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Case Report

Surgical Intervention of Drug-induced Gingival Enlargement by Ledge and Wedge Technique

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Abstract

Drug-induced gingival enlargement, previously known as drug-induced gingival hyperplasia or drug-induced gingival overgrowth usually manifests as a side effect of certain drugs. The key drug classes that cause such a side effect are anticonvulsants, immunosuppressants and calcium channel blockers. These overgrowth often cause inconvenience to the patient as it impedes proper oral hygiene maintenance, cause damage to aesthetic display and often is very painful during eating and chewing. The first line of treatment in such cases is the non-surgical periodontal approach followed by discontinuation of the offending drug. This is followed by the surgical approach which includes various techniques such as the gingivectomy, periodontal flap surgery, or the ledge and approach. This case report aims to emphasize on the ledge and wedge approach for the surgical management of drug induced gingival enlargement and to understand the benefits of using this approach over other techniques.

Key words: Hyperplasia, Gingivectomy, Ledge and wedge, Scalpel, Amlodipine, Calcium channel blockers

INTRODUCTION

Drug-induced gingival enlargement is defined as increase in gingival tissue size either whole or part resulting from systemic drug use.[1]

Drug-induced gingival overgrowth (DIGO) is caused by three different therapeutic classes: Calcium channel blockers, immunosuppressants, and anticonvulsants.[2] Amlodipine, used for hypertension and angina, was first reported for causing gingival overgrowth as a side effect.[3]

The ledge and wedge are a surgical approach employed in areas with thick mucosa where along with pocket depth reduction, thinning of flap is required. It is used with internal bevel gingivectomy. Thus, it does not leave a large external bevel and causes lesser bleeding and post-operative pain.

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CASE HISTORY

A 52-year-old female patient reported to the Department of Periodontics and Oral Implantology with the chief complaint of swelling of the gums in the lower front tooth region. On taking the history, it was discovered that the patient was hypertensive since the last 3 years and was recently switched over to Amlodipine 5 mg once a day. She took the medicine for 2 months before she started noticing swelling in the gingiva of the mandibular arch which is when she decided to report to her general physician. She was then switched over to Telmisartan 40 mg by her physician and referred to the dental hospital for treatment of the swollen gingiva in the mandibular arch.

On clinical examination, the mandibular area from 36 to 46 was erythematous with accumulation of plaque and calculus. Bleeding on probing was present and there were considerable signs of inflammation [Figure 1].

Over the course of 3 months, non-surgical periodontal therapy was performed on the patient [Figure 2]. Three months post-discontinuation of amlodipine, quadrant wise gingivectomy using the ledge and wedge technique was planned for the patient.

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Figure 1: Preoperative view of the gingival enlargement in the mandibular anterior region

Figure 2: After completion of phase 1 therapy

The surgical intervention was initiated after obtaining a written informed consent from the patient. Local anesthesia with 2% lignocaine, 1:80,000 epinephrine was administered. After marking the bleeding points, scalpel using No 15 blades were used to place the surgical incisions on the labial/buccal aspects [Figure 3]. The ledge and wedge technique was employed by first placing horizontal incisions to excise the bulbous gingival interdental papilla [Figure 4]. An internal bevel incision was placed next followed by sulcular incision thereby reflecting the remaining hyperplastic attached gingiva. A full thickness flap was reflected to expose the root surfaces and the underlying bone [Figure 5]. The exposed root surfaces were then thoroughly debrided to eliminate all granulation tissue and recontouring of the gingival tissue was done. 4-0 black silk non-resorbable sutures using simple interrupted technique were then placed after surgery [Figure 6]. Post-operative instructions were given and patient was instructed to maintain immaculate oral hygiene. Amoxicillin (500 mg TID) and analgesics were prescribed. About 0.2% chlorhexidine mouthwash and interdental brush were given for plaque control.

Patient was recalled after 7 days for suture removal.

Patient was re-evaluated after 1 week [Figure 6], 1 month [Figure 7], and 3 months [Figure 7] after completion of surgical procedure. It was observed that the patient maintained her oral hygiene properly for this period and

Figure 3: Initial incisions of the surgical phase

Figure 4: Excised enlarged gingival tissue

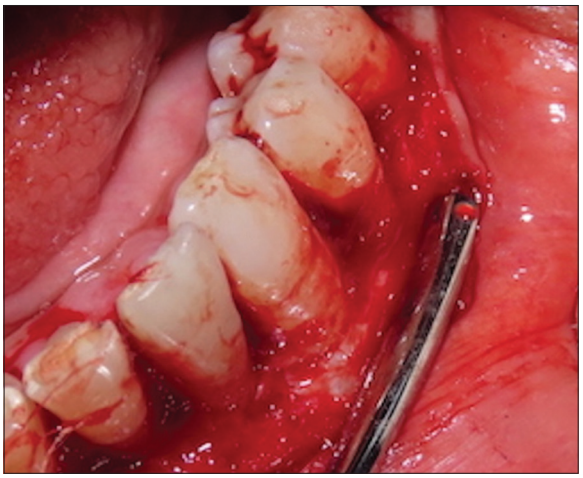

Figure 5: Flap reflection after excision

no recurrence of overgrowth was observed by the end of 3 months.

DISCUSSION

In the current scenario, more than 20 drugs have been shortlisted as possible offenders causing gingival overgrowth, including oral contraceptives.[4] The incidence for DIGO varies according to the type of medication: 0.5–83% for nifedipine, 8–70% for cyclosporin-A, and 10–50% for phenytoin.[5]

In this case report, we present the surgical approach undertaken on a female hypertensive patient who

Figure 6: Sutures and one week follow up respectively

Figure 7: One month, and three months follow up

presented with gingival enlargement due to Amlodipine usage.

Amlodipine, a third generation calcium channel blocker earlier showed lesser incidences of gingival enlargement, when compared to Nifedipine, a first generation calcium channel blocker.[6] However, its prevalence in the current scenario is shown to be 1.7–3.3% showing an increase in the number of Amlodipine induced gingival enlargement cases.[6,7]

Gingival overgrowth can lead to complications such as caries, periodontal diseases as well as aesthetic concerns and symptoms such as pain, bleeding, tenderness, abnormal tooth movement, speech disturbances, and malocclusion.

The main aim of phase I therapy is to reduce the gingival tissue inflammation. The reduction in inflammation is beneficial as it helps to determine the need for a surgical intervention.

From the list of surgical techniques, ledge and wedge technique with internal bevel gingivectomy was decided for this case as this technique mainly helps in eliminating the placement of primary incisions as opposed to the conventional external bevel gingivectomy procedure. In addition, there is an added benefit of not leaving a large external bevel and therefore result in less post-operative pain and bleeding. This technique also allows the reflection of a conventional flap to permit access to the underlying bone for respective osseous surgery.[8]

Depending on the oral hygiene maintenance of the patient combined with professional cleaning, recurrence can be minimal or delayed.

CONCLUSION

Based on this case report, we can conclude that when all the evidences are considered, there appear to be three prominent factors which are important for the expression of these gingival changes which includes drug type, plaque induced inflammatory changes, and genetic component. Dental specialists need to collaborate with their medical colleagues and increase their awareness while prescribing the drugs associated with gingival overgrowth so as to prevent the occurrence of such similar cases.

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