

Trio of Drugs Triad of Management: A Case Series on Management of Drug Influenced Gingival Enlargement

¹Dr Pooja Gupta, MDS, Private Practitioner

²Dr Mangesh B. Phadnaik, MDS, Professor and Dean, GDCH, Nagpur

³Dr Somnath Pachrupe, MDS, Private Practitioner

Corresponding Author: Dr Pooja Gupta, MDS, Private Practitioner, New Delhi

Citation of this Article: Dr Pooja Gupta, Dr Mangesh B. Phadnaik, Dr Somnath Pachrupe, “Trio of Drugs Triad of Management: A Case Series on Management of Drug Influenced Gingival Enlargement”, IJDSIR- October - 2020, Vol. – 3, Issue - 5, P. No. 153 – 159.

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Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Drug influenced gingival enlargement manifests as abnormal growth of the gingiva due to an adverse drug reaction in patients treated with immunosuppressants, calcium channel blockers and anticonvulsant. As the gingival enlargement develops it affects the normal oral hygiene practice and may interfere with the masticatory functions leading to pain and often disfigurement. Treatment is mainly challenged by the high recurrence rate and the persistence of other risk factors. This case series presents four clinical presentations of different types of DIGE and their subsequent management.

Keywords: Drug influenced gingival enlargement, Immunosuppressants, Calcium channel blockers, Anticonvulsants

Introduction

Drug influenced gingival enlargement (DIGE) is a known side effect caused by mainly three categories of drugs: immunosuppressants, anticonvulsants and calcium channel blockers.[1] Amongst the above-mentioned

categories, mainly four drugs have been found to be associated with DIGE.

Drug **Cyclosporine** is given as an immunosuppressant since long and the first case of cyclosporine associated gingival enlargement was reported in 1983 by Rateitschak-Plüss and Wysocki et al.[2] Prevalence rate of 30% (ranging from 25 to 81%) with cyclosporine has been reported.[3] Amongst the anticonvulsants, gingival enlargement with **Phenytoin** appeared soon after the drug was introduced and was reported by Kimball in 1939.[2] Incidence of Phenytoin associated gingival enlargement ranges from 3% to 84.5%.[4] As far as CCBs are concerned, two drugs are principally associated with DIGE. **Nifedipine** associated gingival overgrowth was first reported in 1984 by Lederman et al and Ramon et al [5] with a prevalence rate ranging between 14.7% and 83%.[2] Amlodipine associated gingival overgrowth was reported by Seymour et al in 1994 although prevalence is reported to be quite low 3.3%.[6]

As DIGE is a well-established side effect, most of the above mentioned of the above-mentioned drugs have now been substituted by their counterparts. However, due to their effectiveness, drugs like phenytoin, cyclosporine and amlodipine are still being prescribed as per the medical condition of the patient. Hence, it is not uncommon for patients to report with gingival enlargement. Thus, it is important for us to be well aware with clinical presentations and possible complications of such cases, and should always plan towards working out the best possible treatment solutions for the patients.

The management of DIGE cases is broadly carried out in 3 phases. First, is the physician referral and consent for drug substitution, if possible. In cases where drug substitution is not possible, Phase I therapy is carried out. It is seen that DIGE is mostly a combined enlargement consisting of the inflammatory and fibrotic component, hence, in cases where drug substitution is not possible and there is no regression of gingival enlargement following Phase I therapy, such cases need to be treated surgically.[7]

The surgical modalities which can be considered for DIGE patients are: **Scalpel gingivectomy (External Bevel Gingivectomy, EBG)** which is carried out in patients with enlargement without attachment loss and osseous defects.⁸ Since most of the patients presenting with DIGE are unable to maintain good oral hygiene or belong to mid-40s age group, they usually present with attachment loss along with enlargement. Hence, the best modality of treatment in such cases is to raise a periodontal flap and perform **internal (reverse) bevel gingivectomy (IBG)** procedure. This procedure produces excellent post-operative results as it creates thin knife-edged margins.[8]

Laser gingivectomy has also been advocated by many for the management of DIGE. Diode Lasers provide a much convenient option in dealing with the medically compromised patients as in DIGE as they offer excellent

haemostasis and instant sterilization of the operating field, thereby, less post-operative pain and complications.[9]

Here, in this article we present four clinical presentations of different types of DIGE and their management.

Case Series

Case 1 : A 56 years old female reported to the Department of Periodontology, Government Dental College and Hospital, Nagpur with the chief complaint of dryness in mouth & swollen gums since 4 months. Patient was a known case of **Aplastic Anemia** since 1 year, was under medication (**Tab. Cyclosporine 100 mg twice daily**).

Intra oral Examination revealed generalized gingival enlargement, Scanty calculus, Moderate extrinsic stains, Generalized attrition, Fair oral hygiene (**Fig. 1 & 2**). Tongue blade test was positive for the patient.

