



Cetirizine induced acute generalized exanthematous pustulosis confirmed by patch testing

Maham Khan | Sarah Wakelin

Dermatology Department, Imperial College Healthcare NHS Trust – Dermatology, London, UK

Correspondence

Maham Khan, Imperial College Healthcare NHS Trust – Dermatology, Queen Charlotte's and Chelsea Hospital, Du Cane Road, London, W12 0HS, UK.
Email: maham787@hotmail.com

KEYWORDS: AGEp, allergic contact dermatitis, antihistamine, case report, cetirizine, cutaneous adverse drug reaction, patch test.

H1 antihistamines are widely used for the treatment of allergic diseases and have an excellent safety profile, with few reports of cutaneous adverse drug reactions (CADR). We report the usefulness of patch testing to extemporaneous preparations of cetirizine to confirm the diagnosis of acute generalized exanthematous pustulosis (AGEP) to this drug.

CASE REPORT

We investigated a 40-year-old atopic woman who developed a maculopapular eruption on the torso within 24 hours of taking two doses of cetirizine 10 mg for a suspected allergic reaction to fruit. She had superficial, tiny, non-follicular pustules on an erythematous base around the neck and large flexures in keeping with AGEp. There was no mucous membrane involvement or systemic upset. Cetirizine was stopped and the rash faded with desquamation the following week.

She was patch tested with the extended British baseline series (Chemotechnique Diagnostics, Vellinge, Sweden) and as a commercial preparation of cetirizine was not available, we tested her to powdered cetirizine hydrochloride tablet in pet. and a 1 mg/mL (0.1%) sugar-free solution. She had strong positive reactions (++) to both cetirizine formulations on day (D) 2 and D4 (Figure 1). Additional testing with hydroxyzine hydrochloride 1% pet. (Chemotechnique Diagnostics) was also strong positive (++) on D2 (online supplemental Figure S1). All other patch tests were negative. Patch testing to the powdered cetirizine tablet was negative in 20 control patients.

DISCUSSION

Oral antihistamines of different classes have been reported to cause both immediate and delayed CADR. The piperazine derivative cetirizine has been reported to be the most common oral preparation, followed by its parent drug hydroxyzine,¹ with several reports of fixed drug eruptions and isolated reports of exanthems. However, because of the lack of a commercial preparation, there is limited experience in patch testing with this drug. Positive patch tests on lesional skin in cetirizine fixed drug eruptions have been reported with 20% cetirizine (Zyrtek) in addition to levocetirizine (Zyal) powder (aq. and pet.) and hydroxyzine 1% pet. (Chemotechnique Diagnostics).² In another patient with a maculopapular urticarial rash, strong positive patch tests were obtained with cetirizine 2.5% and 5% pet., but tests with a 1% concentration were negative.³ We have found only one previous report of cetirizine-induced AGEp⁴ which was not confirmed by patch testing. Our patient had a strong positive reaction to a low (0.1%) concentration of the drug, highlighting the diagnostic sensitivity of patch tests in this context in addition to the usefulness of testing with extemporaneous preparations when a commercial formulation is unavailable.

Cetirizine is the main metabolite (45%) of hydroxyzine, which undergoes oxidation by alcohol dehydrogenase in vivo. Cross reactions between the two drugs as in our patient have been reported frequently, though not in all cases. These piperazine (diethylenediamine) drugs may also cross react with ethylenediamine, presumably due to the presence of shared antigenic determinants. In our patient, testing to ethylenediamine was negative.

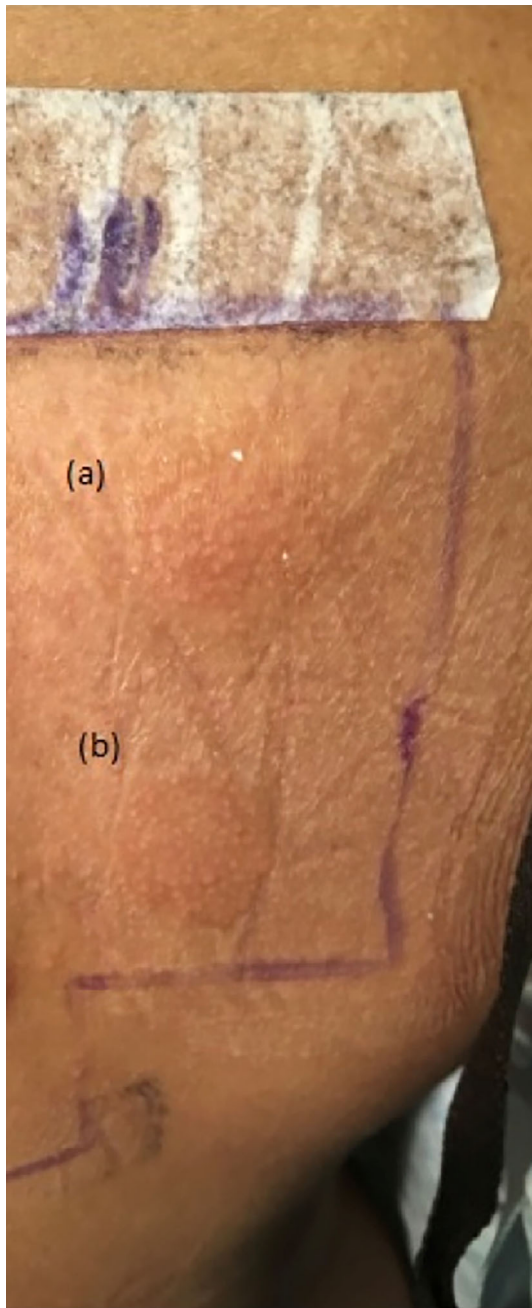


FIGURE 1 Positive patch tests to (a) powdered cetirizine hydrochloride in tablet in pet. and (b) cetirizine 1 mg/1 mL (0.1%) sugar free solution at day 2

CONFLICT OF INTEREST

The authors declare no potential conflicts of interest.

ORCID

Maham Khan  <https://orcid.org/0000-0002-2517-0095>

REFERENCES

1. Shakouri AA, Bahba AL. Hypersensitivity to antihistamines. *Allergy Asthma Proc.* 2013;34(6):488-496.
2. Cravo M, Goncalo M, Figueiredo A. Fixed drug eruption to cetirizine with positive lesional patch tests to the three piperazine derivatives. *Int J Dermatol.* 2007;46(7):760-762.
3. Stingeni L, Caraffini S, Agostinelli D, Ricci F, List P. Maculopapular and urticaria eruption from cetirizine. *Contact Dermatitis.* 1997;37(5):249-250.
4. Badawi AH, Tefft K, Fraga GR, Liu DY. Cetirizine-induced acute generalized exanthematous pustulosis: a serious reaction to a commonly used drug. *Dermatol Online J.* 2014;20(5):22613.

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

How to cite this article: Khan M, Wakelin S. Cetirizine induced acute generalized exanthematous pustulosis confirmed by patch testing. *Contact Dermatitis.* 2020;82:238–239. <https://doi.org/10.1111/cod.13443>

Figure 2. Strongly positive patch tests to hydroxyzine hydrochloride 1% petrolatum at D2.

