Emergency Department Visit for Fever and Rash: DRESS Syndrome

JEFFREY R. SAVARINO, MD, MPH; MELANIE J. LIPPMANN, MD

CASE REPORT

A 47-year-old male with past medical history of hypertension, hyperlipidemia, psoriasis, asthma, gastroesophageal reflux disease, and gout presented to the emergency department (ED) with fever, myalgias, malaise, and a rash for three days. The rash (**Figures 1–4**) started on his face and moved inferiorly. He reported the development of painful "lumps" around his neck during the same timeframe. He tested negative for COVID-19 one day prior to presentation. The patient denied any similar rashes in the past. He started taking allopurinol for gout six weeks prior to the development of symptoms.

In the ED, the patient was febrile to 104.0 F and tachycardic to 116 beats per minute. Examination of the patient demonstrated an ill-appearing man with tonsillar and cervical adenopathy. He was noted to have a diffuse, erythematous, papular rash over his trunk and extremities with areas of confluence over the face and neck. Follicular pustules were also noted. Laboratory data yielded evidence of a new acute kidney injury, hepatic enzyme elevation, hematuria, and proteinuria. Eosinophilia was not present. A respiratory pathogen panel was negative.

Dermatology was consulted in the ED and performed a skin biopsy that demonstrated spongiotic dermatitis with perivascular lymphocytic infiltrate with scattered eosinophils. Combined with the patient's history and laboratory data, this result confirmed the diagnosis of Drug Rash with Eosinophilia and Systemic Symptoms (DRESS) Syndrome.

Figure 1. Papular, erythematous rash across anterior chest and abdomen.

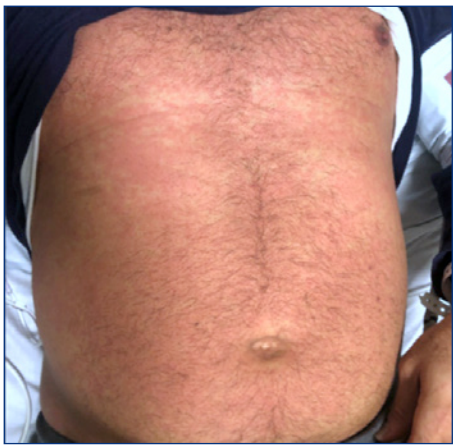
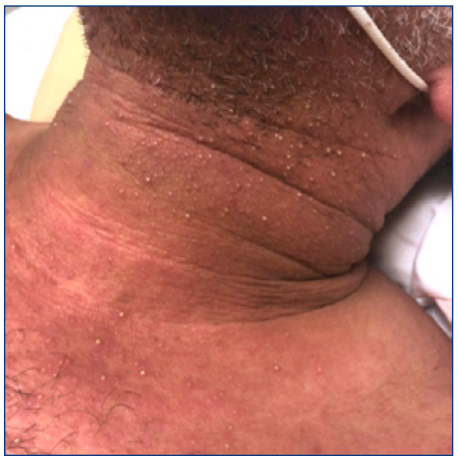


Figure 2. Pustular, erythematous rash across anterior neck.



PATHOPHYSIOLOGY AND PRESENTATION

DRESS Syndrome occurs due to a life-threatening drug hypersensitivity reaction that causes constitutional symptoms, rash, and often organ dysfunction.[1,2] Common offending drugs include antiepileptics, allopurinol, sulfonamides, and other antibiotics.[1-5] Patients often present with prodromal symptoms including fever, pruritis, and lymphadenopathy.[1,4] These symptoms are followed by an erythematous, maculopapular rash that often starts on the face and

Figure 3. Erythematous rash across scalp.

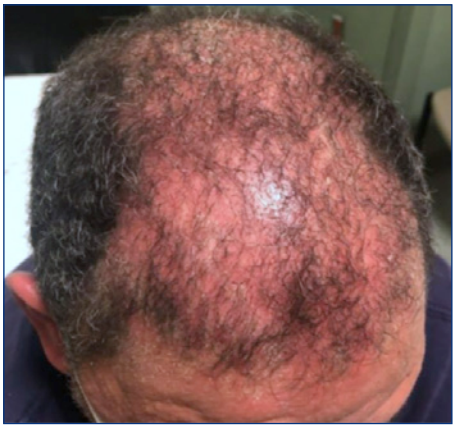
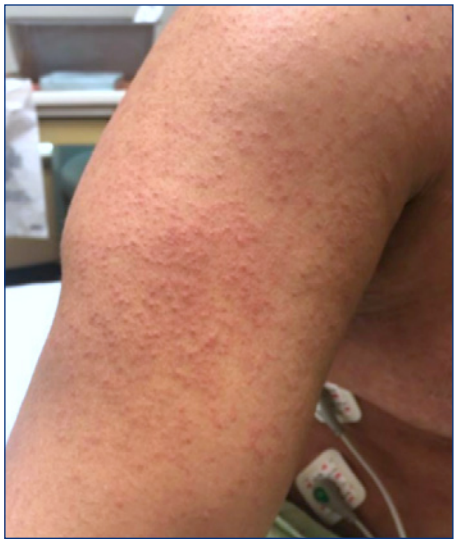


