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The Need for Periodontal Treatment Following Orthodontic Correction

KEYWORDS: gingival hyperplasia, gingivoplasty, gingival discrepancy.

Shwetha . M
Reader, Department of Periodontics Farooqia Dental College & Hospital Mysore 570021

Sandesh . M
Senior lecturer, Department of Oral Pathology V S dental college & Hospital Bangalore-560004

ABSTRACT ***Aim:*** *- The aim of the study was to evaluate the gingival health of the patients following periodontal treatment for orthodontically corrected cases. Methodology: - 10 patients who had undergone orthodontic treatment with unfavourable topography of the gingival who were indicated for gingival contouring were treated by performing gingivoplasty. Results: - the patient showed well maintained periodontal health following gingivoplasty. Conclusion: - periodontal treatment following orthodontic correction is necessary for the completeness of the treatment*

Introduction: -
As orthodontists enter the twenty-first century, the adoption of evidence –based health care and the invention of new preventive strategies are primary goals. Recent studies have provided compelling evidence of importance of these two objectives[1].

It is well established that the patients who undergo orthodontic treatment have a high susceptibility to present plaque accumulation on their teeth because of the presence of brackets, wires and/or other orthodontic elements on the teeth surfaces with which the oral hygiene procedures might be more difficult. The considerable variance of the design and the material characteristics of orthodontic elements may also play an important role in this field. The orthodontic treatment is a double-action procedure, regarding the periodontal tissues, which may be sometimes very meaningful in increasing the periodontal health status, and may be sometimes a harmful procedure which can be followed by several types of periodontal complications, namely: gingival recessions, bone dehiscences, gingival invaginations and/or the formation of gingival pockets[1, 2, 3]. This paper focuses effects of periodontal treatment on gingival health attained following the orthodontic treatment.

Material and methods: -
10 patients who reported to Department Of Periodontics Farroqia Dental College And Hospital, following orthodontic treatment with gingival marginal discrepancy that is gingiva extending coronally were considered under the study.

Exclusion criteria: - 1) pregnant or lactating patients. 2) Medically compromised patients 3) Patients who are allergic to materials used in this study. 4) Smokers.

Plaque Index was used to measure the plaque accumulation, gingival inflammation measured by the Gingival Index were assessed by one examiner. Gingival sulcus depth (GSD), clinical attachment level (CAL) and gingival margin position were recorded at baseline, 1st, 3rd and 6th months post operatively.

Pre-surgical procedures: -
After obtaining the ethical clearance, initial examination and treatment planning, patients were given detailed instructions in self performed plaque control measures and were subjected to phase I periodontal therapy. Selective grinding in cases with traumatic occlusion was considered. 4-6 weeks after phase I therapy the patients were subjected to surgical procedure. Patients were put under observation during this period, and on examination there plaque scores were minimal with mild gingival inflammation and enlargement at 1st month follow up.

SURGICAL PROCEDURE
All 10 patients sustained gingival hyperplasia even after phase-I, hence they were treated surgically i.e. gingivectomy was done. Patients were asked to rinse with 0.2% Chlorhexidine digluconate mouthrinse for 30 seconds prior to the surgery. Local anesthesia was obtained (2%lidocaine with epinephrine 1:80,000); the base of the gingival sulcus was marked with the pocket marker. The marking were joined together and the excess tissue was excised using gingivecomy knives, with keeping into consideration of aesthetic gingival contour that is as follows: - a) The gingival margins of the two central incisors should be at the same level.

b) The gingival margins of the central incisors should be positioned more apically than the lateral incisors and at the same level as the canines.

c) The contour of the labial gingival margins should mimic the CEJs of the teeth.

d) A papilla should exist between each tooth, and the height of the tip of the papilla is usually halfway between the incisal edge and the labial gingival height of contour over the center of each anterior tooth. Therefore the gingival papilla occupies half of the interproximal contact, and the adjacent teeth form the other half of the contact[4, 5].

Patients were prescribed systemic with Paracetamol 500 mg given thrice daily for three days. Post operative instructions were given to patients and they were instructed to report after 24 hours of surgery and then after 10 days. At tenth day following surgery, the dressing and sutures were removed. Symptoms regarding discomfort, swelling, pain and sensitivity were asked to the patient. Any sign of swelling, infection or necrosis was noted and if needed the dressing was again replaced for another one week.

Supportive periodontal therapy was provided weekly during the first month, followed by monthly maintenance recall till the end of study period. Patients were re-examined again at the end of 3rd and 6th month post operatively and

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all the above clinical measurements were repeated. Figure 1 and 2 shows the preoperative and post-operative pictures.

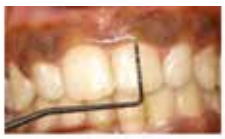

Figure-1

Figure-2

Results: -

All patients showed good compliance. The healing period was uneventful in both groups. The plaque scores were high in the base line in all the cases, which reduced to minimal scores at 1st, 3rd and 6th month, follow up this found to statistically significant. Gingival index scores were high (score3-4) at baseline indicative of moderate to severe inflammation in the gingiva. The gingival index score was 3 at 1st month which reduced to score-0 in 3rd and 6th month follow up which indicate a healthy gingiva which was also statistically significant.

Discussion: -

Periodontal care should be directed toward eliminating the bacterial infection and preventing reinfection. This involves creating an environment more self cleaning and less conducive to harbouring pathogenic bacteria. Appropriate therapy for each individual depends on the type, severity and morphology created by the specific disease, but patient compliance is also a factor. Areas accessible for plaque removal by one person may not allow for effective oral hygiene by a less motivated individual[6].

It is generally recommended that orthodontic treatment is preceded by periodontal therapy based on the belief that orthodontics in the presence of inflammation can irreversible breakdown of the periodontium (Lindhe et al, 1974). Scaling and root planning open flap debridement and gingival augmentation should be performed as appropriate before any tooth movement (Glickman 1964, Profit 1993). The corrective phase of periodontal therapy, that is osseous reduction/ elimination surgery should be delayed until the end of orthodontic therapy, because tooth movement may modify gingival and osseous morphology (Goldman & Cohen 1968)[7].

Incomplete adaptation of supporting structures during orthodontic closure of extraction spaces in adults may result in infolding or invagination of gingiva. Several authors have suggested that compression of transsepteal fibers & alterations of gingival tissue will contribute to extraction-space reopening and presence and severe invaginations (Rivera drains Tulloch (I989). Edwards (1971) suggested simple removal of only the excess gingival in the buccal and lingual area of approximated teeth would be sufficient to alleviate the tendency for the teeth to separate after orthodontic movement[8].

Mild gingival changes associated with orthodontic appliances seem to transitory & the periodontal tissues sustain little permanent damage. And these may resolve itself or will respond to plaque control. If the enlargement is interfering tooth movement it must be surgically removed. When gingival margin discrepancies are present, the proper solution for the problem must be determined: orthodontic movement to reposition the gingival margins or surgical correction of gingival margin discrepancies[9, 10].

In this study there was statistically significant difference in plaque score when compared to baseline and 6th month follow. The plaque scores at baseline and 1st month were as well statistically significant which should correlate with the gingival health, but because of the presence of gingival hyperplasia gingival scores did not match with the plaque scores, to indicate the gingival health; hence substantiating that gingival hyperplasia following orthodontic treatment has to be treated to obtain a healthy gingiva.

Conclusion: -

In these cases periodontal treatment following orthodontic correction is necessary for the completeness of the treatment.

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