Case Report
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Amlodipine Induced Gingival Enlargement: A Conservative Treatment Strategy

Dr. Sujata Rana,[1] Dr. Surendra Man Shrestha,[1] Dr. Ameena Pradhan,[1] Dr. Shreeya Aryal,[1] Dr. Shilu Shrestha[1]

[1]*Department of Periodontics and Oral Implantology, People's Dental College and Hospital, Sorhakhutte, Kathmandu, Nepal.*

ABSTRACT

Amlodipine, a commonly prescribed calcium channel blocker for hypertension, is associated with gingival enlargement, which can lead to aesthetic concerns and difficulty with speech, mastication, and oral hygiene. This condition presents a challenge due to its unclear pathogenesis and the risk of recurrence. This case report highlights the success of a conservative treatment strategy, including scaling and root planing combined with drug substitution, in controlling gingival overgrowth. The intervention led to a noticeable reduction in gingival enlargement, reducing the need for extensive surgical procedures.

Keywords: Amlodipine; conservative treatment; gingival enlargement.

INTRODUCTION

Gingival enlargement is an increase in gingival size commonly associated with anticonvulsants, immunosuppressants, and calcium channel blockers (CCBs). Amlodipine, a widely used CCB, has been reported to cause gingival enlargement with a 3.3%[1] global prevalence and 2.5%[2] national prevalence. The condition typically manifests as painless, bead-like enlargement of the interdental papilla, potentially affecting speech, mastication, and oral hygiene. Management is challenging due to treatment complexities and recurrence risk. A multidisciplinary approach is required, beginning with non-surgical methods such as removing local factors and changing medications. If unsuccessful, periodontal surgery may be needed. This report highlights the importance of conservative treatment.

CASE REPORT

A 53-year-old male presented to the dental outpatient department of People's Dental College and Hospital with the primary complaint of gingival swelling persisting for the past two years. A medical history of the patient revealed that the patient was hypertensive and taking antihypertensive drug, amlodipine 5 mg/day, single dose orally, for three years. Initially, the swelling appeared as small, bead-like nodular enlargements in the anterior regions of both the upper and lower jaws. Over time, the swelling progressively extended to involve the entire gingiva. The patient also reported a foul odour and discomfort while chewing, in addition to the loosening of teeth in the lower right posterior region over the last two months.

On intraoral examination, a generalised and pronounced gingival enlargement was noted, predominantly on the labial surfaces of the maxillary and mandibular teeth (Figures 1a, 1b, 1c). The overgrowth covered more than three-quarters of the tooth surfaces in the anterior region, consistent with Grade III enlargement according to the classification of Bokenkamp and Bohnhorst (1994). Tooth 45 (according to two-digit tooth numbering system) displayed Grade III mobility, and tooth 48 exhibited Grade II mobility.

Panoramic radiography revealed generalised horizontal bone loss (Figure 2).

Based on the patient's clinical history and presentation, a diagnosis of amlodipine induced

Correspondence
Dr. Sujata Rana
Email: sujatarana55@gmail.com

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Figure 1a: Generalised diffuse gingival enlargement.

Figure 1b: Upper arch.

Figure 1c: Lower arch.

Figure 2: Generalised horizontal bone loss.

gingival enlargement was established. The treatment plan was initiated with the extraction of teeth 46 and 48 as a part of the preliminary phase. The non-surgical phase followed, which included scheduled scaling and root planing sessions. The patient was instructed on maintaining optimal oral hygiene, including the use of 0.2% chlorhexidine oral rinse twice daily. Additionally, the patient was referred to

Figure 3: Follow-up at one month.

Figure 4a: Follow-up at six months.

Figure 4b: Occlusal view (upper arch).

Figure 4c: Occlusal view (lower arch).

Figure 5: Follow-up at two years.

a physician for consideration of drug substitution or withdrawal. The physician substituted the amlodipine with Losartan-HT 50 mg, administered once daily.

After one month, the patient reported a noticeable reduction in the gingival enlargement (Figure 3). The patient was then placed on a maintenance phase for six months. Following this period, there was a significant reduction in the enlargement, with minimal fibrotic tissue remaining (Figures 4a, 4b, 4c). The patient was kept under regular follow-up, and no recurrence was observed during the two-year follow-up period (Figure 5).

DISCUSSION

Gingival enlargement is a common clinical condition that may arise from various causes, including inflammation, drug intake, systemic conditions, neoplastic changes, or false enlargements. It is a significant concern for both patients and clinicians due to its potential cosmetic impact and its role in creating niches that promote microbial accumulation. Drug induced gingival enlargement is commonly associated with medications such as anticonvulsants (e.g., phenytoin), calcium channel blockers (e.g., amlodipine), and immunosuppressants (e.g., cyclosporine).

Amlodipine is a third-generation dihydropyridine, useful in middle to older-aged patients for various cardiovascular conditions.[3] Calcium channel blocker induced gingival overgrowth occurs due to reduced calcium ion influx, which inhibits fibroblast function and collagenase production. This leads to increased fibroblast proliferation and collagen synthesis, causing gingival enlargement.

The severity of drug induced gingival overgrowth (DIGO) is multifactorial, influenced by the drug dosage, duration of use, individual patient susceptibility, genetic predisposition, and the level of oral hygiene. Therefore, the management of DIGO should be case-specific and multidimensional. The primary approach should focus on plaque control as the first step in managing the condition. While the exact role of bacterial plaque in drug induced gingival enlargement remains uncertain, evidence suggests that removing local factors and maintaining consistent oral hygiene can reduce the severity of the enlargement and improve overall gingival health.[4]

In this case, there was a reduction in gingival overgrowth following the initial Phase I therapy. The possibility of drug discontinuation or substitution must also be considered, which requires consultation with the patient's physician. It may take anywhere from 1-8 weeks for the resolution of gingival overgrowth. Another class of antihypertensive medications, known not to cause gingival enlargement, could be considered. In this case, substituting amlodipine with Losartan (50 mg, once daily) in combination with Phase I therapy resulted in clinically significant improvement within a month, and this improvement was maintained at a two-year follow-up.

The findings from this case report suggest that a non-surgical approach can be an effective first-line treatment for gingival overgrowth, even in advanced cases. Previous case reports have shown similar positive outcomes when DIGO was treated with both supra-gingival and sub-gingival scaling and an intensive oral hygiene program.[5,6] Hancock and Swan documented the first successful case in which meticulous oral hygiene and conventional periodontal treatment effectively managed non-drug induced gingival overgrowth (NIGO).[5]

In line with these findings, replacing or discontinuing the causative drug, when clinically appropriate, can significantly reduce gingival overgrowth. This case demonstrated that substituting the offending medication with an alternative that does not promote gingival enlargement led to noticeable clinical improvement. Non-surgical methods offer a conservative, patient-friendly alternative to surgical procedures and are often sufficient for controlling DIGO. Consequently, such conservative management should be prioritised as the initial approach, including in cases related to medications like nifedipine. Surgical interventions, such as gingivectomy or periodontal flap surgery, should only be considered when gingival overgrowth does not respond to non-surgical therapy.[7]

Conflict of interest: None.

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