

Tailored Approaches to Gingival Enlargement: Case Series on Treatment Modalities in the Mandibular Anterior Region

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ABSTRACT

Gingival enlargement is mainly caused by inflammatory changes due to gingivitis, most commonly seen in young patients that are undergoing orthodontic interventions which prevent them from maintaining adequate oral hygiene, apart from this, a more fibrotic form of gingival enlargement can be appreciated in drug induced gingival overgrowth. Gingival enlargement can also be associated with genetic syndromes, genetic mutations and also systemic diseases like leukaemia, it can clinically manifest as pathologic process of hypertrophy and/or hyperplasia or a pathologic lesion that is fibrosis. And hence different management approaches are used to treat different gingival enlargements. The purpose of this case series is to present various treatment approaches to manage gingival enlargement in anterior mandibular region and emphasize how accurate treatment plan can lead to effective resolution.

Keywords: Gingival Enlargement, Gingival Overgrowth, Mandibular Anterior region.

INTRODUCTION

Gingival enlargement cases can be commonly seen in day-to-day clinical practice, appropriate and precise diagnosis of the origin of enlargement is very vital in addressing the management strategies to treat gingival enlargement thoroughly with effective resolution of the same. However, a clinician must acquire the skills to arrive at a particular diagnosis among the various gingival enlargements that can be classified according to various etiologic factors and pathologic changes, location and distribution or according to the degree of enlargement. Special emphasis should be given on proper diagnosis and elimination of the etiological factor causing Gingival enlargement, which could be either plaque

induced or non-plaque induced, in association with various genetic syndromes, systemic disorders, certain drugs like antihypertensives, anticonvulsants, etc or even at times idiopathic in nature.

Tumefaction is one of the cardinal signs of inflammation which in the beginning is produced by hyperaemia, edema and ingress of exudate in the involved area, but shortly a local fibroblastic and angioblastic activity starts the course of repair. This process is influenced by repeated or constant irritation, and disruption in the subtle balance between varied enzymes of local and systemic origin that are governing the tissue proliferation, differentiation and maturation. It is understood that an exuberant growth of

granulation tissue often will occur in the site of persistent low-grade irritation and certain irritant set up a proliferative response.¹ Thus, gingival hyperplasia often follows this pathogenesis and are exhibited at various inflammatory and fibrotic stages. Treatment modality has to be advocated wisely depending upon patient's concern, nature of inflammation, response to initial therapy and accordingly a conservative approach has to be elected.

CASE SERIES

CASE 1:

A 42 years old female patient reported to the Department of Periodontology, GDC Ahmedabad with a chief complaint of increase in size of gums in lower anterior teeth region with difficulty in eating because of it since last 6 months. On thorough clinical, systemic and radiological examination a provisional diagnosis of inflammatory gingival enlargement was made with overlapping periodontitis due to poor oral hygiene maintenance, which was later confirmed with histopathological investigation. As the fibrotic nature of the enlarged marginal, papillary and part of attached gingiva was very prominently evident with tooth displacement, surgical approach by ledge and wedge technique was decided to resolve the gingival enlargement

and achieve knife edge gingival margins post the mandatory phase I therapy and re-evaluation of the same. After the inflammatory component of the enlargement had diminished, surgical procedure was planned under local anaesthesia, a meticulous horizontal incision was made occupying the bulk of fibrotic enlargement which was then prepared for histologic examination. After proper debulking of the enlarged area, surgical papillae were constructed and minimal reflection of flap was performed to ensure thorough debridement by scaling with ultrasonic scaler and root planning. Tension free figure of 8 sutures were taken with 3-0 black braided silk to ensure proper approximation of the flap margins and the patient was relieved after giving relevant post operative instruction and medications. The patient was recalled on 7th post operative day for suture removal and examination. Healing process was taking place satisfactorily and hence patient was recalled every week for the first month to ensure adequate plaque control, after which recall visits were scheduled at the interval of 1 month, 3 months and 6 months. In summary, to debulk the fibrotic enlargement surgical procedure was opted instead of only non-surgical periodontal intervention.



(a)



(b)



Fig 1. (a) Preoperative view (b) Horizontal incision while performing ledge and wedge procedure (c) 7 days Postoperative view (d) 6 months followup

CASE 2:

A 19 years old male patient visited the department of Periodontology, GDC Ahmedabad with a chief complain of bleeding gums during brushing teeth in lower anterior teeth region for 4 months, he did not possess any relevant medical or dental history and had visited the dentist for the very first time. Clinical examination revealed deposition of dental calculus in lower anterior teeth region with enlarged marginal and papillary gingiva. Bleeding on probing was positive along with deep periodontal pockets present in respect to 32,31,41,42, radiological investigation with orthopantomography (OPG) displayed horizontal bone loss in our area of interest along with altered crown to root ratio. Meticulous Phase I periodontal therapy was started for the patient along with 0.2% chlorhexidine mouth wash, 10 ml, twice daily for 14 days, instructions were given about brushing techniques and patient was motivated to practise proper oral hygiene methods. After re-evaluation of phase I therapy, though good oral hygiene maintenance was appreciated along with

regression of inflammatory part of the enlargement, periodontal pockets of > 5mm were still present. Hence, surgical intervention was planned strategically so as to eliminate deep pockets, reconstruct new surgical papillae, avoid tension during suturing and promote healing with long junctional epithelium of sufficient strength for long term results and achieve knife edge margins of the gingiva. Thus, Modified Widman flap operation was carried out with meticulous incisions, thorough debridement along with scaling and root planning and further coaptation of the flap with desired margins using 3-0 black braided non resorbable silk sutures and the patient was relieved after giving post operative instructions and antibiotics. Patient was recalled after 7 days for suture removal and follow up visit where healing was inspected and oral hygiene instructions were reinforced. Periodic follow up visits were scheduled at an interval of 1 week for the first month post operatively and then after 3 months and 6 months which displayed absolute resolution of gingival enlargement.



