Diagnosing and managing the prodigious gingivae with distinct etiologies – a fight for reinstating big smile from the big gum: a case series

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Abstract

Introduction: Gingival hyperplasia (GH) not only predisposes to the functional but also to esthetic concerns of the patients. For rendering a possible treatment a periodontist should recognize the underlying pathology, be it inflammatory, neoplastic, iatrogenic, idiopathic or in association with any underlying systemic disease.

Materials and Methods: A thorough individual history was obtained with clinical presentation of GH, according to which they were grouped under six sections. First, was drug induced (phenytoin), second was unilateral idiopathic enlargement, third was inflammatory, fourth demonstrated GH due to orthodontic treatment, fifth was stated as inappropriate gum to tooth ratio due to altered passive eruption and lastly was pregnancy induced GH.

Results: The cases presented were treated with full mouth oral prophylaxis following which, surgical intervention was done if indicated.

Conclusion: The present case series highlights different types of gingival enlargement, their underlying etiology and emphasizes on various treatment modalities that can be employed.

Keywords: Gingival Hyperplasia, Diagnosis, Management, Laser, Conventional, Idiopathic, Neoplastic

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Introduction

An abnormal growth of the gingival tissues is defined as gingival enlargement, which sways patient's psychological and functional concerns. Among various predisposing factors for gingival enlargement (GE), drug induced gingival enlargement is the most recognized one. Out of vast variety of drugs prescribed for overall benefit to human health, certain antiepileptic (Phenobarbital, Sodium Valproate, Phenytoin) a group of antihypertensive drugs, like calcium channel blockers (Amlodipine, Nifedipine, Diltiazem, Verapamil) and immunosuppressant drug like Cyclosporine possess a risk of causing gingival hyperplasia as their side effects.[1] Other than drugs, as an etiological factor, gingival enlargement may also occur as a result of inflammatory retaliation to certain local factors like dental plaque, iatrogenic cause like orthodontic therapy, systemic conditions like pregnancy and also can be due to neoplasms, either benign or malignant.

However, GE when associated with progressive increase in connective tissue element of submucosa, the condition is termed as gingival fibromatosis (GF). Though, the etiology and pathogenesis of GE are still not well established, but the most common cause of GF is genetic inheritance or it may be idiopathic.[2]

The treatment is strategized on the perception of the probable cause and basal pathologic changes. Hence, the aim of this case series is to diagnose and render minimally invasive treatment to the patients with gingival hyperplasia attributed to distinct etiologies.

Case 1

Patient, 26 year old male reported to the Department of Periodontology and complained of swelling in the lower anterior gums since 1 year. He also gave the history of taking medications for epilepsy since past 3 years. His physician had prescribed him Phenytoin 100 mg B.D. The gingival surface in the lower anteriors appeared to be fibrotic and had pebble like appearance (Fig. 1a). Pseudo pockets were observed while probing the involved teeth. Provisional diagnosis of drug induced (phenytoin) GE was established. Phase I therapy was rendered. Patient was then referred to the physician for possible substitution of the drug Phenytoin. Gingivoplasty was performed using electrocautery in involved papillary region (Fig. 1b).

Fig. 1a: Phenytoin induced gingival enlargement pre-operative view

Fig. 1b: Immediate post-operative

Case 2

A 19 year old female patient, came to the Department of Periodontology and complained of swollen gums involving the upper and lower teeth, since last 2 years, causing difficulty in mastication, speech and also poor esthetics due to incompetent lips. No relevant medical history or any history of drug intake was contributed by the patient. On examining the gingiva, it was found to be fibrotic, firm and pink in color (Fig. 2a). A provisional diagnosis of idiopathic gingival enlargement was concluded as there was no family history and also inconsistency of the amount of plaque and calculus when correlated with the severity of enlargement. After Phase I therapy, gingivectomy and gingivoplasty procedures were conducted in the affected area, using combination of scalpel and diode laser. Healing was uneventful and patient soon recouped normal functions of mastication and speech (Fig. 2b).

Fig. 2a: Idiopathic gingival enlargement pre-operative view

Fig. 2b: Post-operative healing after 2 weeks

Case 3

A 45 year old female patient reported to the Department of Periodontology, complaining of bleeding and swollen gums since 7-8 months. Medical history was also non-contributory. On clinical examination the gingiva appeared to be soft and edematous with subgingival calculus deposits and had tendency to bleed on slight provocation. Diagnosis of chronic inflammatory enlargement was concluded. Phase I therapy was rendered. After 4 weeks (Fig. 3a) when most of inflammatory component resided, conventional approach for external bevel gingivectomy was planned. After marking the bleeding points, gingivectomy knives were used to contour the gingival margins (Fig. 3b). Healing was uneventful, which further resulted in attaining healthy contour of gingiva (Fig. 3c).

