

MASSIVE GINGIVAL ENLARGEMENT: A CASE REPORT

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ABSTRACT:

Gingival enlargement causes problems in aesthetics, speech, mastication and tooth eruption. The first drug induced gingival enlargements reported were those by phenytoin. This type of gingival enlargement usually occurs in young children. The severity of enlargement and occurrence is dose related. This case report describes the massive gingival enlargement in a young patient under treatment with phenytoin and its management.

Keywords: gingival enlargement, epilepsy, phenytoin, gingivectomy



INTRODUCTION:

Gingival enlargement is a well-known consequence of administration of some anticonvulsants, immunosuppressant and calcium channel blockers. This causes problems in esthetics, speech, mastication and tooth eruption. The first drug induced gingival enlargements reported were those by phenytoin. Merrit and Putnam introduced it for treatment of all kinds of epilepsy [1-4]. Other drugs such as Ethotoin, Mephenytoin, Ethosuximide Methosuximide, and Valporic acid also causes enlargement similar to phenytoin [3]. Usually 50 % of patients under treatment with phenytoin reported to have enlargements. [5-6]

Phenytoin induced enlargements may occur in patients with little or no plaque and may be absent in patients with abundant deposits. It usually occurs in

young children^[7-9] The severity and occurrence is dose related. Usually drug induced enlargements are painless, which are generalized and slowly increases in size. Upon surgical removal it may recur but withdrawal of the drug causes spontaneous disappearance.

This case report describes the massive gingival enlargement in a young patient under treatment with phenytoin.

CASE DETAIL:

A 13-year old female patient reported to the Department of Periodontics, complaining of swelling of gums in upper and lower arches. Patient noticed swelling when she was seven years old with a gradual drifting of teeth. There was no history of pain and bleeding.

Upon examination it has been found that she is an epileptic and she is under treatment with phenytoin for the past 10 years. Initially she was taking 100mg Phenytoin three times daily. After her last epileptic attack, (3 years before) she is now taking 200mg Phenytoin three times daily. Her past dental History stated that she had undergone Gingivectomy in a private dental clinic three months before and it had recurred rapidly.

Intraoral examination revealed diffused gingival enlargement of both maxillary and mandibular arches. [Fig 1] The enlargement was such that no clinical crown was visible for examination and nearly covering all the teeth. The enlarged gingiva was pink in color and was firm and resilient in consistency.

Hematological examination did not reveal any abnormality. Orthopantomograph revealed patient was in mixed dentition stage. [Fig 2] Patient was advised gingivectomy and gingivoplasty using soft tissue laser and surgical excision. Patient was informed about the treatment procedure.

First stage gingivectomy using soft tissue Laser was done quadrant wise in both upper and lower arches (with one week interval between the procedures). Second stage gingivectomy and gingivoplasty was done on all quadrants using Scalpel to give a scalloped appearance. [Fig 3]

The excised tissue was sent for histopathological examination. The histopathological examination revealed

proliferation of fibrous connective tissue with numerous fibroblasts and the overlying epithelium showed thin and long rete pegs suggestive of Gingival Hyperplasia. Immediate after the procedure and along with the replacement of the drug, hyperplasia subsided and patient was referred to orthodontic treatment. [Fig 4] [Fig 5]

DISCUSSION:

Phenytoin was introduced in 1938 in the treatment of epilepsy (all form) [4]. Experimental studies have shown that phenytoin induce a decrease in the collagen degradation due to production of an inactive fibroblastic collagenase [1]. The pathogenesis of enlargement by phenytoin is not known, but some evidence indicates to a direct effect on specific, genetically predetermined subpopulations of fibroblasts, inactivation of collagenase and plaque induced inflammation [2].

