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ORIGINAL ARTICLE

Assessment of Effect of Fixed Orthodontic Treatment on Gingival Tissue

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***ABSTRACT*:**
Background: During fixed orthodontic treatment inflammatory hyperplasia, gingival recession, attachment loss or gingival overgrowth can occur. The present study was conducted to assess the effect of fixed orthodontic treatment on gingival health in study population.
Materials & Methods: The present study was conducted on 120 patients undergoing fixed orthodontic treatment of both genders. In all subjects, gingival plaque, visible inflammation and gingival recession was assessed **Results:** Out of 120 patients, males were 70 and females were 50. The mean gingival plaque in males was 6.21 mm and in females was 5.11 mm, visible inflammation in males was 7.44 mm and in females was 8.52 mm and gingival recession was 0.82 mm in males and 0.71 mm in females. The difference was significant (P< 0.05). **Conclusion:** Author found that there was presence of gingival inflammation, gingival plaque and gingival recession in patients during fixed orthodontic treatment.
Key words: Fixed orthodontics, Gingival inflammation, Gingival recession

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INTRODUCTION

Periodontal diseases can affect one or more of the periodontal tissues while there are many different periodontal diseases that can affect thesesupporting tissues, by far the most common ones are plaque-induced inflammatory conditions, such as gingivitisand periodontitis. Gingivitis is a non-destructive periodontal disease. The most common form of gingivitis, and the most common form of periodontal disease overall, is in response to bacterial plaque, termed plaqueinducedgingivitis.[1] Gingivitis is reversible with good oral hygiene. However, in the absence of treatment, or ifnot controlled it can progress to periodontitis, where the inflammation results in tissue destruction and alveolarbone resorption and ultimately tooth loss, While in some sites or individuals gingivitis never progress to periodontitis. Fixed orthodontic appliances are fixed to the teeth and thus are capable of a greater range of toothmovements.[2]

Following the placing of the appliance, clinical effects such aschronic infection, inflammatory hyperplasia, gingival recession, attachment loss or gingival overgrowth can occur. In addition, most of the studies indicate that adults are better than adolescents in removing supragingival plaques. On the otherhand children and adolescents develop gingivitis as a responseagainst the presence of orthodontic appliance, periodontitisrarely progresses. However, this case is not guaranteed for adultseven if their periodontal condition is fine.[3]The present study was conducted to assess the effect of fixed orthodontic treatment on gingival health in study population.

MATERIALS & METHODS

The present study was conducted in the department of Orthodontics. It comprised of 120 patients undergoing fixed orthodontic treatment of both genders. All were informed regarding the study and written consent was obtained. Ethical clearance was taken prior to the study from institutional ethical committee.

General information such as name, age, gender etc was recorded in case history proforma. In all subjects, gingival plaque, visible inflammation and gingival recessionwas assessed. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 120		
Gender	**Males**	**Females**
Number	70	50

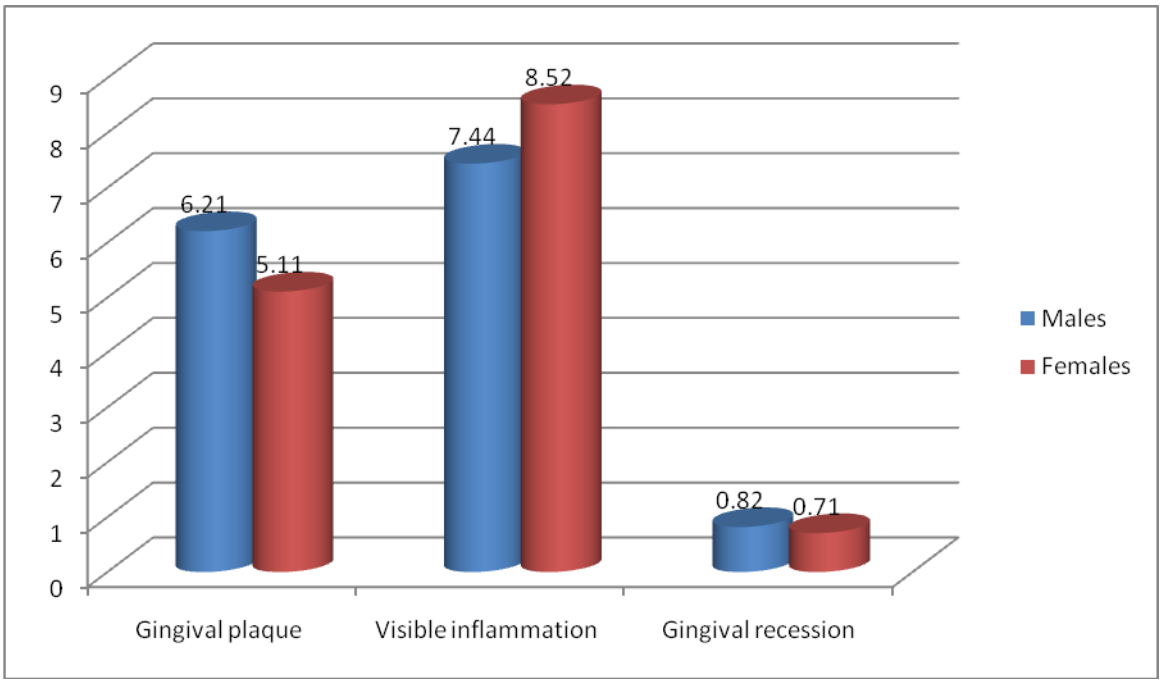
Table I shows that out of 120 patients, males were 70 and females were 50.

