

Systemic contact dermatitis to spices: Report of a rare case

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Systemic contact dermatitis (SCD) or systemically reactivated allergic contact dermatitis (ACD) is a hypersensitivity reaction caused by systemic exposure to the same or related allergen in an already sensitized person. The initial sensitization is by a cutaneous route, followed by re-exposure via oral, intramuscular, or intravenous, inhalation, or percutaneous exposure through inflamed/broken skin/mucosa.^{1,2} SCD to spices is not common and may even be misdiagnosed or overlooked in the absence of a detailed history or high degree of suspicion.³ We report an unusual case of SCD that developed following oral ingestion of a green chilli, garlic, and ginger paste, which is commonly used in household recipes.

CASE REPORT

A 28-year-old, otherwise healthy female presented with complaints of multiple itchy vesicles and erythema over her right forearm (Figure 1A) within 12-hours following accidental contact with green chilli, garlic, and ginger paste (through spillage). This was followed by a severely itchy erythematous maculopapular rash over her neck, upper chest (Figure 1B), upper lip philtrum (Figure 1C), and diffuse erythema over both cubital fossa (right>left) (Figure 2A). She also presented the next day with a few erythematous papules over both

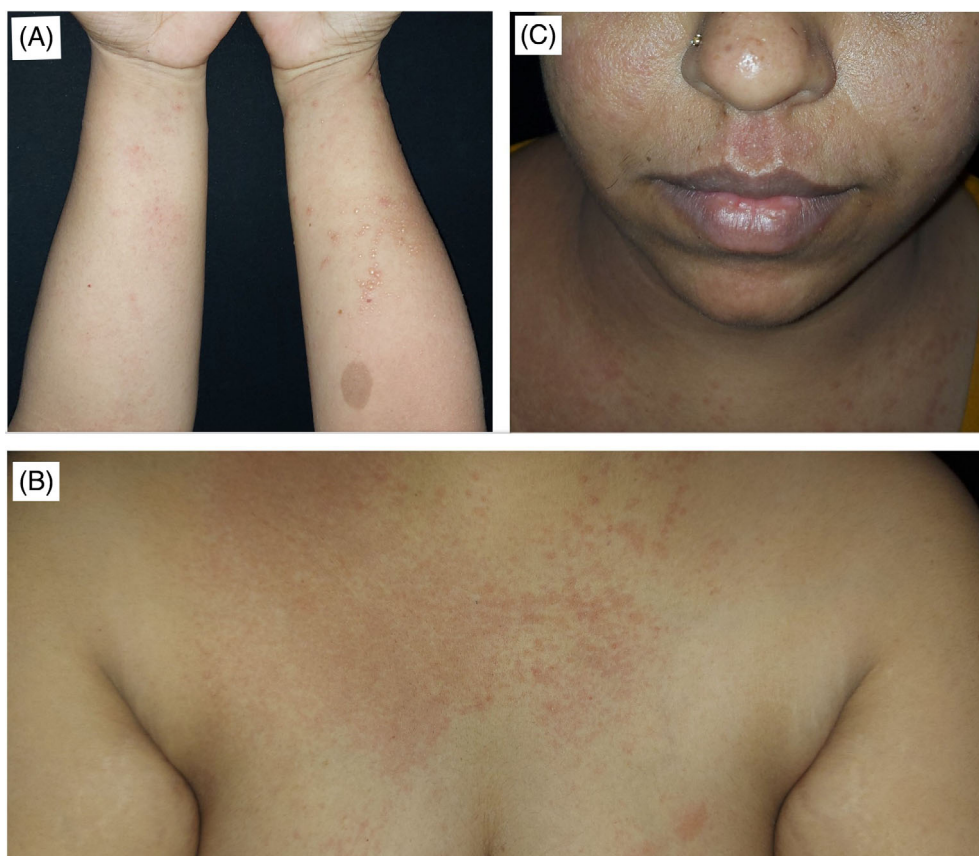


FIGURE 1 (A) Multiple discrete to confluent vesicles and erythema over right forearm, (B) diffuse erythematous maculopapular rash over neck, upper chest and (C) upper lip philtrum

