A Case Report: Management of Drug Induced Gingival Enlargement in a Kidney Transplant Patient

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ABSTRACT

Gingival enlargement is a common manifestation of numerous underlying gingival and periodontal diseases. It is a known side effect of certain medications given for non-dental conditions. It has been documented with three main groups of drugs like calcium channel blockers (CCBs), immunosuppressants and anticonvulsants. The enlargement is more exaggerated in patients who take a combination of these drugs. Gingival enlargement becomes a major esthetic concern for the patients and interferes in their occlusion and function. It plays significant role in providing new niches for periodontopathogenic microorganisms. The pathogenesis of enlargement is attributed to be multifactorial. The management of gingival enlargement may require both nonsurgical and surgical approaches. Hereby, reporting a case of gingival enlargement in a patient with history of kidney transplant. He was on long term usage of immunosuppressants and CCBs (Nifedipine). The management involved the initial therapy followed by surgical phase. The surgical technique followed was gingivectomy based on his clinical and radiographic findings. The patient was monitored on scheduled maintenance visits.

Keywords: Drug induced gingival enlargement; phase I treatment; external bevel gingivectomy, Supportive periodontal therapy.
INTRODUCTION

Gingival enlargement is a common manifestation of numerous underlying gingival and periodontal diseases. It is a known side effect of certain medications given for non-dental conditions. It has been documented with three main groups of drugs like calcium channel blockers (CCBs), immunosuppressants and anticonvulsants. The enlargement is more exaggerated in patients who take a combination of these drugs. Gingival enlargement becomes a major esthetic concern for the patients and interferes in their occlusion and function. It plays significant role in providing new niches for periodontopathogenic microorganisms. The pathogenesis of enlargement is attributed to be multifactorial such as age, demographic variables, genetic predisposition, oral hygiene status, pharmacokinetic variables and molecular and cellular changes in gingival tissues. The management of gingival enlargement may require both nonsurgical and surgical approaches.

CASE REPORT

A 35-years-old male patient reported to the Super Specialty Dental Center, GMC Hospital, Ajman with a chief complaint of swelling in the gums, which had been progressively increasing over the previous 4 months. The patient's medical history revealed that he had undergone kidney transplant 13 years back. He has been on multiple drug therapy since his transplant. Medication regimen followed was cyclosporine-A 100mg twice daily, Prednisolone 10mg once daily for initial 2 years then tapered it to 7.5mg then further to 5mg once daily for the last 8 to 9 years for immunosuppression. Nifedipine 10mg thrice daily and Atenolol 25mg (Aten) twice daily as antihypertensive drugs was prescribed to the patient. Patient mentioned that he had complains of swollen gums 7 to 8 years after the transplant surgery. Patient revealed that he had undergone surgical treatment for the swollen gums for the past 6 years, every 8 to 10 months in some other dental care centre. There was no mention of Phase IV or maintenance phase throughout his treatment and only a follow up for phase II or surgical treatment. Nevertheless, there was no need of Phase III or Restorative phase and hence was not considered in the treatment planning.

The intraoral examination revealed diffuse gingival enlargement covering almost entire crown of all the maxillary posterior teeth (Figures: 1, 2). Both maxillary centrals and laterals were not having any gingival enlargement. The entire palatal aspect was covered by gingival overgrowth bilaterally (Figure: 3). Mandibular arch displayed marginal papillary enlargement not involving attached gingiva. The degree of gingival enlargement was scored as Grade III for maxillary arch and Grade II for mandibular arch. The clinical appearance of gingiva was erythematous, bleeding on probing, loss of stippling with loss of gingival architecture in maxillary arch and shiny edematous surface. There was abundance of local factors especially around the gingival margins. On probing, there were pseudo pockets involving all the teeth with gingival overgrowth. The panoramic x-ray revealed mild horizontal bone loss (Figure: 4). Based on the clinical examination and medical history, a diagnosis of ‘drug induced gingival enlargement’ was made.
Figure 1: Pre-Operative clinical view of right maxillary arch

Figure 2: Pre-Operative clinical view of left maxillary arch.

Figure 3: Pre-Operative clinical view palatal aspect.

Figure 4: Pre-Operative Panoramic view
Treatment of drug-induced gingival overgrowth includes non-surgical and/or surgical therapies. Non-surgical treatment, where it is possible, is based on the interruption, modification of the dosage or replacement of the drugs. However in this case, after a formal correspondence with the patient’s physician it was directed from him that no changes in the drug regimen could be made.

