Case Report

Dress syndrome induced by cefixime: A case report

Vidushi Saxena[1], Saim Kidwai[1], Abdul Rehman[2], Mohammad Ashraf Khan[3]

From [1]MBBS Intern, [2]Post Graduate Student, [3]Associate Professor, Department of Medicine, Hamdard Institute of Medical Sciences and Research, New Delhi, India

ABSTRACT

Drug reaction with eosinophilia and systemic symptoms (DRESS) syndrome is a severe, potentially life-threatening hypersensitivity reaction characterized by fever, rash, hematological abnormalities, and internal organ involvement. Although it is most commonly associated with antiepileptic and sulfonamide drugs, cephalosporin-induced DRESS remains rare and underreported. We describe a case of a 19-year-old male who developed DRESS syndrome following administration of Cefixime, a third-generation cephalosporin widely prescribed for bacterial infections.

Key words: Cefixime, Drug reaction with eosinophilia and systemic symptoms syndrome, Registry of severe cutaneous adverse reactions, Steroid

Drug reaction with eosinophilia and systemic symptoms (DRESS) syndrome is a potentially life-threatening condition that is essentially thought to be a delayed type IV hypersensitivity reaction mediated by CD4+ as well as CD8+ T cells [1]. Reactivation of herpes virus infection, including Cytomegalovirus (CMV), human herpes virus (HHV 6), and Epstein-Barr virus (EBV) has also been linked to its pathogenesis [2,3]. It typically occurs 2–8 weeks after exposure to the culprit drug and is characterized by fever, generalized rash, eosinophilia, atypical lymphocytosis, and multi-organ involvement. The estimated global incidence of DRESS syndrome ranges from 1 in 1,000–1 in 10,000 drug exposures, depending on the population involved, genetic predispositions, drug involved, as well as drug usage patterns [4], while the estimated global mortality from this condition is 10% [5]. Although traditionally linked with aromatic anticonvulsant drugs, about 15–37% of DRESS burden has been attributed to antibiotics. Of these, cephalosporins comprise only 3.94% of all antimicrobial-linked cases [6].

Cefixime is a commonly used third-generation cephalosporin that acts by disrupting cell wall synthesis in bacteria, similar to penicillin. Being resistant to beta-lactamase enzyme, it shows a broad spectrum of activity against several gram-positive and gram-negative bacteria with a good safety profile. Although uncommon, it has been most commonly associated with gastrointestinal side effects. Hypersensitivity reactions subsequent to administration of this drug have been scarcely reported in medical literature. This highlights a gap in awareness among clinicians about the potential of serious adverse reactions even with commonly used antibiotics.

Here, we present the case of a young adult who developed DRESS syndrome following treatment with Cefixime.

Access this article online	
Received - 29 January 2026 Initial Review - 10 February 2026 Accepted - 28 March 2026	Quick Response code
DOI: ***	

CASE REPORT

A 19-year-old male presented to the OPD with a history of fever 2 weeks back, for which he consulted a local practitioner and was prescribed Tab Cefixime 200 mg twice daily empirically for 1 week. The fever subsided after 1 week of treatment. However, following 2 weeks of treatment, the patient again developed fever, which was documented to be 103°F, along with complaints of generalised pruritic rash and myalgia. The patient also complained of pain in the right upper quadrant of the abdomen along with occasional nausea.

On examination, the patient was febrile with stable vitals. In addition, the patient had maculopapular rash present on the trunk, arms, and legs, which was pruritic in nature and blanching (Fig. 1). Cardiorespiratory examination was unremarkable. Per abdominal examination revealed tenderness in the right hypochondrium. Liver was palpable 2 finger breadths below the right costal margin. Liver span was measured to be 14 cm. The spleen was also palpable. Cefixime was stopped, and the patient was admitted for further management.

