Dermatology Practical & Conceptual

# Recurrent Acute Generalized Exanthematous Pustulosis to Two Different Drugs: Oxacillin and Dextromethorphan Confirmed by Patch Test

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## Introduction

Acute generalized exanthematous pustulosis (AGEP) is a potentially severe skin condition, mainly drug induced [1]. Recurrences are rare and generally induced by related drugs. Dextromethorphan is an antitussive agent which is unusually reported as culprit in AGEP. Herein we report a rare case of relapsing AGEP to dextromethorphan and oxacillin.

## Case Presentation

A 32-year-old woman, with a history of a controlled generalized pustular psoriasis, presented to our department with a 4 day history of fever with predominately flexural eruption of non-follicular pustules on a erythematous background, which had started 2 days after the intake of oxacillin and tiaprofenic acid. Investigations found an elevated absolute neutrophil count and skin biopsy demonstrated histologic features consistent with AGEP. Skin lesions totally resolved within 10 days after oxacillin discontinuation. A patch test with oxacillin and tiaprofenic acid (the commercialized form used by the patient diluted to 30% pet.) was performed and showed a +++ skin reaction to oxacillin on day 4 but no reaction to tiaprofenic acid. All penicillins were prohibited.

Two years later the patient presented with a similar eruption and fever 4 days after taking 2 multi-compound medications named goldix day (dextromethorphan, doxylamine, paracetamol) and goldix night (dextromethorphan, paracetamol, phenylephrine) for a cold (Figure 1). She denied taking any other drug. Complete blood count showed

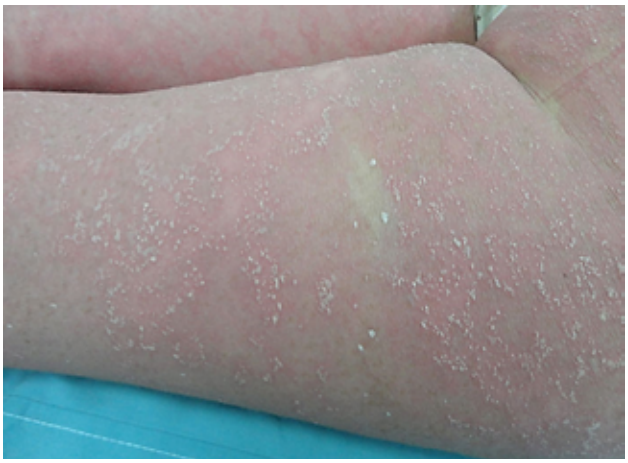

**Figure 1.** Diffuse erythema with multiple small pustules.

marked neutrophilia and skin biopsy was consistent with AGEP. Diagnosis was defined following EuroSCAR criteria. Patch testing with the component of the commercialized package of goldix day (30 % pet.), goldix night (30 % pet.) and paracetamol (50% pet.) was performed. The patch test preparations were applied in IQ Ultra (Chemotechnique Diagnostics). The patch tests were occluded for 48 hours, and readings were performed according to ICDRG/ESCD criteria on day 2 and day 4. Patch testing showed a ++ skin reaction to goldix day and goldix night, but was negative to paracetamol (Figure 2). The oral provocation test to paracetamol was also negative. The constituent dextromethorphan was not available for testing, but was suspected as the cause of the reaction as it was the only compound in common besides paracetamol. We performed a genetic analysis to determine whether there was mutation of the IL36RN gene, as it may be a predisposing factor, but we did not find such mutation in our patient.

## Conclusions

Recurrences in AGEP are rare and often induced by related drugs, mainly B-lactams. Our case suggests that it may be induced by chemically different medications in potentially predisposed patients possibly having pattern of cytokine dysregulation. Indeed, it seems that psoriasis might be a risk factor of relapsing AGEP. We have also shown that IL36RN gene mutation does not fully explain the pathogenesis of pustular generalized eruptions. Moreover, our observation is notable for the implication of dextromethorphan, a widely used opioid antitussive agent, as a culprit drug. To the best of our knowledge, only 1 case of AGEP induced by dextromethorphan and confirmed by patch testing has been previously reported [2].

## References


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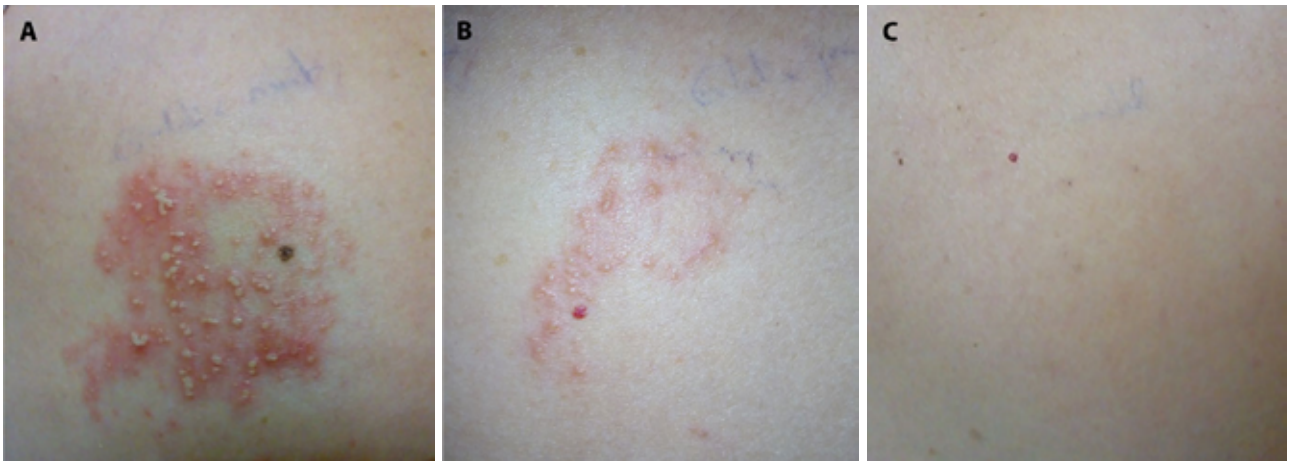


**Figure 2.** (A) Positive patch test reaction to goldix day on day 4. (B) Positive patch test reaction to goldix night on day 4. (C) No reactions to paracetamol were seen on day 4.