SVOA Dentistry
ISSN: 2753-9172

ScienceVolks Open Access

Case Report

Gingival Overgrowth Caused by Amlodipine: Case Report

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https://doi.org/10.58624/SVOADE.2025.06.023

Received: August 14, 2025

Published: August 26, 2025

Citation: Cabrini Jr CA, Lemos Jr CA, Shinohara EH, Pedron IG. Gingival Overgrowth Caused by Amlodipine: Case Report. *SVOA Dentistry 2025,* 6:5, 139-144. doi: 10.58624/SVOADE.2025.06.023

Abstract

Patients with special needs often require medication to control and treat systemic diseases. Hypertensive patients usually receive various types of drugs, among which amlodipine stands out as an antihypertensive medication. Amlodipine can have several side effects. In the stomatognathic system, gingival overgrowth may require special care in its management. The purpose of this article was to present the case of a hypertensive patient under amlodipine administration who developed gingival overgrowth. Surgical treatment was performed for its removal, and the cardiologist was requested to replace the medication. The clinical and histopathological features, incidence and frequency, diagnosis, and therapeutic modalities of gingival overgrowth caused by amlodipine were discussed.

Keywords: *Amlodipine; Gingival Overgrowth; Hypertension; Periodontal Diseases; Dentistry.*

Introduction

Amlodipine is an antihypertensive drug widely used in clinical practice, belonging to the class of dihydropyridine calcium channel blockers. It is often prescribed for the control of high blood pressure and *Angina pectoris*. Its mechanism of action involves the inhibition of calcium ion entry into vascular smooth muscle cells, thereby promoting peripheral vasodilation and a consequent reduction in blood pressure (1,2).

Although amlodipine is considered a safe and effective drug, it can have some side effects. Table 1 summarizes the side effects reported in the medical literature. In the stomatognathic system, lip and tongue oedema, facial erythema, xerostomia, and drug-induced gingival overgrowth have been reported (3,4).

Drug-induced gingival overgrowth is one of the most notable manifestations, characterized by abnormal growth of gingival tissues (3,4). This condition is understood as an adverse response to the use of certain drugs. In the case of amlodipine, it can occur even at low doses or after a short period of use, compromising functional and aesthetic aspects and hindering oral hygiene (1,5).

The purpose of this article is to present the case of a hypertensive patient who was administered amlodipine to control hypertension and developed drug-induced gingival overgrowth.

Table 1. Main side effects resulting from the use of amlodipine.

High Frequency	Median frequency	Low frequency
Chest, shoulder, arm or jaw pain	Hypotension	Hepatitis
Abdominal pain	Visual disturbances	Jaundice
Skin rash, itching, throat swelling	Desquamation	Anaphylaxis
Tachycardia: nausea, shortness of breath, cold or clammy skin, feeling faint or dizzy	Diarrhoea, constipation	Death
Bradycardia: dizziness, feeling faint or light-headed, blurred vision	Dyspnoea	
Swelling in the ankles, hands or feet	Coughing	
Sleepiness	Urinary disorders	
	Mood changes	
	Tinnitus	
	Gynaecomastia	
	Erectile dysfunction	

Case Presentation

A 67-year-old African American female patient visited the clinic at the Faculty of Dentistry of Universidade Brazil, requiring dental treatment.

The patient presented with edentulous regions (teeth 11, 12, 13, 16, 17, 18, 21, 22, 25, 27, 28, 36, 37, 38, 46, 47, and 48). In the upper arch, the patient had a removable prosthesis. Signs of periodontal disease were observed, with accumulation of biofilm and dental calculus. In the lower arch, gingival overgrowths were observed on the vestibular surface of the anterior lower teeth. Clinically, the gingiva presented tumour masses with a granular appearance, sessile base, erythematous coloration, starting at the interdental papillae (Figure 1).

Regarding the radiographic findings, panoramic radiography revealed interproximal radiolucent areas consistent with bone loss secondary to periodontal disease (Figure 2)."

Figure 1. *Gingival overgrowth in patient submitted to treatment with amlodipine.*

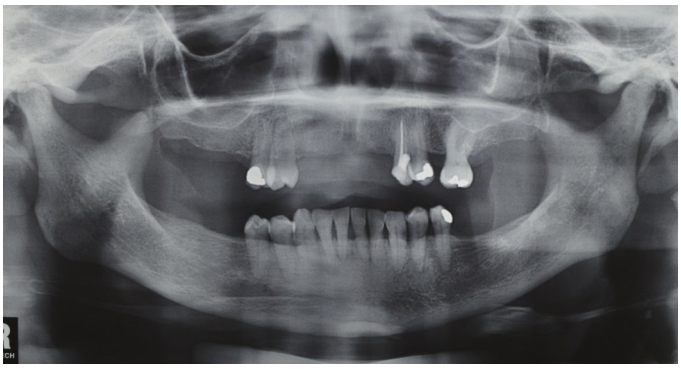

Figure 2. *Panoramic radiography showed bone loss caused by periodontal disease.*

