

## MANAGEMENT OF GINGIVAL ENLARGEMENT –A CASE SERIES

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### Abstract

*The purpose of this article is to report the management of two cases of gingival enlargement, one associated with orthodontic therapy and the other a conditioned enlargement due to intake of oral contraceptives for over 3 years. A 21 year old female patient reported with swelling of upper and lower gums since 6-7 months. She was on orthodontic therapy for 3 years. Gingiva was severely inflamed and enlarged which didn't subside after nonsurgical therapy. So gingivectomy was planned and done using electrosurgery and scalpel. Another patient 22 year old female, reported with bulbous and bleeding gums for 1 year. She was on combined oral contraceptive pills for 3 years for the treatment of polycystic ovarian disease which was stopped 6 months back. Examination showed severe gingival enlargement with generalized periodontal pocket of 4-5 mm. Width of attached gingiva was adequate. OPG showed generalized bone loss. Undisplaced flap technique and modified widman flap was planned and performed. In both the patients, the healing was uneventful and no recurrence till date. This reaffirms the fact that periodontal surgery, patient compliance and comprehensive maintenance care are essential to return to healthy periodontal status for such cases.*

**Key words-** Gingival enlargement, Orthodontic therapy, Conditioned enlargement, Oral contraceptives, Gingivectomy.

Gingival enlargement is the increase in the size of the gingiva. It may be inflammatory, drug induced, associated with systemic diseases and conditions like hormonal variations, neoplastic or false enlargement. A rare variant, idiopathic gingival fibromatosis, with a familial inheritance, has also been reported. Based on the extent and severity, these enlargements may lead to functional disturbances like altered speech, difficulty in mastication and aesthetic and psychological problems.<sup>1</sup>

In most cases of gingival enlargement, the patient may not be accomplishing effective oral hygiene. Gums affected by this condition are often tender, soft, red, and bleed easily. This usually resolves with effective oral hygiene practices to remove the offending plaque and irritants on the teeth.

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The ability to perform oral hygiene measures is compromised in some patients with gingival enlargements, which may be further complicated by the presence of prosthesis and fixed orthodontic appliances. This may lead to more inflammation and further plaque accumulation perpetuating this vicious cycle. Thus, there is a transformation of the gingival sulcus into a periodontal pocket creating an area where plaque removal becomes impossible.<sup>2</sup>

Hormonal changes such as pregnancy, puberty or intake of oral contraceptive pills can magnify the existing inflammation initiated by dental plaque and lead to gingival enlargement. This is known as conditioned enlargement. Oral contraceptives may enhance periodontal breakdown by reducing the resistance to dental plaque and may induce gingival enlargement in otherwise healthy females.<sup>1</sup>

This case series presents two cases– one on chronic gingival enlargement associated with prolonged orthodontic therapy and the second on conditioned gingival enlargement induced by combined oral contraceptive pills.

### Case 1

A 21-year-old female patient reported to the Department of Periodontology, V S Dental College and Hospital Bangalore, India with the complaints of swelling of the upper and lower gums for 6-7 months. She also complained of bleeding from the gums while brushing, unable to close the mouth due to bulkiness inside and bad breath. Orthodontic treatment was started 3 years before for proclination of teeth. There was no other relevant medical, dental or family history.

On clinical examination, oral hygiene status was poor. Marginal and papillary gingiva appeared reddish and enlarged in the maxillary and mandibular arches. In the posterior region marginal gingiva was impinging on the brackets and in the maxillary palatal area gingiva has grown nearly half of the crown. Further soft tissue assessment revealed soft and edematous consistency and bleeding on probing and pseudo pockets on all teeth. (Fig 1)



