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SHORT COMMUNICATION

Drug Eruption Following High-calorie Infusion: A Possible Systemic Type IV Allergic Reaction to Sulphites

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Sulphites, such as sodium bisulphite and sodium metabisulphite, are widely used as antioxidants or preservatives in a wide range of substances, such as food, cosmetics and medications (1). It has been reported that sulphite intake can cause systemic type I allergic reactions, such as urticaria (2) and anaphylaxis (3, 4). In addition, external application of sulphites can cause local type IV allergic reactions, such as contact dermatitis (1, 5). However, it is not known whether sulphite intake can cause systemic type IV allergic reactions. We describe here a case of drug eruption, thought to be a systemic type IV allergic reaction to sulphites, following a high-calorie infusion.

CASE REPORT

A 50-year-old woman was referred to our dermatology department because of a systemic skin eruption. She had been diagnosed with myasthenia gravis 10 years earlier. Because she had difficulty with food intake due to decreased bowel movement resulting from the myasthenia gravis, she had started a high-calorie infusion (Aminotripa 2® given 1,800 ml every 3 days [Otsuka Pharmaceutical Co. Ltd, Tokyo, Japan]) 10 days previously. Three days after the start of infusion, small red pruritic papules developed over most of the patient's body (Fig. 1a, b). It was suspected that this symptom was indicative of a drug eruption. Because she had not changed any medications before the eruption, we suspected that Aminotripa 2® was the cause. As topical steroid treatment did not improve the eruption, Aminotripa 2® was discontinued and changed to a sugar electrolyte maintenance transfusion. After stopping Aminotripa 2®, the eruption gradually disappeared. Aminotripa 2® is composed of amino acids, electrolytes, sugar, and some additives (sulphite, glacial acetic acid, and citric acid hydrate) available from: http://www.kegg.jp/medicus-bin/japic_med_product?id=00055508. Among the ingredients, we focused on the sulphite (sodium bisulphite) in the additives, because it has been reported that sodium bisulphites can cause allergic reactions, such as contact dermatitis (1) and anaphylaxis (3, 4). A 48-h closed patch test was performed with Finn Chambers® (Epitest Oy, Tuusula, Finland) on Scanpor tape® (Alpharma AS, Vennesla, Norway) for sodium bisulphite (0.1% and 1% in pet) (provided by Otsuka Pharmaceutical Co. Ltd), Aminotripa 2®, and Neoparen 2® (Otsuka Pharmaceutical Co. Ltd), another high-calorie infusion that contains a much lower concentration of sodium bisulifite (0.002%). The reactions were determined at 48 h and 72 h after application of the patch test, in accordance with the recommendations of the International Contact Dermatitis Research Group (ICDRG). Although the patient was under treatment with predonisolone 10 mg/day as treatment for myasthenia gravis, she exhibited a positive reaction to 0.1% and 1% sodium bisulphite (Fig. 1b). She also reported pruritus at the Aminotripa 2® (containg 0.04% of sodium bisulphite) test site. She did not exhibit any positive reaction or report pruritus to Neoparen 2®. Based on these findings, we diagnosed the patient with a drug eruption due to sodium bisulphite in Aminotripa 2®. She resumed high-calorie infusion therapy using Neoparen 2®, and the skin eruption has not re-appeared.

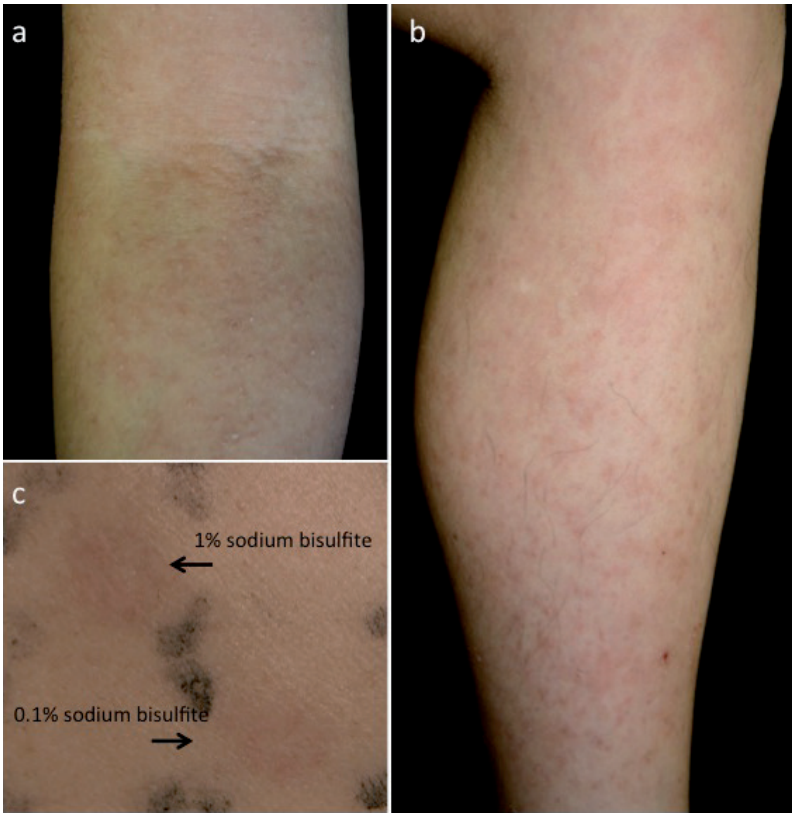

Fig. 1. Clinical presentation. (a, b) Accumulation of red papules on (a) the right forearm and (b) the leg. (c) Seventy-two hours after the patch test. The reactions were classified according to International Contact Dermatitis Research Group (ICDRG) guidelines. Positive reactions (+) were detected for sodium bisulphite 1% and 0.1% pet.

DISCUSSION

To date, type IV allergic reations to sulphites have been reported only as contact dermatitis following the use of sulphite-containing ointments or cosme-

tics (1). However, the case described here suggests that sulphite intake could also cause a type IV allergic reaction leading to systemic eruption (systemic type IV allergic reaction).

Sulphites are frequently used as additives in a wide range of foods and medications. The amount of sulphites in food is kept below a certain level (for example, in Japan wine contains less than 0.35 g/kg of sulphites). However, the intake of various types of food containing sulphites would increase the total amount of sulphites consumed, and may cause a systemic type IV allergic reaction, as in the current case. In this context, sulphite allergy should be considered as a differential diagnosis of systemic eruption.

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The authors declare no conflicts of interest.

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