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Case Report

# A Case of Epilepsy Presented with Phenytoin Toxicity

**Pankaj Akholkar[1], Hitesh Kumar[2], Meera Patel[3], Yash Mandavia[4], Pritesh Patel[5], Naresh Rathod[6], Parth Jani[7]**

[1]Associate Professor, GMCB
[2]Resident Doctor, GMCB
[3]Resident Doctor, GMCB
[4]Resident Doctor, GMCB
[5]Resident Doctor, GMCB
[6]Resident Doctor, GMCB
[7]Senior Resident, GMCB

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**Corresponding Author: Dr. Parth Jani**
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**Abstract**

Epilepsy is a common neurological disorder. The main goal of treatment is to achieve seizure control without adverse effects. Phenytoin is a widely prescribed drug in treatment of epilepsy due to its low cost and easy availability. It has well-documented safety and efficacy profile. The toxic effects of chronic therapy of phenytoin may present with wide variety of clinical features from minor gum hypertrophy to central and cardiovascular system involvement. Here we report a case of 21-year-old male presenting with complain of difficulty in walking since 2 months with multiple fall downs without any history of trauma, fever, headache, loss of consciousness, hearing loss, vertigo, tinnitus. Patient was a known case of epilepsy taking phenytoin since last 10 years. Patient was investigated and phenytoin toxicity was diagnosed, and treatment was given accordingly. Patient improved with treatment and discharged with regular follow up.

**Keywords:** Phenytoin, Ataxia, epilepsy.



## Introduction

Phenytoin, a hydantoin derivative (5, 5-diphenylhydantoin) is a choice of drug for the treatment of seizures.

Phenytoin acts by inhibiting the voltage-gated sodium channels, present on the neuronal cell membranes thus inhibiting the insistent firing of neurons thus controlling all type of seizures like tonic clonic and complex partial seizures, except absence seizures. Due to its high lipophilic nature, it causes more frequent Central nervous system (CNS) related adverse drug reactions (ADR) such as muscle spasms, sedation, nystagmus, ataxia, psychosis and disturbances in the vision [5].

Non-CNS related ADR of phenytoin includes gum hypertrophy, decrease in haemoglobin count, hypersensitivity syndrome, reduced serum folic acid levels [6]. The wide pharmacokinetic variability and low toxicity threshold of phenytoin can often result in its toxicity [7].

Normal therapeutic level is from 10mcg/ml to 20mcg/ml [8]. Toxicity can be reversed by withdrawing or reducing the dose of phenytoin [9]. There is no antidote.

## Case Study

A 21 years male presented with complain of progressive difficulty in walking since 2 months with recurrent falls without any traumatic event, fever, loss of consciousness, any focal deficit, ear discharge, vertigo, tinnitus, headache. Patient was a known case of epilepsy since childhood with no comorbidity and addiction, on phenytoin medication. He is a full-term child with normal delivery having history of febrile seizures till 5 years of age. Seizures variety was generalized tonic clonic seizures controlled with phenytoin. Patient was admitted and investigated.

## Vitals

Patient was vitally stable. Temperature normal, Pulse rate-110bpm, Blood pressure-122/80 mmhg, RS- BLAE+ CLEAR, Conscious and oriented to time, place, person. On central nervous system examination higher mental functions were normal, cranial nerve examination normal, no hearing loss, no vertigo, no tinnitus, Romberg negative, gaze evoked nystagmus present, ataxic gait, past pointing present bilaterally, lack of finger nose coordination,

impaired heel shin test. No gum hypertrophy, dystonia, myoclonus, abnormal movements. Rest systemic examination was normal.

**Laboratory Investigations**

HB-9 g/dl, TLC-5000/cumm, Platelet count-3Lac/cumm, Bleeding Time-4 minutes, Clotting Time-2 minutes, ESR-6, Creatinine-1.2 mg/dl,

Potassium: 4 mg/dl, Sodium-140mg/dl
Liver function test -WNL
MRI Brain and Whole Spine Screening: Normal
Eeg: Normal
Serum phenytoin level: 22mcg/ml

**Outcome**

Phenytoin was stopped after tapering and replaced with valproate. Supportive care was given. Patient gait and balancing improved gradually and was discharged with regular follow up.

**Discussion**

Phenytoin is widely used by physician over the globe. As phenytoin has narrow therapeutic range it should be used with close monitoring of its serum levels and side effects to avoid toxicity in the patients of chronic drug therapy. This case alert physicians about toxic manifestations of chronic phenytoin drug therapy and need for proper monitoring of drug therapy and educating the patient for side effects and toxicity of drug for treating them appropriately.

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