Investigations showed normal hemoglobin (12.7 g/dL) and platelet count ($144\times10^3/\mu L$) along with a raised total leukocyte count (TLC) ($15.84\times10^3/\mu L$) and differential leukocyte count (DLC) revealed lymphocytosis

Correspondence to: Dr. Vidushi Saxena, 534 Mandakini Enclave, Alaknanda, New Delhi -110019, India. E-mail: vidushi.s321@gmail.com

(48%). Liver function tests revealed a rise in serum bilirubin levels (Total Serum Bilirubin - 3.96 mg/dL; Direct Serum Bilirubin - 2.26 mg/dL; Indirect serum Bilirubin - 1.7 mg/dL) along with increased levels of liver transaminases (Aspartate Aminotransferase [AST] - 99 IU/dL; Alanine Aminotransferase [ALT] - 155.5 IU/dL; Alkaline Phosphatase [ALP] - 391 IU/dL). Blood culture, viral markers, typhidot, malaria serology, dengue NS1 (Non-Structural protein 1) testing, Hepatitis A Virus Immunoglobulin M (IgM), and Hepatitis E Virus IgM testing were negative.

During the course of admission, the patient developed bilateral tender postauricular swelling and bilateral inguinal lymphadenopathy. The patient's laboratory workup showed a further rise in TLC ($24.04\times10^3/\mu L$) with atypical cells noted on peripheral smear. DLC revealed eosinophilia (18%). Liver transaminases were still high (AST - 129.5 IU/dL, ALT - 150.5 IU/dL, ALP - 321.9 IU/dL). Serum bilirubin levels were still elevated with total bilirubin of 1.95 mg/dl, direct bilirubin of 0.88 mg/dl and indirect bilirubin of 1.07 mg/dl.

Ultrasound findings revealed hepatosplenomegaly, and the chest X-ray was normal. Fine needle aspiration cytology of the inguinal lymph node was unremarkable. Using the European registry of severe cutaneous adverse reactions (RegiSCAR) scoring system, the patient was diagnosed as a case of DRESS syndrome [7].

The patient was put on a short tapering course of steroids with methylprednisolone 500 mg IV once daily, along with other supportive treatment. The patient reported symptomatic improvement during the course of admission (Fig. 2). TLC values were reduced ($9.96\times10^3/\mu L$) with predominant lymphocytes (52%) and eosinophils (9%). Serum bilirubin (Total Serum bilirubin - 0.91 mg/dL, Direct bilirubin - 0.28 mg/dL, Indirect bilirubin - 0.63 mg/dL), as well as liver transaminases (ALT - 44.7 IU/dL, AST - 24.5 IU/dL, ALP - 173 IU/dL) were also down to normal range. Hence, the patient was discharged and followed up in the outpatient department.

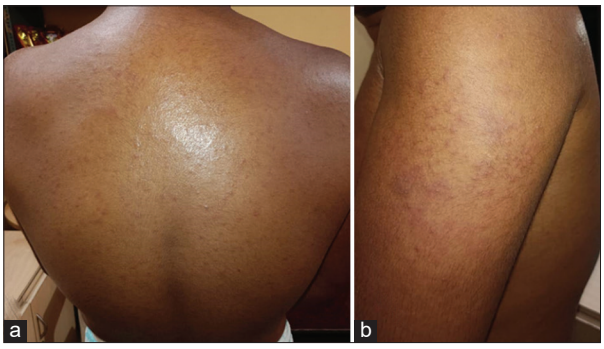

Figure 1: Maculopapular diffuse rash affecting (a) back and (b) arms

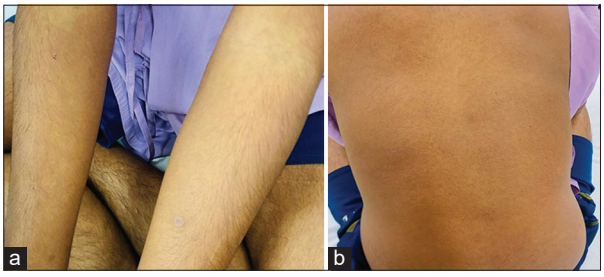

Figure 2: Resolution of rash post-steroid treatment. (a) Resolution of rash on arms and (b) on back

DISCUSSION

DRESS syndrome was first introduced in 1996 by Bocquet *et al*. [8,9]. Past case reports have attributed this syndrome mainly to antiepileptic drugs, allopurinol, sulphonamides, and dapsone [10], with antimicrobials involved in just 15–37% of cases, with only 10 documented cases linked to cephalosporins as of 2021 [6]. This case is a rare example of DRESS Syndrome caused by Cefixime, a third-generation cephalosporin antibiotic.

