Delayed Allergic Reaction in a Patient with Myelodysplastic Syndrome

Jamie Tran, Brandon Dang, James Tran, Dexter Matrana, Sanjay Kamboj
Department of Medicine, LSU Health Sciences Center, New Orleans LA

LSU Health Sciences Center

Background

- Drug hypersensitivity reactions are a result of immune or inflammatory cell stimulations by the administered drug and are differentiated into immediate and delayed reactions.
- Type 1: IgE-mediated | occurs within 1 hour | high risk for anaphylaxis w/re-exposure
- Type II: IgG-mediated | delayed
- Type III: IgG and immune complex mediated | delayed
- Type IV: T-cell mediated | delayed | symptom onset depends on T-cell proliferation to mount a response which could be weeks following exposure.
- Maculopapular eruptions are the most common form of Type IV reactions and mainly involve the trunk and extremities. Systemic symptoms are mild and can include pruritus and mild eosinophilia.
- Myelodysplastic syndrome: hematologic malignancy manifesting as more than 1 cytopenia, dysplasia, and can predispose to acute myeloid leukemia or bone marrow failure.
- Autoimmune diseases are common in MDS as there is T-cell dysregulation resulting in attenuation or loss of immune surveillance.

Purpose

The purpose of this case report is to increase clinician awareness about the extended length of time for delayed drug hypersensitivity reactions to occur in immunosuppressed patients.

Case Description

67M with history of MDS w/multilineage dysplasia, CKD3, and recurrent diverticulitis presented with a blanchable, macular, pinpoint, mildly pruritic rash that appeared on the upper chest and back extending to the bilateral upper extremities for 1 day. He completed a 7 day course of Augmentin to treat diverticulitis 2 weeks prior without complication. Rash differential at the time included bacterial, viral, allergic, vasculitis, versus a dermatitis secondary to his MDS. Initial labs showed an ANC of 577 and eosinophil count 320. HIV, parvovirus ab, treponema pallidum ab, ANA, and ANCA were negative. Pt additionally had a recurrence of his diverticulitis symptoms so he was treated with Augmentin again. The next day, the rash had become more erythematous and spread further down his chest and back along with his lower extremities including soles of feet. Interestingly, his bilateral knees had a cluster of the rash compared to the rest of his legs. The rash on his arm was additionally more prevalent on his upper arm rather than forearm. A punch biopsy was positive for a morbilliform drug reaction, and a direct immunofluoresence assay was negative for a vasculitis. He was treated with steroids and had improvement in the rash along with resolution of eosinophilia.

Discussion

Interestingly, he had a similar morbilliform rash 2 years prior. He was taking Levaquin as prophylaxis for his MDS for 2 months when he suddenly developed a pruritic rash along his chest, back, arms, and legs. After discontinuation of the medication, his rash improved. A skin biopsy was not taken at the time.

Drug allergy is commonly only considered to be the etiology of a patient's symptoms if it is associated within a close timeframe of administration of a drug. However, it is important to remember that delayed reactions are possible and may even be up to two weeks after administration of the drug in immunosuppressed patients that cannot mount a T-cell response.

Contact Information

Address all correspondence to Jamie Tran at jtra16@lsuhsc.edu

References

- Lin, Chun-Liang, Ching-Chan Lin, Tzu-Ting Chen, Wen-Jyi Lo, and Shu-Ling Tzeng. 2023. "Analysis of Immune-Cell Distribution of Bone Marrow in Patients with Myelodysplastic Syndrome" Hematology Reports 15, no. 1: 50-56. https://doi.org/10.3390/hematolrep15010005
- Rodriguez-Sevilla JJ, Colla S. T-cell dysfunctions in myelodysplastic syndromes. Blood. 2024 Apr 4;143(14):1329-1343. doi: 10.1182/blood.2023023166. PMID: 38237139.

