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## Gingivectomy Treatment for Gingival Enlargement Due to Side Effects of Amlodipine: A Case Report

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### Abstract :

**Introduction:** Gingival enlargement due to drug side effects is one of the complaints in the oral cavity. Amlodipine consumed by hypertensive patients can trigger gingival enlargement. The management is gingivectomy therapy which aims to reduce gingival enlargement to produce good aesthetics and prevent further periodontal abnormalities. **History and Clinical Findings:** A 47-year-old woman came to the Periodontia Department of the Teaching Dental and Oral Hospital with complaints of swollen and enlarged maxillary and mandibular gums and frequent bleeding. General examination showed that the patient had hypertension and was taking amlodipine since 10 years ago. Intraoral examination showed gingival enlargement in the anterior region of the upper and lower jaw. **Case Management:** Case management includes initial therapy and then referred to the internist specialist for replacement of hypertension drugs and surgical treatment which includes anesthesia, determination of bleeding points, excision using a Kirkland knife, removal of gingiva using an orban knife, then scaling and root planing then applying periodontal packs. Patients were given Dental Health Education and control after 1 week and 3 months post-treatment. **Discussion :** Gingival enlargement due to side effects of amlodipine is a disorder that often causes changes in the shape of the gingiva which clinically looks larger than normal. Amlodipine is a drug that is often used in patients with a history of hypertension and belongs to the Calcium Channel Blocker class. **Conclusion:** Hypertensive patients who take long-term amlodipine drugs cause gingival enlargement and can be treated with gingivectomy and provide patient satisfaction.

**Keywords :** amlodipine, gingival enlargement, gingivectomy

## **Introduction**

Gingival enlargement due to drug side effects is one of the complaints in the oral cavity in patients with certain conditions.<sup>1</sup> This disorder causes changes in the shape of the gingiva which clinically looks larger than normal. The terminology for this condition is gingival enlargement or gingival overgrowth. Factors causing gingival enlargement can be local and systemic. Local factors include plaque accumulation and poor oral hygiene. One of the systemic factors that trigger gingival enlargement is the consumption of certain drugs or referred to as drug-induced gingival enlargement.<sup>2</sup> Drugs that can cause gingival enlargement are divided into three groups, namely anticonvulsant drugs, immunosuppressants, and Calcium Channel Blockers (CCBs).<sup>1</sup>

Calcium Channel Blockers are drugs developed for the treatment of cardiovascular conditions such as hypertension, angina pectoris, coronary artery spasm, and cardiac arrhythmias. The drugs inhibit the influx of calcium ions along the membranes of cardiac cells and smooth muscle cells, inhibiting the intracellular mobilization of calcium. This causes direct enlargement of coronary arteries and arterioles and improves oxygen supply to the heart muscle, and also reduces hypertension by enlarging peripheral vascularization.<sup>1</sup>

The pathogenesis of gingival enlargement due to CCB use is unclear, but is likely to be caused by a variety of factors. Several risk factors including dose and duration of use, age, gender, and oral health status as well as gingival inflammation have been suggested to be associated with gingival enlargement due to CCB use. Samudrala et al reported that drug-induced gingival enlargement usually occurs within 1-3 months after drug use. It is more common in the labial anterior region and usually without bone loss. Although the mechanism of CCB is still unclear, it is clear that CCB prevent the intercellular action of calcium and thus stimulate fibroblast proliferation.<sup>3</sup>

Gingivectomy is indicated for gingival overgrowth, fibrous tissue, and suprabony pockets. Gingival enlargement that does not shrink after scaling, curettage, root planing and polishing needs gingivectomy.<sup>4</sup> So the management in this case is gingivectomy therapy which aims to reduce gingival enlargement to produce good aesthetics and prevent further periodontal abnormalities.

## **Case Report**

A 47-year-old woman came to the Periodontia department of the Teaching Dental and Oral Hospital with complaints of swollen and enlarged upper and lower jaw gums and frequent

bleeding. The anamnesis showed that the patient suffered from hypertension and was taking amlodipine since 10 years ago and did not smoke and complained that the upper and lower front gums were swollen and enlarged. Extraoral examination showed no abnormalities. Intraoral examination showed swollen gums in the anterior region of the upper jaw and lower jaw, the gingiva was hyperplasia and hyperemia. There were pockets on teeth 11,12, 21, 22, and 23 of about 5 mm. OHIS 3.8 (poor category). Based on the results of history and clinical examination, the patient was diagnosed as Drug-induced gingival enlargement and planned for gingivectomy therapy.



**Figure 1.** Clinical examination

Primary care in the form of scaling, polishing, and dental health education was provided at the first visit. Prior to gingivectomy treatment, the patient was consulted to the internist department to control blood pressure. After a week, the patient came back with the results of laboratory tests and ECG. From the results of the consultation, the internist stopped the use of amlodipine drugs that had been consumed by the patient and replaced them with Catapres (Clonidine HCL) 150 mcg, Canderin (Candesartan cilexetil 16 mg) and approval for surgery if

the patient's blood pressure was less than 140/90 mmHg. Before the action is taken, the patient is informed consent to do gingivectomy treatment.



