



CASE REPORT

Journal Section

Drug Induced Gingival Enlargement: Non-Surgical Management

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1 | INTRODUCTION

In clinical terms, gingival overgrowth (GO) is characterized by a thickening of the gingiva. Medication related GO or gingival hyperplasia is termed as gingival enlargement usually associated with aberrant growth of periodontal tissue.¹ This condition causes occlusal and periodontal issues in addition to aesthetic alterations (tooth movement) and clinical issues (pain, soreness, bleeding, and speech impairments).² Kimball et al. published the first study on drug-induced gingival enlargement (DIGE) associated with long-term phenytoin use as an anti-

Abstract

Gingival overgrowth was a side effect of several different drug classes, including anticonvulsants, immunosuppressants, and calcium channel blockers. Extracellular collagenous matrix components accumulate together with varying degrees of inflammation to describe it. The anti-epileptic phenytoin is one of the main medications linked to gingival overgrowth. It affects gingival tissues by changing the metabolism of extracellular matrix. This paper aims to present a case report on non-surgical management of phenytoin drug induced gingival enlargement.

KEYWORDS

Phenytoin; Gingival Overgrowth; Antiepileptic Drug; Epilepsy; Case report

epileptic medicine (AED) in 1939.³ Later on it is supported by Faurby et al.⁴, Streaan et al.⁵. Epilepsy is the most prevalent neurological condition, with prevalence rates of 1% in wealthy countries and 2% in poor nations. Phenytoin remains one of the most commonly prescribed drug in epilepsy and also in neuralgias and cardiac arrhythmia cases. 30-50% cases shown gingival alteration due to the usage of phenytoin.⁶ Although there are fewer recorded cases, other anticonvulsants such valproic acid, carbamazepine, phenobarbital, and vigabatrin have also been linked to GO.

The onset of excessive gingival growth can happen after the first month of therapy with medications like phenytoin, although it typically doesn't happen until three months following the start of therapy. Usually, the lip and the surfaces of the mandibular anteriors are the first

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places where the gingival tissues begin to expand. Clinically, the interdental papillae are where the gingival tissues first begin to expand and subsequently enlarge. The disease then spreads more laterally to fuse together adjacent papillae.⁷ The pathogenesis behind this enlargement is multi-factorial. The drug affects the gingival fibroblast and an inflammatory change occurs in the gingival tissue. It enhances the collagen production leading to enlargement of gingival tissue.⁸ Depending on the situation, a surgical or non-surgical method to treatment may be required. The desire to practice better oral hygiene can lessen pharmacological adverse effects and potentially the necessity for surgical intervention. In these situations, lowering the dosage and shifting to a different medication with a physician's advice is advised. Therefore, patient, doctor, and dentist teamwork and cooperation is crucial to managing drug-induced GOs.

2 | CASE PRESENTATION

A 35-year-old male patient presented with gingival inflammation and bleeding on toothbrushing at the Department of Periodontics, Nair Hospital Dental College, Mumbai. He had a history of 10 minute generalized tonic-clonic seizures during which he became unconscious. He used anti-epileptic medications and had a ten-year history of epilepsy. But as in the past three months, he has been taking phenytoin 100 mg tablets twice daily. After a thorough examination during his stay, it was discovered that the patient had a GO on his teeth. Drug-induced gingival hyperplasia was the identified condition [Fig.1,2,3]. Blood test results showed a hemoglobin (Hb) level of 11.5 gm/dl, a total count (TC) of 13,000 cells/mm³, a random blood sugar (RBS) level of 102 mg/dl, and a urea level of 17 mg/dl. On intraoral examination, the upper and lower anterior regions displayed generalized pseudopockets, mild edema, bleeding on probing.