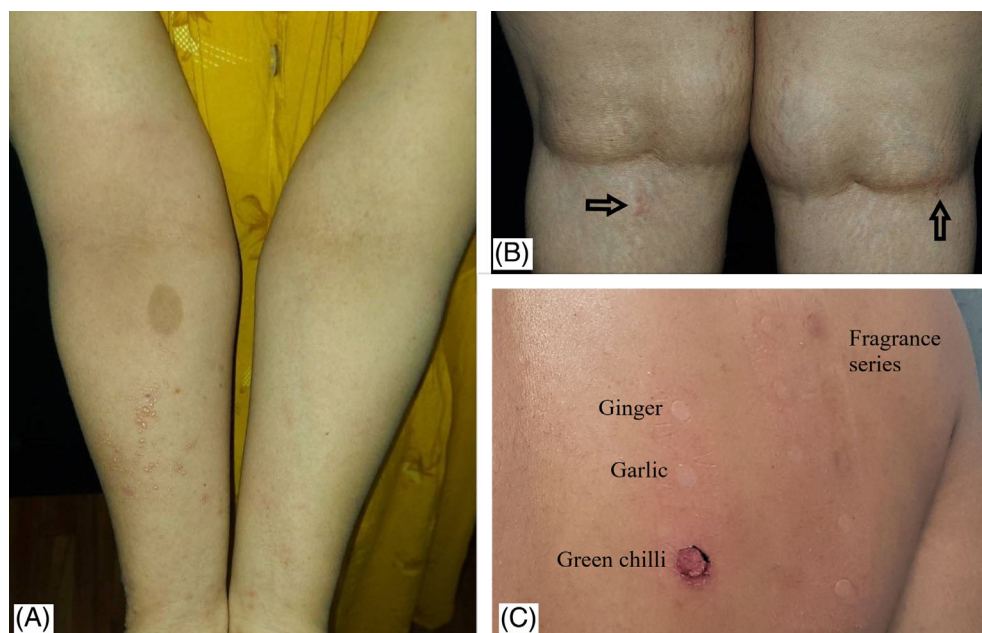


FIGURE 2 (A) Diffuse erythema over both cubital fossa (right>left), (B) few erythematous papules over both popliteal fossa (black arrows) and (C) positive patch test (3+) to green chilli

popliteal fossa (Figure 2B) and inframammary region within 2-3 hours following consumption of a freshly made paste of the same ingredients. The patient reported using the paste consisting of the same ingredients previously in the last 1 year. She also admitted to always preparing the paste barehanded, which may have led to the initial cutaneous sensitization. She was diagnosed with SCD to ingredients in the paste and was managed with a short course of oral steroids and antihistamines. The lesions resolved completely within a week. A patch test was performed after 4 weeks with extracts of all the ingredients of the paste prepared in the laboratory: 10 g each of peeled garlic cloves, peeled ginger, and green chilli crushed with 10 mL of distilled water and kept overnight at room temperature. The next morning the solution was filtered to obtain the extract. Commercially available Indian standard series-fragrance mix was used for testing for any fragrance allergy. The patch test showed an extreme, positive reaction only to green chilli on day 3 with multiple coalescing vesicles that ruptured to form an erosion (3+) (Figure 2C). The patient's husband, parents, and two brothers were also patch tested with the same extracts, as controls and a negative reaction was seen to all the ingredients in all family members. The patient was counselled to avoid these ingredients in future.

