

**Airborne contact
dermatitis from *n*-alkyl
dimethyl-
benzylammonium
chloride and *n*-alkyl
dimethylethyl-
benzylammonium
chloride in a detergent**

Contact Dermatitis 2006; 55: 311–312

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Occupational airborne contact dermatitis from disinfectants are not frequent. They are usually seen in hospitals, where the exposure is more common. We report a case of a young woman, with an intense eczematous eruption that developed hours

after an accidental contact with a cleaning solution.

Key words: airborne contact dermatitis; disinfectant; occupational; quaternary ammonium salt

Case Report

A 23-year-old cleaning woman, without previous skin diseases, developed an acute eczematous eruption several hours after cleaning a floor with a Quat-10[®] solution (*n*-alkyl dimethylbenzylammonium chloride and *n*-alkyl dimethylethylbenzyl ammonium chloride) that accidentally spilled on the floor.

The eruption consisted of vesicles and an extensive erythema with sharp margins on the chest, face, and arms. Covered areas were not affected (Fig. 1). She had no airway symptoms. Due to the severity and the extension of the cutaneous eruption, she was admitted to our hospital and treated with systemic corticosteroids until complete resolution of the lesions.

A skin specimen was taken, which showed spongiosis, with a lymphocytic and histiocytic dermal infiltrate.

She was patch tested with a standard series (True test) and a series of disinfectants. In addition, she was also tested with Quat-10[®]. Patch testing showed positive reactions to colophony, nickel sulfate, and to 0.1%, 0.5%, and 1% Quat-10[®]. Patch testing with Quat-10[®] in 10 controls was negative.

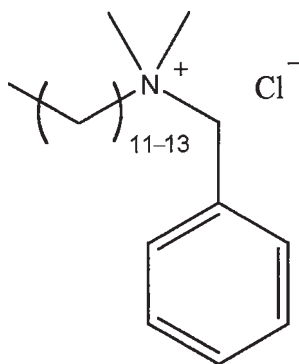


Fig. 2. Molecular structure of *N*-alkyl dimethylbenzylammonium chloride.

Discussion

N-alkyl dimethylbenzylammonium chloride (Fig. 2) and *n*-alkyl dimethylethylbenzyl ammonium chloride are quaternary ammonium compounds, specifically used for cleaning large public spaces such as schools, industrial and institutional food processing establishments, restaurants, hospitals, and nursing homes.

These products have a virucidal, fungicidal, and bactericidal activity. They are also active against human immunodeficiency virus-1, canine parvovirus and poliovirus type 1.

Contact dermatitis from these products has already been reported in patients with previous skin diseases such as leg ulcers or eczema (1). Occupational and airborne contact dermatitis from disinfectants in hospitals has also been previously described (2). Particular conditions such as low

environmental humidity favour the dispersion of substances in the air (3).

The clue to this case is the severity of the cutaneous involvement together with the distribution of the lesions.

References

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Fig. 1. Extensive erythema with sharp margins.