



## Case Study

# Phenytoin Induced Dress - A Case Report

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### ARTICLE INFO

### ABSTRACT

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Drug reaction with eosinophilia and systemic syndrome (DRESS) is a rare, potential drug induced hypersensitivity syndrome. An anti-convulsant drug, Phenytoin is one such drug causing this syndrome. A 16 year old female who was known case of epilepsy since 3 months under Tab. Phenytoin (100mg twice daily) admitted in hospital with chief complaints of fever since 3 days and maculopapular rash severely itchy in nature all over the body since 2 days. Patient showed significant rise in liver enzymes in Liver function test (LFT). Patient was diagnosed as DRESS syndrome and Tab.Phenytoin drug was stopped. Alternative anti-convulsive drug Tab.Valproic acid (300mg twice daily) was prescribed. Patient was later managed with IV fluids, dexamethasone injection, and cetirizine tablet. After 5 days of therapy symptomatic relief was observed and patient was discharged.

**KEY WORDS:** DRESS Syndrome (Drug Reaction/Rash with Eosinophilia and Systemic

## 1. INTRODUCTION

Drug reaction with eosinophilia and systemic syndrome (DRESS) is a rare, potential drug induced hypersensitivity syndrome. It is initially manifested as hyperthermia and rashes. Also systemic involvement includes liver (80%), kidneys (40%), lungs (33%), heart (15%), or pancreas (5%). Different class of drugs inducing DRESS syndrome is mentioned in figure 1.

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**Fig 1: Drug Groups Commonly Associated With Dress**

Synonyms for dress syndrome are- HSS (Hypersensitivity syndrome), AHS (Anti-convulsing hypersensitivity syndrome), DISH (Drug induced hypersensitivity syndrome), DIDMOHS (Drug induced delayed multiorgan hypersensitivity syndrome), and Drug induced pseudolymphoma.

The following case report demonstrates the necessity of prompt recognition and initiation of appropriate therapy in preventing the potential sequelae of DRESS syndrome.

**2. CASE PRESENTATION**

A 16 year old female patient got admitted in Delux ward. Patient was known case of epilepsy since 3 months and was under Tab. Phenytoin of dose 100mg with frequency 1-0-1. Patient was apparently normal till 3 days before the day of hospitalization where she suddenly developed fever (101°F) and maculopapular rashes, which are severely itchy in nature all over the body (since 2days). Except temperature all other vitals were quite normal. Her past allergic, personnel and social history was nothing significant.

Patient showed gradual rise in eosinophils, liver enzymes during the hospital stay and all other lab investigations were shown in the table 1. With the view of clinical picture, patient was diagnosed as DRESS syndrome.

**Table 1: Laboratory investigation**

Analyte	Test	Reference
Date	25/4/2015 26/4/2015 29/4/2015	
Haemoglobin	14.5	Male:13-17gm/dl Female:12-15gm/dl

Total leucocyte count	6200	4000-11000/mm <sup>3</sup>
Direct Neutrophils	54	40-80%
leucocyte Lymphocytes	34	20-40%
count Eosinophils	8	00-06%
Monocytes	8	02-10%
Platelet count	1,70,000	1.5-4.0 Lakhs/mm <sup>3</sup>
Red Blood Cells	4.94	Male:4.5-5.5 miillion/mm <sup>3</sup> Female:3.8-4.8million/mm <sup>3</sup>

**LIVER FUNCTION TESTS**

Total bilirubin	0.5	0.5	0.0-1.0mg/dl
Direct bilirubin	0.2	0.2	0.0-0.25mg/dl
SGOT		32	0-40 IU/L
SGPT		55	0-45 IU/L
Alkaline phosphatase		176	30-170 IU/L
Total protein		6	6-8gm/dl
Albumin		3	3.5-5.5gm/dl
Globulin		8	2.3-3.6gm/dl

**3. TREATMENT**

The suspected drug phenytoin was stopped and alternative anti-convulsive drug Valproic acid (300mg BD )was prescribed. Patient was later managed with IV fluids, Inj Paracetamol 100mg SOS, Dexamethasone injection 4 mg/ml 1-0-1, Cap Clindamycin 150 mg 1-0-1, Tab Ranitidine 150 mg 1-0-1 and Tab cetirizine 10mg 1-0-0 tablet.

**4. OUTCOMES OF TREATMENT**

Fever was subsided on the fourth day of treatment and the temperature is 98.6°F. On the 6<sup>th</sup> day symptomatic relief from rashes was observed and patient was discharged.

**5. DISCUSSION**

Drug reaction with eosinophilia and systemic syndrome (DRESS) was from 1936s as cited by Criado et al <sup>1</sup>. The incidence of it ranges from 1 in 1000 to 1 in 10,000 as discussed by Dong-Hyun Kim et al <sup>2</sup>. Drugs are the main culprits for the syndrome or systemic effects. Symptoms arise atleast after the 3 weeks-3 month of the initiation of the offending drug as discussed elsewhere <sup>3</sup>. In our study, patient developed rashes after 3 months of the drug treatment. This was

in correlation with the study conducted by Lee et al where the latency period ranged from 3-105 days. The same study shows that higher incidence of DRESS was with anticonvulsive drugs (47.4%), followed by antibiotics (18.4%), nonsteroidal anti-inflammatory drugs (NSAIDs) (13.2%), allopurinol (5.2%), and undetermined agents (15.8%)<sup>4</sup>.

The pathogenesis underlying the DRESS is not exactly known. But three underlying mechanism is believed to be considered:

- 1) Deficiency or abnormality of the epoxide hydroxylase enzyme that detoxifies the metabolites of aromatic amine anticonvulsants (metabolic pathway),
- 2) Sequential reactivation of herpes virus family &
- 3) Genetic predisposition with certain human leukocyte antigen alleles<sup>1</sup>

Clinical manifestations of this syndrome include cutaneous reactions, fever, lymphadenopathies, and eosinophilia. Different organs can be involved, such as liver, kidney, heart, lung, and the central nervous system as cited by Armin et al<sup>5</sup>. Diagnosis show at least fulfil the following criteria: rashes, lymphocytosis, and involvement of the organ system as versioned by Lens et al<sup>6</sup>. In our study patient shown eosinophilia, and alteration in the liver function tests. Treatment includes according to the symptoms, usage of corticosteroids along with alteration or deletion of the causative drug. Present case patient showed complete improvement once the drug was stopped and with the help of certain other supportive measures.

## 6. CONCLUSION

We conclude that special attention to skin rash with phenytoin in the first instance should lead to suspect of DRESS syndrome and immediate withdrawal of the drug and appropriate treatment to be started.

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