DISCUSSION

Various reaction patterns can occur in patients with SCD, which should be suspected in cases with persistent dermatitis, even with avoidance of cutaneous exposure to the allergen. The most common pattern is vesicular hand eczema, others being acral or flexural erythema.⁴ SCD induced by spices is an uncommon phenomenon and where this does occur, cardamom, cinnamon, mace and black pepper may be the culprits.³ Colophony, balsam of Peru, and fragrance mix might be contact sensitizers in

individuals who have SCD to spices such as clove, nutmeg, cinnamon, and cayenne pepper. Protein contact dermatitis has been reported with paprika and curry, usually containing a mix of spices, such as coriander and pepper, that may or may not disappear following cooking, depending upon the different allergenic epitopes.⁵ A thorough literature search revealed scarce data on SCD with any of the ingredients consumed by the patient. Green chilli (*Capsicum annum*) contains 1,3-Beta-glucanase, which may cause ACD and contact urticaria.⁶ It is possible that this allergen could have led to the allergic response in our patient. This may have been a type-IV hypersensitivity reaction; evidence favouring a type-III hypersensitivity reaction was insufficient.¹

This case report highlights important factors to be considered when evaluating a case of generalized dermatitis, the importance of patch tests, and the role of spices and various ingredients used regularly in food, which may be one of the less commonly known triggers of SCD.

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The patient gave written informed consent to the publication of her case details and photographs.

AUTHOR CONTRIBUTIONS

Rohit Kothari: Conceptualization (lead); data curation (lead); formal analysis (lead); investigation (lead); methodology (lead). **Karthi Kishore:** Conceptualization (equal); data curation (equal); formal analysis (equal); investigation (equal); methodology (equal). **Sunmeet Sandhu:** Conceptualization (equal); data curation (equal); formal analysis (equal); investigation (equal); methodology (equal). **Anuj Bhatnagar:** Conceptualization (equal); data curation (equal); formal analysis (equal); investigation (equal); methodology (equal). **Reetika Pal:** Conceptualization (equal); data curation (equal); formal analysis (equal); investigation (equal); methodology (equal). **Satish Chand:** Conceptualization (equal); data curation (equal); formal analysis (equal); investigation (equal); methodology (equal).

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Allergic contact dermatitis caused by polyurethane components in bulletproof glass manufacturing

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Polyurethanes are versatile materials and are widely used in industrial and consumer settings. We present a case of a worker from a bulletproof glass manufacturing company who developed sensitization to both the isocyanate and to a component of the polyurethane resin which contained polyols.

CASE REPORT

A 29-year-old woman with an atopic background presented with a 1-month history of intermittent hand dermatitis following an accidental exposure to polyurethane resin at work. The resin was used to seal glass sheets together to create bulletproof glass and was composed of Part A: isophorone diisocyanate (IPDI; CAS 4098-71-9) and Part B: gamma-glycidioxypropyltrimethoxysilane (CAS 2530-83-8); bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate (CAS 41556-67-7); phenyl mercury neodecanoate (CAS 26545-49); polyol blend. The patient wore nitrile gloves, long-sleeved clothing and protective goggles, but was exposed to the resin on her wrist after it leaked out of a closed system. She developed dermatitis at the site of exposure on her wrist. A few days later, she developed a pruritic rash involving her hands, arms, and

neck, and oedema of her eyelids and face. The patient was treated with oral prednisolone and the more generalized rash resolved over days. She then gave a history of ongoing intermittent hand dermatitis. She had no associated respiratory symptoms.

Patch testing was completed with the Australian Baseline Series, the rubber and isocyanate series, and the patient's own samples from work, appropriately diluted using allergEAZE patch test chambers (SmartPractice, Phoenix, Arizona) and allergens from Chemotechnique Diagnostics (Vellinge, Sweden). Positive patch test reactions were seen to Part A 1% pet., Part B 1% pet., and IPDI 1.0% pet. (Table 1). The patient did not react to the hardened polyurethane that was tested "as is" or to

TABLE 1 Patch testing reactions on day 2 and 4

Allergen	Concentration	Day 2	Day 4
Part A	1.0% pet.	+	+
Part B	1.0% pet.	+	+
Hardened polyurethane	"as is"	-	-
Isophorone diisocyanate	1.0% pet.	-	+
Isophorone diamine	0.1% pet.	-	-
Formaldehyde	1.0% aq.	-	+