Outcome and followup

Based on clinical examination and history, a diagnosis of drug induced gingival enlargement was made. Consent was taken with the physician regarding substitution of drug. According to physician's advice, the patient was told to discontinue the usage of phenytoin drug. Phenytoin toxicity was treated by giving the patient 500 mg of folic acid once a day, along with other medications such

Tab. levetiracetam 500 mg twice a day and Tab. sodium valproate 200 mg twice a day to treat the epileptic condition. In addition to changing medications, the patient underwent root planing and full mouth scaling. It was recommended that teeth 32 and 42, which had a poor prognosis, be extracted. Instructions on proper oral hygiene were provided and 0.2% chlorhexidine mouthwash (10 ml twice daily) was recommended. Patient was kept on supportive periodontal therapy and re-examined after 15 days, 1 month, 3 months, and 6 months. Because of regular maintenance level of plaque and calculus was reduced and subsequent reduction of bleeding on probing seen. Clinically significant changes seen over gingiva [Fig. 4,5]. Missing teeth (due to poor periodontal condition) were replaced by removable partial denture[Fig. 6].

3 | DISCUSSION

The phrase "gingival enlargement" is now used to characterize the widespread reactive phenomena known as gingival hyperplasia or GO caused by the administration of several therapeutic drugs, including AEDs.² Since 1939, not long after phenytoin was first developed, this condition has been acknowledged. Multiple variables, including as inflammatory (acute and chronic), idiopathic, drug-induced, neoplastic (benign and malignant tumors), hormonal changes, ascorbic acid (vitamin C) deficiency, and tooth eruption are linked to gingival enlargement.³ Priyadarshini et al.¹⁰ evaluated the multidisciplinary care and prevention of GO, as well as the etiology and pathophysiology of AEDs related with it.

Despite notable improvements in epilepsy treatment over the past ten years, the AED phenytoin is still the medication of choice for treating epileptic patients. phenytoin is effective for cortical focal epilepsy, generalized, complicated, and partial epilepsy. Following oral administration, it is only partially and slowly absorbed in the intestine. Anti-acids in particular reduce the intestinal absorption of phenytoin.

Gingival enlargement is a well known consequences of certain group drugs namely anticonvulsant (50%), immunosuppressants (30%), and calcium channel blockers (20%).¹¹ Due to differences in reported prevalence rates it is difficult to determine the accuracy of prevalence of case in each drug category. In many literature, it was

found that phenytoin was the main causative agent for GO.^{12,13}

Treatment options for mild phenytoin intoxication include symptomatic relief and possible recovery. Delayed phenytoin discontinuation causes GO to reach its peak, necessitating gingivectomy as a surgical option for the patient. In the present case scenario, plaque and calculus on the local level are the main etiological factors, and medication use changes how tissues react to these irritants. There would be minimal or no expansion if local aggravating elements (plaque and calculus) weren't present. Clinically significant changes observed around each follow up visit which decreases the chances of surgical treatment approach.

All clinical results also improved when the patient improved his oral hygiene routine, eliminating the need for surgery. However, the patient was recalled for a short interval of time (15 days, 1 month, 3 months, 6 months) in order to check both oral health and illness status. Follow-up lasted for a full six months. Following a six-month checkup, the gingiva's consistency appeared firm and resilient with diminished inflammation, allowing for the continuation of missing tooth replacement.

4 | CONCLUSION

A patient, doctor, and dentist should work together to treat a patient with drug-induced gingival enlargement. The importance of good dental hygiene should be discussed with the patient. In order to evaluate the state of oral hygiene, recall visits should be spaced out by no more than 15 days to 1 month.

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Nil

Conflict of interest

The authors have no conflicts of interest to declare.

Supporting Information

Additional supporting information may be found at the journal's website.

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FIGURE 1 Frontal View: Bead shaped fibrotic GO seen



FIGURE 2 Lateral View-Right side



FIGURE 3 Lateral view-Left side



FIGURE 4 Frontal view: Reduced local factors, bleeding on probing negative, clinically significant healthy gingival Findings



FIGURE 5 Lateral View: Reduced GO seen.



FIGURE 6 Missing teeth replaced with removable partial denture.