Fig 1: Case 1 –Pre operative view

A treatment plan consisting of initial periodontal therapy followed by a full mouth gingivectomy procedure to improve aesthetics and function was formulated. The initial periodontal therapy comprising supragingival and subgingival scaling was performed after removing the arch wire. Oral hygiene instructions were given and the use of chlorhexidine mouthwash (0.2% Clohex™, Dr. Reddy's Laboratories Ltd., India) twice a day for one week was advised. At the next visit, in spite of

use of the prescribed medicated mouthwash, the gingival enlargement did not show considerable reduction in size, but some of the areas appeared to be firm in consistency. Routine blood investigations (Bleeding time, Clotting time, Hemoglobin, ESR, Total Leucocyte Count and Differential Count) were carried out and the results were non-contributory. Gingivectomy by electrosurgery (PerFect® TCS II, Coltène/Whaledent AG /Switzerland) was planned in the maxillary anterior sextant and scalpel gingivectomy on all other areas. The presence of orthodontic brackets precludes its use in other areas.

### Procedure

Maxillary arch was done as 3 sextants and mandibular as 2 quadrants. After giving local anesthesia, ovoid loop electrode was used for festooning the maxillary anterior palatal sextant. A blended cutting and coagulating (fully rectified) current was used. The electrode was activated and moved in a concise "shaving" motion to remove the bulk. Other areas after marking the pockets using a pocket marker scalpel gingivectomy were performed. The excised tissue was sent for histopathological examination. (Fig 2)



Fig 2: Case 1-Gingivectomy a) Electrosurgery, b) Excised tissue c) Scalpel gingivectomy.

Patient was recalled after two weeks. Patient was comfortable and the areas were healed. (Fig 3)



Fig 3: Case 1-Post operative after 2 weeks  
A histopathological diagnosis suggestive of inflammatory fibrous hyperplasia was given.

### Case 2

A 22 year old female patient reported to department of Periodontics, V S Dental College, Bangalore with the complaints of bleeding from gums and bulbous gums in the upper front region for 1 year. She was on combined oral contraceptive pills (combination of desogestrel BP 0.15mg and ethinylestradiol IP 0.02mg-Femilon) for 3 years for the treatment of polycystic ovarian disease which was stopped 6 months back. There were no other relevant medical, dental or family histories.



Fig 4: Case 2-Preoperative view

Oral hygiene status was poor with subgingival deposits. Clinical examination showed reddish pink diffuse enlargement which was more prominent in the anterior region.

There was generalized loss of stippling and the surface was smooth and glossy. (Fig 4)

Consistency was soft and edematous and generalized periodontal pocket of 4-5 mm was present. Width of attached gingiva was adequate. Orthopantomogram showed generalized bone loss.( Fig 5).



Fig 5: Case 2- OPG showing generalized bone loss

Routine blood investigations were carried out which was non contributory. Treatment plan consisting of undisplaced flap in the maxillary anterior region and modified widman flap in the other regions was formulated.

### Procedure-

After giving local anesthesia, the pockets were marked with pocket marker. The initial internal bevel incision was made after scalloping of the bleeding points to a point apical to the alveolar crest. Crevicular incision was made from the bottom of the pocket to the bone to detach the connective tissue from the bone. Interdental incision was given and the triangular wedge of tissue was removed with the curette. After the necessary scaling and root planning the flap edge was placed on the root bone junction and sutured. (Fig 6)



Fig 6: Case 2-undisplaced flap a) marking pocket using pocket marker, b)Incision, c)debridement, d)Sutured

In all the other quadrants modified widman flap was performed. The patient on follow up showed uneventful healing. (Fig 7).



Fig 7: Case 2-post operative view

### Discussion

Inflammatory gingival enlargement which is mainly due to plaque accumulation may be acute or chronic; chronic changes are much more common. The gingival enlargement may be localized or generalized. In addition inflammatory gingival enlargement may be a secondary complication to other types of enlargement creating a combined gingival enlargement.<sup>1</sup>

In the first case the presence of orthodontic appliance, the pain during activations may have compromised the maintenance of adequate oral hygiene. This reflects the importance of patient education, motivation and compliance during and

after dental treatment. The patient also gave a positive feedback that she was able to close her mouth fully after the treatment.

