

CASE REPORT

MANAGEMENT OF PHENYTOIN INDUCED GINGIVAL ENLARGEMENT

Richa Kapoor Miglani

Private Practitioner

ABSTRACT:

Background: Gingival Enlargement can occur as a result of the administration of certain anticonvulsants, immunosuppressants, and calcium channel blockers. Phenytoin (5-diphenylphenytoin) has been used to control seizure disorders in patients with epilepsy. Gingival enlargement occurs in almost 50% of patients receiving phenytoin. **Aim:** The present case report describes the treatment of a patient with a phenytoin-induced gingival enlargement. **Case description:** A 35 year old lady reported with massive gingival enlargement that covered almost her entire teeth. Her medical history revealed that she was taking phenytoin for treatment of epilepsy (100mg BID) since the age of 20. The gingival tissues appeared firm, pale pink, fibrotic with pronounced stippling. **Conclusion:** The report highlights that treatment of a patient with drug induced overgrowth should be carried out in a step wise manner which includes proper history, investigations, consultation with the patient's physician, substitution of the drug, nonsurgical therapy, surgical therapy (if needed), and supportive periodontal therapy. Also, patient should be regularly reviewed for any recurrence of the enlargement.

Key words: Case report, gingival enlargement, phenytoin, drugs.

Corresponding Author: Dr. Richa Kapoor Miglani, Address: 507, Shatrunjay, Neelkanth Valley, 7th road, Rajawadi, Ghatkopar (E), Mumbai 400077.

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INTRODUCTION:

“Gingival enlargement” or “Gingival overgrowth” are the terms used to describe drug induced gingival lesions previously known as *gingival hyperplasia* or *gingival hypertrophy*. Drugs associated with gingival overgrowth can be categorized broadly into three major groups namely anticonvulsants, calcium channel blockers and immunosuppressants. Although the pharmacologic effect all these drugs is different and directed towards various primary target tissues, all of them seem to act similarly on a secondary target tissue, the gingival connective tissue.¹

Phenytoin (5-diphenylphenytoin) has been used to control seizure disorders in patients with epilepsy since its clinical introduction by Merritt and Putnam in 1938.² Gingival enlargement occurs in 50% of patients receiving phenytoin, although different authors have reported incidences from 3% to 84.5%.³⁻⁶

The enlargement usually begins at the interdental papillae and is frequently seen in the anterior labial segments.⁷ Gradually gingival lobulations are formed that appear fibrotic or inflamed depending on the degree of local factors present. The fibrotic enlargements are usually

confined to the attached gingiva but may extend coronally and interfere with speech, esthetics and mastication. This case report describes the step wise management of a case of phenytoin induced gingival enlargement.

CASE REPORT

A 35 year old lady reported with massive gingival enlargement that covered almost her entire teeth making it difficult for her to masticate, speak and maintain basic oral hygiene. (Figure 1) She complained of a dull, gnawing pain in her gums and a fetid odour from her mouth.

Her medical history revealed that she was taking phenytoin for treatment of epilepsy (100mg BID) since the age of 20. Complete hemogram results were normal.

The gingival tissues appeared firm, pale pink, fibrotic with pronounced stippling. (Figure 2,3). An orthopantomograph revealed no underlying bone loss. Root pieces were present in the posterior sextants. Pseudo pockets were present in the maxillary and mandibular anterior sextants.

Based on the medical history and periodontal examination, a diagnosis of Drug Induced Gingival Enlargement was made.

With the physicians consent, after titration of the dose of phenytoin, gabapentin was prescribed as a substitute.

Surgical management: Since the patient had no systemic history that would contraindicate the surgical procedure, gingivectomy was planned. Local anaesthesia was administered in the maxillary anterior segment. With a pocket marker, pockets were marked on the external surface of the gingiva. The series of bleeding points obtained with pocket marking served as a guideline for the initial external bevel incision. This incision was accomplished using a No.15 blade. This was followed by a sulcular incision and the collar of enlarged tissue was excised using currettes. Gingivoplasty was then carried out using a No.15 blade and surgical scissors. (Figure 4) Meticulous scaling and root planing was carried out and a periodontal dressing (Coe Pak, GC America, Inc.) was placed. Similar procedure was carried out in the mandibular anterior segment. (Figure 5, 6)

In the posterior segments all root pieces were extracted and alveoloplasty was carried out. **Post Operative Care:** The following postoperative instructions were given: for the first 24 hours, only liquids, semisolids or soft foods to be consumed, avoid hotfoods and/or liquids, and apply ice intermittently externally over the operated area. Do not brush over the periodontal pack. Use chlorhexidine oral rinse (as prescribed) and do not rinse vigorously on the first day.

