

Low dose amlodipine-induced gingival enlargement: A clinical case series

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Abstract

Gingival enlargement sometimes has an adverse effect of certain systemic drugs such as the use of anticonvulsants, phenytoin, antihypertensive, calcium channel blockers and immunosuppressant, cyclosporine. Amlodipine, a relatively newer calcium channel blocker drugs, exhibit adverse effect of gingival enlargement in middle to older aged adults. There are very few reports of amlodipine-induced gingival enlargement at a lower dose (5 mg). In this article, three cases of amlodipine-induced gingival enlargement in the age range of 50-65 years old hypertensive patient with a lower dose of amlodipine (5 mg).

Keywords: Calcium channel blocker, gingival enlargement, hypertension

Introduction

Gingival enlargement first reported in 1939 by Kimball due to use of antiepileptic drugs phenytoin.^[1] Currently, more than 20 drugs are associated with gingival enlargement and according to their therapeutic actions these drugs are classified into three major groups namely, anticonvulsants, immunosuppressant, and calcium channel blockers.^[2]

Amlodipine is the derivatives of dihydropyridine and used in the management of both hypertension and angina. In comparison to other calcium channel blocker amlodipine-induced gingival enlargement is less prevalent. Jorgensen, 1997 had reported the prevalence of amlodipine-induced gingival enlargement as 3.3%.

There are very few reports of gingival enlargement with amlodipine at dose of 5 mg, even after taking it for more than 6 months.^[3,4]

Presenting here with three cases of gingival hyperplasia at a lower dose (5 mg) with long duration of time.

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Case Report

All the three case has a similar complaint of generalized swelling in the gums with bleeding. The medical histories of three cases were suffering of hypertension and on amlodipine therapy.

In first case, 50-year-old patient has a positive history of hypertension and taken antihypertensive drugs amlodipine 5 mg since last 2 years. Intra-oral examination revealed generalized enlargement of attached gingiva extending up to marginal and interdental gingiva with surface lobulations and loss of scalloping [Figures 1-3].

The remaining two cases also hypertensive and taken antihypertensive drugs amlodipine 5 mg since last 2-3 years. Clinical examination revealed generalized diffuse gingival overgrowth in both the arches and bleeding on probing with plaque and calculus deposits.

Based on drug history and clinical evaluation, a provisional diagnosis of amlodipine-induced gingival enlargement superimposed with inflammation was established.

The treatment of three cases was performed as follows phase-I therapy was done and patients were advised to consult with a physician for the drug substitution.

Followed by oral prophylaxis and substitution of amlodipine, significant improvements in the gingival tissue were observed [Figure 4]. Gingival contours were un-esthetic, difficult to maintain and favored plaque accumulation, hence in phase-II an internal bevel gingivectomy and flap operation were performed. Excised tissues were sent for histopathological examination, which revealed the presence of parakeratinized epithelium with elongated rete pegs, connective tissue fibrosis with inflammatory cells [Figure 5]. On the basis of above findings a diagnosis of drug-associated gingival enlargement was confirmed.

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Figure 1: Preoperative photograph of case 1



Figure 2: Preoperative photograph of case 2



Figure 3: Preoperative photograph of case 3



Figure 4: Six months follow-up after phase-I therapy and drug substitution of case 1

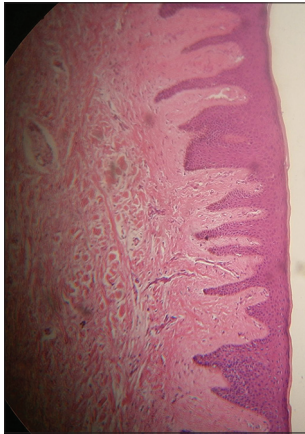


Figure 5: Histopathological photographs showed the presence of parakeratinized epithelium with elongated rete pegs, connective tissue fibrosis with inflammatory cells



Figure 6: Two years postoperative photograph of case 1



Figure 7: Two years postoperative photograph of case 2



Figure 8: Two years postoperative photograph of case 3

Postoperative healing was satisfactory and desired crown lengthening was achieved. Esthetics was significantly improved in terms of gingival appearance after surgical excision of enlarged gingival tissue. Patient was put in the follow-up program at 1, 3, 6 months interval, followed by after 1 and 2 years. There was no recurrence of the disease even after 2 years follow-up [Figures 6-8].

Discussion

Amlodipine-induced gingival enlargement usually begins at the interdental papilla, which occurs within 6 months of starting drug therapy at a dose of 10 mg/day. In few cases of amlodipine-induced gingival enlargement were reported at a dose of 5 mg amlodipine when used more than 6 months.

Many studies showed that when amlodipine given 5 mg once daily dose more than 6 months could not induce gingival enlargement and gingival enlargement only occurred when 10 mg/day dose of amlodipine given.^[5]

The present cases are unique because 5 mg/day dose of amlodipine caused gingival hyperplasia after 6 months of used.

Seymour *et al.*^[5] given the multifactorial model on the pathogenesis of drug-induced gingival overgrowth, which are involving an interaction of several factors, which expands on the interaction between drug and metabolite with the gingival fibroblasts. Predisposing factors for these changes are age, genetic predisposition, pharmacokinetic variables, drug-induced alterations in gingival connective tissue homeostasis, histopathology, ultrastructural factors and inflammatory changes, and drug-induced action on growth factors.

Treatment consists of substitution of drugs if possible with patient's physician consent, in substitution of amlodipine with isradipine, lercanidipine and lacidipine, which are the newer fourth-generation dihydropyridines or other classes of

antihypertensives such as beta blockers, angiotensin converting enzyme inhibitors or thiazide derivatives may be given.

Discontinuing the causative drug reduction in the size of the gingival overgrowth has been reported,^[6] but to maintain the plaque control and esthetic point of view surgical correction may be deemed necessary. In cases where no underlying bone loss, external bevel gingivectomy and gingivoplasty are done and cases where presence of attachment loss and underlying osseous defects, internal bevel gingivectomy with flap operation is performed.^[7,8] In present, all the three cases that are presented had some degree of moderate to severe alveolar bone loss and hence internal bevel gingivectomy with flap operation surgery was the treatment of choice. Postoperative after 2 years follow-up in these cases no recurrences were seen.

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