The patient's medical history was significant for hypertension, for which she had been prescribed amlodipine besylate 10 mg once daily. She reported continuous use of the medication for the past four years, noting that gingival overgrowth began to develop approximately one month after initiation of therapy. The cardiologist was asked to replace or reduce the dosage, based on the therapeutic possibility of managing hypertension. The cardiologist reduced the administration of amlodipine besylate to 5 mg once a day.

The patient was referred for surgical removal of the gingival lesions to facilitate improved oral hygiene. Gingivectomy using an electrosurgical unit was recommended due to its advantages in achieving hemostasis and controlling bleeding in hypertensive patients. After a detailed explanation of the procedure, the patient provided informed consent.

Under local infiltration anesthesia, the bleeding points were marked by periodontal probing. The primary incision and external bevel were made using a BE3000 electric scalpel (KVN™, São Paulo, Brazil). Periodontal treatment was performed, removing supragingival and subgingival calculus (Figure 3).

Figure 3. *Gingivectomy performed with electric scalpel.*

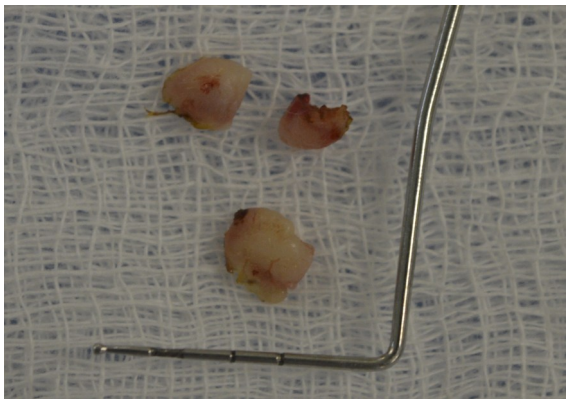

Figure 4. *Removed fragments.*

The patient was prescribed analgesic drugs (dipyrone 1 g), anti-inflammatory drugs (nimesulide 100 mg), and oral antiseptic (chlorhexidine 0.12%). No antibiotics were prescribed to the patient.

The excised tissue fragments (Figure 4) were sent to the Laboratory of Surgical Pathology, School of Dentistry, University of São Paulo. Histopathological examination revealed mucosal fragments covered by stratified squamous epithelium, exhibiting areas of acanthosis and elongation of the epithelial ridges. The lamina propria consisted of dense connective tissue with parallel collagen fibers and areas of intense mixed inflammatory infiltrate. The final diagnosis was drug-induced gingival overgrowth (Figure 5)."

At the subsequent consultation (15 days), the patient was evaluated. No complaints and/or complications were reported. After 40 days, the patient presented complete tissue repair and was referred to the Rehabilitation Clinic of the Faculty.

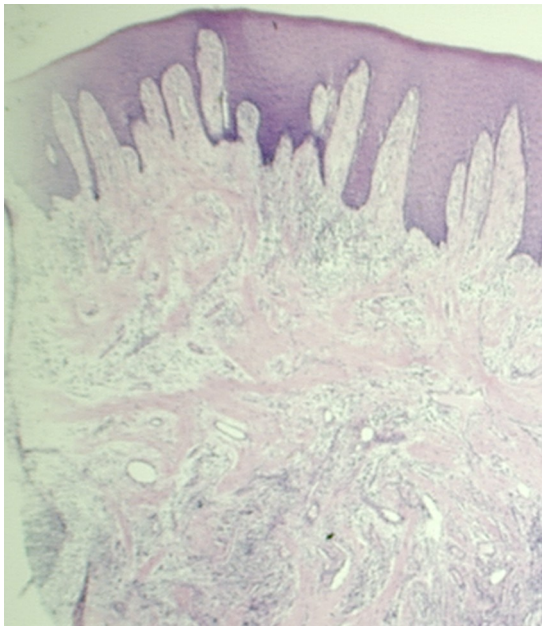

Figure 5. *Histopathology of the gingival overgrowth (coloring: HE; smaller magnification).*

Discussion

Gingival overgrowth caused by amlodipine is clinically characterized by diffuse, fibrous growth of the gingival tissue, which may take on a tumour-like appearance and partially or completely cover the dental crowns. The clinical presentation varies among patients, with cases described of pink to erythematous gums, soft consistency, edematous and thick, granular texture (5). Other authors report firm, painless, and resilient gums, highlighting the heterogeneity of the condition (4,6). In addition, there are reports of more unusual clinical forms, such as lobulated growth (2), sessile mass (7), and pedunculated protuberance on the palate (8). Other manifestations such as pain, bleeding on probing, and difficulties in speaking and chewing have been reported (1,8). The variety of manifestations may be related to the duration of use and dosage of the drug, as well as the presence of local inflammatory factors, such as biofilm accumulation.

