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DOI: https://doi.org/10.1159/000471842

Originally published at:
Kley, Christiane; Murer, Carla; Maul, Julia-Tatjana; Meier, Barbara; Anzengruber, Florian; Navarini, Alexander A (2017). Rapid Involution of Pustules during Topical Steroid Treatment of Acute Generalized Exanthematous Pustulosis. Case Reports in Dermatology, 9(1):135-139.
DOI: https://doi.org/10.1159/000471842

Case Reports in Dermatology

Case Rep Dermatol 2017;9:135–139

DOI: 10.1159/000471842
Published online: April 27, 2017

Single Case

Rapid Involution of Pustules during Topical Steroid Treatment of Acute Generalized Exanthematous Pustulosis

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Keywords
Acute generalized exanthematous pustulosis · Topical steroids · Cutaneous adverse reaction · Pustular rash · Pustules · EuroSCAR criteria · Corticosteroids

Abstract
Acute generalized exanthematous pustulosis (AGEP) is a dramatic generalized pustular rash of severe onset, which is considered a serious cutaneous adverse reaction to drugs. However, even though the clinical features are impressive and are often accompanied by systemic inflammation, it can be controlled quickly and safely by topical steroids subsequent to interruption of the offending drug. Here, we describe the management of a case and the evolution of the pustular rash. An elderly woman consulted with a generalized crop of 2–3 mm, nonfollicular pustules on erythematous background. In the 4 preceding weeks, she had been using amoxicillin/clavulanic acid for a bacterial implant infection and rivaroxaban. The clinical EuroSCAR criteria including the histology confirmed AGEP. Her medication was stopped and topical clobetasol propionate was used. Within 24 h, the development of new pustules ceased and the patient was discharged after 7 days of hospitalization with only a faint, dif-

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fuse erythema and focal desquamation remaining. This and many other cases in the literature suggest that topical steroids should be considered as a first-line treatment option, especially as systemic steroids themselves can sometimes induce generalized pustulosis.

Introduction

A 64-year-old Swiss pensioner presented to our hospital with a pustular rash and signs of systemic inflammation. The C-reactive protein was 62 mg/L and the differential blood count revealed leukocytosis (15.39 G/L) and neutrophilia (10.39 G/L). Five days before, she had first noticed abrupt onset of sheets composed of small pustules on her stomach, subsequently spreading to affect the neck and the palms. The day before admission, lakes of pustules and papules formed on the whole body surface except the face and scalp. The trunk was covered with coarse scales on dark red erythema. Nikolski signs I and II were negative. There was no sign of mucous skin involvement. Furthermore, the patient suffered from severe pruritus in the affected areas. In the 4 weeks preceding the admission, she had been treated with amoxicillin/clavulanic acid for a knee prosthesis infection caused by beta-hemolytic streptococci (groups B and G), as well as with the anticoagulant rivaroxaban. A biopsy confirmed neutrophil infiltrates in the upper layers of the epidermis, as well as perivascular and interstitial neutrophil- and eosinophil-rich infiltrates mixed with lymphocytes and plasma cells [1, 2]. Microbiology swabs revealed neither bacteria nor fungi.

According to the EuroSCAR criteria [3, 4] (Table 1), the diagnosis of an acute generalized exanthematous pustulosis (AGEP) was made. Thus, the suspected offending drugs amoxicillin/clavulanic acid and rivaroxaban were replaced with clindamycin and fractionated heparin. Topical clobetasol propionate 0.05% ointment was generously applied to all affected areas once daily and cold cream with 5% polidocanol, a local anesthetic, was given for the pruritus. Development of new pustules ceased within 24 h (Fig. 1) and pustules shed within 72 h. The patient was discharged in good general condition after 7 days of hospitalization with only a faint, diffuse erythema with focal desquamation remaining (Fig. 1). Patch testing for the potential offending drugs was scheduled several months later.

Discussion

In over 90% of cases, AGEP is caused by medications. The patient has received both amoxicillin/clavulanic acid and rivaroxaban during the last 4 weeks before development of the disease. Amoxicillin has been reported to cause AGEP in multiple cases. It is also atypical that the drugs had started to be administered 4 weeks before the onset of disease. The increased C-reactive protein is an indicator of inflammation. It is widely accepted that in a minority of cases also infections can cause AGEP. Our patient was suffering from an infected knee prosthesis, which was the target of the antibiotic treatment. Strikingly, AGEP rarely manifests several weeks after the culprit drugs have been initially administered. Further-

more, rivaroxaban has not been reported to induce an AGEP. Unfortunately, the patient did not return to our clinic for further diagnostic procedures.

