

Yasuda Rena (Orcid ID: 0000-0002-5427-8783)

Facial contact urticaria caused by a facial cleanser and cosmetics

Rena Yasuda, Akiyo Nagai, Kenta Saito, Kazumitsu Sugiura

Department of Dermatology, Fujita Health University School of Medicine, Aichi, 470-1192, Japan

Address correspondence and reprint requests to: Akiyo Nagai, MD

Department of Dermatology, Fujita Health University School of Medicine, 1-98

Dengakugakubo, Kutsukake-cho, Toyoake, Aichi 470-1192, Japan

Phone: +81-562-93-9256

Fax: +81-562-93-2198

E-mail: akiyos@fujita-hu.ac.jp

Conflict of interest: The authors have no conflict of interest to declare.

Key words: case report, contact urticaria, silk, allergy

This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process which may lead to differences between this version and the [Version of Record](#). Please cite this article as doi: [10.1111/cod.13798](https://doi.org/10.1111/cod.13798)

This article is protected by copyright. All rights reserved.

Silk confers low skin irritation and skin sensitization. Contact urticaria caused by silk is rarely reported¹.

Case Report

A 26-year-old woman developed erythema and wheals localized to her face which improved within 3-4 hours, and which had appeared after using a facial cleansing powder and a face powder (Figure 1A). She suffered from pollinosis and experienced oral discomfort when eating peaches and kiwifruits but had no history of atopic dermatitis. We suspected an immediate cosmetic allergy and performed skin testing using the facial cleansing powder of company A, facial powder of company B, and a paraben mix in 15% pet. Consequently, the facial cleansing powder of company A and the face powder of company B, tested “as is” moistened with a drop of saline, showed positive prick-to-prick results, each causing wheals of 6×3 mm (histamine, 6×6 mm; negative control, 0×0 mm). Paraben mix was negative. Next, we performed prick-to-prick and scratch closed tests using the single ingredients contained in the facial cleansing powder and the face powder, respectively. The components’ concentrations were adjusted by company A, tested as above, showed positive for *Silk powder* (CAS no. 9009-99-8), causing a wheal of 6×7 mm (histamine, 4×4 mm; negative control, 1×1 mm). All other components tested negative. Similarly, the other powder’s

ingredient concentrations were adjusted by company B, yielding prick-to-prick positivity for the mixture of silk-lauroyl lysine, causing a wheal of 4 mm (histamine, 3 mm; negative control, 0 mm). All other components tested negative. Thus, she was diagnosed with facial contact urticaria caused by a facial cleansing powders.

Discussion

There are a few reports of contact urticaria caused by silk, including 2 cases involving silk cloth and clothing^{2,3}, 1 case of dyspnea after using braided silk sutures during surgery⁴, and 1 case involving silk-containing cosmetics⁵. We obtained positive prick-to-prick test results for cosmetics. Additionally, prick-to-prick tests showed positivity for the silk powder in the facial cleansing powder of company A, and the mixture of silk-lauroyl lysine in the face powder of company B. Accordingly, we considered that facial contact urticaria was caused by silk. Silk is widely used to improve texture, powder base, and surface treatment in make-up, skincare, cosmetic, body care, cleaning, and nail products. In addition, silk is listed in the quasi-drug raw material standard 2006⁶. Hence, silk is considered safe in cosmetics and typically used with no skin irritation or skin sensitization. However, the previous reports and our report of contact urticaria caused by silk suggests that contact urticaria due to silk may occur.

References

1. Vandevenne A, Morrene MA, Gossens A. Immunological contact urticaria caused by a silk shirt in an atopic patient. *Contact Dermatitis*, 2015; **72(4)**: 240-241.
2. Paolo R, Carlo F, Grazia E, Domenico B and Caterina F. Contact Urticaria Caused by a Silk Bed Quilt in a Young Atopic Female. *Contact Dermatitis*. 2017; **77(6)**: 425-426.
3. Makatsori M, Scadding GW, Skypala I, Durham SR. D. Silk contact anaphylaxis. *Contact Dermatitis*, 2014; **71(5)**, 314-315.
4. Sano A, Yagami A, Takashi Y, *et al.* Patch Test Results of Cosmetic Products and Allergens in 2006. *Journal of Environmental Dermatology and Cutaneous Allergology*, 2009; **3 (2)**: 94-100. (in Japanese)
5. Kurosaki S, Otsuka H, Kunitomo M, *et al.* Fibroin allergy. *Journal of Nippon Medical School*, 1999; **66 (1)**, 41-44
6. Johnson WJ, Bergfeld FM, Belsito DV, *et al.* Safety Assessment of Silk Protein Ingredients as Used in Cosmetics. *International Journal Toxicology*, 2020; **39(3)**, 127-144

Figure Legends

Figure 1. These photographs are provided by the patient. (A) After using the facial cleansing powder from company A, and (B) the face powder from company B.

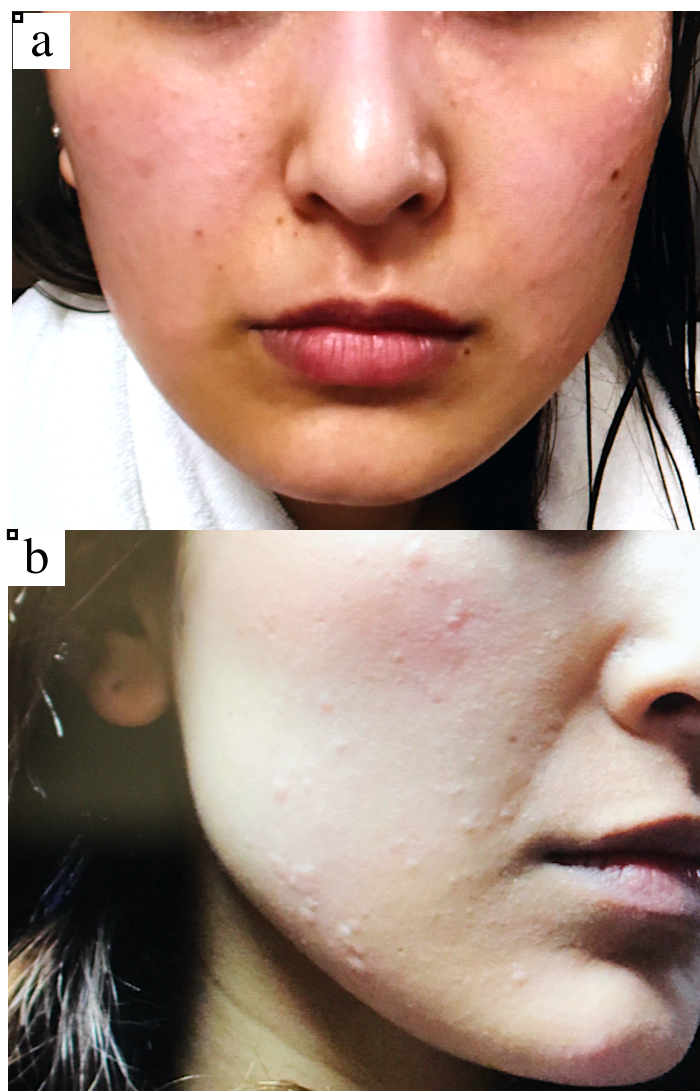


Figure. 1
Yasuda R, et al.