

ALLERGY Net

ALLERGY 2010 DOI: 10.1111/j.1398-9995.2010.02377.x

© 2010 JOHN WILEY & SONS A/S

CONTRIBUTIONS TO THIS SECTION WILL NOT UNDERGO PEER REVIEW, BUT WILL BE REVIEWED BY THE ASSOCIATE EDITORS

Is acute generalized exanthematous pustulosis an uncommon condition in childhood?

S. Ozmen, E. D. Misirlioglu*, A. Gurkan, N. Arda, I. Bostanci

Keywords: acute generalized exanthematous pustulosis; children; drug hypersensitivity.

Acute generalized exanthematous pustulosis (AGEP) is an uncommon dermatosis characterized by an acute episode of hundreds of sterile, nonfollicular pinhead-sized pustules over erythematous–edematous skin. Cutaneous manifestations are often

We presented four children seen at our department during the last year who developed AGEP after drug exposure.

accompanied by systemic symptoms (1). Acute generalized exanthematous pustulosis has been attributed to a variety of causes, such as viral infections or hypersensitivity to mercury but it is primarily an adverse reaction to drugs (2). Diagnostic criteria include an acute pustular eruption, fever ($\geq 38^{\circ}\text{C}$), leucocytosis ($\geq 7000/\mu\text{L}$), neutrophilia with or without a mild eosinophilia, subcorneal or intra-dermal pustules on skin biopsy and spontaneous resolution in < 15 days (1–4). No specific treatment is recommended for AGEP. Withdrawal of the suspected drug and supportive care according to clinical situation are recommended. It is a self-limited disease and the mortality rate is 5% (4).

In this article, we describe the clinical characteristics of four children with this type of reaction. The features of four cases can be seen in Table 1. No history of drug allergy, personal or family psoriasis was present. There were no ocular or mucous membrane involvement or pulmonary symptoms. In four patients, all the drugs were stopped. After discontinuation of the therapy and the administration of systemic antihistamines, we observed rapid healing of the lesions within 2 days.

The patch tests of Case 1 were performed with the intravenous forms of both of the antibiotics at the concentration of 10% and 30% in 0.9% NaCl. The patch tests of Case 2 were performed with the commercial drug preparations themselves (methylprednisolone and cefixime at the concentration of 10% and, 30% in 0.9% NaCl) Case 2 was tested with budesonide, dexamethasone, hydrocortisone, hydrocortisone-17-butyrate, and prednisolone in petrolatum (Brial Allergen® GmbH; D-Greven, Germany by using Haye's Test Chamber®).

Four months later, the first case was admitted to our hospital because of maculopapular rash on the trunk after cefixime usage on the first day. Cefixime was discontinued. The patient was advised not to use any beta-lactam antibiotics. Because of similar beta-lactam ring structures, the use of penicillin and cephalosporins may show cross-reactivity (1).

Acute generalized exanthematous pustulosis is reported as an uncommon condition in children. To our knowledge, this is the first report of case series in children from Turkey. The drugs were probable causes in our four patients. The result of a multinational case-control study (EuroSCAR) showed strong associations with drugs and

AGEP (2). The time between drug administration (especially antibiotics) and skin eruption is short, within 2 or 3 days (5). The symptoms began on the first day in Case 1, on the third day in Cases 3 and 4. In the second case that used steroid and cefixime, the lesions appeared on the sixth day. The reason of the lesions seen in a later time was thought to be the patient's steroid usage.

The pathogenesis of AGEP is not well understood. Positive patch test results proposed that AGEP is a delayed type of hypersensitivity reaction. Wolkenstein et al. (6) reported that patch tests could be used to diagnose AGEP. In their study, seven patients among the 14 AGEP cases had a relevant positive test. Four of them were positive with antibiotics. Patch test with ampicillin was positive in our first case. In the second case, the patch tests were negative with cefixime and steroids.

The patients who develop AGEP because of a specific drug should not use such drugs in their rest of lives. AGEP should be considered when an edematous erythema covered with numerous nonfollicular pustules is seen in childhood.

*Department of Pediatric Allergy and Asthma
Dr. Sami Ulus Woman's Health and Children
Education and Research Hospital
63/23 Basin Cad. Basinevler
Ankara
Turkey
Tel.: +90 312 3056252
Fax: +90 312 3170353
E-mail: edibekm@yahoo.com

Accepted for publication 8 March 2010
Allergy 2010
© 2010 John Wiley & Sons A/S
DOI: 10.1111/j.1398-9995.2010.02377.x

Table 1 Clinical characteristics of our four patients

	Case 1	Case 2	Case 3	Case 4
Age (year)	9	6	11	16
Gender	Male	Male	Female	Male
Primary diagnosis	Rectal atresia with colostomy	Acute laryngitis	Acute appendicitis	Volvulus with colostomy
Drug usage	Sulbactam-ampicillin, clindamycin, amicasin	Cefixime, metil prednisolone	Sulbactam-ampicillin, clindamycin, amicasin	Ampicillin, clindamycin, amicasin
History of pustular eruption	First day	Sixth day	Third day	Third day
Clinical characteristics	Maculo-papular eruptions on the face Erythematous eruption covered with numerous nonfollicular pustules on the trunk, and abdomen	Erythematous eruption covered with numerous nonfollicular pustules on the face, and extremities	Erythematous eruption covered with numerous nonfollicular pustules and maculo-papular eruptions on the trunk and proximal of extremities	Erythematous eruption covered with numerous nonfollicular pustules on the trunk and extremities
Fever	+	+	+	+
Leukocyte	11.900/ μ l	14.300/ μ l	23.000/ μ l	10.200/ μ l
Eosinophil (%)	4	8	8	6.5
Liver-kidney function tests	Normal	Normal	Normal	Normal
Viral serology	Negative	Not performed	Negative	Negative
Treatment	Antihistamines	Antihistamines	Antihistamines	Antihistamines
Histopathology	Acanthosis in epidermis Lymphocytic spongiosis Spongiform pustules, perivascular neutrophils infiltrate	Epidermal pustules, necrotic keratinocytes, perivascular neutrophils infiltrate	Not performed	Not performed
Patch test	Ampicillin: positive Clindamycin: negative	Steroids: negative Cefixime: negative	Not performed	Not performed

References

1. Belda Junior W, Ferrola AC. Acute generalized exanthematous pustulosis (AGEP). Case report. *Rev Inst Med Trop Sao Paulo* 2005;**47**:171–176.
2. Sidoroff A, Dunant A, Viboud C, Halevy S, Bavinck JN, Naldi L et al. Risk factors for acute generalized exanthematous pustulosis (AGEP)-results of a multinational case-control study (EuroSCAR). *Br J Dermatol* 2007;**157**:989–996.
3. Meadows KP, Egan CA, Vanderhooft S. Acute generalized exanthematous pustulosis (AGEP), an uncommon condition in children: case report and review of the literature. *Pediatr Dermatol* 2000;**17**: 399–402.
4. Roujeau JC. Clinical heterogeneity of drug hypersensitivity. *Toxicology* 2005;**209**:123–129.
5. Moreau A, Domp Martin A, Castel B, Remond B, Leroy D. Drug induced acute generalized exanthematous pustulosis with positive patch tests. *Int J Dermatol* 1995;**34**:263–266.
6. Wolkenstein P, Chosidow O, Fléchet ML, Robbiola O, Paul M, Dumé L et al. Patch testing in severe cutaneous adverse drug reactions, including Stevens-Johnson syndrome and toxic epidermal necrolysis. *Contact Derm* 1996;**35**:234–236.