

AMLODIPIN-INDUCED GINGIVAL OVERGROWTH AND APPLICATION OF ER:YAG LASER IN THE TREATMENT PROTOCOL

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ABSTRACT:

Gingival overgrowth (GO) is one of the most important clinical features of gingival pathology. Amlodipine is a comparatively new III generation calcium channels blocker, used for management of cardiovascular disorders. Although it is considered safe, it can also rarely induce GO. A case of severe amlodipine-induced GO, complicated by inflammatory changes due to plaque accumulation is presented in a 54 years old patient.

Treatment was performed as follows: drug substitution; initial periodontal therapy - scaling and root planning (reduction of inflammatory component in the gingival tissues); Er:YAG laser-performed gingivectomy and gingivoplasty; maintenance care. The healing process went uneventful and the postoperative results were extremely esthetically and functionally satisfactory.

Key words: amlodipine, gingival overgrowth, laser-assisted surgery

Gingival overgrowth is one of the most important clinical features of gingival pathology. It has multifactorial etiology and is often connected with inflammatory changes in the gingiva. Gingival overgrowth is very often a side effect of some drugs. Today more and more drugs are connected with the pathologic changes in the gingiva. Summarized, those are 3 groups of medications: calcium channel blockers, anticonvulsants and immunosuppressants. (1). Although their pharmacologic effects are different and targeted to different tissues, they exhibit the same effect on the gingival connective tissue, causing identical clinical and histopathological changes. Those changes were defined as “gingival hyperplasia” or “gingival hypertrophy”, but today the widely-spread term, which refers to all types of drug-induced lesions is gingival overgrowth.

Calcium channel blockers are used for the treatment of different cardio-vascular diseases. From this big group dihydropyridines - and mainly nifedipine - most often cause gingival pathology.

First reports for amlodipine-induced overgrowth are from Ellis et al. (2) and Seymor et al. (3). Laftzi et al (4) reported rapidly developed gingival hyperplasia in patient, received 10 mg amlodipine only two months after taking the drug.

Still, there is not so much investigations for the amlodipin-induced overgrowth prevalence (5), as well as clinical trials (6).

The purpose of this case report is to present the clinical features of an amlodipin-induced gingival overgrowth case and its treatment, using Er:YAG laser.

CASE-REPORT

Patient V. A., 54 years old, visited the department of periodontology with chief complaints of very big swelling of the gums, severe bleeding, bad breath, unsatisfactory esthetics and difficulty for maintaining the oral hygiene. The medical history revealed the patient had a metabolic syndrome - with high blood pressure, dyslipidemia, liver steatosis and gout. He was taking Norvasc (amlodipine) for 12 months / 10 mg a day for controlling the hypertension, as well as regular intake of other medications for correction of the conditions.

Intraoral examination revealed massive gingival enlargement at the vestibular surface of lower incisors and maxillar molars, and prominent nodular growth around lower right canine and premolars. Probing pocket depth was more than 6 mm in most periodontal sites. There was profuse bleeding on probing and signs of active inflammation - suppuration in some sites. The oral hygiene was poor, with abundant supra- and subgingival plaque and calculus (fig. 1). Severe halitosis was observed.



Fig. 1. Preoperative view showing extensive gingival overgrowth

Two possible clinical diagnoses were discussed:

1. Drug-induced gingival overgrowth, considering the long-term administration of amlodipine;
2. Tumor - like condition - epulis gigantocellulare.

Histological assessment of the biopsy specimen (BNo6315) was indicative for amlodipine-induced overgrowth (hyperkeratosis and acanthosis of the epithelium, bundles of collagen fibers with chronic inflammatory infiltrate and blood vessels in the underlying connective tissue).

On the basis of the patient's history and clinical signs and histological result, a clinical diagnosis of amlodipine-induced gingival overgrowth was made.

The clinical protocol for the treatment of the gingival overgrowth included the following procedures:

1. Consultation with patient's physician and substitution of hypertension medication. Norvask was substituted with Tenaxum.