**Figure 2.** Gingivectomy treatment of the case

The procedures performed when performing gingivectomy treatment in cases are intraoral disinfection with povidone iodine on the upper jaw and lower jaw (figure a), anesthesia with pehacaine anesthetic solution injected in the mucobuccal fold that will be gingivectomized (figure b). Marking the pockets with a 2mm deep poket marker to see the Bleeding point as the base of the poket and to determine how much of the poket will be removed (figure c). Perform gingivectomy by incising the area to be removed (figure d). Perform excision with an external bevel shape 45° towards the coronal on the interdental gingival area using an orban knife (Figure e). Irrigate with saline solution using an irrigation spoit (figure f). Results after gingivectomy on the anterior maxilla and mandible (Figure g). Periodontal pack application on the gingivectomized areas of the maxilla and mandible (figure h).

For five days, the patient was instructed to take analgesic mefenamic acid 500 mg three times a day, vitamin Becom C 500 mg once a day, and minosep 2% mouthwash. Patients were asked not to eat/drink 1 hour after treatment, not to eat/drink hot for 24 hours, not to smoke, take prescribed medications, maintain oral hygiene and keep the periodontal pack from falling

off, chew food on the untreated side, do not brush on the periodontal pack, rinse with saline solution 1 day after treatment, do not drink tea, coffee that causes discoloration of the periodontal pack, if bleeding occurs, press using a clean warm handkerchief for 15 minutes, if there is swelling, pain, periodontal pack comes off before 3 days, please control immediately, 7 days post-treatment control to see healing.

A week after the gingivectomy treatment the patient was controlled. The patient reported no pain or discomfort. Clinically, there was still hyperemia of the gingiva. The patient was instructed to maintain oral hygiene. The patient was re-evaluated 3 months later, and the examination results showed normal gingival health, no recurrent gingival hyperplasia, well-formed gingival attachments on the tooth surface and complaints of frequent gingival bleeding were no longer complained of and the patient felt very comfortable.



**Figure 3.** 3-month control after gingivectomy

### **Discussion**

One of the side effects of using hypertension drugs such as amlodipine is gingival enlargement in the case reported above. Amlodipine Associated Gingival Enlargement (AAGE) generally occurs within three months of starting treatment at a dose of 10mg/day. In a review, drug-induced gingival enlargement is multifactorial, and involves several other factors such as age, genetic predisposition, plaque-induced inflammation and immunologic changes. Treatment for drug-induced enlargement consists of hypertension drug replacement by an internist, and plaque control. If the enlargement persists even after drug replacement then the case needs to undergo gingivectomy with or without flap surgery. In the above case report, a case of treatment of gingival enlargement in a hypertensive patient who took amlodipine at a dose of 10mg per day for 10 years was reported.<sup>5</sup>

Medication-induced enlargement can occur in cavities with little or no plaque, and is not seen in cavities with accumulated plaque deposits. Some researchers believe that inflammation is a prerequisite for the development of enlargement which can therefore be

prevented by plaque removal and meticulous oral cleaning. Oral cleaning by brushing or using chlorhexidine toothpaste may reduce inflammation but does not reduce or prevent overgrowth. Hassell et al have hypothesized that in non-inflamed gingiva, fibroblasts are less active or even immobile and do not respond to circulating phenytoin, whereas fibroblasts within inflamed tissue are active as a result of inflammatory mediators and the presence of endogenous growth factors.<sup>6</sup>

Several studies showing gingival enlargement due to amlodipine drug use showed histology results indicating the presence of hyperplastic epithelium with long, thin interconnected rete protrusions that proliferate towards the connective tissue with underlying stroma that spreads inflammatory cells that are quite dense especially lymphocytes and plasma cells, fibroblasts and dense collagenous stroma that are characteristic of hyperplastic gingiva. Some researchers believe that inflammation is a requirement for the development of enlargement and hypothesize that in non-inflamed gingiva, fibroblasts become less active or quiescent even without medication. This case report describes amlodipine-induced gingival hyperplasia causing plaque control problems, impairing mastication, and posing aesthetic problems to the patient. Gingivectomy was the treatment of choice that helped resolve this problem.<sup>5</sup>

Dental Health Education (DHE) and motivation should be further enhanced so that patients are fully aware to maintain their oral hygiene and avoid recurrence. One week after gingivectomy, the periodontal pack was removed. The gingiva still looks slightly red due to the epithelialization process, this process occurs on day 5 to day 14. The gingival contour is normal and the consistency is spongy. The gingiva looked aesthetically better.<sup>4</sup>

## **Conclusions**

The importance of providing education to patients who use drugs in the long term with a systemic history can prevent side effects on the oral cavity. Patients who use amlodipine drugs in the long term can have an effect on the excessive growth of gingival tissue, causing gingival enlargement and gingivectomy therapy can be performed and provide satisfaction to patients. Good communication between dentists and internists in providing integrated care provides a good prognosis.

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