A rare case report of Amlodipine induced gingival enlargement

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Abstract

Gingival enlargement represents an over-exuberant response to various local and systemic conditions. Gingival enlargement may be caused due to multitude of causes, the most common are chronic inflammatory gingival enlargement, drug-induced enlargement and enlargement due to systemic factors. Among these, there are few cases are reported in which drug induced gingival enlargement is recorded. In the present case report, a rare case of Amlodipine induced gingival enlargement in a forty five years old male patient is described.

Keywords: Amlodipine, calcium channel blocker, Gingival enlargement

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Introduction

Gingival enlargement can be due to various etiological factors. Out of these, prevalence of drug induced gingival enlargement is 3-20% of all the cases reported [1]. Drug induced gingival enlargement occurs as a result of side effect of drugs used mainly for the treatment of systemic conditions. Most commonly three groups of drugs are associated with the side effect of gingival enlargement. These are anticonvulsants (example-phenytoin), immunosuppressants (example-cyclosporine) and calcium channel blockers (example-nifedipine and amlodipine) [2-5]. Amlodipine, a dihydropyridine, is a third generation calcium channel blocker, generally prescribed for the management of hypertension and angina pectoris [1,6]. Though the side effect of gingival enlargement due to various classes of drugs is common, it is rarely reported as side effect for Amlodipine. The present case report describes a rare case report of Amlodipine induced gingival enlargement.

Case report

A 45 year old male patient reported to the department, with the complaint of swelling on his gums since several months. Patient was hypertensive 1 to 1½ years and prescribed Amlodipine since then. Intraoral examination revealed generalized pink to red gingival enlargement (Figure-1 to 4).

The enlargement was smooth, lobulated and involving the interdental papillae. The margins were rolled and the enlargement at places covered the entire tooth surface. (Figure-3). The patient was maintaining poor oral hygiene and marked plaque and calculus were observed at few places. The routine blood investigations and the hemogram of the patient were within normal limits. After considering the differential diagnosis for the case, a provisional diagnosis of drug induced gingival enlargement was made for the patient.

Patient’s treatment was started with conservative therapy of scaling and root planning. The patient's
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A physician was asked for the substitution of the drug and patient was advised to rinsing with chlorhexidine mouthwash (0.12%) for the maintenance of oral hygiene. A dramatic decrease in the enlargement was seen after 1 month period after replacement of the Amlodipine drug. But the fibrotic component of the enlargement was still persisting. Two weeks later, the surgical intervention of the remaining gingival enlargement was planned employing the techniques of gingivectomy.

The excised tissue specimen was sent for the histopathological examination (Figure-5), which showed parakeratinized stratified squamous epithelium with proliferations and elongated rete ridges. The underlying connective tissue stroma was fibrocellular, with thick bundles of collagen fibers. At places chronic inflammatory cell infiltration was also noted (Figure-6). After 2 weeks of follow-up, the gingival enlargement was almost completed subsided. The patient thereafter was kept on 3 months regular follow-up.

**Figure-4: Gingival enlargement**

**Figure-5: Histopathological report depicting chronic inflammatory cell infiltration**

**Figure-6: Morphological depiction of chronic inflammation**

**Discussion**

Gingival enlargement has potential implication and also has tendency to provide niche for further growth of microorganism. Thus this pose a serious concern to patients and clinicians [7]. Although, there is pharmacological diversity in all three forms of drugs (anticonvulsants, calcium channel blockers and immunosuppressants), they have similar mechanism of action at cellular level, where they all inhibit intracellular calcium ion influx. The calcium is mainly responsible for the degradation and synthesis of collagen. This action of drugs may support to understanding that why all the three drugs have common side effect on secondary target tissue of gingiva. Also there is clinical and histological features similarity between all three categories of drugs [1,8,9].
A rare case report of Amlodipine induced gingival enlargement was first reported by Ellis in 1993. Clinical manifestation of gingival overgrowth frequently appears within 2-3 months after starting treatment with Amlodipine [8]. Duration and dose of the drug is often associated with the degree of inflammation, fibrosis, and cellularity [2]. The underlying pathogenesis of drug induced gingival enlargement still remains to be fully understood. However, the proposed mechanism is as follows [6,7,10]

a. The individuals with an abnormal susceptibility to drugs have more chances of gingival enlargements.

b. The effect of inflammatory cytokines on collagenous protein was found to be elevated when these cells are exposed to drugs.

c. These drugs may interfere with the synthesis and the degeneration of collagen by decreasing the calcium influx through blockage of MMP synthesis.

d. Defective collagenase activity due to decreased uptake of folic acid.

e. Upregulation of keratinocyte growth factor.

f. Inflammation may develop as a result of direct toxic effects of concentrated drug in crevicular gingival fluid and/or bacterial plaques.

The management of amlodipine induced gingival enlargement consists of maintenance of control of gingival inflammation, good oral hygiene and substitution of the drug. Surgical intervention is frequently necessary to accomplish esthetic and the functional outcome [11].

Conclusion

The present case highlights the role of Amlodipine in the gingival enlargement. Although the condition can be well managed, many of the cases undergo wrong treatment because of improper history taking and lack of knowledge. This can have significant effect on the patient’s quality of life. Thus the amlodipine induced gingival enlargement should be considered in the differential diagnosis, when such cases are noticed.

References

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