

GINGIVAL OVERGROWTH DURING ORTHODONTIC THERAPY AND ITS MANAGEMENT: A CASE REPORT

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ABSTRACT: There are many reasons for gingival overgrowth. Mostly, proper oral hygiene is sufficient to achieve normal healthy gingiva. In some situations, however, gingival overgrowth is drug-induced or can be a manifestation of orthodontic mechanical stress. Overgrowth impairs oral hygiene maintenance and results in further exacerbation. During orthodontic treatment gingival overgrowth is common scenario due to hindered oral hygiene in this prospective both periodontal and orthodontic aspects need to be considered. In the article a case report with extreme gingival overgrowth was periodontally treated, by removal of all gingival excess using gingivectomy and gingivoplasty. After a 3 month follow-up period, the fixed orthodontic treatment is continued with monthly periodontal check-ups were scheduled to control the gingival inflammation. The collaboration between the periodontist and orthodontist is most important key to successful treatment of hyperplasia in patients undergoing orthodontic treatment.

KEYWORDS: Orthodontic therapy, Gingival overgrowth, Gingivectomy, Gingivoplasty

INTRODUCTION

Gingival overgrowth (GO) during the orthodontic treatment was traditionally considered as an inflammatory reaction consecutive of bacterial plaque accumulation because of difficult hygiene in those patients¹. The inflammation of GO determines the orthodontist to temporize the treatment until its removal, especially when its size and inflammatory symptoms are important. There are less studies in the literature about this subject proven scientifically, the relationship between the onset of the GO and bacterial plaque accumulation being more a clinical evidence. However, few clinical observations showed a gingival volume growth in patients with good dental hygiene, without any clinical signs of gingival inflammation^{2,3}.

Our study starts from the hypothesis that the gingival volume growth during the fixed orthodontic treatment appears at the beginning, without any inflammatory signs, as a result of the mechanical stress and periodontal remodeling during the orthodontic dental movement(3). The inflammation can be an added process because of bacterial plaque accumulation under the shelter of the hypertrophied gingiva. It was also demonstrated that the mechanical stress is leading to MMP8 accumulation in the

gingival crevicular fluid and in the hypertrophied gingiva as an expression of collagen remodeling¹.

In such cases where gingival overgrowth is evident during orthodontic treatment, it hampers the individual's oral hygiene maintenance which may further deteriorate the gingival status leading to periodontal breakdown. Treating such cases comforts the individual in maintenance and also helps in further undisturbed orthodontic treatment.

This is a case report in which an 18 year old girl was treated for the gingival overgrowth which was evident during the orthodontic treatment.

Case report

An 18 year old female has reported to the department of orthodontics, GITAM dental college and hospital, Visakhapatnam, with the chief complaint of spacing between the teeth. She was examined accordingly and was planned for the orthodontic therapy. After one year of orthodontic therapy it was observed that there was gingival overgrowth in all the regions where orthodontic



Fig. 1. Pre-operative – frontal view



Fig. 2. Gingivectomy in maxillary anterior teeth.



Fig. 3. One month - Post operative following gingivectomy



Fig. 4. Gingivoplasty using electrocautery



Fig. 5. Two weeks- Post operative after gingivoplasty. View of Maxillary Teeth.



Fig 6: Two weeks- Post operative after gingivoplasty. View of Mandibular Teeth

brackets were placed with differences in their severity in various areas. It was also observed that the girl was not able to maintain the oral hygiene after the gingival overgrowth was evident. For the same she was referred to the department of periodontics and oral implantology.

On examination, with fair oral hygiene it was found that there is lot of variation in the severity of gingival overgrowth in different areas of oral cavity.

In molar and premolar regions the gingival overgrowth was encroaching the orthodontic brackets (**Fig.1**). There is generalized bleeding on probing and mild inflammation in the marginal gingiva and the tips of interdental papilla. The gingiva in general is firm in consistency with loss of contour and stippling in posterior areas. The overall probing pocket depth was around 4mm-5mm. Considering all the gingival findings the following treatment plan was given :

- Thorough scaling and root planning.
- Surgical gingivectomy
- Gingivoplasty using electrocautery unit.

After thorough scaling and root planning patient has been followed for 3 weeks. On review it has been found that there is complete reduction in the inflammation and gingival bleeding on probing. Now gingivectomy was planned in 4-5 appointments for each individual sextant. Patient consent was obtained.

Under sterile conditions after administering the local anesthesia the bleeding points were marked according to the gingival sulcus depth (leaving 2 – 3mm of gingival sulcus) using a pocket marker. Then external bevel incisions using no.15 BP blade were given. The detached overgrowth tissue has been removed using a curette. The bleeding has been controlled by placing pressure packs with local anesthetic soaked gauze and cotton. After the bleeding has been arrested the periodontal dressing has been placed. Following the post surgical instructions the patient was prescribed analgesics and antiseptic mouth rinse. The same procedure was employed for all the sextants once every week.

After a month the follow up revealed that there is good clinical crown exposure but the contour of the gingival margins were unsatisfactory (**Fig.3**). As planned gingivoplasty was done using the electrocautery unit under local anesthesia in upper and lower canine to canine area (**Fig.4**). (electrocautery unit-SATELEC (ACTEON GROUP) – SERVOTOME). Two weeks Post-operative the results were satisfactory (**Fig.5 and Fig.6**).

Discussion

Gingivectomy and gingivoplasty helps in removal of excessive gingival overgrowth giving harmonious gingival

contour and also facilitates in maintaining good oral hygiene. Avoiding which may result in accumulation of plaque deposits which may further exacerbate the gingival overgrowth and lead to periodontal destruction⁴.

So evaluating the gingival and periodontal status prior to orthodontic therapy is a pre-requisite. Clinician should also be able to assess the oral hygiene maintenance ability of the patient prior to orthodontic therapy and even during the therapy. Periodic periodontal maintenance care during the orthodontic therapy would definitely avoid such consequences and preserve the gingival health^{1,4}.

CONCLUSION

Removal of gingival overgrowth by clinical crown lengthening which included both gingivectomy and gingivoplasty procedures resulted in satisfactory results. Further long term studies are warranted for the success of the treatment accomplished.

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