The patient was prescribed an antibiotic (amoxicillin 500 mg TID for 5 days) and anti-inflammatory analgesic drugs (ibuprofen 400 mg and paracetamol 325 mg TID after meals for 3 days).

After one week the healing was uneventful. After 3 months, there was no recurrence of the enlargement, the tissues appeared pink and healthy and patient was satisfied with the esthetic outcome. (Figure 7). After 6 months, patient reported no recurrence. (Figure 8) The patient was further referred for restorative and prosthetic treatment.



Figure 1: Preoperative view



Figure 2: Preoperative view



Figure 3: Preoperative view



Figure 4: Gingivoplasty in maxillary anterior segment



Figure 5: External bevel incision for mandibular region



Figure 6: Gingivoplasia in mandibular anterior segment



Figure 8: Six months postoperative view



Figure 7: Three months postoperative view

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| TYPE 1 | Non- inflammatory hyperplasia. Substitution of phenytoin with another anti- epileptic drug is the only method of eliminating this hyperplasia. Subsequent to substitution, the enlargement disappears after a few months. |
| TYPE 2 | Chronic inflammatory enlargement not related to phenytoin use. This enlargement is caused entirely by local irritants, and resembles inflammatory enlargement in patients not receiving phenytoin. |
| TYPE 3 | Combined enlargement. This is a combination of hyperplasia caused by phenytoin and inflammation by local irritation |

DISCUSSION

Gingival enlargement is a common side effect among patients under phenytoin therapy. It usually develops in susceptible individuals at usually within 1 to 3 months of starting the medication.⁸ However, gingival enlargement does not occur in all patients under phenytoin, if it occurs, it can be classified as stated in table I.⁹

A 3-month interval for periodontal maintenance therapy has been recommended for patients taking drugs associated with gingival enlargement.¹⁰ The most effective treatment of drug related gingival enlargement is substitution of medication.¹¹ Substitution of the drug should be done in conjunction with the patient’s physician. Proper personal oral hygiene and professional maintenance said to have a major role in minimizing gingival overgrowth among patients who are under phenytoin.¹⁰ In some patients, gingival enlargement may persist after drug substitution attempts and good plaque control. These cases need to be treated either by gingivectomy or a periodontal flap.

The procedure to be opted for surgical treatment depends upon various factors like the amount of keratinized tissue, presence of underlying osseous defects, position of the base

of the pockets in relation to existing mucogingival junction. According to Camargo PM et al.¹² the need for flap surgery or gingivectomy can be determined based of certain rules. Gingivectomy is indicated in cases where, small areas (≤ 6 teeth) presenting with drug-induced gingival enlargement (there is no evidence of attachment loss and therefore no anticipated need to perform osseous surgery). But ideally, there should be at least 3 mm of keratinized tissue in the apico-coronal direction remain after the surgical procedure. Whereas periodontal flap is indicated in cases involving larger areas of gingival enlargement (> 6 teeth), or areas where attachment loss combined with osseous defects is present. In the present case, there were no underlying osseous defects, sufficient keratinized tissue and presence of only pseudo pockets, therefore gingivectomy was performed.

Recurrence of drug-induced gingival enlargement is very common in surgically treated cases.¹³ It can occur as early 3-6 months but usually surgical results can be maintained for at least 12 months.¹² The degree of recurrence can be reduced by implementing meticulous home care, chlorhexidine gluconate rinses, and professional cleaning.

In the present case, a 3 month follow up showed no recurrence of the enlargement.

CONCLUSION

A step wise approach inclusive of physician consultation, non surgical therapy, surgical periodontal therapy followed by supportive periodontal therapy is essential for management of cases with drug induced enlargement.

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