The clinical presentation of any phenytoin-induced enlargement will present as enlargement covering the whole teeth. [6] Because of the enlargement, plaque control will be difficult in these patients, often resulting in secondary inflammatory process that complicates the gingival enlargement caused by the drug. It usually present as mulberry shaped or pebbled with the involvement of whole of the gingiva (marginal, attached and interdental) [5]

Histopathologically, the enlargement begins as a hyperplasia of the connective tissue core of the marginal gingiva and its

proliferation and expansion beyond the crest of the margin [10]. The mature enlargement has a fibroblast/collagen ratio equal to that of normal gingiva but recurring phenytoin enlargement appears as granulation tissue composed of numerous young capillaries and irregularly arranged collagen fibrils with lymphocytes [10].

Studies and culture also showed that phenytoin stimulates proliferation of fibroblast like cells. It has been studied that two analogs of phenytoin such as 1-allyl-5-phenylhydantoinate^[7] and 5-methyl-5-phenylhydantoinate^[8] also showed similar effects on fibroblasts.

In this case report the clinical features of the phenytoin induced gingival

enlargement, which is clinically seen, is in similarity with the literature and findings reported. Even though gingivectomy was done the enlargement showed no recurrence as the drug was replaced. Patient has been advised to orthodontic treatment as early as possible. The histopathological findings from the biopsy specimen also revealed features that correlated with the studies reported.

CONCLUSION:

This patient needs to be treated in stages and needs a multidisciplinary approach. The success of this patient remains with drug being replaced and if not, recurrence will be there as early as possible.

REFERENCES:

1. Hassell TM: Evidence for production of an inactive collagenase by fibroblasts from phenytoin enlarged human gingiva. *J Oral Pathol* 11:310,1982.
2. Hassell TM, Page RC, Lindhe J: Histologic evidence of impaired growth control in diphenylhydantoin gingival overgrowth in man. *Arch Oral Biol* 23:381,1978.
3. Hallmon WW, Rossmann JA: The role of drugs in the pathogenesis of gingival overgrowth. *Periodontol* 2000 21: 176,1999.
4. Merritt H, Putnam T: sodium diphenylhydantoinate in the treatment of convulsive disorders. *JAMA* 111:1068,1938.
5. Angelopoulos AP, Goaz PW: incidence of diphenylhydantoin gingival hyperplasia. *Oral Surg* 34:898,1972.
6. Glickman I, Lewitus M: hyperplasia of the gingiva associated with Dilantin (sodium diphenylhydantoinate) therapy. *J Am Dent Assoc* 28: 1991,1941.
7. Shafer WG: Effect of Dilantin sodium on various cell proliferation in tissue culture, *Proc Soc Exp Biol Med* 106: 205,1960.
8. Shafer WG: Effect of Dilantin sodium on various cell lines in tissue culture, *Proc Soc Exp Biol Med* 108:694,1961
9. Nuki K, Cooper SH; The Role of inflammation in the pathogenesis of gingival enlargement during administration of diphenylhydantoinate in cats, *J Periodontol Res* 7: 91,1992.

10. Hassell TM, Burtner AP, McNeal D et al: Oral problems and genetic

aspects of individuals with epilepsy, *Periodontol* 2000 6:68,1994.

FIGURES:



FIG 1. PREOPERATIVE VIEW



FIG 4. POSTOPERATIVE

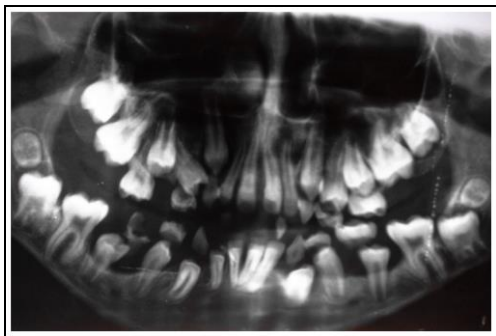


Fig 2 OPG OF THE PATIENT



FIG 3. DURING PROCEDURE



FIG 5. POSTOPERATIVE - AFTER 3 MONTHS