Drug Rash with Eosinophilia and Systemic Symptoms (DRESS Syndrome)

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ABSTRACT
DRESS syndrome is an idiosyncratic drug reaction and potentially life-threatening. The authors report a case of this syndrome presenting with fever, rash, mucosal involvement, liver and muscle involvement associated with moxifloxacin treatment.

KEYWORDS
DRESS; drug adverse reactions; moxifloxacin; hypersensitivit; eosinophilia

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INTRODUCTION

Drug-induced hypersensitivity syndrome (DRESS) is a drug-induced hypersensitivity reaction that is rare (the estimated incidence is between 1 in 1000 and 1 in 10,000 drug exposures) and potentially life-threatening, often involving skin rashes, hematologic abnormalities (eosinophilia, atypical lymphocytosis), lymphadenopathy, and internal organ involvement. The pathogenesis is not fully understood. Clinical manifestations often occur 2 to 8 weeks after initiation of treatment with the causative drug, although a new reaction may occur within hours to days (1, 2).

Diagnostic criteria for DRESS syndrome published in 1996 by Bocquet et al., include the simultaneous presence of three conditions drug-induced rash, eosinophilia ≥ 1500/mm^3, and at least one of the following systemic abnormalities: lymphadenopathy, hepatitis (transaminases > 2 ULN), interstitial nephropathy, interstitial lung disease, myocardial involvement.

CASE DESCRIPTION

An 83-year-old man was hospitalized with a febrile and pruritic morbilliform rash that rapidly developed into erythroderma (Figs. 1–4). A week earlier, he had seen a physician for acute tracheobronchitis and received a prescription for moxifloxacin. Physical examination revealed coalescing erythematous macules and papules, on the upper trunk, face, and extremities, fever of 38.5 °C and whitish, painful mouth ulcers. There was no evidence of lymphadenopathy or hepatosplenomegaly. Standard laboratory tests showed leukocytosis with eosinophilia (15100 leukocytes/μL and 1223 eosinophils/μL) without atypical lymphocytes, alanine transaminase 80 U/L [7–40] and aspartate transaminase 60 U/L [12–40], creatine kinase 302 U/L [46–171] and myoglobin 764 ng/mL [<110], troponin I 0.017 ng/mL [< 0.045], creatinine 0.9 mg/dL [0.7–1.20] and urea 44 mg/dL [19–49]. A CT chest, abdomen and pelvis was performed, which revealed bilateral pleural reaction, with no evidence of lymphadenopathy. Other causes were excluded, namely negative antinuclear antibodies, negative blood cultures, and negative serology for EBV, CMV, herpesviruses, HAV, HBV, HCV, *chlamydia*, and *mycoplasma*. Moxifloxacin was discontinued and the patient was treated with prednisolone 1 mg/kg/day daily, with gradual resolution of lesions and improvement in analysis.

DISCUSSION

Given clinical complexity, heterogeneity in presentation, and overlapping features with other diseases, various scoring systems and guidelines have been suggested over the