Phase I therapy involves the conventional scaling and root planning for removing the local factors and diseased cementum, wherever exposed. Following which, the oral hygiene instructions were given to patient and the use of chlorhexidine 0.2% oral rinses twice daily along with other plaque control measures were emphasized. Patient was also demonstrated the use of water-pik all along the marginal gingival, which could not be maintained easily by other means. Hence, after completion of Phase I therapy, maintenance phase was observed for about 4 weeks. In the subsequent patient follow up, clinical examination showed that the inflammatory component of the gingival enlargement had reduced. There was slight bleeding on probing; the erythema, edema and surface shininess of the gingival tissues were diminished. Nevertheless, three fourth of the clinical crown surface was still covered by the fibrotic enlargement of the gingival tissues. Hence, Phase II or Surgical phase was planned and the patient was informed accordingly. The various surgical options available for the management of gingival drug induced gingival overgrowth (DIGO) are – external bevel gingivectomy (EBG), apically displaced full thickness flap. The internal (reverse) bevel gingivectomy (IBG) often is used instead of an EBG if the tissue to be excised is thick and a long external bevel incision would be required to create knife-edged margins. As the patient’s panoramic x-ray did not show any requirement of osseous correction, the surgical option finalized was the classical surgical approach, the external bevel gingivectomy.

Pre-surgical routine hematological investigations revealed complete blood count within normal range. The bleeding (BT), clotting time (CT), Prothrombin time (PT), partial thromboplastin time (PTT) and INR were also normal. Patient physician was consulted regarding any modification of the patient routine drug regimen. There was no corticosteroid supplementation considered as the patient was taking less than 7.5mg of daily dose of prednisolone. The local anesthesia that is used for a patient who has had kidney transplantation is the same that is used for all patients (lidocaine, mepivacaine); the only difference is that, it does not contain adrenaline.

The treatment was planned in the morning session. The patient vitals were recorded before the beginning of the procedure. The extra-oral surface was scrubbed by betadine. The patient was asked to do pre-surgical mouth rinsing for 1min using chlorhexidine 0.2% mouthwash. The surgery was performed quadrant wise per visit. The pockets were marked using pocket marker after adequate anesthesia was obtained. Kirkland knife and surgical blade#15 were used to place external bevel incision, simultaneous preserving the uninvolved attached gingival. The entire gingival architecture and papillary contour were restored and the surgical site was covered by periodontal dressing. Post-operative instructions were given to the patient. The first generation cephalosporins antibiotics were prescribed to the patient for 7 days post-operatively. The analgesic prescribed was acetaminophen. The follow up visits were planned at an interval of 7 to 10 days when the surgical site was reassessed and if healing was inadequate or the patient was complaining of discomfort the periodontal dressings were replaced for a week more. But this had to be done only after first quadrant surgery. Patient reported with uneventful healing after all surgical sessions. The patient was recalled every 1,3,6 months initially and during each recall visit the oral hygiene instructions were reinforced and scaling was performed. There was no gingival enlargement noticed in any quadrant (Figure 5, 6, 7).
Figure 5: 3 years follow up maxillary right buccal view.

Figure 6: 3 years follow up maxillary left buccal view.

Figure 7: 3 years follow up palatal view.
However, the significance of the Phase IV or Supportive Periodontal Therapy (SPT) and home care regimen were emphasized and highlighted to the patient. The patient was also advised to use water pik, which exhibited considerable improvements in posterior areas. The patient has been on SPT since then and no recurrence of gingival enlargement is noticed. The treatment plan was based on the relevant patient history, clinical presentations and radiological findings. The pathogenesis of drug induced gingival enlargement.

**DISCUSSION**

Kimball in 1939 reported the first case of phenytoin induced gingival enlargement. The clinical manifestation of gingival overgrowth can range in severity from minor variations to complete coverage of the teeth, and that drifting of the teeth can occur, creating subsequent functional and aesthetic problems for the patient. The first time gingival overgrowth with cyclosporin therapy was described in the dental literature in 1983 by both Rateitschak-Plüss et al., and Wysocki et al. Cyclosporine induced gingival enlargement (incidence of approximately 30%) the deepening of periodontal pockets and associated subgingival microbiota may interfere with the progression of periodontal destruction and general health. Nifedipine appears to have an additive effect when used together with cyclosporine in transplant recipients with hypertension. It potentiates the adverse effects (i.e., gingival overgrowth) of cyclosporine.

The pathogenesis of DIGO has been attributed to multifactorial model. The role of plaque and associated periodontopathic pathogens is still controversial. Whether the plaque is causative or a result of compromised oral hygiene due to enlargement is still disputed issue. Despite these differences, all authors agree that removal of local irritants and reduction of gingival inflammation are important in the management of cyclosporin A-induced gingival enlargement. Therefore, the follow up visits intended for the patient were in 1, 3 and 6 months. During each visit the local factors i.e. plaque and calculus were removed using ultrasonics and hand instrument. The bleeding on probing was examined and the presence of psuedopockets was reassessed. Gingival tissue condition was reexamined. The overall examination was done for any new carious lesion. Oral hygiene instructions were reinforced.

**CONCLUSION**

In the present case, the patient was undergoing surgical management of the gingival enlargement every year and no SPT was considered. However, when patient reported to our center, after completion of the surgical treatment the importance of SPT was well explained and informed to the patient. Patient’s home care oral hygiene protocol and recall visits every 3 months was considered an integral part of his treatment. Patient is under follow up from last 3 years without any gingival enlargement recurrence. Hence, with treatment options such as conventional surgical approach or LASERS to manage gingival enlargement the significance and gravity of Phase I and Phase IV SPT should not be overlooked and undermined.

**REFERENCES**