

# Phenytoin Induced Dress (Drug Reaction with Eosinophilia and Systemic Symptoms Syndrome): A Case Report

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**Abstract:** *Drug reaction with eosinophilia and systemic symptoms (DRESS) syndrome, also referred to as drug-induced Hypersensitivity syndrome, is a distinct, potentially life-threatening adverse reaction. Clinical manifestations include rash, fever and visceral organ involvement, most commonly Hepatitis. The mortality rate associated with DRESS syndrome is approximately 10%, the majority due to fulminant liver. The pathogenesis of DRESS is complex and not fully understood. The syndrome develops 2 to 6 weeks after initiation of administration of a special drug. The cases in which the culprit drug is not obvious, clinicians must use their clinical judgement to select which medication to discontinue. The benefit of therapies aimed at accelerating the elimination of the causative drug deserves further studies. In the absence of well established therapy, primary and secondary prevention have a key role in the management of DRESS syndrome.*

**Keywords:** Dress syndrome, Adverse drug reaction, Management, Hypersensitivity, life threatening, rash, organ involvement, culprit drug, Therapy

## 1. Introduction

Drug reaction with eosinophilia and systemic symptoms (DRESS) syndrome, also referred to as drug-induced Hypersensitivity syndrome, is a distinct, potentially life-threatening adverse reaction. It is seen in children and adults most often as a morbilliform cutaneous eruption with fever, lymphadenopathy, hematologic abnormalities, and multiorgan manifestations (1). Drug rash with eosinophilia and systemic symptoms (DRESS) syndrome associated with anticonvulsant drug is a rare but potentially life-threatening disease that occurs in response to arene oxide producing anticonvulsant such as Phenytoin and carbamazepine(2). Clinical manifestations in rash, fever, and visceral organ involvement, most commonly Hepatitis. The mortality rate associated with DRESS syndrome is approximately 10% the majority due to fulminant liver(3). DRESS presents clinically as an extensive mucocutaneous rash, accompanied by fever, lymphadenopathy, Hepatitis, hematologic abnormalities with eosinophilia and atypical lymphocytes, and may involve other organs with eosinophilia infiltration, causing damage to several systems, especially to the kidneys, heart, lungs, and pancreas(4). The path of DRESS is complex and not fully understood: genetic deficiency of detoxifying enzymes such as epoxide hydrolase, resulting in the accumulation of toxic drug metabolites(5). Diagnosing DRESS is challenging due to the diversity of cutaneous eruption and organs involved(6). The syndrome develops 2 to 6 weeks after initiation of administration of a specific drug(7). A genetic deficiency of detoxifying enzymes leading to an accumulation of drug metabolites. The metabolites covalently bind to cell macromolecules causing cell death or including secondary immunological phenomena. Eosinophilic activation as well as activation of the inflammatory cascade may be induced by interleukin-5 release from drug specific T- Cells(8). In cases in which the culprit drug is not obvious, clinicians must use their clinical judgement to select which medication to discontinue. They may also utilize patch or lymphocyte transformation tests to aid in identification when appropriate. Topical corticosteroids can be used for symptomatic relief, but

systemic steroid therapy is generally required(9). The length of the treatment was 1-6 months, dependent when there was remission of symptoms. There was no mortality associated with the DRESS syndrome (10).

## 2. Case

A 32 yrs old male patient came with chief complaints of itching all over the body since 1 week, bullous lesions over left upper limb, chest, groin, back since 1 week and progressive in nature. And also Fever and cough developed complaints after 3 days of taking phenytoin.

### On examination:

Patient was found to be conscious and coherent, afebrile, Bp-120/60mmg, CVS-s1s2+, PR-90/min, P/A-Soft, non-tender.

### Laboratory findings:

**HIV 1&2:** Non-Reactive.

### Complete blood picture:

Hb-12g/dl, Total Wbc- 5800/mm<sup>3</sup>.

### Differential count:

Polymorphs-68%, Lymphocytes-28%, eosinophils-0.2%, Monocytes-0.2%, platelets-Adequate.  
RBS-78mg%, blood urea- 18mg%, serum creatinine-0.1mg%.

### ESR:

1-10mm/hr  
2-14mm/hr

### Cutaneous examination:

Multiple erosive lesions+ over chest, back, both upper limbs, medial aspect of thighs about 1×1cm to 3×5cm.  
Multiple clisoid hyperpigmentation patches+ over chest, upper limb and back.  
Nails -normal, Palm & soles+, scalp&-normal, oral cavity - dry, chopped lips, genitalia-erosions+.

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**Liver function test:**

TSB- 0.3mg%, SGPT- 12 IU/L, ALP- 49 IU/L, Na-139, K-4.1, Cl- 103.

Here, the ADR in this patient can be confirmed by:

- 1) Disappearance of the reaction progressing after stopping the administration of the suspected drug(phenytoin).
- 2) Recovery of the patient on withdrawal of the drug with other drugs give for the reaction developed.
- 3) Early diagnosis and prompt treatment with corticosteroids improve the condition.

**3. Discussion**

Furthermore, considering the potential severe effects associated with Phenytoin, the risks and benefits should be carefully evaluated before using this agent for seizure prophylaxis(11). Most of these reactions manifest as generalized morbiliform eruptions (50% to 95%) or urticaria (5% to 20%). However the morbiliform eruptions may be the first presentation of severe cutaneous adverse conditions such as DRESS (12). Treatment strategies of immune suppression appear be helpful in few cases (13). Early recognition of the syndrome, which may be associated with intravenous immunoglobulins and, in some selected cases , Ganciclovir(14). The benefit of therapies aimed at accelerating the elimination of the causative drug deserves further studies. In the absence of well established therapy, primary and secondary prevention have a key role in the management of DRESS syndrome (15).

**4. Conclusion**

Severe DRESS is rare. Better knowledge of DRESS is necessary to propose specific and prompt treatment. It may be Heterogeneous syndrome with some particular patterns related to different drugs. Corticosteroids remain basis for the treatment of DRESS. Hypersensitivity to a previously tolerated anticonvulsant can be Induced by DRESS to another anticonvulsant, and the patch test may be useful for detecting cross reacting drugs in anticonvulsant associated DRESS syndrome.

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