Different Treatment Modalities For Drug Induced Gingival Overgrowth: A Case Series

Jainny Mehta*, Gaurav Bakutra, Sarath Chandran***, Shivlal Vishnoi******

* Post Graduate Student 3rd Yr, ** Senior Lecturer, *** Head And Professor, **** Reader, Manubhai Patel Dental College & Hospital, Vadodara- 390011, India

Abstracts: Gingival overgrowth is a well documented adverse effect associated with three major classes of drugs that are, anticonvulsants, calcium channel blockers, and immunosuppressants. Eventhough the anding of pathogenesis of drug induced gingival overgrowth (DIGO) is well understood, its treatment still remains a challenge for the periodontists and treatment is still largely limited to maintenance of improved level of oral hygiene and surgical removal of overgrown tissue. Thus, it is important to discuss this issue with their medical colleagues and to practice care while prescribing the drugs associated with gingival overgrowth. This case series highlights the various treatment modalities for different patients. [J Mehta, Natl J Integr Res Med, 2018; 9(2):106-109]

Key Words: Amlodipine, Gingivectomy, Gingival hyperplasia, Calcium channel blockers.

Author for correspondence: Jainny Mehta, 13, Shantinagar Society, Near Urmi Char Rasta, Dinesh Mill Road , Vadodara - 390007 E- Mail: jainnymehta@live.in M: 09725751972

Introduction: Gingival enlargement is increase in the size of the gingiva, also known as gingival overgrowth or gingival hyperplasia. Various causes for gingival enlargement are inflammatory, drug-induced, due to some systemic diseases or conditions, neoplastic etc. Gingival enlargement is one of the adverse effect associated with the administration of several drugs[1]. Severe gingival overgrowth is often disfiguring and can interfere with speech, mastication and esthetics. Gingival overgrowth is well recognized unwanted effect associated with three major drugs / drug groups – the calcium channel blockers (amlodipine) anticonvulsant (phenytoin sodium), immunosuppressant (cyclosporine). The calcium channel blockers used as anti hypertensive drugs have been implicated in causing gingival enlargement. Amlodipine is a long acting, dihydropyridine derivative used as antihypertensive drug. Jorgensen, 1997 had reported the prevalence of amlodipine-induced gingival enlargement as 3.3%[2]. Various treatment options are available for treatment of drug induced gingival enlargement including substitution of the drug by physician, nonsurgical treatment (Scaling and root planing), surgical treatment includes gingivectomy with scalpel, laser or electrocautery, flap surgery. Here we are presenting a case series in which both non surgical and surgical management of drug induced gingival enlargement is explained.

Case Report:

Case 1 (Surgical Management): A 74 years old male patient reported to the Department of Periodontology of Manubhai Patel Dental College and Hospital, Vadodara with the chief complaint of swollen and bleeding gums with foul odor from mouth since 1 year. Patient was hypertensive with history of taking amlodipine 5 mg once daily with telmisartan 40 mg once daily since last 8 years. Intraoral examination revealed generalized nodular enlargement of gingiva mainly on the facial aspect of teeth covering one third to half of the tooth surface and involving the marginal, papillary and attached gingiva (Grade III gingival enlargement). Gingiva was inflamed and soft to firm in consistency. (Figure 1a) Patient was referred to the physician and amlodipine was replaced by verapamil 40 mg twice daily and telmisartan 40 mg once daily. Patient was educated and motivated for maintenance of proper oral hygiene. Thorough scaling and root planning was performed. Chlorhexidine gluconate (0.2%) mouthwash was prescribed. After 3 months of non surgical (Phase I) therapy, (Figure 1b) remaining excess gingival tissue was removed by surgical intervention. Gingivectomy was planned for mandibular gingival tissue. Local anaesthesia (Lignocaine Hydrochloride with adrenaline 1:80,000) was injected and pockets were marked with pocket marker. Starting apical to the points marked, a continous external beveled incision was placed with kirkland or orban's knife. The resected tissue was removed and was checked for remaining calculus and granulation tissue. (Figure 1c, 1d) After bleeding was controlled periodontal dressing was placed.(Figure 1e). Amoxicillin 500 mg three times daily for 5 days and Nonsteroidal anti inflammatory drug Ketorolac 10 mg three times daily for 3 days was prescribed. On seventh day of follow-up visit periodontal dressing was removed. Healing was uneventful. Clinical outcome on 6 months of follow-up visit is shown in (Figure 1f).

