

Short Communication

Contact urticaria due to potassium persulfate

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Case Report

A housewife of 37 years of age, with no past medical history, consulted us because 15 min after application of a hair dye kit (Gentle Mèches System®), she had developed itch and erythema of the ears, neck and forehead. Subsequently, she had washed her hair, and pruritus and hand erythema had also begun. 30 min later, she went to an emergency department where she was treated with parenteral methylprednisolone. Over the next 30 min, she became almost asymptomatic.

The hair dye kit applied included 3 components: (a) cream, (b) peroxide cream and (c) booster, the latter being suspected by the patient. Prick tests with standard aeroallergens, latex, and cereals were negative. Standard patch tests (TRUE Test®, Pharmacia & Upjohn, Denmark) were positive only to nickel sulfate. Prick tests with all hair dye constituents produced a 5–6 mm wheal reaction only with 1/10 and 1/1 of booster (histamine hydrochloride 10 mg/ml 6 mm, normal saline 0 mm). 2 controls tested with identical booster strengths were negative.

The manufacturer kindly supplied the individual isolated booster components, namely potassium persulfate, talc, sodium silicate, hydroxyethyl cellulose, PVP, EDTA, silica and ultramarines. All ingredients gave negative prick tests at 1/30 in phosphate-buffered saline (PBS), but potassium persulfate diluted in PBS until precipitated, gave a 5-mm wheal reaction. After diluting potassium persulfate 1/10, this skin response was kept. 4 controls were again negative.

Discussion

Although hair cosmetic contact dermatitis is not uncommon, only a few cases of urticaria have been described. Among those chemicals responsible are Brandowski's base [(4-aminophenyl)-2,5-diamino-1,4-quinone-diimine] (1) and panthenol, reported as a cause of non-occu-

pational anaphylaxis (2). Workplace exposure to the hair dye Basic Blue 99 has caused rhinoconjunctivitis, cough and eyelid edema (3). In addition, a hair conditioner protein, crotein Q (hydroxypropyl trimonium hydrolyzed collagen), was the cause of 3 cases of contact urticaria (4).

Persulfate salts are a known cause of contact dermatitis in hairdressers, as well as of cases of occupational asthma (5), demonstrating the diagnostic rôle of ammonium persulfate prick tests. Persulfates are used in hair dyes as bleaching agents, because they have a stronger effect than hydrogen peroxide. Nowadays, potassium persulfate is more frequently used than ammonium persulfate, because the latter has an unpleasant odour.

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