Table II Assessment of gingival plaque, visible inflammation and gingival recession

Parameters (mean, mm)	Males	Females	P value
Gingival plaque	6.21	5.11	0.05
Visible inflammation	7.44	8.52	0.01
Gingival recession	0.82	0.71	0.04

Table II, graph I shows that mean gingival plaque in males was 6.21 mm and in females was 5.11 mm, visible inflammation in males was 7.44 mm and in females was 8.52 mm and gingival recession was 0.82 mm in males and 0.71 mm in females. The difference was significant (P< 0.05).

Graph IAssessment of gingival plaque, visible inflammation and gingival recession



DISCUSSION

The relationship between orthodontic treatment and gingivalhealth has been an important topic in many studies. However, the debates still go on. Orthodontic treatment recovers crowdingof teeth. In doing so, it contributes to the provision of a better oral hygiene. As a result, the periodontal health is easier tomaintain.[4]

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 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.[5] The present study was conducted to assess the effect of fixed orthodontic treatment of gingival health in study population.

In present study, out of 120 patients, males were 70 and females were 50. Alstad et al[6] found that 60 patients were divided into 2 groups,adolescents (12-17 years, mean chronological age 14.06 ± 1.18 years) and youngadults (18-32 years, mean chronological age 22.36 ± 2.82), is composed of thirtypatients of similar sexes and skeletal anomalies. Each group had undertaken similartreatments (fixed orthodontic treatment with extraction and non-extraction). Thegingival condition assessment covering visible plaque, visible inflammation, thegingival biotype, gingival recession and gingival overgrowth is carried out throughoral clinical photographs of pre- and post-treatment. It was found that the average value of visible inflammation in gingiva and of gingivalrecession showed statistically significant increase on adults and the averagevalues of visible plaque and inflammation demonstrated a likewise increase onadolescents when the treatment was finished. Change in gingival biotype wasn'tfound statistically significant in both groups.

Alexander et al[7] found that a total of 112 orthodontic patients aged between 13-30 years were assessed for plaque

index, gingival index, calculus index and pocket depth on upper first molars with cemented bands and bondable tubes. Authors found that very few orthodontic patients showed poor plaque accumulation sore, severe gingivitis and calculus deposits. Contrarily, 17% patients showed deeper periodontal pockets. The Gingival Index showed significant association between cemented molar band and bonded molar tube groups.

We observed that mean gingival plaque in males was 6.21 mm and in females was 5.11 mm, visible inflammation in males was 7.44 mm and in females was 8.52 mm and gingival recession was 0.82 mm in males and 0.71 mm in females.

Generally, the main reasons routinely cited to justify the provision of orthodontic treatment are improvement of facial and dental aesthetics and of dental health and function. However, association between malocclusions and periodontal condition is still controversial. Some authors found significant correlations between malocclusions and periodontal condition and suggested that malocclusions are risk markers for periodontal diseases.[8]

CONCLUSION

Author found that there was presence of gingival inflammation, gingival plaque and gingival recession in patients during fixed orthodontic treatment.

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