Case 2 (Non Surgical Management): A female patient of 45 years age reported to the Department of Periodontology of Manubhai Patel Dental College, Vadodara with chief complaint of swollen and

bleeding gums since 6 months. Patient also felt discomfort while mastication. Patient was under treatment of hypertension since one year and was taking amlodipine 5 mg once daily since one year. Clinical examination revealed very poor oral hygiene; generalized gingival enlargement covering one-third to half of the tooth surface (Grade III gingival enlargement). Gingival enlargement involving marginal, papillary gingiva as well as attached gingiva. Gingiva was highly inflamed with multiple areas of spontaneous bleeding.(Figure 2a) Patient was referred to the physician and he substituted Amlodipine by losartan 50 mg once daily. Patient was educated and motivated for maintenance of good oral hygiene. Non surgical (phase I) therapy was planned. Thorough scaling and root planing was performed. The patient was evaluated after 3 months of phase I therapy and found significant reduction in gingival enlargement. Patient was recalled every 3 months for regular follow up visits and reinforcement of oral hygiene instructions. (Figure 2b)

Fig 1a: Case 1- Pre-operative image showing gingival overgrowth

Fig 1b: Case 1 – 3 Months after Phase I therapy

Fig 1C: External bevelled incision for gingivectomy

Fig 1d: Immediately post operative view

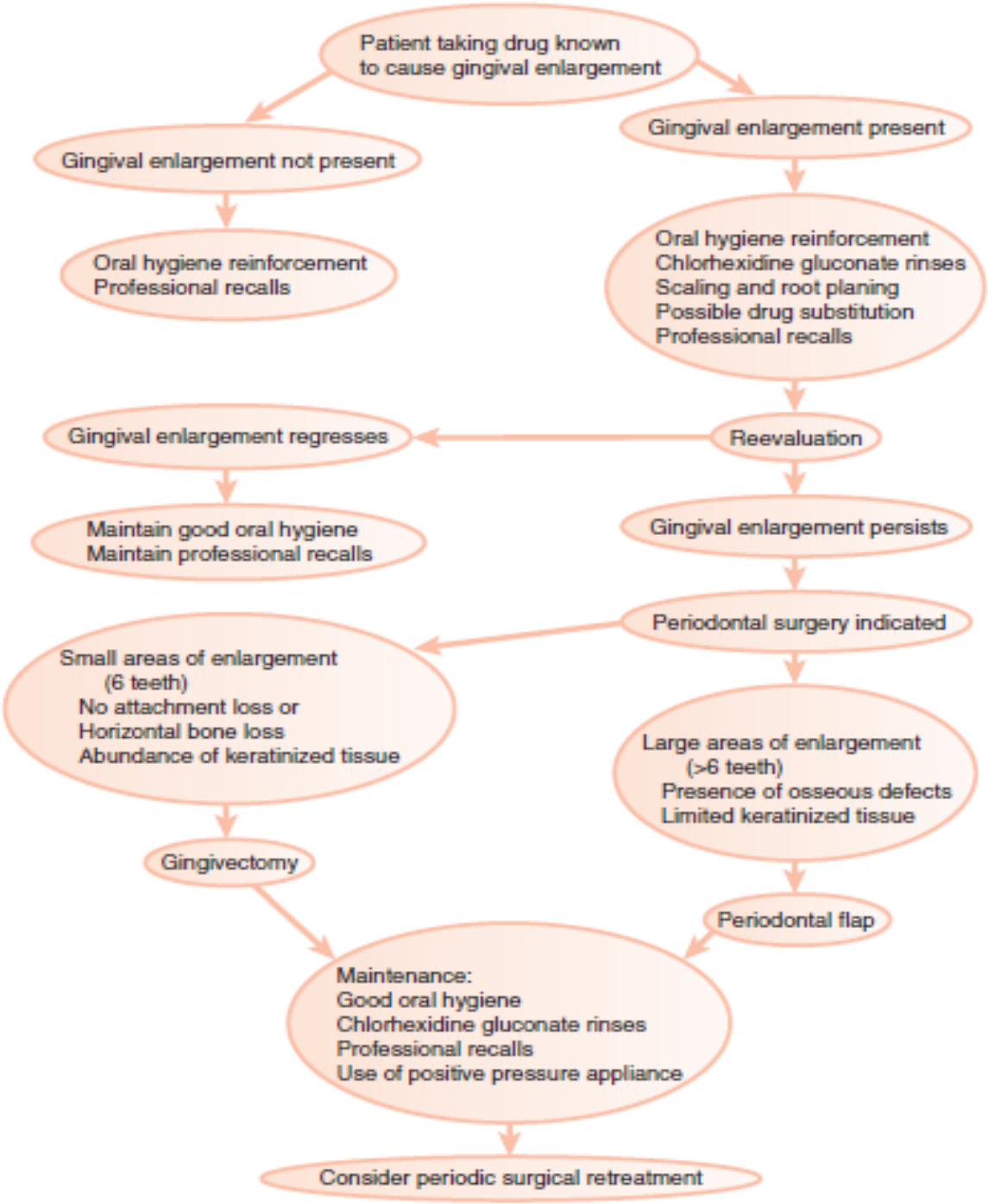
Fig 1e: Periodontal pack placed

Fig 1f: Follow up after 4 months

Fig 2a: Case 2- Pre-operative image

Fig 2b : Case 2 – Post phase I therapy after 3 months

Fig 3: Decision making table for treatment of Gingival enlargement



Discussion: Gingival hyperplasia, with its potential cosmetic implication and tendency to provide niche for further growth of plaque microorganism, possess a serious concern to patients and clinicians. Drug-induced gingival overgrowth is known as an adverse effect with three types of drug: phenytoin, cyclosporine A, and calcium channel blockers, such as dihydropyridines (amlodipine), diltiazem, and verapamil, which are widely prescribed for the treatment of various cardiovascular diseases[1]. Lafzi *et al*. (2006) had reported rapidly developing gingival hyperplasia in patient receiving 10 mg/day of amlodipine within 2 month of onset[3]. The prevalence of amlodipine-induced gingival overgrowth was

reported to be 3.3% (Jogersen, 1997). Seymour et al. reported three patients with poor periodontal condition who developed gingival overgrowth upon chronic usage (at least three months) of amlodipine[4] .

The underlying mechanism remains to be fully understood. Although, two main inflammatory and non-inflammatory pathways have already been proposed. The proposed non-inflammatory mechanisms include defective collagenase activity due to decreased uptake of folic acid [5], blockage of aldosterone synthesis in adrenal cortex and consequent feedback increase in ACTH level [6], and upregulation of keratinocyte growth factor (KGF).[7] Alternatively, inflammation may develop as a result of direct toxic effects of concentrated drug in gingival crevicular fluid (GCF) and/or bacterial plaques[8]. This inflammation could lead to the upregulation of several cytokine factors such as TGF-ß1[9].