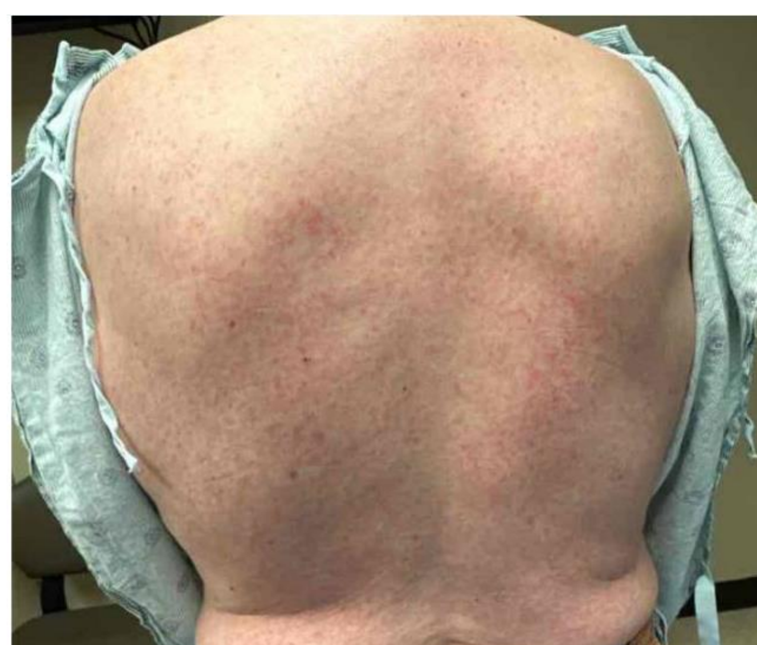

Fig 1. Day 1

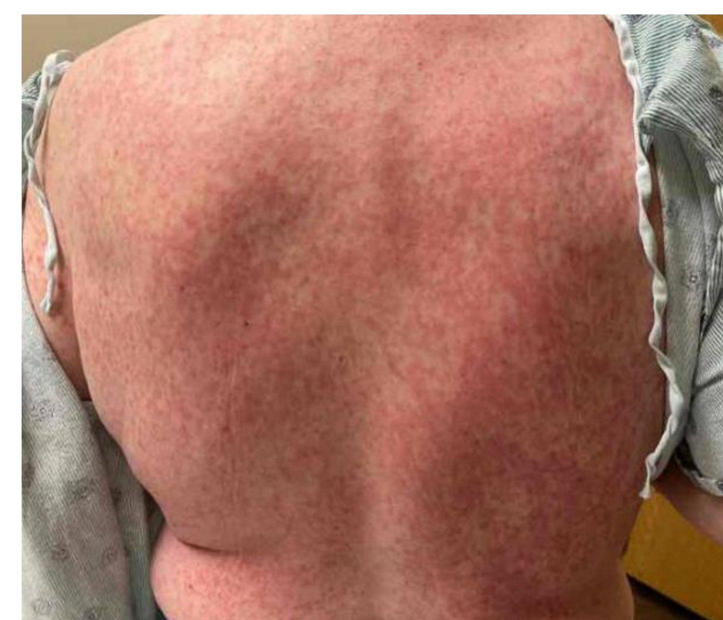

Fig 2. Day 2 after Augmentin administration

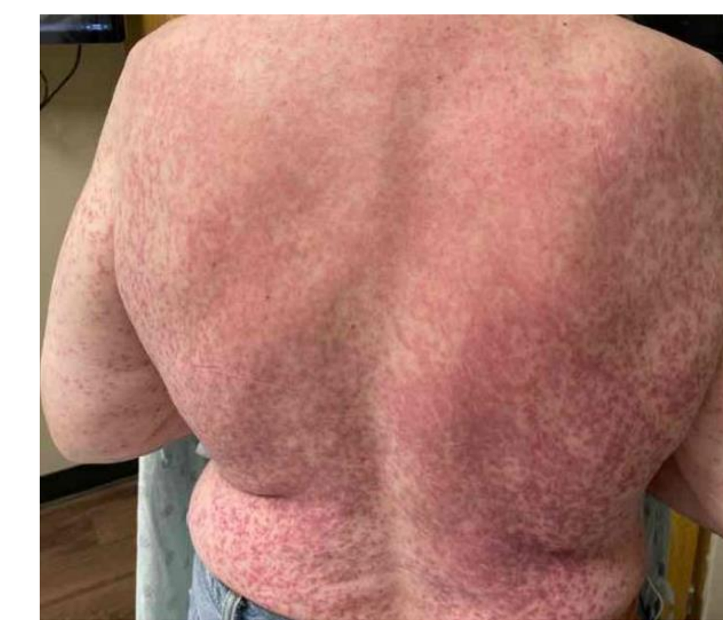

Fig 3. Day 3 after Decadron administration