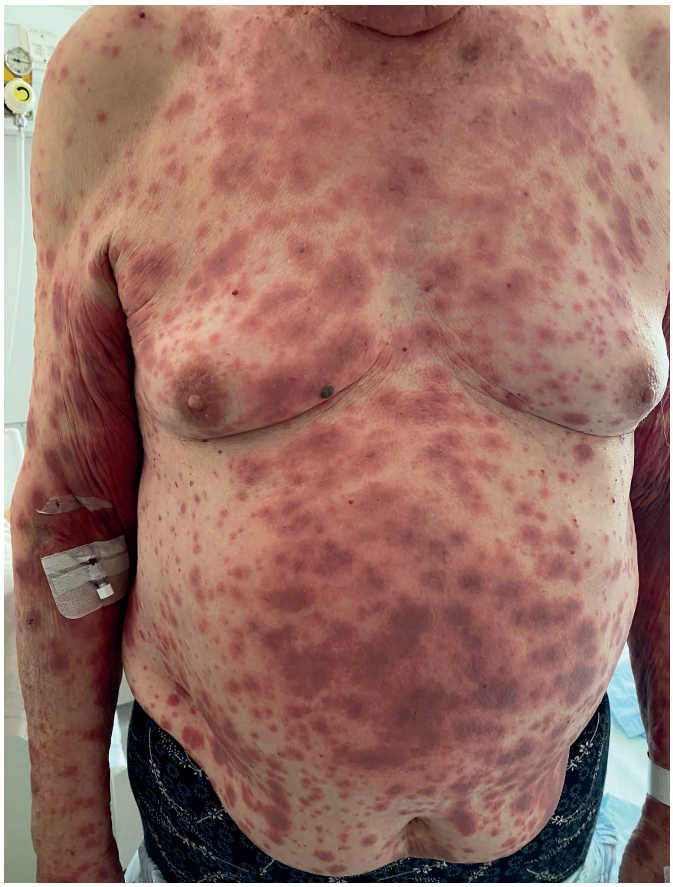

Fig. 1 Clinical presentation of DRESS syndrome: rash with confluent plaques and purpura.

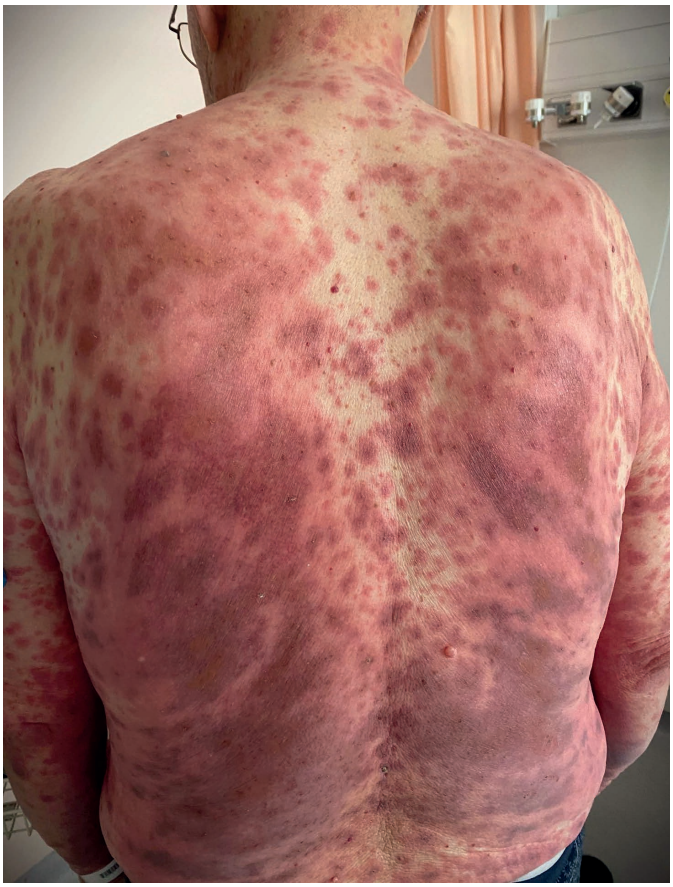

Fig. 2 Clinical presentation of DRESS syndrome: rash with confluent plaques and purpura.

