

Case Report

A Case Report on Gingivectomy, For the Management Of Orthodontic Treatment Induced Gingival Enlargement

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ABSTRACT

Gingival enlargement initially known as gingival hyperplasia, is the most common feature of many conditions such as inflammation, drug induced, and systemic conditions such as pregnancy, diseases such as leukemia, treatment induced such as orthodontic treatment induced gingival enlargement. This orthodontic treatment induced gingival enlargement is due to the presence of nickel ions in the orthodontic bands, which result in fibroblastic proliferation. As a result of this enlargement, there is an inability to maintain proper oral hygiene. Gingivectomy is the treatment of choice for this type of gingival enlargement as it helps in the reduction or elimination of pseudopockets, suprabony pockets, which is common in orthodontic induced gingival enlargement. Present case report is on a 21 years old female patient who was undergoing orthodontic treatment, and reported to the department of Periodontology for the orthodontic treatment induced gingival enlargement. Gingivectomy was performed for this patient and after one week follow up, the patient shows positive changes as there was no suprabony pocket present.

Key words: Enlargement, Pseudopockets, Orthodontic treatment, Gingivectomy, Pocket wall

Gingival enlargement is known by many conations in the past, such as gingival hypertrophy, gingival hyperplasia and at a present extent gingival enlargement. Gingival enlargement is classified as:[1]

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| <ul style="list-style-type: none"> A. Inflammatory enlargement <ul style="list-style-type: none"> a. Chronic b. Acute B. Fibrotic enlargement(gingival hyperplasia) <ul style="list-style-type: none"> a. Drug induced b. Idiopathic C. Combined enlargement (inflammatory+fibrotic) D. Enlargement associated with systemic diseases/Conditions. <ul style="list-style-type: none"> 1. Conditioned enlargement <ul style="list-style-type: none"> a. Pregnancy | <ul style="list-style-type: none"> b. Puberty c. Vitamin C deficiency d. Plasma cell gingivitis e. Nonspecific conditioned enlargement (granuloma pyogenicum) 2. Systemic diseases causing gingival enlargement <ul style="list-style-type: none"> a. Leukemia b. Granulomatous diseases E. Neoplastic enlargement <ul style="list-style-type: none"> a. Benign tumors b. Malignant tumors c. False Enlargement. |
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Among these, the inflammatory induced gingival enlargement is mainly because of the deposition of

etiologi factors that is plaque & calculus. This deposition of plaque and calculus is because of the inability to maintain adequate oral hygiene. One of the reasons for not be able to maintain oral hygiene, is the patient undergoing orthodontic treatment.

Many studies shown, that patients undergoing orthodontic treatment, notices the changes in the gingival tissue or gingival overgrowth due to the fact that orthodontic brackets are made up of nickel ions, and among many interactions of nickel ions present in orthodontic bands, one of the interaction between the nickel ions, and the gingival tissues, is the proliferation of fibroblast, resulting in gingival overgrowth.[2]

Gingivectomy is the procedure, that involves excision of pocket wall of the enlarged gingival tissue.[3] The main rationale behind gingivectomy is to gain accessibility and visibility for thorough debridement of plaque and calculus, to provide an environment that results in proper healing, restoration of normal physiologic gingival contour.[1]

Indications

1. Suprabony pockets
2. An adequate zone of attached gingiva
3. Suprabony Periodontal abscess.
4. Pseudo Pockets
5. Gingival enlargement
6. Areas of Limited access
7. Unaesthetic or asymmetrical gingival topography
8. For exposure of soft tissue impaction to enhance eruption
9. To facilitate restorative dentistry
10. To establish physiologic and gingival contours post ANUG and flap procedures.

Contraindications

1. Infrabony pockets
2. An inadequate zone of Keratinized Gingiva
3. Need for osseous resection and inductive techniques
4. Highly inflamed or edematous tissue
5. Areas of esthetic compromise
6. Shallow palatal vaults and prominent external oblique ridge.
7. When extensive bone surgery is required.
8. Patients with poor oral hygiene.

