent on the host and response. Initial plaque formation is mainly due to the pioneer species which adhere to the salivary proteins and to the glycoproteins. The pioneer species include Neisseria, Streptococci predominantly *S.sanguis*, *Soralis* and *S.mitis*. These initial pioneer species grow and multiply leading to the secondary colonisation by Gram positive and negative species creating a biofilm.¹³

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Material and methods

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Results

Table 1: Gender-wise distribution of subjects

Gender	Number of subjects	Percentage
Males	75	75%
Females	25	25%
Total	100	100%

In this study, there were total 100 subjects, out of which 25 were females and 75 were males.

Table 2: Incidence of gingivitis and periodontitis

Prevalence	Gingivitis	Periodontitis
Absent	77	68
Present	23	32
Total	100	100

23 subjects had gingivitis and 32 subjects had periodontitis. Hence, the prevalence of gingivitis and periodontitis was 23% and 32%, respectively.

Discussion

The relationship between orthodontic procedures and periodontal status is considered a challenge, especially periodontal health during and after orthodontic treatment. Several studies have addressed the impact of fixed, removable, and myofunctional orthodontic/orthopedic appliances or retainers in relation to supragingival plaque accumulation and gingivitis.¹⁴⁻¹⁶ On the other hand, banded appliances are possible modifying factors in periodontal supporting tissues. It has been advocated that these alterations may directly be related to the subgingival location of the bands resulting in the destruction of not only the supra-alveolar tissues but also, in some cases, the bone crest.

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Zanatta FB et al (2014)¹⁷ aim of this study was to investigate the association among gingival enlargement (GE), periodontal conditions and socio-demographic characteristics in subjects undergoing fixed orthodontic treatment. A sample of 330 patients undergoing fixed orthodontic treatment for at least 6 months were examined by a single calibrated examiner for plaque and gingival indexes, probing pocket depth, clinical attachment loss and gingival enlargement. Socio-economic background, orthodontic treatment duration and use of dental floss were assessed by oral interviews. Associations were assessed by means of unadjusted and adjusted Poisson's regression models. The presence of gingival bleeding (RR 1.01; 95% CI 1.00-1.01) and excess resin around brackets (RR 1.02; 95% CI 1.02-1.03) were associated with an increase in GE. No associations were found between socio-demographic characteristics and GE. Proximal anterior gingival bleeding and excess resin around brackets are associated with higher levels of anterior gingival enlargement in subjects under orthodontic treatment.

Thilagrani PR et al (2015)¹⁸ assessed the association of periodontal status of the patients with and without orthodontic treatment. This cross-sectional study was conducted among 520 patients (220 undergoing orthodontic procedure and 300 non-orthodontic patients). Periodontal health status was assessed using community periodontal index and loss of attachment. Data were analyzed using SPSS version 16 and level of significance used was 5% level. Overall mean number of segments for bleeding component (Score 1) was 0.86 ± 0.708 , that of calculus (Score 2) 0.30 ± 0.460 , for shallow pockets (4-5 mm) (Score 3) 0.33 ± 0.744 and for deep pockets (6 mm or more) (Score 4) 0.38 ± 0.476 . Patients with orthodontic appliances had poor periodontal status than the non-orthodontic patients ($P < 0.05$). Patients undergoing orthodontic treatment have increased the level of periodontal status as it leads to more retention of food debris. Hence, these patients should be motivated to maintain good oral hygiene.

Conclusion

The incidence of gingivitis and periodontitis was 23% and 32%, respectively.

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