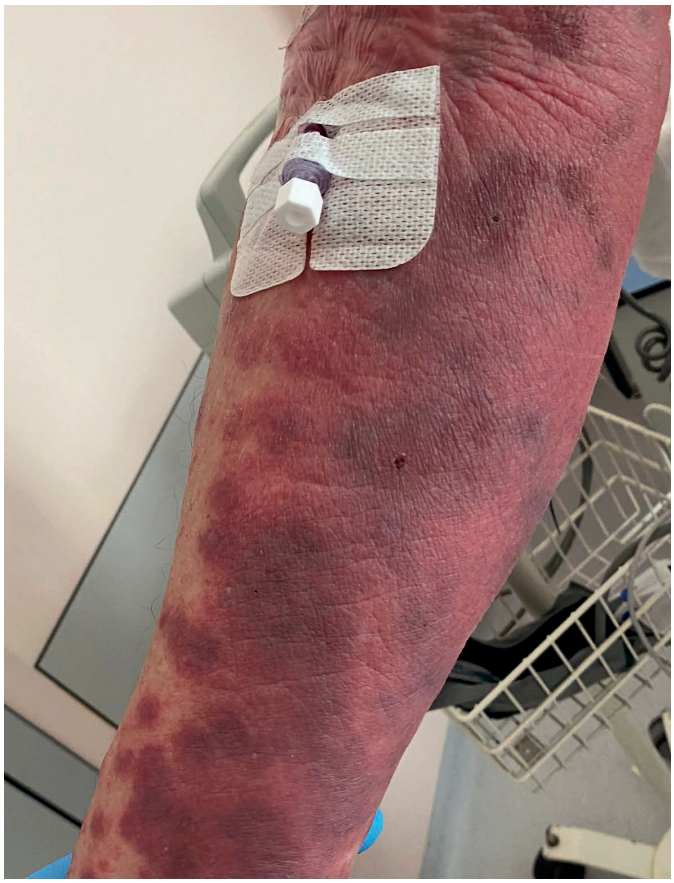

Fig. 3 Clinical presentation of DRESS syndrome: rash with confluent plaques and purpura.

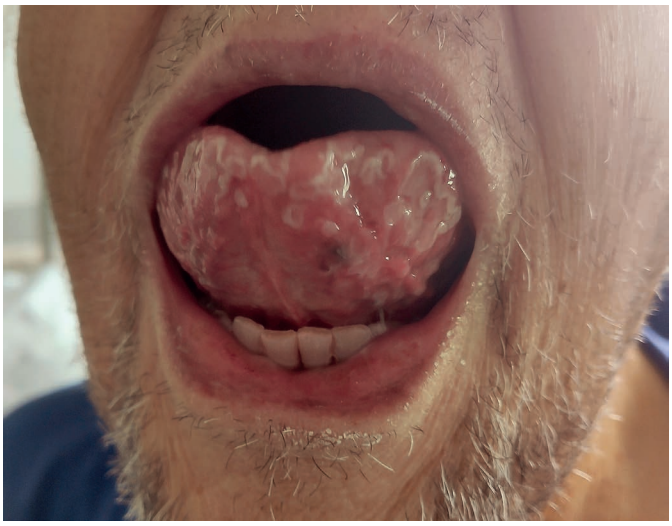

Fig. 4 Clinical presentation of DRESS syndrome: mucosal involvement.

last 25 years to facilitate the diagnosis of DRESS. The recently published Spanish guidelines for DRESS advise the use of RegiSCAR criteria in clinical diagnosis (3). Thus, in this patient, the diagnosis of DRESS syndrome was based on the presence of febrile rash, mucosal involvement, eosinophilia, liver and muscle involvement in a patient who had started therapy with moxifloxacin one week before (RediSCAR 6 – Table 1).

The diagnosis of DRESS syndrome implies a high level of suspicion. It is associated with prolonged hospitalization

Tab. 1 RegiSCAR Validation Score for DRESS Syndrome 2007.

Score	-1	0	1	2
Fever≥38.5 (core) or >38°C (axilarry)	No	Yes		
Enlarged lymph nodes (>1 cm size, at least 2 sites)		No/Unknown	Yes	
Eosinophilia		No/Unknown	700–1499/μL 10–19.9% (if leukopenia)	³1500/μL ³20% (if leukopenia)
Atypical lymphocytes		No/Unknown	Yes	
Skin involvement			max 2 points	
Rash extent (%BSA)		No/Unknown	>50%	
Rash suggesting DRESS (≥2 of facial edema, purpura, infiltration, desquamation)	No	Unknown	Yes	
Biopsy suggesting DRESS	No	Yes/Unknown		
Organ involvement		No/Unknown	max 2 points	
Liver			Yes	
Kidney			Yes	
Lung			Yes	
Muscle/Heart			Yes	
Pancreas			Yes	
Other			Yes	
Resolution >15 days	No	Yes		
Evaluation of other potential causes			Yes (None [+] and at least 3 [–])	
Serology for HAV, HBV, HCV; Blood culture				
Antinuclearantibody; Clamydia/Mycoplasma				
Total score: <2, Excluded; 2–3, Possible; 45, Probable; >5, Definite				

and significant mortality risk, around 10%, mainly due to liver failure. Here we report a typical presentation to a not so typical medicine. Drug prompt withdrawal and organ support is essential. Better understanding of the syndrome pathogenesis shall allow us to standardize treatment, as it still remains empirical and with no established regimens.

In the case presented, a good evolution was observed.

ETHICAL CONSIDERATIONS

Declaration of interest: The authors received no support of any kind from public, private or nonprofit organisations.

Conflict of interest: The authors don't have conflict of interest.

Informed consent: Obtained.

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