CASE REPORT

DRUG REACTION WITH EOSINOPHILIA AND SYSTEMIC SYMPTOMS (DRESS) SYNDROME ASSOCIATED WITH SULFASALAZINE WITHOUT EOSINOPHILIA

Hettiarachchi KS, Ranasinghe MM, Pirasath S* and Sugathapala AGH

Colombo South Teaching Hospital, Kalubowila, Sri Lanka

Correspondence: Dr. S. Pirasath, Colombo South Teaching Hospital, Kalubowila, Sri Lanka.

E-mail: selladurapirasath81@gmail.com  
ORCID iD: https://orcid.org/0000-0002-4274-4919

Abstract

A 28-year-old previously healthy woman presented with fever and constitutional symptoms for one week duration. Prior to the hospital admission, she had been treated for an inflammatory arthritis with sulfasalazine for three months duration. On examination, she had a generalized maculopapular rash mainly on extremities with bilateral posterior cervical lymphadenopathy and mild hepatomegaly. Her full blood count showed leukocytosis without eosinophilia and her liver transaminases were elevated. An ultrasound scan of the abdomen showed hepatosplenomegaly, mild free fluid and a small right sided pleural effusion. She was treated with intravenous steroids. Her liver enzymes gradually decreased to normal and she subsequently improved with therapy. According to the diagnostic criteria for drug-induced hypersensitivity syndrome (DIHS) established by a Japanese consensus group, she fulfilled the first 6 criteria without eosinophilia. Therefore, this case is an atypical presentation of DRESS syndrome. There are a limited number of case reports on DRESS syndrome without eosinophilia in the literature. To our best knowledge, this is the first case report on sulfasalazine induced DRESS syndrome without eosinophilia in Sri Lanka.

Key words: DRESS Syndrome, Sulfasalazine, Liver enzymes, Maculopapular rash

Introduction

The Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS) syndrome is a severe, potentially life-threatening adverse drug reaction which includes features of a severe skin eruption, fever, haematological abnormalities and internal organ involvement1. Here, we report a case of DRESS syndrome without eosinophilia in a young woman fulfilling the first six diagnostic criteria of DRESS syndrome established by a Japanese consensus group2. There are a limited number of case reports on DRESS syndrome without eosinophilia in the literature3. This case report highlights an atypical presentation of DRESS syndrome.

Case History

A 28-year-old previously healthy woman presented with fever and constitutional symptoms for one-week duration. She had been treated for an inflammatory arthritis with sulfasalazine for three months.
duration. There was no history of allergies to food, drugs or plasters. On examination she was febrile. Her pulse rate was 92 beats per minute and blood pressure was 100/60 mmHg. She had a generalized maculopapular rash mainly on the extremities with bilateral posterior cervical lymphadenopathy and mild hepatomegaly (Figure 1).

Her full blood count showed leukocytosis (16.81×10³ mm³-Normal range 4×10³-11×10³ mm³) without eosinophilia (4%-Normal range 0%-6%). Her inflammatory markers were (ESR-45 mm/1st hour, CRP-47.3 mg/L), liver enzymes were elevated (AST 182 U/l, ALT 402 U/l) and renal function tests were normal. Septic screening was negative. An ultra sound scan of the abdomen was performed which revealed hepatosplenomegaly, mild free fluid and a small right sided pleural effusion. The diagnosis of DRESS syndrome was made based on fulfilling the first six diagnostic criteria of DRESS syndrome established by a Japanese consensus group. She was treated with intravenous steroids (Figure 1). Her liver enzymes gradually decreased to normal and she subsequently improved with therapy. Further follow-up was arranged at clinic level.

**Discussion**

The Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS) syndrome is a potentially life-threatening syndrome with features of a severe skin eruption, fever, hematologic abnormalities and internal organ involvement1. The term "Drug Rash with Eosinophilia and Systemic Symptoms" was coined by Bocquet4. It was first recognized in 1950 by Chaiken1. Anticonvulsants such as phenytoin and phenobarbital are important

---

**Figure 1: Timeline of the case history**
etologies. It usually appears ≥2–8 weeks after administration of the causative drug and the symptoms may persist or aggravate despite the discontinuation of the causative drug. This patient developed DRESS syndrome 3 months after the commencement of sulfasalazine therapy.

