

## CASE REPORTS

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### **A Systemic Review on Adverse Effects Precipitated by Phenytoin and Its Management**

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#### **ABSTRACT**

The incidence rate of phenytoin-induced gingival overgrowth varies from 3% to 93 percent, however gingival overgrowth affects 50% of patients on long-term treatment. It takes 2–3 months for the overgrowth to become evident, and 12–18 months for it to reach its maximum severity. Partial relief is frequently achieved by lowering the dose or substituting an appropriate medicine of complete regression of the lesion and can be considered after a physician consult. The case study discusses on the appearance of phenytoin-induced gingival overgrowth in a patient on phenytoin.

**Key word:** Phenytoin, Gingival overgrowth, seizures, side effect,

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#### **INTRODUCTION**

Gingival overgrowth occurs as a side effect of some systemic medications. It is now well established that phenytoin is one such agent. It has multiple therapeutic indication ranging from convulsive disorder and neuralgias to cardiac arrhythmia. The incidence rate of phenytoin-induced gingival overgrowth varies from 3% to 93 percent, however gingival overgrowth affects 50% of patients on long-

term treatment. This drug-induced overgrowth begins in the papillary region and progresses to the margins and gingival attachment. As the tissue grows larger, it takes on a distinctive lobulated and thicker appearance, partially or totally covering This drug-induced overgrowth begins in the papillary region and progresses to the margins and gingival attachment. As the tissue grows larger, it takes on a distinctive lobulated and thicker appearance, partially or totally covering the tooth

surfaces. It takes 2–3 months for the overgrowth to become evident, and 12–18 months for it to reach its maximum severity.

Phenytoin is a hydantoin derivative, a first-generation anti-convulsant drug that is effective in the treatment of generalized tonic-clonic seizures, complex partial seizures, and status epilepticus without significantly impairing neurological function.

Phenytoin works by blockade of voltage-dependent membrane sodium channels responsible for increasing the action potential. Through this action, it obstructs the positive feedback that sustains high-frequency repetitive firing, thus preventing the spread of the seizure focal point (2,3,4). Several mechanisms are involved in the development of gingival overgrowth. Phenytoin induces a decrease in the  $Ca^{2+}$  cell influx leading to a reduction in the uptake of folic acid, thus limiting the production of active collagenase (5).

#### CASE STUDY:

A 57 year old female patient was admitted with the complaints of seizure disorder. She had a medical history of seizures for past 20 years and on regular medication. The patient was awake and oriented during the examination. When compared to posterior teeth, anterior teeth are more typically implicated, with more involvement on the buccal surface. The dose of phenytoin and the degree of the overgrowth have a favourable association.

#### CONCLUSION

Identification of patients at risk is crucial to adopt measures to minimize the onset and severity. Dental experts can encourage patients to practise better oral hygiene habits, which can diminish the side effects and even reduce the likelihood of surgical intervention. Partial relief is frequently achieved by lowering the dose or substituting an appropriate medicine of complete regression of the lesion and can be considered after a physician consult. Surgical gingival excision would be indicated for significant enlargements.

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