(a)



(b)



(c)

Fig 2. (a) Preoperative view (b) Probing depth after completion of phase I therapy (c) 3 months postoperative view after Modified Widman flap

CASE 3:

A 35 years old male patient reported to the department of Periodontology, GDC Ahmedabad with a chief complaint of mobility of teeth in lower front teeth region in the last 2 weeks, patient experienced bleeding gums while brushing and observed swelling in the past 1 week. Complete medical revealed no relevant systemic disorder and personal history revealed used of smokeless tobacco product from 2 years. Clinical examination showed gingival enlargement in mandibular anterior and right posterior region where the patient usually retained the tobacco intraorally. The gingival tissue was soft and friable in consistency and mild tenderness was present with 5 mm periodontal pocket present on probing and grade 1 mobility present in mandibular central incisors. Radiographic investigation with orthopantomograph disclosed generalised horizontal bone loss hence the diagnosis of Chronic generalised periodontitis was established. The patient was counselled about quitting the use of

tobacco and motivated to maintain oral hygiene. Appropriate brushing technique was demonstrated and Phase I periodontal therapy with scaling and root planning was commenced, use of 0.2% chlorhexidine gluconate mouthwash was advocated twice daily and the patient was recalled after 7 days, there was a dramatic shrinkage in the size of the enlargement in mandibular anterior region with reduction in pseudo pocket levels by 2 mm. Further thorough root planning and curettage was performed under local anaesthesia in a view to decrease the residual inflammatory component in the enlargement and continuous use of mouthwash was advised. Two weeks post curettage and repeated root planning the patient reported to the department with total elimination of gingival enlargement and healthy probing depth was observed by only non-surgical periodontal management means. The patient was then further scheduled to address the residual pockets in the posterior region.



(a)

(b)

Fig 3. (a) Preoperative view (b) 1 month Postoperative view after curettage

DISCUSSION

The first case was a classic case of inflammatory gingival enlargement with underlying periodontal findings and fibrotic nature of the tissue due to poor oral hygiene maintenance further causing tooth displacement and gingival tissue covering the major part of clinical crown, hence mandatory surgical approach was advocated for proper resolution of the fibrotic lesion which is a result of aberrant wound healing associated with defective cell proliferation, cell to cell interaction, cell to matrix interactions, matrix deposition and impaired immune system response.² Whereas the second case demonstrated an avid presentation of puberty associated gingival overgrowth, which might be influenced by a variety of factors, comprising dental plaque biofilm, caries, mouth breathing, crowding of the teeth, etc.³ However, the dramatic rise in steroid hormone levels during puberty has a transient effect on the inflammatory status of the gingiva⁴, numerous studies have demonstrated a rise in gingival inflammation at circumpubertal ages without a concomitant increase in dental plaque biofilm levels.⁵ While smokeless tobacco is strongly associated with severe active periodontal disease and interproximal attachment loss⁶, our third case expresses a similar presentation where in the gingival tissue shows chronic irritation from the smokeless tobacco exhibiting as inflammatory gingival enlargement and also overlapping periodontal disease. Hence, elimination the chief etiological factor i.e. tobacco was of at most importance and counselling the patient about the same was given priority along with nonsurgical and surgical management.

Non- surgical approach aims at reducing inflammatory component and avoid the need for surgery before it hampers transient eating, tooth brushing or other activities that increase the morbidity of the patient. Meticulous self-administered oral hygiene alongside professionally delivered oral hygiene and scaling and root planning can result in complete resolution or make

surgical correction easier.⁷ Whereas most widely deemed treatment of severe gingival overgrowth is surgical management, post use of various clinical indices for gingival overgrowth more than 30% needs surgical intervention. It is ideally indicated when there are aesthetic, psychological or functional dilemma. Flap surgeries are performed to remove enlarged part of gingiva along with pocket reduction therapy when enlargement is associated with bone loss.⁷

Differential diagnosis of gingival enlargement requires thorough dental and medical

history, careful evaluation of the type, nature and extent of enlargement and identification of etiologic or predisposing factors. Furthermore, laboratory investigations and/or biopsy specimens may be required to confirm the diagnosis or make a diagnosis of exclusion.⁸

CONCLUSION

Understanding of the various assorted inflammatory nature of the gingival hyperplastic lesions which have been discussed in this case series should encourage more conservative management towards the disease, along with it special emphasis should be given to eliminate etiological factor causing the enlargement and thorough systemic and personal history taking should be fostered in order to plan a precise treatment strategy.

Declaration by Authors

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