Histopathologically, gingival overgrowth presents a characteristic pattern of epithelial and underlying connective tissue changes. The most frequently reported findings include epithelial thickening with acanthosis, marked papillomatosis, and the presence of digitiform epithelial projections toward the connective tissue - as observed in the present case - which is usually parakeratinised (4,9-11). In the lamina propria, intense fibroblast proliferation is observed, accompanied by increased collagen fibre deposition and chronic inflammatory infiltrate, composed predominantly of lymphocytes and plasma cells (9,10). The histopathological picture may show hypervascularisation, disorganization of collagen fibers and, in some cases, the presence of cytoid bodies and changes in the glycosaminoglycans of the extracellular matrix, suggesting a complex tissue response to the drug stimulus (1,10).

Radiographically, most cases show no noticeable bone changes, with normal images or, occasionally, horizontal alveolar bone loss in cases associated with pre-existing periodontitis (8,2,3,12,9).

The incidence of gingival overgrowth associated with amlodipine is increasingly documented in the literature, with an estimated prevalence of between 1.7% and 3.3% among users of this drug (1.3). Compared to other calcium channel blockers, such as nifedipine, the frequency is considerably lower, since the prevalence with nifedipine use can reach up to 83% (4,11,9). Factors such as gender (male), high doses (10 mg/day), prolonged use, inadequate oral hygiene, and the presence of gingival inflammation have been identified as predisposing and aggravating factors (2,10,5,3,1).

The diagnosis is based mainly on the clinical correlation between gingival enlargement and history of medication use. The evaluation includes a thorough clinical examination, the patient's pharmacological history, and periodontal evaluation. When possible, histopathological confirmation contributes to the diagnostic definition (1,6,2,3,4,9,12,11). The correlation between the clinical manifestation and the initiation or increase in amlodipine dosage is a determining factor, since regression of the lesion after discontinuation or adjustment of the medication reinforces the diagnostic hypothesis (5,7,2,9). In addition, in selected cases, histopathological analysis may reveal typical changes, such as dense fibro-collagenous stroma associated with chronic inflammatory infiltrate, further strengthening the confirmation of the condition (8,10).

The differential diagnosis of gingival overgrowth includes conditions such as inflammatory gingival overgrowth, hereditary gingival fibromatosis, pyogenic granuloma, and peripheral fibroma (7,6). In addition, it is important to rule out systemic causes such as leukaemia, lymphoma, and other granulomatous diseases (6,11,4). The integration of clinical, radiographic, and histopathological data, together with medication history, is essential for correct diagnostic definition (1).

Therapeutic modalities for the management of gingival overgrowth include non-surgical and surgical approaches. Initially, it is recommended to reduce the dose of amlodipine or replace it with another antihypertensive (such as losartan or telmisartan), while monitoring the gingival response. This approach has been shown to be effective in reducing or even reversing gingival overgrowth in many cases (2,4-8,11). However, in situations of advanced fibrous lesions, complete regression with pharmacological measures alone may be limited, requiring a complementary surgical approach (1,10,3). Prior periodontal treatment is recommended to eliminate the inflammatory factor and, in some cases, partially or totally reduce inflammatory growth (PEDRONs). When necessary, surgical interventions can be performed, including gingivectomy with a conventional scalpel, electrosurgery, and diode or CO_2 laser therapies, which offer advantages such as less bleeding and better visualization of the surgical field (2,1,3,11,8,4).

The follow-up of these patients requires periodic monitoring, with an emphasis on maintaining oral hygiene and controlling local risk factors to prevent recurrence.

Reports in the literature indicate the absence of recurrence after one year of follow-up, as well as satisfactory clinical results observed after periods of up to 14 months of follow-up (3,12). In addition, the importance of regular check-ups for effective control and prevention of new episodes of gingival overgrowth is highlighted (11).

Conclusions

Hypertensive patients receiving amlodipine may develop gingival overgrowth, which is often associated with periodontal disease. Initial management should prioritize non-surgical approaches, such as basic periodontal therapy. When lesions do not regress, surgical intervention becomes necessary. However, it is important to emphasize the need to consider replacing amlodipine with an alternative antihypertensive medication or reducing the dosage, in order to minimize the risk of recurrence.

Conflict of Interest Statement

The authors declare no conflict of interest.

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