

Only six previous cases of ACD in response to topical diltiazem have been reported^{1,3,5-8} (Table S1), with generalized dermatitis in severe cases.^{1,3,5} Systemic allergic dermatitis may appear as a maculopapular eruption resulting from the absorption of diltiazem through perianal skin and mucosa.^{1,3} In these patients, it is suggested that oral diltiazem be avoided, and that chemically unrelated CCBs should be used with caution, as cross-sensitivity has been reported.³

Our patient was additionally sensitized to *Myroxylon pereirae* and multiple fragrances, likely from previous exposure to fragrances in cosmetics and other products; the use of Anusol preparations may have contributed to the dermatitis.

To our knowledge, this is the first published report of co-sensitization to both diltiazem and GTN.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Peter Francis Phillips: Resources (lead); visualization (equal); writing – original draft (lead). **Livia Francine Soriano:** Resources (supporting); visualization (equal); writing – review and editing (supporting). **Deirdre Anne Buckley:** Conceptualization (lead); supervision (lead); writing – review and editing (lead).

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

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Fixed food eruption caused by soy lecithin in a child

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KEYWORDS: case report, child, drug, fixed eruption, food, oral challenge, patch test, provocation tests, soy lecithin

Fixed eruption (FE) is a characteristic skin reaction that usually appears as a single, round or oval erythematous-violaceous macule or plaque that typically recurs at the same location after re-exposure to

the trigger.¹ Although it is mainly caused by drugs,¹ it has also been triggered by foods.²⁻⁶ We present a case of FE in a child, confirmed by local and oral provocation tests.



FIGURE 1 (A) Itchy erythematous-violaceous patch on the chin. (B) Oral food challenge: recurrence of fixed food eruption on the chin accompanied by lower lip swelling 1 hour after intake of about 0.5 g soy lecithin. (C) Patch test on the chin: fixed eruption on the chin and slight edema of the lower lip 24 hours after application of the patch

CASE REPORT

A 9-year-old girl with amoxicillin allergy, presented with an itchy erythematous-violaceous patch on the chin (Figure 1A). She was treated with topical corticosteroids and oral hydroxyzine with complete recovery. Similar episodes occurred during the following month, with lower lip swelling and tongue itchiness that required oral corticosteroids. The patient denied using oral or topical drugs and the recurrence of the symptoms was related to the consumption of several new foods: peanut chocolate pills, chocolate cookies, chorizo, and powdered chocolate. The composition of the products was compared with the finding that chocolate, peanuts, and soy lecithin were the common components.

Allergy tests were performed, including skin-prick tests with foods and inhalants, and patch testing with the baseline, dental toothpaste ingredients, and cosmetic series (Chemotechnique Diagnostics Vellinge, Sweden; AllergEAZE MartiTor Alergia, Spain). The tests were only positive to p-tert-butylphenol formaldehyde resin after 48 and 96 hours, without clinical relevance.

An open oral food challenge was only positive for soy lecithin (Figure 1B). Several weeks later, after the lesions had healed off completely, a patch test was performed on the chin with a mixture of soy lecithin and sterile petrolatum (1:6). After 24 hours, the patch had to be removed because of the appearance of the lesion in the tested area and a subsequent slight edema of the lower lip, confirming our clinical suspicion (Figure 1C). No symptoms have appeared after avoidance of soy lecithin, except for one episode after accidental lecithin intake.

DISCUSSION

Fixed drug eruption (FDE) is well known,¹ but only a few cases of fixed food eruption have been described.²⁻⁶ The diagnosis is based on the temporal relationship between the appearance of typical skin lesions and the exposure to the causative agent.^{1,7} However, this is not always easy to establish, especially when the cause is a widely

used preservative or excipient, such as soy lecithin. Positive provocation tests (oral challenge, patch testing)⁷⁻⁹ confirm the diagnosis, which might be supported by histopathology.^{1,6}

In our case, no biopsy was performed because of the age of the patient and the location of the eruption, but the clinical history and the positive oral provocation and patch tests established the diagnosis.

Patch testing for diagnosing FE is not standardized and its sensitivity is poor, in particular when testing food.^{7,9,10} A mixture of soy lecithin with petrolatum in a 1:6 ratio was used to avoid active sensitization described at concentrations higher than 20%–30%, and it was applied to the target area under occlusion.^{7,10}

In cases that are clinically compatible with a FE, it is important to rule out pharmacological causes and to consider food (additives) as the culprit. If there are several suspicious foods, they should be checked for common components (e.g., soy lecithin, other excipients, or preservatives), as happened in our case.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

CONSENT

The patient's parents gave written consent to publish the photographs.

AUTHOR CONTRIBUTIONS

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Copper release from metals may mask positive nickel spot test results

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The dimethylglyoxime (DMG) spot test is widely used to screen for nickel release that may cause allergic nickel contact dermatitis in allergic individuals. It is a colorimetric test based on the chelation of DMG molecules to free nickel ions which form the complex $\text{Ni}(\text{DMG})_2$ that is bright pink-red.^{1,2} The test has high specificity, but modest sensitivity, which has caused criticism for the test's usability, especially when used on metals that have low nickel release.^{3,4}

DMG molecules do not have specific affinity for nickel ions, and can also chelate with copper ions.^{5,6} This has sometimes been overlooked in the utilization of the test for nickel screening purposes, though it is described in the European Committee of Standardization's report CR 12471 concerning the use of the DMG spot test for nickel release.⁷ In this study, we demonstrate a masking effect of copper

ions that may result in an incorrect reading of DMG spot test to nickel.

METHODS

To test the colour change of DMG in reaction to various concentrations of nickel and copper, dilution series of NiCl_2 and CuSO_4 , respectively, were made. A stock solution of 10% NiCl_2 (wt/v) was made by dissolving 1 g NiCl_2 (Merck KGaA, Darmstadt, Germany; $\geq 98\%$, CAS no. 7718-54-9) in 10 mL distilled water, from which a serial dilution of 1%, 0.2%, and 0.1% was made. Similarly, 1 g CuSO_4 (Merck KGaA; 98%, CAS no. 7758-99-8) was dissolved in