The DRESS syndrome is more prevalent in women and has a global estimate ranging from 1 in 1,000 to 1 in 10,000 drug exposures [4], while globally the estimated mortality from this condition is 10% [5]. DRESS Syndrome has also been linked to human leukocyte antigen (HLA) class II haplotype [11]. Carbemazepine-induced DRESS syndrome has been linked to HLA-B*15:02 phenotype, while allopurinol-induced DRESS has been associated with HLA-B*58:01 phenotype [12].

DRESS Syndrome is regarded to be a T cell-mediated hypersensitivity reaction brought on by an interplay of factors involving T cell receptors and antigen-presenting cell interactions. Three theories have been proposed as possible mechanisms for this hypersensitivity reaction, namely, (a) Pharmacological interactions of drugs with immune receptors (p-i) concept; (b) Hapten/prohapten model; and (c) Altered peptide repertoire model [12]. Furthermore, the development of DRESS syndrome has also been linked to reactivation of Herpes virus infections with HHV 6, EBV, and CMV as the most likely culprits [2]. Reactivation has been thought to produce a CD8 T cell response resulting in the release of large amounts of tumor necrosis factor α, Interferon γ, and Interleukin 2, in turn resulting in systemic features of this condition [13].

DRESS Syndrome has a delayed presentation extending from 2 to 8 weeks subsequent to drug exposure. Its onset is usually marked by fever, rash, lymphadenopathy, and facial edema. Rash is seen characteristically covering >50% body surface area and may have varying clinical presentations. Rash is characteristically maculopapular in nature on onset and subsequently often devolves to a diffuse scaling rash. It may also be encountered in several varying presentations, such as wheals, pustules, or ulcers. Systemic involvement most commonly results in hepatitis and occasionally may also cause interstitial nephritis, although rare instances of eosinophilic pneumonitis and myocarditis have also been reported. Liver failure has been attributed as the most common cause of death [14]. A number of long-term sequelae have also been associated with this

condition. DRESS syndrome has been linked to several autoimmune sequelae, such as autoimmune thyroiditis, type I diabetes, rheumatoid arthritis, and alopecia areata [15].

DRESS Syndrome is a tricky diagnosis due to variable clinical presentations and involvement of virtually any organ system. Prompt diagnosis of this condition presents a significant hurdle to management of this condition. At present, no diagnostic gold standard test is available for this condition. The diagnostic criteria proposed by the study group of the European RegiSCAR, named as the RegiSCAR scoring system, have been developed as a guide to the diagnosis of DRESS syndrome and have been shown to be a sensitive diagnostic modality (Table 1) [7]. This case forms a diagnosis of definitive DRESS Syndrome by this criterion, with a score of >5.

Our case shows a deviation from the common trend seen in DRESS syndrome, with symptom onset documented only 1 week after exposure, as opposed to the standard incubation period of 2–8 weeks. Due to limited resources, genetic testing and herpes virus testing could not be performed to determine HLA allele involvement and herpes virus reactivation. Skin biopsy was not performed due to financial constraints. Furthermore, long-term follow-up of the patient could not be carried out to assess the long-term impact of this disease.

Table 1: The RegiSCAR scoring system for used for diagnosing the DRESS syndrome adapted from Sasidharanpillai *et al.* [7]

Features	Present or absent	Score
Fever (≧38.5°C)	Yes	1
Lymph node enlargement in more than 2 sites	Yes	1
Eosinophilia (≧1500/mm^3)	Yes	2
Atypical lymphocytosis	Yes	1
Skin rash (>50% of BSA)	Yes	1
Rash with DRESS features	No	0
Organ involvement	Yes	1 (Hepatosplenomegaly)
Resolution after 15 days	No	0 (earlier resolution due to treatment)
Ruling out other causes	No	0 (limited due to lack of specific diagnostic modalities for EBV, CMV testing)
	Total score	7

Interpretation of final score:
- <2: No DRESS
- 2–3: Possible DRESS
- 4–5: Probable DRESS
- >5: Definite DRESS.

RegiSCAR: Registry of severe cutaneous adverse reactions, DRESS: Drug reaction with eosinophilia and systemic symptoms, BSA: Body surface area, CMV: Cytomegalovirus, EBV: Epstein-Barr virus

The development of a precise diagnostic tool is necessary for the timely management of this condition. Research should be expanded on genetic markers, such as HLA alleles, along with immunological markers, such as cytokine profiles and T cell and eosinophil activation markers, to aid in quick and accurate diagnosis.