In the second case the enlargement is caused by dental plaque itself. But oral contraceptives have accentuated the gingival response to local irritants which is similar to that seen in pregnancy. Human gingiva contains estrogen and progesterone receptors. The latter influences the periodontal tissues to act as target organ for sex hormones.<sup>3</sup>

Gingival changes are related to the stimulation of specific populations of fibroblasts by estrogen, increased vascular permeability and proliferation.<sup>4</sup> Both the sex hormones decrease gingival immune response to plaque bacteria.<sup>5</sup> Inflamed gingival tissues are capable of metabolizing sex hormones to active metabolites at higher rate;<sup>6</sup> thus; local irritants may exaggerate oral contraceptives induced gingival changes. Therefore, the response of the periodontium is probably multifactorial in nature where dose, duration of pill usage, dental plaque and sex hormone-sensitive cells are the key modifying factors.<sup>7</sup> In gingival tissues, estrogen is responsible for keratinization and proliferative changes in epithelium and increased fibroblastic activity.<sup>4</sup> Progesterone increases proliferation, dilatation, tortuosity and permeability of gingival microvasculature, facilitates bone resorption, decreases collagen production; thus promoting tissue catabolism and delaying repair. The reported case was in excellent agreement with previous Srilankan study which demonstrated the possibility of gingival changes with low dose oral contraceptive formulations even for less than 2 years of use.<sup>8</sup>

In the present case, persistence of gingival enlargement even after withdrawal of oral contraceptives questions the role of physiologically fluctuating level of sex hormones related to menstrual cycle on presensitized gingival cells. Moreover, presence of deep pockets and gingival enlargement hinder the adequacy of oral hygiene

measures which may be another cause of persistence of gingival enlargement.

In this case series two modalities of management of gingival enlargement were discussed. The choice of treatment depends upon extension of area to be operated, presence of periodontitis and osseous defects and the location of the base of the pocket in relation to the mucogingival junction. For the case 1, gingivectomy was done which is simple and quick. But it has the disadvantage of sacrificing keratinized tissue and it does not allow for osseous contouring. Also there will be more post operative bleeding and discomfort. Gingivectomy can be performed with conventional scalpel, chemosurgery, electrosurgery or laser device.

Electrosurgery is the intentional passage of high-frequency waveforms or currents, through the tissues of the body to achieve a controllable surgical effect. By varying the mode of application it can be used for cutting or coagulating soft tissues. It has the advantage of adequate contouring of the tissue, controls hemorrhage and patients experience less post-operative pain after the procedure.<sup>9</sup>

In the first case the maxillary palatal gingiva was very thick, inflamed in which electrosurgery gave less post operative bleeding. Orthodontic brackets were not removed for the periodontal treatment. So scalpel gingivectomy was performed in all other areas. Healing was uneventful in all areas.

The undisplaced flap and gingivectomy are the two procedures that surgically remove the pocket wall. Since the pocket wall is removed with the initial incision, the former may be considered as an "internal bevel gingivectomy". Because of the presence of attachment loss in the second case flap technique was a better option. Even though it is technically difficult compared to gingivectomy, the primary closure in flap technique alleviates post operative discomfort and hemorrhagic problems. Both the patients remain free of recurrence to date and continue to be monitored on a regular basis.

### Conclusion

Successful treatment of gingival enlargement depends on the proper identification and elimination of etiologic factors and proper maintenance. Oral hygiene education supplemented with positive motivation should be started at the initial stages of the orthodontic treatment strategy in order to obtain predictable outcomes. At each recall visit, the patient should be notified about their ongoing dental condition and the effects of risk factors like poor oral hygiene and deleterious habits on the existing oral state. Periodontists are in a prime position to counsel the effects of oral contraceptives in oral health and to treat unhealthy periodontal conditions. This reaffirms the fact that periodontal surgery, patient compliance and comprehensive maintenance care are essential to return to healthy periodontal status for such cases.

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