Currently, there is no specific treatment against AGEP. The foremost intervention leading to clearing of AGEP-related pustules is the interruption of the offending drug. During the pustular phase, a local antiseptic treatment and moist dressings are useful, as well as topical corticosteroids. The latter are also effective against severe pruritus [5, 6]. Application of steroids more than once per day does not increase efficacy, but the onset of the therapeutic effect may be faster [7]. In patients with systemic inflammation such as our case, systemic steroids themselves can induce pustulosis [8], which may be considered a reason to avoid them if possible. All reports on AGEP favor the application of parental steroids. It remains uncertain, if a systemic application is necessary. Our patient recovered in a very short time by stopping the medication intake and by the use of highly potent topical corticosteroids once daily.

Statement of Ethics

The patient has given informed consent.

Disclosure Statement

F.A. is funded by the HSM2 (Hochspezialisierte Medizin) and the KTI grant. He has received payments from Abbott®, Celgene®, and is on the advisory board of LEO® Pharma. A.A.N. is funded by the Promedica and Bruno-Bloch Foundation. Funding for the study was provided by the Department of Dermatology. There are no conflicts of interest regarding the publication of this case report.

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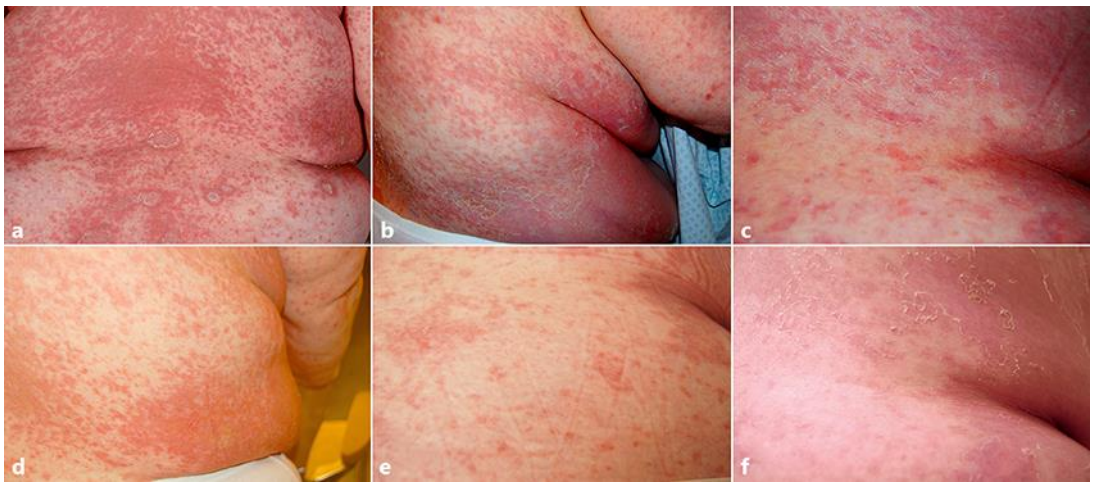

Fig. 1. Flank of the patient at admission (**a**) and after 24 h (**b**), 48 h (**c**), 72 h (**d**), 4 days (**e**), and 5 days (**f**).

Table 1. EuroSCAR criteria: diagnostic score for validation of AGEP

Pustules	
Typical	+2
Compatible with the disease	+1
Insufficient	0
Erythema	
Typical	+2
Compatible with the disease	+1
Insufficient	0
Distribution	
Typical	+2
Compatible with the disease	+1
Insufficient	0
Postpustular desquamation	
Yes	+1
No	0
Course	
Mucous membrane involvement	
Yes	−2
No	0
Acute onset	
Yes	0
No	−2
Resolution	
Yes	0
No	−4
Fever ≥38°C	
Yes	+1
No	0
Polymorphonuclear cells ≥7/μL	
Yes	+1
No	0
Histology	
Other disease	−10
Not representative	0
Exocytosis of polymorphonuclear cells	+1
Subcorneal and/or intraepidermal nonspongiform pustules or NOS pustules with papillary edema or subcorneal and/or intraepidermal spongiform pustules or NOS pustules without papillary edema	+2
Spongiform subcorneal and/or intraepidermal pustules with papillary edema	+3

≤0: excluded; 1–4: possible; 5–7: probable; 8–12: definite. NOS, not otherwise specified.