

**Gingival Enlargement Caused By Amlodipine- A Case Report**

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**Abstract**

Drug-induced gingival enlargement remains a significant problem for the dental clinicians during day to day practice. Patients medicated with certain drugs may be implicated with this unwanted side effect, which may interfere with esthetics, mastication or speech. The gingival overgrowth triggered by these medications is not only esthetically displeasing but also often impairs nutrition resulting in an increased susceptibility to oral infections like caries and periodontal diseases. Amlodipine is a comparatively new calcium channel blocker and has been used with increasing frequency in the management of hypertension and angina. Recent studies have reported that Amlodipine may induce gingival overgrowth. Knowledge regarding Amlodipine induced gingival hyperplasia helps the clinicians for better understand the disease and provide proper treatment and maintenance for the patients.

**Keywords:** Amlodipine, Drug-induced gingival enlargement, calcium channel blockers

**Introduction**

Gingival enlargement has multifactorial etiologies and has been frequently associated with inflammatory changes in the gingiva. Drug induced Gingival enlargement mainly caused by three important categories of drugs namely anticonvulsants, immunosuppressive drugs and calcium channel blockers.<sup>1</sup> The pharmacologic effect of each of these drug is different and directed towards various primary target tissues, all of them seem to act similarly on a secondary target tissues causing common clinical and histopathological findings.<sup>2</sup>

Amlodipine is a new dihydropyridine calcium channel blocker that is used in the management of both hypertension and angina. Ellis *et al.*,<sup>3</sup> first reported gingival sequestration of amlodipine. Since then, very

few isolated cases of amlodipine-induced gingival enlargements have appeared in the dental literature which are increasing gradually. Gingival overgrowth normally begins at the interdental papillae and is more frequently found in the anterior segments of the labial surfaces. Gingival lobulations are formed that may appear inflamed or fibrotic in nature depending on the nature of underlying mechanism. However, the fibrotic enlargement caused by the Amlodipine is normally confined to the attached gingiva and extends coronally causing the extensive disfigurement of gingiva. Clinical manifestations of gingival enlargement frequently appear within one to three months after initiation of treatment with Amlodipine.

### Case Report

A 50-year-old female patient came to the Department of Periodontics, CKS Theja Dental College and Hospital, Tirupathi with the chief complaint of enlarged gums in the upper and lower front teeth region for three months. Patient was not aware of such growth until three months back. She noticed a small bead-like nodular enlargement of the gums that gradually progressed covering almost the entire front teeth. Her past medical history revealed that the patient was hypertensive for last one year and was under medication (Amlodipine 10 mg, once daily).

Her personal history revealed that she was a regular betel nut chewer. She used to clean her teeth once daily with brush and tooth paste. Her general physical examination revealed that the patient was moderately built and her vital signs were within the normal range. There were no significant extra oral findings observed.

On intraoral examination, marginal and interdental gingival enlargement was well appreciated covering almost coronal one-third of maxillary and mandibular anterior teeth on facial view as shown in Fig. 1. Gingiva was pink in colour with erythematous and lobulated surface on right buccal view as shown in Fig. 2.

Margins of the gingiva were altered with loss of normal gingival scalloping. On palpation, gingiva was firm and resilient in consistency. Hypertrophied areas were painless and did not bleed on touch. Poor oral hygiene status of the patient was assessed from the presence of local irritating factors contributing to the mild inflammatory component of the gingival enlargement. The probing of gingival sulcus revealed presence of pseudo-pockets and elicited the bleeding.

Histopathologic inspection of the gingival biopsy specimens demonstrated a connective tissue hyperplasia, acanthosis of overlying epithelium, and elongated rete ridges together with few sparse inflammatory cells. The lesion was diagnosed as drug induced gingival hyperplasia based on clinical and histological evidences.

### Discussion

Drug induced Gingival overgrowth (DIGO) is the preferred term for many of these medication related gingival conditions previously labeled as *gingival hyperplasia* or *gingival hypertrophy*.<sup>4</sup> The widespread use of calcium channel blockers began in 1980s. The dihydropyridones such as amlodipine are nowadays widely used and tend to be more commonly associated with the gingival enlargement. Amlodipine is a third generation dihydropyridine calcium antagonist, which has a unique physiochemical profile, which is characterized by complete absorption, late-peak plasma concentrations, high bioavailability and slow hepatic biodegradation. Single-daily dose of Amlodipine is sufficient to use because of its slow elimination and long duration of action.<sup>5,6</sup>

The underlying mechanism of drug induced gingival enlargement still remains to be fully understood. However, two main non-inflammatory and inflammatory pathways have already been suggested. The proposed non-inflammatory mechanism include defective collagenase

activity due to decreased uptake of folic acid<sup>4</sup>, blockage of aldosterone synthesis in adrenal cortex and consequent increase in ACTH level<sup>5</sup> and upregulation of keratinocyte growth factor<sup>6</sup>. Alternatively, inflammation may develop as a result of direct toxic effects of concentrated drug in gingival crevicular fluid and/or in bacterial plaques. This inflammation could lead to the upregulation of several cytokine factors such as TGF- $\beta$ 1<sup>7</sup>.

The treatment options for drug-induced gingival enlargement should be based on the medication being used and the clinical presentation of the individual case. First, consideration should be given to the possibility of discontinuing or substituting the drug. The clinician should emphasize on plaque control as the first step in the treatment of drug-induced gingival enlargement. Although the exact role played by bacterial plaque in drug-induced gingival enlargement is unclear, the elimination of local factors and regular maintenance of good oral hygiene decrease the degree and severity of the gingival enlargement and improve the overall gingival health. The need for, and timing of, any surgical intervention needs to be carefully assessed. Gingival surgical techniques are normally performed for esthetic and functional needs. Usually, a three-month interval for periodontal maintenance therapy has been recommended.

Finally, we conclude that gingival enlargement could be a side effect of amlodipine. Awareness regarding amlodipine induced gingival enlargement help the dental clinicians to properly treat and promote maintenance and oral health of the patients.

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## Legends Figure



Figure 1: Clinical presentation of gingival overgrowth (Facial view).



Figure 2: Clinical presentation of gingival overgrowth (Right buccalview)