

CONTACT POINT

Allergic Contact Dermatitis to a Disinfectant Containing N-(3-Aminopropyl)-N-Dodecylpropane-1,3-Diamine in a Supermarket Deli Kitchen Worker: An Unrecognised Occupational Allergen?

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Occupational exposure to cleaning agents is a well-documented source of allergic contact dermatitis (ACD), particularly in environments where repetitive skin contact with disinfectants occurs [1]. Aseptopol 76 (Ecolab Inc., St. Paul, MN, USA) [2] is a disinfectant widely employed in both industrial and commercial settings that contains N-(3-aminopropyl)-N-dodecylpropane-1,3-diamine (APD) and amine oxides. We report a case of ACD induced by Aseptopol 76 in an employee at a supermarket deli kitchen, underscoring the potential for this product to act as an occupational allergen.

1 | Case Report

A 36-year-old female patient presented to the dermatology clinic with a pruritic rash that had persisted for several months. The lesions consisted of erythematous macules and papules affecting her forearms, perioral region and abdomen and eventually spreading to her neck (Figure 1a–c). The patient had no relevant medical history and worked as a cook in a supermarket deli kitchen, where her duties included using and cleaning industrial kitchen equipment and washing it with a high-pressure hose and a disinfectant product called Aseptopol 76 (which contains C12-14 alkyl dimethyl amine oxides and APD, both at concentrations of 3%–5%) [2]. This exposure was initially considered the

likely cause of her rash, as her symptoms improved during the summer when she was away from work.

Patch testing was conducted with the Spanish baseline series and with Aseptopol 76 diluted to 0.04%, 0.1% and 0.2% in aqua using Finn Chambers AQUA (Smart Practice, Phoenix, Arizona). The tests were evaluated on days (D)2 and D4 in accordance with ESCD guidelines [3]. Positive reactions to Aseptopol 76 at concentrations of 0.1% and 0.2% were observed at D2/D4 (++/++) (Figure 2). Ten controls were tested at concentrations of 0.1% and 0.2% with negative results. The patient's dermatitis exhibited a pattern consistent with splash exposure, correlating with her work and the distribution of lesions on her forearms, face and neck, which align with the shape of her work uniform that included short-cuffed gloves. The clinical relevance of the positive patch test was corroborated by the patient's consistent exposure to the disinfectant at work and complete resolution of symptoms following avoidance of Aseptopol 76.

Since this diagnosis, two additional employees, both with occupational exposure to Aseptopol 76, have been evaluated. One worked in the kitchen, while the other was a cashier who used Aseptopol 76 to clean conveyor belts; both presented with hand eczema. However, patch testing for Aseptopol 76 yielded negative results in these cases. Notably, all cases occurred within the

