

We conclude that the described pyrethroid intoxication was paralleled by a change in factors which regulate the immune system, resulting in an increased allergy-like response.

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Anaphylactoid reaction to patch testing with ammonium persulfate

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Key words: ammonium persulfate; asthma; patch test; systemic reaction.

• Six years after starting her job, a 21-year-old hairdresser developed work-related rhinorrhea, sneezing, dry cough, dyspnea, wheezing, and occasionally neck erythema, which appeared 15 min after starting work, improved on the weekly rest, and disappeared over holidays. Her

history was negative for atopy. Patch tests showed a positive reaction to ammonium persulfate (++) , which the patient was exposed to at the workplace; on such occasions, rhinitis and dyspnea occurred some hours after patch application.

When we examined the patient to confirm occupational asthma, she had not worked for a week and was asymptomatic. Skin prick test (SPT) and specific IgE (Pharmacia CAP System, Sweden) to common aeroallergens and latex were negative. Total IgE (Pharmacia CAP System, Sweden) was 318 kU/l. VC was 2.97 l (88% predicted) and FEV₁ 2.66 (91%). After 400 µg inhaled salbutamol, FEV₁ increased to 3.09 l. Methacholine PD₂₀FEV₁ was 1152 µg. On day 1, a patch with ammonium persulfate 1% in petrolatum was applied on the back, and spirometry was performed hourly (Fig. 1). By 90 min after the application, cough, dyspnea, nasal obstruction, itching at the site of the patch, and wheals on neck and face had occurred. The patch was removed, showing erythema and wheals. FEV₁ progressively decreased with a maximal fall of 49% at 150 min. After inhalation of salbutamol, cough and dyspnea were relieved and FEV₁ returned to

Severe bronchial obstruction in a hairdresser after patch testing.

baseline. The wheals on neck and face disappeared in 2 h. At the patch site, vesicles appeared within 48 h. To exclude spontaneous fluctuations of respiratory function, spirometry was performed hourly on day 2, showing no significant changes. Due to the high degree of hypersensitivity, inhalation challenge with ammonium persulfate, planned to confirm a diagnosis of occupational asthma, was not performed.

Ammonium persulfate is a low-molecular-weight (LMW) chemical used in peroxide hair bleaches. It is a known cause of urticaria, contact dermatitis, rhinitis, and asthma (1). By inhalation, it is recognized as a cause of occupational asthma. Immediate urticarial reactions after inhalation/contact seem to occur principally in asthmatics (1).

We have described a systemic reaction, documented by serial spirometry, after patch testing with ammonium persulfate. Head and neck urticaria after patch testing with ammonium persulfate, preceded by a large wheal surrounding the patch, has already been described (2). An anaphylactoid reaction to patch testing to another LMW substance, formaldehyde, has been reported (3). To our knowledge, this is the first report of an anaphylactoid reaction to the patch test with ammonium persulfate.

In this case, the development of a systemic reaction indicates cutaneous absorption of

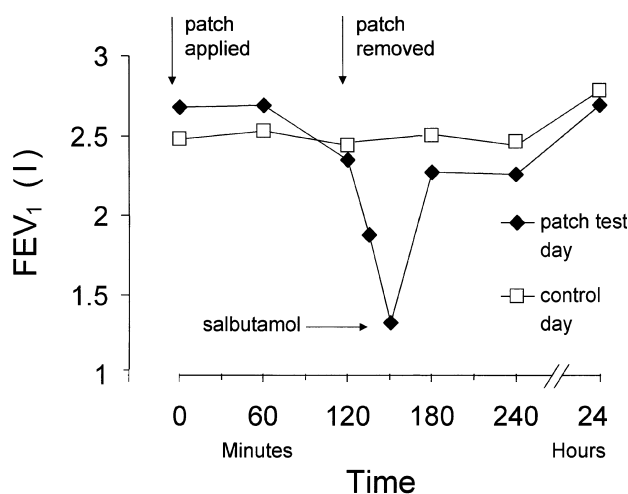


Figure 1. Time course of FEV₁ after patch testing with ammonium persulfate.

ammonium persulfate. The mechanism of such a reaction remains unknown, but the relatively short interval between patch application and appearance of symptoms indicates an IgE-mediated reaction, as suggested by the frequent positive SPTs to ammonium and potassium persulfates in subjects occupationally exposed with work-related respiratory symptoms (4). In our case, as in the anaphylactic reaction after patch testing with formaldehyde (3), there was a history of respiratory symptoms.

Our case suggests the need of a period of observation after application of patches with ammonium persulfate, at least in patients with a history of asthma, where open testing may also be preferable. It also suggests the use of a transparent patch when testing with ammonium persulfate to recognize immediate reactions.

In conclusion, systemic reactions to patch testing, although uncommon, should be taken into consideration, especially in patients with a history of dyspnea.

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Inhalant allergy in the United Arab Emirates

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Key words: allergy; Chenopodiaceae; Gramineae; Leguminosae; prick test; United Arab Emirates.

● RESPIRATORY disorders such as asthma and allergic rhinitis are common in the United Arab Emirates (UAE). In a study of 850 schoolchildren, the prevalences of diagnosed asthma and allergic rhinitis were

13.6% and 22.9%, respectively (1). The present study aimed to obtain basic data on prick test

reactivity to inhalant allergens and to construct a prick test series suitable for local

Positive prick tests to pollens from grasses, chenopods, and legumes are common.

use. To accomplish this, patients with allergy-like respiratory disorders were prick-tested with a panel of inhalant allergens.

This study was carried out in the Allergy Clinic of Tawam Hospital, Al Ain, Emirate

Table 1. Prick test reactions to inhalant allergens

Allergen	% Positive (no. positive of those tested)	Kappa coefficient ¹
Natural rubber latex	1.0 (1/105)	
Cockroach mix	14.7 (28/190)	
<i>D. pteronyssinus</i>	17.1 (38/222)	
<i>D. farinae</i>	9.5 (21/221)	0.43 ²
Cat dander	9.4 (21/223)	
Goat dander	14.6 (19/130)	
Feather mix	7.1 (6/85)	
Camel hair and dander	5.9 (3/51)	
Bermuda grass	31.3 (74/238)	
Grass mix	40.7 (22/54)	0.61 ⁴
Russian thistle	48.2 (119/247)	
Lamb's-quarters	31.0 (61/197)	0.48 ²
Firebush	47.7 (71/149)	0.76 ⁴
Sea blite	43.8 (67/153)	0.71 ⁴
Scale mix	32.9 (26/79)	0.38 ³
Pigweed mix	44.3 (27/61)	0.57 ²
Mugwort	4.6 (7/153)	
Plantain	4.8 (6/126)	
Date palm	13.8 (8/58)	
Mesquite tree	45.5 (80/176)	
Golden acacia	25.6 (11/43)	0.75 ⁴
Alfalfa	22.9 (11/48)	0.74 ⁴
<i>Alternaria</i>	5.6 (3/54)	
<i>Aspergillus</i> mix	7.3 (4/55)	
<i>Cladosporium</i>	0 (0/53)	
<i>Penicillium</i> mix	3.9 (2/51)	

¹In calculating concordance of prick test reactivity, *D. farinae* was compared with *D. pteronyssinus*, grass mix with Bermuda grass, other chenopods and pigweed mix with Russian thistle, and other legumes with mesquite.

²Moderate degree of agreement.

³Fair degree of agreement.

⁴Substantial degree of agreement.