

Photodermatitis from plant derivatives in topical and oral medicaments

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Key words: allergic contact dermatitis; photodermatitis; plant derivatives; ketoprofen; vanilla; propolis; topical medicaments; herbal remedies. © Munksgaard, 1996.

Case Report

A 36-year-old housewife presented in July 1991 with photodermatitis. After a traffic accident, multiple contusions on her left hand and forearm had been treated with Fastum[®] gel, containing ketoprofen. Days later, after sunbathing, an acute exudative eczema appeared at the same sites, and spread, sparing the skin covered by the top of her bikini. In spite of topical corticosteroid and sunscreen, bullous lesions appeared and treatment with oral corticosteroid was required. She improved in 2 weeks, and 2 months later, patch and photopatch tests were performed.

The GEIDC standard series was applied and patch test reactions elicited to balsam of Peru (Table 1), fragrance mix, PTBP-F-R and PPD mix. Positive reactions to cinnamic alcohol and aldehyde, and isoeugenol, were obtained when the components of fragrance mix were tested. Open and closed patch tests with ketoprofen 3% pet. and the 7 excipients of the anti-inflammatory gel, kindly supplied by the manufacturer, were carried out and no reactions were observed.

Photopatch tests were performed with the components of fragrance mix and the anti-inflammatory gel, as well as ketoprofen, naproxen and diclofenac. Only ketoprofen and lavender essence (one of the excipients) showed positive reactions (negative on non-irradiated skin).

In April 1993, the patient took Dastosin[®], an anti-catarthral syrup, after lunch and dinner, for pharyngitis.

The components of the syrup were: dimemorfan, sugar, methyl and propyl paraben, polyethylene glycol, sodium citrate, citric acid, licorice extract, honey flavour and vanillin extract. That afternoon, she took a 20-min walk in cold rainy weather. When she awoke the following morning, she felt a burning sensation on the right side of her face, similar to that she had experienced 2 years before. She presented with erythema and swelling, with itching and a hot sensation, which spread from the upper face to the lateral neck, chest, both forearms and dorsa of her hands. The lesions subsided in 2 weeks with scaling.

Further patch and photopatch tests were carried out with the components of Dastosin[®], kindly supplied by the manufacturer, several kinds of honey, beeswax, flavouring agents and propolis. Propolis, Benjui tincture, sticks of vanilla and the components of Dastosin[®] (vanilla and honey flavours) elicited positive reactions (++) at D2 and D4, on both irradiated and non-irradiated skin. The reactions to propolis and sticks of vanilla were larger on irradiated skin than on non-irradiated.

In August 1995, the patient applied Vicks VapoRub[®] ointment on the upper chest up to her neck, for a distressing cough, for 3 nights. 2 days later, 5 days after the 1st application, she presented with erythema and itching on the uncovered skin where the ointment had been applied. Swelling and micropapules, with a linear upper limit, were observed. She had not sunbathed, but the weather had been very sunny. She had applied Vicks VapoRub[®] to her children previously without any reaction. The components of Vicks VapoRub[®] were: camphor, turpentine, thymol and essential oils of eucalyptus, nutmeg and cedar leaves, and petrolatum.

Photopatch tests with Vicks VapoRub[®] and its components were performed with negative results. Further tests were declined by the patient. In spite of the negative tests, nutmeg oil remains the main suspect, since it contains eugenol and isoeugenol (1).

Discussion

Pigatto et al. (2), among 121 patients with allergic reactions to topical arylpropionic anti-inflammatory drugs, observed that ketoprofen was the most frequently involved, and suggested cross-sensitivity to cinnamic aldehyde and balsam of Peru (positive in our patient). Lavender oil is considered a photosensitizing and pigmenting agent.

The ingestion of Dastosin[®] was the cause of the 2nd outbreak and a photodynamic mechanism seemed to be involved. Vanilla and honey flavours were the suspected etiological factors. Vanillin, which is the fragrant con-

Table 1. Relevant results of patch and photopatch tests

	D2	D4	Photopatch test
balsam of Peru	++	++	
fragrance mix	++	++	
cinnamic alcohol	++	++	
cinnamic aldehyde	++	++	
isoeugenol	++	++	
ketoprofen	-	-	++
excipients of Fastum [®]	-	-	
lavender essence	-	-	++
propolis	++	++	++
Benjui tincture	++	++	++
sticks of vanilla	++	++	++
vanilla	++	++	++
honey flavours	++	++	++
Vicks VapoRub [®]			-
camphor			-
turpentine			-
thymol			-
essentials oils of eucalyptus			-
nutmeg			-

stituent of vanilla, is formed from glycosides such as glucovanillyl alcohol and gluconiferyl alcohol. Some individuals are sensitized to synthetic vanillin and not to the natural spice, and vice versa, which might explain why our patient occasionally has ice-cream containing "vanilla" without any trouble.

Contact anaphylaxis due to para-phenylenediamine

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Key words: immediate-type contact allergy; contact urticaria; anaphylactic shock; para-phenylenediamine; Prausnitz-Kustner reaction; hair dye. © Munksgaard, 1996.

Case Report

A 57-year-old woman visited our clinic with a complaint of syncope which occurred within minutes of using a hair dye. She had used the preparation for 8 years without experiencing any problem, but then started to have episodes of itchy bumps on her head and hands 10–30 min after applying the dye, which contained para-phenylenediamine (PPD). The bumps disappeared 3 h later. After her most recent use of the dye, the itchy bumps had spread over her entire body and she had developed nausea, vomiting, and difficulty in breathing, accompanied by a cold sweat. All these symptoms disappeared spontaneously within 3 h. Patch tests with the hair dye and its components (Table 1) disclosed that she had an immediate-type allergy to PPD without any sign of the delayed type.

Having confirmed that she was free from infection, such as HIV, HTLV-1, hepatitis or syphilis, and having obtained the informed consent of her daughter, her serum (0.05 cm³) was injected into her daughter's skin. When PPD was applied to the injected sites the next day, a wheal appeared at the site injected with serum. However, sites injected with heat-treated (100°C for 3

min) serum or normal saline showed no sign of wheals. Therefore, the positive response was confirmed to be a Prausnitz-Kustner (P-K) reaction. 7 other ingredients of the hair dye and procaine hydrochloride failed to produce wheals in either the mother or the daughter (Table 1).

Discussion

To the best of our knowledge, this is the 1st report of immediate-type contact allergy to PPD to appear in a western scientific publication, although 3 similar cases have been reported in Japanese journals (1, 2). Anaphylactic shock appears to be extremely rare, when we consider the annual worldwide consumption of PPD. The reaction described here was confirmed to be transmissible by serum and P-K in type. However, a P-K reaction was not evident in the 3 previous cases.

Although PPD is well-known as being able to cause cross-reactivity to procaine in the case of delayed-type hypersensitivity, the patient fortunately did not exhibit this cross-sensitivity with her immediate-type allergy. We do not know whether there was any cross-sensitivity in the 3 other Japanese cases previously reported.

Table 1. Patch tests in mother and daughter

Test substance	Mother	Daughter		
		serum		normal saline
		intact	heat inactivated	
Immediate-type reaction				
hair dye	+	+	—	—
PPD	+	+	—	—
7 other ingredients of hair dye	—	—	—	—
procaine	—	—	—	—
Delayed-type reaction				
PPD	—	—	—	—

+* a positive test reaction; —** a negative reaction.

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