



A unique case of Late onset Combined gingival enlargement and its Management

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ABSTRACT:

Gingival enlargement is a pathological condition affecting not only the function but also hampers the aesthetics of the patient. The aetiology of the enlargement could range from purely inflammatory disease to having a combination of causes. Drug-induced gingival enlargements pertain to those enlargements that occur on the administration of one of the following groups of drugs i.e., antihypertensives, anticonvulsants, and immunosuppressive drugs. Not all patients taking the drug show signs of enlargement but most patients who are impacted by the drug do so in the first few months of drug administration. Here is a unique case of drug-induced gingival enlargement where the patient turned symptomatic about 3 years after drug usage probably triggered by local factors hence emphasizing the need for good oral hygiene in such patients.

1. Introduction

Gingival diseases commonly present with an increase in the size of the gingiva. Gingival enlargement /overgrowth is attributed to multiple factors such as inflammation, poor oral hygiene, congenital disorders, hormonal disturbance, and adverse effect of certain drugs. Drug-induced gingival enlargement was first reported in 1939 by Kimball because of chronic usage of the antiepileptic drug phenytoin. Among the various antihypertensive drugs, Amlodipine is a newer dihydropyridine calcium channel blocker used to treat both hypertension and angina. It works primarily by relaxing the smooth muscles of the blood vessels, which increases its width and hence lowers blood pressure. Anticonvulsants, calcium channel blockers, and immunosuppressants constitute the three main classes of medications that are linked to gingival enlargement. Phenytoin is the class of drug most frequently associated with gingival hypertrophy, with amlodipine as the second most prevalent etiological agent. It has been cited in the literature that 3.3% of amlodipine-using patients reported gingival overgrowth [1]. The following case report highlights clinical features and the treatment plan for the management of late-onset drug-induced gingival enlargement.

2. Case presentation:

A female patient aged 54 years, reported to the Department of Periodontology with a chief complaint of swelling and pain in gums for 6 months. Past medical history revealed a history of hypertension under medication (Amlodipine 5mg twice a day) for the past 3 years, with no diabetic history. On general examination, the patient was moderately built and well-nourished without any clinically evident signs of anaemia. All other vital signs were within the normal range. On intra-oral examination Figure 1 & 2 the patient displayed poor oral hygiene with moderate (>6mm) pockets in more than 30 percent of teeth, OPG revealed generalized horizontal bone loss and hence diagnosed as Chronic generalized Grade 3 stage B periodontitis with combined (Amlodipine induced + inflammatory enlargement) gingival enlargement. Routine investigations comprising of a complete hemogram revealed all blood parameters within normal range except HbA1c level was 9.4 mg/dl and RBS was 223 mg/dl. Hence, the patient was diagnosed as a diabetic on dental visit and referred to a general physician for the management of diabetic status, consent for further dental treatment, and consideration of substitution of the antihypertensive drug. Three weeks after taking an anti-diabetic drug and substitution of the antihypertensive drug with Beta-blockers, a treatment plan consisting of a preliminary phase comprising of



extraction of teeth number 31, 41, 32, and 42 with a hopeless prognosis was made. Planned sessions of phase 1 therapy consisting of Scaling, root planning, and curettage were carried out over the next month with a week's gap in between the subsequent appointments. The patient was motivated to maintain her oral hygiene and was prescribed the use of 0.2% chlorhexidine mouthwash twice daily. After one month the patient reported marked improvement in her inflammatory component of the enlargement with strict oral hygiene maintenance. Figure 3 & 4. After 3 months post-completion of phase 1 therapy, significantly reduced inflammation and enlargement were seen when compared to the initial visit hence negating the need for surgical intervention in most areas Figures 5 & 6. It was planned to keep the patient on observation for the next 3 months and then proceed with surgical management of the areas with persistent enlargement by means of gingivectomy and gingivoplasty. The reason to wait for 6 months before attempting any surgical intervention was taken on the basis that any enlargement that could be reversed due to a change of drug would do so in this period. The patient failed to pay us a visit 6 month post phase 1 therapy due to relocation to another city.

3. Discussion:

To date, more than 20 types of drugs have been identified as potential etiologic agents for gingival enlargement. Being Nifedipine's structural twin, Amlodipine is a third-generation dihydropyridine calcium antagonist that is comparable to it pharmacodynamically [2]. According to the literature, most commonly gingival enlargement presents within the first three months of the start of the causative drug [3]. However, in the current case, it occurred very late i.e., three years as per the patient's history or there may be a chance that the enlargement did exist but not to a noticeable extent hence the patient appreciated it only when the enlargement flared up owing to poor oral hygiene and influence of the inflammatory component.

Although the exact mechanism by which these medications cause gingival overgrowth remains largely unknown, Phenytoin and Amlodipine impact gingival tissues by altering the metabolism of the extracellular matrix [4]. Not every patient taking the medication experiences gingival hypertrophy. One probable explanation could be that patients with enlarged gingiva

have fibroblasts that display abnormal sensitivity to the drug. It has also been suggested that a patient's vulnerability to pharmacologically induced gingival overgrowth may be affected by the varying proportions of fibroblast subsets that exist in them, each of which responds to these drugs in a fibrogenic manner. Additionally, it has been demonstrated that gingival fibroblasts exhibit functional heterogeneity in response to a variety of stimuli.

It is very important that the significance of maintaining good oral hygiene be emphasized in order to break the vicious circle of plaque accumulation due to poor oral hygiene and subsequent enlargement. It is still unclear if the enlargement started as an effect of the drug or was triggered due to local factors in our current case. The patient reported to the dental OPD after having the enlargement for about 6 months despite taking Amlodipine for the past 3 years.

As the gingival enlargement progresses, maintenance of oral hygiene maintenance is hampered along with masticatory efficiency [5]. The accumulation of local factors leads to gingival inflammation with the subsequent release of inflammatory cytokines. Interleukin-6 (IL-6) expression has been shown to be elevated in most drug-induced gingival enlargements [6]. Targeted by Interleukin-6, fibroblasts are triggered to produce excessive collagen and glycosaminoglycan synthesis [7]. According to Uzel et al, the causative drugs lead to an alteration in the immune response of the host leading to an increased volume of the gingiva [8]. The role of matrix metalloproteinases (MMPs) has also been explored in gingival enlargement attributing to an imbalance between the MMPs and their inhibitors leading to uncontrolled extracellular matrix turnover [9]. Although it has been seen that discontinuation of the offending medication often significantly reverses the enlargement it recurs once the drug is re-administered [10]. As in our current case, once the drug was substituted and the local factors controlled, a significant improvement in the gingival status of the patient could be appreciated.

4. Conclusion:

Gingival enlargement as a side effect of antihypertensive drugs is a common finding in many hypertensive patients under medication. Such patients benefit from regular dental checkups and effective oral prophylaxis. The



problems faced with such gingival enlargement are not only limited to poor aesthetics but lead to difficulty in oral hygiene maintenance hence favouring food accumulation and leading to further increase in enlargement. If gingival enlargement persists after careful consideration of the previously mentioned approaches, these cases need to be treated by surgery, either by gingivectomy or flap surgery. With good history taking, proper case judgment, and a meticulous treatment plan, we can alleviate a patient's pain and misery hence restoring the patient's aesthetics and full function.

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Figures:



Pre op view (labial)



Pre op view (right)



1 month Post SRP + curettage



3 months post SRP + curettage (left view)



1 month Post SRP + curettage



3 months post SRP + curettage (labial view)



3 months post SRP + curettage (right view)