

# A Case of Allergic Contact Dermatitis to Sodium Fusidate

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Fusidic acid has been used as a topical antimicrobial agent, for skin infections caused by Gram-positive bacteria, such as *Staphylococcus aureus*, for over 30 years. However, previous reports of allergic contact dermatitis to sodium fusidate are rare. A 25-year-old female presented with itchy erythematous patches on her face and right hand. She had applied Fucidin<sup>®</sup> ointment for 2 days to papular skin lesions. A patch test with the ingredients of Fucidin<sup>®</sup> ointment showed a positive reaction to sodium fusidate. (Ann Dermatol 17(2) 95~97, 2005)

*Key Words:* Allergic contact dermatitis, Sodium fusidate

## INTRODUCTION

Although fusidic acid is one of the most commonly used topical antibiotics in dermatology, allergic contact dermatitis caused by fusidic acid is relatively rare. According to reports, allergic contact dermatitis due to fusidic acid has mainly been found in patients with an impaired skin barrier, such as leg ulcers, stasis dermatitis, or atopic dermatitis, and cases without underlying dermatoses are rare<sup>1-6</sup>.

We present a case of a 25-year-old female patient with allergic contact dermatitis due to sodium fusidate, without underlying dermatoses.

## CASE REPORT

A 25-year-old female patient presented with a

3-day history of recently developed, pruritic skin lesions on the face and right hand. Papular skin lesions had appeared on her face and right hand one week before and she had applied Fucidin<sup>®</sup> ointment containing 2% sodium fusidate for two days at her own decision. This resulted in new skin lesions developing on the same area, accompanied by a severe itching sensation. She had a history of contact allergy to metallic materials such as earrings. She had used Fucidin<sup>®</sup> ointment twice before without development of skin lesions. Physical examination revealed skin lesions only, and no other specific findings. On her face and right hand, well-demarcated, multiple, erythematous vesicular patches were observed (Fig. 1). Her skin lesions were improved with application of a topical steroid and oral administration of antihistamine, under the clinical impression of allergic contact dermatitis due to Fucidin<sup>®</sup> ointment. After this, she was patch-tested to 25 items in the Korean standard series, plus Fucidin<sup>®</sup> ointment. Patch tests were read after 48 and 96 hours according to ICDRG (International Contact Dermatitis Research Group) recommendations. Results showed weak positive reactions (+) to cobalt chloride and 4-t-butylphenol formaldehyde resin, and strong positive reactions (++) to nickel sulfate and Fucidin<sup>®</sup> ointment (Table 1). Accordingly, patch tests were performed again to each ingredient

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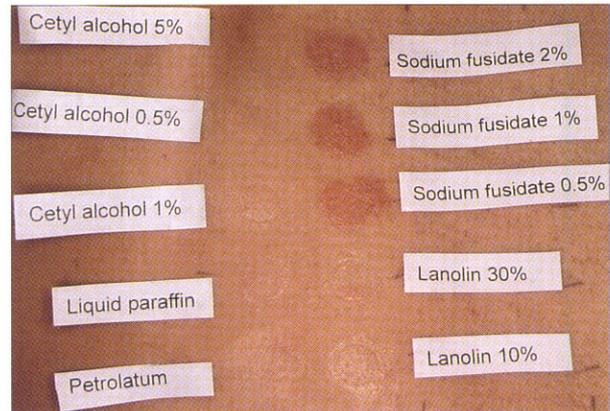
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**Fig. 1.** Erythematous vesicular patches on the face after applying Fucidin<sup>®</sup> ointment.



**Fig. 2.** Patch test with ingredients of Fucidin<sup>®</sup> ointment shows a positive reaction to sodium fusidate at 96 hours.

**Table 1.** Patch Test Results

Substances	Concentration	48 hrs	96 hrs
Korean standard series			
Cobalt chloride	1% pet.*	+	+
Nickel sulfate	5% pet.	++	++
4-t-Butylphenol formaldehyde resin	1% pet.	+	+
Fucidin <sup>®</sup> ointment	as is	++	++
Ingredients of Fucidin <sup>®</sup> ointment			
Sodium fusidate	2, 1, 0.5% pet.	++	++
Cetyl alcohol	5, 1, 0.5% pet.	—	—
Lanolin	30, 10% pet.	—	—
Liquid paraffin	as is	—	—
Petrolatum	as is	—	—

\*petrolatum

of Fucidin<sup>®</sup> ointment and strong positive reactions were shown to sodium fusidate after 48 and 96 hours. The patient was diagnosed as having allergic contact dermatitis due to sodium fusidate, which is the antibiotic ingredient of Fucidin<sup>®</sup> ointment (Fig. 2 and Table 1).

## DISCUSSION

Fusidic acid is an antibiotic which shows a strong antimicrobial action against *Staphylococcus aureus*, a common causative bacterium of skin infection, and has been widely used as a topical agent in derma-

tology for more than thirty years. In spite of the wide use of fusidic acid, the incidence of allergic contact dermatitis caused by fusidic acid is known to be rare. The large molecular weight of fusidic acid (more than 500 kDa) may be a reason for the low probability to cause allergic reaction, and its unique structure, which is different to those of other antibiotics, has a low possibility of cross reaction<sup>6,7</sup>. In a study conducted by Morris et al.<sup>7</sup> in England, patch testing, which included fusidic acid, was performed on 1,119 patients. Three patients (0.3%) showed a positive reaction to fusidic acid, which was about one tenth of the occurrence with neomycin (3.6%). In the

study by Britton et al.,<sup>8</sup> patch testing was performed on 3,062 patients and 0.5% of the patients showed a positive reaction to fusidic acid. In this study, the occurrence of contact allergy to fusidic acid was considered to be relatively low.

In domestic literature, contact dermatitis caused by topical medicaments is not reported infrequently. According to a report by Lee et al.,<sup>9</sup> among 27,881 outpatients on new visits, contact dermatitis patients due to topical medicaments were 2.5% of total patients, and of these, allergic contact dermatitis (42.7%) and irritant contact dermatitis (44.3%) cases showed a similar numbers. Contact dermatitis patients due to antibiotics were 9.2% of total contact dermatitis patients caused by topical medicaments, compared to antifungal agents (17.5%) and steroids (13.9%). According to domestic literature, neomycin, gentamycin, nitrofurazone, clindamycin, and chloramphenicol have been reported to cause allergic contact dermatitis. Two cases<sup>5</sup> caused by sodium fusidate were reported and there was one case<sup>10</sup> of contact dermatitis caused by Fucidin<sup>®</sup> ointment, which was not confirmed by patch-testing the ingredient of the ointment.

Allergic contact dermatitis caused by topical medicaments are easily associated in the case of underlying dermatoses such as leg ulcers, stasis dermatitis, or atopic dermatitis. Although aminoglycoside antibiotics show the highest incidence of allergic contact dermatitis in these patients, the incidence of contact dermatitis to fusidic acid is also gradually increasing in trend<sup>11</sup>. However, our case, and the two cases of allergic contact dermatitis caused by sodium fusidate which had previously been reported, developed with no underlying dermatoses<sup>2,5-7</sup>.

Although allergic contact dermatitis due to fusidic acid has rarely been reported, as fusidic acid is a widely used antibiotic in dermatology and commonly used in the prevention and treatment of secondary infection in cases with underlying dermatoses, a warning should be given against development of allergic contact dermatitis caused by its use. The authors report a case of allergic contact dermatitis

due to sodium fusidate (Fucidin<sup>®</sup>) without underlying dermatoses.

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