Investigations: Complete blood examination of the patient showed Haemoglobin levels around 6.7gm% and Total Leukocyte Count was 2700cu/mm (Neutrophils 46%, Lymphocytes 47%, Eosinophils 2%, Monocytes 5%). The platelet count was found to be low as 0.29 lac/mm³. Liver Function Test values were within normal limits. HbS Ag was positive. HIV test was negative for the patient.

Diagnosis of Generalized Cyclosporine influenced Gingival Enlargement was made.

Treatment

Physicians consent was not granted for the patient so the patient did not undergo non-surgical or surgical periodontal therapy and was treated symptomatically. The patient was educated and motivated for the maintenance of proper oral hygiene and was kept under regular follow ups.

Case 2: A 43 years old female reported to the Department of Periodontology, Government Dental College and Hospital, Nagpur with the chief complaint of swollen gums since 1 month. The patient was a known case of

hypertension and was on medication for the same since 1 year. (**Tab. Amlodipine 5 mg once daily**)

Intra-Oral Examination showed Generalized gingival enlargement, inflamed, bulbous, soft & edematous interdental papillae. Bleeding on probing was positive. The patient had poor oral hygiene. Periodontal Pockets around 5-8 mm were found with the clinical attachment loss of 2- 4 mm. Gingival Recession was seen in 14, 27, 46, 47 along with a Periodontal Abscess in 23. Grade I mobility was present with 31, 32, 41 and 42. (**Fig 3**)

Complete blood count of the patient was within normal limits.

Radiographic Examination revealed Mild to Moderate Alveolar Bone Loss. (**Fig. 4**)

Diagnosis of Generalized amlodipine influenced gingival enlargement with Generalised mild to moderate chronic periodontitis was made.

Treatment

Periodontal abscess wrt 23 was drained under antibiotic cover. Upon physician consultation, the drug was substituted for the patient with Beta-blockers (Propranolol). Oral hygiene maintenance instructions were given. Scaling and root planning was performed with ultrasonic and hand instruments. Patient was re-evaluated after 1 month and kept under follow up. Complete remission of gingival enlargement 1 year after non surgical periodontal therapy has been attained after 1 year. (**Fig. 5**)

Case 3: A 47 years old female reported to the Department of Periodontology, Government Dental College and Hospital, Nagpur with the chief complaint of swollen gums since 6 months and sensitivity to hot and cold. The patient was a known case of hypertension since 7 years and was on medication for the same since 4 years. (**Tab. Betanocardia – Atenolol 50 mg, Nifedipine 20 mg once daily for 4 years which was changed by the physician**

to Amlokind – AT – Atenolol 50 mg and Amlodipine 5 mg once daily since 1 month).

Intraoral Examination showed Generalized gingival enlargement which was firm and fibrous in nature. The interdental papillae were inflamed & bulbous. Oral hygiene of the patient was fair. Periodontal examination revealed 6 - 9 mm deep periodontal pockets, Clinical Attachment Loss of about 4 -7 mm, Grade II mobility with 31 and Grade I mobility with 32, 41 and 42. (**Fig. 6**)

Complete Blood Count of the patient was within normal limits.

Radiographic examination revealed moderate to severe bone loss was seen. (**Fig 7**)

Diagnosis of Generalised nifedipine influenced gingival enlargement with Generalised moderate to severe chronic periodontitis was made.

Treatment

Oral hygiene instructions were given to the patient. After obtaining physicians consent, patient was undertaken further for periodontal therapy. Scaling and root planing were performed using ultrasonic and hand instruments. Later on, internal bevel gingivectomy was performed for the right side of the oral cavity and laser gingivectomy for the left half. For **internal bevel gingivectomy**, the initial internal bevel incision was made atleast 3 mm coronal to the mucogingival junction.[10] Full-thickness flap was elevated. The excised marginal and interdental tissues were removed with curettes. Tissue tags were removed, roots were thoroughly scaled and planed, and the bone was recontoured as needed. The flap was the sutured with an interrupted figure of eight 3-0 mersilk sutures.

For **laser gingivectomy**, the laser unit was used at predetermined specifications provided by the manufacturer; 300µm fibre diameter, at 1.5 W, in contact with tissue and continuous wave mode. The tissues were

vaporized with low power levels (1 W) and with light pressure applied to the fibre. The fibre was kept in contact with the tissue using rapid, decisive and regular movements. The patient was kept on periodic recalls after surgery.

18 months follow up post surgery is presented here. (Fig. 8)

Case 4: A 30 years old female reported to the Department of Periodontology, Government Dental College and Hospital, Nagpur with the complaint of swollen gums since 2 months. The patient was a known case of epilepsy and was under medication since last twenty years (**Tab. Phenytoin 100 mg twice daily**).