The pathogenesis of DRESS syndrome is not well understood. However a genetic component that alters immune response, a triggering factor such as a viral infection and a defect in drug metabolism resulting in failure to eliminate drug intermediates are described as essential components in its pathogenesis. It has been suggested that drugs may cause a type 4 hypersensitivity reaction due to abnormalities in detoxification of its active metabolites in drug metabolism pathways. It has been demonstrated that the drug can induce reactivation of HHV 6 and EBV even in patients taking sulfasalazine therapy.

Patients present with fever followed by a maculopapular rash and a variable degree of lymphadenopathy. Subsequently, the rash may become a generalized severe exfoliative dermatitis or erythroderma. Mucocutaneous involvement is not seen in DRESS syndrome making it distinguishable from other severe drug eruptions such as Stevens Johnson Syndrome. There may be visceral involvement include hepatitis, pneumonitis, myocarditis, pericarditis, nephritis and colitis. The most commonly found haematological abnormality is eosinophilia. The onset of eosinophilia may get delayed up to 1-2 weeks and even up to the time where elevations in liver enzyme levels return to baseline. The mainstay of treatment is withdrawal of the offending drug and corticosteroids. The outcome is better if the corticosteroids are started at the acute stage. This patient was also treated with intravenous steroids and withdrawal of the offending drug. Her full blood count did not show eosonophilia. According to the Diagnostic criteria for drug-induced hypersensitivity syndrome (DIHS) established by a Japanese consensus group, she fulfilled the first 6 criteria without eosinophilia. Therefore, this case is an atypical presentation of DRESS syndrome.

**Conclusion**

Clinicians should think about possibility of DRESS syndrome among highly suspicious cases without eosinophilia, considering the presence of other diagnostic criteria for drug-induced hypersensitivity syndrome. It will be helpful to discontinue the offending drug and to start appropriate therapy to prevent harmful consequences of the syndrome.

**References**

1. Chaiken B, Goldberg B, Segal J. Dilantin hypersensitivity: report of a case of hepatitis with jaundice, pyrexia, and exfoliative dermatitis. *N Engl J Med*. 1950; 242:897-8. https://doi.org/10.1056/NEJM195006082422304

2. Shiohara T, Iijima M, Ikezawa Z, Hashimoto K. The diagnosis of a DRESS syndrome has been sufficiently established on the basis of typical clinical features and viral reactivations. *Br J Dermatol* 2007; 156:1083–1084. https://doi.org/10.1111/j.1365-2133.2007.07807.x

3. Cacoub P, Mussette P, Descamps V et al., The DRESS syndrome: A Literature Review.*The American Journal of Medicine* 2011; 124(7):588-97.
4. Bocquet H, Bagot M, Roujeau JC. Drug-induced pseudolymphoma and drug hypersensitivity syndrome (Drug Rash with Eosinophilia and Systemic Symptoms: DRESS). *Sem Cutan Med Surg.* 1996; 1:250-7. https://www.ncbi.nlm.nih.gov/pubmed/9069593.

5. Tennis P, Stern RS. Risk of serious cutaneous disorders after initiation of use of phenytoin, carbamazepine, or sodium valproate: a record linkage study. *Neurology.* 1997; 49:542–546. https://doi.org/10.1212/WNL.49.2.542

6. Roujeau JC, Stern RS. Severe adverse cutaneous reactions to drugs. *N Engl J Med.* 1994; 331:1272-1285 https://doi.org/10.1056/NEJM19941103311906

7. Kano Y, Inaoka M, Sakuma M, Shiohara T. Virus reactivation and intravenous immunoglobulin (IVIG) therapy of drug-induced hypersensitivity syndrome. *Toxicology* 2005; 209(2): 165-7. https://doi.org/10.1016/j.tox.2004.12.013

8. Kardaun SH, Sekula P, Valeyrice-Allanore P et al., “Drug reaction with eosinophilia and systemic symptoms (DRESS): an original multisystem adverse drug reaction. Results from the prospective RegiSCAR study,” *British Journal of Dermatology.* 2013; 169(5): 1071. https://doi.org/10.1111/bjd.12501.

9. Sonal Choudhary, Michael McLeod, Daniele Torchia, and Paolo Romanelli, MD. Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS) Syndrome. *J Clin Aesthet Dermatol.* 2013; 6(6): 31–37 https://www.ncbi.nlm.nih.gov/pubmed/23882307.