

# Phenytoin Induced Gingival Enlargement: A Case Report

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## A B S T R A C T

**Introduction:** Gingival enlargement is mainly caused by local conditions, certain medications and systemic factors. Enlargement is seen more consistently with local irritants, anticonvulsants and calcium channel blockers therapy, immunosuppressive medications and pregnancy. Anticonvulsants drugs mainly phenytoin induced gingival enlargement affects at least 40-50% of patients.

**Case Report:** A 18 year old male epileptic patient who was suffering from phenytoin induced gingival enlargement. Routine blood test came within the normal limit and no bony changes were seen in OPG.

**Conclusion:** Gingival enlargement is the most common adverse drug effect in the young adults and children receiving phenytoin as antiepileptic drug therapy. Every case of gingival enlargement should be treated in a stepwise manner inclusive of consultation with patient's physician

**Keywords:** Gingiva, gingival enlargement, anti convulsant drugs, phenytoin

## Introduction

Gingival enlargement or gingival overgrowth are the current terms for all medication-related gingival lesions, previously known as gingival hyperplasia or gingival hypertrophy.<sup>1,2</sup> The 1<sup>st</sup> drug induced gingival enlargement reported were those produced by phenytoin (Dilantin).<sup>1</sup> Gingival enlargement is usually caused by various factors which are like poor oral hygiene, food impaction or mouth breathing. Systemic conditions such as hormonal changes, drug therapy or tumor infiltrates may cause complications of the process or may enhance the development of unfavorable local conditions that lead to food impaction and difficulty with oral hygiene.<sup>2,3</sup> Gingival enlargements may be associated with a wide variety of local and various systemic conditions. Gingival enlargement is seen more consistently with some of the factors, local irritants; therapy with anticonvulsants, calcium channel blockers and immunosuppressive medications; pregnancy. Phenytoin induced gingival enlargement affects at least 40-50% of patients who use the drug for longer than 3 months.<sup>1,2</sup> More severe effects may not develop until after several years of continued use.

## Case Report

A 18 year old male patient reported to the Dept of Oral Medicine and Radiology with the chief complaint of overgrowth of gums from last three months. Patient gave the history of sudden increase in gum growth which was painful and patient was unable to eat. Patient was known

case of seizure disorder from last 10 years and started taking medication (Phenytoin 100mg/TDS) five months back. Upon oral examination there was generalized fibrotic gingival enlargement seen in upper and lower jaw. Gingival enlargement was up to the coronal 1/3 of teeth in both of upper and lower jaw till 1<sup>st</sup> molars. Crowding was present in lower anterior teeth. Gingiva was inflamed; pinkish red in color with irregular margins (Fig-1). Bleeding on probing with scalloping of the interdental gingival was present. Local accumulation of calculus was present even though the overall oral mucosa was healthy. Based on medical history and local examination provisional diagnosis was given as Phenytoin induced gingival enlargement. Routine blood test came within the normal limit and no bony changes were seen in OPG. All local irritants were removed and gingivectomy was advised along with the physician consultation for alternate drug regime.

## Discussion

Gingival enlargement (GE) is an abnormal growth of the periodontal tissue. Several cause of gingival enlargement is known, and the most recognized is drug induced gingival enlargement. Among the cause for drug induced GE, phenytoin is the most common agent.<sup>3,4</sup> Factors that affect the presence of GE may include gender with males being three times more likely to develop the overgrowth than females. Children and adults younger than 30 years of age are more susceptible.<sup>1,3,5</sup> Roughly 50% of the patients on phenytoin therapy develop the adverse drug reaction



**Figure-1:** Fibrotic gingival enlargement in upper and lower arches

(ADR) within 1 year of terminating the drug therapy and is probably the most common ADR in children and young adults phenytoin.<sup>3,4</sup> The adverse effect of phenytoin depend on the duration of exposure, and the dosage. There is no clear correlation of the plasma concentration with GE. The other risk factors are poor oral hygiene, poor socioeconomic class and poor educational status. Dental plaque acts as a reservoir for accumulation of drug and is commonly associated with this condition. The local risk factors are mal positioned teeth, gingivitis and mouth breathing. Physical irritants like orthodontic appliances, implants, filling also play role in the causation of this ADR.<sup>3,6</sup>

The pathogenesis of phenytoin induced gingival enlargement is multifactorial. The fundamental disturbance occurs in the gingival fibroblast. The inflammatory changes that occur within the gingival tissues seem to orchestrate the interaction between the drug and fibroblast.<sup>4,5</sup> Phenytoin and its metabolites have a direct action on the high activity fibroblast population present in the gingival leading to a subsequent increase in collagen production. The gingival fibroblasts can also metabolise phenytoin and this may determine the susceptibility of the patient to phenytoin induced GE. A positive relationship exists between the dose of phenytoin and severity of the overgrowth.<sup>4,7,8</sup>

Presence of drug induced gingival enlargement is associated with pseudo-pocket formation.<sup>1,9,10</sup> Although the treatment of gingival overgrowth can be complicated due to the intense inflammation of the fibrotic tissue.<sup>5,9,10</sup> Therefore the possibility of periodontitis to develop due to plaque accumulation exists.<sup>3,8,9</sup> The most effective treatment of drug induced GE is substitution of medication, which should be done in conjunction with patient's physician.<sup>1</sup> Professional debridement with scaling and root planning has been shown to offer some relief in gingival enlargement patients.<sup>1,10</sup>

Recurrence of drug induced GE is a reality in surgically treated cases. Meticulous home care, chlorhexidine gluconate rinses and professional cleaning can decrease the rate and degree at which recurrence occurs.<sup>1,10</sup>

## Conclusion

Gingival enlargement is the most common adverse drug effect in the young adults and children receiving phenytoin as antiepileptic drug therapy. Every case of gingival enlargement should be treated in a stepwise manner inclusive of consultation with patient's physician, substitution of the drug, non-surgical and surgical therapy. Additionally the encouragement and maintenance of proper periodontal hygiene has an important and decisive role in its prevention.

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