

CASE REPORT ON PHENYTOIN-INDUCED IATROGENIC GINGIVAL HYPERPLASIA**LAKSHMI NARASIMHA GUNTURU***

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ABSTRACT

Phenytoin is a diphenylhydantoin which is mostly used in the treatment of epilepsies and arrhythmias. Chronic usage of phenytoin leads to a number of undesirable effects. Most of the adverse effects associated with phenytoin are hirsutism, gingival hyperplasia, osteomalacia, cleft lip, and hypoplastic phalanges. Gingival hyperplasia is an increase in the number of cells or an increase in the size of gingiva is observed due to a defect in collagen metabolism. Here, we report a case of a 20-year-old male patient who was diagnosed with gingival hyperplasia due to the prolonged use of phenytoin for 3 months. The patient's condition was improved after the withdrawal of phenytoin and other antiepileptic drugs were recommended for his treatment.

Keywords: Phenytoin, Gingival hyperplasia, Antiepileptic, Collagen metabolism.

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INTRODUCTION

Phenytoin is a drug of choice to treat generalized tonic-clonic seizures. The first report of gingival overgrowth associated with the chronic use of phenytoin was reported in 1939 by Kimball [1]. Gingival overgrowth occurs as a side effect of some systemic medications and it is now well known that phenytoin is one such agent. The incidence rate of phenytoin-induced gingiva hyperplasia ranges from 3% to 93%, but 50% of patients on long-term therapy tend to develop gingival overgrowth. This drug-induced overgrowth is noticed initially in the papillary region and also involves the margins and gingival attachments. The color of infected gums ranges from pink to deep bluish-red depending on the amount of inflammation and leads to bleeding. The observation of gum hyperplasia is seen in 2–3 months and takes 12–18 months to attain its maximum severity [2]. This condition is mainly due to the accumulation of collagen fibers due to the defect in collagen metabolism [3]. This case report spotlights the anticonvulsant drug phenytoin-related adverse effect.

CASE REPORT

A 20-year-old male was admitted to Government General Hospital, Kadapa, with complaints of seizures which are generalized tonic-clonic lasting for 10 min and loss of the history of consciousness during the episodes. He had a history of epilepsy for 5 years and using anti-epileptic drugs. However, recently from the past 3 months, he is taking the phenytoin 100 mg tablets twice a day. During his admission after a clear examination, it was found that the patient developed a gingival overgrowth on his teeth and physician dechallenged phenytoin. The condition was diagnosed as drug-induced gingival hyperplasia (Fig. 1). Laboratory investigations include hemoglobin (Hb) – 11.5 gm/dl, total count (TC) – 13,000 cells/mm³, random blood sugar (RBS) – 102 mg/dl, and urea – 17 mg/dl. Magnetic resonance imaging (MRI) of the brain reveals mild gliotic changes and diffuses cerebellar atrophy. Clinical history reveals that seizures with cerebrovascular accident.

Outcome and follow-up

After suspecting the condition, the patient was advised to stop phenytoin and treated the phenytoin toxicity by prescribing folic acid tablets 500 mg once a day and prescribed other drugs such as Tab. levetiracetam 500 mg twice a day and Tab. sodium valproate 200 mg

twice a day to treat the epileptic condition. After 1 week of treatment with folic acid tablets, the patient showed significant improvement in his condition and was discharged.

DISCUSSION

Gingival overgrowth was observed after the patient started taking the phenytoin treatment. Then, after the withdrawal of the phenytoin gingival overgrowth was slowly normalized and the patient is prescribed with new drugs to treat epilepsy. In many literature evidence, it was observed that phenytoin was the main causative agent for gingival overgrowth [4]. Usually, the overgrowth takes 2–3 months for appearing and takes 12–18 months for reaching the maximum overgrowth [5]. This is the same in our case report that the patient is using the drug for 3 months. This toxicity is considered a dose-dependent manner and can be labeled as a type-A class of adverse effect. Mild phenytoin toxicity can be treated symptomatically and can be reversible. Delay in discontinuing of phenytoin leads to reach the gingival overgrowth to its maximum level and the patient should opt for gingivectomy a type of surgical procedure [6]. Degradation of collagen fibers, especially type I

**Fig. 1: Revealing gingival overgrowth**

collagen, resulting in the excess accumulation of collagen fibers in gums and causes gingival hyperplasia [7].

CONCLUSION

Adverse drug reactions are needed to be monitored and are managed in general wards to establish successful treatment and to reduce the unwanted effects. This can be successfully achieved by providing proper patient counseling to patients regarding their medications and early withdrawal of the causative agent to prevent the progression of the reaction.

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AUTHORS' CONTRIBUTIONS

Mr. Lakshmi Narasimha Gunturu was involved in the data collection, organizing of data, preparation, reviewing, and editing of the manuscript.

CONFLICTS OF INTEREST

The author declares no conflicts of interest.

AUTHORS' FUNDING

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PATIENT CONSENT

Yes.

ETHICAL STATEMENT

Ethical approval was not applicable for case report in our institution.

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