It is very much essential that the patient who is undergoing orthodontic treatment should be thoroughly evaluated for their periodontal status.[4] The patient should be taught how to maintain proper oral hygiene and the importance of removal of etiologi factors, and the maintenance of proper oral health.

CLINICAL CASE REPORT

A 21 year, old female patient undergoing orthodontic treatment was referred to the Department of Periodontology of People's College Of Dental Sciences and Research Centre, Bhopal. Clinically, patient presented with the gingival overgrowth, that was induced by orthodontic treatment, in the maxillary anterior region (Figure: 1). On examination, it was found that the patient had no contributing medical history, poor oral hygiene due of gingival overgrowth, and the presence of pseudo pockets.



Figure 1: Pre-operative photograph of orthodontic patient showing pseudo pockets

After the completion of phase 1 therapy, and reinforcement of oral hygiene instructions, gingivectomy procedure was done after 1 week of phase 1 therapy. Procedure began by giving local anesthesia and marking of bleeding points with krane kaplan pocket marker. After marking of bleeding points, the incision was given at 45°angle by joining these bleeding points and making a bevel which started apically and directed coronally to the mucogingival junction [3] (Fig: 2). Following the external bevel incision, pocket wall was removed (Fig: 3) and periodontal dressing was given (Fig: 4). After 1 week of follow up, there were no suprabony pockets present, and the healing was uneventful [8]. (Fig: 5).



Figure 2: Marking of bleeding points and external bevel incision given



Figure 3: After excision of pocket wall



Figure 4: Periodontal dressing placed



Figure 5: One week follow up

DISCUSSION

Gingival overgrowth is most common consequence following chronic inflammation, drug induced, systemic diseases and conditions. This overgrowth is sometimes causes discomfort for the patient as it interferes with the patient's normal parafunctional activity, such as mastication and speech. Gingival overgrowth also results in poor esthetics, as the gingival enlargement leads to the covering of up to one third to two third of the entire tooth. This gingival overgrowth also hampers with the patient's ability to maintain proper oral hygiene, resulting in accumulation of plaque and calculus, which results in pseudopockets or suprabony pockets.[1]

Orthodontic treatment is one of the factors for the gingival overgrowth or enlargement seen in patients. It is said that the nickel ions present in orthodontic bands, tend to interact with the gingival tissue, leading to proliferation of fibroblast within gingival tissue. This results in gingival overgrowth or enlargement.[5,9]

The present case report is on a 21 year old patient undergoing orthodontic treatment. This orthodontic treatment resulted in gingival enlargement in maxillary anterior region. The gingival enlargement resulted in formation of pseudo pockets. In order to eliminate these pockets, gingivectomy procedure was planned as it was indicated for this case because of the fact that due to the presence of pseudopockets, there was no clinical attachment loss. [6] Hence, there was no need for the bone exposure, or the full thickness flap reflection.[4]

Now-a-days, gingivectomy procedure is used very rarely because more conservative techniques are available to preserve the entire width of the keratinized tissue, less discomfort to the patient and healing by first intention.[10] On the other hand, gingivectomy results in greater loss of keratinized tissue, causes more discomfort to the patient and healing is by secondary intention.[7]

CONCLUSION

Gingival enlargement is the most common consequences in the patients, undergoing orthodontic treatment. The patient, who is undergoing orthodontic treatment, should be carefully evaluated for the periodontal status, before starting of the orthodontic treatment and must be guided for the maintenance of the proper oral hygiene, during the

phase of orthodontic treatment. Present case report is on a 21 years old female, who during the orthodontic treatment had resulted in maxillary gingival enlargement, which was as a result of inability by the patient to maintain the proper oral hygiene and so the gingivectomy procedure was planned for this patient, as the enlargement showed the presence of pseudopocket, which was one of the indication of gingivectomy technique. After 1 week of follow up there was not any presence of pseudopockets, suggesting that gingivectomy can of the essential technique to be performed, when solely indicated.

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