

# Phenytoin Induced Gingival Enlargement and Its Management- A Case Report

Pragya Singh<sup>1</sup>, Nitin Tomar<sup>1</sup>, Mayur Kaushik<sup>1</sup>, Sameer Ahmad<sup>1</sup>

<sup>1</sup>*Department of Periodontology, Subharti Dental College and Hospital, Meerut, UP*

## Abstract

**Background:** Gingival enlargement is associated with multiple factors including congenital diseases, hormonal disturbances, poor oral hygiene condition, inflammation, neoplastic conditions, and adverse drug reactions including anticonvulsants, calcium channel blockers, and immunosuppressants. This can have a deleterious effect on the quality of life and also on high oral bacterial load caused by plaque-retentive areas. **Method:** Various treatment modalities include both surgical (gingivectomy, periodontal flap, electrosurgery, and laser excision) and nonsurgical approaches (oral hygiene measures, oral prophylaxis, discontinuation of the drug, or the replacement of the drug with other alternative). **Conclusion:** Surgical intervention is required when non-surgical treatment fails to resolve the problem. Proper maintenance phase should be followed for better esthetic outcome along with drug replacement.

**Keywords:** *Drugs, Gingival enlargement, Electrosurgery, Surgical approach,*

## Introduction

Gingival enlargement (gingival hyperplasia or gingival hypertrophy) is characterized by enlarged gingival tissue with lobulated appearance that gradually extends along the labial, lingual, and coronal aspects to cover the entire anatomic crown of teeth. It may be associated with pain and bleeding gums, and in advanced cases they may cause interference with speech, mastication, and aesthetics.<sup>1</sup>

Drug-influenced gingival enlargement is defined as “an overgrowth or increase in size of the gingiva resulting in whole or in part from systemic drug use: as stated by American Academy of Perioxontology. Drugs that are associated with gingival enlargement

are antiepileptics (phenytoin), immunosuppressants (cyclosporine), and calcium channel blockers (nifedipine and verapamil), among which phenytoin is the most common drug which is associated with gingival enlargement. The aim of this case report is to treat gingival enlargement in both upper and lower jaw due to phenytoin with combined nonsurgical as well as by surgical approach.

## Case Report

A 20-years old male patient came to the out-patient department (OPD) of department of periodontology, Subharti Dental College and Hospital, Meerut, U.P , with a chief complaint of swollen and bleeding gums since 3 years. Patient gave history of epilepsy, which was diagnosed

at the age of 14 years and he was on medication, phenytoin 100mg bd since then. Patient first noticed changes in the gingiva after 2 years of starting of medication but did not pay much attention to it. When the enlargement of gingiva increases and he developed pain, bleeding gums along with difficulty in mastication, than he reported to hospital for treatment. He had reportedly not received any dental treatment. On intra oral examination, generalized fibrotic gingival enlargement was seen in both upper and lower jaw. Gingiva was inflamed, reddish-pink in colour with irregular margins. The interdental papillae were scalloped, giving lobulated appearance.

Oral hygiene condition revealed abundant plaque and calculus deposits, and generalized bleeding on probing was present. On the basis of medical history and intra oral examination, provisional diagnosis of phenytoin-induced gingival enlargement was made. Complete blood analysis were within the normal limit and Orthopantomogram revealed no bony changes. With the help of non-surgical approach all local factors were removed and afterwards gingivectomy was advised along with the physician consultation for alternate drug regimen for the treatment of disease.

With the consent of the patient and his physician, complete oral prophylaxis was performed and 0.2% chlorhexidine mouthwash (10mL bid for 7 days) was prescribed to the patient [Figure 1- 2]. The patient

was instructed to maintain good oral hygiene, and proper brushing techniques were explained to him. He was reviewed after 15 days, revealing some reduction of the gingival enlargement, particularly in the lower arch. After that, surgical intervention, that is, gingivectomy, was performed to eliminate excessive gingival tissue.

### **Surgical Procedure**

Following administration of local anesthesia and intraoral disinfection with 0.12% chlorhexidine gluconate mouth rinses, a periodontal probe was used to outline the incision for gingival enlargement. The incision line was marked with the sharp tip needle electrocautery all the way down to the base of the enlarged gingival tissue, at a level of 45° angle. A light and gentle stroke was used to guide the electrode while performing the incision. Initially shallow cuts were made on the gingiva with pocket marker prior to refining the incision. The remnants of soft tissue tags of gingival tissue from interdental areas were removed by using sharp surgical and periodontal curettes (Gracey curettes) [Figure 3-4]. The patients were prescribed antibiotics and analgesics for 5 days. Postsurgical care was followed by a regular 0.12% chlorhexidine rinses twice daily for 2 weeks. Patient was recalled after 15 days, 1 month and 3 months for follow up visits [Figure 5].



*PRE-OPERATIVE*  
*(Figure-1)*



*AFTER PHASE 1 THERAPY*  
*(Figure-2)*



*WITH ELECTROSURGERY*  
*(Figure-3)*



*IMMEDIATE POST-OPERATIVE*  
*(Figure-4)*



*POST-OPERATIVE AFTER 3 MONTHS*  
*(Figure-5)*



## Discussion

Gingival hyperplasia is a frequent feature of gingival diseases.<sup>3</sup> Gingival overgrowth is a fibrotic enlargement of the gingiva that can be caused by a variety of etiological factors. The enlargement may be aggravated by dental plaque and, sometimes, associated with other systemic diseases or occur as a side effect of systemic medications.<sup>4</sup> Kimball in 1939 reported the first case of phenytoin-induced gingival enlargement.<sup>5</sup> Phenytoin-induced gingival enlargement is a problem which is faced widely by the individuals under phenytoin therapy for the treatment of epilepsy. The effective control of this problem includes drug substitution, removal of other local factors such as plaque and calculus.<sup>6</sup> Various pathogenic mechanisms responsible for phenytoin-associated gingival enlargement have been described. Vernillo and Schwartz<sup>7</sup> reported the effect of phenytoin on human gingival fibroblasts in tissue culture. Phenytoin may be metabolized by gingival fibroblasts, which may determine the susceptibility of the patient to phenytoin-induced gingival enlargement, thereby suggesting a positive relationship between the dose of phenytoin and severity of the overgrowth.<sup>8</sup> Appropriate local therapeutic intervention is essential to prevent attachment loss and destruction of periodontal tissue, dealing with gingivitis and gingival enlargement.<sup>9</sup> Electrosurgery can be used as an alternative to conventional surgery in gingivectomy and gingivoplasty procedures.<sup>10</sup> In the present case report drug induced gingival enlargement was present in relation to maxillary and mandibular front tooth region causing esthetics problem in the patient. After non-surgical therapy, persistence of the fibrotic component was there which was then

managed by surgical therapy i.e. with the help of electrosurgery.

## Conclusion

Drug induced gingival enlargement is caused by unwanted effects of systemic medication on the periodontal tissues. For an effective control of this problem, proper treatment protocol would be necessary, which includes drug substitution and control of local inflammatory factors through nonsurgical intervention. So, surgical procedure is necessary when this sequence of treatment fails to resolve the problem. Proper maintenance phase should be followed for better esthetic outcome.

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**Ethical Clearance** –Approved by senior authority and a consent form was signed by the patient.

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