Marked reduction in inflammation and gingival overgrowth was observed in both the cases after non surgical (phase I) therapy and substitution of amlodipine to other drug. Meticulous oral hygiene maintenance by patient may also be responsible for reduction in gingival overgrowth. Marvogiannis *et al*, 2006 suggested that there may be recurrence of gingival hyperplasia if medication is continued and also persistence of other risk factors[10]. But no recurrence was noted in this case series.

There is always a dilemma regarding treatment approach for gingival enlargement for different cases. This decision making tree gives clarity about different approaches. (Figure 3) [11]

Conclusion: Rigorous maintenance of oral hygiene, substitution to alternative drugs, through scaling and root planing and surgical therapy if required, remains the main stay of available treatment modalities. Better results were obtained where drug substitution along with oral prophylaxis were followed.

References:

1. Seymour RA, Ellis JS, Thomson JM. Pathogenesis of drug induced gingival overgrowth. J Clin Periodontol 1996;23:165–175.
2. Jorgensen MG. Prevalence of amlodipine related gingival hyperplasia. J Periodontol 1997;68:676–678.
3. Lafzi A, Farahani RM, Shoja MA. Amlodipine induced gingival hyperplasia. Med Oral Patol Oral Cir Bucal 2006;11:E480–482.
4. Seymour RA, Ellis JS, Thomson JM, Monkman S, Idle JR. Amlodipine induced gingival overgrowth. J Clin Periodontol 1994;21:281- 283.
5. Brown RS, Sein P, Corio R, Bottomley WK. Nitrendipine induced gingival hyperplasia. Oral Surg Oral Med Oral Pathol 1990;70:593-596.
6. Nyska A, Shemesh M, Tal H, Dayan D. Gingival hyperplasia induced by calcium-channel blockers: mode of action. Med Hypotheses 1994;43:115-8.
7. Das SJ, Olsen I. keratinocyte growth factor is upregulated by hyperplasia inducing drug nifedipine. Cytokine 2000;12:1566-1569.
8. Van Der Vleuten CJ, Trijbels-Smeulders MA, Van De Kerkhof PC. Telangiectasia and gingival hyperplasia as side-effects of amlodipine (Norvasc) in a 3-year-old girl. Acta Derm Venereol 1999;79:323-4.
9. Border WA, Noble NA. Transforming growth factor beta in tissue fibrosis. N Engl J Med 1994;331:1286-92.
10. Mavrogiannis M, Ellis JS, Thomason JM, Seymour RA. The management of drug induced gingival overgrowth. J Clin Periodontol 2006;33:434–439.
11. Carranza F, Newman M, Takei H, Klokkevold P. Treatment of gingival enlargement. In: Carranza's Clinical Periodontology. 12th ed. St. Louis, Mo.: Elsevier Saunders. 2012:587-592

Conflict of interest: None
Funding: None
Cite this Article as: J Mehta, G Bakutra, S Chandran, S Vishnoi. Different Treatment Modalities For Drug Induced Gingival Overgrowth: A Case Series. Natl J Integr Res Med 2018; 9(2):106-109