Original Article

Effect Of Orthodontic Treatment On Gingival Health: An Observational Health

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Abstract

Background: The present study was conducted fir evaluating the effect of orthodontic treatment on gingival health.
Materials & methods: A total of 20 patients were enrolled who were scheduled to undergo fixed orthodontic treatment. Pre-treatment clinical examination was done. Complete demographic and clinical details of all the patients was done. Fixed orthodontic treatment was started. Clinical evaluation of all the patients was done after one month follow-up. All the results were recorded and effect of orthodontic treatment on gingival health was assessed. All the results were evaluated using SPSS software.
Results: A total of 20 patients evaluated. Mean age of the patients was 21.5 years. Out of 20 patients, 12 patients were males while the remaining were females. Mean visible plaque, visible inflammation and gingival recession was significantly higher at follow-up in comparison to pre-treatment values.
Conclusion: Fixed orthodontic treatment has significant effect on gingival tissue.

Keywords: Orthodontic treatment, Gingival health

Introduction

Orthodontic treatment ensures proper alignment of the teeth and improves the occlusal and jaw relationship. This not only aids in better mastication, speech, and facial aesthetics, but also contributes to general and oral health, thereby improving the quality of life. Like any other treatment modalities, orthodontic treatment, in addition to its benefits, has also associated risks and complications. However, the risk and complication associated with treatment are reported to be considerably lower compared to other surgical or nonsurgical interventions.[1-3]
Periodontic-orthodontic interrelationship has been subject to a lot of investigation until today, and it is a still controversial issue. Malocclusion has been shown to affect periodontal health and one of the objectives of orthodontic treatment is to promote better dental health and prolong the life of dentition. Orthodontic treatment contributes to better oral hygiene by correcting dental irregularities and reduces (or eliminates) occlusal trauma. Due to these reasons, it has been suggested that orthodontic treatment leads to an improved periodontal status. It seems reasonable that straighter teeth are easier to clean, and perhaps having all teeth centered in the alveolar housing and occluding correctly may promote a healthier periodontium.[3-6] Hence; the present study was conducted fir evaluating the effect of orthodontic treatment on gingival health.

Materials & methods

The present study was conducted fir evaluating the effect of orthodontic treatment on gingival health. A total of 20 patients were enrolled who were scheduled to undergo fixed orthodontic treatment. Pre-treatment clinical examination was done. Complete demographic and clinical details of all the patients was done. Fixed orthodontic treatment was started. Clinical evaluation of all the patients was done after one month follow-up. All the results were recorded and effect of orthodontic treatment on gingival health was assessed. All the results were evaluated using SPSS software.

Results

A total of 20 patients evaluated. Mean age of the patients was 21.5 years. Out of 20 patients, 12 patients were males while the remaining were females. Mean visible plaque, visible inflammation and gingival recession was significantly higher at follow-up in comparison to pre-treatment values.

Table 1: Comparison of pre-treatment and follow-up values

Variable		Pre-treatment	Follow-up	p- value
Visible plaque	Present	2	8	0.00*
	Absent	18	12	
Visible inflammation	Present	3	10	0.01*
	Absent	17	10	
Gingival recession	Present	0	8	0.00*
	Absent	20	12	

*: Significant

Discussion

The most commonly reported adverse effects of orthodontic treatment can be both local and systemic. This includes, tooth discolorations, decalcification, root resorption, periodontal complications, psychological disturbances, gastrointestinal complications, allergic reactions, infective endocarditis, and chronic fatigue syndrome. It has been shown that orthodontic forces represent a physical agent capable of inducing an inflammatory reaction in the periodontium. This reaction is necessary for orthodontic tooth movement. One of the challenges of orthodontics is to finish the orthodontic treatment with the least effects on the root and periodontium. Orthodontic treatment can be implemented to improve dental aesthetics not only by correcting position of the jaws and deformities of dentition, but also by creating the conditions for improved gingival health. Adult patients previously affected by periodontal disease often present with “black triangles” due to missed interdental papillae height. By means of orthodontics, it is possible to correct teeth position and to improve soft tissue aesthetics. It was suggested that orthodontic teeth approximation might change the topography of the interproximal alveolar crest level and enhance the position of the interdental papilla although black triangles may also appear as a consequence of teeth alignment when resolving crowding.[7- 9] Hence; the present study was conducted fir evaluating the effect of orthodontic treatment on gingival health.

A total of 20 patients evaluated. Mean age of the patients was 21.5 years. Out of 20 patients, 12 patients were males while the remaining were females. Mean visible plaque, visible inflammation and gingival recession was significantly higher at follow-up in comparison to pre-treatment values. Sameshima and Sinclair found that severe root resorption occurred in their samples when the root apex was displaced lingually, with a mean difference of 1 mm more than the control group. They concluded that root resorption is directly related to the distance moved by the tooth roots. Maxillary incisors tend to be moved more than other teeth in orthodontic treatment and therefore this is a possible explanation for why maxillary incisors are at a high risk of root resorption.[10] Kumar V et al assessed the effect of fixed orthodontic treatment on gingival health. A total of 120 patients who were scheduled orthodontic treatment were enrolled. Complete data records of all the patients were recorded. Intra- and extraoral radiographs were obtained and photographic records were noted in separate pro forma. Complete intraoral examination of all the patients was carried out for recording visible plaque, any inflammation (visible clinically), and gingival recession. Based on the assessment of gingival texture and capillary transparency, analysis of gingival biotype was done. Follow-up records were assessed. The mean visible plaque value before treatment and after treatment was found to be 3.11 and 5.81, respectively. The mean visible inflammation value before treatment and after treatment was found to be 2.89 and 15.43, respectively. The mean gingival recession score value before

treatment and after treatment was found to be 0.19 and 0.383, respectively. A significant increase in the visible plaque value, visible inflammation value, and gingival recession score was observed posttreatment. While comparing the gingival biotype, it was seen that in both the maxillary and mandibular arches, there was an increase in the thick gingival biotype while there was a decrease in thin maxillary biotype. There is a significant increase in plaque accumulation, inflammation, and gingival recession following fixed orthodontic treatment.[11]

Conclusion

Fixed orthodontic treatment has significant effect on gingival tissue.

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