Intra oral examination showed Gingival enlargement was seen with respect to the maxillary arch, the interdental papilla being bulbous, soft and oedematous and showing signs of bleeding on probing. The patient exhibited fair oral hygiene. Periodontal examination revealed pockets 6-9 mm deep with a clinical attachment loss of 4-7 mm. Pathological migration and grade I mobility was seen with 11 and 21. Root pieces were seen with 36, 45, and 46. (Fig 9)

Complete Blood Count of the patient was within normal limits.

Radiographic examination revealed mild to moderate bone loss. (Fig. 10)

Diagnosis of Phenytoin influenced gingival enlargement with respect to the maxillary arch along with moderate to severe Chronic Periodontitis was devised.

Treatment

Preliminary treatment comprised of the extraction of root stumps of 36, 45 and 46. Oral hygiene instructions were given to the patient. After obtaining physicians consent, patient was undertaken further for periodontal therapy. Scaling and root planing were performed using ultrasonic and hand instruments. Later on, internal bevel

gingivectomy was performed for the left side of the oral cavity and laser gingivectomy for the right half.

The patient was kept on periodic recalls after surgery. **24 months follow up post surgery** is presented here. (Fig. 11)

Discussion

Thorough treatment of DIGE requires an integrated approach. Non surgical periodontal therapy remains the centrepiece of treatment, and if not resolved by the same, we need to switch on to the surgical therapy for the resolution of the condition. Although scalpel gingivectomy is the treatment of choice but its limitations call upon for the periodontal flap/internal bevel gingivectomy (IBG) or Laser gingivectomy as alternate options.

Through the following case series, we have tried to explore the treatment options for management of drug influenced gingival enlargement. Comprehensive treatment of these cases is multidisciplinary in nature, and consideration should be given to all the options available.

In the first case, Cyclosporine was given to the patient with aplastic anaemia. Drug substitution was not possible and the patient exhibited a very low platelet count as well as other blood parameters. Therefore, patient was kept under symptomatic therapy and no non-surgical or surgical treatment was carried out.

In cases where alternate medication can be prescribed, drug substitution results in regression of the overgrowth. In the second case presented, gingival overgrowth was satisfactorily treated via initial periodontal therapy including oral hygiene instruction and motivation along with scaling and root planing.

The surgical treatment pursued for the last two cases was a combination of scalpel and the laser surgery. The cases were treated in a split-mouth way to evaluate the effects of both the treatment modalities on the same patient. Internal

bevel gingivectomy was carried out as the patients presented with moderate to severe periodontitis. Laser gingivectomy provided an added benefit of operative bloodless field, reduced post-operative pain, swelling and scarring of the tissue. Diode laser with 980nm wavelength was selected for performing laser gingivectomy. The contact mode application and the flexible waveguide make the surgical performance very similar to that of the scalpel. A further advantage of this laser is the small size of the machine, which is portable and compact.[11] The cases were successfully treated with both the modalities and satisfactory results; with no signs of recurrence of gingival enlargement were seen even after 1 year of therapy.

Conclusion

Drug influenced gingival enlargement is a potential problem for the patients under systemic medications. With the increasing knowledge of the disease, substitution of the offending drug has now become easier but the same is not possible for all the patients.

Thus, onus of treatment lies on us as oral physicians to provide the patients with the best possible treatment including drug substitution by co-ordinating with the general physicians.

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Legend Figures



Fig. 1: Cyclosporine influenced gingival enlargement



Fig. 2: Cyclosporine influenced gingival enlargement (Open Mouth View)



Fig. 3: Amlodipine influenced gingival enlargement



Fig. 4: Orthopantomograph showing mild to moderate bone loss



Fig. 5: Postoperative View after 12 months of Non-Surgical Therapy



Fig. 6: Nifedipine influenced gingival enlargement

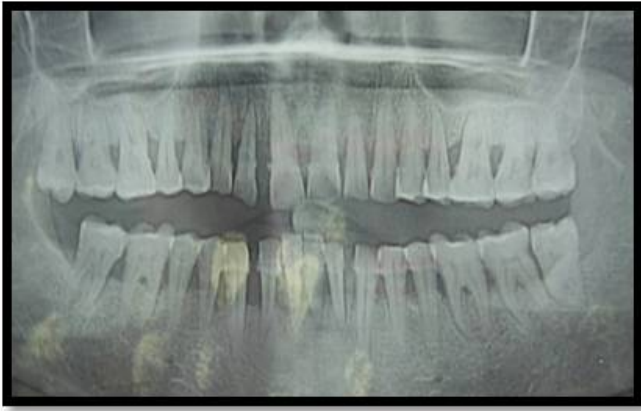


Fig. 7: Orthopantomograph showing moderate to severe bone loss



Fig. 10: Orthopantomograph showing mild to moderate bone loss



Fig. 8: Postoperative View after 18 months of Surgical Therapy



Fig. 11: Postoperative View after 24 months of Surgical Therapy



Fig. 9: Phenytoin influenced gingival enlargement