Fig. 3a: Pre-operative view

Fig. 3b: External bevel incision given

Fig. 3c: Two months post-operative

Case 4

An 18 year old female was referred to the Department of Periodontology from the Department of Orthodontics for assessing her gingival condition during active phase of orthodontic treatment. Clinical

examination showed generalized enlargement of papillary and marginal gingiva. Iatrogenic (bracket induced) gingival overgrowth was considered as its provisional diagnosis. Re-evaluation of phase I therapy was done after four weeks (Fig. 4a). It was then decided to correct the residual overgrowths of gingiva by electrocautery (Fig. 4b). Uneventful healing was observed after 2 weeks following which orthodontic treatment was resumed.

Fig. 4a

Fig. 4b
Pre-operative view

Case 5

A male patient, 35 years of age, reported, complaining of short teeth since eruption. On examining the gingiva was firm, resilient and exhibited normal surface texture.

The cervical third of crown was covered with gingiva that gave the appearance of altered passive eruption (Fig. 5a). Hence, an esthetic crown lengthening procedure was performed after phase I therapy using electrocautery. An increase of 2-3 mm in crown height was achieved that gave better esthetic outcome (Fig. 5b).

Fig. 5a: Pre-operative view

Fig. 5b: Immediate post-operatively

Case 6

A 26-year-old woman reported to the Department of Periodontology and complained of swelling of the gums in upper front anterior region (Fig. 6). Patient also complained of difficulty in chewing and showed concern for the aesthetics. Patient was 8 months pregnant, hence only oral hygiene measures were reinforced after scaling and root planning. No surgical intervention was rendered and was scheduled post-partum.

Fig. 6: Pregnancy induced gingival enlargement

Discussion

Among various etiological factors, GH can occur after pharmacotherapy that involves use of prescribed drugs like Phenytoin[3], Cyclosporine and Nifedipine. Kimball in 1939, first reported the case of gingival enlargement induced by Phenytoin.[4] 50% higher association of GH was observed with Phenytoin when compared to that of Cyclosporine and calcium channel blockers.[1] Drug induced GH in present case series is also associated with prescribed administration of Phenytoin. The most effectual treatment for drug-associated GE is withdrawal, substitution or dose alteration of the medication. This can be implemented by the concerned physician.

The commonest mode of genetic transmission for GF is mainly autosomal dominant[5], but in rare instances it may show idiopathic occurrence. Recurrence is usually observed within a few months after surgery and patient may need to undergo repeated gingivectomy procedures. However, further research is required to conclude which modality among laser, electrocautery or conventional causes, least recurrence.

Gingival hyperplasia can also be engendered due to other factors like improper oral hygiene[6],which often presents as slight ballooning of the interdental papillary region with/or without the involvement of marginal gingiva. Maintenance of proper oral hygiene along with surgical intervention, if indicated have shown promising results. However, laser and electrocautery hold an upper hand over the conventional, in terms of hemostasis, but are associated with demerits like delayed wound healing, lateral heat damage, higher cost and skill of the operator.[7] An assessment of initial healing after 7 days, revealed that healing of the quadrant operated by scalpel was best among all.

Challenge that an orthodontist frequently encounters is treatment associated soft tissue problems that majorly include gingival overgrowths. Conventional approach for recontouring of the gingiva may result in problems like increased intraoperative bleeding, post-operative swelling and pain. Electrocautery and soft tissue diode lasers provide a painless and also bloodless treatment option often more unhesitatingly accepted by the patients.[8]

Delayed eruption, certain arch deformities and also displacement of teeth can be consequences of GE apart from functional and esthetic concerns. Therefore, to establish a prompt diagnosis and render appropriate treatment, in-depth knowledge of various etiological factors responsible for GE is a must.

Gingival inflammation in pregnancy is also caused by bacterial plaque, as seen in non-pregnant individuals, however, pregnancy exacerbate the gingival response to plaque.[9] A greater correlation between gingival inflammation and amount of plaque after parturition was seen, when compared to pregnancy that suggested, that other factors are induced during pregnancy that aggravates the gingival response to local irritants.[10] Therefore, regular checkup and oral prophylaxis is of utmost importance.

Conclusion

Clinicians should focus on the non-surgical treatment modalities that include the removal of offending factors like associated drug, plaque or any other systemic or iatrogenic cause for treating GE. Later, if indicated periodontal surgical procedures in the form of periodontal flap or gingivectomy procedures can be performed to reduce the enlarged gingival tissues. The maintenance of treated cases should include meticulous home care and professional recalls.

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