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Management of Drug induced gingival enlargement by flap surgery: A case report

Medical Science

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ABSTRACT

Gingival enlargement is a well known consequence of the administration of anticonvulsants immunosuppressants, and calcium channel blockers. The effects of these drugs are not only directed at the primary target tissues but also on secondary target tissues, such as gingival connective tissue, causing clinical and histopathological aberrations. These aberrations can adversely affect speech, mastication, tooth eruption, and esthetics. Disfiguring gingival overgrowth triggered by these medications often impairs nutrition, and provides access for oral infection, caries, and periodontal disease. Generally gingival enlargement is treated using (conventional)external bevel gingivectomy, which is the soft tissue excision procedure, not designed to gain access to bone. When intrabony pockets are present and access to them is needed to treat these defect, flap is the better alternative. This case report describes the management of phenytoin induced gingival enlargement using flap surgery and postoperative care by application of positive pressure appliance.

INTRODUCTION

The drug- induced gingival overgrowth or enlargement manifests as abnormal growth of the gingiva due to an adverse drug reaction (ADR) in patients treated with anticonvulsants, immuno suppressants and calcium channel blockers. Several factors namely age, genetic predisposition, presence of preexisting plaque and gingival inflammation may influence the relationship between drug and the gingival tissue (Seymour RA, Thomason JM, Ellis JS,1996).There is a variable gingival response in patients taking drugs. The first drug induced overgrowth produced by phenytoin was reported in the year 1939 by Kimball (Kimball OP,1939).Phenytoin (PHT;5,5-diphenylhydantoin) was first introduced as an anti-epileptic in the year 1938 by Merritt and Putman (MerrittH,Putman T,1938).Within a year of its clinical use reports linking PHT to gingival overgrowth appeared in the literature (Kimball OP,1939).Clinical manifestations of gingival enlargement frequently appears within 1 to 3 months after initiation of treatment with the associated medications (DongariBaqtzoglou A,2004).Gingival overgrowth normally begins at the interdental papilla and is more frequently present in the anterior segment of the labial surfaces. (Marshall RI,1999 & Hallmon WW, 2000) Treatment of gingival overgrowth itself can be complicated due to the superimposed inflammation on the fibrotic tissue enlargement. Traditionally periodontal therapy offers removal of the inflammatory component of the overgrowth through scaling and root planing followed by excision of the overgrown gingiva. This paper presents a case report of phenytoin –induced overgrowth which is successfully managed by flap method.

CASE REPORT

A 24- year old male patient reported to the Dept of Periodontics with the chief complaint of swelling ,halitosis and bleeding gums for the past 6 months .There was an increase in severity for the past 1 month. The patient Medical history revealed that he is a known epileptic and under medication(Eptoin 100mg twice daily) for the past 3 years.

Intraoral examination revealed erythematous enlarged gingiva covering half of the anatomical crown in mandibular anterior region and papillary enlargment in other area of the gingiva. The enlargement was nodular in apperance and firm in consistency with bleeding on probing as shown in figure 1. Routine blood investigation (Tc,Dc,Hb,Esr) shows no abnormalities, OPG revealed no bone loss.



Figure1. Preoperative picture showing gingival enlargement

Based on the history and clinical examination diagnosis was made as Phenytoin induced gingival over growth.The patient was referred to the Neurologist for fitness and opinion to substitute Phenytoin.

After the consent from neurologist patient underwent phase I therapy ,consisting of oral hygiene instructions , scaling and root planing, antibiotics and 0.2%chlorhexidine rinse . After 1 month the patient was reevaluated and found persistent gingival over growth , so we planned for surgical therapy using flap.

SURGICAL PROCEDURE

The surgical site was anesthetised, using 2% Lignocaine with 1:80,000 adrelanine.The initial scalloped internal bevel incision was made with a No. 15 blade, at least 3mm coronal to the mucogingival junction,and included the creation of new interdental papillae.. A crevicular incision was made along the sulcus as shown in figure 2 and directed to the base of the pocket. Then the gingival tissue collar that was attached to the bone and teeth were removed with the curettes. Following scaling and root planing, flaps were placed with black braided 3-0 silk sutures.



Figure. 2 Intra-operative view

Postoperative instructions were given. Sutures were removed after 7 days. Healing was uneventful. Histopathological examination revealed gingival hyperplasia with inflammatory cell infiltrate and predominance of fibrotic component.

POST OPERATIVE CARE

The following postoperative instructions were given: for the first 24 hours, only liquids, semisolids or finely minced foods are recommended, avoid hot foods and/or liquids, and apply ice intermittently on the face over the operated area. Chew on the non-operated side of the mouth.Use chlorhexidine oral rinse (as prescribed) no less than 24 hours after surgery, and do not rinse vigorously on the first day .The patient was reviewed periodically .



Figure .3 Six months post-operative view

DISCUSSION

Phenytoin-induced gingival enlargement occurs most often in younger patients..Its occurrence and severity is not necessarily related to the dosage after a threshold level has been exceeded.(Babcock JR,1965) Tissue culture experiments indicate that phenytoin stimulates proliferation of fibroblast-like cells and epithelium (Shafer WG,1960 & Shafer WG,1961).Fibroblasts from phenytoin induced gingival overgrowth show increased synthesis of sulfated glycosaminoglycans in vitro (Kantor ML, Hassell TM,1983).Phenytoin may induce a decrease in collagen degradation as a result of the production of an inactive fibroblastic collagenase(MortonRS,Dongari-Bagtzoglou AI,1999) .Hassell & Page hypothesized that in non-inflamed gingiva, fibroblasts are less active or even quiescent, and do not respond to circulating phenytoin, whereas fibroblasts within inflamed tissue are in an active state as a result of the inflammatory mediators and the endogenous growth factors present (Hassell TM, Page RC,1978).A genetic predisposition is also a suspected factor in determining whether a person treated with phenytoin will develop gingival enlargement or not.The current understanding is that the pathogenesis of gingival enlargement induced by phenytoin is not known, but some evidence links it to a direct effect on specific, genetically predetermined subpopulationsof fibroblasts, inactivation of collagenase,and plaque-induced inflammation (Hassell TM, Page RC,1978& Hassell TM, Burtner AP,1994).Recurrence of drug-induced gingival enlargement is a reality in surgically treated cases (Rees TD, Levine RA,1995). As stated previously, meticulous home care,chlorhexidine gluconate rinses, and professional recall therapy can decrease the rate and the degree to which recurrence occurs(Ciancio SG,Yaffe SJ, Catz CC,1972) A hard, natural rubber fitted bite guard worn at night may help to control the recurrence (Aiman R,1968 & Babcock JR,1965), as shown in figure.4



Figure.4 Positive pressure appliance

CONCLUSION

Gingival enlargement treated by flap method heals by primary intention, less post operative discomfort and results in a slower recurrence compared to the gingivectomy technique. However, supportive periodontal therapy is of great importance in preventing recurrence and maintenance after the surgical therapy.

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