

Chronic Allergic Contact Dermatitis Due to Chlorhexidine



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A 29-year-old female operating theater nurse presented with a 6-month history of an evolving bilateral hand dermatitis that initially began as recurrent pruritic erythematous papulovesicular eruptions. She suspected that a chlorhexidine-containing antiseptic hand wash present in her workplace was the primary causative agent because her dermatitis typically developed and flared 48 hours after application. She was reviewed by occupational health who advised avoidance of the chlorhexidine hand wash and use of a soap substitute (emollient) instead at work. Her hand dermatitis persisted despite the avoidance measures and eventually evolved into darkened thick pruritic patches on the dorsal surface of her hands during the latter 3 months. She had a medical history of childhood eczema. Her skin eruptions tended to improve when she was away from her work environment.

Physical examination revealed lichenified hyperpigmented papular plaque-like eruptions across both her hands on the dorsal aspects (Figure 1). She had no evidence of active dermatitis elsewhere. Patch testing was performed using IQ Ultra chambers with our extended British Standard Series and chlorhexidine digluconate (0.5% aqueous) (Chemotechnique Diagnostics, Vellinge, Sweden). Patch tests were read on day 2 (D2) and day 4 (D4) in accordance with the International Contact Dermatitis Research Group criteria. Skin prick testing to chlorhexidine digluconate 0.5% (undiluted) was also performed and was completely negative when read at 15 minutes. This was validated against positive (histamine) and negative (0.9% NaCl) controls.

The comprehensive patch testing revealed a strong positive result (++) to chlorhexidine digluconate 0.5% with erythema, vesicles, and infiltration recorded at D4 (Figure 2), and a demonstrable crescendo effect since D2. Of particular importance was the fact that chlorhexidine was a listed ingredient in the soap substitute she had been recommended (as chlorhexidine



FIGURE 1. Lichenified hyperpigmented papular plaque-like eruption on the dorsal aspect of the right hand.

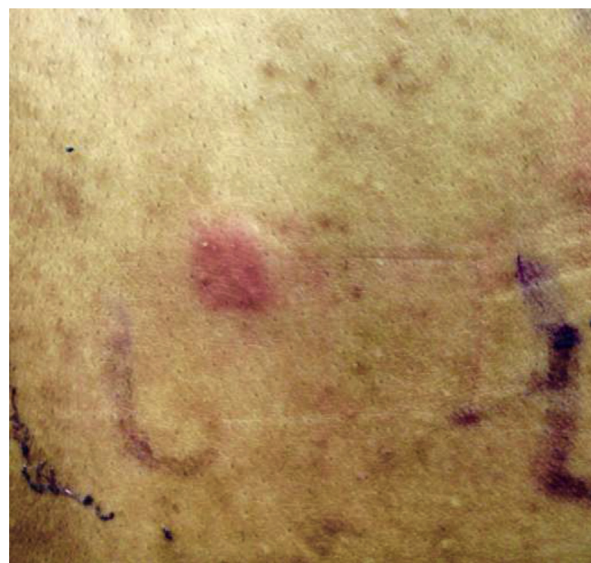


FIGURE 2. Strong positive patch test reading at D4 to chlorhexidine digluconate 0.5% (++).

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hydrochloride 0.1%), explaining the extended chronicity of her skin eruptions despite initially stopping the suspected chlorhexidine-containing hand wash. The other ingredients in the soap substitute were negative on patch testing. She was diagnosed with chronic allergic contact dermatitis due to chlorhexidine on the basis of clinical features, occupational exposure, and the positive patch test result. Avoidance of the soap substitute led to a complete resolution of her recurrent hand dermatitis over the course of 3 weeks. Given the severe nature of her skin eruptions she was advised to completely avoid chlorhexidine in all forms. She was also advised to use a povidone-iodine-based hand wash as an alternative antiseptic agent and this was well tolerated.

Chlorhexidine is a topical antiseptic agent commonly used in the health care setting and has been readily associated with IgE-mediated immediate hypersensitivity reactions, such as intraoperative anaphylaxis.^{1,2} Contact allergy to chlorhexidine is uncommon, with only 0.1% of patients patch tested to the agent having positive and relevant results.³ Contact sensitization to chlorhexidine generally develops after prolonged and repeated exposure. Various cases of allergic contact dermatitis to chlorhexidine have been previously described, with reports on both

occupational and nonoccupational (ie, mouthwash) contact sensitization and allergy.³⁻⁵ It is educationally important to highlight in this particular case that unintentional and inadvertent exposure to chlorhexidine via the soap substitute (despite initial avoidance advice) resulted in the persistence of the dermatitis and chronic changes observed. Therefore, chlorhexidine could be considered a potential hidden contact allergen and physicians should be extra vigilant when advising alternative emollients or hand products in patients with suspected contact allergy.

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