CONCLUSION

This report aims to bring to attention that DRESS Syndrome may be caused by Cefixime and thus advocates that development of such a complication should be watched out for upon administration of the drug. As evidenced by this case report, all clinical manifestations required for fulfilling the diagnosis of the condition may not present at onset, and thus emphasizes on the need for the development of better diagnostic modalities for effective management of this condition. Continuous laboratory monitoring is also of paramount importance to promptly identify and manage multi-organ complications that might arise during an episode.

REFERENCES

1. Pichler WJ, Brüggen MC. Viral infections and drug hypersensitivity. Allergy 2023;78:60-70.
2. Marcombes C, Ingen-Housz-Oro S, Dezoteux F, Staumont-Sallé D, Milpied B, Tetart F, *et al*. Retrospective study on the association of human herpesvirus reactivation with severe DRESS: A description of blood and skin reactivations. J Eur Acad Dermatol Venereol 2023;37:2550-7.
3. Chan LC, Sultana R, Choo KJ, Yeo YW, Pang SM, Lee HY. Viral reactivation and clinical outcomes in drug reaction with eosinophilia and systemic symptoms (DRESS). Sci Rep 2024;14:28492.
4. Cacoub P, Musette P, Descamps V, Meyer O, Speirs C, Finzi L, *et al*. The DRESS syndrome: A literature review. Am J Med 2011;124:588-97.
5. Husain Z, Reddy BY, Schwartz RA. DRESS syndrome: Part I. Clinical perspectives. J Am Acad Dermatol 2013;68:693.e1-14; quiz 706-8.
6. Sharifzadeh S, Mohammadpour AH, Tavanaee A, Elyasi S. Antibacterial antibiotic-induced drug reaction with eosinophilia and systemic symptoms (DRESS) syndrome: A literature review. Eur J Clin Pharmacol 2021;77:275-89.
7. Sasidharanpillai S, Ajithkumar K, Jishna P, Khader A, Anagha KV, Binitha MP, *et al*. RegiSCAR DRESS (drug reaction with eosinophilia and systemic symptoms) validation scoring system and Japanese consensus group criteria for atypical drug-induced hypersensitivity syndrome (DiHS): A comparative analysis. Indian Dermatol Online J 2022;13:40-5.
8. Choudhary S, McLeod M, Torchia D, Romanelli P. Drug reaction with eosinophilia and systemic symptoms (DRESS) syndrome. J Clin Aesthet Dermatol 2013;6:31-7.
9. Bocquet H, Bagot M, Roujeau JC. Drug-induced pseudolymphoma and drug hypersensitivity syndrome (drug rash with eosinophilia and systemic symptoms: DRESS). Semin Cutan Med Surg 1996;15:250-7.
10. Calle AM, Aguirre N, Ardila JC, Cardona Villa R. DRESS syndrome: A literature review and treatment algorithm. World Allergy Organ J 2023;16:100673.
11. Onuora S. DRESS linked to HLA alleles. Nat Rev Rheumatol 2022;18:62.
12. Miyagawa F, Asada H. Current perspective regarding the immunopathogenesis of drug-induced hypersensitivity syndrome/drug reaction with eosinophilia and systemic symptoms (DIHS/DRESS). Int J Mol Sci 2021;22:2147.
13. Ganeshanandan L, Lucas M. Drug reaction with eosinophilia and

systemic symptoms: A complex interplay between drug, T cells, and *Herpesviridae*. Int J Mol Sci 2021;22:1127.
14. Cardones AR. Drug reaction with eosinophilia and systemic symptoms (DRESS) syndrome. Clin Dermatol 2020;38:702-11.
15. Sasidharanpillai S, Joseph AT, Ajithkumar K, Devi K. Autoimmune diseases, end organ dysfunction and adverse drug reaction following drug reaction with eosinophilia and systemic symptoms (DRESS): A retrospective cohort study. Indian Dermatol Online J 2021;12:722-5.

Funding: Nil; Conflicts of interest: Nil.

How to cite this article: Saxena V, Kidwai S, Rehman A, Khan MA. Dress syndrome induced by cefixime: A case report. Indian J Case Reports. 2026; April 14 [Epub ahead of print].