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## Red Pepper-Induced Dermatitis in Breast-Fed Infants

### Key Words

Spice · Dermatitis  
Red pepper · Capsaicin  
Infant · Breast-feeding

### Abstract

We report a transient, erythematous dermatitis that formed in 2 infants shortly after breast-feeding from their mothers who had ingested food flavored with red pepper, although the mothers did not display any signs of dermatitis.

### Introduction

Red pepper, which is commonly used as a spice in a variety of prepared foods [1], contains a number of compounds related to capsaicin (i.e. dihydrocapsaicin, nordihydrocapsaicin, homocapsaicin, and homodihydrocapsaicin) [2]. These compounds may by themselves or in combination be the active compound(s) responsible for the dermatitis we report in infants suckling mothers that had ingested food spiced with red pepper. Some ethnic foods, especially Korean, contain varying amounts of this spice. Clinically, the oleoresin extract of capsicum from pepper in direct contact to the surface of the skin can produce an acute eczematous dermatitis [3]. Ingestion of ginger ale and liqueurs containing capsaicin have also been reported to produce a similar eczematous contact dermatitis [3].

The reported dermatitis, believed to be due to a mother's ingestion of foods flavored with red pepper, was occasionally observed in breast-fed infants in Korea as well as Toronto, Canada. The 2 case reports were substantiated by indirect communication from families in both mentioned locations. We report on 2 cases which were monitored under direct supervision to assess the onset, duration, and extent of the described dermatitis.

We report the findings directly observed in two cases in which the ingestion of foods flavored with red pepper by lactating mother's can result in a transient, erythematous dermatitis on the body of their suckling infants. We are not aware of any prior reports in which a dermatitis of a suckling infant has

been investigated after the mother ingested red pepper. Korean families either living in Toronto, Canada or in Seoul, South Korea have participated in this report. Infants (3-10 months) were observed after the mother had eaten a small portion of a traditional Korean dish called 'Gimchee' (fermented mixture of red pepper, Chinese cabbage, green onions, and iodized salt) or a squid dish (fresh mixture of squid, red pepper, green onions, and carrot). These prepared dishes may contain varying amounts of red pepper and other vegetables depending on the specific household preparation. The preparation of Gimchee that was consumed in this case report was mild by Korean standards.

### Case Reports

#### Case 1

In one 6-month-old girl, after 3 bouts of breast-feeding within 12 h from the mother's ingestion of one serving of mild Gimchee, a transient, erythematous dermatitis formed across the chest and back. There was no facial involvement. The trunk dermatitis did not produce an eczematous reaction as would be expected with a contact-type dermatitis. The dermatitis did not progress after the initial 12 h, but remained erythematous for the next 24 h followed by a gradual remission over the next 48 h, all during which time breast-feeding continued.

#### Case 2

In another case, an infant boy (6 months) displayed a mild dermatitis on the upper fore-

head which manifested as a clearly marginated erythematous eruption whereas in the areas of the glabella and eyebrows he presented with a more severe dermatitis within 15 h of nursing. The areas of intense involvement remained erythematous with an early vesicular component after 24 h and were followed by a desquamation of the affected areas. The mother had eaten only one serving of Gimchee that was moderately flavored with capsaicin. This infant did not display dermatitis to his body outside of the facial region. The erythematous reaction persisted for 2 days before subsiding and complete remission took another 3 days. A second episode occurred with this same infant 2 months later when the mother had ingested a smaller dose of red pepper, but this time from a squid dish. This time the boy had only a slight erythematous eruption on the forehead without subsequent desquamation. No topical preparations had been applied prior to either one of the described reactions in this infant. These two independent episodes were monitored to exclude the possibility of a contact dermatitis due to breast milk extrusion containing the active irritant ingredients.

### Discussion

The observations in the majority of the cases verbally communicated were similar to the above 2 presented case reports. In general, a dermatitis on the trunk and/or face occurs in about 12 h after the initial breast-feeding recently after a mother ingested food flavored with red pepper. Subsequent breast-

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feeding periods usually occurred on a 3- to 4-hour cycle, so the infant was potentially exposed repetitively to the mother's milk which contains the ingredients of the red pepper. When a dermatitis forms, it usually persists for 24–48 h. If a more severe inflammatory dermatitis forms, complete remission is prolonged. Time from the onset to recovery is approximately 4 days in mild cases, where in more severe cases, it may last from 7 to 10 days.

The induced direct contact dermatitis by red pepper-seasoned foods is of relatively common knowledge among clinicians and the public sector in South Korea. We have not found any prior documentation in the scientific literature of the cause and effect of dietary red pepper ingestion in a mother affecting a breast-feeding infant in the systemic-induced dermatitis on the face and trunk described in this report. A commonly reported observation in breast-fed infants in Korea and in Toronto, Canada, is an irritation of the anus, which appears to be directly related to the mother's ingestion of food flavored with red pepper. Among trained clinicians that care for infants in regions of the world that are not familiar with the dietary intake from ethnic groups, this cause and effect may not be obvious. One reason for the cause being missed is the fact that the mother may not show any sign of dermatitis herself, as seen in the suckling infant, after the red pepper ingestion. This fact may be due to the difference in dosage per body weight and/or differences in the breakdown or clearance rate of the active ingredient(s). This report is in-

tended to raise the awareness of professionals who care for infants about the effects of nursing mothers ingesting red pepper on the suckling infants in relation to the dermatitis formation. Bouts of dermatitis in suckling infants may be an indication of the mother's dietary pattern, especially when some ethnic traditional foods such as Gimchee or other red pepper-flavored foods are consumed.

In cases in which a severe dermatitis is displayed in infants and the etiology is expected to be ingredients with red pepper (i.e. capsaicin and related compounds) within the mother's milk, we suggest that breast-feeding be stopped and supplementary formula milk be used for 1–2 days. In addition, if the mother wishes to continue breast-feeding after this period, she should express her milk during this time. We did not establish the half-life of the active ingredients within a lactating adult, but it is expected to be about 1 day due to the peak onset and the initial time of regression in the infant's dermatitis. The reported effects from one or two repeated exposures may not persist with multiple exposures because of desensitization which we have not reported in these observations. Repeated treatment of capsaicin on the skin surface has been reported to block the irritant effects which are thought to be by desensitization [2].

Topically applied cream which contains capsaicin is clinically applied for transient suppression of neuralgia induced by herpes zoster and for the treatment of diabetic neuropathy [4]. The use of capsaicin containing

cream for postherpetic neuralgia has been reported to sometimes result in a partial desensitization of the herpes-affected skin to warm temperature detection [5]. Even so the application of the capsaicin-containing cream may result in a burning sensation localized to the place of contact [6].

It should be noted that since experimentally injected doses of capsaicin, larger than what would be contained in foods flavored with red pepper [2, 7], have been demonstrated to have combined effects of destroying axons and producing functional changes in surviving axons in rats [8] ranging from enlargement to destruction of mitochondria [9], long-term exposure of much lower doses to human infants through breast-feeding or direct ingestion in children may have effects that have not yet been investigated. The distribution after systemic administration in rats of capsaicin shows a peak onset within 1 h in the kidneys and at 5 h in other tissues (i.e. brain and omentum) [10]. Also, it has been reported that capsaicin can cross the blood brain-barrier easily [10].

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