

Amlodipine-Induced Gingival Overgrowth Superimposed On Chronic Periodontitis: A Case Report

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ABSTRACT

Drug-induced gingival overgrowth (DIGO) is a side effect of specific medications including anticonvulsants, immunosuppressants, and calcium channel blockers (CCBs). Among CCBs, amlodipine is a frequently prescribed antihypertensive drug which causes gingival enlargement, often exacerbated by poor oral hygiene maintenance and pre-existing periodontal disease.

Keywords: Drug-Induced Gingival Overgrowth (DIGO), Calcium Channel Blockers (CCBs), Amlodipine

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INTRODUCTION

Drug induced gingival overgrowth (DIGO) formerly termed gingival hyperplasia is a side effect where gingival enlargement occurs due to specific medications. This condition is primarily associated with three pharmacological drug classes which includes anticonvulsants, immunosuppressants, and calcium channel blockers.^[1]

Calcium channel blockers (CCBs), mainly nifedipine, amlodipine, and diltiazem, are first line therapy for hypertension, angina, and peripheral vascular disease.^[2,3] While effective for cardiovascular health, they are associated with oral side effects also. Seymour et al. reported the first instance of amlodipine-induced gingival overgrowth in 1994. Further studies by Lafzi et al., demonstrated that daily dose of 10 mg amlodipine can trigger gingival hypertrophy in as little as two months.^[4]

CASE REPORT

A 57-year-old female patient reported to the department of Periodontology with the chief complaint of swollen gums in upper and lower front teeth region since past 6 months. She had given a history of food lodgement under the enlarged tissue, which caused difficulty in maintaining oral hygiene. She also complained of associated bad breath. Medical history revealed that patient was taking tablet amlodipine 10 mg (once a day) for hypertension for one year. No history of intake of other drugs was reported. The patient presented with a history of progressive overgrowth of gingiva since initiation of amlodipine therapy.

Inspectory findings revealed that there was overgrowth of marginal and interdental gingiva in both maxillary and mandibular arches which extended from 14 to 24 and 34 to 44 respectively. In the maxillary arch it was more pronounced in relation to 11 and 12. The gingiva appeared

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pinkish with areas of marked erythema and a lobulated surface pattern which extended to involve nearly middle one- third of the tooth. Marginal gingiva was rolled with loss of normal scalloped architecture. Palpatory findings revealed a firm gingival enlargement and no tenderness on palpation. [Figure 1: A-C]

Oral hygiene was inadequate with local plaque-retentive factors, thereby contributing to the inflammatory

component of the gingival enlargement. Periodontal probing revealed pocket depths ranging from 5 to 10 mm. Orthopantomogram evaluation showed that generalized horizontal bone loss. Considering the patient's history, clinical presentation, and evaluation of orthopantomogram a provisional diagnosis of amlodipine-associated gingival overgrowth superimposed on plaque-induced chronic periodontitis was established. [Figure 1: D]

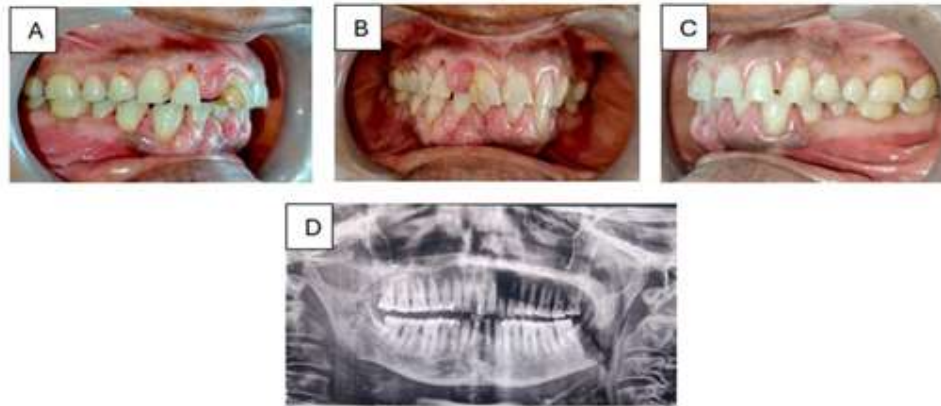


Figure 1: A) to C) Frontal and profile images before phase 1 therapy; D) Orthopantomogram

CASE MANAGEMENT

Patient underwent Phase I therapy, consisting of scaling and root planing. The patient's physician was consulted regarding replacement of amlodipine with suitable alternate medicine and the drug was replaced with tablet enalapril (5 mg twice daily). The patient was advised to maintain oral hygiene and to use chlorhexidine mouth rinses twice daily. Patient was reviewed after one month, three months and six months of drug substitution with consistent oral care, a marked improvement was observed. The gingival enlargement showed significant reduction in size, but the

probing depth persisted at the end of six-month period. [Figure 2: A- F]

Under local anesthesia, flap surgery was performed in those areas where the pocket reduction was not achieved. After degranulation, the flaps were sutured back into the position with simple interrupted suturing technique using 3-0 black braided non resorbable silk sutures. The postoperative period was uneventful. Regular follow-up through the six-month period achieved probing depth reduction and clinical attachment level gain. [Figure 3: A- I]