2. Full mouth scaling and root planning (phase 1 non-surgical periodontal therapy) was performed. The patient was given oral hygiene instructions and motivation. Chlorhexidine oral rinse was prescribed.

3. 1 month later only slight regression of the gingival enlargement was observed. Because of the unsatisfactory clinical response of the tissues gingivectomy and gingivoplasty was performed.

The surgical excision of the gingival hyperplastic tissue was done with Er:YAG laser with 2940 nm wavelenght (LiteTouch, Syneron Dental Laser, Israel). Gingivectomy was performed with a sapphire tip 0.8 mm diameter / 17 mm and settings 200 mJ/ 35 Hz, in contact mode. Granulation tissue ablation and gingival contouring was made in no-contact mode, settings 400 mJ/17 Hz, with sapphire tip 1.3 mm / 14 mm long (fig. 2).



Fig. 2. Immediately after the laser surgery (LiteTouch, Syneron Dental)

The operation was performed without anaesthesia. One of the greatest advantages of the LiteTouch laser system is that patients experience less pain – during and after the procedures, due to the specific characteristics and interactions of the laser energy with periodontal tissues.

Seven days after the surgery the patient was invited for checking the condition of the gingival tissues (fig. 3). The initial healing process went uneventful, there was no need even to take the prescribed nonsteroid antiinflammatory tablets and pain-killers. The colour, consistency and the texture of the gingiva were changed to the normal characteristics. There was almost no bleeding on gentle probing. There were slight signs of persistent inflammation around the lower right lateral incisor, due to the small calculus deposits left. Good conditions for optimal oral hygiene maintainance were created. No postoperative hypersensitivity was reported.



Fig.3. Seven days postoperative.

The clinical examination 2 months after the laser surgery revealed restoration of the gingiva, which gave the patient an aesthetically pleasing appearance (fig. 4).



Fig. 4. Two months postoperative.

4. The patient was placed on periodic recall of 3 months for the evaluation of the gingival condition.

DISCUSSION

This case report is an example of a gingival overgrowth, as a side effect of the systemic administration of a comparatively new drug of the calcium channel blockers group. Amlodipine is a third generation dihydropyridine, with a mode of action similar to nifedipine. This medication however has a special physiochemical profile, which is characterized by almost complete absorption, late peak plasma concentrations, high bioavailability and slow liver biodegradation. Its side effects are reduced, compared to

nifedipine. The slow elimination ensures long-term action even after a single dose administration (5 or 10 mg). That is why amlodipine is preferred both from patients and physicians.

Probably the wide-spread prescribed systemic administration of calcium channel blockers will increase the incidence of drug-induced gingival pathology. Dental clinicians must have clear understanding of the medications, causing this phenomenon, as well as the sequence of the clinical protocol procedures for its treatment.

The first step in drug-induced gingival overgrowth management should be drug substitution (with another effective one, but from different group). Then the treatment should start with initial conservative periodontal therapy. The effective plaque control is very important basic procedure. The interaction between the drug and the gingival tissues could be enhanced by gingival inflammation, caused by poor oral hygiene. Although the exact role of the periodontopathogens in the etiology and pathogenesis of the overgrowth is not quite clear, their elimination and regular maintenance of strict oral hygiene is of crucial importance for the healing process of gingival tissues. Reduction of the biofilm bacteria reduces the inflammatory component in the gingival tissue, the extent and volume of the enlargement and improve the overall gingival health. Thus the need for surgery can even be avoided or minimized, which is better accepted by patients.

When drug substitution and the initial periodontal therapy do not provide satisfactory clinical response, surgical gingivectomy/gingivoplasty must be performed. The aim of this procedure is to restore the anatomical contour, shape and position of the gingival margin. Laser-assisted surgery with Er: YAG is an effective, fast and painless method of choice, very well accepted by patients. However, there is always a possibility of lesion recurrence. Supportive periodontal care is necessary to control the periodontal status, to assess and reinforce oral hygiene and to provide professional care on time, in order to prevent the recurrence of the gingival overgrowth.

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