

Short Communications

Chemical burn due to dry-cleaning solvent

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Key words: chemical burn; dry cleaning; pigmentation; organic solvents. © Munksgaard, 1999.

Case Report

A 23-year-old woman was referred with hyperpigmentation on her upper anterior and posterior thighs after a chemical burn. A month before, she had received some dry-cleaned leather trousers from the laundry and hung them up without removing the plastic bag from around them. 2 weeks later, she opened the plastic bag just before wearing the trousers to attend a meeting. After sitting on a chair for about 30 min, she noticed burning pain on both thighs. She took off the trousers and saw a diffuse erythema on the thighs from the knee to the groin. The inside of the trousers felt wet and gave off a petroleum-like odour. She went to the hospital nearby and was prescribed silver sulfadiazine and fluocinonide cream. The inflammation and pain disappeared within 2 days. She presented to our hospital 15 days after the incident. The hyperpigmentation remained for 2 months.

Comment

Several chemical burns due to dry-cleaning solvent have been reported in the Japanese literature (1-3). They tend to occur in winter and from leather garments, indicating that dry-cleaning solvent may be difficult to evaporate from leather at low temperature. Our patient hung the

trousers without discarding the plastic bag, which made evaporation still more difficult.

All reported cases had a chemical burn on a skin area subject to pressure. A mother with a child on her arm had one on that arm (1), another woman noticed pain on her thighs while sitting on a train (2), and there was a burn around the waist under a belt in another case (1). With pressure, dry-cleaning solvent may more easily penetrate and irritate the skin. Though Saito (2) reported that n-decane in dry-cleaning solvent was the cause of such a burn, we could not identify the responsible constituent, since the laundry declined to cooperate.

In conclusion, one should discard the plastic bag after receiving dry-cleaned clothes, especially if they are made of leather, so as to allow any residual solvent to evaporate, and then check for moistness or odour before wearing them.

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Contact dermatitis due to 2-hexyldecanoic acid (isopalmitate) in a lipstick

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Key words: contact allergy; 2-hexyldecanoic acid; isopalmitate; cosmetics; lipstick. © Munksgaard, 1999.

Case Report

A 17-year-old high school student was seen in October 1998 with pruritic edematous erythema on her lips.

After starting to use 2 kinds of lipstick, from anonymous Japanese makers, she had developed this condition within a few days.

We initially performed patch tests with both lipsticks

(as is), and a positive reaction was seen to 1 of them at D2 and D3. Subsequently, the patient was patch tested with 30 ingredients of this lipstick in appropriate dilutions. Diglyceryl 2-hexyldecanoic/sebacic acid oligomer 10% pet. alone was positive at D2 and D3. The lipstick contained 23.5% of this oligomer. The patient was then patch tested with 2-hexyldecanoic acid (isopalmitate) 0.1, 1, and 10% pet., diglycerol 0.1, 1, and 10% pet., and sebacic acid 0.1, 1, and 10% pet. Only 2-hexyldecanoic acid 10% pet. was positive at D3 (Table 1). Patch tests with 0.1, 1, and 10% pet. of 2-hexyldecanoic acid, diglycerol, and sebacic acid in 6 normal subjects showed no response at D2 or D3.

Discussion

Allergic reactions due to lipsticks have been reported to be caused by dyes, e.g., D&C Red 21 (1) and D&C Yellow 10 (2), other constituents, e.g., castor oil (3) and propyl gallate (4), and sunscreens, e.g., phenyl salicylate (5) and para-tertiary-butylphenol (6). Our patient was negative to dyes (e.g., D&C Red 6 and D&C Red 7) and to other constituents (e.g., lanolin and glycerol), with only 2-hexyldecanoic acid (isopalmitate) being positive.

Palmitate and isopalmitate (2-hexyldecanoic acid) are viscous oils frequently used in the base of cosmetics (7). Recently, ascorbyl palmitate and vitamin A palmitate have been developed for cosmetics (8, 9). Palmitate-related substances, isopropyl palmitate and octyl palmitate, are known to have irritant potential and comedogenicity (10, 11) and 1 case of contact dermatitis from a mixture of DEA-dihydroxypalmityl phosphate and isopropyl hydroxypalmityl ether has been reported (12). The chemical formula of isopalmitate is $\text{CH}_3(\text{CH}_2)_7\text{CH}[(\text{CH}_2)_5\text{CH}_3]\text{COOH}$. Our case seems to be the 1st report of contact dermatitis due to isopalmitate.

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Table 1. Patch test results

		D2	D3
lipstick (K) as is		++	++
lipstick (S) as is		–	–
diglyceryl 2-hexyldecanoic/sebacic acid oligomer		++	++
other ingredients		–	–
2-hexyldecanoic acid	10% pet.	??	+
(isopalmitate)	1% pet.	–	–
	0.1% pet.	–	–
diglycerol		–	–
sebacic acid		–	–
petrolatum		–	–