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Anaphylactic shock caused by cetylpyridinium chloride in a throat spray

Kaori Shima, Hideaki Tanizaki, Yuichiro Endo, Akihiro Fujisawa, Miki Tanioka, Yoshiki Miyachi and Kenji Kabashima

Department of Dermatology, Kyoto University Graduate School of Medicine, Sakyo-ku, Kyoto 606-8507, Japan

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Cetylpyridinium chloride (CPC) (CAS no. 123-03-5; $C_{21}H_{38}NCl$; 1-hexadecylpyridinium chloride) is a cationic surfactant widely used as antimicrobial agent and analgesic in throat candy, toothpaste, and throat spray. Herein, we report a case of anaphylactic shock resulting from exposure to throat spray containing CPC.

Case Report

A 67-year-old male frequently consumed throat candy and used throat spray. One day, he experienced cold-like symptoms and began to take some prescription medicine (loxoprofen sodium, rebamipide, tranexamic acid, cloperastine, and cefcapene pivoxil hydrochloride). Twenty minutes after using the throat spray, he developed generalized wheals, swelling of the eyelids and lips, and dyspnoea. He received systemic corticosteroid therapy and recovered. We suspected that his anaphylactic shock occurred because of the medicine or the throat spray. The throat spray contained glycerol, propylene glycol, D-sorbitol, ethanol, l-menthol, citric acid, sodium citrate, and CPC. To identify the allergenic drugs, we performed a drug lymphocyte stimulation test for loxoprofen sodium and cefcapene pivoxil hydrochloride, as these are known common allergens; however, the results were negative for both drugs. The patient had no previous history of non-steroidal anti-inflammatory drug intolerance.

Prick tests for all components of the throat spray were performed on the patient's volar forearm. No positive reaction occurred after 15 min. To clarify the role of CPC, we next performed an intradermal test. A 1% CPC solution induced a wheal 23 mm in diameter and erythema >50 mm in diameter (Fig. 1a) after 15 min, accompanied by throat irritation. Permission for a skin biopsy was denied by the patient. Because his forearm was severely swollen and tender even several hours after the skin tests, topical and systemic corticosteroid (prednisolone, 10 mg/day) therapy was administered, which relieved the signs and symptoms within a week. The prick and intradermal tests with CPC in 5 healthy subjects all gave negative results, which suggests that the symptoms were not caused by a non-immunological reaction. Therefore, we diagnosed anaphylactic shock caused by CPC contained in the throat spray.

Discussion

CPC (Fig. 1b) is widely used around the world, also as a lubricant in powder-free gloves. Recently, the use of such gloves in hospitals has increased. Although a few cases of allergic contact dermatitis caused by CPC have been reported (1, 2), to the best of our knowledge there have been no previous reports of anaphylactic shock due to CPC.

In our case, the patient was not a medical professional and had not been exposed to gloves coated with CPC in his daily life. Presumably, he had been sensitized to CPC through mucous membranes or perhaps perioral skin as a result of consuming throat candy and using throat spray.

Our case highlights the fact that the antimicrobial agent CPC can be a potential cause of immediate-type allergic reactions.

Correspondence: Hideaki Tanizaki and Kenji Kabashima, Department of Dermatology, Kyoto University Graduate School of Medicine, 54, Shogoin, Kawahara-cho, Sakyo-ku, Kyoto 606-8507, Japan. Tel: +81 75 751 3310; Fax: +81 75 751 4949. E-mail: tanizaki@kuhp.kyoto-u.ac.jp; kaba@kuhp.kyoto-u.ac.jp

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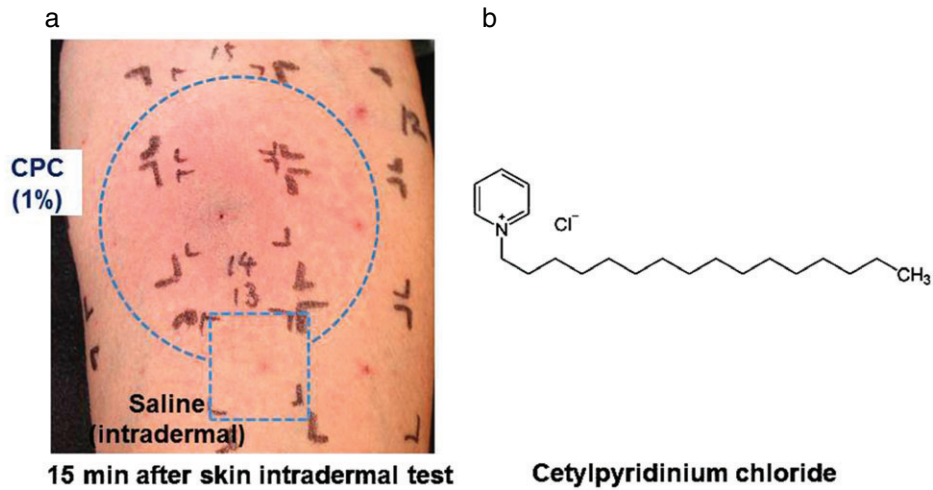


Fig. 1. (a) 15 min after skin intradermal test. (b) Cetylpyridinium chloride.

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