Figure 4. Papular rash across right upper arm.



moves inferiorly.[1,4] The rash may also be pustular in nature, involve mucosal surfaces, and be associated with facial edema.[1,2] Extracutaneous manifestations include cytopenias, acute hepatitis, myocarditis or cardiac dysrhythmias, pulmonary edema, lymphadenopathy, and acute kidney injury with hematuria or proteinuria.[1,2] Peripheral eosinophilia is common in DRESS Syndrome but is absent in up to 10% of cases.[2,3]

DIAGNOSIS AND TREATMENT

Workup includes a broad lab evaluation; infectious etiologies must be ruled out. Diagnosis of DRESS Syndrome is made using the RegiSCAR Score which accounts for clinical signs and symptoms, presence of eosinophilia, and biopsy findings.[1,4] A RegiSCAR Score ≥5 indicates a definitive case of DRESS Syndrome.[6] Treatment involves immediate cessation of any suspected culprit drugs and admission to the hospital.[3] Patients with milder disease can be started on oral prednisone at a dose of 1 mg/kg/day or at an equivalent dose of intravenous methylprednisolone.[7] If patients do not improve, or if there are extracutaneous manifestations, intravenous methylprednisolone at a dose of 30 mg/kg is recommended.[7] Steroids are continued upon discharge and tapered over the course of several months.[7] Topical steroids can be used to treat pruritis.[7]

PROGNOSIS

The mean recovery time for DRESS Syndrome is weeks to months.[4] Children and patients with isolated cutaneous disease often recover faster, while elderly patients have an increased risk for poor outcomes.[7] Hepatitis and renal impairment can be progressive and chronic, sometimes requiring dialysis.[1,4] Overall, the mortality rate is 10% and is mostly driven by fulminant liver failure and septic shock due to superimposed bacterial infections.[1,2,4-6]

CASE RESOLUTION

The patient's RegiSCAR Score was 6. He was admitted to the hospital and started on oral prednisone. His liver injury progressively worsened (ALT 3,072/AST 973), necessitating an increase in his steroid dose to prednisone 2 mg/kg/day. He was discharged on hospital day 9 with overall improvement in symptoms and recovery from his acute kidney injury and acute liver injury.

References

1. Husain Z, Reddy BY, Schwartz RA. DRESS syndrome: Part I. Clinical perspectives. *J Am Acad Dermatol*. 2013 May;68(5):693.e1-14.
2. Choudhary S, McLeod M, Torchia D, Romanelli P. Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS) Syndrome. *J Clin Aesthet Dermatol*. 2013 Jun;6(6):31-7.
3. Bommersbach TJ, Lapid MI, Leung JG, Cunningham JL, Rummans TA, Kung S. Management of Psychotropic Drug-Induced DRESS Syndrome: A Systematic Review. *Mayo Clin Proc*. 2016 Jun;91(6):787-801.
4. Kardaun SH, Sekula P, Valeyrie-Allanore L, Liss Y, Chu CY, Creamer D, Sidoroff A, Naldi L, Mockenhaupt M, Roujeau JC; RegiSCAR study group. Drug reaction with eosinophilia and systemic symptoms (DRESS): an original multisystem adverse drug reaction. Results from the prospective RegiSCAR study. *Br J Dermatol*. 2013 Nov;169(5):1071-80.
5. Avancini J, Maragno L, Santi CG, Criado PR. Drug reaction with eosinophilia and systemic symptoms/drug-induced hypersensitivity syndrome: clinical features of 27 patients. *Clin Exp Dermatol*. 2015 Dec;40(8):851-9.
6. Chen YC, Chang CY, Cho YT, Chiu HC, Chu CY. Reply to: Using a diagnostic score when reporting the long-term sequelae of the drug reaction with eosinophilia and systemic symptoms. *J Am Acad Dermatol*. 2013 Dec;69(6):1060-2.
7. Husain Z, Reddy BY, Schwartz RA. DRESS syndrome: Part II. Management and therapeutics. *J Am Acad Dermatol*. 2013 May;68(5):709.e1-9

Authors

Jeffrey R. Savarino, MD, MPH, Resident Physician, Alpert Medical School of Brown University, Department of Emergency Medicine, Providence, RI.

Melanie J. Lippmann, MD, Associate Professor of Emergency Medicine, Alpert Medical School of Brown University, Department of Emergency Medicine, Providence, RI.

Correspondence

Jeffrey R. Savarino, MD, MPH
Jeffrey_savarino@brown.edu