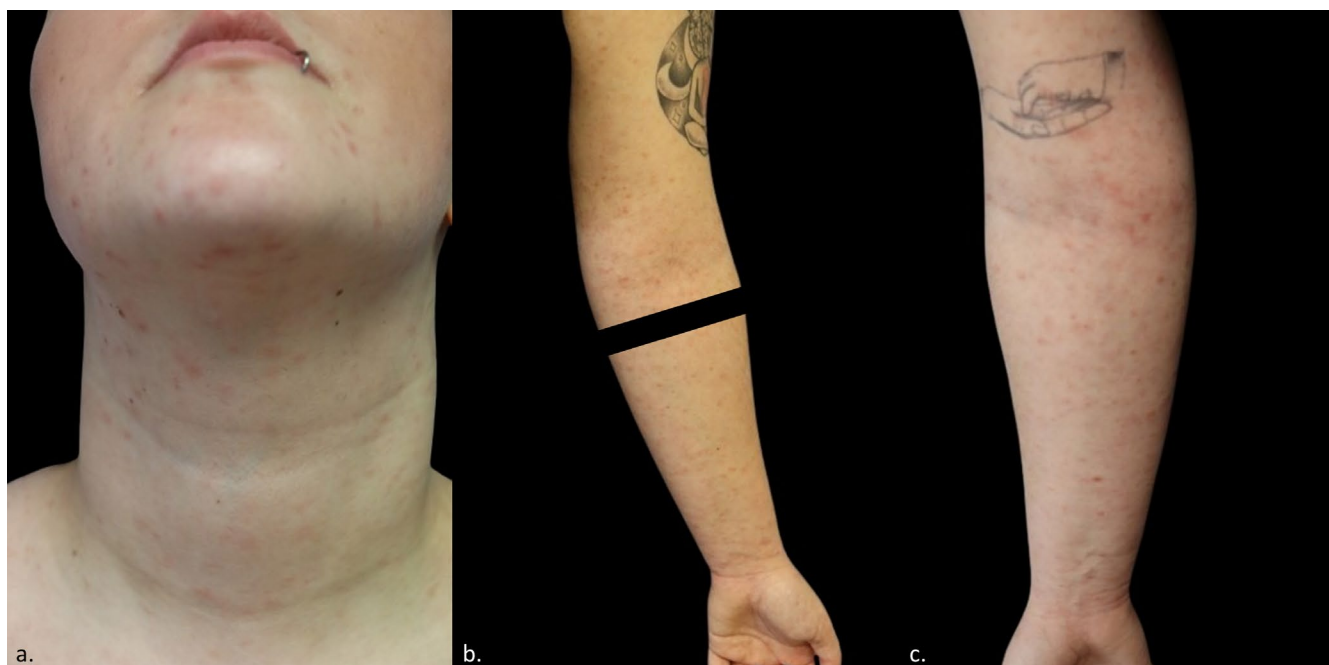


FIGURE 1 | Dermatitis on perioral region (a) and forearms (b, c) after the use of Aseptopol 76 showing a splash pattern aligned with unprotected areas of the patient's work uniform.



FIGURE 2 | Patch test reactions to Aseptopol 76 0.04%, 0.1% and 0.2% aq. at D4.

same well-known supermarket chain, widely established across Europe.

2 | Discussion

Aseptopol 76, primarily composed of APD, is commonly used in industrial kitchens as a disinfectant for hard surfaces and kitchen equipment. The literature contains only a limited number of documented cases of dermatitis associated with APD, particularly within healthcare settings [4–6]. Notably, one prior report identified occupational ACD to APD in a hospital worker who was patch tested with both the disinfectant and APD itself, showing a positive reaction for both compounds. Our case represents the second report of ACD attributed to APD. APD belongs to the class of aliphatic amines, which have been implicated in

ACD. APD's long dodecyl chain enhances its lipophilicity, which may facilitate epidermal penetration and increase its sensitising potential. The allergenic properties of APD remain poorly characterised, underscoring the need for further investigation [7].

This case highlights the role of Aseptopol 76 as a potential occupational allergen among supermarket employees. Quaternary ammonium compounds, such as those present in Aseptopol 76, are primarily recognised as irritants rather than sensitizers. This perception may contribute to the underdiagnosis of allergic contact dermatitis, particularly in occupational settings where exposure is frequent. This diagnostic bias delays appropriate management and highlights the need for increased vigilance among clinicians. Documentation of similar cases is necessary to assess the prevalence of sensitisation to Aseptopol 76 and to implement appropriate preventative measures in workplaces where exposure to this disinfectant is widely used.

Author Contributions

Clara Ureña-Paniego: conceptualization, investigation, funding acquisition, writing – original draft, visualization, validation, methodology, formal analysis, resources, data curation, writing – review and editing. **Irene Albert-Cobo:** investigation, funding acquisition, conceptualization, methodology, validation, visualization. **Teresa López-Bernal:** conceptualization, investigation, funding acquisition, validation, visualization. **Omar Al-Wattar-Ceballos:** conceptualization, validation, visualization, funding acquisition, investigation. **Juan Francisco Silvestre-Salvador:** conceptualization, writing – review and editing, project administration, resources, supervision, data curation.

Conflicts of Interest

The authors declare no conflicts of interest.

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