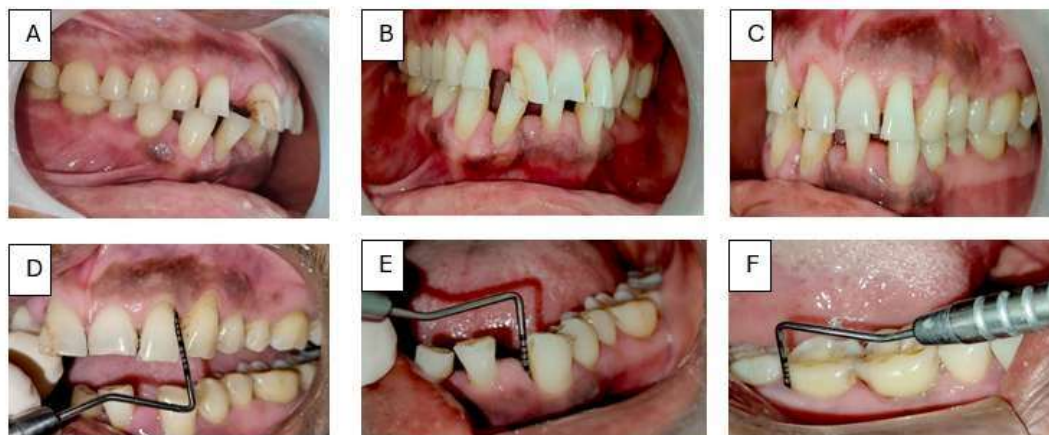


Figure 2: A) to C) Frontal and profile images after drug substitution and Phase I Therapy; D) to F) Persistent probing depth of 6 - 10 mm after phase 1 therapy

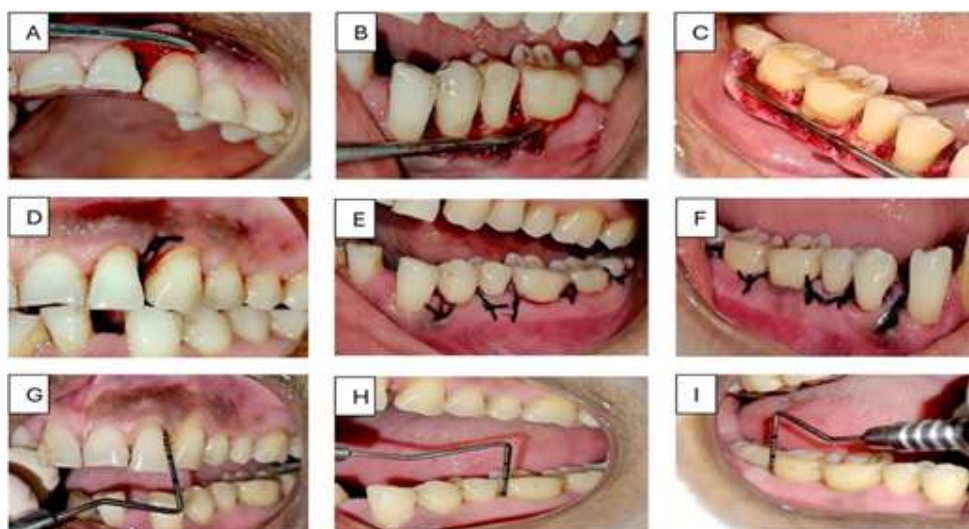


Figure 3: A) to F) Full thickness mucoperiosteal flap raised, debridement done and sutures placed with 3-0 black braided silk suture; G) to I) Probing depth reduced to 4-5 mm after six months of flap surgery

DISCUSSION

Mechanisms by which calcium antagonists induce gingival hyperplasia is multifactorial includes activation of TGF- β (transforming growth factor-beta), release of pro-inflammatory cytokines such as IL-6 and TNF- α , alteration of cell apoptosis mechanisms and intrinsic genetic predisposition.^[5,6,7] The best hypothesis among them is that calcium antagonists inhibit the influx of calcium ions that is needed for degradation and synthesis of collagen. The accumulated collagen and other extracellular matrix proteins are suggested to produce gingival hyperplasia.^[8]

In the present case report, gingival enlargement showed significant reduction at six months after the drug substitution, but the probing depth persisted at areas associated with periodontitis. Pocket depth reduction was achieved later through periodontal flap surgery.

CONCLUSION

In this case report substituting the causative drug combined with phase I therapy successfully resolved gingival overgrowth without surgical excision. However localized persistent pocket depth remained, which was effectively managed through periodontal flap surgery.

REFERENCES

1. Marshall RI, Bartold PM. Medication induced gingival overgrowth. *Oral Dis.* 1998 Jun;4(2):130-51.
2. Dongari-Bagtzoglou A; Research, Science and Therapy Committee, American Academy of Periodontology.

Drug-associated gingival enlargement. *J Periodontol.* 2004 Oct;75(10):1424-31.

3. Speroni S, Giuffrè M, Tura T, Al Jawaheri QAS, Antonelli L, Coccoluto L, et al. Calcium antagonist-induced gingival overgrowth: a case report and literature review. *Diagnostics.* 2025;15(3):320. Available from: <https://doi.org/10.3390/diagnostics15030320>
4. Lafzi A, Farahani RM, Shoja MA. Amlodipine-induced gingival hyperplasia. *Med Oral Patol Oral Cir Bucal.* 2006 Nov;11(6):E480-2.
5. Luciani F, Paolantonio G, Calabrese C, Calabrese L. Cytology and molecular mechanisms of drug-induced gingival hypertrophy: a review. *Oral Implantol (Rome).* 2017;10(3):221-8.
6. Livada R, Shiloah J. Calcium channel blocker-induced gingival enlargement. *J Hum Hypertens.* 2014;28(1):10-4.
7. Seymour RA, Ellis JS, Thomason JM. Risk factors for drug-induced gingival overgrowth. *J Clin Periodontol.* 2000;27(4):217-23.
8. Gelfand EW, Cheung RK, Grinstein S, Mills GB. Characterization of the role for calcium influx in mitogen-induced triggering of human T cells: identification of calcium-dependent and calcium-independent signals. *Eur J Immunol.* 1986;16(8):907-12.