

A case of contact dermatitis caused by isobornyl acrylate in FreeStyle Libre: The usefulness of film-forming agents

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FreeStyle Libre (Abbott Diabetes Care, Witney, UK) is a novel glucose sensor that enables the monitoring of interstitial glucose levels 24 hours per day¹; however, it contains the allergen isobornyl acrylate (IBOA) (CAS no. 5888-33-5).²

CASE REPORT

A 58-year-old man was referred to our dermatology department owing to generalized itchy eczema after he had used a Freestyle Libre for monitoring of his type I diabetes. After 1 month, he

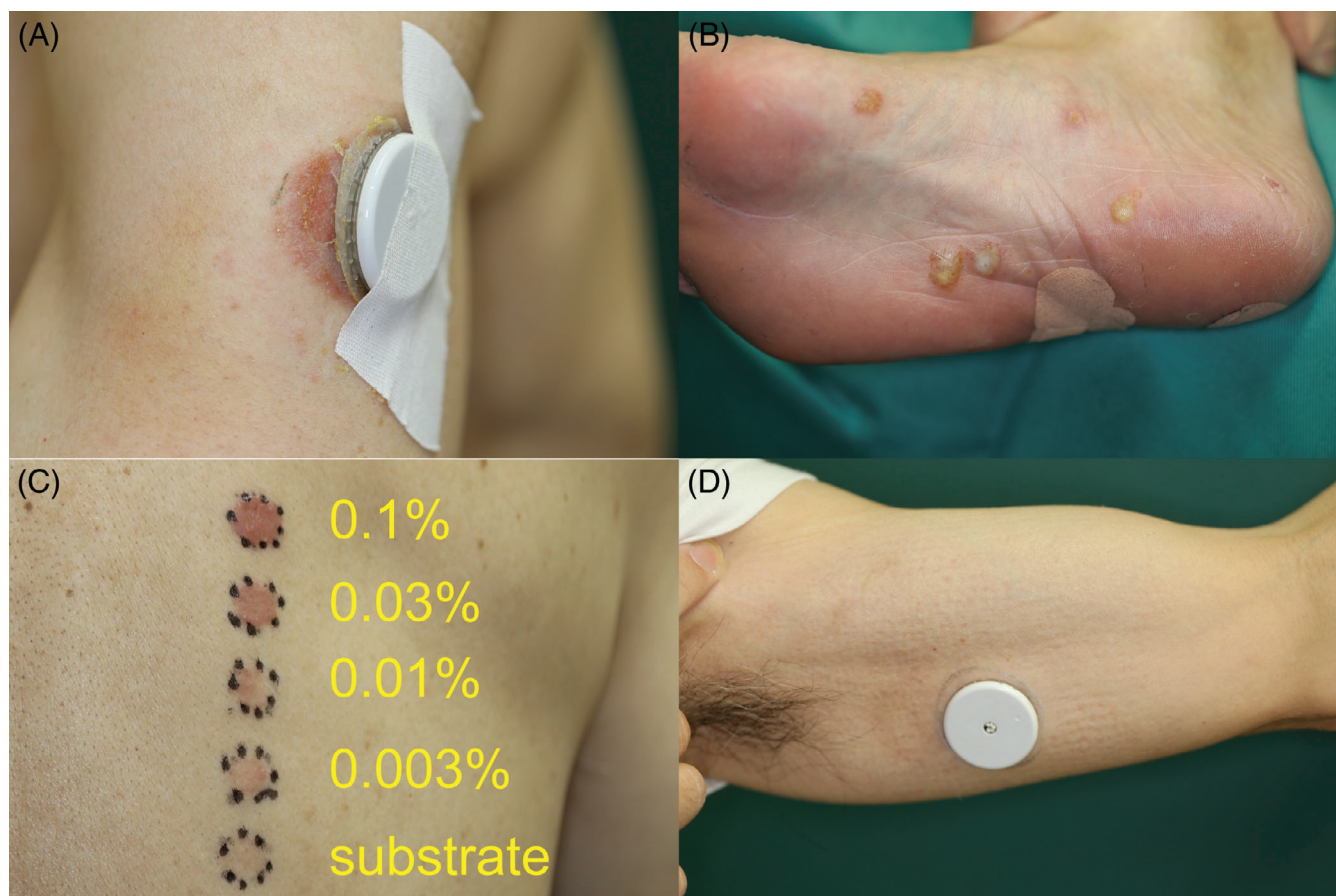


FIGURE 1 Contact dermatitis syndrome induced by isobornyl acrylate (IBOA), and prevention by a film-forming agent. (A), Erosive erythema just beneath the device on the upper arm; note that small satellite papules are seen. (B), Erythema, papules, vesicles and pustules on the sole. (C), The results of a patch test with IBOA. It showed ++, +, ?+ and ?+ reactions to 0.1%, 0.03%, 0.01% and 0.003% IBOA (vol/vol %, in acetone), respectively. (D), Clinical picture 1 week after application of the FreeStyle Libre pretreated with film-forming agent (3M Cavilon)

developed both generalized itching and localized painful and itchy erythema where he had applied the device. He showed erosive erythema just beneath the device on the upper arm (Figure 1A). He also complained of itchy erythema, vesicles and pustules on both soles (Figure 1B) and forearms. To identify the culprit allergen, he was patch tested with a dilution series of IBOA.³ Figure 1C shows the results of the patch test on day 7. After he discontinued using the device, his symptoms were well controlled with clobetasol propionate ointment. However, he was eager to use it again because of convenience and high treatment satisfaction.³ He started to use a film-forming agent (Cavilon no-sting barrier film; 3M Company, St. Paul, Minnesota) just before applying the FreeStyle Libre. The film-forming agent prevented the recurrence of allergic contact dermatitis (Figure 1D and Supporting Information Figure S1).

DISCUSSION

In our case, the patient showed not only contact dermatitis but also contact dermatitis syndrome occasionally associated with severe contact dermatitis; a previous report described a case caused by an adhesive agent (Dermabond).⁴ As IBOA is the culprit allergen in both the FreeStyle Libre and the OmniPod insulin pump,⁵ IBOA should be excluded from such devices in the future. However, unfortunately, many diabetes-associated devices currently contain IBOA. A barrier film, Cavilon, is usually used for the prevention of incontinence-associated dermatitis, and for ostomy care.⁶ However, as Cavilon is also based on acrylate terpolymer,⁷ it may act as a contact allergen or irritant itself.⁸ Cavilon may not be able to prevent symptoms completely in cases of longer wearing times, that is, >72 hours; in the case of the new FreeStyle Libre, this is 21 days. Although we report just a single case, this supports the use of a film-forming agent that may help some patients until improved devices without IBOA are available.

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CONFLICTS OF INTEREST

The authors have no conflicts of interest to report.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

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